IGA 2016

12th INTERNATIONAL CONFERENCE ON GOATS

25-30th September 2016, Antalya Turkey

Contributions of Caprine Agrosilvopastoral Production Systems to Society and the Environment

BOOK of ABSTRACTS

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IGA International Goat Association

REPUBLIC OF TURKEY MINISTRY OF FOOD AGRICULTURE AND LIVESTOCK

ÇUKUROVA ÜNİVERSİTESİ 1973

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Organised by

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PREFACE

The International Goat Association (IGA), Ministry of Agriculture and Livestock, Çukurova University and Sheep and Goat Breeder Association of Turkey (SGBAT) are pleased to welcome you to the 12th International Conference on Goats at Kervansaray Hotel&Convention Centre Antalya, Turkey on September 25-30th, 2016. **12th ICG**, the latest in the series of flagship congresses of IGA, has been held in Turkey for the first time. Turkey was chosen as the meeting point for East and West, and the crossroad of different continents and cultures.

Over the course of four days, participants from all over the world will have the opportunity to listen speakers and to interact with scientists and exhibitors on a wide variety of goats science and technology related areas. The congress mainly focuses on:

Production systems
Nutrition and feeding systems
Breeding and genetics
Technology of reproduction
Pathology, diseases and goat health for sustainable animal production
Milk and dairy products in conventional and organic systems
Meat, hair and other products in conventional and organic systems
Mechanization and innovation in goat operations and product processing
Economy, Sociology and goat value chains

The topics of the congress are divided into 22 session. Each session is opened by well-reputed scientists/ researchers of high international status. In the Opening Ceremony, Dr. David Sherman will give an opening speech on *"The FAO/OIE Global Control and Eradication Strategy for Peste des Petits Ruminants (PPR) – A momentous development for the world's goat keepers"*. The rest of the programme is based on keynote and/or invited speakers followed by oral contributions and poster presentations of more than 200 daily. We received more than 800 applications for **12th ICG** from around 37 countries and all continents. The submissions were reviewed by at least two independent members of our Scientific and Advisory Committee and the scientific programme of the congress has been structured based on the evaluation of the Scientific and Advisory Committee Members. A special emphasis has been given to young scientists' contributions, who are the next generation of goat production and related technologies.

We strongly believe that this congress will provide an inspiring discussion on the state-of-the-art knowledge and applications in goat sector and related complementary disciplines. We wish you a very stimulating and informative congress with a lot of excellent discussions and new insights into the various aspects of the goat sector. In Antalya, you will see a lot of goat experts, colleagues and friends and you will also have a chance to meet new faces and young scientists from different countries.

We would also like to express our gratitude for the support of Ankara Metropolitan Municipality, especially the Mayor of Ankara I.Melih Gökçek, all Sheep and Goat Breeders Associations of Turkey and private sector during the organization of the congress. We would also like to thank for generous contributions of our sponsors to cover the expenses of the congress. Our ability to provide such a high quality event would not be possible without their generous support.

We also hope that the information shared during the congress and in this "Book of Abstracts" will stimulate new research, provide useful information to goats science/technology professionals, and ultimately benefit the individuals who attended the congress.

Dr. İrfan DAŞKIRAN
On behalf of the Organising Committee 12th International Conference on Goats

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ORAL PRESENTATION

The Future of The Dairy Goat Industry in Coming Decades in Different Climatic Zone in Light of Climatic Changes

Nissim Silanikove

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The environment within which domesticated livestock production, agricultural crops and related management practices developed over the past 10,000 years is rapidly changing due to human-induced climate change (CC). Nowadays, even countries located within the temperate zone are affected by changes in global warming. These changes are associated with unprecedented events of extreme high ambient temperature (above 40 °C) and seasonal changes. The rate of global warming, including in the temperate zone, is expected to continue to vulnerable in coming years. Agricultural production from crops and livestock, and thus global food security, is already affected by CC and will continue to be influenced by global warming. Thus, these changes will continue to affect the dairy industry directly and indirectly. The most significant indirect effect is expected to result from cruel reduction in worldwide grains (concentrate feedstuffs) production. This change will impose need to tradeoff between the diminished food sources: using higher proportions of grains production for human nutrition, instead of feeding it to livestock. Similar conflict is expected to be relevant in using high-quality forages that can be used as edible food for humans. Among the abiotic factors, heat stress imposed by high ambient is the major factors. In addition, abiotic factors that become important due to CC are shortage in water, deterioration (salination) of water sources and contribution of livestock to greenhouse effect. Evince exit that CC already affect negatively dairy cow's production in temperate zones. On the other hand, there is no evidence that dairy goat production in temperate zones is affected so far; though, evidence for such an effect was notice in desert and Mediterranean (e.g., Turkey, Spain) countries. Among domestic ruminants, goats are the most adapted species to imposed heat stress and problems arising from water shortage in terms of production (milk yield), reproduction and resistance to diseases. It is concluded that uttermost scenarios of CC will negatively affect the dairy industry and that the importance of goats to the dairy industry will increase in proportion to the severances of changes in environmental temperature.

Keywords: climate change (CC),grains,water shortage

The FAO/OIE Global Control and Eradication Strategy for peste des petits ruminants (PPR): A momentous development for the world's goat keepers

David Sherman

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Highly infectious contagious diseases of animals pose a major constraint on efforts to improve the productivity of livestock and the wellbeing of livestock owners, undermining gains of genetic and nutritional improvement and blocking opportunities for commercialization of livestock production and expansion of trade. Peste des petits ruminants (PPR) is arguably the most devastating infectious disease of goats and sheep in the world today and its distribution in Africa, the Middle East and Asia coincides with the largest concentrations of goats in the world and the largest concentrations of poor livestock keepers who depend critically on small ruminants for their livelihoods. PPR has a direct impact on over 300 million families who rely on small ruminants and the annual global impacts of PPR have been estimated at between US$ 1.4 billion to US$ 2.1 billion. The eradication of PPR would be a momentous development for small ruminant owners, particularly for those living in poverty. It would improve food security, reduce poverty and facilitate efforts towards sustainable development. In 2011, through a global effort coordinated by FAO and OIE, the dreaded cattle disease, rinderpest, was eradicated from the planet. PPR and rinderpest are both caused by related *Morbilliviruses* and the natural history and epidemiology of the two diseases and the tools available to eradicate them are similar. Therefore, scientists and policy makers believe that eradication of PPR is also achievable. As such, an FAO/OIE PPR Working Group was established in 2013 in order to develop a comprehensive PPR Global Control and Eradication Strategy (GCES). The final PPR GCES was adopted at the ministerial level by the 70 countries attending the FAO and OIE International Conference for the Control and Eradication of PPR held in Abidjan, Côte d'Ivoire, 31 March – 2 April, 2015 and the global initiative has now been launched. This presentation will provide background on the disease, PPR, and its impact on the farmers and herders who keep small ruminants as well as offering an overview of the structure and methodologies of the PPR Global Control and Eradication Strategy. The goal is total elimination of PPR by the year 2030.

Keywords: PPR,Eradication Strategy

Thinking Outside of the Box – Innovations Solutions For Dairy Goat Management

Carol Delaney

Sanders Circle, Montpelier, USA

For the geneticist or breeder, the individual animal is like a potential masterpiece resulting from years of attention to physical details and planned matings. The importance of culturing and nourishing this individual to not only reach its potential but to pass its selected genetics on to progeny is paramount. Thus, all the investment in genetic improvement is now at the mercy of management. Once the goats are in the herd on the farm and the responsibility of the farmer or farm manager, the expression and proliferation of the genotype will be strongly influenced by environmental factors. If maximum milk production per lactation were the real and only goal that could promise farm business and land sustainability, genetic selection would be easy. However, the real goal on farms is to have healthy goats that produce efficiently and are adapted to their environment. This places the development of the goat breeding program in the hands of farmers. To aid farmers in moving beyond the use of total milk production per goat as the feedback mechanism to farm sustainability, the integration of more appropriate progress indicators could include longevity (which, in humans, is estimated at 20% genetic and 80% environmental), the amount of milk or milk component production per body weight of goat, and the degree of involuntary culling. In terms of environmental adaptation of the goat and the farm, the future should include the acceptance that fossil fuels will become more scarce and more expensive and climate change is being caused by increased carbon in the atmosphere. Thus, an opportunity presents itself for doing more research on installing and maintaining more perennial woody plants as sources of feed such as Rhus typhina (North America) or Salix spp. for many places in the world. This will help create carbon sinks and provide a lasting environment for goats that satisfy their evolutionary browsing behavior and ability to digest woody plant material.

Keywords: innovation,solution,dairy,goat

Goat Productıon Systems of Turkey: From Nomadıc to Industrial

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Goats play an important socio-economic role in many marginal rural areas of the world. Indigenous goat breeds take an important socio-economic roles in the livelihood strategies of the poor farmers, especially those in rural and hard-to-reach areas. Those roles include their use as savings, insurance, security, accumulation and diversification of assets, social and cultural functions. They are also valued for their productive performance, adaptation and disease resistance. Turkey is one of the leading countries in the world as far as the number of goats and production from goats is concerned. Hair, Kilis and angora goats are dominant goat breeds of the country. Hair goats are raised throughout the country but are concentrated especially in the mountainous part of the country, while Angora goats are raised mainly in central Anatolia. Kilis goat known with higher mil yield and litter size is kept especially in the south-east region. Apart from these three breeds, Honamlı goat located in the Bolkar Mountains in the Mediterranean region, Antalya, Isparta and Konya regions. Norduz goats located Gürpınar in Van province and Norduz locality. A limited number of Malta, Saanen and crossbred of different dairy goats are also in especially Aegean and Marmara regions.

The total number of goats in Turkey is about 10.4 million heads. This number includes 10.2 million Hair or black goats and 0.2 million Angora goat according to Turkish Statistical Institute. . It is estimated that there are approximately 0.5 million head of Kilis goat in the country that is included in Hair goat number in official statistic data. There are many reasons for the presence of such a large number of goats in Turkey. Geographical and ecological conditions, as well as the socio-economic situation of goat farmers, are suitable for goat rising. Goats are kept for milk, meat, skin and hair for several centuries in Anatolia. Goat milk and meat are the main sources of animal protein for the inhabitants of the Turkish mountainous areas and surroundings.

Goats provide 5.2% of the total red meat, 2.5% of the total milk, 13.8% of the total skin and naturally 100% of the mohair and hair production of the country. Although the number and economic importance of goat breeding enterprises has decreased over the years, goat breeding still plays and important socio-economic role for the people living in and around forest areas. Also, intensive farming and goat milk investments have been well-developed in last decades in Turkey. The socio-economic structure of the local population of these territories is appropriate for goat husbandry. Some poor parts of the population rely only on goat production for the survival. Marketing margins across producers, middlemen, processors, and consumers was also unorganized and due to prejudice of Turkish consumers and thus goat meat consume only specific rural areas

Keywords: Anatolia,goat,Angora,rural production

Structures for the mohair (and wool) Industry and Proposals for the Future: a Perspective for Empowerment

Frans Loots

El Wollok Corporation, Aberdeen, South Africa

1. Structures: Formal Structures in South Africa represent separate homogenous groups, i.e. Growers; Buyers; Early Processors; Brokers (Auction warehouses); and Breeders.
These are represented on Industry Bodies such as Mohair South Africa; Cape Wools; and the Mohair Trust and Wool Trust.
The objectives of these Industry Bodies include mostly aspects of a generic nature, such as financing Research, Generic promotion of the fibre; and policing quality Standards.
It is argued that these Industry Bodies do not fulfil the aspirations of the groups involved.
2. Proposals for the Way Forward : Commercialised Structures should have certain objectives which would be the key to the development of medium, small and subsistence farmers (wool and mohair):

- Training
- Technology Transfer
- Genetic Improvement
- Public/Private Partnership
- Innovative Marketing
- Market Development
- Market Access and Fair Trade

3. Understanding the Fibre Market: This is a prerequisite for embarking on Empowerment and Commercialisation initiatives.
The following should be taken into account:

- The insignificantly small percentage of total textile fibre
- The “Rare Fibre” status of animal fibres
- The extended “value chain” for natural animal fibres and the challenges it poses for producers
- The lag between demand cycles and benefits it should bring to producers

4. Hypothetical Market Structure
The structure (hypothetically) could represent a train:

- The locomotive is the Market
- The passenger cars represent adding activities
- The lounge represent the traders/speculators
- The luggage car represents the primary producers

5. Price Formation and Market Structure

- The lag mentioned above, means that the producer price does not reflect the value of the fibre at any given time
- A new approach is needed to correct this situation
- Collective bargaining by primary producers could be a solution

6. Structural Deficiencies:

- Lack of participants on trading floor
- Sale’s results published are misleading.
- Outside constraints may negatively impact on price
- Non-objectivity in price formation

7. Opportunities
Opportunities in the global marketing environment are plentiful:

- Innovative marketing strategies can unlock potential
- Understanding the value chain “politics” could be an advantage
- Examples of Empowerment through Commercialisation already exist

8 How to Structure to Empower
Socio economic environment could hamper exploitation of opportunities:

- Collaboration amongst producers in formal structures is required
- Government should facilitate, creating an enabling environment through legislation and financial assistance.
- The common good of producers should be the objective
- Focus on “branding”

Create partnerships with value chain participants.
Keywords: mohair,Proposals,future

Understanding the Angora goat agro pastoral production system in southern Australia

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This review includes grazing requirements, the influence of the rate of stocking on pasture, animal growth, mohair production, gastrointestinal parasitism, mortality and other nutritional requirements. Mohair quality is defined in terms of market prices. Liveweight of Angora goats is the main determinant of mohair fibre diameter, clean mohair production and carcass production but not of mohair length. Both liveweight and fibre diameter are determinants of the incidence of medullated fibre. Changing the frequency of shearing affects all attributes of mohair fleeces. Body condition scoring is highly correlated to the liveweight of Angora goats, to welfare risk and carcass production. The financial performance of mohair enterprises declined as the proportion of does in the flock increased, associated with a decline in mohair quality (coarser and more stained mohair). Efforts to improve mohair quality and financial returns in these mohair enterprises need to primarily focus on producing finer mohair.

Keywords: Angora goats,finer mohair.

Ultrasonographicstudy to detect the ovarian response in super ovulated and nonsuper ovulated oestrus synchronized goats

Dilek Arsoy

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The aim of this study was to estimate the changes in the ovarian follicle and corpus luteum by using transrectal ultrasonography in super ovulated and non-super ovulated oestrus synchronized (40mg Fluorogestone acetate for 14 days) in both control (n=7) and experimental (n=7) groups in the breeding season. Fourteen 2.5-4.5 age pure hair native goats were used in the field conditions. A low dose (200 I.U) of Serum Gonadotrophin was administered to the experimental group. All goats were mated with four fertile males at the 48th hour of PMSG treatment. Follicular development and corpus luteum formation were examined in first, second, third, fourth and seventh day after sponge removel with B mode scanner 7.5MHz transrectal transducer. Gestation period and birth record were registered.During the study, it was possible to detect ovaries in 93% of the all goats. The mean of follicle numbers observed in first, second and third days after sponge removal were 3±0,7; 3,14±0,6; 1,4±0,96 in control and 3,86±0,46; 5.3 ± 0.42; 0.5 in PMSG treated groups respectively. The mean of follicle numbers of PMSG group taken in 48th hour (2th day; mating time) was significantly higher than the control group ($p<0.05$). The mean values of ovulation days were 4.43±0.96 and 4±0.58 in control and PMSG groups respectively. Although there was no any significant difference between the groups regarding ovulation days, the completion of ovulation in PMSG group was earlier than the control group. Before ovulation, the mean of the first and second largest follicle diameters was 6.07±2.19mm and 6.73±1.75mm in control and PMSG groups respectively. The difference between groups was not significant. Comparing the largest follicle diameters showed that there was not any significant difference between the control (7.8±1.46 mm) and PMSG (7.43±2.01mm) groups although the value taken from PMSG treated group was slightly smaller than that of the control group. The mean numbers of corpus luteum in 7th day were 2.6±1.26 and 4.14±1.66 in the control and PMSG groups respectively($p<0.05$). In PMSG group, Cl number of the right ovary was significantly higher than that of the left ovary ($p<0.05$).It was seen that, 200 I.U was low but an adequate dose for PMSG in increasing ovulation and twins rates and it can be used at this dose for the production of goat herds in field conditions.

Keywords: Goat,follicular development,ovulation rate,ultrasonography,super-ovulated

Recent advances in our understanding of acidosis in goats

Sylvie Giger-reverdin

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High producing ruminants receive highly fermentable diets to satisfy their high requirements. These diets induce a high production of organic acids in the rumen, and then release of protons which depress the ruminal pH under 6.0, a threshold value under which cellulolytic digestion is impaired. Health disturbances resulting from these diets are classified as acute (drastic reduction of rumen pH) or chronic (sub-acute rumen acidosis or SARA) which is the most frequent syndrome of acidosis in dairy farms based on the degree of ruminal pH depression. This disease has been widely described in dairy cows, but less in goats. This disease is quite difficult to study because with a given diet, animals are not impaired at the same moment and with an analogous severity.

Our understanding of acidosis has improved during the last years by measuring simultaneously in dairy goats fed different diets feeding behavior, rumen parameters, blood and plasma parameters, milk yield and composition. Thus, it was possible to study the interrelationships between these variables and to analyze the between-animal variability to better understand the between-animal differences in acidosis susceptibility.

Several assumptions have been made to better understand the multifactorial etiology of acidosis. The first one is based on feeding behavior. Some results show that pH evolution is highly related to intake rate and level. Chewing and sorting behaviors are modified when animals are given a high concentrate diet. The second assumption concerns the digestion and microbial origin: goats present different susceptibility to a sudden change from a normal to a high concentrate diet. This can be due to either differences of initial rumen parameters or to differences in absorption of volatile fatty acids and ammonia across the ruminal epithelium. A third assumption deals with the metabolism of the animal, and especially with the energy and electrolytic balances. Moreover, ruminal and metabolic acidosis are inversely related. Within and between days modeling approaches are also helpful to better understand the etiology and consequences of acidosis in dairy goats. Even if some points remain unclear, recent advances have been obtained in understanding acidosis in goats.

Impact Of Parasitism In the Production Of Goats

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Goats can be infected by protozoan or metazoan parasites, in internal infections or external infestations, in certain predilection organs or found at various sites. Signs are of varying degree, depending on parasite and host immunity; often, they are general, only indicative, unless a diagnostic test is performed. Goats are very sensitive to parasitism by gastrointestinal nematodes, origin of which may be physiological factors, nutrition or factors related to a long-standing process of natural selection. Goats play important role as reservoirs of parasitic infections, since they develop higher burdens, which they might disseminate to pastures, and may develop faster and harbour drug resistant strains that are spread to other animal species. Finally, goats may harbour and transmit zoonotic parasites to humans posing a threat to the public health.

Reduction in milk yield of does infected with gastrointestinal nematodes is severe and correlates well with parasitic output in faecal samples; there can be variation in reduction of milk yield according to goat breed. Animals with highest milk yield have particularly greater decrease in milk production in cases of parasitic infections. During lactation, increased milk yield might lead to reduced efficacy of response against parasites.

Effects of gastrointestinal parasitism in goat-kids have been described. It has been found that growth rate of goat-kids increased after administration of effective anthelmintic or during supplementation with dietary protein providing nutritional protection for the animal's body against parasites and resulting in production of acceptable carcasses.

Various parasitic infections adversely affect reproductive efficiency in herds. In bucks, genital myiosis would cause lesions impeding mating, scrotal sarcoptic mange can lead to reduction of testicular mass and besnoitosis may affect the testes. Protozoa may have a direct foetopathic effect, causing abortions and/or stillbirths, and long-term reduction of reproductive output in affected does. Protozoa also infect young kids, leading to increased neonatal mortality. Further, parasitic infections may adversely impact other aspects of reproductive activity, although no species-specific findings are available and evidence is extrapolated from other relevant work; e.g., decreased energy availability at the peri-conception period, resulting from may lead to reduced number of ovulations or increased rate of embryonic deaths, or in herds with poor condition animals during mating season, reduced conception rate may be the outcome.

The various ectoparasites affecting goats cause damage in the skin of affected animals, which would render their hair unsuitable for processing or would reduce its value. For example, *Mallophaga* lice feed on hair of the parasitized host; in *Przhevalskiana silenus*-infested animals there are holes in the hides of affected animals, significantly reducing commercial value of the products. Indirect effects may also be involved: *Haemonchus contortus* infection reduces hair production of goats.

Keywords: parasites, milk yield,bodyweigh,reproduction,goat,hair

Effects of photoperiod and diet energy concentration upon hair follicle activity and blood metabolomics in Inner Mongolia cashmere goats

Haizhou Sun, **Chongzhi Zhang**

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This study investigated the effects of photoperiod and diet energy concentration upon hair follicle activity and blood metabolomics in Inner Mongolia cashmere goats. The twenty four goats were allocated to four different groups: high energy and natural light group (group HN; ME:10.18MJ/kg, light time:10～16h, n=6), high energy and short light group (group HS; ME:10.18MJ/kg, light time: 7L:17D, n=6), low energy and natural light group (group LN; ME:8.34MJ/kg, light time:10～16h, n=6), low energy and short light group (group LS; ME:8.34MJ/kg, light time: 7L:17D, n=6). Every goat was fed in a pen and rated food intake in three stages (1.08kg,1.12kg,1.15kg) of four groups because of changed weights in whole experiment period. The results indicated that photoperiod and diet energy concentration interacted on hair follicle activity and blood metabolomics in Inner Mongolia cashmere goats, and maybe energy was as the main effects. The weight and cashmere diameter were significantly (P<0.05) decreased in group LS (26.73±2.01kg, 15.11±0.56) compared to group HN (30.25±2.66kg, 15.87±0.62). For group HS and LS, a significant increase of the CP digestibility, cashmere length and secondary hair follicle activity were found in relation to group HN and LN. Furthermore, compared to group HN and HS, the contents of methylmalonic acid, oxalacetic acid, homogentisic acid and L-dopa were higher but the contents of leucine and lactose were lower in group LN and LS; compared to group HN and LN, the contents of caprylic acid, oxalacetic and acid L-dopa were higher but the contents of phosphatidylcholine, 1,3-diaminopropane and 1-monopalmitin were lower in group HS and LS. Collectively, the current study proofs that cashmere growth of goats are enhanced effectively in group HS. Analysis of metabolic pathways reveals that the photoperiod influences oxidation of fatty acid, glycerol metabolic, alanine, aspartate, glutamate metabolism and glycolysis or gluconeogenesis metabolic pathways; the energy levels affects valine, leucine, isoleucine degradation, citrate cycle, pyruvate metabolism, and glycolysis or gluconeogenesis metabolic pathways.

Keywords: photoperiod; energy; hair follicle; metabolic pathway; cashmere goat

Use of electronic identification and new technologies in French goat farms

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The regulatory obligation of electronic identification of small ruminants in Europe, in a context of widespread use of "connected" tools, fosters the rapid development of solutions using new technologies for livestock management and to decrease workload. These mainly relate to concentrated distribution, sorting and location of the animals and also the performance testing.

Automatic feeders associated with individual electronic identification allows, on one hand, to reduce the working time for the distribution of concentrates and on the other hand to adjust the right quantities to individual needs. Two systems are used: the individual crates placed in the barn, the most frequent case, and distributor robot in the milking parlor. In the first case, studies conducted at the experimental goat farm of Le Pradel (Ardèche) demonstrate that the number of crates depends on the animal access time to distributors, which is lower in grazing system than for indoor system. Today, there is a significant increase in the number of farms equipped, whatever the herd size.

The use of automated drafting gates combined to electronic identification also increase. This technology allows to establish quickly and automatically physical groups of animals, for example at the barn entrance or at the exit of milking parlor.

In hilly pastoral areas, pasture without shepherd in large paddocks makes difficult for the farmer to find quickly his animals at the end of the day for milking. Geolocation tools (as GPS) appear as useful amenities, and begin to be used. However, cost, battery life and network coverage still remain obstacles to their development.

For technical follow-up of large herds, milk recording organizations were recently equipped with electronic meters (e.g. Lactocorder®). Meanwhile, practical and less expensive tools for reading and encoding electronic numbers appear to facilitate links with flock data for management purpose or for genetic improvement.

The recent and fast development of internet of things opens up many possibilities in terms of applications in goat farming. They can reduce the physical labor, help to improve performances and technical advices to farmers. Many studies are still needed in order to assess the real technical and economic relevance of those new technologies.

Keywords: new technologies,real technical,economic relevance

Impacts of Climate Change on the Goat Farming Sector in Harsh Environments

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Extreme climate change (CC) and atmospheric events have been become nowadays a global issue. Livestock production contributes to global warming. It is estimated that livestock responsible to 9% of human- welded CO_2 emission, 35-40% of CH_4 emission, 65% of N_2O emission and 64 % of NH_3 emission. In addition, CC (increase in high temperature and drought) has been found to adversely affect livestock production; including goat production in harsh environments. Consequently, a lot of effort is made to adjust livestock production systems to forecast on future changes in weather according to climate modeling. From this point of view, it is very important that the correct estimation will be made with regard to questions, such as which feed, or which goat breed will be found as most appropriate for different regions. The economic importance of goat production has been rise-up during last decades in Turkey and other countries that are routinely exposed to harsh environment. Goats have numerous advantages that enable them to maintain their production under extreme climate conditions. In particularly, goats have higher capacity than other farm raised ruminants to effectively convert some feed sources into meat and milk. In addition, goats emit less methane than other domestic ruminants. Based on these advantages, we came to the conclusion that goat breeding will play an important role in mitigating and adapting to CC in harsh environments.

Keywords: Climate change,goat production,harsh environments

The Effects of Solar/Lunar Rays and Various Celestial Bodies Movement on Kidding Results of Pregnant Goats Breed in the Eastern Turkey

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In study, 95 goats, aged 2-6, were used as live material. They were bred in Dovencik village in Gevas district, Van Province at the same coordinate (38°19'28.96"N, 42°51'39.24"E). The estimate terrain elevation above sea level is 1795 meters inhere. Routine data, such as age of goat (AG), sex of kid (SK), type of birth (TB), size of ear (SE), size of horn (SH), date of birth (DB) and birth time (BT) were collected during birth. This season began on January 2, 2015 and completed within exactly 14 weeks on April 10, 2015. Then, dual/quad/octal phases and apogee/perigee form of the Moon associated with these dates were investigated in detail. Also, the start and the end dates of births were corresponded between the Full Moon-3 days and the Last Quarter-2 days at this coordinate, respectively. Other hand, 14 twins in totally 122 kids were born in this season. 6 twins of them were occurred from March 7 to March 10, 2015. These dates were also between the Full Moon+2 days and the Last Quarter-4 days of the Lunar Calendar of March 2015, respectively. These gathered lunar data were obtained from *TUBITAK National Observatory* (TUG)'s official web page. When the study was examined from another aspect, especially the birth of twins was found to influence by Full Moon and First Quarter.

After, many numerical data of lunar/solar rays associated with DB/BT were obtained from official web page *of Astronomical Applications Department of The United States Naval Observatory* (USNO). Moreover, data of known 7 planets (Mercury, Venus…) and 18 celestial bodies (Adhara, Aldebaran…) were collected via this web page. This source provides a wide range of astronomical data and serves as the official source for the entire earth. On the other, solar data from lower number of lunar are reached when they investigate. The Moon has no-regular movement in some days. However, the Sun always makes the regular movements. In connection with these, sunrise/suntransit/sunset times related to solar rays were studied.

Some data of Lunar/Solar rays and celestial bodies movements were associated with the birth results. It was tried to explain the connection between them. In the mean time, the 24-hour periods were taken into account. Scientific data related with DB and BT were analyzed with the *Watson-Williams F Test*. Than, result of data analysis were presented after completion of necessary processes.

Keywords: Goat, Lunar calendar, Lunar rays, Solar rays, Moon phases

Some Yield Traits of Hair Goats under Rural Conditions in Konya of Turkey

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Aim of the present study was evaluation of live weights and milk production of Hair goat herds in Güneysınır, Bozkır and Çumra district of Konya province in Turkey.

In the experiment, data of weight were obtained from a total of 4483 head Hair goats while data of marketable milk yield were collected from 1219 head Hair goats in 2014 year. Hair goats were fed completely on natural grassland between postnatal and mating period. Hair goats were weighted during mating period. Statistical analysis was made by using the JMP 11 computer based program.

Results showed that; the overall marketable lactation milk yield, lactation length, daily milk yield and live weights of Hair goats were found 81.7 kg, 181.6 days, 0.442 kg and 55.16 kg, respectively. The effect of herds of marketable lactation milk yield ($p<0.01$), lactation length ($p<0.01$), daily milk yield ($p<0.01$) and live weight ($p<0.05$) were found as statistically significant. These parameters varied notably as following; 20.1 - 345.8 kg for marketable lactation milk yield, 144 - 238 days for lactation length, 0.138 - 1.889 kg for daily milk yield, 30.2 to 88.0 kg for live weights.

As a result, it can be said that the live weight traits of Hair goats had a satisfactory level for breeders while milk production of Hair goats were economically insufficient which may be welded by the high genetic variation among the Hair goats. Therefore, milk production values of Hair goats can be increased by selection under the rural conditions.

Keywords: pasture,live weight,milk yield,Hair

Effect of adding Rosa Canina extract and Ascorbic acid as natural and synthetic antioxidants on freeze-thawing process of ram semen

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One the cause of reducing fertility of sperm is extra production of free radicals during the freeze-thaw process. Reactive oxygen species can access to internal organs and cause sperm death by damaging sperm membrane and penetration to cytoplasm. Rosa Canina herb contains high levels of phenolic compounds such as Quercetin, ellagic acid and Kaempferol. Ascorbic acid is soluble in water that acts as a scavenger for a wide range of ROS. The aim of this study was to investigate the antioxidant effect of different levels of Rosa Canina (0, 100, 150, and 200 µl/mL) and Ascorbic acid (0. 0.5, 1, 1.5, 2 mg/ml) are to in tris-yolk based diluents. Semen samples were collected from five *Ghezel* ram which were kept identical nutritional conditions using an artificial vagina, twice a week, and immediately transferred to the laboratory and were kept within warm bath with a $37^{\circ C}$. In order to eliminate the individual effects of rams, the semen samples were pooled together and diluted with tris-egg yolk extender with Rosa Canina extract and Ascorbic acid at different doses and were cooled to $4^{\circ C}$. The samples were filled in 0.25 ml straws and following freezing stages of semen samples, they were stored in nitrogen tank until evaluation. After freezing-thawed, the sperm motility parameters were evaluated using CASA system, the viability of sperms using eosine-nigrosin stain, membrane integrity using hypo osmotic swelling test, the sperm abnormalities using Hancock solution and lipid peroxidation by measuring of malondialdehyde concentration. Data were analyzed by SAS (9.4) software using Proc GLM procedure. Based on results, supplementation of tris-egg yolk diluents with adding 150 µl/mL Rosa Canina extract and 1.5 mg/mL Ascorbic acid has been the best protective effect on sperm of cryopreserved *Ghezel* ram semen. Our results confirm effectiveness of Rosa Canina extract and Ascorbic acid on microscopic parameters of freezing- thawing ram sperm ($P<0.05$).

Keywords: Ascorbic acidAscorbic acid,Ram Sperm,cryopreservation,oxidative stress,Rosa Canina

Serum Biochemistry and Haematology of Mergoz Goat, Located in West Azerbaijan, Iran: comparison with age, sex and domestic sheep

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Studies in respect of comprehensive blood normal values somewhat have been reported in animals but this study is first one in Mergoz goat (*Capra aegagrus hircus*) in West Azerbaijan . The present study was aimed to reveal some biochemical and hematological parameters alterations of Mergoz goat which located in West Azerbaijan, Iran. Thereby, blood samples were obtained from the 129 clinically and para-clinically healthy goats with different age, sex and 90 domestic sheep. 12 hematological along with 19 biochemical parameters were analyzed. The results indicated significant alterations ($p<0.01$) in some parameters based on age, sex and domestic sheep. In conclusion, these results may utilize to assess the health status of Mergoz goat. Also, it is advisable that further studies be conducted in conjunction with the more hematological and biochemical parameters.

Keywords: Mergoz goat, Blood parameters, West Azerbaijan

Pastures of tomorrow for small ruminants

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In the context of small ruminant farming, pastures used to be considered only as the source of food for the flocks. A significant piece of knowledge has accumulated in the last 20 years, showing that pastures also provide a wide array of plant secondary compounds (PSCs) that can not only jeopardize but also enhance the health and welfare of grazing animals, such as as tannins, alkaloids, and terpenes, at the condition that herders understand and exploit behaviors acquired following domestication. Domestication has increased stocking rates and increased the occurrence of toxins in diets but small ruminants have developed “grazing cultures”, transmitted by mothers, based on the knowledge that the detrimental effects of toxins can be alleviated when they are ingested in special sequences. Compounds that were once considered as toxins show anti-parasitic, anti-oxidative, analgesic and anti-inflammatory properties. Grazing animals may adopt preventive or therapeutic strategies of self-medication: some, but not all goats learn how to increase their intake when they are infected by endo-parasites. Some toxin-containing plants do not generate post-ingestive malaise, but animals can be trained to avoid them; small ruminants can also be trained to increase their intake of man-targeted plants, such as encroaching browse and nitrophilic thistles. The ingestion of PSCs does not impair productivity and is associated with specific flavours in milk and meat produced by small ruminants that may enhance the value of their products. A *sine qua non* condition of exploiting learning abilities and the development of grazing cultures is that a wide array of PSCs be present on pastures. In the past, Man made efforts were aimed at decreasing botanical and chemical heterogeneity on pastures by sowing monocultures with plant species of low PSC contents. In contrast, the pastures of tomorrow will feature high botanical and chemical diversity that will allow the establishment of local grazing cultures and increase the sustainability of grazing systems.

Keywords: small ruminant farming,pastures

The Use of Placental Traitsto Describe Uterus Environment of Goats: A Review of the Works on Turkish Saanen Goats

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Gestation is most important physiological period of livestock animals. Goat production conditions at gestation influence the vitality of newborns during prenatal and postnatal periods. Postpartum behavior can give information about kid's vitality, for example duration of birth to standing and also duration of birth to suckling; they could be used as the indicators of the vitality of kids. Kid's survival is influenced by genetic and environmental factors. Placenta plays an important role on fetal growth. First one-third period of gestation takes place as placental growth and last one-third period of gestation as rapid fetal growth. Placenta performs a bridge role between mother and fetus. The size and nutrient transfer capacity of the placenta are effective on the prenatal development. The exchange of gasses, nutrients and wastes between mother and fetus are performed by placentomes, which occurs from the combination of fetal cotyledons and maternal caruncula. About the experiments on birth and postnatal behavior of goats, it can be said that there is a significance effect of birth weight within sex on the postnatal behavior. There was a strong correlation between cotyledon number and litter weight ($r=0.64$, $P<0.01$), and a negative correlation between cotyledon density and litter weight ($r=0.42$, $P<0.01$). On the other hand, placental traits influence postnatal behavior. Cotyledon number was correlated negatively with the duration of birth to standing ($r=-0.34$, $P=0.01$), placental weight correlated positively with duration of birth ($r=0.29$, $P=0.01$), duration of birth to standing ($r=0.35$, $P<0.01$) and also duration of birth to suckling ($r=0.42$, $P<0.01$). Another study about postnatal behavior and placental traits showed that increased birth weight resulted in prolonged placenta excluding-time ($r=-0.30$, $P=0.005$), increased placental weight resulted with elevated birth weight ($r=0.67$, $P=0.000$) and also increased placental weight concluded with decreased birth to suckling duration ($r=-0.34$,$P=0.01$). An increase in cotyledon number caused a shortening of the duration of birth to standing ($r=-0.31$, $P=0.000$), such as other postnatal behaviors ($P<0.001$). Placental efficiency was correlated with the duration of birth to suckling trying frequency and also between the duration of birth to suckling. On the other hand, cotyledon density had a negative correlation between duration of birth to standing ($r=-0.32$, $P=0.02$). The duration of birth to standing could be used as an indicator of kid's vitality. Total cotyledon area was significantly correlated with duration between birth to suckling ($r=-0.27$, $P=0.000$). There were significant differences in terms of placental traits in different goat genotypes.

Keywords: placenta,cotyledon density,placental efficiency,total cotyledon area,postnatal behavior

Investigating the ecology of *Coxiella burnetii* at the livestock-wildlife interface

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Q fever is a zoonotic disease caused by *Coxiella burnetii,* an obligate, intracellular bacterial pathogen. The most commonly identified source of human infection is from parturient small ruminants, including dairy goats. Infected goats shed infectious bacterial spores in birthing tissues, urine, feces, and milk. Recently, *C. burnetii* was detected in six of seven wild rodent species in Algonquin Provincial Park, Ontario; however, the role of wildlife in the maintenance and transmission of *C. burnetii* in farm environments is not clear. Our objective was to determine the prevalence of *C. burnetii* infection and strain types in dairy goats, and to compare to those infecting other resident domestic animals and to wildlife populations both resident and in near-by natural areas of Ontario. From May to August 2014, genital, fecal and milk samples were collected from goats on 16 Ontario dairy goat farms that had been previously identified as being high and low risk for *C. burnetii* exposure. Fecal and genital samples were also collected from other resident animals (cats, dogs, ponies, horses, cows, pigs, chickens), and from wildlife (deer mice, house mice, raccoons, skunks, possums, red squirrels, and red-backed voles) live-trapped on-farm and from 14 nearby natural areas. *C. burnetii* was detected in 89.2% (404/453) of goats, 68.8% (33/48) of farm animals, 64.7% (44/68) of wild animals sampled on farms, and 58.1% (165/284) of wild animals sampled in surrounding natural areas. *Coxiella burnetii* was detected at all study sites and the prevalence in wildlife was not statistically different between farms and adjacent natural areas, independent of site distances. These findings suggest that wildlife may form part of the C. *burnetii* reservoir in Ontario, Canada.

Keywords: *Coxiella burnetii*,wildlife,dairy,reservoir

Analysis of Consumer Behaviour and Factors Affecting Goat Milk and Its Products Consumption in South East Part of Turkey

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Goat milk and its processed products have maintained its importance as a traditional source of food in all Mediterranean Region throughout the history. In recent years the increased consumer awareness on healthy food consumption and tendency on consuming traditional foods provided new consumption developments and food preferences which has affected goat milk and goat milk products demand positively. Despite goat milk and its products have high nutritional value, easy digestible ability and lack of allergic situations after consumption are factors in choice for these products relatively. Especially in recent years goat milk and its products are preferred by gourmet food consumers and they are willing to pay higher prices for these certain products. As a result of these situations in Turkey increase on production for goat milk and its products has experienced and market related with these products has expanded.

Research on consumer and purchasing behaviour are focusing on how consumers are giving decisions individually while spending their income. Consumers are encountering with many options while decision-making stage depending on product and purchasing position. Understanding consumer behaviour requires to evaluate how people give consumption and buying decisions and one of the most important topic on consumer research is determining the consumer preferences. Thus producers and manufacturers can create new products or adapt their existing products to market conditions.

In today's competitive, saturated and conscious market structures, knowing consumers and their consumption patterns and understanding what is important on their decision-making process are very important. Milk and milk products are at the category of daily consumed food products and comparing with the other foods they have a high frequency on purchase which makes factors effecting consumption more important.

In this study, it is aimed to identify characteristics of the goat milk and its products consumers and the relation of consumption factor will attempt to establish for these products. In this context, the factors that determine the consumption and the purchase of goat's milk and goat's milk products and their effects levels will be identified. Also within the scope of this research analysis of socio-demographic factors effective on the consumption and purchase will be made. In this regard, data required for the analysis will be obtained from face to face survey application and main parameters of the research will be goat's milk and goat's milk products consumption, consumer characteristics and factors affecting the consumption and purchase.

Keywords: consumer behaviour,goat milk,goat milk products,purchasing decisions,healthy food consumption

Applicability of Different Synchronization Protocols During Breeding Season in Kilis Goats

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The objective of this study was to determine the effects of four different oestrus synchronization protocol on some reproductive characteristics in Kilis goats. For this purpose, 75 head goats were used and divided into 5 group as Progesterone (P_4: intravaginal sponges with 20 mg progesterone), Progesterone + Pregnant Mare Gonadotropin Hormone (P_4+PMSG: intravaginal sponges + 300 IU intramuscular injection of pregnant mare serum), single dose Prostaglandin F_2 Alpha ($PgF_2\alpha$-I: single $PgF_2\alpha$ intramuscular injection), double dose Prostaglandin F_2 Alpha ($PgF_2\alpha$-II: double $PgF_2\alpha$ intramuscular injection) with 11 days interval and Male effect (Control). All goats were naturally mated. At the end of the study, kidding rates in terms of single and multiple were calculated as 33.34 %, 66.66 % in P_4; 40.00 %, 60.00 % in P_4+PMSG; 46.67 %, 53.33 % in $PgF_2\alpha$-I; 46.67 %, 53.33 % in $PgF_2\alpha$-II and 53.33 %, 46.67 % in Control group, respectively. As conclusion five synchronization method except P_4 group resulted similar litter size ratio and P_4+PMSG administration increases the number of litter size.

Keywords: Kilis goat,oestrus synchronization,prostaglandin,litter size

Health effects of goat milk and kefir after simulated human digestion

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Goat milk and kefir have received considerable attention from scientists and is recognized as a healthy food product. Several authors have reported its chemical composition, microbiological characteristics, therapeutic effects, probiotic properties and rheological characteristics. But there are few reported studies on the bioactive properties of kefir peptides. In particular the research studies were focused on Angiotensin-Converting Enzyme (ACE) inhibitory activity of the peptides derived from kefir. Considering all the nutritional aspects more studies are needed about the bioactive profile of kefir as traditional fermented milk derived beverage in many Eastern countries.

In this study, a standardized static *in vitro* digestion method, as an international consensus, recommended by the COST action FA 1005 INFOGEST, was applied on milk and kefir. The protein hydrolysis degrees and some bioactivities of the resulting peptides after fermentation and during simulated gastrointestinal digestion such as antioxidant activity, mineral binding capacity, antidiabetic activity and cholesterol-lowering effects of goat milk and kefir and were studied.

Goat milk and kefir were partially hydrolyzed during the gastric phase and had above 80% hydrolysis after duodenal digestion. There were no differences between the digestibility of goat milk and kefir ($p > 0.05$). Goat milk and kefir displayed about 7-fold antioxidant activity after digestion ($p < 0.05$). Fermentation showed no effect on the calcium- binding capacity of the samples ($p > 0.05$), however, after *in vitro* digestion calcium-binding capacity of the goat milk and kefir increased 2 and 5 fold, respectively ($p < 0.05$). Digested goat milk and kefir showed a higher dose-dependent inhibitory effect on α-amylase compared to undigested samples ($p < 0.05$). α-Glucosidase inhibitory activities and in vitro bile acid-binding capacities of the samples were not determined at the studied concentrations.

In conclusion, there is an increasing trend to consume probiotic foods besides having positive bioactivities on mechanisms in the body, in population. The health benefits of kefir are attributed to bioactive peptides derived from the parent protein. However, further studies using animal models will be needed to conclude if any of these bioactivities may have a positive physiological role in metabolic regulation. However, the variations in the quality of traditional fermented beverages were affected by several factors such as utilization of different raw materials, manufacturing methods, natural microbiota and fermentation.

Keywords: milk and kefir.

Testosterone levels, Libido, and Sperm Quality of Bligon, Kejobong, and Ettawa Cross-Bred Bucks

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The aim of the study was to investigate the comparison and correlation among testosterone concentrations, libido, and sperm quality of Bligon, Kejobong, and Etawah Cross-bred (PE) bucks at similar age, feed, and season. Samples used were 9 bucks (3 Bligon, 3 Kejobong, and 3 PE) of approximately 18 months of age. The testosterone was measured by enzyme-linked immunosorbent assay (ELISA) method. Libido observation was quantified at the first time of sniffing, mounting, and finally ejaculation. Sperm was collected by using artificial vagina. The reesults showed that Kejobong's testosterone in the morning (12.00±6.56 ng/ml) was significantly different compared to PE (6.82±4.18 ng/ml), whereas Bligon's testosterone in the morning (9.23±4.73 ng/ml) was similar compared to Kejobong and PE. The best time of Kejobong's libido was in the morning (6.77±5.96; 11.27±8.10, and 18.45±8.27 sec.) and in the afternoon (8.89±7.97; 11.03±8.74, and 21.05±9.60 sec.). The motility and concentrations of Kejobong's spermatozoa (75.67±6.51% and 5838.67±140.90 x10^6/ml) were significantly different compared to Bligon (60.67±9.61% and 4625.33±129.72 x10^6/ml) and PE (63.13±8.33% and 3756.00±52.76 x10^6/ml. It could be concluded that Bligon and PE bucks have the similar testosterone concentration, and the libido and sperm quality of Kejobong is better than Bligon and PE bucks.

Keywords: Goats,Testosterone,Libido,Quality of semen

Molecular Phylogenetic Analysis in Southern Anatolian Hair goats

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In this research, determination of phylogenetic tree of Hair goats in Southern Anatolian using molecular techniques was the main goal. Genomic DNA was isolated from blood using Genomic DNA Purification Kit according to the manufacturer's instructions. Mitochondrial D-loop region were amplified by applying polymerase chain reaction (PCR) technique, and gene sequence information of PCR products were obtained. The rate of G+C, number of polymorphic site (S), number of haplotypes (h), haplotype diversity (H_d) and nucleotide diversity (π) for all populations were calculated. Phylogenetic analyses were carried out using Neighbour-Joining (NJ) method and Kimura-2-parameter+Gamma distribution (K2P+Γ, α=0.28) model. Bootstrapping test (1000 permutation) was used to test the reliability of the Nodes. In Hair goats, DNA polymorphism based on D-loop sequence, total number of site, the rate of G+C, number of polymorphic site, number of haplotype, haplotype diversity and nucleotide diversity were found to be 481, 0.387, 72, 56, 0.933±0.016 and 0.0315±0.0054, respectively. In Hair goats, genetic distance between haplotypes ranged from 0.003-0.0457. N-J phylogenetic tree formed in this research using haplotype sequences and 22 reference sequences (for A, B, C, D, F and G lineages), 55 haplotypes were in A lineage. In conclusion, D-loop region were determined of Hair goats of Southern Anatolian. Based on gene sequences information, in goats, the phylogenetic relationship among mtDNA haplotypes and haplogroups, haplotypes and wild goats.

Keywords: Hair goat,mtDNA,Southern Anatolian,Phylogenetics

Rotary Feeding for Smart and Precisioning Feeding on Dairy Goats

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For better control of the feed intake of every dairy goat, the quantity of concentrate can be adjusted to the need of every animal according to production, age and condition. With use of the computer based programmes connected to milking system, it is possible to know which animal hasn't eaten his portion or which animal need extra attention. To achive this aim, rotary can be used for milking and feeding, or just for feeding. On a farm lower than 3000 animals, one rotary is enough. If the farm has 3000 dairy goat capacity two carrousel are needed. One for milking and feeding and one just for feeding. This carrousel recognize every animal individually with the electronic chip in their ear. In a computer program, the amount giving to every animal can be put in. The computer will give every animal the portion it should get. It is unneccessary to make different groups in paddocks, so lowers the workload. The animals learn it faster than the automatic feeding boxes. The goats all can eat together which is pleasant for a herd animal.

When feeding and recording the concentrate intake, the computer program of the carrousel will make a list of attention animals. These are animals which haven't finished all their pellets. It is important to keep track of these animals. The herd manager must look these animals up and see if they are sick or have another reason why they don't eat their cocentrate. When using recognition in the milking carrousel it is possible to give these animals an alarm, otherwise it is impossible to find them in a herd of around 500 to 3000 animals. The person who is milking can give the animal a mark.

In this presentation, it will be presented the rotary feeding system in dairy goat farming.

Keywords: rotary feeding, carrousel for feeding, smart and precisioning feeding

Detection of Paternity In Native goat Breeds in Turkey by Using Microsatellite Polymorphism

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Current global environmental changes (fast population growth, global warming, unplanned urbanization, pollution) and industrialization have indispensably resulted a decrease in farm animal populations. In contrast, there is an increasing need for animal protein as the world population is growing rapidly. These assumptions make the sustainability of animal production a significant issue. Therefore, the conservation of local animal genetic resources and breeding is fundamental for people to obtain sufficient food. Within the scope of breeding activities in different sheep and goat breeds organized by the Republic of Turkey Ministry of Food, Agriculture and Livestock, it is planned to mate individuals with the animals in qualified herds, to register the offspring with their sire and to select fertile animals for breeding according to the predefined selection criteria. In addition to the project, it is necessary for the formation and sustainability of herd book system for each breed to form pedigree breeding activities, according to the herdbook and pre-herdbook regulation and purebred sheep-goat declaration. However, it is difficult to detect the sire of sheep and goats because of the lack of artificial insemination applications. The use of a limited number of sires in natural insemination applications and the fact that breeders do not prefer natural insemination for work-load and loss-of-time reasons are the obstacles that need to be considered. Within this scope, it seems necessary to apply DNA-based parent detection tests, which are widely used in developed countries, to manage healthy and controlled reproduction strategies and to increase the general herd welfare.

In the study, it is planned to characterize Turkish native goat populations (Ankara, Kıl, Kilis, Honamlı and Norduz), which are included in “National Community-Based Small Ruminant Breeding Program”, by using 25 microsatellite-loci. The usefulness of the loci to detect parents in Turkish local goat breeds will be evaluated with some criteria (exclusion power, fractioning power, polymorphic information content, mating possibility, etc.). After the evaluation of the microsatellite loci, parents of the individuals in the herds will be detected. Also, the genetic structure of the populations will be asserted in terms of genetic parameters. Thus, the detection of parents of the candidate sires, mothers and progenies according to the polymorphic quality of the related loci will be possible. In the study, it is aimed to select microsatellite loci, which are exclusive for Turkish native goat breeds, and to form a parent-detection panel, which gives results with a correctness rate of 99.73 %.

Keywords: Paternity testing,Microsatellite,Turkish native goats,exclusion probability,polymorphism

Estimation of genetic parameters for weight gain in Turkish Hair Goat

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The objective of the present study was to estimate the genetic parameters for weight gain in Turkish Hair Goat. The data were collected from 18737 (15104 singles and 3633 twins) Turkish Hair Goat obtained from Amasya province of Turkey during the years of 2010 and 2015. Genetic parameters were estimated by parent-offspring regression because of the sires could not been defined. Relationships among dams and their offspring were evaluated to estimate genetic parameters. Weight gains were calculated the formula (weaning weight-birth weight)/daily age of weaning. Heritability values were estimated for the years from 2011 to 2015. Heritability and its standard errors were estimated as 0.422 ± 0.036, 0.387 ± 0.028, 0.304 ± 0.022 and 0.293 ± 0.019, respectively. Daily weight gain increased from 121.41g to 161.38g during the five years. Results showed that the project of National Sheep and Goat Breeding Program and Breeder Associations' Collaboration Systems of Turkey for Turkish Hair Goat reached the aim that increasing the weight gain. The decrease of heritability values showed the decreasing variance of population for this trait.

Keywords: Genetic parameters,Weight gain ,Hair Goat ,Breeding

Estimation of genetic parameters for litter size in Turkish Hair Goat

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The objective of present study was to estimate the genetic parameters for litter size in Turkish Hair Goat. The data were collected from 18737 (15104 singles and 3633 twins) Turkish Hair Goat obtained from Amasya province of Turkey during the years of 2010 and 2015. Genetic parameters were estimated by parent-offspring regression because of the sires could not been defined. Relationships among dams and their offspring were evaluated to estimate genetic parameters. Heritability and its standard errors were estimated as 0.041 ± 0.032, 0.043 ± 0.027, 0.092 ± 0.018 and 0.112 ± 0.056, respectively. Twin rates increased from 8.2% to 27.5% during the five years. Results of present study showed that the project of National Sheep and Goat Breeding Program and Breeder Associations' Collaboration Systems of Turkey for Turkish Hair Goat have reached to the aim that increasing the litter size.

Keywords: Genetic parameters,Litter size ,Hair Goat ,Breeding

Birth and weaning weights of Angora goats raised in farmer conditions

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The objectives of this study were to investigate effect of some environmental factors on birth weight and weaning weight adjusted for 90-days of age, and to estimate genetic parameters for these traits of Angora goats raised in farmer conditions. Direct additive genetic variance components and resulting heritabilities were estimated using a multiple-trait animal model and MTDFREML procedures. Total of 2283 birth weight and 2276 weaning weight records, collected from 25 Angora goat flocks from 2013 to 2015, were used in the analyses.

The overall means and standard errors of birth and weaning weights were found as 2.40±0.010 kg and 11.21±0.063 kg, respectively. It was found that the effects of flock, age of dam, birth type and sex were significant ($P<0.01$) on birth weight, while weaning weight was significantly affected ($P<0.01$) by year, flock, age of dam and sex. Single born kids were heavier than twin born kids, and males were heavier than females in both at birth and weaning ($P<0.05$). Moreover, it was also observed that one kg increase resulted in 1.44±0.315 kg increase in adjusted weaning weight ($P<0.01$).

Heritability estimates for birth and weaning weight were moderate, but high additive genetic correlation was found between the traits. Genetic parameters estimated in this study appear reliable and provide a basis for *Angora Goat Improvement Program in Farmer Conditions* supported by General Directorate of Agricultural Research and Politics (TAGEM).

Keywords: Angora goats, Birth weight, Weaning weight, Genetics parameters

Birth and weaning weights of hairy goats raised in farmer conditions in Kahramanmaraş region

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The objectives of this study were to investigate effect of some environmental factors on birth weight and weaning weight adjusted for 90-days of age, and to estimate genetic parameters for these traits of hairy goats raised in farmer conditions in Kahramanmaraş region. Direct additive genetic variance components and resulting heritabilities were estimated using a multiple-trait animal model and MTDFREML procedures. Total of 11271 birth weight and 10303 weaning weight records, collected from 51 hairy goat flocks in eleven villages from 2014 to 2015, were used in the analyses.

The overall means and standard errors of birth and weaning weights were found as 3.27±0.007 kg and 15.96±0.036 kg, respectively. It was found that the effects of year, flock, birth type and sex were significant on birth weight ($P<0.05$) and on weaning weight ($P<0.01$). Single born kids were heavier than twin born kids, and males were heavier than females in both at birth and weaning ($P<0.05$). Moreover, it was also observed that 1.00 kg increase resulted in 1.32±0.070 kg increase in adjusted weaning weight ($P<0.01$).

Heritability estimates for birth and weaning weight were 0.62 and 0.18, respectively, and additive genetic correlation between the traits was 0.36. Proportion of uncorrelated random variances were estimated as 0.26 and 0.15 for birth and weaning weight, respectively, and uncorrelated random correlation was found as 0.08 between the traits. Genetic parameters estimated in this study appear reliable and provide a basis for *Hairy Goat Improvement Program in Farmer Conditions in Kahramanmaraş Region* supported by General Directorate of Agricultural Research and Politics (TAGEM).

Keywords: Hairy goats,Birth weight,Weaning weight,Genetics parameters,Kahramanmaraş

Perspectives of Members on the "Sheep & Goat Breeder Associations"

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One of the most important problems of small ruminant production in Turkey is the disorganization of the farmers. Provincial Sheep&Goat Breeder Associations have been established in recent years, which united under the umbrella of Sheep&Goat Breeder Union of Turkey in 2006. The goals of the Breeding Associations are performing breeding programs, mediations for animal sales, monitoring of animal health, input provision, extension and training, marketing, publicity, representation, consultancy service, guiding livestock policies.

This study was based on a survey conducted with the small ruminant producers in the Marmara region from a part of a project, which was supported by Ministry of Food, Agriculture and Livestock/Turkey. The aim of the study was to evaluate the opinions and expectations of the farmers for the Sheep&Goat Breeder Association (SGBA).

All of the member of the SGBA were included in the study. 2.5% had no idea, what for and tasks have the SGBA's. On the other hand, 50% of the farmers described the SGBA's as a organization which helps farmers, 36% as to managing the rules of the subventions, 13.5% as working for increasing genetic quality of the herds, 7.5% as to organize different activities, 5% as an organization with no support to the farmers.

Keen expectations of the breeders from the SGBA are support for the marketing of products or animals (28%). In addition, other expectations are to help for the supply of breeding animals (23.5%), organization of technical meetings and farm visits (23%) and medical/veterinary supports (18.5%). 9.5% of the breeders want the SGBA involved in ear tags application. 6 % of the breeders expected to obtain subsidies in time and also support for pasture/grassland treatments by the SGBA.

Based on these results, the farmers' descriptions of the duties of the SGBA are varied. When the "association" concept is considered with psychological and socio-economic status of the breeders, there is always more to do in the future. It should be born in mind that the associations have also problems and try to be a bridge between farmers and the government. The associations also require financial support in order to fulfill the demands of the breeders. The development of a new system for the financial support of the breeders would enable the associations to provide a better service to the breeders.

Keywords: Subsidy,Sheep&Goat Breeder Association,Breeder-Association-Government

Effects of different forage level and fish oil in the diet on dairy performance, physicochemical and fatty acid composition of goat milk

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Experiments were conducted to investigate the effects of diets supplemented with fish or palm oil and different forage levels on dairy goat performance, physicochemical properties of milk fatty acid (FA) profile. For experiments, 40 goats were subjected to 4 (2*2) experimental diets with two oil sources (fish or palm oil) and forage levels (40 or 60 %). Current findigns revealed that the dry matter intake, milk yield, live weigh and live weigh gain were not significantly influenced by the treatments (P>0.05). The milk total solid, lactose, acidity and citric acid levels were not also significantly influenced by the treatments (P>0.05); however, the solid non-fat (SNF), fat, casein, urea, FFA (free fatty acid), FPD (freezing point depression) and density were significantly influenced by the treatments (P<0.05). The SNF, protein, casein, FPD and density decreased with increasing forage levels and palm oil in diete. Compared to palm oil supplemented diets, even-chain saturated FA concentrations significantly decreased with fish oil supplementations (P<0.05), however, the fish oil diets caused an increase in C14 saturated fatty acid levels. Considering the monounsatured FA, it was observed that the concentration of 18:1 significantly increased by fish oil diets and high level forage diets (P<0.05). Fish oil increased several*trans* 18:1 (P<0.001) and 18:2 (P<0.05) isomers in milk; however, greater variations were observed with palm oil in in *trans* 18:1 (respectively forage 60-40 level; 0.69-2.20 g/100g). Thus, no differences were observed between the treatment groups (P>0.05) in C6, C8 and C16 fatty acids. By contrast, the fish oil and high level forage diet more efficiently increased conjugated linoleic acid (CLA), n-6 (18:2) (P<0.001), and n-3 (20:5) (P<0.005).

Keywords: goat, fish oil, palm oil, milk fatty acid, forage ratio, milk physicochemical properties

Goat Farming and Meat Processing Through Cooperative

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Ahmednagar Goat Rearing & Processing Cooperative Federation Limited (AGF) is farmer owned body from semiarid region of Maharashtra, India. AGF provides backward linkage to goat rearers, hygienically slaughter goats, and process meat and offal for value addition. The cooperative supplies frozen meat and value added products to institutional buyers both within and outside the country.

AGF is a user-owned and user-controlled business in which benefits are received in proportion to the shareholding.

AGF clearly demonstrate that judicious combination of community mobilization, modern processing technology, and customer-centric marketing can generate employment and alleviate poverty in ecologically fragile arid areas, and provide wholesome nutrition to sophisticated consumers both within India and abroad.

Keywords: Cooperative, Meat Processing,Forward and Backward Linkage,Modern Processing Technology,Arid Area,Climate Change Adaptation

The Effect of Temperature Treatment to Milk Replacer Quality and Its Application on Kid Growth

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Goat with prolific nature is capable of producing more than one kids every a doe, hence milk substitutes is important to contribute to the growth of a young goat, besides giving milk replacer quality is expected to improve the immunity of the young goat and the mortality of kids rate is lowered. This study aims to determine the effect of temperature treatment to improve milk replacer digestibility and its applications on the kids' growth. The materials used for milk replacer formula are fermentation of total mixture of dry milk (FTMM) and soy bean flour. Heating manipulation as treatment is set as follows: P1 is heating FTMM; P2 is heating soy bean flour; P3 is without heating FTMM; P4 is without heating soy bean flour; P5 is fresh milk as a control. The analysis the digestibility of milk replacer made from in vitro techniques for 45 minutes to 120 minutes of stage one and stage two. Their respective treatment had 3 replications. The variables measured were dry matter digestibility (DMD), organic matter digestibility (OMD), and protein digestibility (PD). Data were analysed with random pattern design direction and continued with Duncan's multiple range test (DMR `) to find out the difference between the mean. The results showed that temperature treatment of milk replacer did not affect dry matter and organic matter digestibility however, milk replacer heating influence digestibility of crude protein milk replacer highly significant ($P < 0.01$). The best treatment in making milk replacer is then applied to determine the growth of the kid. The results showed that the use of soybean meal heating (P2) showed the best digestibility significantly, but once applied to the growth of the kids did not give effect significantly, but giving the milk replacer with heat treatment tends to improve kid growth.

Keywords: kids, fermentation,milk replacer,digestibility

The effect of hair goat horn type on yeanling live weight gain

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In this study, the effects of a variety of goat horn types were determined on effects on growth performance of yeanlings. The research was carried out on 4151 of yeanlings born in 2015 in Mersin-growers conditions in Turkey. The yeanlings were divided into 3 groups (hornless, button horn and long-horned) according to their horn types when they were 120 days old. The parents-known yeanlings, were divided into 4 groups (hornless, upward straight horns, lateral curved horns and upward curved horns)according to the horn types of their fathers. The yeanlings were analyzed based on live weights taken at 75 day of weaning and 120 day after birth.

The results were analyzed by MANOVA within JMP software package program considering live weight at 75 day of weaning and 120 day after birth. According to MANOVA analysis results, there were significant differences between the horn types with regard to weight gain (F=3,887; P<0,021). The relationship was not found between the mother horn type and yeanling horn types interactions. Similarly, the relationship was not found between the father horn type and yeanling horn types interactions while a statistically significant relationship was determined between father horn type and yeanling live weight gain (F=3,800; P< 0,010).

Keywords: hair goat,yeanling,horn type,live weight,weaning weight

Social and technological profile of the small ruminant rearing system in Itaparica region, Pernambuco state, Brazil

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The aim of this study was to characterize the social and productive profile of the goat and sheep rearing system in Itaparica region, Pernambuco state, Brazil. It was done interviews with 72 breeders, which were divided into four groups (group1-located in Petrolândia municipality and members of Breeder Association, Petrolândia_AS; group2-located in the municipality of Petrolândia but not association members, Petrolândias_NAS; group3-located in Itacuruba, Itacuruba; group4, located in Floresta, Floresta). It was applied a structured questionnaire from September 2004 to September 2015. It was made single frequency and correspondence analysis with qualitative and quantitative variables. Most breeders had 52.6 average years old and, 25.2 average years dedicated to the goat and sheep husbandry. According to respondents, the technological level of the corrals is low. In Petrolândia_NAS and Itacuruba groups predominates handling and maternity corrals (100%), unlike Petrolâdia_AS and Forest in which 54.6% and 16.7%, have pens, respectively. The main source of water came from the river (38.9%). Most of the farmers adopted the extensive farming system (93.1%), but only 40.8% kept the animals grazing in the bush all the year (40.8%). In Floresta, 45.8% of the breeders provided Caatinga associated with concentrate to the animals. Of the 72 production units, 79.2% used the mineral supplementation but the majority (91.3%) does not make livestock control. In the majority of the farms (63.9%) the breeders manage their farms without technical assistance (91.7%). Predominated natural breeding at the field (98.6%), and the animals began the reproductive life very early and without control. As most common diseases were the lymphadenitis caseous and the keratoconjunctivitis. The correspondence analysis was efficient and showed that the first two axes add almost 80% of the total variation. The main limiting factors for the development of the small ruminant production system were the way to the farm´s administration, lack of technical assistance, the predominance of the extensive farming system with low technological level.

Keywords: Production system; Characterization; Correspondence analysis.

Polymorphism of mitochondrial DNA in Brazilian Canindé goat breed

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The success of the geographical distribution of goat populations around the world is a reflex of the adaptive capacity of the breeds. The changes that contributed to the formation of the current breeds were processed before the man start promoting artificial selection, which conditioned the animal to play a role according to human needs. Each breed is a genetic heritage which may be unique and important for maintaining the species. The objective of this study was to catalog the mtDNA haplotypes of Canindé goats and characterize the genetic diversity observed in subpopulations. By sequencing a 481-base pair fragment corresponding to the first portion of the control region in 178 individuals representing 10 herds, distributed in six Brazilian states. The fragments were amplified using polymerase chain reaction (PCR), purified, and sequenced. After editing, the sequences obtained were aligned and compared with each other and with a reference sequence. So, several divergence and genetic diversity indexes were estimated among the subpopulations studied. A total of 29 haplotypes were found in the population, which resulted in 56 polymorphic sites, with 10 haplotypes common to all of the subpopulations, and 19 exclusive haplotypes. The population exhibited high haplotype diversity (0.82), with maximum and minimum values of 0.90 and 0.56 in the subpopulations, respectively. In contrast, the nucleotide diversity was low (0.014), with maximum and minimum values of 0.020 and 0.004, respectively. The spatial analysis of molecular variance (SAMOVA) did not allow identification of the clustering, and analysis of molecular variance (AMOVA) revealed that 88.35% of the variation observed in the population is due to differences among individuals in the same subpopulation. Only 11.35% of the genetic variation refers to differences among subpopulations. A total of 33.13% of the individuals within the population share the same haplotype, and this may be due not only to the breed being formed by a few matrilines but also because of the phenotypic selection that is frequently performed by breeders, which may have contributed to the elimination of the other maternal lineages. The Brazilian Canindé population was classified as haplogroups A, with haplotypes predominantly of European descent.

Keywords: Geographical distribution; uniparental marker; hypervariable region.

Genetic characterization of a native goat flock of INRA Tunisia raised under low input production system.

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The objectives of this study were to characterize a native goat flock selected at INRA- Tunisia (Oueslatia Exprimental station) since 1970 on growth and adaptive traits and to develop a breeding scheme. Sex, type of birth, age of the dam, year of kid birth were important sources of variation for birth weights and weights at standard ages (10 days, 30 days and 90 days). Maximum kids' growth was realized when dams have 5 years of age. Main results showed that kids, raised under a low input production system, had an average weight at birth (BW) and at weaning (90 days of age (W90)) of 2.6 and 13 kg, respectively. Genetic and phenotypic correlations were all positive. Estimation of genetic parameters of pre-weaning traits showed that direct and maternal heritabilities values were relatively high for BW and for weight at ten days of age (W10). Molecular analysis of the mitochondrial D-loop region showed that native goats sequenced belong to the A haplo-group. Phylogenetic analysis of the 36 native sequences compared to those from North Africa and European breeds allowed us to identify particular D-loop haplotypes restricted to Tunisian individuals. In fact, a total of 11 new haplotypes was identified, among them four were singletons and seven were composed of 2 to 4 sequences. This D-loop characterization has determined the presence of specific polymorphisms within individuals from the Tunisian haplotypes raised in the semi-arid. Our study highlights the importance of investigating genome-wide association mapping of indigenous genetic resources as an urgent step and setting up national-based goat breeding programs in Tunisia under low input production systems.

Keywords: native, goat, growth, adaptation, genetic

Goat genomic selection: Impact of integrating genomic information in the genetic evaluations of the Spanish Florida goats

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The estimated breeding values (EBV) obtained in the genetic evaluations of milk traits in the Spanish breeds of goats usually have low or moderate reliabilities, mainly due to a sparse relationship matrix. Using genomic evaluations have been proposed as a mean to improve these reliabilities. This hypothesis has been tested using 50649 lactations records from 19067 *Florida goats,* daughters of *4397 dams and 500 sires*. The analysis of the depth of the pedigree determined an average of 1.12 known generations and 0.73 discrete generations equivalent. A sample of 538 dams and 87 sires from the formerly described population were genotyped with the Illumina 55 k goat bead-chip (53347 SNP). After a quality control, 585 animals (514 dams and 81 sires) and 50559 SNP per animal were used for the analysis.

Genetic parameters were estimated with the BLUPf90 package and REM methodology with a animal model including her-year-season and parity number as fixed effects, the direct genetic effect and the permanent environmental effect of the animal as random effect and days in milk as a concomitant variable. The same software was used to obtain the genomic relationship matrix (**G**). The correlation between matrices **A** (pedigree relationship matrix) and **G** was 0.826. Genetic parameters were re-estimated using a REML under a single step (ss) approach and EBV were obtained with the *single step genomic* BLUP (ssGBLUP).

When the full studied population was considered no significant differences between the estimations of the genetic parameters obtained with A and **G** matrices resulted. The correlation between the EBV obtained with both methods was 0.989; however an increment of 1.06% in the average reliability of the estimations was observed in the genomic evaluation. When only the EBV of the animals genotyped were compared, the correlation between the estimates obtained with both methods decreased to 0.952, but an increment of 5.86 % of the average reliability of the EBV resulted with the genomic evaluation.

Keywords: Goats ,FLORIDA ,Milk traits,Genomic evaluation

Comparison of Hay, Silage and Haylage from Hungarian Vetch and Wheat Mixture on Milk Production in Saanen Hair Goat Crossbred (F_1) Goats

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This research was carried out to determine if different methods of forage conservation influenced milk production. Silage (S), haylage (HL) with 50% dry matter (DM) and hay (H) was produced from Hungarian vetch (*Vicia pannonica Crantz*) and wheat (*Triticum aestivum L.*) mixture (70% vetch + 30% wheat) at the same botanical maturity stage. Thirty lactating Saanen-Hair Goat Crossbred (F_1) goats (approximately 3 years of age) were used. They were allotted to 3 groups (S, HL and H) each containing 10 goats. The feeding trial was conducted for eight weeks following two weeks of adaptation to diets. The forages were offered *ad libitum* separately to each goat with a concentrate supplementation equivalent to 2% of individual live weights. Average dry matter intake and average milk yield were determined daily. Data were analyzed using the General Linear Models procedure of SAS 9.1 for ANOVA to evaluate difference among experimental groups, and means were compared using the Duncan test.

Results showed that concentrate intake, forage intake, total feed intake and live weight change were not affected ($P>0.05$) by methods of forage conservation. Nevertheless, crude protein (CP) and metabolizable energy (ME) intakes and milk yield were affected ($P<0.05$) by methods of forage conservation (210.29 g/day, 5.03 Mcal/day, 0.97 kg/day: 360.18 g/day, 6.15 Mcal/day, 1.44 kg/day: 251.22 g/day, 5.38 Mcal/day, 1.27 kg/day for S, HL and H, respectively). The CP concentration was higher in haylage. Storage losses of high-moisture silage were the major problem so CP and ME concentrations of silage were lower than those of haylage. Higher concentrations of CP and ME of haylage increased energy and protein intake, and milk yield.

It can be concluded that the haylage from Hungarian vetch and wheat mixture had an impact on milk production in Saanen Hair-Goat Crossbred (F1) goats. The higher chemical quality of haylage was reflected in a higher production level.

Keywords: goat, hay, haylage, silage, feed intake, milk yield

Comparison of leptin and adiponectin concentrations in goat colostrum and mature milk: Preliminary results

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Leptin and adiponectin are hormones that function in regulating energy metabolism and have recently been identified in colostrum and milk from several species including humans; however, data is limited, especially in goats. The objective of this study was to further investigate the concentrations of each of these hormones in goat colostrum and mature milk from different spanish breeds (Guadarrama, Florida, Payoya and Tinerfeña). Colostrum samples were collected from sixteen female goats (n = 4 per breed) at the time of parturition. Milk samples were collected from the same goats 30 days post-partum. All samples were frozen immediately following collection and transported to the Universidad de Las Palmas de Gran Canaria for analysis. Fat was removed from each sample and adiponectin and leptin concentrations were determined in skimmed colostrum and milk using enzyme-linked immunosorbant assays. Data were analyzed in SAS to determine the effects of breed, timepoint, and their interaction. Goat breed did not affect concentrations of either hormone and there were no interactions between breed and timepoint. Adiponectin concentration was 152.39 ± 9.3 µg/mL in colostrum and decreased by 52.2, 60.2, 29.0, and 68.1% in mature milk of Florida, Guadarrama, Payoya, and Tinefeña breeds, respectively. Adiponectin concentration in mature milk (70.81 ± 8.4 µg/mL) was significantly lower than in colostrum ($P < 0.01$). These concentrations are much higher than those reported in dairy cattle. Leptin concentrations were lower compared to adiponectin and tended to be greater in colostrum than in mature milk (2.05 ± 0.4 and 1.15 ± 0.3 µg/mL, respectively; $P = 0.08$). These results, similar to data from dairy cattle and other species, indicate that peak concentrations of leptin and adiponectin occur in colostrum and decrease as lactation progresses. It is not clear how these hormones may affect growth and carcass characteristics in growing goat kids. However, higher blood plasma leptin concentration has been reported in calves fed colostrum compared to a milk-based formula and further studies are needed to determine whether these hormones are absorbed and affect the development of the neonate.

Keywords: leptin,adiponectin,colostrum,mature milk

Pasteurization and skimming effects on colostrum antimicrobial activity during refrigeration

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The aim of the present work was to study the effect of pasteurization and skimming treatments during refrigeration on goat colostrum antimicrobial activity against the *E. coli*. Colostrum samples were collected from ten dairy goats (Majorera breed) at partum. Animals were milked using a milking machine, after that, each colostrum sample was pour into 50ml bottles and store at -80°C until analysis. Samples were thawed at 37°C and, after that, three different treatments were applied, with the exception of control sample. Two different pasteurization methods were performed, 56°C during 1 hour or 63°C during 30 minutes. Another colostrum aliquot was skimmed using a commercial skimmer. Ten microliters of each sample were imbibed in sterile antibiogram disk and let to dry. Sterile saline serum and Enrofloxacin (250 microgram) were used as negative and positive control, respectively. 200 microliters of *E. coli* (ABS 600 nm = 3) were plating into Petri plates with violet red bile agar medium. Four antibiogram disks (positive and negative controls and two samples to test) were located on each plate and then incubated at 37°C for 24 hours. After incubation the halos were measured using a digital scanner. An anova with repeated measures procedure was performed. It was assumed positive control as 100% and negative control as 0%. No differences between treatments along the time were observed, but strong ($P<0.001$) effect of time was detected. Antimicrobial activity was 15.95, 13.16, 10.66, 5.92, 4.34 and 2.61% at 0, 2, 4, 6, 8 and 10 days of refrigeration. Present results will help in the management of refrigeration of colostrum in dairy farms.

Keywords: colostrum, antimicrobial activity

Investigation of changes in metabolic parameters and PON-1 during the transition period in Turkish Saanen goats (Akkeci)

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The aim of this study was to evaluate the metabolic changes in Turkish Saanen goats (Akkeci) during the transition period. In the study, 60 Turkish Saanen goats (Akkeci) were used and blood samples were taken from the jugular vein on days -30, -15, 0, +15, and +30 from parturition. In order to monitor metabolic profile changes, alkaline phosphatase (ALP), cholesterol (CHO), glucose (GLU), calcium (CA), phosphorus (PHO), total protein (TOP), triglyceride (TG), paraoxanase-1 (PON-1) levels were determined in the samples. All the parameters except paraoxonase activity were measured using Erba XL 600 autoanalyzer and its accompanied commercial reagents (Erba-Diagnostics, Mannheim). Serum paraoxonase activity mas measured in an 37 ^{o}C ambient temperature as the rate of hydrolysis of paraoxone at 412 nm in 0.05 mmol/L glycine buffer (pH 10.5) with 1 mmol/L $CaCL_2$. Serum ALP levels were lowest on days -30, 0 and +15, and were highest on day +30 ($p<0.05$). Serum CHO and TOP levels were lowest on days -30 and 0, and were highest on day +30 ($p<0.05$). Serum levels of GLU, CA and PHO were lowest on day 0, and were highest on day +30 ($p<0.05$). Serum TG were lowest on days -15 and 0, and were highest on days -30 and +30 ($p<0.001$). Serum PON-1 levels were lowest on day 0, and were highest on day -30 ($p<0.001$). Conclusively, clear changes in levels of metabolic parameters and PON-1 were occured during the transition period in Turkish Saanen goats (Akkeci).

Keywords: metabolic parameter,PON-1,transition period,Turkish Saanen goat

Inflammatory Reaction of Peripheral Leukocytes Following Disbudding Goat Kids

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Thermal disbudding is the commonest surgical procedure carried out in goats, usually in the first week of their life. However, little is known about later reactions of goat organism to the procedure. The study aimed to determine whether hot-iron disbudding induced any variation in total and differential leukocyte count in goat kids.

Thirty goat kids were enrolled. At the age of 10 days 15 kids were disbudded by the farms' veterinarian with electrically-heated iron. The procedure was carried out in general anesthesia. The remaining 15 kids were a control group. Blood was collected from all 30 kids to 2 ml EDTA tubes at the age of 7 days (sample 0) and then weekly till the age of 7 weeks (samples 1-6). Total leukocyte count was measured automatically whereas the differential was determined manually by counting 100 leukocytes in routinely-stained blood smears at 100x magnification by an expert technician. Total leukocyte count and neutrophil-to-lymphocyte ratio (NLR) were applied to evaluate inflammatory reaction after disbudding. Both were given as the arithmetic mean ± standard deviation. Comparisons between the two groups of kids were performed with a repeated-measure analysis of variance with a post-hoc Tukey test. A significance level of 0.05 was assumed.

Total leukocyte count (G/L) did not differ between disbudded and not disbudded kids: 7.6±2.1 vs. 7.3±1.7 before the procedure and then: 8.0±2.5 vs. 5.7±1.4, 10.0±3.2 vs. 12.8±9.5, 7.9±1.7 vs. 9.0±3.3, 7.9±1.2 vs. 12.2±4.5, 9.4±2.2 vs. 14.2±7.1 and 8.2±2.3 vs. 11.6±4.7 G/L (all $p>0.05$) in samples 1, 2, 3, 4, 5 and 6, respectively. NLR was similar in both groups before the procedure 1.2±0.4 vs. 1.0±0.6 ($p=0.999$), then was significantly elevated in disbudded kids in samples 1-4: 2.0±0.9 vs. 0.9±0.4 ($p<0.001$), 1.3±0.7 vs. 0.5±0.3 ($p=0.001$), 1.3±0.6 vs. 0.8±0.4 ($p=0.402$) and 1.2±0.6 vs. 0.6±0.2 ($p=0.025$), and returned to the same level in samples 5 and 6: 0.7±0.4 vs. 0.6±0.2 and 0.4±0.2 vs. 0.5±0.2 (both $p=0.999$).

Inflammatory reaction of peripheral leukocytes was evident immediately after disbudding and persisted for roughly 4 weeks. NLR proved to be a better marker of inflammation than total leukocyte count.

Keywords: disbudding,neutrophil-to-lymphocyte ratio,leukocyte count,WBC

Traditional and new cheeses: a viable way to safeguard the local goat breeds in the Mediterranean area?

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During the last decades, the increasing demand for livestock products and the need of supply diversification, gave rise to a growing interest from Italian dairy industry for goat milk, whose nutritional characteristics are increasingly studied. The request from dairy industry, that is steady supply, basically implies: a) deseasonalisation of kidding; b) constant diet composition all year long; c) single breed, in order to have non-seasonal milk yield and quality. In the Mediterranean area, besides the cosmopolitans breeds such as Saanen and Alpine, there are many other local breeds. They are reared mostly in hill and mountain areas, with a pastoral or integrated system. They contribute to a sustainable livestock, under many points of view, but do not meet the industry's request in terms of steady quantity and quality. Moreover, the number of heads often represents a limit to the diffusion of a breed. On the other side, while the genetic variability is considered a strength as far as the biodiversity protection, it is considered a weakness by the industrial system. For example, the Napoletana goat, declared endangered breed, amounts to few hundreds of heads, still living in Campania region. Another example is the Jonica goat, a very productive dairy breed but with a scarce population. Moreover, the Girgentana breed, reared in Sicily, characterized by the typical twisted horns. They have concurred, in the past, to the mountain and hill rural economy, thanks to their low management costs, able to have action of territory protection and defense of rural cultural heritage. Which future for them? How to conciliate the safeguard of animal biodiversity and facing the demand of drinking goat milk? One answer may be linking them to one product different than drinking milk. Two solutions lie ahead and are offered with this paper for the discussion: 1) valorization of traditional cheeses, such as Cacioricotta; 2) processing of new dairy products from local breeds' milk, e.g. with vegetal rennet obtained form local species, highlighting the strength of variability and seasonality, and the link with the "*terroir*". The alternative is confining the local breeds to a living museum, with the risk to rear few breeds in intensive system, like the situation for wheat or corn in world intensive production.

Keywords: Goat, traditional cheese, innovation, safeguard, local breed

Targeted selective treatment against parasitic nematodes : results of a participative approach in collaboration with farmers to implement TST strategy in dairy goat flocks.

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Parasitism with gastrointestinal nematodes (GINs) in goats provoke major economic losses. The usual mode of control of these worms relied usually on the repeated use of chemical anthelmintics (AHs). However, the development of resistance to AHs is nowadays a serious challenge for the sustainable control of GIN infections especially in dairy goat production. To limit the development of resistance to AHs, different strategies have been proposed. One of them, called the targeted selective treatments (TST) aims at restricting the use of chemical treatments selectively to the most infected animals, which represent also the highest risk for the rest of the flock. Until now, the usual TST scheme proposed by scientist to the farmers have relied on sub clinical and/ or epidemiological criteria. The objective of the current study was to develop a TST strategy relying on a participative approach, based on a close collaboration between scientist and farmers in order to define farm-made criteria and to facilitate the adoption of TST by the end-users. This was performed through a 2-year survey involving 18 goat farms in the South West of France. The pertinence of the criteria defined by the farmers to identify animals at risk on each farm was ascertained by objective measurements (fecal egg counts and PCV) by comparison to the rest of the flock. The results allowed to identify novel criteria to apply the TST strategy. They showed that 50 % of the farmers can, based on their self-defined criteria, spot high infected animals which request to be treated. Because of the co construction process, it is expected that such an approach will facilitate the long term adoption of the innovation represented by the TST strategy.

Keywords: Gastrointestinal nematodes ,Target Selective Treatment ,Anthelmintic resistance ,Participative approach ,Farm study

Technical and economic analysis of dairy goat farming: A case study for Turkey

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The main purpose of this research is to analyze technical and economic aspects of goat milk production in the light of the data obtained from farmers in the provinces Izmir, Canakkale and Balikesir. Data has been collected from 234 goat farms through proportional sampling. The activities of goat farms for the year 2013 have been analyzed under three groups based on the quantity of animals. First group consists of farms with 75 goats and less, second group consists of farms with 76-150 goats while third group consists of farms with 151 goats and more. Mean quantity of animal units in these farms equal to 128,23 and 44.90% of these are comprised by Hair goat whereas 44.71% of these are comprised by Saanen x Hair goat hybrid genotypes. Mean milk production per farm has been determined as 26251.82 kg, and mean daily milk production per animal was determined as 1.65 kg. 85.38% of the milk is marketed to dairy enterprises and integrated enterprises which process milk. Average milk price paid to the farmers is 1.31 TL/kg. The mean cost of milk in the farms has been determined as 0.75 TL/kg. The cost rises to 0.98 TL/kg in the event that supports are not used.

Keywords: Goat farming, small ruminant, animal production, animal husbandry, livestock economics, farm economics, farm analysis.

Preliminary data on the anticoccidial activity *in vivo* of *Psoralea bituminosa* against goat coccidiosis

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Coccidiosis is one of the most important parasitic diseases affecting goat industry worldwide. The infection by the different Eimeria species leads to high economic losses, often associated with high mortality rates in goat kids. Continuous and indiscriminate use of anticoccidial drug treatments against coccidiosis has resulted in the development of resistance. Thus, this study aimed to evaluate the effects of Psoralea bituminosa (Tedera), a wild plant used as forage by shepherds in the Canary Islands (Spain), against natural infections with Eimeria spp. For this purpose, a total of 22 goat kids were divided into two experimental groups: (1) animals fed with concentrate and Psoralea bituminosa dried forage and (2) animals fed with concentrated and conventional Ryegrass forage. This feeding regimen started one week before weaning (day 0) and was maintained during the whole experiment. On days 0, 36, 45, 58 and 128 faecal samples were individually collected from the rectum in order to determine the OPG (oocysts per gram of faeces) counts; additionally, the animals were weighted and examined for faecal score at the same intervals. Goat kids fed with Ryegrass displayed relatively constant OPG counts (mean values of $1x10^5$ OPG, approximately). By contrast, animals fed with *Psoralea bituminosa* had a more variable oocyst excretion, with lower OPG counts compared to group 2 being recorded at the end of the experiment. Significant differences in OPG counts between groups 1 and 2 were observed at day 58 and, according, the faecal score of group 2 was much higher at this sampling time. The global growth rate of goat kids fed with *Psoralea bituminosa* was slightly increased compared to that of group 2 although, probably due to individual variability, no significant differences could be proven. Overall, the results of this preliminary *in vivo* study suggest that *Psoralea bituminosa* given as dry forage to goat kids around weaning may have and anticoccidial effect against *Eimeria* infections.

Keywords: parasitic

Role of goats and goat husbandry for forest conservation and wildfire control in Mediterranean and Aegean region of Turkey

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Forest fires are a recurring phenomenon in, and have always had a pervasive influence on Turkish forests. In the period 2003-2013 a total of 36,724 fires burned a total of 150,100 hectares of forest land. In recent years, there has been a gradual increase in the number of fires, but due to the increased and effective use of technology in transportation, communication and fire suppression, the area burned has been cut in half and kept at a range of 12,000-14,000 ha on average. The distributions of fires to different regions are as follows: 41% of the fires occur in Aegean; 24% in Mediterranean; 22% in Marmara; and 13% in other regions. In the Mediterranean and Aegean regions, every place has a unique fire regime or pattern of fire activity resulting from the interaction of many natural and cultural influences. The majority of forest fires in Turkey are caused by people. People-caused fires account for 98% of all fires, while lightning is responsible for the remaining 2%. Of the people-caused fires 23% was classified as arson, 27% as negligence and carelessness, and 50% as unknown. On the other hand domestic goats are blamed for much of the destruction of the forests in Turkey. There is hardly a single study on deforestation in the Mediterranean Basin which does not specify goats as a primary cause. Over the last few years, however, it has been realized that it is not goats per se that are the real culprit but the continuous, uncontrolled overgrazing for which humans are responsible.Although uncontrolled goat grazing has contributed to the destruction of Mediterranean forests, their controlled grazing can be beneficial.In discussing livestock grazing in the forests, domestic animals are instrumental to the functioning of these ecosystems because they contribute to nutrient cycling and thus to an increase of their productivity. Because of low temperatures in winter and the lack of sufficient moisture in the summer, decomposition is slow, resulting in the accumulation of organic material on the ground. This can lead to devastating wildfires. Grazing animals can reduce this material and thus prevent forest fires.The role of goat in reducing fuel has received special attention in the last few years in Turkey. In this lecture the role of goats and goat husbandry for forest conservation and wildfire control in Mediterranean and Aegean region of Turkey were analyzed and discussed.

Keywords: Sivopastoral systems,Forest Conservation ,Grazing in Forest Areas,Prevent Forest Fires by Grazing Goats, Mediterranean Region, Turkey

Cap and Trade Permits to Regulate Goat Population in India: An Exploration

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This paper explores how a system of cap and trade that can be applied to limit open grazing of goat population in India. Though cap and trade is common widely applied to control air and water pollution, its exploration in the case of open grazing of goats is relatively novel. The ideas are tested in through focus group discussions (FGDs) with 182 goat rearers in six different locations across India. The paper discusses the benefits and limitations in the use of tradeable grazing rights.

Keywords: Cap,tradeable permit,regulate goat populaiton

Changes of Organic Acids and Sugars in Goat Milk and Yogurt

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Organic acids have two functional properties: preventing the development of spoilage by pathogenic microorganisms as natural preservatives, and improving the sensory characteristics of dairy products. The object of this study was to determine the changes in organic acids and sugars during yogurt-making. Yogurt was produced from goat milk, collected from the indigenous dairy goat breeds, using one day old goat milk yogurt as starter culture. The organic acids and sugars were determined by reverse phase high performance liquid chromatography method. Citric, succinic, formic, lactic, acetic, propionic, butyric, pyruvic, oxalic, orotic, hippuric and uric acids, and lactose, glucose and galactose sugars were found in raw goat milk and yogurt. The organic acids and sugars were influenced by the fermentation process. While citric, succinic, formic, pyruvic, hippuric and uric organic acids decreased during yogurt-making, lactic, acetic, butanoic, oxalic and orotic acids increased, and propionic acid were unchanged. Milk had citric acid (152.24±85.54 mg/100g) as a major organic acid, while lactic acid (986.37±70.24 mg/100g) was the major acid in the yogurt. Lactose was the most abundant sugar in milk and yogurt, which followed by glucose and galactose in milk, and galactose and glucose in yogurt. During yogurt-making, lactose decreased from 4.30±0.62 to 2.65±0.51 g/100g with a fall of 38%. Increasing in organic acids may be due to the degradation of mainly lactose, is used as carbon source by yogurt bacteria, and/or the synthesis of some organic acids by yogurt bacteria. In contrast, decreases in organic acids are probably that they are utilized by yogurt bacteria.

Keywords: organic acid,goat milk,yogurt

Effect of diets containing treated and untreated sweet orange (*Citrus sinensis*) peels on the performance and nutrient digestibility of west African Dwarf goats fed Gamba grass

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Nine (9) male West African Dwarf (WAD) goats aged 7 - 9 months with an average weight of 9.60kg were used in this study to evaluate the effect of diets containing treated and untreated sweet orange (*citrus sinensis*) peels on the performance and nutrient digestibility of WAD goats fed gamba grass. *Three diets, T_1, T_2, and T_3 were formulated to contain 0% sweet orange peel* meal (SOPM), 60% unfermented sweet orange peel meal (UFSOPM) and 60% fermented sweet orange peel meal (FSOPM), respectively and used as concentrate diets . The goats were randomly assigned to the diets in a completely randomized design in which each diet received three goats and each goat served as a replicate. Each goat was fed 200 grams per day of the respective diet as supplement to gamba grass for a period of 77 days. Results showed that there were no significant differences ($P>0.05$) among the treatments in all the performance parameters measured. The mean daily feed intake were 312.40g, 297.70g and 312.50g while the mean daily weight gain were 23.00g, 16.96g, 14.59g for T_1, T_2, T_3 respectively. The dry matter (DM) and nutrient digestibility values were also not significant ($P>0.05$) among the treatments. Dry matter and all the proximate constituents showed a similar trend of a very slight decrease in digestibility from T_1 - T_3. The nutrient intake also followed a similar trend as the DM and nutrient digestibility, except for EE and CF values which did not followed any particular trend. These slight decreases from T_1 - T_3 were however, mere numerical variations, therefore, treated or untreated sweet orange peels can be used to replace 60% of maize offal in concentrate supplement diets of West African dwarf goats.

Keywords: Unfermented sweet orange peels.,fermented sweet orange peels.,WAD goats,gamba grass.

Cryptosporidium infection of goat kids in Diyarbakır

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Cryptosporidiosis is an infectious gastroenteritis that affects goat kids causing high morbidity, mortality and significant economic losses to the goat industry. *Cryptosporidium* species are ubiquitous in the environment and are highly resistant to harsh environmental conditions and many of the common disinfectants are ineffective in inactivating *Cryptosporidium* oocysts. This study conducted to highligts the importance of cryptosporidiosis in goat farming in Diyarbakır. For this purpose, 112 fecal specimens from diarrheic goat kids up to 45 days old collected between 2015 and 2016. Whole fecal samples were collected directly from the rectum of the animal by using disposable gloves and plastic containers. Fresh feces were examined for the presence of *Cryptosporidium* oocysts by microscopy of zinc sulfate flotation technique. Then, Crypto/Giardia-Cel FITC Stain was used to demostrated cryptosporidium oocysts. Fecal samples stain fallowing kit procedure and examined by fluorescence microscope. These oocysts were scored at a magnification of 200 as follows: (1 to 9 oocysts per field of view), (10 to 50 oocysts per field of view), or (50 oocysts per field of view). 76 (67.86%) out of 112 diarrheic fecal samples were positive for *Cryptosporidium* oocysts. 76 samples were diagnosed with an immunofluorescent-antibody test as having *Cryptosporidium* infections were relatively heavily infected; 32 (42.10%) were categorized as +++, 32 (42.10%) was categorized as ++, 12 (15.78%) were categorized as +. In this study was demonstrated the importance of cryptosporidiosis in diarrheic goat kids in Diyarbakır. We believe, goat breeders should be taken important measures for this infection in this region.

Keywords: Cryptosporidiosis,goat kid

Updated strategies of daily milking frequency for intensive dairy goat farms

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With the aim of studying the long term effects of milking frequency, a herd of Murciano-Granadina dairy goats submitted to once-a-day-milking for the last 20 years, was used to compare once vs. twice daily milking (1× vs. 2×). Goats (n = 34) were divided in 2 groups and randomly assigned to the milking treatments during first week after parturition: 1× (0900 h) and 2× (0900 and 1700 h) for the entire lactation. Individual milk yield was daily recorded for 30 weeks. Goats milked 1× had higher milk flow rate during milking, but average milk yield resulted 22.7% lower than 2× goats (1.56 ± 0.11 vs. 2.02 ± 0.12 L/d; $P < 0.001$). Moreover, lactation peak was greater ($P < 0.01$) and lactation persistency lower ($P < 0.05$) in 2× vs. 1× (2.51 ± 0.12 vs. 1.90 ± 0.16 L; 65.3 vs. 73.9%, respectively). As an alternative strategy, we investigated the effects of omitting 2 milkings weekly (Saturday and Sunday afternoon) throughout lactation in a second experiment done during the following lactation in the same herd (n = 26 goats). Milk yield was recorded for 30 week and milk composition and somatic cell count (SCC) were measured daily during week 28. Average milk yield was 2.00 ± 0.12 L/d and persistency 78.1%. Despite observing a decrease in milk yield and fat content on the milking omission days, both traits were compensated in the following 2 days (Monday and Tuesday), with no effects on total milk yield. Milk protein content and SCC did not vary between test days. In conclusion, we found greater milk losses than expected when practicing 1× for whole lactation, misadvising on a generalized adoption of this milking routine in intensive dairy goat farms. Omitting 2 milkings during the weekend did not have noticeable effects on both averaged milk yield and composition. Consequently, we considered skipping milkings during the weekend as an appropriate milking strategy for reducing workload and improving farmer's quality of life in intensive dairy goat farms.

Keywords: Dairy goat,Milk composition,Milking frequency,Milking omission,Milk yield

Detection of Beta-Laktoglobulin (β-LG) Gene Polymorphism in Hair and Halep (Damascus) Goat Breeds in Turkey

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The aim of this work was to examine the allele structures of beta-lactoglobulin (. -LG) gene in Hair (172) and Halep (Damascus) (97) goat breeds that have been raised in Turkey. A total of 269 goats were genotyped for the β-LG-*Sac*II polymorphism by polymerase chain reaction and restriction fragment length polymorphism (PCR-RFLP). In the examined breeds, digestion of amplification product with *Sac*II restriction enzyme revealed two alleles namely, A and B and two genotypes (AA and AB). The BB genotype was not found on both of Hair and Halep breeds. Allelic frequencies for Hair and Halep breeds were 0.86 and 0.97 respectively for A allele; 0.14 and 0.03 respectively for B allele, while genotypic frequencies were 0.721 and 0.948 for AA and 0.279 and 0.052 for AB respectively. Deviation from Hardy-Weinberg equilibrium was observed in the Hair goat breed ($P<0.05$) while deviation from Hardy-Weinberg equilibrium was not observed in the Damascus breed. As a result, this study provided information on the polymorphism of β-LG in two Turkish goat breeds. Additionally, this study reported the existence of a genetic polymorphism at β-LG- *Sac*II in Halep goat breed in Turkey for the first time.

Keywords: Beta-Laktoglobulin gene,goat,RFLP,SacII polymorphism

Angora goat production situation and future vision of Turkey

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Goat breeding has an important role in Anatolian culture for many years in Turkey. As it known Angora goat has spread to the World from the Central Anatolian Plateua which is within the boundaries of Turkey. Angora goat breeding in other areas of the world has a past of approximately 170 years.

Anatolian, especially Ankara and its close territory, where comes to the mind as the place of Angora goats (*Capra hircus ancryrensis*) cultivating in the world, has unfortunately lost its superiority recently. Geographic and ecologic conditions are suitable for goat raising as well as socio-economic circumstances of the goat keepers. Turkey has approximately 10.4 million goats, which has attractive breeding systems and genetic diversity, and is one of the major goat breeder countries in Europe. Major Turkish goat breeds are Angora (Mohair), Kilis, Damascus, Hair and Honamli goat. The goat population of Turkey is mostly composed of the Hair goat (97%) (Anatolian Black) while another important genetic resource is Angora goat and the rest of them are different local types.

Angora goat is concentrated in the Central Anatolia, especially in the province of Ankara and surroundings. This breed also exists partly in some provinces of South East part of the country. They are raised particularly for mohair production, which is a raw material for textile industry. Angora goat farms are located mainly in the lowland areas of Central Anatolia.

Angora goats number was 1.2 million head at the beginning of 1990's, this number has fallen in about 83% rates in the last 25 years. Likewise mohair production is also decreased by 76%. In the course of time, textile industries are well improved and synthetic fibers getting important and it is instead of organic fibers. Consideration all of these negative factors effect to Turkish breeders and mohair prices dramatically down. Big part of angora breeders stopped breeding and they moved on the metropoles. According to Turkish Statistical Institute (TURKSTAT) data Turkey has 205 thousand head Angora goats and they have produced 300 thousand metric ton mohair in 2015. Turkish Ministry of Food

This presentation aims to share Angora goat breeding active situation, facing problems of Turkey and will suggest some solutions to develop Angora goat sector for future.

Keywords: Keywords: Angora goat, mohair, breeding, fiber production

Healthy Udders : High Qality Milk

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Small Ruminant Milk of Quality A has a total bacterial count 100000 cfu/ml, SCC below 1000000 cell/ml. Water shouldn't be added to the milk and the taste and the smell of the milk shouldn't change; it also has to be cooled below 7°C within 2 hours after milking. Milk of Quality A has the features required for production and sale of pasteurized bottled milk, yogurt, ice cream and other soft dairy products. On the other hand, Milk of Quality B has a total bacterial count below 300000 cfu/ml, SCC below 1500000/ml. Water shouldn't be added to the milk and the taste and the smell of milk shouldn't change; it also has to be cooled below 10°C within 2 hours after milking. Milk of Quality B is used for cheese production. The residues and the contaminants (Veterinarian drug residues and pesticides, heavy metals, Poly Carbon Compounds and mycotoxins) should not exist in the raw milk. Mastitis is defined as pathological changes in the mammary gland tissue and physical, chemical and generally bacteriological changes in milk caused by these pathological changes. The objective of mastitis control programs is to protect healthy mammary gland. In the mammary health control programs, caring, feeding, bedding, hygiene, quality of milking machinery, pre and post dipping, monthly milk analysis and records, strip cup tests before milking, segregating the infected animals, and culling if necessary, dry period treatments are important. High quality milk production begins with learning and practicing daily milking rules correctly.

Keywords: milk quality, dairy goat

'Therapeutic Indigenous vaccine' for the treatment of a goatherd of Jakhrana breed endemically infected with Johne's Disease and suffering from serious set back in health and production

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Therapeutic efficacy of 'Indigenous vaccine' using novel biotype ('Indian Bison Type') of *Mycobacterium avium* subspecies *paratuberculosis* (strain 'S 5') was evaluated in a goatherd of high milk yielding Jakhrana breed endemic for Johne's disease. Vaccine response was studied (2007-08 and 2013-14) on improvements in health, clinical condition, productivity, reproductive performance, milk yield, survivability and shedding of MAP. Goats (225) and kids (39) born to vaccinated goats were vaccinated in 2013 and 2014, respectively. Peak titers were achieved 90 DPV and all vaccinated goats sero-converted. Presence of MAP in blood of goats was reduced by 45 DPV. In the vaccinated goats following improvements were recorded: reduced shedding of MAP (in goats and 1st generation kids was 45.5 and 100.0%, respectively); High mortality due to JD and other diseases reduced substantially; cases of clinical JD reduced; Productivity of goats improved (gained 8.91 kg milk/goat/month); Average gain in body weights distinctly improved in goats (females- 2.47 and males- 11.0 kg) and in Ist generation kids (3.35 kg) born to vaccinated goats; reproductive performance/tupping percent improved; Reduction in culling (4.3%) and annual morbidity and mortality (2.1%) of kids and goats. Increased milk production and average body weight gains were Statistical analyzed by Instat-Graph-Pad software.

Keywords: Paratuberculosis,Indigenous vaccine,Indian Bison type,Therapeutic efficacy,sero-conversion,endemic

Effects of Breed, Lactation Period and Waiting-period Before Milking on Organic Acid Contents of Raw Milk from Damascus and Kilis Goats

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Organic acids are important due to their preservative properties and also part of the milk buffering capacity. In mammals, organic acids are filtered directly from blood into milk. Succinic, formic, lactic, acetic, propionic and butyric are produced from carbohydrates such as cellulose, xylose by the bacteria and protozoa in ruminant. The object of this study was to determine the effects of the different goat breeds (Kilis and Damascus) and the waiting-period before milking on organic acids in milk during lactation period. The study was carried out with 20 head of Damascus (Shami) goat and 20 head of Kilis goat. Goats from each breed were randomly separated to two groups which were described as control and experimental. After returning from pasture, additional concentrate feed (1 kg/day) was offered to all the goats. Control group goats were immediately milked. The experimental group goats were milked after 1h-waiting. The organic acids were determined by reverse phase high performance liquid chromatography method. Citric, succinic, formic, lactic, acetic, propionic, butyric, pyruvic and oxalic acids were found in all the milk samples. Lactation period and 1h-waiting before milking affected the most organic acids in milk from both goat breeds. Citric, succinic, formic and lactic acids were the major organic acids. The mean values of citric, succinic, formic and lactic acids of milk produced by control and experimental groups during lactation were 2038-2183 mg/L, 338-437 mg/L, 1085-2269 mg/L and 853-866mg/L for Damascus goats, and 1849-1674 mg/L, 407-231 mg/L, 1243-1406mg/L and 864-846 mg/L for Kilis goats, respectively. In milk of control and experimental groups from both breeds, citric and succinic acids decreased, and propionic acid increased at the end of lactation compared to the beginning of lactation. The remaining organic acids showed fluctuations as increase and decrease or unchanged.

Keywords: breed, milk,lactation period,organic acid

An Outbreak of Parapoxvirus Infection in a Goat Herd from South Anatolia, Turkey.

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Orf virus, which causes pustular dermatitis in sheep and goats and is transmissible to humans, is in the Parapoxvirus genus of the *Poxviridae* family. The aim of the current study was to diagnose this economically important disease in infected goat farms and present the molecular characterization of the virus. For this purpose, sick lambs were sampled from an outbreak in Korkuteli district, Antalya, Turkey. The disease was diagnosed by PCR. All scab suspensions were orf virus positive. The partial protein-coding region of the *B2L* gene of five samples was amplified, purified and sequenced. Phylogenetic analysis based on *B2L* major envelope protein gene amino acid sequences showed that the orf viruses identified in these outbreaks were closely related. As far as we know, this is the first study demonstrating a relationship between goat orf virus strains in Turkey and other parapoxvirus strains elsewhere. The findings revealed that the detected orf virus strains, especially TR-ORF-Caprine-2013-1, have a very close relationship with those isolated from a goat in 2007 in Turkey, based on a comparison of a sequence in the GenBank database.

Keywords: Contagious ecthyma, goat, orf, PCR, phylogenetic analysis.

Effects of Non genetic Factors on Body Weights of Hamra goat population in North of Morocco

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The aim of this study was to evaluate the growth performance of Hamra goat population and to estimate non-genetic effects on body weights and average daily gains. Data were collected on 631 kids between 2011 and 2014 and analyzed using the GLM procedure of SAS. Least-squares means for birth weight (BW), weight at 10 (W10), at 30 (W30), at 90 days (W90), average daily gain from 10 to 30 days (ADG10-30) and from 30 to 90 days (ADG30-90), as well as mortality rate were 2.10±0.51 kg, 3.10±0.51 kg, 4.57±1.20 kg, 9.00±2.56 kg, 78±44.3 g/day, 74±33.5 g/day and 14%, respectively. Male kids had higher ($P<0.05$) body weights and ADG than female kids. Single born kids had the heaviest weights at all ages and the highest growth rates than twin-born kids. Moreover, kids born in winter-spring had the highest W10, W90, ADG10-30 and ADG30-90, whereas summer-autumn-born kids had the highest mortality rate. Similarly, year of birth had a significant effect ($p<0.001$) on BW, ADG10-30 and mortality rate. It was concluded that the non-genetic factors estimated in this study were important and should be considered in the selection programme of the Hamra goat population.

Keywords: Hamra goat,Non-genetic effects,Growth performance

Nutrigenomics and Goat Husbandry

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Nutrients affect the response of an individual's physiological functions at DNA levels. Nutrigenomics investigates the alternation of gene expression with individual's nutrition, it can also be used to determine the effect of genetic variation on the interaction between diet and physiological functions. The effect of specific nutrients on certain genes and their expressions can be figured out through the DNA Microarray Technology. Nutrigenomic is a relatively new research field in farm animals and, thus in goats. It examines the impact of energy, amino acids, fatty acids and additives in ration at molecular level. For example, amino acids and fatty acids in ration have an effect on milk protein synthesis and quality. There are very limited studies about nutrigenomics in goats.

Goat milk is become popular consuming food because of its structure. Likewise, criticisms are increasing for saturated fatty acid levels in meat and milk. Increasing world population and changing consumer awareness and demands have revealed the need for more healthy milk and meat. Nowadays, the nutrigenomics studies is still ongoing on optimizing the animal nutrition, developing the yield parameters such as meat or milk quality in accordance with the consumer demands, understanding the regulation of the milk synthesis and milk fat metabolism, investigating the interaction between nutrients and reproduction characteristics.

Nutrigenomic studies are important for the identification of candidate genes in breeding programs and understanding the gene expression response to the diet in goats. Definition of what level of genetic or environmental (ration) origin of meat and milk fatty acids in goats and feeding the animals according to this will contribute to production for consumer demands in future.

In this study, nutrigenomic studies in goats are reviewed, and summarized.

Keywords: nutrigenomic,goat,husbandary

Evaluation of factors effecting embryo transfer success in Damascus goats in Anoestrus season

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Studies on multiple ovulation and embryo transfer (MOET) showed that this technique is widely acknowledged as the best available option to a low cost route of exporting genetic material across international boundaries along with control disease transmission during imports. The application of MOET techniques in goats has been much slower than cattle. The success of this technique is very unpredictable due to many factors are contributing to the overall results. Damascus goat, a native breed of Syria and other Near East countries, is considered a dualpurpose animal (meat and milk). Total milk production ranges between 600 kg and 1200 kg per goat per lactation. The Damascus goat is considered a seasonal breeder.

Experiment was initiated to determine effects of factors related to recipient and embryo on MOET success in fresh embryo transfer in Damascus goat in anoestrus season. A total of 9 donor and 60 recipient does were used. Donors were superovulated with 8 ml Folltropin starting at 60h before CIDR removal (8 decreasing doses in 12 h intervals)+ 2ml Receptal at 36h after CIDR removal + 0,5 Estrumate at CIDR (12d) removal. Factors included in the study were number of corpus luteum, site of ovulation and transfer in recipients and number of embryos used as single or in pairs and stage of embryo development. The chi-square test was used for statistical analysis.

Pregnancy rate was varied between 27-50%. Site of ovulation and transfer was not found an important factor in pregnancy outcomes. However, bilateral ovulation in recipient does resulted with relatively higher (50%) pregnancy rate than those observed in recipients with unilateral ovulation (27%). In terms of transfer side, left uterine horn (40%) transfers of fresh embryos were found superior to right uterine horn (33%). In evaluation of single versus twin fresh embryo transfer, it was found that relatively but not significantly higher pregnancy rates were observed in recipients received embryo in pairs (50%) than single (31%). Stage of embryos significantly ($P<0.05$) affected the pregnancy rates; embryos in further stage such as Blastocyst resulted with 50% pregnancy rates compare to Morulla stage (25%). The number of corpora lutea at the time of transfer was found a positive factor when it is more than one CL pregnancy rate increases 10%.

It was concluded that the most important factors to achieve acceptable pregnancy rate in aneostrus season are stage of embryo development and number of embryo used as single or in pairs.

Keywords: embryo, factors,goat

Effects of goat grazing on kermes oak (*Quercus coccifera*) morphology : An indicator of total ecological impact on mediterranian shrub vegetation

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The aim of this study was to analyse in a balanced way the effect of goat grazing. The animals we studied were all Honamlı breed of goats from five farms in the provinces of Antalya and Burdur and we measured the Kermes oak trees (Quercus coccifera L.) that were grazed by the Honamlı goats. According to this analysis, the Kermes oak locally called “piynar”, was the most prominent of the plants grazed by the goats. During these observations, accordingly, we compared the kermes oaks with trunks and those kermes oaks without trunks. The height of the same number of trees with trunk and those without trunk from each farms were measured. The length of the mid – vein of five leaves from each tree including petiole, were measured and the comparison drawn between those leaves from the trees with a trunk and those leaves from the trees without a trunk.

Statistical analyses were conducted using two-way ANOVA and Pearson correlation analysis in R statistical software.

In this study observed very well grown Kermes Oaks at a very close distance from goat pens. These trees around the farms have well developed trunks, but the overgrazed, non – grazed and also those destroyed by the axes of the shepherds do not.

The differences were significant in the length of leaf and the total height, between the trees with trunk and those without trunk. The trees with trunk were taller and developed larger leaves. Moreover, there was a relationship between total height and leaf size in the trees with a trunk, but this relationship disappeared for the trees without a trunk. The leaf size was related to the grazing pressure on the branches of the tree. But optimally-grazed uncut trees can produce non – grazed leaves because of their higher total height. But in this case the smaller leaves of the bushy-shaped grazed kermes oaks seem to have more leaves and this might be one of the positive effects of grazing. The Kermes Oaks, even non – grazed ones, tended to produce lots of leaves on the lower levels of the trunk, but these leaves were smaller in size. The height of these tree trunks can provide an idea about the browsing behaviour of the goats and the grazing range is a little bit less than 2 meters (about 190 cm).

Keywords: Goat Grazing,Honamlı,Kermes Oak,Mediterranean Turkey

Assessment of manure management in goat production systems in Cukurova Region

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Climate change is transforming the planet's ecosystem and threatening the well-being of current and future generations. The livestock sector plays an important role in climate change contributing with a significant share to the anthropogenic greenhouses gases (GHG) emissions. In particular, small ruminant farming plays a crucial socio-economic role in many countries and there is strong interest in measuring and improving environmental performance and production (Marino et al., 2015). The goats play important role in food production and rural livelihoods in Turkey. Goat production is an important contributor for livelihood of the people to whom live in specific area of the mountainous part of Cukurova region of Turkey. The main production system is almost extensive in this area. But some dairy goat farms were raised under intensive production systems in the region, as well. Manure is a valuable organic source of nutrients of plant and renewable energy productions. In that area the manure management is often poor and threatening public health. Thus the aim of this study is to determine, the awareness of manure's potential and the way of management the manure in goat farm of the Cukurova region. For this aim, the questionnaire were performed to the extensive goat farmers for assessing the manure management in Cukurova region. And some strategies and recommendations will be improved to enhance insight on manure management at farm level, as well.

Keywords: goat farming,manure management,sustainability,questionnaire,Cukurova

Economic value of goat rearing in Turkey

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In this study, it was examined the yield productivity of goat breeding in Turkey and that was estimated production value. Study materials are production and price statistics of small ruminants between 2000-2014 years. Production value was estimated based on the producer prices. It was determined that the meat yield per goat did not change in question period. It was found that the yield of milk, mohair and bristle increased as 77.54%, 11.69% and 9.10%, respectively. The largest share in the production value belongs with goat skin (94.67%) at current prices. In this period, it was determined that the total production value increased as 574%. As a result, the milk yield per goat increased significantly in the examined period. Despite of the number of goat increases as 43.66%, the total production value of goat remained well behind of sheep. It is importance, both of increasing of the goats' number and increasing of carcass yield in terms of closing the red meat production deficiency in Turkey and contributing of export incomes.

Keywords: Goat Breeding, Yield Productivity, Production Value, Turkey

Identification of a novel SNP at *Thyroid hormone responsive*(THRSP) gene in native goat breeds of India

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Precise knowledge of the genes causing variation within a trait will provide an opportunity for more effective marker assisted selection. Thyroid hormone responsive (THRSP) gene or Spot14 (S14) gene is positioned in chromosome number 29 in goats and has two exons. It encodes for small acidic nuclear protein, associated with lipid metabolism, growth and lactation. Growth is most economically important trait for viable goat enterprise. The present study **was planned** to detect single nucleotide variations in THRSP gene of two native goat breeds of India, namely Malabari and Attappady Black. Malabari is a dual purpose breed, known for its prolificacy and well adapted to hot humid conditions of Malabar coast of India. Attappady Black goat is meat breed reared by tribal in hilly region of Palakkad district in Kerala state. They are hardy and resistant to many diseases. Genomic DNA was isolated from 200 animals belonging to Malabari and Attapady Black goats maintained at University Goat and Sheep Farm. The polymerize chain reaction was done to amplify intron-1 (472 bp) and exon-2 (412 bp) region of THRSP gene. Primers used were, F: 5'-CCAAACTGCCAACTTCAACC-3' and R: 5'-TCACTGCTCTGCCATCCCTA -3') and F: 5'-TCATCACT CGTCACCGTTAG-3' and R: 5'-TCGGCTTCTTAGTTC TGTAGG-3' to amplify intron 1 and exon 2 of *THRSP* gene, respectively.Single strand conformation polymorphism (SSCP) technique was used to detect single nucleotide polymorphisms (SNPs). Two unique band patterns were detected in 472 bp fragment of THRSP gene. The pooled population frequencies of GG and GA genotypes were 0.88 and 0.12, respectively. The allelic frequencies were 0.94 for G and 0.06 for A allele. The chi-square analysis showed no significant differences between breeds. Similar pattern of three bands were noticed in exon-2 region of THRSP gene and the population was found to be monomorphic. Sequencing revealed two single nucleotide variations including a novel SNP at 56th (G>T) and 306th (A>G) position in intron-1 of THRSP gene. This study indicates the existence of genetic variability in THRSP gene on goats. Hence, it could be used as a marker for selection to improve growth traits in goats.

Keywords: Malabari goat, Attappaddy goat, THRSP gene,Spot14 gene SNP

The determination of growth performance of Honamli goat kids

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The aim of this research was to determine growth performance of Honamlı goat kids (from birth weight to 17 months of age) in extensive breeding conditions. Study was carried out with 70 Honamlı kids (35 female, 35 male), kept at the Research and Training Farm of the Faculty of Veterinary Medicine of Mehmet Akif Ersoy University in Burdur, Turkey. Kid's and dams together were pastured on open range fields and among the forest areas from in the morning until evening. Kids were separate from dams at age about 5 to 6 months . The avarege Honamlı kid's weight is 3.9 kg at birth and reaches about 45 kg at 17 month. The average live weights of Honamlı male and female kids on birth, 1, 3, 6, 9, 12, 15 and 17 months of age were determined to be 4.2 kg and 3.7 kg, 10.2 kg and 8.8 kg, 21.4 kg and 17.6 kg, 32.2 kg and 25.7 kg, 39.3 kg and 26.8 kg, 46.3 kg and 30.4 kg, 47.9 kg and 37.2 kg, 51.7 kg and 39.1 kg, respectively. Average of birth weight, 1, 3, 6, 9, 12, 15 and 17 months weight of Honamlı single and twin kids were 4.4 kg and 3.8 kg, 11.3 kg and 9.0 kg, 24.4 kg and 18.2 kg, 35.6 kg and 27.3 kg, 38.7 kg and 31.8 kg, 42.6 kg and 37.2 kg, 46.7 kg and 41.1 kg, 49.5 kg and 43.7 kg, respectively. Kid's growth in some periods of time (autumn and spring) were found stabilise their weight due to nutrition restrictions and the seasons change.

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Keywords: Honamlı goat,kids,growth,performance

Effect of season and storage duration on semen quality of North Moroccan bucks.

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This study was conducted to investigate the effect of season and storage duration on semen characteristics of North Moroccan goat spermatozoa using synthetic extender elaborated at laboratory level. Semen samples were collected with an artificial vagina from 7 mature bucks during the breeding (March-April) and non-breeding season (July - August), extended at a final concentration of 800 $x10^6$ spermatozoa ml^{-1} and stored at 16°C during 24h. During storage, semen characteristics were recorded at 0, 4, 8 and 24h after collection. Viability was analyzed using eosin-nigrosin staining, and motility and morphometry parameters were recorded using a computer assisted sperm analysis. Significantly higher semen concentration ($5.5x10^9$ vs. $4.65x10^9$ spz ml^{-1}), total motility (89.0 vs. 88.4%), progressive motility (77.4% vs. 75.3%), Straight-line velocity (98.8 vs. 81.6 µm s^{-1}), viability (86.9 vs. 85.7%) and head area (30.9 vs. 30.3 $µm^2$) were found during breeding season in comparison to non breeding season ($p<0.05$). As expected, semen quality dropped significantly during storage. Total motility (88.7 vs. 66.3%), progressive motility (76.9 vs. 56.7%), curvilinear velocity (140.3 vs. 110.5 µm s^{-1}) and viability (86.3 vs. 65.1 %) showed a significant reduction during 24h of storage. Motility parameters decreased significantly after 4 hours of storage ($p<0.05$), remain stable until 8h ($P>0.05$) and reached the lowest value at 24 hours ($p<0.05$). However, motility parameters were better preserved in semen collected during breeding than in non-breeding season ($p<0.05$). In conclusion, the season affects the quality and conservation ability of semen in north Moroccan goat.

Keywords: North Moroccan goats, Season, Storage ,Semen Characteristics ,Motility ,Morphometry

Crossbreeding studies in west Anatolian goat production

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Crossbreeding studies of goat breeding in West Anatolia had put in practice by Ege University Faculty of Agriculture, Animal Husbandry Department could be divided into two groups as Hair goats and domestic dairy breeds crossbreeding studies.

Crossbreeding studies with Hair goats had done in order to increase their yields and reduce their numbers gradually. The first study in this regard was crossbreeding between Hair goat females and males from Saanen and Maltese breeds. Another study in the breeders conditions are related to results of Saanen and Hair goat crossbreeding project which had lasted for thirty years.

The crossbreeding studies with domestic dairy breeds in Ege University Agriculture Faculty had formed between Saanen and Maltese breeds in 1965. Although it was not a conscious planning, the F1 crossbreeds of goats distributed around Izmir and this was the first foundations of dairy goat breeding in the region. In the other study, White German x Maltese (G1) crossbreeds artificially inseminated with frozen semen of Anglo-Nubian breed, and Bornova type was obtained as a result.

Keywords: Crossbreeding,Goat,west anatolia

Body weight affects mean retention time in the rumen of growing Saanen goats

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Rumen development has a clearly large impact on the digestive capabilities and supply of substrates to the growing ruminant, and it is modulated by the increase on body weight (BW). On the other hand, it is still controversy if mean retention time (MRT) is dependent on BW, therefore, it is essential to understand the differentiation in the various segments of GIT integrated to the feed intake, pool size, MRT, and fiber digestibility in growing animals. This study examined the effect of increased BW on MRT of both particulate and solute marker, and gastrointestinal tract (GIT) development in the gastrointestinal tract of growing Saanen goats using the slaughter technique. A total of 62 Saanen goats with initial BW of 30.4 ± 1.4 kg were allocated into 9 treatments with a 3 × 3 factorial arrangement consisting of 3 sexes (female, castrated males, and intact males) and 3 slaughter weights (initial, intermediate, and final; target BW of 30, 37, and 45 kg at slaughter, respectively). They were fed with identical diets twice daily for ad libitum intake. Mean retention time of particulate matter was estimated by in situ determination of indigestible NDF (iNDF), and the MRT of solute marker was determined by Cr-EDTA. Treatment effects were evaluated in a considering the effects of sex, slaughter weight and their interaction. Orthogonal polynomial contrasts were used to determine linear and quadratic effects of slaughter weight, whereas the effect of sex was compared using the Tukey test. The effects of sex and sex × slaughter weight were not significant for most of variables evaluated. The results showed that dry matter, organic matter (OM), neutral detergent fibre (NDF), and iNDF intake (g/kg BW) linearly decreased with increasing BW ($P<0.01$). Males showed greater OM and NDF intake compared to females ($P<0.04$). Generally wet weight of the total GIT tissues (g/kg BW) decreased with increasing slaughter weight ($P \leq 0.05$). Particulate matter retention time increased in the reticulorumen and cecum as body weight increased ($P \leq 0.03$). However, there was no effect of particulate matter retention time in the colon ($P=0.71$). As body weight increased, liquid MRT quadratically increased in the reticulorumen with greatest observed value at final weight ($P=0.02$). Mean retention time of particulate matter and was not affected by sex ($P > 0.05$). Mean retention time in Saanen goats is affected by BW, however sex does not play an important role on it.

Keywords: growing goats, iNDF, Passage rate

Assessment of reproductive traits of Honamlı does by observation of sexual behaviour and measurement of serum progesterone and estradiol concentrations

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Reproductive and productive traits of Honamlı goats have been demonstrated, based on monitoring progesterone and estradiol profiles, monitoring follicular development through ultrasonography and, observations of reproductive behaviors in this study.

The study consisted of 20 heads of Honamlı does were used, had given birth at least once previously. The study was conducted from September 2013 from October 2014 in Research and Application Farm of Mehmet Akif Ersoy University. The does and bucks were housed in a straw bedded semi-open goatfold. They were fed with concentrate daily with alfalfa hay and barley straw. And, they were grazing on pasture when weather conditions permit. Water was ad libitum. Does were randomly assigned to 2 groups. In the first group (G I, n=10, not-mating group) does were not mated with bucks. Each does were monitored two consecutive estrous cycles in breeding season and, time of estrous cycle, number of follicular wave, length of estrus, breeding season and anestrus period were determined. In the second group (G II, n=10, mating group) does were hand-mated upon the detection of first estrus in the breeding season. Pregnancies, postpartum follicular activities, anestrus period until cyclic activity begins were monitoring weekly with ultrasonographically and determining serum hormone levels.

First estrus lengths in breeding season were shorter than normal cycle length (8.44±5.02 days) in all of the does. In GI, average length of interestrus interval, numbers of follicular waves were found as 19±0.8 and 2.88±0.3 respectively in terms of follicular monitoring findings with ultrasonographically and serum progesterone analyses. Average estrus lengths were determined with using teaser bucks (36±12 hours). Luteal and follicular phases of the cycles in does with 3 follicular waves were defined as 12.75 ± 0.7 and 6.25 ± 0.7 days respectively. The day of emergence of a follicle was regarded with detecting ≥4 mm diameter follicle by ultrasonographically. Emergence days of first, second and third follicular waves were determined as 0, 6.5 ± 1.3 and 12.75±0.7 days respectively. In GII, gestation length, litter size, lactation period and kidding-conception interval were determined as 148.5±1.77, 1.6±0.51, 184±17.72 and 223.8±13.56 days respectively.

The data obtained from the study were the first comprehensive set of reproductive traits on Honamlı goat breed. Results of this study have potential to increase reproductive efficiency and, application of biotechnological methods on Honamlı goat in the future. This study was financed under a project supported by the TUBITAK (project no 112R031)

Keywords: Honamlı, goat, reproduction, progesterone

Genetic parameters of some performance traits in Beetal Goats in Pakistan

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The Beetal is one of the heaviest dairy type goat breeds, well known for milk production and has largely been used in cross breeding and other goat improvement programmes. Beetal is more prolific and adapts more easily to different agro-ecological conditions and stall feeding. Data on performance traits (Birth weight, Weaning weight, Yearling weight) from 2006 to 2012 were collected and analyzed to determine the genetic parameters in a purebred flock of Beetal goat maintained at Small Ruminant Training & Research center Ravi campus Pattoki-Pakistan. The genetic parameter i.e., heritability, was estimated. The breeding values for different traits were estimated for comparative ranking of animals. Phenotypic and genetic trend lines were drawn to assess the selection success in previous generations of Beetal goats. All these analyses were carried out using WOMBAT computer soft ware which is specially designed for the estimation of variance components. The birth and weaning weight of Beetal goat averaged 2.83 ± 0.11 kg and 10.25± 0.71 kg whereas yearling weight was 19.72 ± 0.72 kg. Birth weight of Beetal goat varied significantly due to year, season, sex and type of birth. Analysis of variance showed significant effect of birth weight, weaning age and season of birth on weaning weight of Beetal goat whereas year of birth, type of birth, sex and kidding number showed non significant effect. The estimates of heritability for birth weight, weaning weight, yearling weight in Beetal goat were similar i.e. 0.126 while for post weaning average daily weight gain (3-6 months),(6-9 months),(3-12 months) estimated heritabilities were 0.127, 0.127, 0.118. The low heritability indicated the presence of less additive genetic variance and large environmental variance. Hence, improvement in the traits through selection may be limited. The estimated breeding values for birth weight of Beetal goat ranged from -0.23 to 0.44 kgs in males. The corresponding values were from -0.23 to 0.35 kgs in females. The estimated breeding value for weaning weight ranged from -1.07 to 1.10kgs in males and corresponding values were from -0.99 to 1.07kgs in females. The breeding values estimated for yearling weight were -0.60 to 0.87 in males and -0.42 to 0.49 in females. The estimated breeding value pre-weaning growth rate were -0.85 to 0.97 gms in males and -0.85 to 1.21 gms in females.

Keywords: Beetal,heritability,breeding values,Pakistan

Group dynamics of Anatolian Bezoar Ibex (*Capra aegagrus aegagrus*) in coruh valley wildlife reserve, Artvin, Turkey

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Population viability of wild goats is depended on the group dynamics, survival rates and population sizes. The diurnal group dynamics of the Anatolian Bezoar Ibex within a 23,000 ha pasture and forested lands of the Coruh Valley Wildlife Reserve were studied during the rutting season in Artvin, Turkey. The point and transect counts methods were used to determine the group dynamics. Individuals were defined as a different group if they were at least 50 m apart from each other and have different feeding/walking direction. The observations showed that rutting season started in December 15 and ended in January 20. The birth season lasted till late May depending on the local climate conditions. The Deterministic Analysis was used to find the population relationship between and within the groups. The averaged group size was consisted of 28.56 individuals of whom 4.44 were young males (2-3 years old), 2.63 were 4-5 years old males, 2.42 were 6-7 years old males and 2.5 were old males (8 years and older). The averaged female sizes within the groups were 13.57 females and 11.11 yearlings. The group dynamics showed that each female nearly having the one yearling. After the rutting season, females, yearlings and young males (2-3 years old) were stayed together with small groups (10-15 individuals) and old males left the groups. The total amounts of Anatolian Bezoar Ibex were estimated 1057 individuals within the Coruh Valley Wildlife Reserve area. The lack of observing very old males (12-15 years) within the groups would be attributed to poaching by the locals and the dam construction activities. Future observations will be focused on the survival rate of males, females and yearlings.

Keywords: Group dynamics,Anatolian Bezoar Ibex,Coruh Valley Wildlife Reserve,Artvin

Estimation of urinary nitrogen excretion of lactating goats through urine creatinine analysis in Northern Italy farms.

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Urinary nitrogen (UN) excretion represents one of the most important factors affecting the environmental impact of dairy farms. A lot of data on this topic are available for cows while only few studies were conducted on dairy goats. Creatinine is used to estimate the urine volume (UV) in function of live weight (LW) in cattle and this marker could also be used in goats. The aim of this work was: 1) to test the validity of the urine creatinine marker to assess the volume of urine excreted in the goat; 2) to evaluate the UN excretion in some Northern Italy dairy goat farms.

The study was performed in two phases. Firstly, it was determined the urinary creatinine (UC) excretion (mg/d), obtained from *in vivo* nitrogen balance trials carried out on goats placed in metabolic cages (n=48) with urine total collection. These data were used to develop an equation for the estimation of UV in function of live weight (LW) and UC concentration.

In the second part of the work, in 8 goat farms of Northern Italy, individual spot samples of urine on about 10% of the lactating goats were collected, and individual LW was measured. On urine samples UC concentration (mg/L) and UN (g/L) were determined. The composition and the chemical analysis of the diets were determined. Milk yield and composition were registered from the official milk recordings.

The linear regression analysis between the daily UC excretion and the LW resulted in the following equation: UC excretion (mg/d) = 22.4 x LW (kg) - 393 (n=48; r^2= 0.25; P<0.001).

Applying the result of this equation, it was possible to estimate the UV as follows:

UV (L/d) = (22.4 x LW (kg) - 393) / UC concentration (mg/L). Consequently, it was possible to estimate the individual daily UN excretion (g/d) of the goats in each farm.

The estimated average UN excretion resulted 24.4 g/d. The minimum and maximum values of UN excretion observed (20.6 and 30.5 g/d) were strongly influenced by the balance between requirements and allowances of intestinal digestible protein. The data show that it was possible to reduce the UN excretion of about 1/3, applying a correct diet formulation.

Keywords: urinary nitrogen ,lactating goats,creatinine,nitrogen excretion

Meat quality and performance of pasture based fattened organic goat kids in Germany

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In contrast to the increasing demand for goat milk products in Germany, a market for goat kid meat as a joint product does not exist. The high quality is not recognised by German consumers. Thus, the objective of this study was to find out if cross-breeding of meat-goats could improve meat quality and performance of fattening goat kids together with other factors like concentrate ratio of the diet, genotype, sex, housing vs. pasture as well as raising strategy during milk feeding period. Our study was carried out on our experimental farm from February 2011 until September 2012. For the two-year fattening experiment 25 German Improved Fawn goats (BDE) were bred using a BDE buck, whereas other 25 BDE goats were crossbred with Boer bucks. After kidding, kids were raised by their dams for 45 days and selected by sex, genotype and weight to form groups of 9 – 10 goat kids each. As an additional treatment, concentrates from pure pelleted wheat coarse meal were fed either 10 % of total dry matter intake per goat kid and year (KF10) or 40 % of total dry matter intake per goat kid and year (KF40). Animals were slaughtered at a commercial slaughter plant under scientific supervision. Measures of pH 24, conductivity etc. were taken at the slaughter house, a sample of longissimus dorsiwas taken and frozen for analysis of tenderness and fatty acid profile. Experimental data were recorded using Excel sheets. Statistical analysis was conducted by using SAS 9.3 and proc GLM. Our results indicate that even a low input level of concentrates (10 % of total dry matter intake per goat kid and year) is sufficient to achieve the requested carcass weight of 12 kg at slaughter when goat kids are kept on pasture. Comparing years 2011 and 2012, dressing percentage was 4 % higher in 2012 for both concentrate levels. Daily weight gain per kid ranged from 122 to 133 g/d significantly influenced by concentrate level and sex, in 2011 as well by genotype. A low concentrate level (KF10) resulted in higher contents of Omega 3 fatty acids, male KF10-goat kids had highest omega 3 content of 1.19 g/100 g of fatty acids. It can be concluded that rearing and fattening of goat kids even under low input production levels on pasture can be realized and will produce better meat qualities regarding fatty acid composition.

Keywords: goat kid meat, fattening,pastoral,meat quality, organic

On-farm welfare assessment of dairy goat farms in Germany

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Dairy goat farming is a growth market in animal husbandry in Germany, especially for organic farming. Despite being neglected compared to major animal species, number of dairy goat farms and milk production in Germany increased year by year since 2000. The growth was driven by a consistent demand on goat milk products. Due to their expansion farmers need for special advise on health, feeding and housing grew as well. Thus, a project was initiated in 2014 to assess welfare and housing systems three times on 40 dairy goat farms in Germany. Major goal was welfare benchmarking to support the participatory "stable school" advisory concept on the same farms.

The project started with the acquisition of dairy goat farms and the preparation of the welfare assessment protocol in October 2014. The welfare assessment protocol was established according to literature sources. Data acquisition was simplified by programming an assessment tool based on visual basic and access databases. The assessment tool runs on a tablet computer and supports visually on-farm data acquisition, mainly animal based indicators. On-farm welfare assessment took a full workday including recording of resource based indicators, building design and measures, measurements of harmful gas concentration (methane, carbon dioxide and ammonia) and an interview of the farm manager. Data recorded were analysed using SAS 9.4 calculating prevalences for all indicators on farm level, group level and for the reference population.

In the first assessment in spring 2015 1876 lactating goats in total were assessed on 40 farms taken as representative sample from all herds. From a set of 22 animal based indicators in total, 7 showed a higher prevalence than 5 %: moderate and severe claw overgrowth, mild udder lesions, small udder scurs, abscesses, head lesions, hairless patches and avoidance distance test. Interestingly not more than 1.6 % of goats showed signs of mild and moderate lameness compared to 47.6 % of goats having moderate claw overgrowth. The concentration of carbon dioxide varied between 476 ppm and 729 ppm and ammonia concentration ranged between 0.9 and 1.2 ppm independently from air volume of the goat barns.

The results of the first application of a welfare assessment protocol on German dairy goat farms could be used as benchmarking input on farm and study group level. Further relations to health data and economy have to be developed.

Keywords: Welfare assessment, dairy goat,air quality

Caprine Arthritis Encephalitis Virus: genetic evolution, tissue tropism and pathogenicity

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Caprine Arthritis Encephalitis Virus (CAEV) is a RNA-virus in the *Retroviridae* family, *Lentivirus* genus, closely related to Maedi Visna Virus (MVV). Together, CAEV and MVV are classified as Small Ruminant Lentiviruses (SRLV), which cause progressive inflammatory disease in goats and sheep worldwide. In goats, the infection leads to different chronic disease syndromes such as encephalitis and leukoencephalomyelitis (LEM), most common in kids, degenerative arthritis, interstitial pneumonia and indurative mastitis in dairy goats. At present, the viral factors that influence the tissue tropism of SRLV have not been identified, and no satisfactory explanation as to how those viruses express different tropism and clinical outcome in different animals was established. We studied the U3 regions of the viral LTR (long terminal repeat) encoding the viral promoter. With this aim , different tissues (blood, central nervous system, synovial tissue, lung, mammary gland and spleen) from 19 naturally SRLV-B1 infected goats, have been used to amplify, sequence and compare 60 regions codifying the CAEV viral promoter. Preliminary data from the sequence analysis and their distribution in the phylogenetic tree did not allow to identify any clustering related to the tissue tropism, supporting the hypothesis that sequence variations within the U3 region is not associated with compartmentalisation. Furthermore, the presence of high-conserved motives in the U3 region confirms its importance in viral transcription. On the other hand, sequence analysis underlined the presence of a mixed viral population, reflecting the quasispecies distribution.

Keywords: SRLV. Tropism. LTR. Goat. CAEV

A glance on the sociodemographic life of extensive goat breeders in West Mediterranean Region of Turkey

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Extensive goat breeders in West Mediterranean region of Turkey may undertake one of the toughest breeding methods. Study intended to define the sociodemographic structure and life of those people. A face-to-face survey related sociodemographic aspects have been employed in 2016 to 157 breeders. Descriptive statistics and tally applications were used to define the data.Breeders were characterised as follows; 94.90% of them were male, mean age was 46.11±0.78, the majority (82.80%) had primary education and 93.63% were married. 64.97% of them ran the business according to the nomadic rules, and milk goats (49.68%) to produce cheese. Mean family member was 4.50±0.14. Women (85.98%) and children (67.13%) contributions to this family activity were essential. “I can’t run this business without my wife” was the declaration of male breeders (82.80%). While grazing and clipping were men’s job, hand milking (100%) and cheese producing held by women. Grandfather and father of more than 97.45% of the breeders used to do same job and 88.54% accepted their job as a family heritage. 84.71% were pleased with their business but only 25.32% of them wanted their children to continue this job. Although 17.20% did not want to stop goat rearing, other 82.80% were planning to end it within 7 years. They wanted the government to increase the subsidy (25%), enlarge the pasture (17%) and allow the forest area for grazing (55%). None of them went to the theatre in their lives and 91% of them never went to the cinema, only 8,6% of them went on a holiday. 89.81% were the members of an organisation and 92.36% were ready to allow their flocks for scientific studies. Goat breeding in the region is not only a livestock sector running together with family members but also it is a rural lifestyle formed its own culture. Breeders are having serious difficulties and sacrificing from their lives to produce the most natural meat and milk. They are happy with keeping goats but the most of them will end within decade and they do not want their children to continue this life. New organisation with increasing subsidy, enlarging pasture, allowance for the suitable forest area and a more social life keep these people to maintain this lifestyle for a long time.

Keywords: sociodemographic,goat,west-mediterranean,survey

Some Behaviour Traits of Honamlı, Hair and Saanen Goats in the Maquis Area

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Limited scientific studies related to Honamlı were mostly on the morphological and physiological characteristics of breds. Therefore there is no resarch related to behavioural patterns of Honamlı goat study intended to compare the behaviour traits of these genotypes in the maquis area.

Study was carried out in maquis area. Ten goats with 2 years old Honamlı, Hair and Saanen were employed in study. Some behaviour traits such as grazing, interest to shrubs, browsing, ruminating and resting of these genotypes were observed in the morning and afternoon, totaly 7 h daily during six months (April-September). Randomly chosen seven goats for each genotype were observed with time sampling method.

According to findings, goats mostly spent their time for grazing in April and May, 66.14% and 63.37% and also browsing in July, 63.14%, respectively. While goats spent more time for resting in the afternoon than in the morning, Honamlı goats had the higher proportion of time spent resting than Hair and Saanen goats ($P< 0.05$). It was found that browsing and being bipedal stance of Hair goats were higher than Honamlı and Saanen ($P< 0.05$). Saanen goats spent more time for grazing and ruminating than the other genotypes. While these differences were statistically significant for ruminating ($P< 0.05$); there were no differences in grazing period between genotypes.

Although, any adequate studies on Honamlı goats behaviours did not found, the results obtained from this study will be used as an archive for the further studies. Using three different goat breds within the same species provided valuable comperative knowledge in terms of grazing behaviour in the maquis area.

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Keywords: behaviour,goat,maquis

Effect of estrus behavioral pattern on pregnancy rates in synchronized Angora goats

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The assisted reproductive biotechnologies to control reproduction in small ruminants are well reported and useful tools to increase farm profitability. Fixed time artificial insemination (FTAI) is the most common method. However, FTAI does not contain estrus behavioral pattern before insemination. The limitation of the hormonal synchronization displaces different estrus behavior patterns and interferes with FTAI protocol. In addition, the complex anatomy of the cervical canal restricts the passage of the insemination instruments during the different time of insemination periods. Therefore, we aim to evaluate the estrus behavioral pattern and its effect on pregnancy rates in angora goats, inseminated with fresh semen.

The experiment carried out with angora does (n: 227) which were randomly divided into four groups; group 1 (PT5 - n: 50), group 2 (PT7 - n: 45), group 3 (PT9 - n: 48) and group 4 (PT11 – n: 96). Hundred and fifty µg of d-cloprostenol i.m. was administered at day 0 and all animals received intravaginal sponges (Chronogest, 20 mg flugestone acetate). All animals received IM 500 IU of PMSG (Oviser, Hipra-Turkey) 24 hours before sponge removal. Estrus behavioral patterns were recorded and categorized as three different scores (0: zero 1: mild and 2: severe) of standing heat, tail wagging, urination, courting behavior, peri-vulvar discharge, vulvar edema and vaginal discharge 24 hours of sponge removal respectively. FTAI was carried out with 0,25 ml fresh diluted semen at 48 h from sponge removal.

Standing heat and tail wagging were the most predominant signs of synchronized estrus. Highest pregnancy rate was recovered with 79,4 % according to vulvar edema zero, vaginal discharge mild and severe with 67 % and 70,3 % respectively. Moreover, significantly higher vaginal discharge was noticed and came along with a close relation with vaginal edema as well ($P < 0.05$). Both standing heat and courting behavior effected the pregnancy rates significantly higher ($P < 0.05$) in the treatment groups.

Results indicate that vulvar edema, vaginal discharge, tail wagging, standing heat, courting behaviors are reliable signs with minimum 55,5 % of pregnancy rates for artificial insemination protocols. However, vulvar edema and vaginal discharge of the doe and time from synchronized estrous to ovulation must be considered for estrous cycle manipulation and artificial insemination of Angora goats.

Acknowledgments: Project was supported by the Scientific and Technological Research Council of Turkey (TUBITAK) (Project No:213O034).

Keywords: Angora goat,artificial insemination,estrus sign,fertility,synchronization

Determination of Milk Yield, Composition and Somatic Cell Counts of Maltese Goats Raised Under Farm Conditions in Kırsehir Province

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The aim of the study was to determine the milk yield, milk composition and somatic cell count (SCC) as well as investigate the effects of lactation period on these parameters in Maltese goats. In this study 45 Maltese goats raised at a comercial farm in Kırşehir province were used. Milk samples were collected, following the end of suckling period, from May 2015 to August 2015. Samples were collected once a month at the 30^{th} (±15), 60^{th} (±15), 90^{th} (±15), 120^{th} (±15) days. Test day milk yield (TDMY), lactation length (LL) and lactation milk yield (LMY) were determined as 1.26 kg, 158 days and 223 kg, respectively. Somatic cell count (SCC), fat, non-fat dry matter (NFDM), protein, lactose, density, mineral and PH were found as 532331 cells/ml, 5.21%, 9.91%, 4.30%, 4.62%, 1.033 g/cm^3, 1.03% and 6.53, respectively. Analysis of variance and correlation matrix were used for statistical evaluation. The effects of lactation period on TDMY, SCC, fat, NFDM, protein, lactose, density, mineral and PH were found statistically important ($P<0.05$). SCC and fat values increased steadily throught the lactation period. The highest TDMY, NFDM, protein, loctose and density values were determined in the first month of lactation. SCC was negatively related to density ($P<0,05$) and positively related to fat ($P<0,05$) and mineral ($P<0,01$). Milk yield was negatively related to fat ($P<0,05$), LL, NFDM, protein, lactose, density and PH ($P<0,01$) and positively to mineral ($P<0,05$) and TDMY ($P<0,01$).

Keywords: Maltese goat,milk yield,milk composition,somatic cell count

Growth rates of dairy goat kids from birth to mating on 16 New Zealand dairy goat farms

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Rearing healthy dairy goat kids not only ensures the future productivity of the farm, but is also an important contributor to good kid welfare. Growth rates are known to vary based on management practices, however the extent to which growth varies has yet to be quantified in a large-scale, commercial setting. The goal of this research was to describe growth and age variability in goat kids during the milk feeding period and following weaning until mating on multiple dairy goat farms in New Zealand. A total of 1280 doe kids (80 ± 3 kids per farm) were enrolled on 16 farms. Weights were collected and summarized at: A) enrolment 24-48 h after birth, B) weaning, C) two weeks after weaning, and D) mating. Average daily gain (ADG) was calculated between each weigh point. Descriptive results are presented as farm means ± SD, as well as ranges where relevant. From enrollment to weaning (AB), ADG was 184±25 g/d (range: 136-226 g/d). Kids were weaned at 11.9 ± 1.4 weeks old, and weighed 19.2 ± 2.7 kg; however, age at weaning was not representative of weaning weight on all farms. For instance, the farm with the lowest weaning weights (14.7 ± 2.2 kg) weaned kids at 10.0 ± 0.9 weeks, while the farm with the highest weaning weights (23 ± 1.6 kg) weaned kids at 11.2 ± 0.3 weeks. The variability in ADG between farms was highest for the two week period after weaning (BC), with mean growth of 142 ± 68 g/d (range: -16-220 g/d). While three farms achieved gains > 200 g/d in this 2 week period, a decrease in ADG was recorded on 11 farms, and 7 of these farms had mean ADG of < 100 g/d. Kids were mated at 31.1 ± 2.3 weeks of age (36 ± 2.8 kg). No farms were able to achieve the pre-weaning mean ADG for the period (CD) two weeks following weaning until mating (127 ± 15 g/d; range: 100-149 g/d). Interestingly, within farm range of all kids (43-221 g/d) for this period suggests that farms were able to achieve high growth in at least some of their kids. In summary, farms were able to achieve growth rates similar, and in some cases higher, to previously reported values pre-weaning; nonetheless, the subsequent decrease in mean ADG indicates that management improvements may be necessary in the time period between weaning and mating. This study suggests that while New Zealand farms are successfully rearing many of their replacement doe kids, additional information on tailoring management towards the individual needs of all kids would be beneficial.

Keywords: average daily gain,management,welfare

Testicular ultrasonographic monitoring and sperm freezability in Angora Bucks

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Objectives: Nowadays, ultrasonograpic (USG) monitoring of male reproductive system for breeding soundness examination has arisen. Therefore, we aim to evaluate testicular ultrasonography and its relation with sperm morphology.

Material and methods: Animals were selected with age range (older than 5 years). Usg testicular monitoring has been assessed with Vetlab5 (Esaote) for testicular degeneration index (TDI) (0-3 scale). Than after, semen was collected with artificial vagina from 3 adult Angora bucks in Experiment and practice Farm of the Ankara University Veterinary Faculty, Kazan-Turkey. Volume, pH, motility, mass activity were determined immediately. Semen was extended with tris extender, equilibrated (+5 °C/2h), loaded into 0.25 french straws, frozen in liquid nitrogen vapour (-120 °C/15 min) and stored in liquid nitrogen (-196 °C). Frozen straws were thawed in water bath (37 °C/30 s), percentages of progressive and total motility were assesed with computer assisted sperm analyzer (SCA). Sperm viability was evaluated using a nigrosin/eosin (N/E) stain to determine live/dead counts and morphology with Sperm Blue (Microptics). Acrosome integrity was assessed by fluorescent isothio-cyanate-conjugated peanut agglutinin (FITC-PNA; Sigma). Mean differences between TDI and post-thaw motility were evaluated by paired Student's t-test.

Results: The mean TDI of right and left testis was 1,6±0,5 and 2±1. The differences were statistically significant between bucks ($P<0.05$). Fresh semen parameters of volume, pH, mass activity, concentration and motility were recorded as 1,3±0,05, 6,4±0,1, 3±1, $3,65x10^9$±110 and 59,3±33,4 respectively. Frozen-thawed semen parameters: highest motility %30,9 and 26 %viability loss was recorded at buck with the highest TDI even though that sample had the highest initial motility. There were no statistical differences at acrosome integrity and morphologically normal spermatozoa rates.

Conclusions: Monitoring the TDI proved to be a valuable and objective tool for qualifying genetically important bucks for cryopreservation process as well as for monitoring the treatment. But further investigations are required and desirable to obtain more accurate results.

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Keywords: Angora goat,CASA,cryopreservation, TDI,USG

Effect of different extenders on motility and sperm kinematics parameters in Norduz goat semen

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Using CASA (Computer assisted sperm analyzer) to evaluate the sperm fertilizing ability has great importance for artificial insemination industry. For motility evaluation, different CASA systems and diluents are being used. These assays are poor in predicting sperm fertility, because only the samples with markedly poor quality can be detected. The aim of this study was to evaluate the post-thaw kinetic parameters with two (Skim milk - SM, Tris - TS) different extenders. . Semen was collected twice a week with an artificial vagina from four adult Norduz bucks during the non-breeding season (March-April, 2011). The ejaculates having normospermic quality were split into two equal volume and samples were then extended in two different, Tris: (TS) and skimmed milk (SM) extender. Extenders in each group contained 10% egg yolk (Y) and 5% glycerol (G). By this way, two experimental groups were assigned and straws of extended semen were equilibrated at +4 °C for 2 h, frozen for 15 min in vaporised liquid nitrogen (at -120 °C) and then stored in liquid nitrogen. Sperm motility (%), VCL, VSL, VAP, viable spermatozoa (%), abnormal spermatozoa (%) were evaluated. Motility, VCL, VSL, VAP, viability, abnormal spermatozoa scores with SM were % 60.1 ± 1.1, 87.6 ± 3.02, 51.2 ± 3.6, 66 ± 3.3, 29 ± 8.3 and 24 ± 6.1 respectively; with TS were 48.1 ± 139, 102.1 ± 3.6, 59.1 ± 4.3, 74.4 ± 3.3, 39 ± 6.3 and 31 ± 5.

In conclusion, according to the in vitro findings of this present study i) SM extenders are more favorable than TS, ii) spermatozoa significantly swim faster in TS extender compared to SM.

Keywords: CASA, cryopreservation, Motility, Norduz goat, velocity

Morfological Characteristics of Coloured Angora Goat

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The study was conducted to determine some morphological characteristics of the Coloured Angora Goat according to different age and sex groups in Siirt province of Turkey. A total of 13males and 137 females were measured. Overall means and standard errors of some characters of billy goats and goats were: live weight 39.3±0.30 and 52.4±1.6 kg, height at withers 59.9±0.32 and 69.9±0.91 cm, body length 64.7±0.39 and 75.4±1.62 cm, chest width 15.5±0.16 and 18.8±0.55 cm, chest girth 89.1±1.5 and 77.2±0.4 cm, shank girth 8.2±0.08 and 9.7±0.24 cm, head length 16.3±0.1 and 18.4±0.39 cm, head width 11.2±0.09 and 12.6±0.35 cm, fore head length 5.5±0.07 and 6.7±0.31 cm, ear length 12.9±0.25 and 11.0±1.05 cm, ear width 6.7±0.11 and 6.2±0.47 cm, horn length 25.5±0.41 and 51.3±2.46 cm, back length 39.1±0.3 and 43.8±1.1 cm, pelvic width 18.8±0.2 and 21.1±0.6 cm, queue length 12.0±0.1 and 13.9±0.5 cm, scrotum circumference 25.6±0.84 cm, scrotum length 13.6±0.57 cm and nipple length 2.6±0.1 cm, respectively. The overall results of this study show that the Coloured Mohair goat have some similarities with Angora Goat according to morphological characteristics.

Keywords: Siirt,Coloured Angora Goat,Morfological Characteristcs,Morfolojik özellikler,Renkli Ankara Keçisi

Changes in goat nutrition, health and farmer net incomes with intensification of grazing systems in India

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India's goat sector is constrained by lacking feed resources because of minimal fodder cultivation, insufficient crop residues, and dependence on common property resources that are limited in size and becoming increasingly degraded. Increasing human and livestock populations amplify land pressure, which result in decreasing availability and productivity of grazing land. Experts and policymakers generally consider intensifying goat production as a solution to issues caused by open grazing. If farmers were to replace large populations of openly grazed, underproducing goats with fewer, more productive, stall-fed animals, we anticipate environmental benefits and improvements for farmer incomes. Though, few studies have been conducted on farms to quantify the impact that feeding system changes would have on smallholder farmers. Research will be conducted Kandhamal District, Odisha farms in three seasons of 2016 to compare the traditional open grazing system to a group supplemented with local feed and a semi-stall fed group. A group of 16 farmers were involved in the study, and four reproductively active (n=64) does were followed intensively from each farmer for repeated measures in each season. Two seasons of data collection (summer and rainy seasons) have been completed, and winter season is outstanding. We monitored goat responses such as growth, milk yield, and parasite load. We evaluated the nutritive value of diets and socio-economic factors such as labor and cost for each system. Preliminary data is being analyzed. Results from this study can inform policymakers about the potential impacts of shifting farmers off land and towards stall-feeding, and provide small ruminant entrepreneurs contemplating commercialization about the influence of feeding systems on local goats in the tropics.

Keywords: goat, India,grazing,feeding,nutrition,small ruminants,Odisha

The Environmental Footprint of Dairy Goat Farming in New Zealand

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New Zealand's dairy goat industry is dominated by Dairy Goat Cooperative, who market premium infant formulae in more than 20 countries. To support their position in these markets, assurance of excellent environmental management associated with their product is required.

Recent intensification of agriculture in NZ has led to increasing community concerns about the impact of agriculture on the environment. In particular, the expansion of dairy cattle farming has been implicated in the decline of water quality in rivers and lakes. Local regulatory authorities are now requiring all farm systems to be environmentally sound with respect to nutrient and effluent management, with critical targets around nitrogen (N) losses to water through leaching.

Overseer® (http://overseer.org.nz/) is a model that can be used to assess nutrient use on-farm. It estimates nutrient losses from the farm and can be used to develop strategies for improving nutrient management. It is already used by regulatory authorities to assess the risk of environmental impacts from losses through run-off, leaching and greenhouse gas emissions. Overseer was developed for use in dairying, sheep, beef and deer farm systems using research conducted over many years.

Dairy goat farm systems in NZ are very different from these grazed systems. Goats are housed indoors and fed a large quantity of fresh pasture delivered via a cut-and-carry system. Research to support the development of Overseer to estimate nutrient losses from dairy goat farms has only recently been completed. This study reports the results of Overseer models for four case study farms in the Waikato Province – the centre of dairy goat production in NZ.

Nitrogen losses to water from each farm ranged from 5 to 39 kg N/ha/yr - comparable figures for dairy cattle farms are 40-50 kg N/ha/yr. The farm with the lowest N discharge differed from the other farms in that the leftover feed and solid effluent were composted and then exported. The management of effluent and leftover feed from the barn and dairy shed is important in terms of effective nutrient management on dairy goat farms.

The results of this study identify the potential that dairy goat farmers have to demonstrate superior environmental stewardship both to their markets and the community at large.

Keywords: Environmental footprint; ,Cut and carry,Nitrogen leaching

The New Zealand dairy goat industry: A rapidly changing industry

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The New Zealand (NZ) goat milk industry is the world leader in production of premium-value goat milk paediatric formulae, exporting to over 20 countries. Dairy goat farm systems in NZ are unique, typically including a large quantity of fresh pasture in the diet delivered via a cut-and-carry system to goats housed indoors. There is an urgent need to improve on-farm production efficiency and a detailed understanding of current dairy goat farm systems is required. In 2014, 51 out of 69 Dairy Goat Co-operative suppliers (33 indoor and 5 outdoor farms) were interviewed on their farm system, including herd management practices and feeding system. Animal production data was analysed using analysis of variance. Saanen was the common breed used and on average comprised 88% of the herd. The number of milking goats per farm ranged from 210 to 1800, and averaged 755 goats. Average stocking density in the barn was 3.3 m^2/ adult goat (SD 0.73). Mean milk solids (MS) per goat ranged from 25 to 126 kg MS/goat/year (SD 24.0), with higher ($P<0.01$) production on indoor than outdoor farms: 83 *vs.* 54 kg MS/goat, respectively. Indoor farms were split into four feeding systems: fresh-cut pasture based system (55% of farms), mixture of fresh-cut pasture and silages (33% of farms), pasture silage-based system (9% of farms) and a total mixed ration-type system (3% of farms). There was no correlation between MS yield per goat and feeding system (i.e. quantity of concentrate fed per goat per day). The lack of significant relationships between some environmental (i.e. stocking density) and feed variables and animal production may be a reflection of the small sample size and mostly the impact of other farm management practices, and animal factors, on animal production performance. The work emphasised substantial variability in per-goat production and in farm management practices between farms, indicating the potential for increased on-farm productivity. Along with previously identified industry issues, these results have also helped to identify research priorities. Current research programmes are focused on feed supply, kid rearing and animal welfare that will all contribute to the delivery of science-based guidelines to increase farm production efficiencies on NZ dairy goat farms.

Keywords: New Zealand,dairy goat ,farm system,feed supply

Targeted betacarotene-supplementation positively affects ovulation rate and antral follicular development while alters the serum GH-IGF-1 profile in adult goats

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The possible effects of betacarotene (BC) supplementation upon ovulation rate and growth hormone (GH) and insulin-like growth factor 1 (IGF-1) secretion pattern in adult goats was evaluated. Also, total ovarian activity (TOA=total number of antral follicles (AF) + total corpus luteum number (OR) was considered. During the natural breeding season (Oct), adult goats [n=22, 3.5 yrs. old, 7/8 Sannen-Alpine; 26°N, 103°W, at 1117 m], were randomly assigned to two groups: a). Betacarotene [BC, n=10; LW=45.9±1.97 kg, 3.04±0.08 body condition score (BCS), supplemented with 50 mg of BC goat^{-1}], and b). Control [CONT, n=12; LW=46.2±2.04 kg, BCS=3.0±0.08]. Animals received a basal diet of alfalfa hay, corn silage and corn grain. The experimental period considered a total of 55 days; 34 d pre- and 17 d post-ovulation. During the second-half of October, estrus was synchronized with P4-intravaginal sponges. Thereafter, by mid-follicular phase, 36 h prior estrus, an intensive blood sampling (15-min x 6-h) was performed to quantify the release pattern of GH, considering concentration (GH), area under the curve (GH-AUC) and pulsatility (GH-PULSE) as well as serum concentrations of insulin-like growth factor-1 (IGF-1) by RIA. By the end of luteal phase, 17 d after the onset of estrus, an ultrasonographic scanning was performed to evaluate AF + OR (TOAR). Average LW and BCS did not differ ($p>0.05$) between groups, yet the BC-supplemented goats had an increased OR (3.4±0.2 vs. 2.8±0.2), AF (5.0±0.6 vs. 3.4±0.6) and TOA (8.4±0.5 vs. 6.2±0.6). Besides, the lowest ($P<0.05$) serum GH average concentrations (10.0 vs. 14.3±1.0 ng mL^{-1}; $p=0.01$) and GH-AUC (3670.4 vs. 5235.7±369.8 units; $p=0.01$), occurred in the BC-group. Yet, neither serum IGF-1 concentrations (254.6±28.9 ng mL^{-1} $p \geq 0.05$), nor GH-PULSE (1.4±0.5 pulses 6 h^{-1} $p \geq 0.05$) differed between treatments; results may embrace translational applications.

Keywords: Goats,Betacarotene supplementation,ovarian function,somatotropic axis

Betacarotene supplementation positively affects selected blood metabolites across time around the onset of puberty in goats

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Puberty onset is a complex process regulated by several environmental cues, where the neuroendocrine system conveys external information to align different internal mechanisms and promote anatomical, physiological and behavioral changes. The possible effect of beta-carotene supplementation upon peri-puberal changes in serum concentrations across time for total protein (TP), urea (UR), cholesterol (COL) and glucose (GLU) was evaluated, considering the female goat as animal model. Prepuberal goats (n=17, 3 months old, 7/8 Saanen-Alpine, 1/8 Criollo) were assigned in a completely radom design to: 1) Beta-carotene group (BC); n = 9, 17.3±1.0 kg live weight (LW), 3.3±0.1 body condition score (BCS) orally supplemented with 50 mg day-1 goat-1 and 2) Control group (CC); n = 8, 16.1±1.0 kg LW, 3.1±0.1 BCS. Blood metabolites were all measured through spectrophotometric measurements and analyzed by using PROC MIXED (SAS Inst. Inc. Cary NC). Blood metabolites were analyzed as repeated measures; fixed effects consider to treatment, time and their interaction and the animal as random effect. No differences ($P>0.05$) were observed between treatments regarding LW (23.4 ± 0.74 kg), BCS (3.45 ± 0.10 units), TP (67.6 ± 2.4 g L^{-1}), UR (3.8 ±0.17 mmol L^{-1}), GLU (5.06±0.09 mmol L^{-1}), and COL (1.62±0.07 mmol L^{-1}). Nevertheless, while a treatment x time interaction occurred between treatments for TP, GLU, COL ($P<0.05$) favoring to the BC group, an increase in serum UR levels occurred in the CC group. Nonetheless, such general serum metabolite profile was not related neither to the age (215.7 vs. 226.5±6.6 d; $P>0.5$) nor to the percentage (44.4 vs. 25.0±17.0%; $P>0.05$) of goats reaching puberty in the BC and CC groups, respectively. The observed increase of selected blood metabolites across time (i.e. TP, COL and GLU) in the BC-supplemented group around the onset of puberty, opens different windows of action to evaluate such blood metabolite profile upon different productive and reproductive process. Results may also engender potential translational applications.

Keywords: Goats,Puberty,Betacarotene supplementation,blood metabolites,glucose,cholesterol

Evaluation of an On-farm Training Program on Improved Goat Production for Youth in Lamjung District of Nepal

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Increasing the production efficiency of goat production has a great potential in enhancing the livelihood of the Nepalese rural poor because over 50% of the households raise goats in Nepal, and goat meat represents about 20% of the total meat production in the country. Winrock International organized a 3-week long on-farm training workshop on various aspects of goat production for goat producers in Thakle of Lamjung district through the Asia Farmer-to-Farmer (F2F) program of USAID. The trainees were members of Paudi Serophero Agriculture Cooperative of Thakle in Lamjung district. There were 25 participants of which 24 were goat producers. A significant majority of them (68%) were under the age of 40. The percentage of females in the group was 36%. They had an average herd size of 17.5 goats ranging from 2 to 150, and the average land holding size was 0.5 ha (range: 0.05 to 2.0 ha). Over 72% of participants had high school diplomas. Pre- and post-tests were used with 10 specific questionnaires about the various aspects of goat production to measure knowledge, awareness and skills gained from participating in the training program. These questions were related to overview of the goat industry in Nepal, goat production systems, feeds and feeding management, housing management, predator management, breeding and genetics, diseases and parasites and meat goat marketing systems. Data were analyzed by descriptive statistics. The initial group average score was 24% and the after training average score was 78% indicating that participants increased their awareness about the specific topics in the workshop. After a month, additional 6 questions were asked again to participants. The broad categories of questions included the overall usefulness of the course and its relevance to participants, course contents, training methods and competence of the trainer. Nineteen of 25 (76%) participants responded. The results from the second survey demonstrated that majority of the participants (87%) rated the overall course content and quality of the program either excellent or very good, and gained practical knowledge and skills by participating in the program. All of them indicated that they would recommend this training program to other goat producers.

Keywords: Goats,Farmer-to-Farmer,Nepal,USAID,Winrock

Levelof Gastrointestinal Parasitism and Anaemia in Sri Lankan Indigenous Goats and their Jamnapari Crossbreds under the Field Conditions of Eastern Province in Sri Lanka

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Gastrointestinal parasitism (GI), especially haemonchosis cause severe anaemia in goats leading to considerable production losses. This study was conducted to identify the level of GI parasitism in Sri Lankan Indigenous (SLI) and their Jamnapari crossbreds (JCB) and to identify relationship between GI parasitism and anaemia in SLI and JCB goats in Eastern province of Sri Lanka. A total of 522 (134 SLI males(M), 146 SLI females(F), 132 JCB-M, 111 JCB-F), 4-6 months old goats, managed similarly (Day time – herded grazing in common grazing lands, Night time – housed in floor level community sheds) were used. Blood and faecal samples were collected for detection of Packed Cell Volume (PCV) and Faecal Egg (strongyle) Count (FEC), respectively, and FAMACHA® scores were recorded twice with 7-days interval to identify the stability of existing infection. PCV and log transformed FEC (lnFEC=ln(FEC+100)) were analysed by MIXED Procedure and correlation among PCV, FEC and FAMACHA® were analysed using PROC GLM Procedure of SAS 9.2. Both SLI and JCB showed GI parasitism, mainly strongyle infection under field conditions prevailed. However, both genotypes showed low level of parasitism though there was no deworming history. The effects of sex×breed and breed×measurement time interactions on lnFEC were significant ($P<0.05$). JCB-F reported the highest back transformed LSM-FEC (355±58) whereas SLI-F showed the lowest (172±22) ($P<0.05$). Significantly lower LSM-FEC was observed in SLI at second measurement time (177±21) and although not significant, SLI have reported lower LSM-FEC even during first measurement time (219±26) compared to first (261±41) and second (331±52) measurement times in JCB reflecting the tolerability of SLI against strongyle parasitism compared to JCB. The LSM-PCV in female goats (25.37±0.35%) was significantly higher compared to males (24.38±0.35%) ($P<0.05$). Sex×breed interaction effect reveals a significantly higher LSM-PCV in SLI-F than JCB-F, SLI-M and JCB-M ($P<0.05$). There was a significant negative correlations between PCV and FAMACHA®, and lnFEC and PCV ($P<0.05$). This reflects that high parasitism leads to anaemic goats. Although females showed significantly higher LSM-PCV compared to males, observed statistical similarity between LSM-PCV of JCB-F with SLI-M and JCB-M as well as the significant difference in LSM-PCV of SLI-F and JCB-F was due to high level of parasitism in JCB-F compared to SLI-F, SLI-M and JCB-M. It can be concluded that a low level of strongyle infection exists in SLI and JCB in Eastern province of Sri Lanka. Between two genotypes, SLI showed a low level of parasitism compared to JCB. Although parasitism has been observed, goats are non-anaemic either due to low level of parasitism or presence of strongyle infection other than haemonchosis. The present findings can be further strengthen by identifying the seasonal variation of parasitism level in SLI and JCB goats.
Acknowledgement: International Atomic Energy Agency Grant 16124 for financial assistant

Keywords: Gastrointestinal parasitism, Anaemia, Sri Lankan Indigenous goats

The impact of milk production level on goat dairy products

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As a part of a research project aiming to develop goat dairy products with low allergenic effects on human body a serial of experiments were carried out to study the effect of milk production levels on cheese yield, as well as on sensory characteristics.

The goats were grouped according to their production level in the case of three farms. There were two groups of Alpine goats on farm A, having milk average daily yield under and above 3 litres. On the farm B three groups of Saanen goats were milked: one below 2, one between 2 and 3, and one above three litres of average milk yield. Saanen and Alpine breeds were kept on farm C, where both breeds were grouped as under and above two litres of daily milk yield. There were six breeds (Alpine, Saanen, Sandy /Alpine x Saanen/, Hungarian Multicolour and Black and Hungarian Native) kept on the farm D. Each group counted 25-30 heads of goats.

Ten litres of bulk milk samples were collected from each group and special manufacturing methods were developed to produce smearcase, yoghurt, and kefir.

The basic milk, as well as the products went through laboratory examinations determining the fat, protein, sugar, and total solid content. Beside of these sensory evaluation was carried out by well skilled specialised panel members. In 5 point system (1 worst -5 best) the colour, smell (fermented, stable, flower, fruity, herbaceous, goaty, milky), flavour (bitter, salty, acid, sweet), the substance (graininess, friability, moisture, hardness) and total acceptability were determined.

SPSS for Windows 13 was applied to processing the data received.

In general, the breed and level of production equally had impacts on cheese yield and sensory evaluation. Beside of these the farms also had effects on these characteristics. While the cheese yield (kg milk/kg fresh smearcase) varied between 8.27 and 12.27 as well as decreased along with the increasing production level, differences were not consistent. Concerning the ranks Saanen above 3 litres was the winner in the case of yoghurt, while in kefir the Saanen below two litres, and in smearcase the Hungarian Native reached the best result.

Keywords: goat milk, production level, cheese yield, sensory evaluation

Enhancing productivity on smallholder goat farms in Mauritius through promoting the adoption of improved husbandry practices for higher income generation

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High kid mortality rate is a recurrent feature of smallholder goat farms in Mauritius due to inadequate herd management. A targeted participative approach was implemented over a 14-month period, under the financial support of Australia under the Small Grants Scheme and involved 12 farms within one locality. This approach was different from previous on-farm interventions based on an instructive approach on scattered farms without any major impact or sustainability. The objective of this project was to identify major constraints and formulate simple and effective animal husbandry guidelines to enhance kid and doe management aiming at decreasing kid mortality and thereby increasing productivity and income generation by the farmers. Targeted interventions included regular group discussions to discuss constraints faced by each farmer, on-farm demonstrations, improvement of existing goat sheds, construction of maternity pens, improving feeding practices, promoting the adoption of improved management practices for pregnant does and new born kids, hands-on training herd and health management and record keeping. Farmers were provided with planting materials of *Medicago sativa*, *Desmodium intortum* and *Tripsacum laxum* to establish small fodder plots in the backyard. Herd dynamics, kid mortality and performance under improved practices were assessed on two kid crops. A low mortality rate of 4.5% was recorded compared to the reported 39% at national-level from previous studies. A total of 82 kiddings were recorded, with 132 kids born and 102 kids being weaned at 90 days of age. A total of 57 goats were sold at farm gate, for the end of year festivities. The project was successful in transforming traditional goat rearing into a lucrative activity and increased the awareness of farmers on the importance of kid management for a high survivability, more animals for sale and more revenue. Networking creation through regular group meetings and discussions was the main thrust towards the achievement of objectives. This project can serve as model to be extended to other farms nation-wide and fits within the national goat productivity enhancement and genetic improvement programme to boost local goat production for better food security and improving livelihood of farmers.

Keywords: smallholder farms. herd management. targeted inteventions. kid mortality. productivity

Comparison of digestion parameters of some forage sources in *Damascus* goat (*Capra aegagrus hircus*) as in vitro

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Global warming has brought the reduction of annual precipitation levels than this reason encounter difficulties to produce high quality forages especially on arid and semi-arid areas. This study aimed to compare *in vitro* gas and methane production and ruminal fermentation patterns of alfalfa hay (*Medicago sativa* L.), sugar beet pulp (*Beta vulgaris* L.), corn silage (*Zea mays* L.), plantago hay (*Plantago lanceolata* L.), ajuga hay (*Ajuga bombycina* L.), guelder-roseleaf (*Viburnum opulus* L.), tomato pomace (*Solanum lycopersicum* L.), jeruselam artichoke hay (*Helianthus tuberosus*) and pomegranate peel (*Punica granatum* L.) in *Damascus* goats.Ruminal fermentation parameters such as gas kinetics, metabolisable energy (ME), short chain fatty acid (SCFA), organic matter digestibility (OMD), true-dry matter degradability at 24 h of incubation (T-DMD), 24-h partitioning factor (PF24), gas yield (GY24), and microbial protein (MP) parameters were calculated. The highest potential gas production ($(a + b)_{gas}$ and gas production from insoluble fraction (b_{gas}) were in tomato pomace ($P<0.001$). Hays of plantago, ajuga and jeruselam artichoke have higher (b_{gas}) and $(a + b)_{gas}$ values than those of alfalfa hay ($P<0.001$). The lowest methane production was exhibited by guelder-rose leaf (13.23% in total gas) and the highest methane production was exhibited by corn silage (16.87% in total gas) ($P<0.01$). The T-DMD, ME, OMD, and SCFA values of tomato pomace and sugar beet pulp were higher than those of other forage sources ($P<0.01$). The highest acetic acid concentration (64.01 mmol/L) in rumen fluid was in jeruselam artichoke hay and the lowest acetic acid concentration (48.56 mmol/L) in rumen fluid was in ajuga hay. But, SCFA concentrations of forages in vitro rumen fluid were in range 84.62-106.05 mmol/L according to gas chromatograph analysis. In conclusion, tomato pomace and sugar beet pulp were digestion highly excellent by goat. Hays of plantago, ajuga and jeruselam artichoke could be used as alternative forages to alfalfa in goat diets. Even though tomato pomace (17.75 g/kg DM) and guilder-rose leaf (12.90 g/kg DM) contained high levels of extractable condensed tannins, they can be used in goat nutrition. Key words : alternative forages, *Damascus* goat, gas chromatograph, *in vitro* gas production

Keywords: alternative forages, Damascus goat,gas chromatograph,in vitro gas production

Consuming willow (*Salix acmophylla*) foliage alleviates somatic cell count in goat milk at the end of lactation

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Willow leaves contain a wide array of analgesic and anti-inflammatory compounds. Somatic cell counts (SCC) are extremely high in goat milk at the end of lactation, irrespective of clinical mastitis or the presence of pathogens in the udder and milk rich in SCC is underpaid or even discarded. The aim of the present study was to investigate if consuming willow leaves in late lactation alleviates the increase in SCC. Twenty three Baladi (Mamber) goats at their third lactation 240 days post-partum were allotted to two groups: control (C, n=12) and willow (W, n=11); initial SCC counts were 2.9 and $2.3*10^6$ respectively. *Micrococcus spp*. were initially identified in the milk of 6 C and 4 W goats. All goats were milked once daily, grazed 4 hours on Mediterranean shrubland, and received 800 g of DM from a commercial concentrate but goats in the W group consumed, in addition 800 g DM of willow leaves. Individual intake at pasture was determined by fecal NIRS. Total daily DM intake was higher in W goats. Milk was sampled 10 days after treatment was initiated and then feeding willow was discontinued. Log-transformed SCC and milk composition were compared between groups (Anova, GLM, repeated) and within individual goats (t-test). SCC counts increased in C, but not W goats for 10 days of experiment but this effect was reversible and SCC increased after feeding willow was discontinued. Treatment had no effect on milk yield but was associated with decreased protein contents in milk. Differences in SCC throughout experiment were negatively and positively correlated to differences in lactose and CP, respectively. Ten compounds were identified only by exact mass spectrometry using Positive ESI mode, of which salicilin, salidrosid and salicrotin had the highest concentration. Our data suggest that willow leaves have a nutraceutical value for late-lactating goats. Further investigation is needed to understand the mechanism of willow effect on milk SCC in late-lactating goats

Keywords: nutrition, health, browse, mastitis, caprine.

Contribution of mechanistic modelling of milk ejection kinetics: application to data issued from LactoCorder®

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In France, the implementation at a large scale of devices for animal monitoring, enables to explore new phenotypes as milking characteristics. However, raw data still need to be described, aggregated and interpreted before a routine use.

A study on individual milk ejection flow (obtained via LactoCorder®) was carried out on 16 dairy goat farms in order to characterize individuals through their milk ejection kinetics and to detect incidents during milking as new indicators of mastitis risks.

An original method based on a mechanistic modeling approach was developed to achieve this characterization. The aims were first, to classify the kinetic curves using model parameters estimated by nonlinear least-square curve-fitting, secondly, to detect the abnormal curves, and finally, to cross the parameters provided by the model with the synthetic data provided by the devices. 51743 curves from 5820 goats were modelled. They were differentiated by their length: short (<6 minutes) vs. long. Furthermore, 2 types of standard kinetics with 1 or 2 plateau phases were distinguished, involving 2 distinct models for curves modelling. Thus 4 categories were defined and studied.

The curves with a poor quality fitting were considered as curves with incidents (n=4732, 9%). They have been characterized by farms, animals and milking machines to precise the origin of the encountered problems. For each category of correctly modeled kinetics, the classification was based on a selection of parameters, like the duration for each milking phase or the plateau-phase level. Classes were described according to individual characteristics (age, lactation stage, production level,…) to explore the notion of "animal signature".

This new classification provides various opportunities. It could allow the revision of milk line dimensioning in high-producing herds. The frequency of kinetics with 2 plateau phases (31% in the studied population) could illustrate udder imbalance and should be analyzed as both health and functional indicators. It also highlights the problem of the adjustment of flow thresholds for automatic cluster removers. The study should be continued integrating somatic cell count data to better evaluate the impact of milking conditions on the health status of the goat udder.

Keywords: milk ejection,kinetics,mechanistic modeling approach ,model parameters,synthetic data,classification,animal signature,plateau phase,milking conditions,goat

A method to identify the agro – ecologicalcharacteristics of grazing dairy goats systems and what practices have to beimproved

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As with other activities, livestock systems have presently to face urgent key challenges regarding food security, preservation of natural resource, climate changing, human health… Grazing dairy goat systems are obviously affected by these injunctions of our societies which should lead to important changes in their design. Agro – ecology, as the science of natural resource management could help to think these changes by considering them as cultivated ecosystems including social issues. Grazing dairy goats are very diverse by the type of grazing they use (mountain rangelands, cultivated meadows,…,) by their productive model (low or high inputs, type of breeds, level of out of season breeding), by their management practices. 9 synthetic indicators have been define to characterize these systems : Nutritional management, pasture management, soil fertility and contamination, weed and pest control, disease prevention, breeds and reproduction, animal welfare, food safety, marketing conditions and management practices.

An operational method has been used to characterize the grazing dairy goats systems with an agro – ecological perspective. It is based on a questionnaire prepared to assess the proximity of each of the 9 indicators with respect to the requirements of organic goat farming considered by hypothesis as the more agro – ecological. This easy to fill up questionnaire has been tested in 3 types of grazing dairy goat farms: pastoral mountain farms on rangelands, piedmont farms with improved meadows, lowland farms with crops.

The analysis of the questionnaires shows several agro ecological profiles and what indicators should be improved to optimize the agro –ecological qualities of each considered system. It highlights also that to get only few organic indicators cannot define a system as agro –ecological and that a balance between all the indicators is necessary. Several polarities can be observed. Pastoral and mountain systems have often a high percentage of approximation to the organic model in nutritional or pasture management, fertilization and weed control but not necessary on other indicators. At the opposite, lowland goat farms are more near the organic model in management, or food safety but not on other factors.

The consequences of these results regarding the agro –ecological transition for the goat sector, the limitations of the method and the public incentive policies to develop it are then discussed.

Keywords: Dairy goats,Grazing,Agro –ecology,Transition

The effect on production loss of dental disorders in adult goats

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The teeth are important in the first stages of digestion for goats. Certainly they were more efficient as they ruminate and there can re-chew food several times. Dental disorders often result in decreased milk production and to cause weight loss can be important on both an individual goat and a flock basis. This study aimed to investigate dental disorders of goats in two parts. First goat cadaver heads (n=100) were examined at the slaughter house. Second, the authors performed oral exams in goats (n=100) in animal hospital. Cadaver heads and live goats were examined using radiography and computed tomography for dental pathology.

The most prevalent dental abnormalities were the sharp lateral borders on the molar teeth, overgrown or abnormally erupted and loss of the incisor teeth, excessive transverse ridging of the occlusal surface, occulusal war, the presence of diastemas, gingival recession, peridontal pocketing, missing teeth, molar root abscessation, tooth mobility and dental over growths in cadaver heads. Radiographic findings were compared with oral examinations in live goats. The sharp lateral borders on the molar teeth upon oral examination was determined frequently in goats. This is a very common condition in adult goats in Elazığ region. Sharp-edged teeth and other dental disorders have been observed when corrected to increase the weight of the animals and milk products.

Keywords: Goat, Dental disorders,production loss

Adoption of Improved Goat Management Practices through Farmer Field School – A Heifer International Nepal Initiative

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Farmer Field School (FFS) is a widely used extension approach in the field of agriculture. In an effort to increase the adaptation of knowledge and skill for improving goat husbandry practices at smallholder level, the first FFS in Nepal on Integrated Goat Management (IGM) was started by Heifer International Nepal in 2010. The Farmer Field Schools on Integrated Goat Management (IGM-FFS) were conducted in four different locations of Nepal where women farmers were facilitated to run a yearlong practice with little technical assistance from a community animal health worker (CAHW) to discover overall goat management practices suitable and profitable for them. In this process, they developed and adopted a set of practices simultaneously in their farm that resulted into, besides others, remarkably reduced age at first service and first parturition; increased twinning; and increased monthly weight gain. A study conducted in 2012 to assess the adoption of IGM-FFS exhibited maximum adoption (77.3%) in participating families followed by 27.3% in neighboring families. Learning gained through IGM-FFS have been streamlined throughout Heifer International project areas that includes more than 200,000 families adopting improved goat production interventions. Department of Livestock services of the Government of Nepal government is integrating the IGM-FFS and has planned 96 FFS in 2016 on Improved goat management in their national program plans. Heifer International Nepal has been providing technical assistance to help implement these FFS for adoption of locally suitable goat management practices to increase production and productivity and profit from goat enterprise to the smallholders.

Keywords: Goats,farmer field school,integrated goat management,adoption,goat enterprise

Strategies for Increasing of Contribution of Goat Fibers Production to Economy and Socio-Cultural Structure in Turkey

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The goats have been breeding for centuries in Turkey and goat products have been contributing to the family farm income and national economy. Turkey has approximately 10.416 million goats, according to data of 2015. Of the total goat population, 10.210 million head were Hair goats including few number of goat breeds such as Kilis, Saanen, Damascus, Honamli, Norduz, Kackar, Abaza and Gurcu, and there were only 205.828 thousand heads of Angora goat. As a results of the decreasing number of Angora goats, mohair production is very low level when it was compared to the past decades. To suppress these decreasing trend, government have started to support Angora goat production since 2010. In 2015 data mohair production is 325 tons in Turkey and with this production Turkey is a major mohair producing countries in the world. On the other hand 5. 6 thousand tons of goat coarse hair produced in Turkey and this amount mainly obtained from Hair goat breeds. However Hair and other goat breeds could not be utilized effectively for the cashmere production. The sustainable goat fiber production have important functions as the preservation and development of the rural economy, the folkloric culture and the domestic goat genetic resources in addition to the contribution to the textile industry. At the same time, in recent years, studies are also carried out take advantage of mohair and cashmere for evaluation of the disadvantaged areas for agriculture in the EU. Therefore, this paper focuses on analysis of the current status of goat fibers production and strategies for increasing the contribution of this production area to the socio-cultural structure and the national economy of Turkey.

Keywords: Turkey,goat fibers,textiles industry,socio-cultural structure

Evaluation of associative effects of total mixed ration for cashmere goats using in vitro gas production

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Current feed evaluation systems for cashmere goats assume that nutritive values of feed components can be added, but do not take into account possible interactions among feed components. The main objective of this study was to investigate the impact of proportions of NFC and NDF on the associative effect on *in vitro* gas production from total mixed ration (TMR), based on alfalfa and corn-soybean concentrate, and separate TMR components. The TMR was incubated with rumen liquid for 48 h and the TMRs with three different proportions of NFC and NDF (2.00, 2.35, 3.00, respectively) to evaluate their influence on associative effects. The results showed as follows: Associative effects on gas production largely occurred at 2-8 h of incubation and dissipated with time of incubation. Incubation of TMR (NFC/NDF=3.00 and 2.35) increased gas production compared to another group at all incubation times, and showed the positive associative effects, particularly at early hours of incubation. The TMR (NFC/NDF=3.00) displayed the best associative effect.

Keywords: associative effects; in vitro gas production; proportions of NFC and NDF

Reproductive aspects of goats in Mexico.

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This paper was done using 910 surveys from each one of the country states. Goat herds in Mexico have an average number of 118 goats; however, there's a 63% of herds with less than 50 goats and a 37% of herds with more than 50 goats, being the surveyed range between 1 to 2900 heads. Eventhough the does are exposed to the bucks all the year, from January to April there are few does in estrus due to the fact that under the conditions of Mexico, lactation anestrus and stational anestrus are not clearly defined. Births take place from September to December with a high peak of births in December; this indicates that the mayority of goats get pregnant in August. For the mating, which is continuous, two to three or more bucks are used, but there is not an andrologic test previous to the mating. The matings happen randomly in a 92% of the production units and only 8% keep a record of paternity when doing directed matings. Half of the goat producers change their bucks every two years (50.5%), which makes sense since, in small herds with few bucks, every two years a buck would be mating its own offspring with the subsequent consanguinity that most often turns out to be damaging to production. The statistic probe for this information was ANOVA. Every year changes 13.4% that corresponds to herds with 1 to 20 goats; every three years 19.3% of the farms change the buck, with a 83.2% of the production units doing so with the right technique. The weaning practice is essential in goats, the maximum age in which kids must suckilng 60 days post birth; in milk goats, the weaning is often done before this date to take the maximum advantage of the milk for sale or transformation. However, only 54.9% weaning their kids. The reproductive parameters of goats are shown in the following table, evidencing that the fertility rate was 81.5%, with a 18.5% failing to deliver which can be considered low. The relative prolificity or kids/parturition was 1.11, which can also be considered low for the standards of the species. The weaning index, that determines the availability of animals for sale or the amount of young does that can replace their mothers, is in a middle level since each doe produces an average of one kid at year for each mating doe.

Keywords: Key words: goats, does, Mexico, reproduction.

Dried meat products as an alternative for waste dairy goats

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Milk production of old goats usually does not justify the costs that are incurred in them. However, they can be leveraged for a last use. The aim of this study is to provide evidence of the value that can have waste dairy goats as a source of meat that can be processed in easy process desiccated products that could mean an additional supply of income and an alternative access to high quality animal protein. Four adult (n=4) Saanen biotype waste goats were slaughtered in the central area of Chile (33°12′00″S 70°41′00″O). They had a live weight of 54.1 ± 12.3 kg and a hot carcass yield of 37 ± 3.11%. Animals 1, 2 and 3 were deboned on flat muscles and pelvic limbs for the production of meat products “Fuet”, “Biltong”, “Cured Ham” and “Jerky”, letting them in a maturation process at different conditions of temperature and relative humidity. Animal 4 was divided into pelvic and thoracic limbs, intercostal muscles, ribs and meat attached to the spine to then enter into brine and be matured. Sample of each meat product were weighed two times per day at an interval of 12 hours to record weight losses. It was found that the best environmental conditions for maturing meat was treatment with temperatures of 20 ºC the first 12 hours, and 25 ºC the last 12 hours, all at a constant relative humidity of 60%. These conditions allowed to obtain "Fuet", "Biltong," "Jerky" intercostal muscles, ribs and meat attached to the spine products ready in five days, while the thoracic and pelvic limbs aimed to obtain "Cured Ham" in two days, based on a percentage weight loss of 50% in the case of the legs and 30% for the other products. Finally, the mature “Fuet”, “Jerky”, “Cured Ham” and “Biltong” products were subjected to a non-expert taste panel (n=13) in order to conduct a sensory evaluation, where the best score was obtained by the “Cured Ham”, with a score of 12,2 (1-18). Meat obtained from waste dairy goats may allow the development of different dry products which could represent for small or medium producers an extra economic return through high-quality animal protein.

Keywords: goat, waste animal, dried meat, small producers

Effect of Suplementation with *Opuntia ficus indica* var Copena 1, and Mezquite pod (*Prosopis laevigata*) on feed intake, body weight , milk production and quality in French Alpine goats in Semiarid of Mexico.

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This study was conducted with the aim to evaluate regional food for supplementation of dairy goats in the semiarid. 20 French Alpine goats with 2 to 3 births,44.5 ± 3.44 kg of weight and 53 ± 15 days postpartum were used. The animals were kept in individual pens, treatments consisted of 4 rations: Control **(C)** (Concentrate 1.85 Mcal NE / kg DM, 19% CP, alfalfa and corn silage), Opuntia (**O**) (80% C + 20% **O**), Mesquite pods (**M**) (80% **C** + 20% **M**) and **M** + **O** (60% C + 20% **M** + 20% **O**). Rations were isoenergetic and isoproteic. The design was a Latin square 4x4 , each period consisted of 15 days of adaptation and 7 days sampling, food offered and rejected was weighed and sampled, the proximal chemical analysis was carried . Gas production was measured by Gas Production equipment (ANKOM ™) and was evaluated with the nonlinear model b * (1-e (-c * T)). goats were weighed and measured the body condition. Milk production and samples were measured daily and milk composition (Lactoscan ™) and fatty acid in milk (gas chromatography) were analyzed. **O** ration had a higher dry matter and ash intake (P <0.05), Water consumption was lower (P <0.05) in diets with **O** (**O** and **O+M**) but the total water consumption (water drinking + water intake in foods) were higher in these rations (P<0.05). **M** ration submitted the best weight gain (P <0.05) . Milk production were no different (P> 0.05) and had average of 2.78±0.21 kg/d, milk components don't were different (P>0.05), with exception protein content was lower (P< 0.05) in rations **O**+ **M** , **O** and **C** had a higher milk solids production (P <0.05). The **M** and **M+O** rations had higher milk production / kg of dry matter (DM) (P <0.05), (1.42 and 1.36 vs 1.2 and 1.176 kg of milk / kg DM for **M**, **M+O** vs **C** and **O** respectively). The content of polyunsaturated fats (PUFA) and linolenic and linoleic acid was higher in the ration **O+M**. In conclusion, the cactus and mesquite pod can be considered as good supplements in semi-arid areas, as they reduce water consumption, showed no effect on milk production and mesquite pod can increase the content of PUFAs.

Keywords: Opuntia, Mesquite pod, alternative foods, milk, fatty acids

Participatory definition of breeding objectives and trait preference by smallholder farmers for indigenous goats in Uganda

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The success of breeding programs in improving indigenous livestock breeds in Uganda has hitherto been limited due to lack of involvement of the key stakeholders. Thus, participatory approaches are being promoted for designing community based improvement programs.

217 farm households representing three goat production systems (combinations of breed and region) were individually interviewed to assess the socio-economic characteristics of the regions and the preferences of the farmers for indigenous goat breeds. The three breed/region combinations were 78 households with the Small East African breed in Arua, 81 with the Mubende breed in Mubende and 58 with the Kigezi breed in Kabale.

An index based approach was used to rank farmers' choices of traits considered important for their production systems. Descriptive statistics show that the production systems are significantly different from each other ($P<0.05$) in terms of the nature of the farms and the trait preferences of the farmers. The sale of live animals was considered a primary objective for keeping goats by farmers across all the production systems studied. Therefore, adaptation traits (disease resistance, heat tolerance and survival) were considered critical in the farmers' preferred breed. Production traits (better prolificacy and faster growth rate) and marketing ease were other characteristics considered by the farmers. The results from the study are useful for designing farmer-participatory breeding programs for goats in the different production systems in Uganda.

Keywords: Breeding objectives,Breeding programs,Indigenous goats,Production system

First molecular characterization of CAEV in blood and milk samples from goats in Turkey based on gag gene sequence analysis

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This study aimed to determine the presence of CAEV infection in blood and milk samples of goats collected from various regions of Turkey, using ELISA and PCR techniques and molecular characterization of local viruses. Data was collected from 435 blood samples and 285 milk samples from 8 goat production companies in 6 provinces (Ankara, Eskişehir, Kütahya, Antalya, Burdur, Kırklareli) in Central Anatolia, Aegean, Mediterranean and Marmara regions. All blood and serum samples were examined for antibodies against ELISA and CAE viruses. Nested PCR tests were done on 70 blood samples and 16 milk samples, using specific primaries in the gag region to detect CAE virus nucleic acid.

Of the 435 blood samples, 37 (8.5%) tested positive by ELISA and 14 (4.9%) of the 285 milk samples. PCR results were positive for 14 of the selected 70 leucocyte samples and 8 of the selected 16 milk samples. Two blood samples and 3 milk samples that tested positive with PCR in the field were cloned in plasmide, and the gag gene region sequence of the virus was analyzed. The results were consistent, and similar phylogenetically to CAEV and SRLV viruses in terms of the known partial gag gene levels in Turkey.

This study suggests that it is necessary to determine CAEV infection using ELISA techniques at regular intervals in order to identify the molecular characteristics of circulating viruses rather than detecting infection with PCR tests. The study also indicates that milk samples are important for detecting CAEV infection, and can be used in for diagnosing infection.

Keywords: CAEV, ELISA, PCR, gag, detection, Turkey

Variability of vacuum in goat clusters under different controlled conditions of pipeline height, vacuum settings and flow rate

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Milking clusters, due to their direct connection with teats, may constitute a risk factor for mastitis development. In the goat sector, there are several different cluster's constitutive elements, and their functions and effects on vacuum level at the teat tip are still unclear.

The aim of the study was to assess the proper conditions (goat characteristics, milking system and settings) to obtain the best capacity for each milking cluster, so that the farmers and farming consultants would get more references.

An experimentation was performed in a laboratory, with a milking simulation device approved by the International Committee for Animal Recording (ICAR). Eleven different milking clusters among the most frequently used in French farms, were chosen. The influence of 3 different parameters on vacuum levels in cluster was studied: pipeline height (low vs high), vacuum settings (3 levels of working vacuum), and flow rate (4 levels) during milking. Those parameters were changed one by one. The data analysis was based on vacuum stability calculation: vacuum loss and vacuum fluctuations. Indeed, vacuum stability is directly related to milk quality (lipolysis), teat health and proper milking process (liner adhesion on teat, no air entry).

First, 8 structural criteria were set to describe cluster mechanisms. A specific analysis had been done for automatic teatcups and shut-off valves, in order to clarify their use. The preliminary results indicate that, at the teat tip, vacuum fluctuations means are about 11.7 kPa in low line and 17.2 kPa in high line. Furthermore, vacuum fluctuations means vary from 8.4 to 14.1 kPa in low line and from 14.9 to 19.2 kPa in high line, when flow rate is equal respectively to 0.5 and 2 L/min. This shows that vacuum stability is strongly influenced by the milking pipeline height and flow rate, with appreciable differences in the fluctuation amplitudes between the studied clusters. Thus, it may show the necessity to anticipate the choice of milking systems according to herd characteristics, then to adjust the settings to each milking system. In the near future, a second series of tests, with different pulsation settings, will lead to complete and strengthen these results.

Keywords: cluster, goat,vacuum fluctuations,pipeline height,vacuum settings,flow rate

Extended lactation management in dairy goats: diversity of management strategies and impacts on milk somatic cell counts

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In France, extending lactation in dairy goats is a management tool both used at the individual and the herd levels. Originally, out-of-season breeding systems applied extended lactation (EL) to buffer lower reproduction performances. Nowadays, EL strategy is on the rise because of economic and social developments and expectations: better regularity in milk production, increase in the share of winter milk production, lower workload …

A study was conducted to appreciate the implementation of EL, to identify the different herd management strategies and to define the impact of EL on udder health through the analysis of somatic cell counts (SCC). This study was based on the dairy performance data collected by Milk Recording Organizations, stored in the French national goat information system. The study population targeted herds of more than 40 goats, milked twice a day. Data included 1.5 million lactations from 1 875 farms, between January 2009 and September 2014.

As goats could be successively in normal (NL, from 251 to 400 days), prolonged (PL, from 401 to 485 days) and EL (more than 16 months) over the time, data were time weighted. The comparison between successive NL and EL was based on within-herd age cohorts, homogeneous regarding SCC and dairy performances: 4933 goats including 2 440 EL in year n+1, 1 518 including 299 EL in year n+2.

In the whole population, Pl or EL concerned 40 to 48% of the herds. Their within-herd frequency varied from 5 to 9 % depending on the year and the reproduction strategy (more frequent in out-of-season systems or in case of over time births staggering). EL were characterized by high production potential. They produced 1 654 to 2 068 liters in average over 552 to 695 days. As expected, goats conducted in EL were younger (39 to 49% of primiparous) than others. The proportion of older goats (4^{th} lactation and beyond) has been increased continuously from 12 to 19%. Within the cohorts, EL SCC were significantly more deteriorated than successive NL SCC: 780 000 vs 1 243 000 cells/ml (year n), 1 508 000 vs 1 116 000 cells/ml (year n+1), 1 574 000 vs 1 304 000 cells/ml (year n+2).

These results need to be consolidated and integrated into a more comprehensive analysis of longevity for goats and herds.

Keywords: extended lactation, somatic cell counts, goats,out-of-season breeding system

Goat meat dietary intervention based on a socio-productive diagnose in Chitima, Mozambique

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Goats are deeply embedded in almost every Sub-Saharan African culture of rural people, generally kept for their milk, meat, hair or leather. Goats have played an important role in African social life, especially in food security (FARM-Africa, 2004). Goat meat has good properties for human wellbeing, especially for lower income households. It is a high quality protein (20 protein grs/100 meat grs), with all essential amino acids, good unsaturated/satured fatty acids relationship, it is an important B-vitamin source with high micronutrients bioavailability. Mozambique has high food security problems, with poor access and utilization of food, undiversified diets, chronic poverty and child malnutrition (FAO, 2011). Our objective was to design a nutritional intervention based on goat meat, cultural beliefs and local resources, aimed to strengthening food security of children at the village Barrio Broma (15°43'58.78"S; 32°46'7.27"E) in Chitima. A survey was conducted of socio-productive local data bases and then a survey to 100 rural households about livelihoods and food diversity. Our results indicate that the main economic activity is goat production, based on a native breed with two deliveries per year in the absence of any management. Adult goats weighted 27.2±10.5 kg and raised a height of 63.5±3.8 cm. Data showed high levels of poverty, with a food diversity score of 2.3 (0-12 points), where only 30% of households consume protein and 13%: iron, zinc, and B12 vitamin. The main constraints to food security were poor access to water and low income to buy food. Our dietary intervention was based on improving diet quality by increasing the access to dried goat meat and its utilization by a nutritional education program. This proposal was based on local culture and living conditions characterized by the absence of electricity and drinkable water. The drying process proposed would secure the food maintenance under local conditions guaranteeing food safety for a longer time. Moreover, this kind of dietary intervention would be the most efficient way to improve the infant nutrition by delivering macro and micronutrients on time to these vulnerable populations.

Keywords: food security,dietary intervention,Mozambique,dried meat goat

Revealed buyer preferences for goat attributes in Ethiopia: A hedonic price analysis

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Understanding preferences of buyers and factors associated with market price of goats will help in formulating breeding and marketing strategies to improve income generation among rural goat keepers. The study aimed to investigate factors affecting the market price of goats in Ethiopia. In total, 796 goat transactions were observed in three market locations (Abergele, Konso and Meta-Robi). The information collected about each transactions included selling price, goat age, body weight, sex, coat color, body condition, reason for buying and selling, as well as the buyer's and seller's occupation. In order to consider the effect of seasonal variations, data was also collected during holidays as well as in fasting and non-fasting periods. The relationship between goat attributes and prices were estimated by hedonic regression. The results showed that body weight was the primary determinant of goat prices in all observed markets, explaining 79.2 to 91.0% of the variation in price for bucks and 64.1 to 84.7% for does. Age and body condition were also found to be important in determining prices ($P<0.05$), while coat color did not significantly ($P>0.05$) affect market prices of goats in any of the market locations. The study also revealed that the seasonal effects on goat prices were heterogeneous between locations and sex of the goats. During Christmas season, male and female goats in Abergele district fetched price premiums between 8.6% and 9.2%, respectively, while at the same time in Konso district a significant 10.3% discount in sales price for does was observed indicating a lower demand of female goats for such occasions in this district.The fasting season, during which Orthodox Christians abstain from eating livestock products for nearly two months, had a negative effect on selling prices of goats in Abergele district. The consistent effect of body weight on market price of goats supports the need of incorporating body size in genetic improvement programs and supplementation of goats with the available feed resources before marketing. The significant influence of season on market price of goats justifies targeting specific seasonal occasions for marketing of goats in order to improve the income of goat owners.

Keywords: revealed preference, hedonic pricing, goats, Ethiopia

The futurefor goat systems between ecological intensification and agro – ecological transition

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Most of institutions or initiatives address global food security, equity, preservation of resources and climate changing mitigation as major issues for livestock. There is a general consensus about the fact that in all sectors the main changes and innovations will be ecological. In this context, goats are generally considered having great potentialities to face these challenges. The gap is mostly about the types of new set up to enhance according the paradigms chosen by stake holders.

The objective of this communication is to identify the main trends and challenges in modernization and innovation for the goat sectors. This analysis has been based on a bibliographical review, a theoretical approach and on a comparison between several cases. The teachings from the comparative study, “scaling up successful practices on sustainable pro-poor small ruminant development”, has been used to argue the results.

The first way is a continuation of the dominant production model and based on the improvement of the utilization of resources (genetic resources, forages, etc…) and specialization but with a control and a decreased impact on environment. Such a model will probably open interesting ways for innovation in precision and bio –control technologies, in use and treatment of by products to control and improve the efficiency of the production factors and limit their environmental impacts.

The second one is oriented on bio – diversity and based on the eco-systemic services at field, farms and landscape levels. Its objective would be to reduce the human interventions and to optimize the potentialities of eco – systems within local and regional systems. The pastoral goat systems but also most of the village herds driven by small stake – holders and women are of this type. In this case, research will have to develop clear and relevant methodologies to organize the agro –ecological transition and implement this ecologically intensified model.

The prospects for each model are discussed for goat activities and commodities. Rather than a radical opposition between these two models, the future of the goat sectors will be probably the result of hybridizations between the implementation of new technologies and governance processes to manage and pilot the local transition dynamics within actors’ networks. Although the dominant mental models are still in favor of the production oriented innovations including the actors involved in goats, the goat sectors, will probably face, less ”lock in” effects than other animal ones, probably because they are less supported institutionally. More than other animal species, the intrinsic characteristics of goats, and their potentialities to be included in multi-functional systems, will give them a clear competitive advantage for developing bio – diversity oriented and ecologically intensified innovative new systems.

Keywords: forecasting,agro –ecological transition,innovation,system designing,goat systems

Expression of EGF and IGF-1 mRNA of Skins in Liaoning Cashmere Goat and Chengde Black Goat

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The purpose ofthis study is to identify the differences of mRNA expression of EGF and IGF-1 gene **of skins** in different cashmere growing periods in Liaoning Cashmere Goat and Chengde Black Goat. The mRNA expression level of skins in cashmere fast-growing period(in November) and regression period (in March) were tested by real-time PCR in Liaoning Cashmere Goat and Chengde Black Goat. The data were analyzed using the method of one-way ANOVA analysis of variance, performed with SPSS 17.0 software. The results indicated that the mRNA expression level of EGF gene was significantly higher in fast-growing period than that in regression period both in Liaoning Cashmere Goat and Chengde Black Goat（$P<0.01$）, but no significant differences between Liaoning Cashmere Goat and Chengde Black Goat were observed at the same period（$P>0.05$). The mRNA expression level of IGF-1 gene was significantly higher in fast-growing period than that in regression period in Liaoning Cashmere Goat（$P<0.01$）, but no significant differences were observed in different periods in Chengde Black Goat（$P>0.05$). The mRNA expression level of IGF-1 gene was higher in fast-growing period in Liaoning Cashmere Goat than that in Chengde Black Goat（$P<0.01$）, but there were no significant differences between Liaoning Cashmere Goat and Chengde Black Goat in regression period . It can be concluded that EGF and IGF-1 gene have relationship with cashmere growth.

Keywords: Goat; epidermal growth factor (EGF） gene ; insulin-like growth factor-1 (IGF-1)gene; mRNA expression

Cashmere Producing Smallholder Nomads of Himalaya: Survival Challenges of a System

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Cold arid region of Himalaya is famous for Changthangi Cashmere (Pashmina) producing breed of goats reared under transhumance production system. The breeding tract (Changhthang) with an altitude of 3700-4500 m asl and wide seasonal / diurnal fluctuating temperature (35^{O}c to - 40^{O}c) spans from the Chinese province of Quinghai in the East across central and North Tibet to Ladakh (India) in the West. Two field studies were conducted with objectives to assess performance, livelihood security, pastoral nomadism, value chain and survival challenges of Cashmere goat based smallholder production system. Multistage stratified random, probability proportional to size sampling, project evaluation, growth models, production function and constraint analysis techniques were used to synthesise the results out of data collected from 350 nomadic households rearing 25,659 goats in three zones of Changthang with variable altitudes. The results revealed attitude, demographic trend, flock structure and size, sex, age and grade of Cashmere exhibited statistically significant high correlation ($r > 0.80$) between altitude and flock size vis-a-vis fibre quality. Important contributing factor for quality fibre diameter ($\leq 14\mu$) turned to be cold aridity, altitude $\geq$4000 m asl and availability of quality pastures. Cashmere yield was recorded highest in castrated bucks (585g) and lowest in does (385g) with body weight highest in castrated (30 kg) and lower in breeding bucks (27 kg). Overall, Cashmere production and breed population showed growth momentum (CAGR) of 3.7% and 4.94%, respectively and with BCR (2.72), IRR (Rs 1843.17), NPV (72.14) and PBP (0.58 yrs) indicated the viability of value chain. In the value chain brilliantly coloured feather weight Cashmere shawls, rumal and stoles handcrafted from the fibre with 20 times value addition annually realises around INR 1679 million revenue besides generating employment of 3.56 million mandays. The constraint and production function analysis indicated survival challenges of the production system and study flags policy options to arrest diseases, high inbreeding, winter malnutrition, kid mortality, trans-boundary hostile atmosphere, onslaught of fake products besides infrastructure deficits in Changthang.

Keywords: Cashmere, Smallholder, Himalaya, Value chain, Economic viability, Survival challenges

Treatment of Cranial Cruciate Ligament Ruptures with Autografts (Peroneus Longus Muscle and Cranialis Tibial Muscle) in goats

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In this study, it is aimed that compared radiological, arthroscopic, macroscopic and histological results of autografts (musculus peroneus longus and musculus tibialis cranialis tendons) which are used for treatment of experimentally ruptures of anterior cruciate ligament (ACL) in goats.

In this study, 12 adults aged between two and four female goats were used. Prior to the surgery, physical and radiographic (anterio-posterior (AP), medio-lateral positions(ML) examination of the structures forming the right knee joints of all subjects were conducted.

The subjects were divided randomly two main groups (n:6). Peroneus longus muscule (MPL) tendon (I. main group) and cranial tibialis muscule (MTC) tendon (second main group) located in the right hind legs of the subjects were used instead of cut cruciate ligaments. Grafts were reinforced by the knitting process passed through the tunnel in the tibia and femur The tendon group Musculus Peroneus Longus (MPL) were fixing double-sided and the tendon group musculus tibialis cranialis (MTC) were fixing unilaterally. In the fixing process of the tendon it was benefited from the custom-made acrylic button. Joint capsules, muscles and skin were closed with routine way and Penicillin-G was applied locally.

In the postoperative period it was made of PVC bandage applying movement restrictions. Bandages were removed 20 days after surgery, sutures were removed. After operation 30, 60, 90 and 120 days was performed physical examinations. Also AP and ML radiographs of the right knee and was taken. Arthroscopic examination was performed in 30, 60 and 120 days. After the operation, the subjects used their legs in the first month and it was observed that they had mild lameness. Muscle atrophy decreased after removing bandages.

The goats got used to walk, jump and eat the leaves from trees when taken out after the second month. They used to use both of the legs easily. In physical examination, drawer eye movement was negative. Arthroscopic examination revealed that the amount of synovial fluid enough, and was found to be placed on the graft in place. Last arthroscopic examination showed there was contraction in the joints of some goats.

At the end of the six month period goats were euthanized and knee joints were cut. The morphological structure of the knee joint, placed durability of autograft, the position of the graft in the tunnels, endurance and layout of the buttons have been observed to be good.

Macroscopic examination showed that the ligaments which were transposed protected their existence. For assessing the physical properties of the synovial fluid it was found to have normal color and viscosity. Considering the results obtained from this study it was concluded that the method developed in the opinion can be tried and brought to the veterinary practice in clinical cases.

Keywords: arterior cruciate ligamet, tendon graft, arthroscopy, radiography, goat

A survey on contamination rate of Sarcocyst in Miyandoab Slaughtered Small ruminants (goat) bydigestive method and comparison of results with abattoir statistics

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Introduction & Objectives: Sarcocystosis is zoonotic disease with Sarcocystis as its causative agent.With its hosts (intermediate and definitive) this parasite shows two stages in its life cycle, sexual stage and asexual stage.This disease has been reported in most part of the world.This article, has pursued three main objectives: Determine the rate of pathogens in meat of small ruminants, determine the percent of infection in muscle tissue and comparison of results with abattoir statistics and application results in subsequent studies, including prevention, treatment and control.

Methods & Materials: During May 2014 to September 2014 , out of goat slaughtered for human consumption in Miyandoab abattoir, Miyandoab , Iran, 75 goats were investigated for the presence of macroscopic and microscopic Sarcocystis cysts in muscular tissues. Each of the investigated goat were classified into groups according to the age (<1, 1-2, 2-3, >3), and sex and . Ages of the investigated animals were assessed by visual inspection of teet. Sarcocysts (macrocysts) were investigated in meat by direct observation. The chopped meat samples, of each goat were inspected for the presence of macroscopic sarcocysts. Then approximately 100 gr of the chopped meat were sampled for further study. In the laboratory, all tissue samples were sectioned to 2-3 mm slices and observed carefully for probable macroscopic cysts; any such cysts were removed. The sections were then examined by the Peptic digestion method.

Results & Discussion : The 3 of the 75 goats (4.00 %) were diagnosed as being infected with macroscopic cysts. Results of this study showed a high frequency of microscopic Sarcocystis infection in goat slaughtered in the Miyandoab, Iran, of the 75 goats, 23 (30.66%) were diagnosed as positive for Sarcocystis species by the digestion method. The infection rate increased with age ($p<0.05$).The infection rate was independent of sex being 30.33% in males and 30.95% in females,although this difference was not significan ($p>0.05$).

Keywords: Sarcocystosis,Digestive method,Miyandoab Slaughtered Small ruminants,goat

Title: PPREradication Campaign: background, progress and lessons learned

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Abstract: Control of infectious disease is a key strategy to increase value from rearing and sale of goats. In April 2015, FAO and partners launched a global PPR eradication campaign. PPR (*peste des petits ruminants)* is a devastating viral disease of goats and the scourge of rural households in vast swathes of the developing world. This Roundtable will share experiences from the eradication campaign so far, including grass roots and policy level interventions, unforeseen challenges and outcomes, and the next steps needed to eliminate the disease by the target date 2030.

Presenters and Participants: Veterinarians and other partners from Africa and Asia, OIE, BMGF, GALVmed, IDRC, NGOs working with farmers and pastoralists.

Topics: Efficacy of vaccine combinations, pricing, delivery, gender and social limits on access and use, record keeping, coordination with stakeholders, measuring impact

Keywords: PPR, goat vaccines, animal health,developing countries,input vaue chain

An *Ex Vivo* Up-Take of Levamisole Molecules by Cestode (*Monezia Expensa*) of Goat (*Capra Hirsa*) and its detection through RP-HPLC

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Detection of various molecules of drugs remained a prime issue especially in tissues of animals, humans and in their target parasites. The cestode/tapeworms pose a dilemma because of their weird body composition and uptake pattern of nutrients and medicines especially through absorption by tegument. We selected levamisole; thought to be potent antiparasitic/ ani-cestodal drug. The uptake of levamisole(LEV) through cestodeal tissues is studied through HPCL in this paper. High performance liquid chromatography technique has been utilized to know the uptake of levamisole in tissues of cestodes of Goat (*Monezia expensa*) in small ruminants. The drug was exposed to *M. expensa* by *in vitro* till its death or a parasite ceases its movement. The tissue/ part of proglattids of the *M. expensa* were homogenized with some modifications and levamisole extraction was performed with liquid phase extraction method. The evaporation of solvent was done and the residual cestodal tissues were cleaned by solid phase. After the solid phase extraction method, the recovery of drug, detection and quantification of levamisole from cestodal tissues was determined through Reverse Phase Column High Performance Liquid Chromatography (RP-HPLC). Levamisole (LEV) molecules assay was obtained on a C18 reverse-phase (20 um, 6mm x 150 mm) column at flow rate of 1ml/min using acetonitrile and ammonium acetate as mobile phase and UV detection was done at 254 nm. The development of method of Levamisole (LEV) detection from cestodal tissues by HPLC in *in vitro* samples has been demonstrated first time in Pakistan, which can provide the solution of parasitic control and provide in sight in to the uptake of anti cestodal drugs either against human or livestock parasites.

Keywords: Keywords: RP-HPLC, Levamisole, Cestodes, Ex vivo, Tegument

POSTER PRESENTATION

Body Measurements and Live Weights of Honamli Goat Breed under the In situ Protection

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This study was conducted with three Honamli goat flocks located in Konya, Antalya and Isparta Provinces of Turkey in 2014 under the scope of the In situ Conservation of Domestic Animal Genetic Resources Project led by Ministry of Food, Agriculture and Livestock. The animal material of the study consisted of 624 does and 70 bucks. The average liveweights of the does and bucks of various age were 66.6± 0.29 kg and 98.3 ± 1.34 respectively. The height at withers, rump height, chest circumfenrence, chest depth, chest width, body lenght and muzzle lenght of randomly selected 25 goats of similar age from each flock were ile 80.6 cm, 82.2cm, 100.2cm, 35.4cm, 21.3cm, 84.1cm, 20.5 cm.

Keywords: Honamli goat,genetic resources,body measurements,in situ protection

Turkey Intensive Goat Farming and Contribution to Turkish Milk Consumption

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Goat farming is the most important alternative production sector for small scale Turkish farmer. According to FAO data, during 1980-2010 period, world goat population increase from 446 million heads to 880 million heads. This increase has been driven both by increases in goat numbers, and increases in per goat production as farmers have moved to more intensive indoor systems. This is the good indicator of goat farming importance for world population. The goat farming is increasing interest in the world because of characteristic of goat milk and meat for healthy human nutrition especially for child and elder. Goat milk preferred as human food because of similarity of woman milk. Turkey also has just developing dairy goat industry.

Goats have well adapted to harsh environments, and this condition may decrease pasture availability and roughage quality. Extensive production based on pasture may limit milk production. However high feed cost of intensive production may not be affordable in tropic and subtropical areas of the world. Total milk production in Turkey is 18, 5 million tons in 2015 that is come from of % 91, 4 cow, % 6 sheep, %2, 5 goat and % 0.3 buffalo (TUİK, 2015)

Goat milk has small milk fat globules easy for digestion, short fatty acid content and favorable cosmetic properties. Additionally goat milk; calcium content is 34 times higher than the human milk and digestive system problems are rarely seen compared to cow milk. But the quality of goat milk is associated to the absence of mastitis, and low level Somatic Cell Count (SCC) is the main parameter to quantify the presence of abnormality. Somatic cells a good indicator of mastitis and the degree of infection of the mammary glands. Changes in SCC are affected by the method of milking and the health status of the animals. Higher SCC in goat milk can also be caused by a different type of secretion in goats, namely apocrine secretion, as opposed to the merocrine secretion in cows. It is the presence of non-leukotic, cell resembling fragments in goat milk that can increase the overall SCC values the goat milk SCC values ranged from 78.10^3 ml^{-1} to 4520. 10^3 ml^{-1}. SCC values in goat milk exceeding 175.10^3 ml^{-1} were accompanied by decrease in fat content and, on the opposite, increase in protein content. The customary high SCC in goat milk is caused by a higher cytoplasmic particle count originating in apocrine secretion in the mammary gland. Hygiene criteria of goat milk quality are laid down by Commission Regulation No. 166/2006.

This study aimed to present the existing problem in intensive dairy goat production and contribution of goat farming systems to Turkish milk consumption.

Keywords: Turkey Goat farming,Contribution to the Milk consumption,SCC

Edible and non-edible (poisonous) plants for goats

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In this study, is carried out to determine the edible and non-edible plant species especially fed pasture-based in goats. Edible and non-poisonous plants that Goats will eat: Acorns, Althea, Angel Wing Begoneas, Apple, Arborvita (aka thuja), Bamboo, Banana, entire plant, fruit & peel, Barkcloth fig (ficus natalensis), Bay Tree Leaves (green and dried), Bean (all parts), Beets (leaves and root), Blackberry bushes (all parts), Black Locust, Broccoli (all parts), Buckbrush, Cabbage Camellias, Cantaloupe (fruit, seeds and peel), Collard Greens, Carrots, Catnip, Cedar Needles and Bark, Celery, Citrus, Clover, Comfrey, Corn husks & silk, Cottonwood, Coyote Bush, Dandelion Douglas Fir, Dogwood, Elm, English Ivy, Fava Bean pods, Fern, Fescue grass, Ficus, Garlic, Ginger Root, Grape,, Grape Vine, Grapefruit, Greenbrier, Hay Plant, Heavenly Bamboo, Hemlock Trees, Hibiscus, Honeysuckle, Hyssop, Ivy, Jackfruit leaves, Jade, Japanese Elm, Japanese Knotweed, Jojoba, Kudzu, Lantana, Lilac bark /branches, Lupine, Lemon grass, Magnolia Leaves green and dried, Mango leaves, Manzanita, Maple Trees, leaves & bark (note: red maples are toxic), Mesquite, Mint, Mock Orange, Monkeyflower, Mountain Ash, Morning Glory, Moss, Mulberry (entire plant), Mullein, Mustard, Nettles, Oak Tree Leaves, Onion, Orange (fruit & peel), Paloverde (needles & seed pods), Pea Pods, Peanuts (including the shells), Pear, Pencil cactus, Peppers, Pepper plants, Photinia, Pine Trees, Plum, Privet (hedge),Pumpkin, Poison Ivy, Poison Oak, Poison Sumac vine, Pomegranates, Poplar Trees, Potatoes (not the leaves as the leaves are a nightshade plant and are toxic), Raisins, Raspberry, Rose bushes, Sassafras, Southern Bayberry, Spruce trees, Sumac tree, Strawberry, Sweet Gum Trees, Sweet potato leaves, Tomatoes (just not the leaves or the plant stems as they too are of the nightshade family and are toxic), Turnips, Youpon Holly, Yarrow, Yellow Locus, Yucca, Vetch, Virginia Creeper, Wandering Jew, Watermelon, Wax Myrtle, Weeping Willow, Wild Tobacco (not the same as domestic tobacco). Non-edible and poisonous plants that Goats will eat: Aconite, Allspice (plant), African Rue, Andromeda (related to foxglove), Avocado, Bleeding Heart, Bloodroot, Blue Cohosh, Boxwood, Burning Bush berries, Calotropis, Cassava, Celandine (tetterwort), China Berry Trees, Choke Cherries, Common Poppy, Crotaleria (aka rattlepods or rattlebox), Crow Poison (Nothoscordum bivalve), Death camas (toxicoscordian venenosum), Diffenbachia normally a houseplant, Euonymus Bush berries, False Helebore (aka Indian poke), False Jessamine, False Tansy, Fume Wort, Fuschia, Helebore, Hemp (incl. Indian Hemp), Holly Trees/Bushes, Horse Nettle, Japanese Yew, Jimson Weed, Lantana Larkspur, Lasiandra, Lilacs, Lily of the Valley, Lobelia, Lupine Seeds, Marijuana, Monkhood, Moonseed (menispermum), Milkweed, Mountain Laurel, Nightshade, Oleander, Poison Hemlock, Poison Nightshade, Ragwort (senecio), Red Maples, Rhododendron, Rock poppy, Rhubarb leaves, Spider lily, Spotted Cowbane, Spotted Water hemlock, Stagger (grass and staggerweed), Sweet shrub (calicanthus), Thorn apple, Varebell, Wild Parsnip, Wild Cherry (wilted leaves are toxic whereas fresh and fully dried are not), Wolfsbane, Yew.

The Effects Of Pasture-Based Raising On The Composition Of Goat Milk

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The aim of the transition to intensive production system in goat raising is to get more yield per animal. Thus, both demand for goat products will be met and goat breeders will have more profits. But, extensive goat raising system has got some advantages for attaining high product quality. The milk obtained from pasture raised goats is high quality due to the fact that i) they are comfortable at pasture, ii) they benefit from sun and fresh weather, iii) they seldom exposed to illnesses and iv) they consume natural fresh grasses. The studies showed that pasture-feeding affected the milk yield and quality in goats.However, if goats feeding in poor quality pastures, they can not be predicted yield, their milk production decrease and milk composition can be change. Consequently, forage quality in extensive production system for goat farming is very important. The milk fat content increased in goats given Timothy grass, the milk protein content decreased in goats given orchard grass, the lactose content increased in goats given alfalfa. Furthermore, the concentrate feed given at the level of 1.5% liveweight in addition to pasture led to increase in dry matter consumption. Thus, body weight increased and total milk solids and milk fat content decreased. In some studies, the milk yield, milk lactose and urea contents increased with increasing concentrate feed consumption. The CLA content in milk from goats fed fresh grass and vegetable oils in their diets. Generally, it was observed in content goat milk CLA (conjugated linoleic acid) and trans- 10 and trans- 11 C18: 1 positive interaction effect at based on pasture feeding for goat milk.In this study, the effects of pasture-feeding and vegetable oil supplementation on the quality of goat milk were evaluated

Keywords: Goat,extensive breeding,milk composition,conjuge linoleic acid,pasture

Diurnal variability of ruminal pH and fermentation characteristics in different oil sources and forage ratio in cannulated goats

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The objective of this study was to examine the effects of palm oil and fish oil sources on rumen pH and ruminal fermentation of cannulated goats fed high-forage (HF) or high-concentrate (HC) diets. Four cannulated goats were used in a 4 × 4 Latin square design with dietary treatments arranged as a 2 × 2 factorial. High forage and high concentrate basal diets were formulated by alfaalfa as a forage, as well as those of corn grain, barley grain, sunflower meal and wheat bran. The basal diets were fed twice in a day at 08:00 am and 08:00 pm. Oil sources (fish and palm oil) were calculated as a feedstuff and according to dry matter intake (40g/day). The forage:concentrate ratios of the total diets were 60:40 and 40:60 on a dry matter (DM) basis. In the experiment the pH and fermentation characteristics were measured after the adaptation period (21 days). In the sampling day (21th day), ruminal fluid was collected before morning feeding (0. Hour) and at 2,4, 6, 8, 10 and 12h after morning feeding for the measurement of pH and fermentation characteristics. Current findings revealed that the ruminal pH was not significantly influenced by the treatments ($P>0.05$), but changes that were characterized by time-dependent decreases ($P>0.05$). Ruminal volatile fatty acid (VFA) pattern changed as significantly by the treatments. The ruminal propionate increased and acetate decreased with high concentrate diets ($P<0.05$), however these parameters were not affected by oil sources. The ruminal butyrate was not changed as significantly by the treatments ($P>0.05$). In the experiment there were not characterized in the ruminal fermentation characteristics by time-dependent. There was no significant interaction between the treatment groups.

Possibilities of using Saanen X hair goat crossbred (G1) kids as breeding goat at early ages (7-8 months)

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The objectives of this study were to investigate the possibilities of using kids as breeding goat in the first year of life, determine the fertility, production and growing traits of the kids. Fertility, mating, milk production, live weights and body measurements were determined of Saanen x Hair goat crossbred (G1) goat and kid groups and the obtained data were compared. In the study, 96 Saanen x Hair goat crossbred (G1) kids and 24 Saanen x Hair goat crossbred (G1) goats (2-3 age) were used. While the rate of pregnancy and birth of Saanen x Hair goat crossbred (G1) goat and kid groups were respectively % 95.8, % 92.7 and% 87.5, % 76.1; the rate of single, twin and triplet birth were % 28.6, % 68.5; % 42.8, % 23.3 and % 19.1, % 2.7. The kid yields of Saanen x Hair goat crossbred (G1) goat and kid groups were % 171.4 and % 123.3. The live weights and body measurements of the kids on the 30th and 75th day and survival ability on the 30th, 75th and 180th day were similar in the two groups. In spite of a decline has been shown in fertility, live weight, live weight gain, body measurements, viability and milk yield when impaired the goat and kid groups, it is concluded that using kids in breeding in early ages may be more useful economically for breeders in terms of prolonging the lifetime of animals.

Keywords: Live weight,fertility,possibility of early breeding,milk yield,Live weight

The effects of vegetable oils on quality of goat meat

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Recently, scientific studies have focused on increasing flavour, quality and positive effects on health of animal products, as well as meeting the demand for animal protein, necessary for human nutrition. Indeed, diet has a very strong effect on human health. This situation caused consumers become selective and conscious. Malnutrition contributes significantly to development of serious illnesses such as cancer, heart and vascular conditions, which are among the most important diseases of our time. Therefore consumers prefer addictive-free healthy products and tend to tasty and high quality animal products. Due to prohibition antibiotics to be utilized in animal feed, the use of vegetable oils and plant extracts is under consideration.

In recent years, number of studies focused on the use of the vegetable oils for improving the quality of animal products such as meat, milk and eggs, has significant increased. For these reasons consumers prefer less fatty meats and want the produced meat to have a fatty acid content that is more suitable for health.Goat meat belons to red meat class, thus quality of goat meat is affected by breeds, genotypes, sex, age, slaughter weight of animals and the characteristics of feed (the structure of the ration, feed additive, structure of feed, etc.). Vegetable oils used in the feeding of ruminants are known to affect body fat composition by causing thickness of back, fat rate in the carcass, heart fat, lipoidosis in liver and pelvis.Besides the kind of animal, oil structure also has a significant effect on the quality of meat. Goat meat has 74.2-76% moisture, 20.6-22.3% crude protein, 0.6-2.3% fat and 1.1% ash on average.Despite goat meat involves low fat comparing to the sheep and beef meet, it is rich in unsaturated fatty acids (linoleic and oleic acids) which have positive effects on human health. Besides, increasing the amount of meat goat, there are some studies in which vegetable oils or plant extracts have been used to reduce the abdominal adiposity and the low density lipoproteins (LDL) amount, and to enhance the positive effects on taste, quality and health. In these studies, canola and sunflower oils, as well as many plant extracts like licuri and eucalyptus essential oils are used to increase the amount of linoleic acid and conjugated linoleic acid in goat meat. In this study, the results of studies involved in vegetable oils which are known to affect the quality of goat meat.

Keywords: Goat,meat quality,conjugated linoleic acid,fatty acids,vegetable oil

Effects of Purple Prairie Clover and Sainfoin Condensed Tannins on Fatty Acid of *Escherichia coli ATCC25922'* Cell Wall

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Previous study showed that the cell membrane is the main active position of tannins on bacteria. We hypothesised that inhibition of condense tannins(CT) isolated from purple prairie clover (PPC; *Dalea purpurea Vent.*) on *E. coil* was related to outer membrane distraction of bacteria, thus caused the change of inner membrane(IM) and permetability. Lipopolysaccharide (LPS) is the main component of bacterial cell wall, embedded into and extended from the outer membrane. Toxic component-lipid A was consisted of about 70%～80% fatty acids (FA). So it's essential for fatty acids to maintain cell activity. To know about the changes of fatty acids composition as act at *E. coil* exposed to tannin,and it will provide theoretical support to clarify mechanism. Therefore, the experiments was conducted to observe the change of fatty acids caused by tannins' by using gas chromatograph (GS), ATCC25922 as model strain, CT from sainfoin(SF; *Onobrychis viciifolia*) as control. Results showed that the ratio of fatty acids in paris-C16 : 0/C16 : 1、TT16 : 0/TT16 : 1、C18 : 0/C18 : 1、SFA/USFA was higher remarkably ($p < 0.01$) in lower level than MIC (Minimum Inhibitory Concentration) of PPC, but had no effect in SF; There were contrary results in higher level than MIC of PPC and SF. We concluded that tannins can induce the change of fatty acids constitute in bacteria' cell wall, it may be one of reasons for bioactive activity of tannins.

Keywords: condensed tannins; E. coil; fatty acids

Comparison of hair quality characteristics of Aleppo and hair goats

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The study was carried out to determine and compare the hair quality characteristics of Aleppo and Hair goats. The study material consisted of a total of 12 Aleppo goats (6 males, 6 females) and 12 Hair goats (6 males, 6 females), which were 12 months of age and raised by a farmer in Kırıkkale region. Hair characteristics (fibre length, fibre diameter, fibre tenacity, fibre elongation, fibre proportion) were determined in both breeds at Livestock Central Research Institute, wool and hair laboratory. The data were analyzed by using GLM or Mann-Whitney U test procedure of SPSS depending on homogenity of collected data. Least squares means of fibre length (barbe), fibre diameter, fibre tenacity, fibre elongation and fibre propotion for Aleppo and Hair goats were defined as 70.92 and 54.98 mm, 66.37 and 65.94 µm, 28.62 and 26.60 %, 12.58 and 11.97 cN/tex, 91.09 and 89.76 % . While the effects of breed diversty on fibre length were statically significant ($P < 0.001$; $P < 0.01$), fibre tenacity, fibre elongation and fibre proportion traits were not affected by breed diversty. Fibre length was higher in Aleppo goats than that in the hair goats. The effect of gender on fibre length, fibre diameter and fibre proportion except for fibre elongation and fibre tenacity were statistically significant with different levels ($P < 0.001$; $P < 0.05$). Fibre length, fibre diameter and fibre proportion of the male goats were significantly higher than those of the female goats. It was found that fibre characteristics of Aleppo and Hair goats were similar in terms of fibre length, fibre elongation, fibre tenacity and fibre proportion, which were important in textile industry. The fibre diameter of Aleppo and Hair goats determined in this study were higher than that in the Angora goats; however the fibre length, fibre elongation and fibre tenacity were lower than those in the Angora goats. These findings show that hairs of Halep and Hair goats are appropriate for the weaving hair tent, carpet and rug.

Keywords: Aleppo goat,hair goat,hair characteristics

Effect of Marjoram and Chamomile extracts on ram semen characteristics after freeze-thawing process

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During exposing sperm to the cold shock and osmotic pressure, the membrane oxidation increases due to the reactions of free radicals production. The aim of this research is to investigate the effect of extracts of Chamomile and Marjoram herb as a natural antioxidant on frozen semen of ram. Marjoram herb contains high levels of phenolic compounds such as gallic acid, polyphenols such as Rosmarinic acid and Quercetin. Also, Chamomile contains chamazulene and flavonoids. Semen was collected by artificial vagina from five mature *Ghezel* breed rams during the breeding season. Semen samples, which were diluted with a Tris-based extender containing the antioxidants marjoram 66 µl/mL and chamomile 100 µl/mL extracts, and an extender containing no antioxidants (control), were cooled to 5$^{\circ C}$ and frozen in 0.25-ml French straws in liquid nitrogen. Frozen straws were thawed individually at 37$^{\circ C}$ for 30 s in a water bath for evaluation .After freezing-thawed, the sperm motility parameters were evaluated using CASA system, the viability of sperms using eosine-nigrosin stain, membrane integrity using hypo osmotic swelling test, the sperm abnormalities using Hancock solution and lipid peroxidation by measuring of malondialdehyde concentration. The results showed that the addition of 66 µl/mL level of Chamomile and 100 µl/mL level of marjoram significantly improved sperm motility parameters, Viability and plasma membrane integrity after freeze-thawing compared with the control group

Keywords: Cryopreservation,Chamomile ,Antioxidants ,Ram semen

The Evaluation of The Studies on Candidate Genes Effecting Litter Size in Goats

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Many researchers frequently studied on genes effecting litter size in sheep and goats and indicated many candidate genes which might be potential major genes. The aims of this review were to summarize some studies related with litter size in goats and to evaluate these results.An et al. (2013) studied on KISS1 gene in Xinong Saanen, Boer and Guanzhong goats and notified that four SNPs determined had a significant effect on litter size ($P < 0.05$). Ran et al. (2010) studied on exon 1 of prolactin receptor (PRLR) gene in Jining Grey goats and determined five genotypes. It was informed that HH, HK, AH and AK genotypes had a significant effect on litter size when they were compared with CC genotype ($P < 0.01$). An et al. (2010) studied on exon 2 of FSHB gene in Saanen and Boer goats. Three genotypes (EE, EF, FF) were determined and it was notified that E allele had an additive effect on litter size ($P < 0.05$). An et al. (2009) studied on exon 1 of gonadotropin-releasing hormone receptor (GnRHR) gene in two goat breeds and declared that two SNPs determined had a significant effect on litter size ($P < 0.05$). Hence GnRHR gene was informed that it could be candidate gene strongly. In a study (Lan et al. 2007) on IGFBP3 gene in Xinong Sannen, Guanzhong, Laoshan, White Cashmere, Inner Mongolia, Shaanan White, Guizhou White, Leizhou goats, it was notified that two SNPs in exon 2 had a significant effect on litter size ($P < 0.05$). Wang et al. (2011) studied on exon 1 of bone morphogenetic protein 15 (BMP15) gene in Funiu White goat. They were informed that BB genotype had more offspring than AA and AB genotypes and that BMP15 gene might be a major gene in Funiu White goats. Chu et al. (2010) studied on bone morphogenetic protein receptor IB (*BMPR-IB*) gene in Wendeng, Jining Grey and Mongolia Cashmere goats. It was notified that the relationship of *BMPR-IB* gene with litter size was **insignificant** ($P > 0.05$).In most of these studies, the polymorphisms determined in candidate genes related with litter size in goats but they were not confirmed by other researchers. This situation get candidate genes to decreases the possibility of being major genes. It is extremely important to publish the results which are not related with litter size for selecting the candidate genes for further studies.

Keywords: Candidate gene,Goat,Litter size

Progress in resistance to internal parasitism and growth performance of Boer, Kiko, and Spanish goat kids through selection in a central sire test

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Boer, Kiko, and Spanish male kids from farms in the south-central US were tested for response to artificial infection with *Haemonchus contortus* larvae (categorized as resistant [R], of moderate resistance [M], and susceptible [S]) and growth performance in a central test at Langston University. There were 16, 13, and 16 Boer (initial age 3.8 mo and 20 kg), 16, 14, and 20 Kiko (3.7 mo and 19 kg), and 14, 17, and 18 Spanish goats (3.9 mo and 19 kg) in yr 1, 2, and 3, respectively. Males were randomly selected in yr 1, whereas offspring of R and M sires were tested in yr 2 and 3. The test entailed 2 wk of adjustment and 8 wk of data collection, with free access to a 15% CP and 50% concentrate diet in automated feeders. During adaptation, anthelmintic treatment resulted in low fecal egg count (FEC; <600/g), after which 10,000 infective larvae were administered orally. BW and packed cell volume (PCV) were measured weekly, and FEC was determined 4 to 5 times in wk 6-8. The cubic clustering criterion of SAS® was used to categorize resistance groups, which resulted in 19, 18, and 14 for R, 16, 17, and 21 for M, 11, 9 and 19 for S in yr 1, 2, and 3, respectively. DM intake was greatest for M in yr 2 (P<0.01) but similar among resistance groups in yr 3 (P>0.05). There was a resistance group by breed interaction in ADG (P=0.03), with values highest for R and(or) M (236, 267, and 212 g for Boer, 140, 174, and 134 g for Kiko, and 167, 131, and 130 g for Spanish of R, M, and S, respectively; SE=13.2). There were interactions in FEC of breed × resistance group (P<0.01; 962, 1492, and 2774 eggs/g for Boer, 1258, 1968, and 3338 for Kiko, and 276, 1149, and 2373 for Spanish of R, M, and S, respectively), breed × year (P<0.01; 1102, 1436, and 2690 for Boer, 3577, 1664, and 1323 for Kiko, and 1328, 952, and 1518 for Spanish in yr 1, 2, and 3, respectively), and resistance group×year (P<0.01; 1164, 746, and 585 for R, 1878, 1261, and 1470 for M, 2965, 2045, and 3476 for S in yr 1, 2, and 3, respectively). PCV was greatest (P<0.01) for R (27.2, 25.3, and 24.7% for R, M, and S, respectively). In conclusion, selection of meat goat sires through a central performance test improved resistance to internal parasitism without negative influence on growth performance, although change in resistance varied among breeds and years.

Keywords: goat, internal parasitism,resistance

Guide to Udder Health for Dairy Goats

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Dairy goat producers want to produce the highest quality product – specifically, milk – for their consumers. Part of the process of achieving this goal is to maintain the health of the animals that produce that milk, and in particular the health of the udder. This guide was designed to help educate producers, veterinarians, extension and dairy support personnel on how to best do that. The information has come from a number of sources but includes extension information from both the small ruminant and cow sectors, and new information from the latest research from around the world.

The guide is divided into the several sections. Section I addresses the anatomy, hormonal control and expected levels of production of normal lactation. Section II covers the economic costs of mastitis and important risk factors. It describes the most common udder pathogens including bacteria and viruses. Finally, methods of detecting mastitis are described including interpretation of somatic cell counts, California mastitis test and bacterial culture. Section III describes proper milking procedures including udder preparation, milking procedure and post-milking management. It also discusses machine stripping, time for milk-out etc. Section IV covers proper maintenance, cleaning and use of milking equipment. Section V broadly covers measures of milk quality with particular emphasis on bacterial contamination of the milk. Advice on troubleshooting milk quality problems are summarized. Section VI focuses on treatment and control of mastitis both during lactation and the dry period. Extra label drug use and detection of inhibitors on farm are also covered. Section VII provides guidance on how to monitor udder health as well as how to properly set goals using the SMART approach. Forms for measuring udder health performance and for recording milk culture results as well as treatment response are included. Section VIII covers health management practices specific to keeping the doe healthy. Vaccination programs, reproductive management, proper care through transition including metabolic and kidding time diseases, nutritional management and chronic wasting diseases to name a few – are addressed in this section. Additionally, there are three appendices that include explanation of terms, a self-assessment quiz and references. The guide has been distributed to all producers shipping milk in Ontario and has been available for sale to veterinarians and industry support personnel.

Keywords: Mastitis,Dairy,Education,Health

Genetic polymorphism at the *CSN1S1* gene and its association with milk productivity traits in Latvia goat herds

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The breeding of milk goats is one of livestock breeding branches in Latvia. The basic breed is the Latvian breed (LVK). The average milk yield of goats under supervision in 2014 was 508 kg with the average fat content of 4.21% and the average protein content of 3.21%. The genetic diversity of the Latvian goat population by milk protein genes has not previously been studied. **The aim of the study** was to determine the genetic polymorphism at αS1-casein gene for the goats of LVK breed and evaluate milk productivity of different genotype goats. Blood samples were collected in 2014 and 2015. The genotypes were identified for the total of 158 animals, including 30 male goats. The goat genotypes were determined at "Labogenes" laboratory in France. For the goats placed in 8 herds at αS1-CN gene there were identified 5 alleles with the following frequency: A-0.340, B-0.309, E-0.133 F-0.203 and O-0.016. For the male goats there were observed 4 alleles. Most frequency (0.417) was observed in the B allele, the rarest in E (0.083). O allele was not observed for the male goats. From the analysed 128 goats the first lactation closed 63. To evaluate the genotype effect on productivity, the goats were divided into three groups - the first group (n = 22) combined the goats with AA, BB and AB genotypes, the second group (n = 28) combined the goats with heterozygous genotypes (AE, AF, AO, BE, BF, BO), however in the third group (n = 13) were the goats with EE, FF and EF genotypes. The goats of the first group had the largest yield (544.0 kg), while the goats of the second group had the lowest (501.0 kg). Protein and fat content between different genotype goats differed significantly ($p<0.05$). The goats of the first group had significantly highest protein (3.45%) and fat content (4.32%) in milk, and the goats, whose genotype had only E and F alleles (the third group) had the lowest (respectively 3.08 and 3.77%). In the study we have found out that in the goats bred in Latvia there is observed the polymorphism at αS1-CN gene, therefore continuing the identification of the goat genotypes, it will be possible to carry out selection work by cultivating herds aimed at dairy products for processing.

Keywords: goats Breeding,CSN1S1 gene,milk

Study of physicochemical, microbiological quality and antibacterial activity of local goat's colostrum

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This study was conducted aiming to determine the physicochemical and microbiological composition of Tunisian goat colostrums and to study the antibacterial activity of this product.

Eighteen samples of colostrums local goat (body weight = 25 kg; age = 4.5 years) living in semi-intensive system in south Tunisian for 3 days were used in this work. Colostrums samples were collected and analyzed for physicochemical properties such as: total solids, fat, protein, lactose and ash content. Average pH did not statistically differ among days *($p=0.308$*). The means of pH was 6.43. Acidity and viscosity were higher in colostrums from the first day in comparison to the 2nd and 3st day. The same result was detected in total solids amounts (320.99 vs. 197.97 and 214.53 g/l respectively; *$p=0.01$*). Protein content was also higher for the first day as compared to the other days (139.44 vs. 73.79 and 67.85 g/l for two and three days respectively; *$p< 0.001$*). No significant differences were observed for the colostrum content of fat. The microbiological analysis did not statistically different among days. The total mesophilic aerobic flora was increased during three days from 33.2±8.68to 91.25±41.21 (*$p= 0.457$*) and the same results for Lactic Bacteria 40.4±15.02to 101.25±70.66.

The goat colostrum has antimicrobial activity against Escherichia coli the exhibited greater antimicrobial activity .So it is considered the most rich in antimicrobial components such as the protein.

Keywords: Colostrum,local goat,physicochemical,microbiological quality,antimicrobial activity

Microsatellite analysis for parentage testing of the native goat breed from Turkey

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Parentage testing is very important for genetically determining the accuracy of the pedigree of domestic animals. The native goat population in Türkiye might be expected to have a high level of homozygosity because the traditional method of breeding results in such a small population. For this reason, using a set of highly polymorphic markers such as microsatellites is required for parentage testing. The purpose of this study was to analyze the usefulness of 14 microsatellite markers for parentage testing in 3 different goat breed (Kıl, Ankara and Honamlı) samples from farmers in Turkey. Despite the high polymorphism of the majority of 14 microsatellites an increase in homozygosity and deviations from Hardy Weinberg proportions were observed in some loci in the investigated populations. The fourteen loci recommended by ISAG displayed high values for the measures of informativeness (allele numbers, heterozygosity, polymorphic information content, frequency of the most common allele, and power of discrimination).

The number of alleles and expected heterozygosity (He) per marker ranged from 4 to 12, and from 0.367 to 0.851, respectively. The mean number of alleles (n_A) per locus was 5.50, the mean value of polymorphism information content (PIC) was 0.559, and the mean frequency of the most frequent allele (FNA) was 0.45. Combined power of discrimination (CPD) and combined power of exclusion (CPE) for the whole set of studied markers were 0.999. When both parents are known calculated combined probability of exclusion was at least 0.999. The primary results of this study indicate no serious loss of heterozygosity and confirm that 14 microsatellite markers can be used in parentage testing with high efficiency for the native goat populations from Turkey.

Keywords: Paternity testing,microsatellite, Turkısh goat breeds,polymorphism information content

Relationship between electrical conductivity of goat milk and milk yield, content and SCC

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The aim of this thesis was to estimate a relation between the electrical conductivity of goat milk and milk yield, content and the somatic cell count (SCC).

Milking traits of 204 Czech White goats, which were milked into a milk line, were studied using the Lactocorder® device. Statistical data analysis was calculated using R statistics package. The results are considered reliable at $P \leq 0.05$. The goats were divided into classes, after which we have made the characteristics analyzes of the milk yield, SCC and the electrical conductivity during the main milking phase: milk yield (class 1 - up to 1.6 kg, class 2 – 1.6 kg and higher), SCC (class 1 - up to 750 thousand/ml, class 2 – more than 750 thousand/ml.) and the electrical conductivity during the main milking phase (low - up to 6.0 mS/cm, medium – from 6.0 mS/cm to 7.9 mS/cm and high – more than 7.9 mS/cm).

After grouping the data according to the milk yield, a 0.26 mS/cm higher electrical conductivity was estimated during the decreasing phase in the class milk yield of up to 1.6 kg than in the class milk yield of 1.6 kg and higher ($P<0.05$). Other electrical conductivity parameters of goat milk did not differ among the milk yield classes. While the data was grouped according to the electrical conductivity during the main milking phase, it was determined that the goats with high electrical conductivity produced 7.0 % more milk as compared to the goats with medium and 24.0 % more milk as compared to the goats with low electrical conductivity. Also, we estimated 0.23 % more fat in goat milk with medium and high electrical conductivity as compared to the goats with low electrical conductivity. Lactose level was 0.1 % higher in goat milk with low electrical conductivity as compared to the goats with medium and high electrical conductivity. This was demonstrated by electrical conductivity during the main milking phase correlation with the milk fat ($r=0.187$; $P<0.01$) and lactose (-0.209; $P<0.01$). The data analysis has shown higher electrical conductivity parameters (at the beginning of milking, during the plateau phase, during the main milking phase and during the highest milk flow rate) in the class, where SCC in goat milk was more than 750 thousand/ml, than in the class, where SCC was up to 750 thousand/ml - 0.81, 0.11, 0.48 and 0.36 mS/cm respectively ($P<0.05$).

Keywords: electrical conductivity, goat, milk, SCC

Detection of polymorphisms of the some genes and their effects on growth performance in Honamli and Hair goat breeds

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Study was conducted to detect the GH, POU1F1, LEPTIN, MSTN and BMP15 genes polymorphisms, to determine genetic structure and allele frequencies for the polymorphisms and to examine their effects on growth performance in Honamlı and Hair goat breeds. For this purpose, 300 goats were used from Honamlı (n=150) and Hair (n=150) goat breeds. Polymerase chain reaction and restriction fragment length polymorphism (PCR-RFLP) was detected to genotypes.

Two alleles (A and B) and two genotypes (AA and AB) on Hair and Honamlı goat were determined of GH1 gene *Hae*III polymorphism was examined. AB genotype for GH1 gene has been determined as the most common genotype on Hair and Honamlı breeds. Two alleles (C and D) and two genotypes (CC and CD) on Hair and Honamlı goat were investigated of GH2 gene *Hae*III polymorphism was analyzed. CC genotype for GH2 gene has been determined as the most common genotype on Hair and Honamlı breeds. Two alleles (C and T) and two genotypes (TC and TT) on both breeds were determined of POU1F1 gene *Pst*1 polymorphism was examined and TT genotype has been determined as the most common genotype. Two alleles (A and B) and three genotypes (AA, AB ve BB) were determined of MSTN gene *Dra*I polymorphism was examined. AB genotype has been determined as the most common genotype on Honamlı breed while AA genotype has been determined as the most common genotype on Hair breed for MSTN gene. Both breeds were found at Hardy-Weinberg equilibrium (GH2, POU1F1, MSTN except for GH1 gene). Also LEPTIN (*Hinf*1-Ekzon2 ile *Sau3AI*-.ntron2) and BMP15 (*Hinf*1) genes were found as monomorphic for the two breeds.

Birth weights, live weight and zoometric body measurements of Honamlı goat were higher than Hair goat.The effects of the polymorphisms on 90, 120, 180 and 365 days live weight and zoometric body measurements as growth traits were not found statistically significant. This study reported the existence of genetic polymorphisms at GH, POU1F1, LEPTIN, MSTN and BMP15 genes and effect of growth traits in Honamlı and Hair goat breeds for the first time. This study is a part of project supported by The Scientific & Technological Research Council of Turkey (TUBITAK), Project no: 113R026.

Keywords: Growth,Honamlı,Goat,Hair,Polymorphism

Radiographic appearance of the carpal joints in goats with the arthritic form of caprine arthritis-encephalitis

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Caprine arthritis encephalitis (CAE) is a viral disease of goats caused by small ruminant lentivirus. The main clinical manifestation of this disease is chronic progressive arthritis which can involve any of limb joints, however the carpal joint is most frequently affected. This form of the disease occurs is mature animals usually at least 2 year-old and leads to difficulty walking and rising, stiff gait and eventually deteriorates into complete loss of ambulation. The study was carried out to characterize radiographic lesions which can be observed in the carpal joints of goats with arthritic form of CAE.

Twenty five female dairy goats of two different breeds (Polish White Improved and Polish Fawn Improved) aged between 5 and 9 years were enrolled in the study. They were confirmed to have been seropositive for SRLV for at least 3 years preceding the study. All the animals were sedated with xylazine and ketamine given intravenously at doses of 0.05 mg/kg and 5 mg/kg, respectively, and underwent radiographic examination using digital X-ray apparatus (POLSKOM PXP-100 CA) in two standard projections: lateral and anterior-posterior.

Any lesions in at least one carpal joint were found in 22 from 25 goats (88%). Six goats (27% of affected goats) had bilateral degenerative, productive and deforming lesions with the presence of intra-articular loose bodies. Such lesions involving only one joint were detected in another 12 goats in which the contralateral joint appeared normal. There were also 4 goats with inflammatory lesions in the carpal joints – a single carpal joint was involved in two of them, whereas another two goats had inflammatory lesions in one joint and degenerative lesions in the another joint.

Typically, unilateral productive and deforming lesions are observed in the carpal joints in the arthritic form of CAE. Inflammatory lesions are presumably an interim stage and will eventually progress to degenerative diseasev of carpal joints.

This work was financed by National Science Centre Project No 2013/09B/NZ6/03514.

Keywords: CAEV, lesion, Normal021falsefalsefalseEN-USX-NONEX-NONE carpal joint, radiography

Social and Economic Aspects of Dairy Goat Farms: Case of Kahramanmaras Province

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Dairy goat production is very important agricultural activity in Kahramanmaras Province. Kahramanmaras ice cream which is produced from goat milk and traditional goat cheese are one of the products demanded intensively by consumers last years. Development in goat production systems, rural development supports and goat milk demand of ice cream firms have increased dairy goat investments in the province. The aim of this study is to determine the structure and problems of dairy goat farms and present economic and social situation. Data will be gathered with survey from goat producers according to goat number. Besides, additional information will be obtained from Directory of Food and Agriculture, Farmers Union and Sheep-Goat Producers Union. Survey data will be analyzed statistically and descriptive statistics will be given. Results of this study will be beneficial to producers, scientists and politicians.

Keywords: Dairy goat production, Kahramanmaras, farms

Perspective of the Farmers to Goat & Sheep Production in Fight against Unemployment in Marmara Region of Turkey

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The importance of small ruminant production has been increasing in the world over the past decade. Small ruminant production in Turkey is carried out mostly as family farm production but last ten years private entrepreneur concern to this sector . The most important issues of the small ruminant production are high production costs, marketing problems of products, reduction of grazing areas, problems in the creation of private pasture areas, unwillingness of young people the job to continue , trivialization of small ruminant producers due to their low income status and the use of arable lands apart from agriculture as a result of industrialization.

The Marmara region is situated in the North West of Turkey. The small animal production in the Region influenced adversely by the growth of the industry. The demand for lamb/kid meat and the production of "Trakya Full Fat white pickeled Cheese" and "Ezine white pickeled Cheese" as branded products are important reasons for the continuation of small ruminant production in the Region.

Data used in this study were obtained from a part of a project, which was supported by Ministry of Food, Agriculture and Livestock/Turkey. A face to face survey was conducted by sheep and goat farmers 58% sheep farmer vs 42% goat farmer). The reasons of the sheep farmer why they keep sheep are better profitability of sheep production than goat production (31.25%), market (23.21 %), easy management (18.75%) and climate/pasture conditions (10.72%). On the other hand, those who prefer goat production, prefer it’s due to relatively low feed costs (32.05%), easy management (21.79%), better income (17.95%), high yielding (14.10%) and low input (12.82 %).

Even though in dairy sheep farms, due to high feed costs and low milk prices farmers prefer lamb production instead milk production. On the other hand, goat breeders live in first place from milk production. The goat production in the Region are bases on natural resources. Therefore they are using limited amount of concentrate feed, which resulted in lower feed costs. The consumption of sheep/lamb meat is more common in the region based on consumer preferences. This aspect plays an important role to the sustainability of small ruminant production in this Region

Keywords: milk production, unemployement,goat

Backward and Forward Linkages in Goat VAlue Chain: Case from India

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Ahmednagar Goat REaring and Processing Cooperative Limited has been working for the last 10 years transferring modern goat rearing practices to farmers and buying back goats at remunerative prices. Meat is processed into value additive items. The profits are ploughed back to goat cooperative members. Our experience is particularly instructive to farmers from semi-arid areas of Africa and Asia looking for climate adaptive livelihood options.

The poster will depict

- Origin of our goat rearing cooperative
- Challenges faced and how we overcame them
- Our model of backward and forward linkage
- Economic impact of our work on goat farmers
- Way forward

Keywords: Climate change adaptation,livelihoods promotion,community based enterprises,Transfer of know how,backward and forward market linkage

Fertility and milk yield characteristic of Saanen goats raised in Izmir province intensive contions

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Animal Science, Ege Uni, Turkey

This research was conducted to determine of Saanen goats, imported from Australia, fertility, growth and milk yield characteristics . 63 Saanen goats and their 105 kids were used to be experimental materials. This study was carried out for Ege University Faculty of Agriculture, Department of Animal Science experiment barn. The goats were bred in August and kiddings were completed in January. Saanen kids were reared in intensive conditions and weaned at 60 ± 5 days. Fertility, twinning and infertility rate for Saanen goats were 1.61, 58.5% and 1.9% respectively. The lactation milk yield, lactation length and average daily milk yield for Saanen goats were 721.7 ± l, 276 ± 3 days and 2.66 ± 0.07 liter, respectively. Average birth, weanning weight and daily live weight gain for Saanen kids were 3.67 ± 0.71 kg, 16.92 ± 3.41 kg and 220.86 ± 59.65 g, respectively. Survivability rate for Saanen kids is 87.6% and the most important death reason in kids was enterotoxemia. Finally, we can say that Saanen goats can be adapted well to the region both of the reproductive and development traits, according to the this study results.

Keywords: Saanen goats, fertility, growth, milk yield characteristics, survivability.

An Evaluation of Retinal Image Technology for Biometric Identification in Goats

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Livestock identification and movement tracking systems play an important role in disease and residue control with respect to animal management and public health. Biometric methods present a rapid and secure solution that meets the demands of a tamper-proof animal identification system to ensure traceability of animals from birth to slaughter. Retinal imaging is a method of biometric authentication that uses the blood vessels pattern present in the retina. Since it is not possible to change the retinal vasculature, which remains highly stable throughout life of the animal, this is one of the most reliable biometric identifiers. This study aimed to evaluate the performance of the retinal imaging technology for goat identification by using retinal images taken in different conditions (outdoor and indoor barn). For this purpose, 30 adult goats from two breeds (Saanen, n=15; Hair goat, n=15) were used. Retinal images were obtained from both eyes of each animal using the Optireader device (Optibrand Ltd., CO, USA). For enrolment and recognition, a total of 240 retinal images were collected in outside and inside of the barn under natural daylight conditions at the same time interval by the same operator. The matching scores between pairs of the images taken outdoors and indoors were 82.90±2.45 and 89.90±2.44 ($P<0.05$) for right eyes, and 81.60±1.93 and 90.32±3.03 ($P<0.01$) for left eyes, respectively, in Hair goats. However, there was no statistically significant difference between the matching scores from pairs of images taken outdoors and indoors (83.61±2.14 vs. 87.86±2.81 for right eyes, and 85.33±2.20 vs. 86.55±1.92 for left eyes) in Saanen goats. Capturing time of the retinal images was 197 s in outdoors and 196 s in indoors. According to the results of the study, indoor application of the retinal imaging technology for verifying the identity of goats revealed higher matching scores.

Keywords: Retina,Identification,Biometrics,Goats

National goat breeding project and main breeds of Turkey

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Goat breeding has an one of the important livestock sector in Anatolian culture for many years in Turkey. Turkey has approximately 10,4 million goats, attractive breeding systems and genetic diversity, and is one of the major goat breeding countries in Europe. The well-known Turkish goat breeds are Angora (Mohair), Kilis, Damascus, Hair and Honamli. The goat population of Turkey is composed mainly of the Hair goat (96 percent) (Anatolian Black), with various local types making up the remaining 4 percent. The Hair goats breeding for multiple purposes but mainly meat and milk yields are priority in whole of Turkey. Goat production is distributed especially in mountainous regions of the Mediterranean, southeast Anatolia and southwest Anatolia. Production systems are genarally extensive and semi-extensive, but investment from the private sector has been increasing in last decades.

To provide high standart socio-economic status of goat breeders and increase the income from goat production, Ministry of Food, Agriculture and Livestock (MFAL) has started a National Goat Breeding Programme involving breeders and breeders' associations (the Turkish Sheep and Goat Breeders' Association). The project started with two breeds (Akkaraman sheep and Angora goats), and reached 12 sheep and goat breeds, 472 breeders and 80 000 animals in its first stage. In the second stage, the project was expanded in response to its success and requests from breeders and Project partners. At present, it covers six goat breeds 29 000 heads with a total animal population of approximately 800 000 heads. Project aim is to develop milk, meat and mohair-fibre yields from goats and Turkish Saanen, Angora, Honamli, Hair Goat, Maltiz, Kilis breeds take part of this Project. This paper shares field experiences from the project and best practices for goat production and goat products in Turkey (Daskiran and Ayhan, 2013).

Keywords: goat production, Turkey, goat breeds, breeding program

The Polymorphisms of Hemoglobin and Transferrin in Turkish Hair Goat: Konya Province Case

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This research was carried out to determine hemoglobin and transferrin types and to obtain relationships between these proteins in Konya province Taşkent district farming hair goat makes that a business. In this study of 111 goats were used. Blood samples from the jugular vein of each goat valve (the largest veins in the neck) is incorporated into a 10 cc heparinized glass tubes. The samples were brought to the laboratory on the same day and kept in the refrigerator. Cellulose acetate electrophoresis was used to determine hemoglobin and transferrin species in blood samples. In statistical analysis, genetic balance between hemoglobin and transferrin in the herd system, or to determine whether the Hardy- Weinberg equilibrium G-test and Chi-square (χ^2) test was used.

Turkısh native hair goat were typed for hemoglobin and transferrin types. The frequencies of HbA, HbB, TfA,TfB and TfC alleles were 0.815, 0.185, 0.640, 0.347 and 0.014,respectively. The frequenicies of HbB alleles were 0.815 and 0.185respectively. The BB type for Hb locus and the CC type for Tf locus were not observed, suggested polymorphism at these locus was selective advantange. The herd was found in Hardy-Weinberg equilibrium for hemoglobin and transferrin locus.

Keywords: hair goat,haemoglobin,polymorphism,transferrin

Biochemical Changes due to Natural Infection with Cryptosporidium in Honamlı Kids

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Cryptosporidium infection is responsible for diarrhea in neonatal ruminants. Newborn kids are highly susceptible and clinical infections result in severe diarrhea, dehydration, weight loss and sometimes mortality. As a result, the weight loss and the mortality associated with the disease may induce important economic losses for farmers. Blood samples were collected from 21 kids (12 infected with Cryptosporidium and 9 health kids), aged between 5-12 days and analyzed for the following parameters: total protein, albumine, lactate, gamma glutamyl transferase, aspartate aminotransferase, total bilirubin, magnesium, calcium, phosphorous, potassium, glucose, urea and creatinine.

In Cryptosporidium infections, an increase in blood urea and a decrease of magnesium was observed. Serum analysis revealed a statistically significant ($p<0.05$) increase in blood urea (Patient:67,3±12,5, Control: 21,8±1,38) and decrease magnesium (Patient: 2,59±0,36, Control: 3,50±0,09) level. Blood urea was a much increased blood parameter, for infection with Cryptosporidium spp. The significance of this finding may be a worsening of liver function but aspartate aminotransferase level didn't support this findings so it is probably related with dehydration. Decreased blood magnesium is understandable because of massive diarrhea without oral feeding. Blood urea and magnesium levels are should be considered during the treatment.

Keywords: Cryptosporidiosis, Biochemical findings, Kids, goats

The Biochemical Findings of Saanen Kids Naturally Infected with Caprine Coccidiosis

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One of the most important diseases of goats is coccidiosis. It is raised in goats preserved in large numbers under intensive management systems. The economic loss is due to the inefficient feed utilization, reduction of body weight and death of critically affected animals. The present study was conducted to investigate the variations in blood serum chemistry values in coccidiosis in kids. The study was carried out on 22 kids collected from a farm in Burdur province (Turkey). The blood samples were collected from 14 infected with Eimeria species and 8 healthy kids (control group). Albumin, creatinine, glucose, total protein, gamma glutamyl transferase. aspartate aminotransferase, direct bilirubin, total bilirubin, calcium, potassium, magnesium, sodium, phosphorous, urea levels were measured in blood serum samples. Serum analysis revealed a statistically significant increase ($p<0.05$) in serum creatinine (0,76±0,02 mg/dL) and potassium (4,99±0,35 mEq/L) in infected group compared to the control group. But the serum albumin (1,83±0,10 g/dL), glucose (53,3±7,72 mg/dL) and phosphorous (5,65±0,60 mg/dL) concentrations were lower in infected group compared to control group which was statistically significant ($p<0.05$). On the other hand, no statistically significant differences were found in total protein, gamma glutamyl transferase, aspartate aminotransferase, direct bilirubin, total bilirubin, calcium, magnesium, sodium, urea concentrations between the groups. In conclusion, caprine coccidiosis may lead to hypophosphatemia, hypoalbuminemia, hypoglycemia, hyperkalemia, and an increase in serum creatinine. And the increase of creatinine and potassium are related with dehydration. This parameters are should be considered in the treatment.

Keywords: Coccidiosis, Eimeria, Biochemical findings, Kids, Goats

Goat milk products produced in Hatay

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Goat milk is one of the perfect foods in human diet because of the composition different from other animals' milk. There are different milk products produced in different regions of Turkey. Goat milk is consumed by converting into some products such as some kind of traditional cheese, salted yogurt, and butter during periods of excess production due to the difficulties of milk storage conditions in rural conditions of Hatay. The main aim of goat farming in Hatay is generally based on meeting of family needs. In this study, it has been presented goat milk products of Hatay such as sürk (spiced çökelek), salted yogurt and cheese for kunefe.

Keywords: Goat milk products, Surk,Salted yogurt ,Cheese for kunefe,Hatay

Genome-wide association study for milk traits in the Spanish Florida goat breed

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Genome-wide association (GWAS) studies have allowed to identifying hundreds of markers associated with traits of interest in several species. The results obtained from these studies will depend largely on the genetic architecture of traits and will help to refine methods for genomic selection. Thus, the objective of this study was to carry out a GWAS analysis for the milk traits considered as selection objectives for the Florida goat: milk and fat and protein yields (Kg) and fat and protein contents (%), as a way to better know the genetic background of such traits. For that, data from 577 animals (82 males and 485 females), genotyped with the Caprin SNP55 BeadChip from Illumina were, used. As phenotype for GWAS analyses, we used the EBV for each of the traits considered. Previous to GWAS studies, a quality control (QC) was carried: individuals with a Call Rate < 0.98 were excluded; SNPs were excluded if they showed a Call Frequency < 0.98, a minor allele frequency (MAF) < 0.02 or a significant deviation from Hardy-Weinberg equilibrium (HWE) ($p < 1E^{-06}$). After QC, a total of 51134 remained for the GWA studies. All the analyses were conducted in R using the GenABEL package. For milk yield, a trait with a clear polygenic control, no markers with a strong signal were detected. For fat and protein yields, the pattern observed was quite similar to the milk yield but with some markers located in chromosome 17 provided suggestive signal. Finally, for fat and protein contents we found markers with a large signal on chromosome 6, specially for the case of protein content where a higher peak was observed. It is known the existence of a large QTL on chromosome 6 related with protein content. Signals found in chromosome 17 need to be studied in depth to identify possible candidate genes related with milk production.

Keywords: Goats,Florida,Milk traits,GWAS

In vitro Ruminal Digestion Values of Jerusalem artichoke (*Helianthus tuberosus*) Herbage at Different Phenological Stages

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This study aimed to determine the effects of different phenological stages on nutrient matter composition and *in vitro* ruminal fermentation of Jerusalem artichoke (*Helianthus tuberosus*) herbage. The plant samples were gathered at the vegetative, starting of flowering, full flowering and after flowering stages. *In vitro* gas production values and crude protein, diethyl ether extract, ash, non-fibre carbohydrates, total carotenoids and total condensed tannin levels of the different stages were determined. The total gas production, gas kinetics , methane production, metabolic energy, organic matter digestibility and short chain fatty acids levels decreased with the plant's maturation ($P<0.05$). Ruminal partial factor (PF_{24}), gas yield at 24 h (GY24) and microbial crude protein did not change with the plant's maturation ($P >0.05$). In the present study indicated that Jerusalem artichoke (*Helianthus tuberosus*) herbage has the potential to be used as a forage source in ruminant diets in terms of nutrient matter and energy content, and digestibility. The results suggest that due to its high quality, Jerusalem artichoke (*Helianthus tuberosus*) herbage can be recommended harvesting at the vegetative and starting of flowering stages

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Keywords: In vitro gas production,Jerusalem artichoke,Phenological Stages,Ruminal fermentation

.. yarbakır hair goat kids growth rate and survival ability on farmer conditions insweaningsperiod

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This study was carried out with 40 farmer herds in 2013, 39 farmer herds in 2014 and 29 farmer herds in 2015 in Kulp and Silvan districts of Diyarbakır, eastern of Turkey. In our study survival ability and growth characteristics of hair goat kids born in kidding seasons of 2013, 2014 and 2015 to weaning were examined.

As a result of the study for the years of 2013,2014 and 2015 number of dam, born hair goat kids, litter size, birth weight, multiple birth rate, sex ratio were 3805, 3677 and 2649 head hair goat; 3929, 3806, 2712, head kid; 1.03, 1.02 and 1.02 head kid; 2.99±0.63, 2.72±0.65 and 2.70±0.65 kg; % 3.6, % 3.5 and %2.5; % 51.57 male and %48.03 female, % 50.68 male and 49.32 female, % 49.96 male and % 50.04 female respectively. At the end of each weaning period of 2013,2014 and 2015 weaning weight and survival ability rate of weaning values were 16.0±0.75 kg, 15.95±1.22 kg and 17.88±1.27 kg; % 97.43, % 96.87 and %97,97 respectively.

Consequently, this study is a prestudy in which growth rate and survival ability of kids in *The İmprovement Project of Hair Goats* conducted in Diyarbakır were examined. These results will lead to to the studies to be conducted in the future.

Keywords: survival ability ,Growth performance,Weaning,Hair goat kid

Computed tomography of the temporomandibular joint of caprine arthritis-encephalitis-positive goats

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Caprine arthritis-encephalitis (CAE) is one of the main causes of economic losses in goat herds CAE infection cause degenerative joint disease mainly in tarsus and carpal joints with the loss of joint space, increased periarticular soft tissue density, edema and bone sclerosis evident in radiography. Other joints e.g. atlantooccipital are involved rarely. The aim of the study was to describe radiographic lesions in the temporomandibular joint of CAE-positive goats.

Evaluation of the images obtained by computed tomography for the presence, type and severity of lesions in the temporomandibular joint of goats from a herd overwhelmed by caprine arthritis-encephalitis (seroprevalence of nearly 100%). This study was designed to show whether degenerative lesions can also be present in this joint.

Fifteen female goats from one herd were enrolled in the study. Studied goats were between 5 to 8 years old. A 12 G, intravenous jugular catheter was aseptically placed and the goat was anesthetized with xylazine and ketamine at doses of 0.05 mg/kg and 5 mg/kg, respectively. The goat was positioned in sternal recumbency and transverse computed tomography images (3 mm slices) using a 16-slice CT scanner was performed (Philips Neusoft Medical Systems NeuViz). Then descriptive method was used based on CT-scans.

In all goats examined the temporomandibular joints appeared normal. In 3 of them bone lesions of the jaw were observed, however seemed not to be anyhow related to CAE. The study indicates that the temporomandibular joint is very rarely affected by CAE-induced degenerative process (if this does occur at all).

Keywords: radiographic lesions,degenerative process,small ruminant lentivirus,SRLV

Serotonin receptors description in goat mammary gland

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Mammary gland function and structure is modulated by local (produced by mammary epithelial cells) or systemic (produced outside the mammary gland) serotonin. It acts through serotonin receptors (5-HTR), transmembrane proteins. The presence of different serotonin receptors subtypes has been described in cow, mouse, rat and human mammary tissue. In goats, 5-HTR presence in mammary gland tissue has not been described yet. The objectives of this study are to elucidate if goat lactating mammary tissue presents any of the serotonin receptors subtypes (5-HTR 1A, 1B, 1D, 1E, 1F, 2A, 2B, 2C, 3A, 4, 5a, 6 and 7) using qPCR analysis; and then, to describe by immunohistochemistry (IHC), the arrangement of some of those qPCR-positive receptors, in the mammary tissue of lactating and dry off goats. Tissue samples for qPCR were taken from three lactating Majorera goats at the slaughterhouse. Hypothalamic tissue was also collected as positive control. RNA extraction and cDNA synthesis were performed. Specific primers for each receptor subtype were developed in goat tissue, and used for qPCR analysis. Hypoxanthine phosphosibosyltransferase I, Ribosomal Protein, β-Actin and Glyceraldehyde 3-Phosphate Dehydrogenase genes were utilized as internal control. IHC for 5-HTR 1B, 1E, 2A, 2B, 5 and 7 was performed in paraffin-embedded tissue from three lactating and three dry off Majorera goats. 5µm sections were immunostained using rabbit primary antibodies against each 5-HTR subtypes. Anti-rabbit secondary antibody was conjugated with streptavidin peroxidase, and visualization of binding was realized using diaminobenzidine substrate. Hypothalamic tissue was also used as positive control. qPCR analysis showed that 5-HTR 1B, 1D, 1E, 2A, 2B, 4, 5a and 7 were presented in goat lactating tissue. In the IHC analysis, all six studied receptors were expressed in mammary epithelial cells. Furthermore, 5-HTR 1E was expressed in the myoepithelial cells. Blood vessels were positively stained for receptors 1B, 2A and 2B. In lactating animals, receptor disposition in the mammary epithelial cells was cytoplasmic. However, in mammary tissue from non-lactating animals, arrangement changed to the apical membrane in all receptor subtypes. In conclusion, 5-HTR 1B, 1D, 1E, 2A, 2B, 4, 5a and 7 are expressed in goat mammary tissue and receptors 1B, 1E, 2A, 2B, 2 and 7 were expressed in different cells of the mammary tissue. This is the first approach to describe the presence of serotoninergic components in the goat udder, and further studies need to be performed in order to elucidate the function of serotonin on this species.

Keywords: Serotonin,receptors,goat

Radiographic findings in the lungs of goats with chronic small ruminant lentivirus infection

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Caprine arthritis encephalitis is a viral disease of goats caused by small ruminant lentivirus (SRLV). The main clinical manifestation of this disease is chronic progressive arthritis. It leads to difficulty walking and eventually deteriorates into complete inability to move or stand which is a reason for culling an affected goat. The same virus is responsible for maedi-visna disease in sheep which in turn usually manifests itself with chronic progressive interstitial pneumonia. Dyspnea and wasting ensue and an affected sheep is either culled or dies of respiratory failure. Similar respiratory form of SRLV infection has also been occasionally reported in goats. The study aimed to determine types of radiographic lesions visible in the lungs of SRLV-infected goats.

Fifteen female dairy goats of two different breeds (Polish White Improved and Polish Fawn Improved) aged between 4 and 8 years were enrolled in the study. They were serologically confirmed to have been infected with SRLV for at least 3 years preceding the study. All the animals were sedated with xylazine and ketamine given intravenously at doses of 0.05 mg/kg and 5 mg/kg, respectively, and underwent radiographic examination using digital X-ray apparatus (POLSKOM PXP-100 CA) in two projections: lateral of the right side and sagittal dorso-ventral.

Radiographic lesions were displayed only in 3 of 15 examined goats (20%). In two of them lesions were bilateral and in one unilateral. The lesions included mixed interstitial and alveolar infiltrates.

It can be concluded that chronic SRLV-infection does not induce any characteristic radiographic lesions in the lungs.

Keywords: X-ray,interstitial lung pattern,alveolar lung pattern

Oscillometric blood pressure measurements in goat

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There are no references values for blood pressure in goats. Because goats are not rarely kept for companionship as well as they are used as experimental animals also in human research, we decided to perform the study which will allow to determine reference norm for blood pressure in goats.

Fifty six conscious adult dairy goats were enrolled in the study. They belonged to two breeds – Polish Fawn Improved and Polish White Improved. Blood pressure was measured using non-invasive oscillometric blood pressure measurement on the base of tail. The cuff provided by the manufacturer was selected according to the animal's tail circumference and to the manufacturer's instructions. The device measured systolic (SAP), diastolic (DAP) and mean (MAP) arterial pressure and heart rate (HR).

Commonly used in small animal practice measurement on the limbs, in goats lasted very long, often ended without reliable measurement and caused anxiety of the patient so we decided to make all the measurements on the base of tail. SAP ranged from 91 to 185 mmHg with the average of 129.1 mmHg and standard deviation (SD) of 22.4. DAP ranged from 35 to 166 mmHg with the average of 73.4 mmHg and SD of 24.5, MAP ranged from 55 to 172 mmHg, with the average of 97.2 mmHg and SD of 23.5. HR ranged from 58 to 155 mmHg with the average of 92.5 mmHg and SD of 24.7. Oscillometric method measures systolic, diastolic and mean arterial blood pressure as well as pulse rate. Measurement on the base of tail is short, does not cause irritation in animals and it's very easy to perform because it is completely automatic method.

Keywords: arterial pressure,oscillometric method

Recent developments in goat milk production and marketing in Turkey

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There are approximately 996 million goats in the world. Most important countries in goat milk production are India (27%), Bangladesh (15%), Pakistan (4%), Mali (4%), France (3%) and Spain (2%). The share of Turkey in the global goat population and goat milk production is 0.73% and 1.79%, respectively. Goat breeding in Turkey has been performed either within an agricultural facility or in form of village herd or migratory herd. However intensive organizations providing milk for the dairy farms producing cheese have performed their activities for the matter involved also in recent years. Hair goats which are available in every region of Anatolia constitute approximately 98% of goat population. In the recent years, Saanen cross breeding have been observed to be developed in Aegean and Marmara Regions. Today, problems encountered by farmers are available also and they have to be solved by various precautions. Goat milk products produced generally for family consumption in rural area become wanted today upon the concentration of urbanization and developments in tourism. Firms processing the milks collected from goat farms in the integrated plants manufacture pasteurized milk, cheese, strained yoghurt and butter and put them into market. Furthermore some firms use goat milk in ice-cream production. Main purpose of this study is to analyze the economic aspects of dairy goat farming between 2006 and 2015 in Turkey and to offer solutions for the encountered problems. Statistical data for 2006-2015, used in the study have been obtained from FAOSTAT and TurkStat. Data obtained have been shown in the tables issued by the use of percentage and index calculations.

Keywords: goat breeding, small ruminant, goat milk, goat cheese, goat milk marketing

Goat Kids Need Bipedal Stance and/or Climbing

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Freedom to express normal behavior is one of the five basic principles of animal welfare under the condition of human control. We have observed that goat kids keep trying on bipedal stance in different circumstances, therefore the hypothesis was put forward that bipedal stance and/or climbing behaviors are essential to perform for goat kids. Two experiments were planned to test these hypothesis. In the first trial, each 6 female and 7 male of Turkish Saanen kids were separated into 3 groups. The paddock was designed as a structured environment with roughage feeder, semi-automatic concentrate feeder, bunk, bridge, and wood block in the **1st group while** the paddock of the 2nd group had no equipment except combined feeders which hanging on the fences of the paddock. The conditions of the paddock in the 3rd group were changed each other weeks from equipped to unequipped. In the 2nd trial, paddock condition for the 1st group was similar to first trial but the second group paddock was enclosed with an iron sheet to prevent bipedal stance behavior of the kids, and also to provide environmental isolation. There were 10 female and 10 male Turkish Saanen kids in each group in the 2nd trial.

Bipedal stance behavior frequency was significantly lower in the structured group of the 1st trial ($P \leq 0.05$). On the other hand, climbing on the equipment frequency plus bipedal stance frequency of the groups were similar ($P > 0.05$).

In the 2nd trial although there was no installations to facilitate the climbing and/or bipedal stance in the paddock, the kids of the unstructured group were also performed bipedal stance behavior through leaning over slippery paddock wall or over their group mates, and the frequency of that behavior were found as 1/3 of the structured group animals.

It was concluded that the bipedal stance and climbing behaviors are important elements of the behavioral repertoire of goat kids, and performing those behaviors could be limited by an unstructured environmental conditions.

Keywords: Animal Welfare,Turkish Saanen,Environmental enrichment,isolation

Effects of micro seaweed addition to milk replacer on the immune system of goat kids and lambs

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The aim of present study was to evaluate the effect of micro seaweed addition to milk replacer on the immune system of goat kids and lambs. One hundred and sixty animals were enrolled in the experiment, 80 Majorera goat kids (40 males and 40 females) and 80 Canarian sheep lambs (40 males and 40 females) were randomly assigned into four different groups by species. At birth, the newborns were separated from their mother, they were dried and their umbilical cord was disinfected. After that, they were weighed and assigned into one of the four experimental groups. Goat kids and lambs were bottle fed colostrum from a pool. After colostrum feeding period, goat kids and lambs received their corresponding diets as follows: Control groups were fed with a commercial milk replacer (95.5% dry matter, 23.6% crude protein, and 22.7% ether extract) at 16% (w/w); Cryp. groups received a commercial milk replacer (15.1% w/w) supplemented with 0.9 % (w/w) of a *Crypthecodinium cohnii* paste; Chlo. groups received a commercial milk replacer (15.1% w/w) supplemented with 0.9 % of a *Chlorela spp*. paste; Iso.groups received a commercial milk replacer (15.1% w/w) supplemented with 0.9 % of an *Isochrysis galbana* paste. Newborns were individually bottle-fed twice daily (8 am and 8 pm) ad libitum with the corresponding diet until day 60 of life. Blood samples were collected from the jugular vein at birth, 5, 10, 20, 30, 40, 50 and 60 days. Blood samples (5 mL) were collected in 2 type of tubes: heparinized (3.75 mg) for plasma samples and cytometric determinations, and non-heparinized for serum. Samples were centrifuged at 2,136*g*, for 5 min, 4°C, immediately after collection, plasma and serum aliquots were placed at −20°C. The following parameters were measured in serum/plasma; Chitotriosidase activity, IgG, IgM, Complement system activity (classical and alternative pathways), white blood cells count and CD4 and CD8 counts. No effects of micro seaweed addition to milk replacer were observed in the animals immune status at any tested time. Chitotriosidase activity ranged from 1450 to 2125 nmol/ml/h, IgG concentration ranged from 0 to 24 mg/ml, IgM concentration ranged from 0 to 4 mg/ml, total complement activity ranged from 0 to 50%, white blood cell count range from 3000 to 5100 cells x 10^3/ml, CD4 count ranged from 800 to 1310 cells x 10^3/ml and CD8 count ranged from 425 to 800 cells x 10^3/ml.

Keywords: Immune system,micro seaweed,goat kid,lamb

Changes in Some Components of Hair Goat's Milk During Lactation

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This study was conducted to monitor the changes in some components of milk during lactation of goats. In the study, goats bred in five different districts were used. A total of six milking, once a month from April to September, were done. The collected milk samples were brought to the laboratory under controlled conditions and analyzed. The changes in the components of milk during the lactation period and relations among them were investigated. The least squares means of control day milk yield, dry matter, ash, fat, density, pH and acidity were 0.409 ± 0.017 Lt, 13.72± 0.118%, 0.858 ± 0.005%, 4.23 ± 0.085%, 1.029 ± 0.002, 6.585 ± 0.10 and 0.163 ± 0.002% respectively. The average daily milk yield was 835 ml in the first milking and went down to 80 ml in the six milking. During the same period, dry matter, ash, and fat amounts increased from 12.65% to 15.13%, from 0.823% to 0.937% and from 3.30% to 4.99%, respectively. Reduction in milk yield along with increases in dry matter, ash and fat during lactation confirms the expectations. A decline observed in specific gravity of milk in the same period can be explained by proportional increase of milk fat. All the changes in the milk components during the lactation were found to be significant ($p<0.01$). There were not significant effects of goat age on the milk components except for ash amount. The regions from where the milk samples were taken had a significant ($p<0.01$) effect on all the milk components except for acidity. The correlations among observed characteristics were examined. Accordingly; there were significantly negative correlations between lactation period and the control day milk yield, density, pH and acidity, while the correlations in terms of fat, dry matter and ash content were significantly positive. Control day milk yield correlations with fat, dry matter and ash content were negative, while those with pH and specific gravity were positive, and all the correlations were significant. It was concluded that goat's milk components changes significantly during lactation, and this finding should be taken into account by the researchers.

Keywords: Goat's milk,Lactation period,Milk components

Analysing the existence of gene flow between Canarian and North African goats with coalescent genealogy samplers

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The Canarian archipelago was settled by by Imazighen peoples around 3,000 YBP. These first colonizers brought a number of goats that yielded a population that nowadays has a census of thousands of individuals. In the current work, we aimed to investigate the magnitude of this ancient gene flow by using coalescent genealogy samplers. A total of 310 Canarian and 96 Northwest African (Morocco, Tunisia and Algeria) were genotyped with 29 microsatellites and the Migrate-n and IMa softwares were used to calculate migration rates in both directions. With Migrate-n, mutation-scaled effective population sizes were θ_{CAN} = 0.61 and θ_{NAFR}= 0.97, while migration rates took values of $M_{nafr>can}$ = 10.29 and $M_{can>nafr}$ = 4.42. In contrast, when we analysed the genotypic data with IMa, the following parameter estimates were obtained: θ_{CAN} = 0.59, θ_{NAFR}= 4.95, $M_{nafr>can}$ = 6.32 and $M_{can>nafr}$ = 0.092. Discrepancies between coalescent genealogy samplers are probably due to the fact that Migrate-n asumes that populations have been exchanging migrants at a constant rate for a very long time (an assumption that is quite unrealistic), while IMa distinguishes between migration and the sharing of ancestral polymorphisms because it explicitly models both factors. Our results indicate that the preferential direction of gene flow went from North Africa to the Canary Islands, a finding that is consistent with previous archaeological, linguistic and genetic evidences. Moreover, comparison of Migrate-n and IMa data also suggest that recent divergence has contributed strongly to the sharing of polymorphisms between Canarian and North African goats.

Keywords: Canarian archipelago

Development opportunities for organic goats breeding in Turkey

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The aim of sustainable livestock should be the enhancement or at least protection of the system without depleting the natural sources or without causing detriment to its value. Goat breeding has prominent role in organic production for the development of sustainability in livestock and meeting the sustainability demands. In this study, opportunities for organic goats breeding in Turkey was evaluated.

Regarding the distribution of goats in the world; goats are grown in the arid tropical - subtropical climate zones with underdeveloped agricultural potentials. Most of the goats breeding systems are based on intensive utilization of unfertilized natural grassland resources. All traditional grazing areas, prominently in the Mediterranean climate zone, are not treated especially with artificial fertilizers and chemical agents and are not used for other agricultural reasons other than grazing. It is believed that extensive goat production system is closer to organic systems and can be transformed to organic system more easily.

Goat farming is mainly based on pastures in Turkey and in many regions the 80-90% of the feed requirements of the animals are provided from natural grazing areas including pastures and tableland. Breeding is usually run with native breeds resistant against diseases. The feeding of goats is mainly based on nature, pastures inside and beside the forests, hand feeding is hardly seen. Therefore, the transition to organic production for the market is very easy in goats. Extensive and organic goat breeding have similarities at many points.

Although the organic farming potential is very high in Turkey, this potential is not utilized sufficiently. The share of organic animals in total animal assets is; 0,3% in goats. Organic goats breeding is carried out in Marmara, Central Anatolia and Black Sea Regions. In organic goat breeding; Çanakkale has the highest share (51%), this was followed by Ankara (23%) and Kastamonu (11%). Extensive goat breeding in many countries including Turkey is a breeding method which is not very different from the principles of organic livestock.

Goat breeding which is almost carried out the same way as the organic production in Turkey must be supported as much as at least dairy farming; reduction of pasture areas must be prevented; precautions must be taken against the increase in rough feed production; transformation to organic farming from goat breeding should be encouraged.

Keywords: organic goats breeding

Determination of potential polimorphism of αs1-Cazein (CSN1S1) in three goat population using PCRRFLP method

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In this study, αs1 - casein gene nucleotide polymorphisms were determined in 67 goats (25 Saanen crossbred, 19 hair goat and 23 Kilis goat) using PCR-RFLP method. Amplified 212 bp long PCR products were restricted with *Xmn*I endonuclease enzyme ((GAANN'NNTTC). Depending on restriction results, two alleles (A and B) were generated three different genotypes (AA, BB and AB). According to restriction results, single (212 bp), double (151 and 63 bp) and triple (212, 151 and 63 bp) DNA band were observed for AA, AB and AB genotypes respectively. A allele frequency for Saanen crossbred (0.12), Hair goat (0.37) and Kilis goats (0.26) were determined. When A and B allele frequencies were compared B allele frequency higher and shows differences between goat races. Potential polymorphisms in the restriction site need to be confirm by nucleotide sequencing.

Keywords: Goat, αs1-casein, genetic polymorphism, PCR-RFLP

Effect of length of distribution and dietary concentrations on the anthelmintic effects of tannin-containing pellets against gastro intestinal nematodes in goats.

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The worldwide spread of resistance to anthelmintics (AH) in gastro-intestinal nematodes (GINs) imposes to explore alternative solutions. Amongst those, the possible use of tannin-containing nutraceuticals is widely explored. Our objectives were i) to test the AH efficacy of sainfoin and hazelnut pellets against *Haemonchus contortus* and *Trichostrongylus colubriformis* in experimentally infected goats; ii) to determine whether the length of distribution X dietary concentration of tannins influence the AH effects. Thirty culled goats were inoculated (Day 0) with *H. contortus* and *T. colubriformis* infective larvae. On D21 Post-Infection (PI), the goats were stratified based on Body Weight, Fecal Egg Counts (FEC) and Packed Cell Volume (PCV) and then assigned to three dietary treatments (n=10 per group) according to the distribution of pellets of either sainfoin (Group S, tannin content = 3% of the DM); sainfoin+hazelnut peels (Group SH, tannin content = 6 % of DM); and control (Group C, receiving lucerne pellets). Blood samples were taken weekly to measure PCVs. Individual fecal samples were collected twice weekly to measure FEC. On D50 PI, 5 goats per group were slaughtered to measure worm counts and female fertility. On D70 PI, the 5 remaining goats were slaughtered. The consumption of tannin-containing pellets (group S and SH) was not associated with any differences in PCVs values but with a trend in reduced FECs *($P < 0.15$),* reaching a maximum reduction of 72% for S group (on D63) with a mean reduction of 45%, and reaching a maximum reduction of 64% for SH group (on D71) with a mean reduction of 42%.The diet did not have any significant effect on the worm number. However, the female fertility was lower in both group S and SH compared to group C *($P < 0.05$ for T. colubriformis* and *$P < 0.15$ for H. contortus).* The date of slaughter (= length of distribution) also influenced the female fertility of *T. colubriformis ($P < 0.05$)*. Our data confirm that tannin-containing nutraceuticals disturb the biology of nematodes, thus representing an option for their sustainable control. The total tannin content in the sainfoin diet (2.1% of DM), although relatively low, seems sufficient to observe AH effect although the length of feeding (6 vs. 3 weeks) appears to improve the control of adult worms.

Keywords: Sainfoin,Hazelnut ,Gastrointestinal nematodes,Pellets ,H. contortus ,T. colubriformis,Nutraceutical

Some Physiological Reactions under Rural Conditions of Hair, Saanen x Hair and Alpine x Hair Crossbreeding Kids in Konya of Turkey

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This study was carried out to determine adaptations of Hair, Saanen x Hair and Alpine x Hair crossbred genotypes raised in Central Anatolia conditions. Present research was made on a private farm of Selçuklu district in Konya province under terrestrial climate conditions. As material, seven heads male and female kids of each genotype were used. The kids were measured physiological adaptation parameters as pulse rate (beats per minute), respiratory rate (breaths per minute) and rectal temperature (°C). The effect of climate conditions investigated; day in the morning (08:00 to 09:00), noon (12:00 to 13:00) and evening (16:00 to 17:00) hours in May (optimal), July (hot) and December (cold) months measurements were taken.

As result; effects of genotype, seasons, time, and sex (expect for respiration rate) on the rectal temperature (*P<0.001)*, respiration rate (*P<0.05)* and heart rate (*P<0.001)* were found statistically significant.

In conclusion, it can be said that physiological parameters of crossbred kids adapted to the environment without any vital (living) problem in the Central Anatolian conditions.

Keywords: Saanen,Alpine,Hair,pulse rate,respiratory rate,rectal temperature,kids

Worm infestation in goats and sheep under traditionalmanagement system in north-central Nigeria

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Worm burden of goats and sheep under traditional system of management was investigated in two locations in Makurdi local government area of Benue State in north-central Nigeria. The study covered a period of four months (July – October inclusive). Forty (40) faecal samples were collected from the goat herds of Asase and Akanuguw villages that is, twenty (20) samples from each herd. Similarly, forty (40) sheep faecal samples from the sheep flock of the two villages were collected. The goats and the sheep in each of the villages are run together as one herd/flock under traditional management system. The goats and sheep sampled were adults that were two years and above. The faecal samples were examined for worm eggs using the McMaster egg counting technique and the worm burden expressed as eggs per gramme of faeces (epg). Data generated was subjected to summary and t-statistics. Results indicated variable epg of 141.70 – 1141.70 for sheep and 137.50 – 1008.30 for goats. The sheep with a mean epg of 632.90±87.80 was more susceptible ($P<0.05$) to worm infestation than the goat with mean epg value of 515.30±56.50. The females of both sheep and goat had higher ($P<0.05$) worm burden than the males of sheep and goat. It is recommended that small ruminant farmers who manage their animals under traditional system of management should once in a while deworm their animals to keep the worm burden low.

Keywords: Worm burden,eggs per gramme of faeces,goats,sheep

Relationships between Linear Udder Characteristics and Somatic Cell Count in Saanen x Hair Crossbred Goats

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Linear udder traits in dairy goats are functional traits that allow the producer to know where their does weak and where their does are strong, therefore this information is widely used to advertize does and promote herds. On the other hand, udder health has been an important component of dairy farming. Udder health is becoming more important due to strict milk quality regulations. Healthy udders should have a low somatic cell count (SSC). In this study, relationships between linear udder characteristics and number of somatic cells in 46 head Saanen x Hair crossbred goats reared under semi-extensive systems of management. The study included second and third lactation does. Udder morphology traits were measured and subjectively assessed by the use of linear scores in goats. Linear scores were assessed for; teat placement, udder depth, degree of separation and degree of suspension of the udder was found to be 6.68, 6.23, 5.30 and 6.28 cm respectively. In terms of linear udder characteristics, it was found that there was a high level correlation between udder depth and degree of separation with degree of suspension of the udder, and these results were identified as 0.678 and -0.493 respectively. At the same time the average somatic cell count (SCC) was found 225.890 cells/ml. Number of somatic cells varied between 90.400 cell/ml to 858.000 cell/ml. Relationship between degree of suspension of the udder and number of somatic cells were found significant (-0.368), ($P<0.05$).

Keywords: Goat, Saanen, crossbred, milk, somatic cell count, linear score

First time recovery of a novelbiotype ("Indian Bison Type") of *M. paratuberculosis* exclusively infecting Indian goat population, from the Mandyabreed of sheep suffering from clinical Johne's Disease

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Johne's disease is major infectious disease of domestic livestock in India. Despite low per animal productivity, country is yet to initiate plan for survey and control of disease at National scale. Faecal, blood, milk, serum and tissue samples were collected from 61 sheep of Mandaya breed located in LRIC (Livestock Research and Information Centre) KVAFSU, Nagmangala and Bilagi taluk of Bagalkot region. Flocks were suspected for Johne's disease on the basis of clinical symptoms by local Veterinary officer. Samples were screened for bio-incidence of *Mycobacterium avium* subspecies *paratuberculosis* using multiple tests (microscopy, indigenous ELISA, IS*900* PCR and culture). Results showed that 100.0% of samples were positive for MAP infection in microscopy and indigenous ELISA. IS*1311* PCR-REA bio-typed 60.0% (feces) and 100.0% (blood, milk, tissue) isolates as 'Indian Bison Type'. Typing helped in identifying this biotype to be of Indian origin and present in sheep flocks of South India for the first time, which showed wide geographical distribution and broad host range. Study reported high bio-incidence of MAP in the Mandaya breed of sheep in Nagamangala town of Mandya district and Bilagi taluk of Bagalkot district in South India. Being spectral disease, multiple tests were useful for the screening of MAP in sheep flocks. Study emphasised initiation of short and long term control programs to reduce production losses, and sharing of MAP strains by other domestic livestock species and prevent contamination of the human food chain and reduce risk to human population.

Keywords: Mycobacterium avium subsp. paratuberculosis, Ovine Johne's disease, Mandaya breed, Indigenous ELISA, IS900 PCR, Culture

Comparison of Immuno-reactivity of native semi-purified protoplasmic antigen of goat origin versus commercial purified protoplasmic antigens of cattle origin for the diagnosis of Johne's disease in goatherds in India

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Study compared immuno-reactivity of 3 antigens of *Mycobacterium avium* subspecies *paratuberculosis* sourced from different livestock species located in different geographical regions of the world for the detection of Johne's disease in the goat population endemic for Johne's disease. Screening 360 fecal and serum samples by microscopy and three ELISA tests, microscopy detected 205/360 (56.9%), g-ELISA 144/360 (40.0%), b-ELISA 124/360 (34.4%), and r-ELISA 19/360 (5.2%) goats as infected. Eleven (3.0%) and 127 (35.2%) goats were positive and negative in all the four tests. In 3 ELISA tests, g-ELISA showed highest sensitivity as compared to b-ELISA and r-ELISA kit. Immuno-reactivity of antigens between MAP and non-pathogenic saprophytic mycobacteria is major limitation of ELISA tests and microscopy is unable to discriminate MAP from other saprophytic acid fast bacilli. Study showed that 'Indigenous ELISA' (g-ELISA) based on species specific antigens recovered from native ('Indian Bison Type') MAP of goat origin had better immuno-reactivity as compared to commercial PPA of bovine origin (b-ELISA) and commercial ELISA kit for all ruminant species. Lower immuno-reactivity of imported commercial antigens as compared to 'indigenous antigens' indicated that for the diagnosis of JD search for 'ELISA test kit' that is 'universally acceptable' is not practical option. Study underlined use of efficacious and cost effective native antigens for the diagnosis of JD. In view of the poor economic conditions of Indian farmers, 'cost of screening' of goats, is major issue for 'Indian livestock farmers'.

Keywords: Mycobacterium avium subsp. paratuberculosis, AFBs, Indigenous ELISA, Allied monitor PPA ELISA, ID-VET ELISA

Proposal for World Goat Day with reference to Iran as first domestication site of this animal

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Toe bones of a goat (Capra hircus) found at the 10,000 year old settlement of Ganj Derah in Iran, where give us new insights into the origins of animal domestication in the Near East Iran has a long and proud history of livestock keeping, and is well-known for its many breeds of goats adapted to different environments. Commemoration of the National Goat Day on 27 January,2016, provided us with an opportunity to reflect upon the importance of the role that goats play as a small ruminant species, here in the Islamic Republic of Iran as in other countries globally, not only in terms of a nation's food security, but also in enhancing the socio-economic dimensions of the agricultural and rural sectors, securing livestock biodiversity as well as safeguarding natural resources. Moreover, lately, due to the emerging challenges of climate change and increasing pressure on natural resources and the high value of goat meat and milk across a number of Asian countries, the potential of goats with their high adaptability to a wide array of environmental conditions and "low quality" feed resources is being increasingly appreciated. Iran stands as the region's third largest producer of sheep and goat. Goats can be of a greater help in this combat than we can imagine; about 90 percent of all of the region's breeds are bred and kept in the dry lands, constituting a valuable yet untapped resource for future adaptation to climate change. Sheep and goat products are the most important in developing countries where 45 percent of all sheep meat, 54 percent of all sheep milk, 93 percent of all goat meat, and 73 percent of all goat milk are produced. It is important to know that, with the right level of integration, we could ensure sustained productivity and stability in the various ecosystems and livestock production. Furthermore, since livestock is closely linked to the social and cultural lives of several million resource-poor farmers, protecting small ruminant species, principally goats, could ensure varying degrees of sustainable farming and economic stability. Considering of above mentioned subjects, proposing of World Goat Day can be reckoned as historical appreciation of ancient farmers in Iran and worldwide for their enthusiastic and motivated efforts to the nations globally. Also it can encourage livelihoods driven by goat keeping to be proud of their hard and low income jobs but eco – friendly sustainable development.

Keywords: World goat day, domestication history,Iran

Organic Goats Breeding and Development Facilitiesin Eastern Anatolia Region

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Eastern Anatolia has great potantial for organic small ruminant breeding due to following : the large extend of meadow- pasturelands, the varieties of plant cover in these areas, its potential for rich water resources, the lack of industrial pollution and soil contamination, the fact that pastures are not at the risk for heavy metals, and the fact that chemical fertilizers are not used in crop production.However, the potential in question can not be taken advantage of for several reasons.

İn spite of all of the negative aspects Eastern Anatolia is suitable for small ruminant breeding, in terms of low population density, the abundence of large pastures, climates, the socio economic situation and people's habits of production.İn the region, small ruminant breeding has become an integral part of life for the local people. İts the basic(fundamental) source of income for people living in villages and rural areas. However, in the recent years both the number of small ruminant and the number of people involved in small ruminant husbandry has decreased.İn particular, due to migration from village to town that has been taking place in recent years, the problems of impoverishment and unemployment have become more comman in the past years, with the decrease in number of small ruminant and usable pasturelands, nomadic and highland small breeding has decreased to a large extent and even become unfeasible in many parts of the region.Consequently, small ruminant breeding, which carries great importance in the sphere of animal husbandry has come face to face with the threat of extinction as a mode of production and way of life.

The promotion and spread of organic small ruminant breeding in Eastern Anatolia will provide the enable the preservation of nature and the ecosystem, the increase small farmers' incomes, rural development, the prevention of migration from villages to cities, and an improvementof human nitrotion. However, for this to succeed , adequate education, good control, the creation of a strong organization from production to market and support for organic agriculture are necessary.İn order for the resources of Eastern Anatolia to be made proper use of in a short amount of time, serious steps must be taken both private sector and the public sector.

This review is to target evaluating the possibilities of organic goats breeding in East Anatolia Region. Thus, it has been evaluated the characteristics regarding with organic goats breeding of the East Anatolia region, where it still has the ongoing traditional production system. As a result, when evaluated the relation to the production characteristics, East Anatolia region has an important chance both organic animal breeding and organic goats breeding.

Keywords: Animalwelfare, Organics, Kid,East Anatolia

The Relationships Between Mohair Yield And Mohair Characteristics of Diffrenet Colour Angora Goats Raised in South Eastern Anatolia Region of Turkey

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Angora goat (Capra hircus ancyrensis) was brought to Anatolia by Turkish tribes and mainly grown in central Anatolian Region and South East Anatolian provinces. The best known yield of Angora goat is mohair. Angora goat is also an important animal material for being animal genetic resource of Turkey. The main colour of the mohair is white but some different local variaties which has different colored mohair is also rearing is in south east part of Anatolia. This research was carried out to identify mohair yields, mohair traits and relationships among these traits in South East part of Anatolian Angora Goats' mohair.

This study was carried out on 120 mohair goats randomly selected (taking ages and color patterns into consideration) from among 800 mohair goats belong to families raising nomadic goats. Angora goats had white, black and brown color and raised in . iyavuk settlement which belongs to Derinçay village, Şirvan county in Siirt city.

Clean mohair percentage, mohair weight,mohair diameter,mohair length, elongation rate and breaking strength of mohair of the angora goats were 91.61 ± 0.86 %, 1722.29 ± 28.95 g , 36.99 ± 2.53 u , 16.72 ± 1.34 mm , 31.03 ± 2.12 % and 16.36 ± 0.69, respectively. Phenotypic correlation coefficients between the lengt and diameter was found 0.40 ($P<0.01$)

Average live weight was 33.92±0.504 kg. Mean body length, withers height , chest depth and chest girth were 65.20±0.458, 62.23±0.482, 27.98±0.201 and 73.91±0.488 cm, respectively. There is not a construction to evaluate the Mohair traits against international standarts and how quality influences price in Turkey.

In summary, it was concluded that goats raised in Siirt province in South - Eastern Anatolia Region were similar to Angora goats raised in Ankara in Mid Anatolia region in terms of mohair yield and quality.

Keywords: Mohair; Angora goat; Mohair; Quality parameters

Somatic Cell and Total Bacteria Counts of Raw Goat Milk Obtained from Different Farms in Adana

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The changes in socio-cultural and behavioral patterns triggered an increase in demand of organic and healthy food. As the demand increases for healthy and organic food, new sources are retailed. Goat is not a new source for milk, but it is characteristic with its unique composition. It is rich in linoleic and linolenic acids. Goat husbandry is cheaper than cow rearing. However some practices in rearing and milking should be taken into account. The somatic cell counts and total bacteria counts of raw milk are good parameters in determining the quality of milk. This study was designed to determine the seasonal changes in overall quantity of somatic cells and total bacteria counts in two different intensive farms located in Adana. Twenty samples per month and a sum of 240 samples were analyzed. The results of the study showed that there is a significant increase ($p<0.05$) in total bacteria counts in hot months. Likewise, the somatic cell counts significantly increases in hot and humid season. This may be due to the milking period, sub-clinical mastitis and environmental increase of bacteria in hot months. Good Farming Practices (GFP) should be applied to lower the numbers of total bacteria and somatic cell counts. Additional measures applied to lower total bacteria count should not threaten the public health.

Keywords: Goat,milk,somatic cell,breeding system,Adana,Turkey

Oestrus induction andsynchronisation during anoestrus in yearling Damascus goats using oral andintravaginal progestogens

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As goats are seasonal breeders, protocols have been developed to bring animals into heat (estrous synchronization) during the non-breeding season. All estrous synchronization protocols for breeding out of season require administering the hormone progesterone, commonly via a vaginal insert known as a Controlled Internal Drug Releaser (CIDR). New protocols that include oral adiministration of progestogen. Melengestrol acetate (MGA) is an orally-active, synthetic progestogen, approved for use in feedlot cattle, that can be used for the induction and synchronization of estrus in does in conjunction with zeranol and PMSG.

The efficiency of MGA and CIDR with eCG for induction estrous in yearling does was investigated during the anoestrus season. Does were treated for 8 days with 0.25mg MGA (n = 50) 12h apart/day or CIDR (n = 50). All does also received intramuscular injections of 400 IU eCG at the last treatment of MGA and CIDR removal. All does were naturally bred by the same buck at the first sign of estrus and every twelve hours thereafter until they are no longer receptive. Pregnancy rate was found to be 28% for both MGA and CIDR treated groups. These results indicate that, the use of MGA/PMSG and CIDR/PMSG are equally efficient in induction estrous in yearling Damascus goats during the anoestrus season.

Keywords: MGA, yearling does, anoestrus

Reasons for keeping dairy goats in Tanzania, and possible goals for a sustainable breeding program.

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This research aimed at describing reasons for keeping dairy goats in Tanzania, and possible goals for a sustainable breeding program. Three districts, each representing a unique dairy goat breed population, were selected for the study. The Saanen, Toggenburg and Norwegian were the main dairy goat breeds in Arumeru, Babati, and Mvomero districts, respectively. A total of 125 dairy goat farmers were interviewed. A holistic approach of both quantitative and qualitative research methods was used to study the perceptions of farmers. More milk yield, sale of breeding stock and manure were the highest ranked reasons for keeping dairy goats. The reasons were coherent to the production systems. The three most preferred traits for improvement were milk yield, adaptability and twinning ability. These preferences were absolutely important in the context of the referred production system. Selection of replacement stock, animal identification and performance recording were the main challenges emphasized by farmers. The present study views these challenges as a result of knowledge gaps in animal breeding that require solutions. Based on result findings it is suggested that the milk yield and survival traits should be the primary dairy goat breeding goals. Generally, there are possibilities for developing sustainable dairy goat breeding programs in the surveyed areas given relevant breeding goals are incorporated. The design of simple and manageable dairy goat breeding schemes is necessary.

Keywords: Dairy goats,Breeding goals, Tanzania

Partialreplacements of *Stylosanthes scabra* forage for lucerne in total mixedration diet of Saanen goats

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The inclusion of *Stylosanthes scabra* cv. Seca forage in the total mixed ration (TMR) as partial replacement of lucerne (alfalfa) was evaluated for its effects on voluntary feed intake, nutrient digestibility and nitrogen balance in Saanen goats. Three experimental diets were formulated having 0% Seca (T1), 15% Seca (T2) and 30% Seca (T3) as partial replacements of lucerne forage in the TMR diet for goats. Eighteen Saanen goats of about seven months old were divided into three groups of six animals per group. Each group was randomly assigned to one of the three dietary treatments in a complete randomized design and the study lasted for a period of 21 days. There was an increase in fibre and mineral content of these diets as Seca inclusion increased, but this resulted in a slight decrease of crude protein contents and *in vitro* organic matter digestibility. Animals that were fed 15% Seca recorded higher voluntary dry matter and nutrient (organic matter and fibres) intake but the difference was not statistically significant ($P > 0.05$) compared with the other treatments. Nutrient digestibility and nitrogen balance were not significantly different across the three diets. The lack of significant differences in feed intake, nutrient digestibility and nitrogen utilization following the inclusion of Seca in the TMR suggests that *Stylosanthes scabra* forage could partially replace lucerne in the TMR diet of goats.

Keywords: In vitro fermentation,Feed intake,Lucerne,Nitrogen balance,Seca

Efficiency of different hormonal treatments to control oestrus and ovulation in North Moroccan goat during the anoestrus season

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This study was conducted to evaluate the efficacy of different hormonal protocols aiming the induction and synchronization of oestrus and ovulation in North Moroccan goats during the anoestrus season. Twenty for adult female were maintained indoors under natural days light conditions and divided into four groups adjusted for age and live weight. Animals were treated for 11 days with an intra-vaginal sponge impregnated with 40 mg (T1 and T2 groups) or 20 mg (T3 and T4 groups) of FGA. Two days before sponge removal, all groups received an intramuscular injection of eCG (300UI) plus 50 µg of cloprostenol for the T2 and T4 groups. Four fertile bucks were used to detect oestrus 12h after sponge removal and blood samples were collected every 2h from 20 to 60 h following sponge removal to determine plasma LH concentrations. All treatments induced oestrus response in goats (100%). Intervals from sponge removal to preovulatory LH surge were 28.7 ± 9.1 h, 24.0 ± 5,0 h, 26.7 ± 7.6 h and 31.6 ± 7.4 h respectively for T1, T2, T3 and T4 groups and no effects of dose of FGA and the administration of cloprostenol were observed (P>0.05). In conclusion dose of FGA and cloprostenol did not affect the induction of oestrus and preovulatory LH surge in North Moroccan goats during non-breeding season.

Keywords: North Moroccan goat_,Oestrus synchronization_;,hormonal protocol_,LH surge.

Biomass production and use of silvopastoral areas in northern Morocco

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In Rif Mountain of Morocco, sylvopastoral systems satisfy the diverse needs of local population and represent the most important feed sources for goats. This system is under pressure due to climate change and overgrazing. For a sustainable and integrated development of this area, it is essential to establish a resource assessment. This study aims to evaluate the pastoral production (biomass) and investigate the use of pasture in Rif Mountain (Loubar) exclusively used by goat herds. For biomass production, we used the method of the reference module. The surveys, on using pasture by breeders, were realized during the biomass evaluation period. The pastoral shrubs, mainly *Cistus crispus, Cistus monspeliensis, Lavendula stoeches* and *Pistacia lentiscus*, represent the most palatable species selected by goats. Breeders use pasture throughout the year, except on rainy days where they resort to limbing. The pasture was characterized by a poor floristic diversity (65 species) dominated by shrubs. The biomass produced was estimated at 373 kg dry matter per hectare composed for 63% by shrubs. For biomass production, significant differences were observed depending on the season and according to sampling sites. The continuous use of the same pasture for a long time can explain the low production estimated and appearance of unpalatable species, such as *Arisarum vulgare, Daphne gnidium* and *Ranunculus sardous*. In fact, due to the bad operating practices of pastoral resources, sylvopastoral areas will be less available and of lower quality. The reasonable use of these resources, including a reduction in grazing pressure, should be developed to ensure a better productivity and sustainability.

Keywords: Sylvopastoral –Rif Mountain– Biomass – Goat– Sustainability.

Effects of pre-slaughter ascorbic acid administration on some physiological indicators and meat quality traits of road transport stressed kids

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This study determined pre-slaughter ascorbic acid (AA) administration on some physiological indicators, slaughter-carcass characteristics and meat quality traits of road transport stressed kids. The animal material consisted of 18 six-month-old Saanen x Hair Goat male kids. Eighteen kids were divided into 3 groups as follow T0: not transported, T3: 3 h transportation without AA, T3+C: administered AA 125 mg/kg prior to 3 h transportation. The liveweight loss and rectal temperature were found similar while there were significant differences among groups for some hematological and biochemical parameters. Cortisol, glucose and white blood cell were significantly higher in T3 and T3+C kids than T0 kids ($p < 0.05$). Serum malondialdehyde (MDA) was used to determine the oxidative status of kids and there were no significant differences among groups for MDA. The slaughter and carcass characteristics of kids were found similar among groups. However, some meat quality traits were negatively influenced by transportation. Muscle glycogen content was found significantly lower ($p < 0,01$) and ultimate pH was higher in T3 and T3+C kids ($p < 0.05$) than T0 kids. Moreover, T3 and T3+C have darker meat than T0 kids whereas water-holding capacity, and tenderness (WBSF) were found similar among groups. Overall, 3 h transportation negatively affected some physiological stress indicators and meat quality traits. AA administration prior to transportation did not reduce adverse effects of road transportation stress.

Keywords: stress, transport, goat,ascorbic acid

Evaluation of chemical composition of available by-products in the North of Morocco

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In the northern region of Morocco, goat breeding is the dominant activity of farmers. Livestock plays a major economic role in the contribution of more than 70% of household income. Their diet is based essentially on forested rangeland characterized by a variable feed on-offer. Therefore, it is necessary to diversify and improve the feed calendar to reduce overgrazing and increase livestock productivity. This work aims to characterize the chemical composition of agricultural by-products to be introduced in the diet of goat herds. The studied by-products were residues of watermelon, melon, zucchini, tomato, sunflower and peanut composed essentially of the top of plants. Samples were collected in different places in the northern region of Morocco. In the laboratory, samples were oven-dried at 60°C and subsequently ground through a 1-mm diameter sieve. The studied composition variables were dry matter, ash, total nitrogen and fat. The chemical composition of these samples was determined by the methods of AOAC (1997). The means and the standard error of means were calculated using SAS software. Resulting by-products dry matter varied from 16.4% in watermelon residues to 96.7% in sunflower residues. The sunflower residues had a low mineral concentration of 3% whereas the melon residues contained 26.5% mineral matter. The nitrogen concentrations ranged from 2.6% in sunflower residues to 19.5% in watermelon residues. The highest fat concentration was recorded in melon residues (5.1%). Sunflower residues were lowest in fat (1.4%). Peanut residues contained 88%, 8.5%, 7.7%, and 2.2% respectively for dry matter, ash, crude protein and fat. In conclusion, sunflower and peanut residues were drier than the other by-products and contained less mineral, fat and nitrogen matter. These by-products represent a free feed that can have a place in feed calendars in the northern region of Morocco for the goat population. Nevertheless, prior to introducing them in goat diets, it will be necessary to evaluate their nutritional value.

Keywords: By-products, chemical composition, goat population

Total carotenoid and *in vitro* digestion values of some tree forages in goat

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This study aimed to determine the effects of some tree leaves (*Crataegus orientalis*, *Crataegus monogyna* and *Rosa canina*) on total gas production, metan production and metabolisable energy (ME), net energy lactation (NE_L), short chain fatty acid (SCFA), and organic matter digestibility (OMD) parameters in goat rumen fluid inoculum by using *in vitro* Hohenheim gas production techniques. Total carotenoid levels of tree leaves were determined as spectrofotometrically (A_{450}). Total carotenoids of hexane extracts in studied leaves have range from 5,80 to 13,36 mg/kg ($P<0.05$). The *in vitro* total gas production, ME, OMD and SCFA levels in the leaves of these trees were similar ($P>0.05$). The NEL values of *C. orientalis* and *C. monogyna* leaves were higher than that of *R. canina* leaf. The leaves of *C. orientalis*, *C. monogyna* and *R. canina* were 11.27%, 10.70 % and 12.25% methane in produced total gas, respectively. These results suggest that these tree forages species have potential as forage for goat nutrition ration in terms of energy and nutrient values. Besides, the leaves of these native trees were quality forages for grazing goats and have anti-methanogenic effect.

Keywords: Crataegus monogyna, Crataegus orientalis, in vitro gas production,methane,Rosa canina

Hoof overgrowth affects lying behaviour of dairy goats near parturition

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Hoof overgrowth in ruminants has been linked to lameness, a known welfare challenge. Little is known about the effect of hoof overgrowth on daily activities of does, particularly in the time around parturition. In this study we evaluated the impact of hoof overgrowth on the lying behaviour of commercially housed dairy does in the days surrounding kidding. The lying behaviour of does on 8 commercial farms in Ontario, Canada were monitored using leg-based data loggers. Lying time, bout frequency and duration for each doe were calculated for the day before (d-1), the day of (d0) and the day after (d+1) kidding. The front left and rear right hoof was scored (4-point scale assessing toe overgrowth and curling) on each doe during a metabolic health check 9 ± 4 days after kidding. Only does determined to be metabolically healthy via blood BHBA and which were carrying singles or twins, were included (n = 16 ± 7 does/farm). An average hoof score was calculated for each doe and simplified into a binary scale (0 = no or minimal toe overgrowth with no curling, n = 78 does; 1 = presence of toe overgrowth and curling, n = 55 does). The effect of hoof overgrowth on lying behaviours was assessed using mixed models. Results are presented as mean ± SED. Kidding (d0) resulted in a dramatic decrease (3.0 ± 0.3 h/d) in lying time compared to d-1, but the decrease was dependent on hoof score. Does with hoof overgrowth lay longer on d0 (10.4 vs. 8.9 ± 0.7 h/d) and tended to lie down longer on d1 as well (11.9 vs. 10.6 ± 0.7 h/d) compared to does with no or minimal overgrowth. The number of daily lying bouts did not differ over the 3-day period; however, goats with hoof overgrowth lay down longer during each bout compared to goats with no or minimal hoof overgrowth (45 vs. 34 ± 3.7 min/bout). In summary, goats lay down less on the day of kidding and hoof overgrowth reduced the magnitude of this behavioural change. Hoof overgrowth restricted movement; this reduced activity is a concern during a period when freedom to move, both to isolate from penmates and to have adequate access to feed and water, is crucial to maintain good health. This work demonstrates the importance of good hoof care for late gestation does.

Keywords: does,welfare,kidding,lying bout duration

Goat milk somatic cell mRNA level of genes coding selected proteins and peptides involved in the immune response according to the goat breed and stage of lactation

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Maintaining homeostasis is essential for all organisms. Homeostasis can be disturbed by many processes such as infections, inflammations, or injuries. In response, the immune system produces proteins and peptides to protect organism against various stressors.

This study aimed to estimate mRNA levels of interleukin-1β (*Il-1β*), interleukin-8 (*Il-8*), bactenecin 7.5 (*BAC7.5*) and serum amyloid A3 (*SAA3*) genes in milk somatic cells of goats free from CAEV and any pathogenic bacteria.

The study was conducted on 12 Polish White Improved (PWI) and 12 Polish Fawn Improved (PFI) goats. The animals were divided into two analogous groups according to breed and parity. The milk samples were collected four times during lactation in the morning milking (21st, 70th, 120th, 180th day). The samples were screened using qPCR (Light Cycler System, Roche, Switzerland) with cyclophilin A as a reference gene.

The differences in mRNA levels of *Il-1β* and *Il-8* genes during lactation were observed. The transcript levels of *Il-1β* and *Il-8* genes increased from the beginning to the peak of lactation. Then, the concentration of *Il-8* mRNA decreased while *Il-1β* transcript level remained stable until the full lactation. It may indicate the higher effort of the organism of dairy goats in peak and full lactation caused by high milk production.

The concentration of mRNA of *Il-1β* and *BAC7.5* genes was higher, whereas *SAA3* level was lower in PFI compared to PWI. The lower mRNA level of *SAA3* gene and higher mRNA level of *BAC7.5* gene may imply that PFI goats are more efficient at maintaining stability of the mammary gland internal environment . However, an elevated level of *Il-1β* transcripts contradicts this statement since Il-1β as a proinflammatory cytokine plays an essential role in many inflammatory diseases. Thus, the further analyses are needed to elucidate the true meaning of these observations.

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Keywords: goat ,milk somatic cells ,expression ,interleukin1-β ,interleukin-8 ,bactenecin7.5 ,SAA3

The effect of selenium added to diets in inorganic or organic form on the selenium content and activity of lysosomal enzymes in milk and blood serum of dairy goats

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The aim of the study was to determine the effect of organic *vs.* inorganic supplementation on selenium (Se) content and activity of lysosomal enzymes in milk and blood serum of Polish dairy goats.. The study was conducted on 24 dairy goats free from CAEV, in their second to fourth lactation. Animals were equally divided into two analogous groups. The study began three weeks after kidding and lasted until the 270th day of lactation.

The control group was fed a diet with commercial vitamin-mineral mixture Witamix^{KW} (POLMASS, Poland), containing inorganic selenium (sodium selenite), while the experimental group was given a diet supplemented with Se in organic binding (Se-yeast (*Saccharomyces cerevisiae*) at the dose of 0.6g/day/goat) (Sel-Plex 1000, Alltech) without inorganic selenium additive. The Sel-Plex 1000 was given individually to the goats by pouring it into the manger during evening milking. The milk and blood samples were taken four times during lactation (on the 21st, 90th, 140th, and 210th day of lactation). The Se content in milk and blood serum was established using ICP-MC apparatus. In the lysosomal fractions of milk and blood serum the activities of AlaAP, LeuAP, ArgAP, AcP, BGRD, BGAL, BGLU, AGLU, and NAG were determined. Analysis of variance was conducted using the Student's t-test or Tukey-Kramer test (SAS/STAT).

The Se content in milk was significantly higher in the experimental group than in the control group on the day 90 (16.1 µg/L vs. 11.8 µg/L; $p<0.01$) and day 270 (29.2µg/L vs. 11.1µg/L; $p<0.01$). The Se content in blood serum was higher in the experimental group on day 140 (110 vs. 85 µg/L; $p<0.01$). Thus, the addition of Se-yeast contributed to the considerable increase of Se concentration in milk and blood serum. There were no differences in milk and blood serum in activity of lysosomal enzymes between treatments. It may indicate that the Se-yeast supplementation at the dose of 0.6g per day has no negative effect on dairy goat organisms.

This work was undertaken as part of "BIOFOOD - innovative, functional products of animal origin" Project No. POIG.01.01.02-014-090/09 co-financed by the European Union

Keywords: selenium ,concentration ,selenite ,Se-yeast ,lysosomal enzymes ,milk ,blood serum ,goat

Precision glutamate supplementation, antral follicular development and the LH secretion pattern in adult goats.

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Glutamate has an important role in reproductive activity in mammals. This study evaluated the possible effect of acute glutamate supplementation of glutamate upon development of antral follicles and the serum levels, pulsatility (PULSE) and area under the curve (AUC) of LH in goats. The experiment was carried-out in Northern Mexico-UACh-URUZA (25°N, 103°W, 1,117m) during the photoinductive season (November). Adult goats (n=22) 7/8 Sannen-Alpine with homogeneous live weight (LW) and body condition (BC) were randomly assigned into two experimental groups: 1) Glutamate (**GLUT**, n=10, LW=45.8±4.37 kg; 0.175 mg kg^{-1} LW of glutamate, I.V.) applied on days 1, 9, 14 and 17 post ovulation and 2) Control (**CONT**, n=12, LW=46.2±5.87 kg). The basal diet considered alfalfa hay (14% CP; 1.14 Mcal Kg^{-1} ENm) and corn silage (8.1% CP; 1.62 Mcal Kg^{-1} ENm). Estrus was synchronized with intravaginal sponges. Once ovulation occurred, an intensive blood sampling (6 h x 15 min) was performed to evaluate serum LH through RIA. On d-17 after the second ovulation, the antral follicle population was ultrasonographically evaluated. LW (44.5±1.3 Kg) and BC (3.3±0.8 units) did not differ (P>0.26) between groups. Besides, neither serum levels of LH (4.94 ng mL^{-1}), nor PULSE (3.8 pulses) or AUC (1,804.4 units) differed (P> 0.05) between groups during the follicular phase. Yet, an increase of the antral follicular population (P=0.05; 3.40 *vs*. 2.18) favored to the GLUT-group. Results confirmed an acute effect of the short-term supplementation with L-glutamate, stimulating the steroidogenic activity while promoting a greater development of the antral follicular population without changes in the secretion pattern of LH. The last being of importance in the design of clean, green and ethical reproductive biotechnologies.

Keywords: Goats,Glutamate supplementation,targeted nutrition,acute effect,antral follicles

Effect of supplementation of protein enriched *Opuntia megacantha Salm-Dyck* cladodes upon reproductive outcomes in anestric goats exposed to the male effect

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The possible effect of targeted supplementation of protein enriched *Opuntia megacantha Salm-Dyck* cladodes upon reproductive outcomes in adult anestrous goats under rangeland conditions and exposed to the male effect was evaluated. Reproductive variables included: estrus percentage (EST, %), estrus latency (ESL, hours), ovulation percentage (OP, %), ovulation rate (OR, units), average largest follicle at ovulation (LFO, mm), largest corpus luteum (LCL, mm), embryo number (EBN, units) and embryo implantation percentage (EIP, %). Anestrous mix-breed adult goats (Alpine-Saanen-Nubian x Criollo; n=38, 25.6º N) were randomly assigned in May to: 1). ***Control*** (**CC**; n=12; 41.3±1.8 kg LW, 2). ***Non-enriched Opuntia***(**NEO**; n=14; 41.1±1.75 kg LW; 6.44 % CP, 1.88 Mcal ME kg^{-1}), and 3). ***Protein-enriched Opuntia*** **(PEO;** n=12; 39.9±1.7 kg LW; 29.8% CP and 2.27 Mcal ME kg^{-1}). Both the NEO and PEO goats were individually supplemented with cladodes (160 g d^{-1}). PEO was enriched in a fermentation bioreactor (1% of *Scaromices cereveciae,* + 1% urea + 0.1 % of ammonium sulphate). Goats were supplemented (0900 to 1000 h) during an adjustment period of 10-d. Then, all groups grazed together during the day, while separated accordingly at night. Both NEO and PEO groups continued the supplementation schedule during 10-d pre- & 20-d post-breeding (10+10+20). On d 11, groups were exposed (1900-0900 h) under pen conditions to testosterone treated adult males (Alpine-Saanen, two/group) of proven libido and fertility. No differences (P>0.05) occurred among groups regarding LW (P>0.05) or BCS (P>0.05) neither about EST=89.6%, ESL=53.6 h, OP=70.3%, OR=1.07 units, LFO=0.45 mm, LCL=1.09 mm, EBN=0.94 embryos and EIP=48.6%; LW (41.54±1.75 kg) nor BCS (1.46±0.10 units) did not differ at the end of the trial. Further studies should consider diverse amounts of supplemented Opuntia and different stages of the anestrus season.

Keywords: Goats,Male effect,Opuntia supplementation,reproductive outcomes,targeted supplementation

Milk production and growth performances of Bedouin goat in early lactation

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Bedouin goat, known for its adaptation to survive in harsh environment, plays a key role in animal production economic and livelihood security in arid areas. This study was undertaken to evaluate milk production potential and growth performances in this breed. The experiment was conducted at Beni-Abbes region, located in the south-west of Algeria. Fourteen multiparous lactating goats, aged between 2 and 8 years and their 16 kids (7 males and 9 females) were investigated during the 12 first weeks of lactation. Milk yield was measured bi-weekly by the weigh-suckle-weigh method. The offspring were weighed at birth then twice a week. Goats' body weight was recorded weekly. Statistical analyses were carried out using GraphPad Prism. Significance difference between means was assessed by Student and Kruskal-Wallis tests and correlation analysis using Spearman test. Results showed that mean daily milk yield in early lactation is 0.57 ± 0.06 kg. Milk production increased progressively during the first two months of lactation and reached its peak at the 6^{th} week, with an average daily milk production of 0.71 ± 0.09 kg, and then it decreased significantly during the third month of lactation. Milk production increased with the age of goat ($p = 0.007$). This result was similar to that obtained by Mourad (1992) and by Montaldo *et al.* (1997). The mean body weight of does was 23.21 ± 1.45 kg at parturition; it decreased slightly during lactation (19.63 ± 1.08 kg) due to the mobilization of body reserves. The mean kids' body weight was 1.96 ± 0.11 kg at birth and attained 6.25 ± 0.51 kg at the 12^{th} week of lactation; with an average daily gain of 51.35 ± 4.95 g. Single kids were significantly heavier than twins during the first month *post-partum* (3.23 ± 0.17 vs. 2.17 ± 0.35 kg). However, litter size had no significant effect on the body weight at birth and the growth rate of kids. Positive and significant correlation was found between milk yield and goats' body weight ($p = 0.023$, $r = 0.64$). This correlation was also found by Alsheikh (2013). Kids' body weight was non-significantly related neither to their mothers' weight nor to their milk production. Kharrat and Boquier (2010) reported previously similar results. Our results will be helpful to improve milk production of Bedouin goat in arid zones.

Keywords: Bedouin goat, milk yield, growth performances.

Performance of Lactating Red Sokoto Does fed Native Galactagogues in Semi-arid, Nigeria

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Performance of Lactating Red Sokoto Does fed Native Galactagogues in Semi-arid, Nigeria

An experiment was conducted with Red Sokoto does to evaluate the performance of dams and kids fed 30% inclusion levels of five native browse - based galactagogues. The study lasted 16 weeks laid in a randomized complete block design using 24 dams. *Ficus thonningii, Guiera senegalensis, Parkia biglobosa, Anogeissus leiocarpus* and *Tamarindus indica* were the browses used while the sixth diet; a non-browse based served as the control treatment. The experimental units were the pregnant does with their resulting off-springs. Upon kidding, the dams were allocated into the dietary treatments in four replicates. Lactating dams were fed 4% of their body weight in order to give adequate nutrition due to the physiologic state of the animals. Records were collected on liveweight changes, weights of kids at birth and weekly thereafter till weaning. At the end of the experiment, blood samples of dams were collected for evaluation of haematological, serum biochemical metabolites and electrolytes. Data collected were subjected to analysis of variance and where differences manifest were separated at ($P<0.05$) using the tukey test of the SAS, software. Average daily weight gain for the Red Sokoto kids ranged from 0.03 - 0.06 kg. Kids suckled dams fed *A. leiocarpus* based diet had the highest liveweight gain followed by those on *G. senegalensis* based diet while dams placed on *F. thonningii* and the control based diet had the least**.** Results on haemoglobin, PCV, RBC and neutrophils revealed significant ($P<0.05$) differences which were all within the normal reference values for healthy animals. Serum electrolyte values significantly ($P<0.05$) differed across all dietary treatments for Na and Bicarbonate while the total cholesterol, HDL, triglyceride, total protein, globulin, creatinine and urea values revealed significant ($P<0.05$) differences as well. It is concluded that *A. leiocarpus, G. senegalensis* and *T. indica* based - diets produced kids with superior liveweight in addition to meeting the nutritional requirements of lactating does as well as their off-springs. It is thus recommended, that these three browse species be incorporated in the diets of lactating does in the semi-arid zone for higher liveweight gain particularly during the prolonged dry season typical of characterized by the study area.

Keywords: Goats,Kids, Browse,Galactagogues,Lactating

Preliminary study on anthelmintic potential of methanol extracts of certain plants

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We recently screened more than 900 plant extracts for anthelmintic potential using an egg-hatching inhibition procedure. Dried plant materials were ground to a particle size of no larger than 1 mm and a portion of 30 g was then transferred to an Erlenmeyer flask and extracted with 250 ml of methanol. The mixture was shaken for 1 h and filtered to derive the crude plant extract. The latter was suspended in 50 mL of Tetrahydrofuran (THF), stirred for 15 min and filtered. The THF solution was evaporated and the concentrated extract was dried by using a Savant SpeedVac Vaccum Concentrator System. The dried extract was weighed and dissolved in dimethyl sulfoxide (DMSO) before use. With a sucrose step gradient procedure, worm eggs were harvested from fresh feces of goats naturally infected with parasitic nematodes in which more than 90% were *Haemonchus contortus*. The eggs in **phosphate buffered saline** (PBS) were distributed into 96-well plates at 30-40 eggs/well in 98 µL. Two µL of plant extracts in DMSO was added to each well in duplicate and mixed. The final concentration of extracts in the wells was 400 µg/mL and untreated eggs in PBS plus 2 µL DMSO served as negative control. The test plates were kept in an incubator at 27°C for 48 h. Hatched larvae (dead or alive) and unhatched eggs (embryonated and non-embryonated) were then counted under a microscope at a 40 × magnification. The percentage of inhibition of egg hatching was calculated as: inhibition (%) = number of egg / (number of egg + number of larvae) × 100. We found that 16 extracts showed inhibitive effects (> 50%) at the concentration of 400 µg/mL. The extract of black pepper (*Piper Nigrum L.*) was particularly effective and examined further. The egg-hatching inhibition rate for the black pepper extract was 5, 11, 26, 70, 78, 86, 97, 96, and 98% at concentrations of 0, 3.9, 15.6, 31.3, 62.5, 125, 250, 500, and 1000 µg/mL, respectively. The results suggest that more work is needed to evaluate the anthelmintic efficacies of solvent extracts of black pepper and other plants.

Keywords: goat,parasite,plant,anthelmintic

Ensiling characteristics of corn and maralfalfa forages and silage intake preference by meat-type goats

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Alternatives to replace corn silage in intensive feeding programs or during the dry season in goat diets is an urgent need in tropical climates. Maralfalfa-grass is a high quality tropical grass which has potential as forage for ruminants. However, there is little information about its potential use as silage. An experiment was conducted to compare the ensiling characteristics of tropical corn (*Zea mays*, cv Mayorbella; 28.54% DM, 9.63% WSC) and maralfalfa (*Pennisetum purpureum* × *Pennisetum glaucum;* 23.49% DM, 7.61% WSC) and silage intake preference by meat-type goats. Eight silos (18.9l buckets) from each forage were maintained at room temperature (26-28°C) in anaerobic conditions. After 45 d of fermentation, four silos from each forage species were opened and samples analyzed for pH and fermentation products. Statistical analysis was performed as a completely randomized design. Silage preference study were conducted during 4 consecutive days using 6 meat-type goats with access to three individual wooden feeder containing corn silage, maralfalfa silage or grass hay. Ten kg of each forage were offered to the group of goats that had not previously consumed silage or hay. Forage intake preference was monitored after 24 h of access to the forage and quantified as forage intake expressed as a percentage of forage offered. Forage intake data analysis was performed as a completely randomized design. Tropical corn silagehad lower ($p<0.05$) pH (3.81 vs 4.37) and higher ($p<0.05$) lactic acid content (5.12% vs 2.83%) and the lactic acid:acetic acid ratio (3.24% vs 1.52%) than maralfalfa silage, but lower ($p<0.01$) acetic acid (1.58% vs 1.85%), butyric acid (.46% vs 1.82%) and the NH_3-N/Total-N ratio (3.43% vs 8.63%). Tropical corn silage intake by meat-type goats expressed as a percentage of forage offered was higher ($p<0.05$) than marafalfa silage and grass hay by 60.41% and 61.25%, respectively. In summary, tropical corn silage had better ensiling characteristics than maralfalfa silage as evidenced by lower pH and more deseable fermentation profile. Meat-type goats had greater preference for tropical corn than maralfalfa silage.

Keywords: Silage, Corn, Maralfalfa, Fermentation, Intake

Main polymorphisms of CSN1S1, CSN1S2 and CSN2 genes in various Hungarian goat flocks

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The α-s1, α-s2 and β casein variants with a special focus on 0 and weak alleles were studied in various goat breeds (Saanen, Alpine, Hungarian Brown, Black, White, and Multicolour, Sandy, Hungarian Native) and populations bred on 10 different farms in Hungary.

Hair follicles samples were collected from unrelated animals from each breed groups (from 7-10 heads/breed) in order to carry out DNA examinations. Taqman assay, AS-PCR and PCR-RFLP methods were performed in the case of β-, α-s1 and α-s2 casein, respectively. The presence of following main polymorphism was genotyped for CSN1S1: A, B, C, D, E, F, O; CSN1S2: A, B, C, D, E, F, O; A, B, C, O and CSN2: A and C. Significant differences were observed among the studied breeds and populations. Despite the results of our previous study on Hungarian native breeds, animals included in this study did not carry any O variant of the α-s1-casein. Concerning the whole studied population the following allele frequencies were found: F (0.275); A (0.27); B (0.35); X (C+D) (0.105); E and O (0.0). The F allele was observed mainly in Hungarian White, Brown and native groups, however, homozygous FF individual head was also found in Alpine breed as well. In the case of α-s2 significant differences were also found among the studied groups. According to the summarised results the F allele had the highest frequency (0.37), followed by A (0.32), N (B+C) (0.31), but unfortunately no D, E, and O could be found in the studied populations. Smaller but also significant differences were found among populations in the case of β casein. According to the summarised results the A allele (including A+B+O) (0.605) became dominant, while the C allele (0.395) on the second stage on the rank.

Concerning the summarised results received covering the studied breeds and populations it would be worthwhile to extend the studies on all Hungarian goat breeds in order to find animals in higher number carrying low allergic alleles and genes.

Keywords: CSN1S1, CSN1S2, CSN2, polymorphism, Hungary, goat

Synchronization with Controlled Internal Drug Release (CIDR) on Exacerbate Oxidative and Nitrosative Stress and Leptin Levels in Abasian Goats*

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The objective of this study is to investigate the effects of synchronized with controlled internal drug release (CIDR) on oxidative and nitrosative stress and leptin levels in the breeding season of Abasian goats. For this purpose, 40 clinically healthy Abasian goats at ages 2-4 were intravaginally exposed to CIDR (Eazi-Breed CIDR®) on day 0, and they were injected with equine chorionic gonadotropin (im, 400 IU, eCG, Chronogest®) and prostaglandin $F_2\alpha$ (im, 5 mg, $PGF_{2\alpha}$, Dinoprost trometamin, Dinolytic®) on day 9 of the experiment. CIDR was removed on day 11. At the end of the experiment they were monitored for estrus and hand-mated. Blood samples were collected before 8 days synchronization, on days 0, 11 and on the breeding day. A pregnancy test was used by means of transrectal ultrasonography on day 30. The serum from 30 goats (20 pregnant + 10 non-pregnant) was used for biochemical analyses. Blood, malondialdehyde (MDA) and nitric oxide (NO) levels were determined by colorimetric methods. Endothelial NO synthase activities (eNOS), total antioxidant capacity (TAC), total oxidant capacity (TOC), leptin and progesterone (P_4) levels was measured by commercial kits. Levels of NO, MDA, eNOS activities, TOS and P_4 levels were significantly high on day 11 and that leptin and TAS concentrations were significantly high on breeding day of Abasian goats ($P<0.001$). eNOS activities and TOS levels of pregnant and non-pregnant goats were different on days 11 and on the day of breeding ($P<0.05$). In conclusion, the administration of CIDR to Abasian goats was exacerbated oxidative and nitrosative stress and progesterone concentrations. In addition, the serum leptin concentrations rose in the goats on breeding day.

*This study was supported by TUB.TAK (Project no: 112O193).

Keywords: Nitric oxide,leptin,progesteron,CIDR,Abasian goat,eNOS activities

The Effects of the Use of Controlled Internal Drug Release (CIDR) for Estrus Synchronization on Paraoxonase Activities and Total Sialic Acid Levels in Georgian Goats

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This study was aimed at determining the effects of the use of an intravaginal progesterone-releasing device (Controlled Internal Drug Release, CIDR), during the breeding season, on paraoxonase activities (PON) and total sialic acid (TSA) levels in Georgian goats. In this study, 30 Georgian goats, aged 2-4 years, were synchronized. For estrus synchronisation, a CIDR device (Eazi-Breed CIDR®) was used for a period of 11 days. Two days before the removal of the CIDR from the vagina, each goat was administered with equine chorionic gonadotropin (IM, 400 IU, eCG, Chronogest®) and prostaglandin F2 alpha (IM, 5 mg, Dinoprost trometamin, $PGF_{2\alpha}$, Dinolytic®). Following the removal of the CIDR device, the goats were monitored for estrous and were hand-mated. Pregnancy examination was performed 30 days after hand-mating and by transrectal ultrasonography. Biochemical analyses were performed with the sera extracted from the blood samples collected from the 30 goats (20 pregnant + 10 non-pregnant) 8 days before the synchronization, on days 0 and 11, and on the day of breeding. The serum samples were used for the measurement of PON, cholesterol, triglyceride, high density lipoprotein (HDL) and TSA levels. The biochemical parameters were determined to significantly differ for the day of measurement ($P<0.01$). The results demonstrated that the PON, cholesterol and HDL levels on day 11 were the lowest ($P<0.001$). On the other hand, the TSA levels on day 11 were found to be higher than the levels on the other days ($P<0.05$). The triglyceride levels were ascertained to have decreased on day 11 and on the day of breeding ($P<0.05$). The PON, cholesterol and HDL levels on the day of breeding were determined to differ between the pregnant and non-pregnant goats ($P<0.05$). In conclusion, it was determined that the CIDR used for the estrus synchronization of the goats reduced the serum PON, cholesterol, triglyceride and HDL levels, and increased the TSA levels.

*This study was supported by TUBİTAK (Project no: 112O193).

Keywords: Paraoxonase,Total sialic acid,Synchronization,CIDR,Georgian goats

Determination of Gestational Age in Abasian and Georgian Goats Where Some Embryonic and Fetal Parameters were Measured Ultrasonography

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The aim of this study was to determine gestational age in Abasian and Georgian goats by measuring fetal heart, biparietal, thoracic and placentom diameters and the crown-rump length by ultrasonography. This study was performed on 30 goats (10 Abasian goats + 20 Georgian goats). Measurements were obtained on days 30, 45, 60, 75, 90 and 120 of pregnancy using a 5-7.5 MHz linear probe. The measured values were similar in the Abasian and Georgian goats ($P>0.05$). In order to estimate gestational age, the formulas were created by measuring linear regression for embryonic/fetal heart, biparietal, thoracic and placentom diameters and crown-rump length. High correlation was found among embryonic parameters, fetal parameters and gestational age (R. 0.9, $P<0.001$). As a result, gestational age can be determined in different periods of pregnancy by measuring the heart, biparietal, thoracic, placentome diameters and crown-rump length ultrasonographically in Abasian and Georgian goats.

* This study was supported by KAÜ-BAP (Project no: 2015-TS-35)

Keywords: Gestational age,Abasian goat,Georgian goats,Ultrasonography,Embryonic and fetal parameters

Effects of transition from twice- to once-a-day milking on milk flow kinetics of Alpine goats

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Milking is the most important part of the work on a dairy farm. It can be limited by accessing to once-a-day milking, at least at the end of the milking period with a potentially better recover of udder health.

This study focalizes on the effects of this transition on milk flow kinetics, taking animal characteristics into account.

Four groups of 3 goats (F-C-, F-C+, F+C-, F+C+) from Mejusseaume experimental unit herd (INRA) were defined, according to milk flows (F-: 0.5 to 0.95 kg/min - F+: 1.41 to 2.11 kg/min) and udder inflammatory levels (C-: 89,000 to 762,000 - C+: 1,027,000 to 6,443,000 cells/ml). They were milked together with the same milking routine, on a 2x12 places back milking online parlour with automatic cluster removal. Flow kinetics were recorded with 4 (1 for 3 goats) LactoCorder® (WMB), placed on the 4 milking units used, and were treated with the LactoPro® 6.0.32 user interface. The recording period began 3 days before and lasted 6 days during and after the change of milking rhythm.

The analysis of synthetic indicators showed that the change of milking frequency reduces the milk quantities (-0.42 to - 0.82 kg/goat/day), increases lightly average milk flows (0.03 to 0.18 kg/min), with opposed variations on peak flow (-0.22 to 0.67 kg/min) but systematically with longer maximum milk flow periods (0.32 to 0.72 min) and as expected reduces largely daily milking duration (-3.08 to -5.87 min/goat). Milk flow kinetics changed, with a shortening of both the increasing and decreasing period proportions (respectively -5 and -4%, despite the growth in the decreasing period duration: 0.13 to 0.24 min) in favour of the peakflow period (+9%). No significant evolution of somatic cell counts was observed.

Animal responses to the change in milking frequency differed according to the goat group: greater impacts on milk quantity loss (-0.85 kg/day), peak flow level (-0.22 kg/min), flow decreasing phase duration (+0.24 min) for F+C-; greater increase of the average and peak flows (+0.18 and +0.67 kg/min) but smaller daily milking duration decrease (-3.08 min) for F+C+; higher decrease for daily milking duration obtained by F-C+ (-5.87 min).

These small but notable differences in animal responses should be taken into account, especially for adaptation of manual take-off practices or automatic removal settings.

Keywords: Milk flow kinetics,LactoCorder,Animal response,Alpine goats,Milking duration,Once-a-day milking

Comparative aspects of sheep and goats raised in single species herds or in mixed herds

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A study was conducted in a specific agricultural region of Cyprus with the aim of collecting on the spot information to compare several production aspects of sheep (S), goat (G) and mixed (S+G) herds. The study utilized data from 10 S, 10 G and 9 S+G herds, collected with the use of a questionnaire completed by personal interviews with the farmers. Data were statistically analysed by the SPSS package using a mixed model. The main findings are the following: Mean herd size was higher in S (N=406) followed by S+G (N=137+107) and G (N=123). Herds comprised of purebred Chios (15 to 27%) and Damascus (20 to 32%) but mostly, of crossbred animals (67 to 85%). In G herds, there was a distinct kidding period from December to March, compared to two separate lambing periods (early autumn-late winter) in 5 S herds, one long period in autumn-winter (3 S herds) or all the year round (2 S herds). The lambing/kidding period in S+G, was similar to that of S, which indicates that rams and ewes affected the reproductive "season" of goats (interspecies interaction). Adult sheep and lamb losses were lower in S (7 and 10%) than in S+G (10 and 15,4%), while adult goat and kid losses were similar in S+G (11 and 22%) and G (11 and 27%). It seems that the presence of goats in S+G, adversely affected sheep survival, especially that of lambs. In 2 farms, the animals were kept indoors, while in the rest, grazing time was between 4 and 4,3 hrs/day either all year round (16 farms) or during spring-summer (11 farms). The quantity (kg) of roughage offered annually per animal was not different between farm types (S:258; S+G:267; G:297), but S+G animals received more concentrates (488kg) than S (408kg) and G (353kg). Milk yield per ewe was similar in S (208kg) and S+G (191kg) and goat milk yield was higher in S+G (385kg) than in G (302kg), the latter probably due to the less feed offered. Finally, the number of offspring sold per dam was similar in all farm types (S: 1,37lambs; S+G: 1,37lambs, 1,30 kids; G: 1,15 kids). In conclusion, the above results indicate that keeping sheep and goats in mixed herds is a questionable practice since it may confer some advantage to goats, mainly in terms of their reproduction, but on the other hand, sheep losses are increased.

Keywords: mixed herds,management systems

Assessment of Goat Meat Production and Consumption and Future Outlook for Turkey

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Goats are one of the most popular farm animals all over the world, and goat meat and milk consumption is most widely distributed in the world. The goats have been breeding for centuries in Turkey and goat products have been contributing to the family farm income and national economy. Turkey has approximately 10.416 million goats, according to data of 2015. Of the total goat population, 10.210 million heads were hair goats including few number of goat breeds such as Kilis, Saanen, Damascus, Honamli, Norduz, Kackar, Abaza and Gurcu. During last decades, dairy goat production has started to improve in Turkey. Unfortunately, the goat meat production could not developed as much as milk production due to consumer preferences and socio-economic perspectives. So, goat meat production accounts for 3% of total red meat production, according to data of 2015. Recently, the Universities, Ministry of Food, Agriculture and Animal Husbandry, Ankara Sheep and Goat Breeders Associations have started to awareness study to enhance goat meat production and consumption. It is expected that these studies will be good opportunity to improve goat meat consumption in Turkey. The purpose of this paper is to assess the current meat goat status and meat goat industry in Turkey to determine its future outlook.

Keywords: Turkey, goat meat, consumption, production, future perspectives, strategies

Comparison of testicularmeasurements, fresh and frozen semen characteristics in the horned and polled Kilis goats

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The aim of this study was to determine the effect of the presence of horns on testicular dimensions, native sperm characteristics and post-thaw sperm motility of Kilis goats. Kilis goats, one of the gen sources of Turkish native goat breed, is very important because this breed will provide important beneficial effect on dairy goat breeding in the future as a genetic source. Kilis bucks are generally horned, however, females and males may be either horned or polled. Hornlessness can cause some significant problems such as infertility**.** In this study, the material was composed from totally 8 mature Kilis goats, four from horned bucks and four from 4 polled bucks. Firstly, morphometric measurements of testis (i.e. scrotal circumference, scrotal thickness, testicular length, testicular width and testes volume) were measured four times at twenty-day intervals. Moreover, ejaculates individually collected from each bucks with artificial vagina a week during breeding season. Semen characteristics of horned and polled bucks included volume, concentration, rate of motility, abnormal spermatozoa of each ejaculates were evaluated and compared before freezing. Skimmed milk based extender 10 % egg yolk and +5 % glycerol were used as semen extender. Extended samples were loaded into 0.25 ml French straws and the open tips of straws were sealed with polivinil alchol. After equilibration, the straws were frozen in liquid nitrogen (LN) vapour, 4cm above LN for 15 minutes. Straws from different bucks were thawed in water bath providing 37 ^{o}C for 30 seconds. After thawing, the only sperm motility were determined. The statistical significance was assessed using nonparametric Wilcoxon and Mann–Whitney U tests.Results of this study indicate that presence of horns had no effect on all semen characteristics and the testicular dimensions. Moreover, No horn effect was observed on post-thaw sperm motility ($P>0.05$). The study confirmed horned bucks not to have higher reproductive capabilities than polled bucks.

Keywords: Polled,Horned,Kilis goat,testicular measurements,semen characteristics

Community-Managed Genetic Improvement of Goats: A Case Study

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One of the major constraints faced by smallholders in goat production is the limited availability of quality breeding bucks and does due to lack of pedigree recording and scientific genetic selection in community flocks. To address these constraints, Heifer International Nepal initiated two goat resource communities at Sindhuli and Palpa districts engaging self-help groups (SHGs) consisting of smallholder goat farmers with the objectives to produce genetically superior seed goats (Jamunapari x Khari cross) through selection. The project started in April 2012 with 821 base flocks of breeding does from 272 households; out of which, 218 breeding does were initially selected and rest were culled and replaced. 511 community members maintained production performance record of 1,458 goats. Trained community members maintain records on performances of the does and kids. Data collected and maintained by farmers were processed using a customized Access Database software. Fifty percent selection intensity was applied to select top performing does on the basis of three months' litter weight/doe. To select male and female kids as seed animals, 20% and 50% selection intensity respectively was applied to top performing kids based on 5 months' live weight . As of Feb 2015, the parameters analyzed at year interval show that average daily weight gain increased from 81.90 ± 22.38 g to 95.23 ± 18.79 g in male kids and 72.14 ± 13.80 g to 84.08 ± 17.01 g in female kids. Similarly, average three months litter weight/doe increased from 10.93 ± 4.14 kg to 13.00 ± 4.35 kg in first kidding goats and 13.43 ± 5.42 kg to 16.11 ± 5.12 kg above first kidding goats; and five months live weight increased from 14.12 ± 3.39 kg to 16.36 ± 3.43 kg in male and 12.53 ± 2.06 kg to 14.92 ± 2.59 kg in female. These results show that pedigree recording, selection, and culling practice at the community level can upgrade the herd average, therefore increase genetic potential over time. Till date, 360 male and 540 female seed goats were produced and marketed within and outside of the resource communities for further multiplication, through the "women cooperatives". Since the produced seed goats are marketed at the prime price, community members have strong bonding with the cooperative to continue production and marketing of seed goats. Such programs need to be scaled up in feasible areas and can be replicated elsewhere in the world.

Keywords: Goats, genetic selection, community flocks, resource community, litter weight, kidding, breeding

Genetic polymorphism at the *CSN1S1* gene and its association with milk productivity traits in Latvia goat herds

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The breeding of milk goats is one of livestock breeding branches in Latvia. The basic breed is the Latvian breed (LVK). The average milk yield of goats under supervision in 2014 was 508 kg with the average fat content of 4.21% and the average protein content of 3.21%. The genetic diversity of the Latvian goat population by milk protein genes has not previously been studied. The aim of the study was to determine the genetic polymorphism at αS1-casein gene for the goats of LVK breed and evaluate milk productivity of different genotype goats. Blood samples were collected in 2014 and 2015. The genotypes were identified for the total of 158 animals, including 30 male goats. The goat genotypes were determined at "Labogenes" laboratory in France. For the goats placed in 8 herds at αS1-CN gene there were identified 5 alleles with the following frequency: A-0.340, B-0.309, E-0.133 F-0.203 and O-0.016. For the male goats there were observed 4 alleles. Most frequency (0.417) was observed in the B allele, the rarest in E (0.083). O allele was not observed for the male goats. From the analysed 128 goats the first lactation was concluded by 63. To evaluate the genotype effect on productivity, the goats were divided into three groups - the first group (n = 22) combined the goats with AA, BB and AB genotypes, the second group (n = 28) combined the goats with heterozygous genotypes (AE, AF, AO, BE, BF, BO), however in the third group (n = 13) were the goats with EE, FF and EF genotypes. The goats of the first group had the largest yield (544.0 kg), while the goats of the second group had the lowest (501.0 kg). Protein and fat content between different genotype goats differed significantly ($p<0.05$). The goats of the first group had significantly highest protein (3:45%) and fat content (4:32%) in milk, and the goats, whose genotype had only E and F alleles (the third group) had the lowest (respectively 3.08 and 3.77%). In the study we have found out that in the goats bred in Latvia there is observed the polymorphism at αS1-CN gene, therefore continuing the identification of the goat genotypes, it will be possible to carry out selection work by cultivating herds aimed at producing raw milk and livestock producing dairy products for processing.

Keywords: Latvian goat, CSN1S1,allele frequency,milk production

Estrogen inhibitors to incrase ovulationrate on goats

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A major problem in the production of goats is reduced reproductive rate expressed as number of offspring born per litter, there are different methods to increase it, so the objective of this study was to evaluate the use of an anti-estrogen (clomiphene citrate) in ovulation rate of goats, for which 18 yearling goats were used, with an average weight of 39.5 ± 4.85 kg They were distributed in 3 treatments; estrus was synchronized by prostaglandin F2 alpha, 3 applications with an interval of 14 days. From day 29 placebo was applied for 4 days (2ml) in Control; in the treatment CM2, 2 applications clomiphene and 2 placebo applications were made, in treatment CM4 clomiphene applied for 4 days. The 37-day of the experiment exploratory laparotomies were performed for counting corpora lutea, whereby the ovulation rate was estimated. The total number of corpora lutea per animal was not different ($P > 0.05$) between treatments, possibly due to the high variability in each treatment, the average number of corpora lutea per treatment was 1.17 ± 1.98, 1.33 ± 0.5 and 0.67 ± 0.8 for CT treatments, CM2 and CM4 respectively. The percentage of ovulating animals per treatment was 66 %, 100 % and 50 % for CT, CM2 and CM4 treatments respectively. We conclude that treatment with clomiphene increase the number of animals that ovulated, but no increase was observed in the ovulation rate.

Keywords: Estorgen Inhibitors, Goats, antiestrogen, ovulation rate.

Effect on the composition, degradation, apparent digestibility and activity of anti-nutritional factors pod mesquite (*Prosopis laevigata*) boiled.

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Mesquite Pod (*Prosopis laevigata*) is a legume used in goats feed, however its protein content in good (12 to 14%) is highly soluble and contains some anti-nutritional factors (ANF).The objective of this work was to apply three differents boiled times to the pod (30, 60 and 90 minutes at 100 ° C) and evaluate their composition, in vitro degradation, in vivo digestibility and activity of ANF. After applying the treatment was performed chemical analysis to evaluate changes on the nutritional composition of the pods. The results were: Neutral detergent fiber (NDF), acid detergent fiber (ADF), crude protein (CP) bound to NDF and ADF were higher in boiled pods ($P<0.05$), the PC not showed significant changes ($P>0.05$). *In vitro* degradación of dry matter (DM) , organic matter (OM), NDF and PC with nine incubation times were used (0,2,4,8,12,24,36,48,72 h) and degradation parameters were estimare with the equation $a + b (1 – e^{-ct})$ where (a) represents the soluble fraction with rapid degradation; (b) the potentially degradable fraction, (c) the fractional rate of degradation. The boiled treatment decreased ($P<0.05$) the fraction (a) and increase the fraction (b) of the DM, OM and NDF, while for PC only decreased (c). The apparent digestibility was performed with 8 goats males (31.7 ± 3.3 kg) using a Latin square design and concluding that the treatment does not affect the digestibility of the pods ($P>0.05$). The ANF evaluated were: lectins, phenolic compounds, condensed tannins and inhibitory activity of proteases (trypsin-chymotrypsin), resulting in an increased ($P<0.05$) in all cases except for the condensed tannins, in animals they showed not consistent effects. In conclusion boiled were a good tool to improved the characteristics of the pod and better use some elements in nutrition of goats.

Keywords: Mesquite pod,goat,degradetion,mesquite poddigestibility.

Correlation of electrical conductivity indicators of goat milk with somatic cell count and milking traits

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In lactation period subclinical or clinical mastitis affects up to 50 percent. goats, therefore, timely suspension of the disease, can improve herd health and reduce economic losses. The aim of this thesis was to estimate the relation between electrical conductivity of goat milk and the somatic cell count (SCC) and milking traits. Milking traits of 204 Czech White goats, which have been milked in a milk line, have been studied using the device of Lactocorder®. Statistical data analysis has been calculated using R statistics package. The goats were divided into groups by lactation: the first lactation, the second lactation and the third lactation goats. The average electrical conductivity of goat milk at the beginning of milking was 7.15±0.123 mS/cm, during the plateau phase - 0.27±0.029 mS/cm, during the main milking phase - 7.37±0.068 mS/cm, during the decreasing phase - 4.08±0.21 mS/cm and during the highest milk flow rate - 6.95±0.557 mS/cm. The results have shown that the electrical conductivity of milk of the goats of the third lactation was 13.6 per cent higher than of the goats of the first lactation and 6.5 per cent higher of the second lactation during the main milking phase (7.71±0,093 mS/cm). The highest electrical conductivity during the highest milk flow rate was also estimated of the goats of the third and higher lactation (7.21±0,092 mS/cm) which is 11.51 per cent higher than of the goats of the first lactation and 5.6 per cent higher than of the goats of the second lactation. The statistically significant ($P<0.001$) positive correlation between lactation and electrical conductivity of goat milk has been estimated during the main milking phase ($r = 0.389$) and during the highest milk flow rate ($r = 0.383$). It has been estimated that the higher the SCC, the higher the electrical conductivity indicators are. This has been demonstrated by $SLSlog_{10}$ correlation with the electrical conductivity of milk at the beginning of milking ($r=0.167$; $P<0.05$) and during the highest milk flow rate ($r=0.200$; $P<0.01$). Also we have estimated a positive correlation of SCC with the average milking speed ($r=0.186$; $P<0.01$) and lactation ($r=0.269$; $P<0.01$). The obtained results have demonstrated the importance of research in electrical conductivity of goat milk and milking traits for improving udder health. These are important parameters which must be registered and evaluated because they provide information facilitating the management of goat farming.

Keywords: Goat,milking,electrical conductivity,lactation

Comparison of protein profile of goat milk of three races (French Alpine, Nubian and Criollo) with cow milk holstein

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The aim of this study was to characterize the protein profile of milk goat from three breeds (French Alpine, Nubian and Criollo) compared with cow milk (Holstein cow). Milk of 30 goats (10 animals per breed) weighing 45±5 kg with 2 or 4 births was analyzed. The food consisted of 8 hours of grazing in range and supplementation with 800 g of concentrated (18.5% CP, 1.9 Mcal ENI/kg DM), 0.8 kg alfalfa and 0.8 kg corn silage. The diet of cows were alfalfa, corn silage and concentrate and milk of cow were used as reference. The quantification of total protein in milk from each animal was assayed by Qubit method. For protein profile analysis, whole milk was skim by centrifugation at 4500 g; after that proteins were separated by SDS-PAGE and the gel was analyzed with the Gel Doc EZ Imager Program. For beta casein sequencing, caseins were precipitated with 1.0 M acetic and then separated by UREA-PAGE electrophoresis. The characteristic band of β-casein was removed for subsequent sequencing method of liquid chromatography coupled to mass ion trap. An ANOVA was run and the differences between means were analyzed by Tukey test. For goat milk we found a whey protein:caseins ratio of 40:60. Concentration of α and κ-casein was highest in cow milk as compared with goat milk. β-casein concentration expressed as % of total protein among goat races was as follows: Criollo breed 34.25%; French Alpine 30.50%, Nubio 30.87%. Criollo breed was statiscally different ($p<0.005$). In goat milk the concentration of α-casein was lower than β-casein. The percentage of κ-casein was lower in the Criollo breed 9.98±0.91 ($p<0.05$) as compared French Alpine (11.73±0.91) and Nubian (14.46±0.91). The α-lactalbumin is a protein of high biological value; goat milk showed higher concentration of α-lactalbumin in comparison with cow milk. According to protein sequencing Criollo had different type of β-casein as compared with Alpine French and Nubio since the amount of hydrolyzed and sequenced peptides was different. Due to the lower concentration of α-casein and higher concentration of β-casein of goat milk in comparison with cow milk, it can be considered as an alternative to cow's milk especially for infants who have allergies to cow milk protein.

Keywords: β-casein,Whey protein,Crude protein (CP),Liquid Chromatography coupled to mass,Allergenicity

Annual reproductive cycle in male goats: Comparisson between a Mexican Criollo genotype and pure breeds commonly used in mexico

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The objective was to contrast the annual reproductive cycle in Black Mexican Criollo bucks with the one in Nubian and Alpine males. From january of one year to february of the next one, at 21° N and 99° W, several reproductive components (scrotal circunference, plasma testosterone, odour scale, and semen qualitty: volumen, progressive motility, concentration and percentage of normal sperm cells) were monitored in Alpine (n=4), Nubian (n=4) and Black Mexican Criollo (n=3) males, age 1.5 to 4 years, good nutritional condition. Data analysis was performed through ANOVA for a mixed model with a split-plot structure in which genotype was the factor in the main plot and month of measurement and interactions with this factor were in the subplot; age was used as a covariable. All reproductive components were influenced by month ($P \leq 0.05$), reflecting a seasonal variation with peak values in november for semen quality indicators. Scrotal circunference presented 2 peaks, one during april and the other during august, in a similar way as plasma testosterone an odour scale but with an almost one month delay in these latter variables. Seasonal reproductive pattern was similar between genotypes as reflected by a non significant effect of the interaction between genotype and month ($P \geq 0.05$). It is concluded that Balck Mexican Criollo bucks present a seasonal reproductive pattern at a tropical latitude, which is similar to the one observed in Nubian and Alpine males.

Keywords: Seasonal reproductive pattern, Male goats, Criollo Genotype

Comparative study on fitness traits and reproductive efficiency in Carpatina and Banat White goat breeds

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Objective of the current study was to evaluate the health, reproductive rate and fitness indicators in two Romanian indigenous goat breeds, selected for milk (Banat White, n=86) and unimproved (Carpatina, n=104), managed under semi-intensive rearing conditions. Clinical mastitis incidence was significantly lower ($p \leq 0.05$) in Carpatina goats (2.88±1.65%) compared to that of Banat White (4.65±2.28%). Significant differences ($p \leq 0.05$) for lameness were found between Carpatina and Banat White populations, with occurrence rates of 3.85±1.89% and 5.81±2.54%, respectively. Abortion and pneumonia incidence were not affected ($p > 0.05$) by selection pressure among the two breeds. Litter size was significantly lower ($p \leq 0.001$) in Carpatina does than for Banat White breed, of 148.08±0.49 and 184.88±0.51, respectively. Kids survival from birth to weaning were influenced by the genotype ($p \leq 0.05$), with weaning rates of 97.12±1.65% in Carpatina and 93.02±2.76% in Banat White kids. For the dairy selected Banat White breed it would be recommended to include fitness traits into the future genetic improvement schemes, with special focus on traits such as genetic resistance to mastitis and lameness, in order to improve animal welfare and the overall goat enterprises productivity.

Keywords: animal welfare, fitness, genetic selection, Carpatina, Banat White

Preliminary results on genetic polymorphism of β-casein gene in two Romanian indigenous goat breeds

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The main objective of the current study was to obtain preliminary results on genetic polymorhism of A and C variants at the CSN2 locus in indigenous Romanian goat (Banat White and Carpatina) breeds using a rapid and efficient genotyping method. Hair follicles samples were taken from 73 Banat White and 82 Carpatina purebred, unrelated goats from 8 herds (3 for Banat White and 5 for Carpatina) located in different areas of Arad, Timis and Caras-Severin counties. In comparison with other studied goat breeds, in Carpatina goat populations genotyped was observed a similar higher frequency of the C allele compared to A allele, as previously reported for the Saanen, Maltese and Derivata di Siria breeds. At the CSN2 locus C variant was dominant in Banat White goats (0.73) compared to allele A (which consists A+A1+B+E+0+0' alleles) (0.27). In the Banat White goat breed, the most frequent genotype was the homozygous CC (49.32%), followed by the heterozygous genotype AC (47.95%), whereas the homozygous genotype AA (2.73%) had a low frequency. In the case of Carpatina breed, the heterozygous genotype AC had the greatest frequency (63.41%) followed by the homozygous CC (19.51%) and AA (17.08%) genotypes. The studied polymorphisms are potential markers for milk production in the studied breeds and the results will be useful in future works aimed at identifying possible associations with milk production traits, in order to test the feasibility and reliability of producing goat milk and derived products.

Keywords: Banat White,Carpatina,goats,goat breeding,dairy product,Romania

Investigation of Changes of Spermatologic, Andrologic and Hormonal Parameters in Georgian Male Goats during Breeding and Non-Breeding Season

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The aim of current study was to investigate and compare effect of breeding (BS) and non-breeding (NBS) season on native spermatologic (volume-ml, mass activity, spermatozoa number per ml, motility-%, viscosity, total spermatozoa number) and post-thaw sperm motility (%) in Georgian goats. Moreover, effects of BS and NBS on some andrologic parameters (AP) and testosterone levels (TL-ng/ml) were determined. For these aims, four adult Georgian male goats (2-3 years old) were used as semen donor and ejaculates (n=89) from these goats were weekly collected with artificial vagina (45^{o}C) presence of natural estrus or estrogened female fantom during BS (October-January) and NBS (April-July) respectively and also AP were monthly determined in same periods. Moreover, jugular blood had been collected and serums were separated to determine TL in BS and NBS seasons. In the result, it was determined that ejaculate volume (1.27±0.39 vs 0.78±0.27ml; p=0.001), native sperm motility (79.74±9.6 vs 74.58±10.5%; p=0.025), post-thaw progressive sperm motility (24.43±2.9 vs 16.11±2.8%; p=0.040) were significantly higher in BS compared to NBS, respectively. However, spermatozoa number per ml ($4.40x10^9$ vs $2.49x10^9$ spz/ml; p=0.001) was interestingly higher during NBS compared with BS, although total number of speramatozoa per ejaculate were similar during BS ($3.16 x10^9$ spz/ejaculate) and NBS ($3.43 x10^9$ spz/ejaculate), p>0.05. Also there was no any differences in TL between BS and NBS (13.52 ng/ml vs 14.81 ng/ml; p>0.05). AP (testicular volume_345 vs 301 ml, scrotal circumference_26.3 vs 23.5 cm, mean long_11.25 vs 10.1 and width_5.9 vs 5.28 cm of testis) during BS was higher, compared to NBS, respectively (p<0.05). In conclusion, collection of semen during breeding season may be important to obtain best results in cryopreservation if semen will be used in long period; but if semen was used to artificial insemination in short time period without storage, Georgian goat semen can be collected and safely used for this aim during non-breeding season.

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Keywords: Georgian goats,testes, semen characteristics ,testosterone, freezability, seasonal variation

Effects of level of brackish water on feed intake, digestion, and heat energy with growing Boer and Spanish goat wethers

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Twenty Boer (6.1 mo and 21.3 kg) and 20 Spanish goat wethers (6.6 mo and 19.7 kg) were used to determine effects of levels of brackish (BR) and fresh water on feed intake, digestion, and heat energy. BR had 6900, 1884, 75, 1854, 2478, and 9 mg/l of total dissolved salts, Ca, Mg, chloride, sulfate, and boron, respectively. BR levels were 0 (0-BR), 33 (33-BR), 67 (67-BR), and 100% (100-BR). Water and a moderate quality grass hay (8.5% CP and 68% NDF) were offered free-choice. The experiment consisted of 14 days of adaptation, 5 days for metabolizability measures, and 2 days for determining gas exchange and heat energy. There were no interactions ($P > 0.05$) between breed and water treatment. Water (897, 906, 911, and 851 g/day; SE = 58.3) and DM intakes (525, 556, 571, and 527 g/day for 0-BR, 33-BR, 67-BR, and 100-BR, respectively; SE = 31.0) were similar among treatments ($P = 0.883$ and 0.667, respectively). Urinary water was greater for BR treatments than for fresh water ($P = 0.003$; 211, 317, 319, and 285 g/day; SE = 25.6) and water in feces was similar among treatments ($P = 0.530$; 247, 251, 276, and 257 g/day for 0-BR, 33-BR, 67-BR, and 100-BR, respectively; SE = 19.0), implying less water loss by other means such as evaporation when BR was consumed. Total tract OM digestibility was lower ($P = 0.049$) for treatments with than without BR (64.2, 61.5, 58.6, and 59.3%; SE = 1.86), although ME intake was similar among treatments ($P = 0.940$; 4.61, 4.57, 4.60, and 4.31 MJ/day for 0-BR, 33-BR, 67-BR, and 100-BR, respectively; SE = 0.394). Daily heat energy in kJ/kg $BW^{0.75}$ was less with than without BR ($P = 0.001$; 474, 436, 446, and 445; SE = 7.7), although values in MJ were similar among treatments ($P = 0.588$; 4.36, 4.12, 4.22, and 4.18 for 0-BR, 33-BR, 67-BR, and 100-BR, respectively; SE = 0.124). BW of wethers consuming BR decreased less than that of wethers consuming fresh water ($P = 0.006$; -37, -14, -7, and -16 g/day; SE = 7.2), but recovered energy was similar among treatments ($P = 0.923$; 0.25, 0.45, 0.38, and 0.13 MJ/day for 0-BR, 33-BR, 67-BR, and 100-BR, respectively; SE = 0.356). In conclusion, BR inclusion in drinking water had a number of effects, but it does not appear that consumption of this source would adversely impact performance of growing meat goats.

Keywords: brackish water. digestion. feed intake. goats. heat energy

Effect of mating experience of Saanen X hair goat crosses bucks on mating performance and fertility in does

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A two-year study was conducted to investigate the mating performance of Saanen X hair goat cross bucks and reproductive performance of does. In the first year, one-year old fifteen bucks were selected and each buck was placed in a paddock with six does which had synchronized estrus and had given at least one birth. In the second year, the same bucks used in the first year were used under the same conditions. Recording were performed by site observation and by five cameras recordings. As mating behavior, bucks were evaluated in terms of live weight, buck courtship index (BCI), number of mounting, mounting time, ejaculation frequency, ejaculation time, and mating efficiency (ME). Averages for first year for live weight, buck courtship index (BCI), number of mounting, mounting time, ejaculation frequency, ejaculation time, and mating efficiency were, 37.36 kg, 1.74, 14.86, 359.4 sec, 2.73, 239.33 sec and 20 percent, respectively. Averages for second year for live weight, buck courtship index (BCI), number of mounting, mounting time, ejaculation frequency, ejaculation time, and mating efficiency were, 50.60 kg, 2.02, 10.20, 69.06 sec, 4.93, 184.46 sec and 52 percent, respectively. As for the six does kept in each paddock, number of does giving birth, number of kids and fertility for first year were 1.27, 1.7 and 21 percent, respectively. In the second year these number increased to 4.13, 5.73 and 69 percent, respectively. When first and second year were compared in terms of averages, all the above mentioned parameters became more desirable. Results showed that as the bucks matured and got more experienced they had better mating performance and this also was reflected in fertility in does. Thus it can be concluded that when one-year old bucks are used in the mating, the low fertility of does can be attributed to inexperienced bucks.

Keywords: mating performance,courtship index,mating efficiency,fertility

Implementation of a pilot program for clinical Q fever surveillance in France: epidemiological and organizational lessons applied to goats herds

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Q fever is a widespread zoonosis brought to light due to the occurrence of a massive human outbreak in the Netherlands: more than 4,000 human cases notified from 2007 to 2010 with an obvious link to proximity with infected goat farms. Bacterial shedding and subsequent risks are known to be increased in clinical context (abortions, stillbirths). In France, no precise epidemiological information was available at a large scale. Furthermore, in the wider context of abortion surveillance, multiple challenges had to be faced both for animal and public health: ensuring early detection of brucellosis, improving outbreak surveillance (mandatory notification of abortions) and animal health management by promoting the diagnosis of abortive diseases. Thus, a global approach was discussed within the framework of the National Platform for Animal Health Surveillance by collaborative multi-stakeholder groups. Q fever appeared as a model for abortion surveillance and a pilot study was set up in 2012 in cattle, sheep and goats for 3 years, in 10 *départements*. For goats, it focused on repeated abortions (potential infectious origin): 3 abortions in 7 days or less.

The concept of a farm-level diagnosis approach was highlighted (interpretation of combinations of results from several animals). Emphasis was made on direct diagnosis as the decision making was first based on 2 qPCR-RT applied on vaginal swabs (individual or pooled analysis) and, if necessary, on complementary use of serological analysis.

A total of 114 goat flocks were included. Among them, 15.8% were considered as "clinically affected" by Q fever. This proportion varied greatly among *départements* from 0% to 36.4%. As far as operational aspect was concerned, the National reference laboratory had a key role as it was involved in validation of the analytical process (reference materials, limit of quantification, estimation of measurement uncertainties…). In addition to reinforcing knowledge, this pilot study enabled obtaining useful experience feedbacks on feasibility, acceptability of such programs. Several actions have been identified to correct anomalies and improve data quality.

Keywords: Q fever, differential diagnosis,surveillance,abortive diseases,pilot survey,goats

The effect of a lactic acid bacteria inoculant on the fermentation characteristics, aerobic stability and acceptability by mixed race pigmy goats of forage sorghum ensiled at low dry matter content

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In tropical environments the ensiling of forages results in lower accumulation of lactic acid, higher pH and acetic acid, lower population of lactic acid-producing bacteria (LAB), short aerobic stability and decreased intake relative to temperate regions. This study determined the fermentation products, the aerobic stability, and acceptability by mixed race pigmygoats of forage sorghum ensiled at low dry mater content (18.95%) with or without a microbial inoculant containing LAB. Twenty silos non-inoculated and 20 silos inoculated with LAB were ensiled into 18.9l buckets and maintained at room temperature (26-28°C) in anaerobic conditions. After 47 d of fermentation, five silos from each treatment were analyzed for pH and fermentation products. Statistical analysis was performed as a completely randomized design. For aerobic stability, temperature was monitored every 6 hours in 5 samples from each treatment (1000 g) during 168 h. Statistical analysis was performed as a split plot design with a 2 (treatments) by 29 (time points of aerobic exposure) factorial arrangement using the silo as repetitive measurement. Silage acceptability was recorded in a reversible experimental design fed as a total mixed ration containing 50% concentrate and 50% control or treated silage using 8 race mixed pigmy goats. Diets were offered daily at 4% of goat BW in two 7-day experimental periods consisting of 4 d of adaptation to the diet followed by 3 d of acceptability data collection. Fermentation products revealed a tendency ($p<0.09$) of decreased lactic acid production (1.14% vs 0.63%) and the ratio lactic acid:acetic acid (0.24 vs 0.15) and increased ($p<0.09$) pH (4.66 vs 4.82) in the inoculated silage. However, acetic acid (4.69% vs 3.95%), butyric acid (0.28% vs 0.85%), and the ratio total-N/NH_3-N (10.6 vs 11.2) were similar for control and treated silages. Both silages were stable to aerobic conditions over the entire seven days of aerobic exposure (28.02 and 28.15 °C for control and treated silages, respectively.). Acceptability was similar (P=.458) for TMR containing control or inoculated silages averaging 1.33 and 1.52 kg/d, respectively. In summary, adding the microbial inoculants did not improve the fermentation characteristics and acceptability by mixed race pigmy goats of forage sorghum ensiled at low dry matter content.

Keywords: Forage Sorghum Silage, Inoculant, Fermentation, Goats ,Acceptability

Cohesive behavior of a small herd of goats in a woodland pasture

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The cohesive behavior (CB) of animals in a small herd or flock can provide an indication of the animals' ease with their environment and their willingness to explore and efficiently utilize their grazing resources. However, the spatial evolution of CB over time is unknown. The objective of this study was to evaluate CB in a small herd of goats over time. Twenty-one mature, female goats were fitted with GPS collars and released into one of three 0.5 ha wooded paddocks, with seven goats per paddock (replicate). Goats were assigned to the same paddocks each year, unless a substitution was necessary. Collars that recorded a fix every 5-min were deployed for 10 days during the late spring for three consecutive years (max=29°C, min=16°C for year 1; max=24°C, min=13°C for year 2; max=26°C, min=14°C for year 3). The inter-animal distance (IAD), a measure of the CB of the small herd, was calculated for each 5-min interval for animals within the same paddock. A total of 211,156 IAD were available for analysis. To test if CB of the small herds changed over time, that is, day of exposure to the paddock across years, heterogeneity of slopes was evaluated using mixed model methodology with day of exposure to the paddock (1 . . . 10) as covariate, year (1, 2, 3), hour of the day (0 to 23 h), and all two-way interactions as fixed effects and with animal and paddock as random effects. IAD increased linearly with day of exposure to paddock ($P < .05$) with the greatest increase in years 1 and 3 at 0.83 m/day (SE ± 0.025) and year 2 the slowest at 0.41 m/day (SE ± 0.024). For day 1, the IAD was greatest for year 3 (19.6 m ± 1.37) with years 1 and 2 similar (16.8 m ± 1.43 and 17.1 m ± 1.41, respectively). The IAD was smallest in the early morning hours (23.0 m ± 1.30 at 03:00 h) and greatest shortly after sunrise (29.9 m ± 1.30 at 08:00 h). However, daytime or nighttime had no effect ($P > 0.10$) upon IAD. These results indicate that a small herd of goats tends to exhibit less CB as time progresses and with familiarity to their environment due to previous exposure. This relaxation of CB might indicate a level of comfort that the small herd has with its environment.

Keywords: Grazing. Behavior. Goats. Pasture.

Variation in the welfare of milking goats and sheep in commercial farms: differences among species, geographical locations, farm sizes and production level of farms.

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The goal of this work was to evaluate a system for assessing the welfare of milking goats and sheep in practical farm settings. The system is based on welfare indicators of environmental, management and facilities. The score of the indicators have been compared among species (goat and sheep), flock size and production level of the farms.

101 intensive dairy farms (49 goats and 52 sheep) were assessed in Spain and Portugal from 2005 to 2011. In order to evaluate the animal welfare, 12 indicators ranked in 3 groups were defined: Environment Animal Welfare (EAW, n=4) (*temperature, airflow, ventilation* and *ammonia load*) Management Animal Welfare (MAW, n=5) (*animal load*, *bedding, comfort, stress and cleanness of animals*) and Facilities Animal Welfare (FAW, n=3) (*feeders of concentrate, feeders of forage* and *watering*). All indicators were evaluated from 1 to 10 taking into account objective and subjective criteria. In addition, the average of scores of the three groups (EAW, MAW, and FAW) and the Global Animal Welfare (GAW) score (the average of all the indicators) were also calculated.

Some productive performance data were collected from each farm: production yield (liters/animal/day), milk composition (fat (%), protein (%), fat +protein (%), somatic cells (ufc*1000/ml) and daily production of fat (g/day), protein (g/day) and fat +protein extract (g/day).

The statistical analysis was conducted using SPSS 19 for Windows (SPSS Inc., IBM *Corporation,* NY, USA). One-way ANOVA analysis (to test differences between species and size of flocks and linear correlations (to test the effects of the indicators on performance) were carried out.

Differences were found among species (MAW, EAW), size of flocks (GAW, MAW, and FAW) and productive performance (mainly EAW and FAW).

In view of the results obtained, we can conclude that the assessment of animal welfare in dairy goats and sheep flocks through an evaluation system based on indicators is possible, reliable and feasible. It allows us to get practical and useful information about what of the animal welfare aspects have more influence on productive performance.

Keywords: WELFARE,FARMS,GOAT,SHEEP

Production performance, intake and ingestive behavior of dairy goats fed with alfalfa grazing and cassava

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Were used Anglo-Nubian goats, in lactation, maintained in pasture of *Panicum maximum* cv. Tobiatã. It was evaluated the replacement of corn and soybean meal by cassava meal and alfalfa grazing, respectively. The experiment was conducted in Latin square design, with diets: MISO: ground corn and soybean meal; MASO: cassava and soybean meal; MIAL: ground corn and alfalfa grazing; MAAL: cassava and alfalfa grazing. Intake, daily weight gain, production, composition and fatty acids profile of milk, and ingestive behavior were evaluated. The inclusion of cassava meal and alfalfa grazing affected the intake of dry matter, crude protein, neutral detergent fiber and total digestible nutrients, however the milk production, weight and body condition score of the goats were not changed. There was not influence of the treatments in the proportion of protein, nonfat dry stratum, somatic cells count and milk urea nitrogen. Milk fat, lactose and total solids were influenced by the treatments, but the treatments that contained alfalfa had the highest milk fat contents. The inclusion of alfalfa improved the quality of the lipid fraction of the milk, increasing the reasons MUFA / FAS (monounsaturated fatty acids/saturated) and PUFA / FAS (polyunsaturated fatty acids/saturated), the ratio h / H (hypocholesterolemic fatty acids / hypercholesterolemic) and decreasing IA (atherogenicity index). The time spent with grazing, rumination, leisure and interaction with other goats, were not affected by the treatments. The foods studied improved feed efficiency and decreased production costs, demonstrating that can replace certain foods without harming the productive performance of goats, improving the quality of milk and the profit of the producer.

Keywords: goats,milk composition,milk fatty acids,milk pasture,milk production,Tobiatã grass

Ruminal parameters and intake in goats fed with alfalfa and cassava

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Were used four Saanen goats, non-pregnant and non-lactating, rumen cannulated, kept in individual barns. It was evaluated the replacement of corn and soybean meal by cassava meal and alfalfa, respectively. The experiment was conducted in Latin square design, with diets: MISO: ground corn and soybean meal; MASO: cassava and soybean meal; MIAL: ground corn and fresh alfalfa; MAAL: cassava and fresh alfalfa. Intake, ruminal parameters (pH and ammonia), production of short chain fatty acids (SCFAs) and degradation kinetics of roughage and concentrate were evaluated in adult goats in maintenance. The inclusion of cassava meal and alfalfa didn't affect the intake of dry matter (DM), crude protein (CP), neutral detergent fiber (NDF) and total digestible nutrients (TDN), neither the body weight of goats and the ammonia nitrogen production. The ruminal pH and the production of short chain fatty acids were influenced by the harvest time, and the total SCFA, acetic and butyric acids production showed cubic effect, with maximum production occurring about 4 hours, and minimum 10 hours after the supply of diet. The pH, the production of propionic acid and acetate: propionate ratio showed a quadratic effect, the lower values about 8 hours, the highest production to 7 hours, and the highest ratio of 9 hours after feeding, respectively. The acetic acid production and total SCFA were influenced by the diets, but the diets that contained cassava and alfalfa showed the highest values. The degradability of DM, CP and NDF were affected by the diets, the diets with cassava and cassava + alfalfa had the highest effective degradability. Thus, showing that the cassava and alfalfa can replace the corn and soybean meal concentrates, without changing the dry matter intake and the rumen environment of goats, improving the production of acetic acid and the degradability of the diet.

Keywords: ammonia,corn,degradability,dry matter,ruminal pH,short-chain fatty acids,soybean meal

Conditions to evaluate differences in resilience of sheep and goats to high heat load

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Thirty-three yearling Katahdin sheep (KAT) and Boer (BOE) and Spanish goat wethers (SPA) were used to study conditions for evaluating resilience to high heat load index (HLI). Moderate quality grass hay was consumed ad libitum with concentrate (80% corn, 20% soybean meal) at 0.5% BW. There was a 2-wk period with a target HLI of 70 (period 1), followed by 1-wk periods with target HLI of 80, 90, 95, and 100 during daytime and 70, 76.5, 80.75, and 85 at night in periods 2, 3, 4, and 5, respectively. Actual values averaged 66, 80, 92, 97, and 101 during the day and 66, 75, 84, 86, and 89 at night in periods 1, 2, 3, 4, and 5, respectively. Respiration rate was affected by an interaction ($P < 0.001$) between animal type and period (18, 71, 83, 121, and 105 for BOE, 25, 104, 101, 139, and 126 for KAT, and 22, 105, 104, 129, and 109 breaths/min for SPA; SE = 4.2), as well as was rectal temperature (38.4, 39.2, 39.4, 39.9, and 39.5 for BOE, 38.9, 39.1, 39.2, 39.6, and 39.6 for KAT, and 38.6, 39.4, 39.6, 40.0, and 39.6º C, for SPA in periods 1, 2, 3, 4, and 5, respectively; SE = 0.065). Change with advancing period varied with time of measurement ($P < 0.001$) for respiration rate (20, 71, 32, 83, and 37 at 06:00 h, 24, 100, 131, 150, and 151 at 13:00 h, and 32, 110, 136, 155, and 151 breaths/min at 17:00 h; SE = 3.5) and rectal temperature (38.2, 38.9, 38.6, 39.0, and 38.7 at 06:00 h, 38.8, 39.4, 39.7, 40.1, and 39.8 at 13:00 h, and 38.9, 39.4, 40.0, 40.4, and 40.2º C at 17:00 h in period 1, 2, 3, 4, and 5, respectively; SE = 0.056). Respiration rate at 06:00 h differed more (interaction, $P < 0.001$) among days of period 5 than at 13:00 or 17:00 h (82, 101, 118, 93, 57, 58, and 37 at 06:00 h, 152, 161, 165, 158, 151, 142, and 151 at 13:00 h, and 158, 162, 171, 161, 153, 152, and 151 breaths/min at 17:00 h on day 1, 2, 3, 4, 5, 6, and 7, respectively; SE = 3.9). In conclusion, a HLI in the range of 95/80.75 and 100/85 seems appropriate to investigate differences in resilience to high HLI, periods longer than 1 wk appear necessary for adequate adaptation, and measurements minimally should be during nighttime and the latter half of the daytime period.

Keywords: Goats; Sheep; Heat Load

Effect of feeding discarded dates on milk yield and composition of *Aradi goats*

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The effect of feeding discarded dates (non-edible for human consumption) on milk yield and composition of lactating Aradi does was studied in Saudi Arabia. Ten multiparous Aradi dairy does were equally divided into two groups and they were offered two diets; one as the control diet, including 35 % alfalfa hay and 65 % concentrate (corn grains, wheat bran, barley and molasses) and the other one as treated diet in which 30% of the total ingredients (basically from concentrate) were substituted by discarded dates. Therefore, diets were isonitrogenous (18 % CP) and isoenergetic. Milk yield, pH, and acidity of milk, major milk components, nitrogen distribution and minerals in milk were evaluated. No significant differences in yield and acidity of milk were observed between the two diets, while *pH* of milk in the control diet was higher. Milk obtained from does receiving discarded dates was significantly higher in protein and solids-not-fat contents, but the other milk constituents were not different. No significant differences were observed for non-protein nitrogen of milk (NPN). Milk obtained from does fed diet with dates had higher casein nitrogen and non-casein nitrogen than does fed the control diet. Casein numbers were significantly different for milk obtained from does fed diet with dates and without dates, respectively. For minerals content in the milk, differences in K, Na, Mg, Ca, Fe, and Zn contents between the two dies were not significant, while Mn and Cu were reduced in milk of does receiving dates.

Keywords: Palm dates,goats,milk composition,milk yield.

Characterisation of South African indigenous goat biochemical semen ingredients

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South African indigenous goats are hardy, tolerant to parasites and diseases. However, some are poorly managed, under threat of extinction and there is limited information on their biochemical semen ingredients. As a result, more investigations will be vital, since evaluation of semen characteristics alone is not completely satisfactory and there is little agreement on which factors can be used to build up a sufficient model for predicting goat fertility. The aim of the study was to characterise and compare South African indigenous goat biochemical semen ingredients. South African unimproved indigenous and Tankwa goat semen samples (11 per goat type) were collected using an electro ejaculator and evaluated for macroscopic and microscopic semen characteristics, and biochemical semen ingredients. The data were analysed using Statistical Analysis Software (1999) and the means (± standard errors) were used to summarise the data (α = 0.05). South African unimproved indigenous and Tankwa goats' semen had the same sperm cell concentration, progression, viability, morphology and abnormalities, VCL, linearity, STR, wobble, velocity parameters, membrane integrity, semen volume and pH. However, Tankwa goat had higher VSL (99.2 ± 11.4 µm/s) and VAP (124.7 ± 12.8 µm/s) when compared to South unimproved indigenous goats VSL (53.2 ± 11.4 µm/s) and VAP (71.4 ± 12.8 µm/s). On the other hand, South unimproved indigenous goats had higher intact acrosome (95.4 ± 2.5 %) when compared to Tankwa goats (77.2 ± 2.5 %). Lipocalin-type prostaglandin-D synthase was one of the ingredients detected but was below the detection limit of 0.5 mmol/L. Osteopontin detected could not be measured for its quantity. Metalloproteinases type-2 tissue inhibitor and zinc were not detected. Moreover, both South African unimproved indigenous and Tankwa goat semen had the same level of seminal fertility-associated antigen, lactate dehydrogenase, sodium, potassium, magnesium, calcium, glucose, cholesterol, triglyceride, lipids and urea. In conclusion, biochemical semen ingredients detected in the current study seems to be optimal, as they have resulted in acceptable semen characteristics.

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Keywords: South African indigenous goats,Biochemical semen ingredients,Semen characteristics

Milk Yield and Changes of Milk Components Traits of Pure Hair Goats, Saanen x Hair Crossbred and Alpine x Hair Crossbred under Semi İntensive Conditions

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This study was conducted on Konya province in the mountainous Central Anatolian region of Turkey on two goat herds. The aim was to investigation of milk yield and milk composition (initial, total mean and final of milking) traits of Saanen x Hair crossbred goats, Alpine x Hair crossbred goats and Hair goats under semi intensive conditions. Data were collected during the lactation period from 42 goats between first and third parity. Milk yield was recorded by the Fleischmann method as monthly. Samples of milk were taken initial, total and final of milking each goat at monthly.

Average lactation milk yields, daily milk yields and lactation lengths of Saanen x Hair crossbred goats, Alpine x Hair crossbred goats and Hair goats were 289, 275 and 178 kg; 1302, 1234 and 840 g and 222, 221, 210 days, respectively. Average initial, total and final of fat, protein and total solids were for Saanen x Hair crossbred goats, 3.0%, 3.5% and 12.3%; 4.68%, 3.6% and 14.1%; 8.8%, 3.5% and 17.7% respectively. Average initial, total and final of fat, protein and total solids were for Alpine x Hair crossbred goats 2.9%, 3.6% and 12.4%; 4.7%, 3.6% and 14.2%; 8.3%, 3.4% and 17.1% respectively. Average initial, total and final of fat, protein and total solids were for Hair goats 3.6%, 3.8% and 13.6%; 5.5%, 3.7% and 15.3%; 8.9%, 3.6% and 18.2% respectively.

Effect of genotype and parity on lactation milk yield ($p<0.01$), daily milk yield ($p<0.01$) and lactation period ($p<0.05$) were statistically significant. Additionally, effects of herds were non-significant. Effect of initial and total milking of milk compositions between genotype, total solids, solids-non-fat, fat, protein, lactose, density, freezing point and conductivity were statistically significant ($p<0.01$, $p<0.05$) while pH was insignificant. Furthermore, effect of final milking of milk compositions between genotype, total solids, solids-non-fat, fat, protein and conductivity were statistically significant ($p<0.01$, $p<0.05$) as well while lactose, density, freezing point, pH were insignificant.

As a result of this study, cross breeding increased milk yield traits. Solids-non-fat, protein, lactose, density and conductivity of initial milk components were highest for all milk components while final milk components had highest total solids, fat and freezing point.

This study, was derived from support by TUB.TAK (The Scıentıfic And Technologıcal Research Councıl Of Turkey ,Project No: 213O292).

Keywords: Hair goat, milk yield, milk components, semi intensive

Report of several twinning in female domesticated goats and wild male mountain goat mating

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Mountain goats (capra aegagrus aegagrus) belong to the family Bovidae and subfamily Caprinae. Ancestors of mountain goats apparently evolved specialized adaptations to mountainous environments at least 100,000 years ago. Mountain goats usually live in herds and with strong male lead. Their diets include grasses, herbs, sedges and twigs and leaves from the low-growing shrubs. Mountain goats are endemic to Greece, Turkey, Arabian Peninsula, Caucasus, Pakistan and Afghanistan. These small ruminants can be found in different parts of Iran, such as the highlands and rocky areas. The antelope have been reported in most of the mountains of Iran, including the Highlands of Semnan, Shemiran, Damavand, Isfahan, Fars, Baluchistan, Kerman, Lorestan, Kordestan, Kermanshah, Hamedan, Azerbaijan and Khorasan. The breeding season for mountain goats *occurs* in autumn and the gestation period is about 5 to 5.5 months. Births occur in spring and most females in most populations produce a single kid, but twinning have been reported. Genetics, breed, age and animal feed are effective factors on twinning.

2 male mountain goats were taken as a result of illegal hunt by unknown individuals in highlands of Semnan province. They were kept with 20 female domesticated goats for mating. Twinning occurred *infrequently* in all female goats. All kids were born with hyperactivity.

In this study twinning occurrence is 100%. Genetic study requiredfor identity factors of affecting the twinning. This rare attribute can be used to produce recombinant strains, increase production efficiency, and improve the economic situation of ranchers.

Keywords: Mountain goats,mating,goat,twinning

Development of Goat Warble fly vaccine for thecontrol of *P. silenus* braurin local Goat (*Capra hirsa*)

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, Laboratory of Parasitic Chemotherapy and Entomology, Department of Pathobiology, Pakistan

Warble fly disease or Grub disease is equally affecting the cattle, buffalo and goats at Pakistan especially in Southern Punjab. The area mostly under attack is near rivers belt of River Sind, River Chennab area and Suleyman mountainous area. The disease has economic effect on the growing economy of the livestock based country/ region. The disease is endemic for centuries in the subcontinent and area reported. For the affective control of *P. silenus braur* the somatic vaccine was developed first time in Pakistan. The somatic antigen of the 2nd stage larva was purified by ultracentrifugation at the speed of 3000 rpm for 10 minutes. The supernatant was obtained and desiccated. The 1 µgm of the dried somatic material was mixed with saponins of *Sapindus trifoliatus* (A new candidate for adjuvant) and injected subcutaneously @ 0.5 ml to the suspected *Capra hirsa* harboring migratory larva of *P.silenus braur*. The injected animals showed specific immunity along with increase in Neutrophils. The animals under experiment could not show the nodules or eruptions of L3 in skin of the animals. The study proved that somatic vaccine against *P. silenus braur* showed 85 to 95 control in grub eruption that could be a good candidate for the effective control of *P.silenus braur* L3 along with *Sapindus trifoliatus* a new candidate in adjuvants family.

Keywords: Somatic Vaccine, P.silenus braur. Sapindus trifoliatus adjuvants, Capra hirsa

Determination of Growth Traits and Heritability of These Growth Traits of Ispir Goat

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This study aimed to improve live weight, fertility and survival was conducted as a breeding project in the farmer conditions of İspir Native Goat Bred between 2014 and 2015 years in Rize Province. Birth weights, live weights at the start and end of the grazing period, daily weight gains, survival rates and fertility traits of kids were investigated in the study. Male kids were heavier and they were gained more daily weight than female. Although elite flock birth weight was determined heavier than multiplier flock birth weight, the multiplier flock live weights were heavier than elite flock at the start and end of the grazing period. More live weights and more daily weight gains were found in single born than twins in the kids.

Effect of eCG and GnRH Administration on Reproductive Performance of Khalkhali Goat

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Increment of ovulation rate in farm animals to improve reproductive performance by increasing in litter size and fecundity rate. The objective of this study was the improvement of reproductive performance of Khalkhali goats used GnRH and equine chorionic gonadotrophin (eCG) administration during estrous synchronization in breeding season. A total of 150 goats within 2-5 years old and weighting 37-39 kg in completely randomized design were allocated into three groups. In order to synchronize estrous cycle, all does were treated for 16 days with a controlled internal sponge devise. The control group (T1) exposed to Khalkhali bucks without any treatments for mating after sponge removal. Goats in second (T2) and Third (T3) groups were injected intramuscularly 400 IU eCG and 400 IU eCG with 2.5 ml GnRH respectively in sponge removal time and then the does were mated. The data of reproductive parameters were analyzed by ProcGenmod and data collected for born weight were analyzed using the GLM procedure of SAS. There was no effect of hormone treatment (eCG and eCG+GnRH) on the kidding rate and pregnancy rate ($P > 0.05$) in breeding season. Control group had lower Fecundity rate (106%) than the treatment groups (158% and 188 % in second and third groups respectively). Lambing rate in 1 to 3 treatments were calculated 113, 175 and 177% respectively that the treatment groups had higher ($P < 0.05$) Lambing rate compared to the control. Litter size in groups 2 and 3 (49% and 56% respectively) were greater ($P < 0.05$) than the control as well. There was no significant difference in born weight of kids between three groups ($P > 0.05$). In conclusion, giving eCG and GnRH concurrent with removal of the sponge containing progesterone increased fecundity rate, kid production efficiency and twinning rate. Therefore, using of synthetic hormone caused improvement of reproductive efficiency of Khalkhali goat in breeding season.

Turkey's Native Goat Breeds and Conservation Actions

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Turkish goat population comprise of 1.09% of the World goat population. The number of goats which was around 9.1 million in 1995 started to decrease since then and it was 6.3 million in 2010. The most affected breeds from this trend are local goat breeds which account for a substantial part of total goat population. As a measure against this threat, General Directorate of Agricultural Research and Policies under the Ministry of Food, Agriculture and Livestock started a conservation program according to FAO's conservation principles. Within the scope of the program, Kilis, Honamlı, Osmanlı (Gürcü), Abaza, Norduz and Ankara goat herds are beeing conserved in farmer conditions (in situ in vivo). An Ankara goat herd is also held in an govermental institute (ex situ in vivo). Beside live conservation, several types of biological materials (sperm, embryo, somatic cell and DNA) of Ankara, Kilis, Honamlı, Kıl, Norduz, Honamlı are being held in an genebank in International Center for Livestock Research and Training and a back up collection of DNAs in another genebank in TUBİTAK-MAM (The Scientific and Research Council of Turkey- Marmara Research Center).

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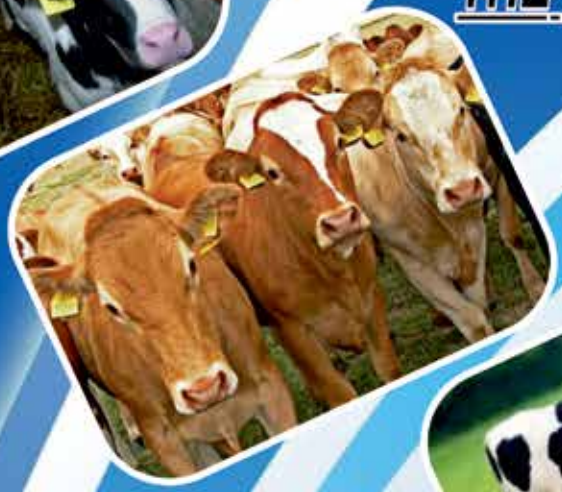

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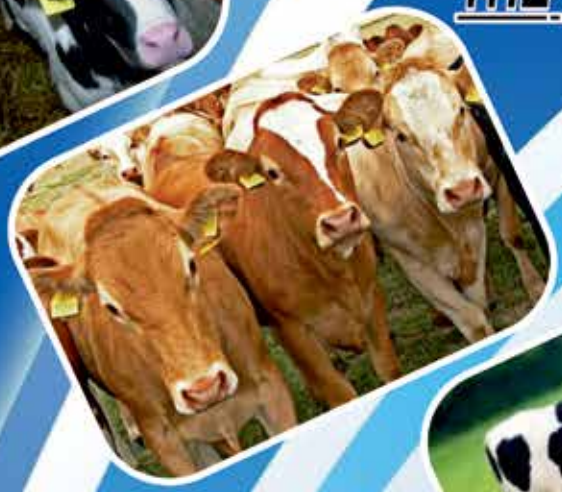

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