



IGA Newsletter September 2016

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Announcement: 2016-2020 IGA Board of Directors

We want to thank all of you who voted during our recent election. The ballot contained a wonderful group of candidates, and it was hard for most voters to choose only 12 people. We are proud to announce the results to our members first.

The IGA Board of Directors for 2016 to 2020 will be:

- Dr. Dilip Bhandari
- Dr. Noemí Castro Navarro
- Dr. Hervé Hoste
- Dr. Nazan Koluman
- Dr. Jean Marie Luginbuhl

- Dr. Paula Menzies
- Dr. Beth Miller
- Dr. Tilahun Sahlu
- Dr. Lucia Sepe
- Dr. Juan Felipe Torres-Acosta
- Dr. Carina Visser
- Dr. Yingjie Zhang

During the recent 12th International Conference on Goats, the new Board met and elected:

- Beth Miller as *President*
- Carina Visser as *Vice-President*
- Lucia Sepe as *Vice-President*

- Jean-Marie Luginbuhl as *Secretary-Treasurer*
- Noemí Castro Navarro as *Assistant Secretary-Treasurer*
- Yan Landau as *Editor-in-Chief*

Juan Capote returns to the Board in his capacity as Past President. In addition, the new Board appointed two additional Board members to help support their efforts.

- Dr. Sándor Kukovics
- Dr. Yoko Tsukahara

Thank you again for your participation and for your continued support for IGA.

Announcement from the Incoming IGA President: 13th International Conference on Goats, September 2020

Dear IGA Members,

It is with great pleasure we inform you that the IGA Board of Directors has selected Hungary as the site of the XIII International Conference on Goats (ICG) in 2020. We have no doubt that this conference will be an exceptional event in the history of IGA!

The Board had three wonderful choices,

each with well-developed proposals and much to offer. Hungary came out the winner this time, but we look forward to having IGA regional conferences in India and Nepal.

2020 ICG Venue Eger, the Baroque jewel

The picturesque town of Eger is located in the Western gate of the scenic Bükk

Mountains. This thousand-year-old Episcopal seat, today an archiepiscopal center, is one of the most beautiful baroque towns of the country. Its inhabitants are proud of its illustrious historical past and the valuable heritage of monuments and buildings.

The city of Eger has an illustrious history dating back to the Romans, who called the town Agria, a name still in use, taking in the French who settled in the area in the 13th century, bringing with them their knowledge of viticulture, and the invading Turks, who came later.

The medieval castle - dating from the 13th century - on a small hill overlooking the town has been the site of

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World Goat Day 2017, Iran

A Celebration of the First Domestication of Goats and the Contribution of Goats Today

We are very happy to announce that World Goat Day 2017 will take place in Iran!

The success of “National Goat Day” in January 2016 showed the importance of goat production in Iran. Throughout the region and most of the world, goats continue to enhance the quality of human life. As we saw during the 12th International Conference on Goats in Turkey, there is global interest to learn from other researchers, producers, processors and other actors throughout the value chain.

Now, the Organizing Committee will convene, and a specific date will be set. We will keep you informed as we gather more information.

We know World Goat Day will be a great success, and we look forward to joining in the celebration.

What is World Goat Day and why Iran?

The archeo-zoological evidence suggests that Iran is one of the most important regions of sheep and goat domestication, and may be where the first domestication took place. Iran has a long and proud history of livestock keeping, and is well known for its many breeds that are adapted to different environments.

According to the most recent statistical reports from the Ministry of Agriculture of Iran, there are over 20 million goats in Iran, valued at around 4 million Iranian Rials/head. More than 80000 billion Iranian Rials (~ 2.5 billion US\$) has been invested in this sector in Iran by private entities (mostly Rural and Nomads farmers) and the government over the past 35 years, which is a considerable investment when compared to other livestock species.

Goat breeding plays an important role in the national development of Iran, by providing the following benefits:

- 1) Production of animal protein (milk and meat).
- 2) Production of animal fiber (cashmere and hair) for the textile industry.
- 3) Production of skin for the leather industry.
- 4) Creation of sustainable employment to secure adequate income for family self-sufficiency and to prevent the mass migration of rural populations to urban areas.

National Goat Day provided an opportunity to reflect upon the important role of goats in Iran and in many other countries of the world, not only in food security, but also for employment, income, rural development, environmental management and cultural traditions.

Goats are increasingly appreciated because of their high adaptability to a wide array of environmental conditions, and their ability to thrive on “low quality” feed resources through selective feeding. The emerging challenges associated with climate change, the increasing pressure on natural resources and the high value of goat meat and milk across a number of Asian countries increase the socio-economic importance of goats. We must understand and protect existing goat genetic diversity to meet the needs for the future.

As noted in the 2014 Food and Agriculture Organization of the United Nations (FAO) Statistical Yearbook, the Near East and North Africa account for the smallest share of global livestock and meat production of any of FAO regions. Within that region, however, Iran leads red meat production with more than one million metric tons annually. Furthermore, Iran is the region’s third largest producer of sheep and goats. Challenges such as infectious diseases and obstacles to

value chains limit benefits derived from sheep and goats in the Near East and North Africa, so policies supporting innovation and investment are essential.

FAO’s research indicates that livestock supply chains are a definitive factor in mitigating and adapting to climate change. Goats will be important especially in the warmer, drier world of the future, and approximately 90 percent of all of the region’s goat breeds are from drylands. They are a valuable yet untapped resource for future adaptation to climate change. As an example, the Adani dairy goat is one of the most important breeds in southern Iran, and it is well adapted to severe conditions. Despite high temperature, humidity and lack of good pasture, the breed performs well and has been regarded as an excellent animal for the export market. Likewise, Yazd province is one of the driest areas in the central part of Iran with less than 100 mm of annual rainfall, but the local Nodoshani and Rabati goats produce high-value milk and cashmere.

Sheep and goat products are especially 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. With adequate investment in value chain integration, we could increase the productivity and stability of livestock production in varied ecosystems. Furthermore, because livestock species are closely linked to the social and cultural lives of several million resource-poor farmers, investing in small ruminant species, principally goats, could contribute to sustainable farming and economic stability for the future.

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Animal - Agricultural Systems In Asia: Enhanced Impacts and Rural Prosperity

Written by Dr. C. Devendra, IGA Country Representative, Malaysia

Abstract

Agriculture is challenged today by several major factors: diminishing arable land, resource constraints, increasing costs of inputs, and climate change. In Asian agriculture, productivity and economic transformation have promoted unprecedented rural growth, improved livelihoods and prosperity for progressive farmers, bypassing the poorer farmers and the landless. Animal-agriculture and animal production form the backbone, and focus on the two most critical concerns: food insecurity and poverty. Integrated Research & Development that links increased productivity with efficient Natural Resource Management (NRM) in is an important pathway, involving about 87 % of the global 470 million small farms (< 2 ha) in Asia. Ruminants can be used as an entry point for the development of less-favored areas (LFAs). Given its primary task is to produce enough food to feed 9-10 billion people by 2050, the current circumstances are extremely daunting and challenging, especially increasing animal protein supplies.

The key strategy is to intensify and increase productivity from animal-agriculture with improved manage-

ment of natural resources with an integrated research approach which includes inter alia:-

- A relentless search for efficiency in NRM to improve productivity (meat, milk or eggs) per animal and increased animal products per unit area without environmental degradation [1].
- Maximise productivity through sustained NRM, yield-enhancing technologies and intensification in whole production systems.
- Animal-agriculture provides a perfect platform for integration, the benefits of positive interactions, and community based participation involving the farmer, researcher, extension staff and policy makers.
- Silvopastoral systems are badly neglected, underestimated and underutilized in Asia. The opportunities for interdisciplinary approaches linking productivity with NRM for economic gain, improved livelihoods and self-reliance are enormous.

Increasing productivity from animal-agriculture systems is urgent, and there is no room for complacency. Commitment to resolve the numerous challenge domains, provide practical solutions and self-reliance are important objectives in which vision

must lead the way.

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Ninth International Sheep Veterinary Congress, May 22-26, 2017, England

"Sustainable global food security through efficient sheep and goat production"

Background

How must small ruminant production efficiency be improved to sustainably meet the needs of the world's growing human population for food?

Global ruminant livestock production is inherently inefficient, and small ruminant farming is frequently uneconomic, or fails to alleviate poverty in

a welfare-friendly manner. Our Ninth International Sheep Veterinary Congress will identify opportunities for improvement in the efficiency of small ruminant production to sustainably meet the needs of the world's growing population for food.

Progressive improvement of agricultural production efficiency through the twenty-first century is a global priority to meet the burgeoning needs of the world's population for food and fibre. However, agricultural sustaina-

bility is threatened by a global reduction in available productive land, regional scarcities of replenishable water and the inevitable failure of disease control.

Goats are generally efficient in their metabolism and tolerance of poor quality and potentially toxic nutrients, while sheep are particularly well-adapted to convert short herbage to milk or meat. Different small ruminant breeds and production systems

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Participatory epidemiology and gender analysis to address small ruminant disease constraints in Livestock and Fish and Africa RISING project sites in Ethiopia

Summary

Animal diseases continue to constrain livestock productivity, agricultural development, human wellbeing and poverty alleviation in many regions of the developing world. In Ethiopia this is not only true for Livestock and Fish and Africa RISING project sites, but has been mentioned in sites of different project or programs where ILRI has been involved.

This participatory epidemiology and gender survey was conducted to better understand what these main livestock disease constraints are, how they affect different household, and how much men and women farmers know about their transmission. The findings of the study will also assist in defining future research related to small ruminant diseases, their economic impacts and gender issues related with animal diseases. Moreover, it also established gendered baseline data to monitor impact of future animal health interventions in small ruminants.

The study sites were target areas for Livestock and Fish CRP and the Africa RISING project in the Amhara, Oromia, SNNP and Tigray regions of Ethiopia. A total of 14 Woredas were included in this study. The participatory appraisal methods used in the study included focus group discussions which were conducted with men or women only groups. Various tools, such as semi-structured interview, simple scoring, proportional piling and seasonal calendar were used to facilitate the process. The validity of the results was assured by triangulation (Catley, 2005).

The livestock species important for the communities were identified by investigating the role of each species from economic and social perspectives, rather than asking the usual question which species predominate in the farming system. The top five diseases that affect particularly small ruminants were identified and

scored, and during analysis grouped in to seven major disease categories based on clinical signs reported. The animal age and sex group affected and the seasonality of each disease category were also studied.

The impacts of these diseases on household members, men, women, young men and young women, and children were discussed and scored. In addition, discussions revealed that often farmers have tried to identify possible transmission pathways for the major diseases and showed their interest and desire to better understand epidemiology of the diseases. Important differences in roles in animal health management related activities were observed and most importantly, women weighted their input higher than men did. Understanding of who does what within a household opens important entry points to target future interventions related to disease control.

[DOWNLOAD THE FULL REPORT](#)

Ninth International Sheep Veterinary Congress (*continued from Page 3*)

have been developed to suit local resources in seasonally biodiverse environments throughout the world. Small ruminants are therefore adaptable to meet global needs for food security and have potentially important roles in improving the health and wellbeing of the rural poor in their marginal environments. Small ruminants are further suited to enhancing the livelihoods of the poor, due to their manageable size, relatively low maintenance requirements, low capital investment cost, short generation interval and ease of marketing of animals and products, hence suitability as short-term economic reserves. Small ruminant

farming is widely considered to be a solution to the challenge of achieving socioeconomically and environmentally sustainable global food security in the face of effects of population growth, urbanisation and affluence, vulnerability to climate change and the hitherto irresponsible agricultural use of drugs and chemicals.

The Ninth International Sheep Veterinary Congress will be held in Harrogate, England over a period of five days between 22nd and 26th May 2017, forming the basis for enduring longer-term collaboration between colleagues with complementary interests in small ruminant health and

production. The aim is to provide a platform for the translation of applied research findings in the fields of genetics, animal husbandry and disease management into economically and environmentally sustainable utilisation of natural resources by small ruminants in their target environments.

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[SEE THE CONFERENCE PROGRAMME](#)



A Short History of Goats in Hungary

Special thanks to Sándor Kukovics, IGA Board member, for sending in this information. The history of ancient Hungarian goat was summarized by Sándor Kukovics (2001) in the "Living heritage - Old Historical Hungarian Livestock."

Goat husbandry was a matter of prohibition and permission in Hungary over the last several centuries. An order issued in 1801 at Kővár (Molnár, 1996) expressed the real motive of prejudice related to the goat: "...for the poor it should be admitted to send one or two goats to the common pasture." Goats and poverty were associate concepts. Rezső Károlyi wrote in 1910: "Some people went so far with argument, as considering the regression of goat population as a sign of growing affluence." At that time, the goat population of (the country) Hungary was estimated as about a quarter of million heads, whereas in Germany, a much more advanced country 3.5 million heads were kept. Rodiczky in 1911 still complained of the scarcity of goats held and bred in the farms.

Goat husbandry in Hungary has shown interesting changes during the last 110 years from sociological point of view.

The number of goats diminished between 1880 and 1904 from 236 352 to 206 449 heads. Then "the last conscription of 1945 registered 59 000, the increasing population reached in May of 1947 some 102 000" (Horn, 1948), but the referred area (the country itself) was only one-third of the earlier one owing to the Peace Treaty of Trianon (and Paris later on).

The Central Bureau of Statistics (1998) proved that the population of goats grew gradually until 1953, then the process was reversed, but in the 1990's increased again.

Between the two World Wars, and during the World War II, breeding stocks were organised but ceased after a couple of years. Animals were imported to the country several times from abroad for breeding purpose, thus the breed alleged as native began to change. Dezső Károly still mentioned and showed photographs of white, black and red-grey goats in 1910. Horn suggested in 1948 only "Hungarian white" or "Improved white", moreover "Improved roe-coloured" breeds, as officially accepted Hungarian goat breeds. They were the results of imported Saanen and different varieties of Alpine goats.

The appearance of goats in the Carpathian basin was certainly a couple of thousand years ago, although no distinct local breed could be identified. Almost the whole population is a kind of fallow breed. The variability in colour, size, horn characteristics, length of hair, and performance of the population is rather conspicuous.

Recently, the "native type" within the population of the fallow goats were reduced to a few percent. Those were the animals with long hair. The same variability was supposedly represented in the ancient time too. All over the country similar variability was present. The Alpine type was easy to distinguish, and the description of the breeds must be commenced with the fact that all published reports of the last century dealt with the improvements of the goat population by imported breeds.

Rodiczky (1905) wrote about the White Hungarian Goat: "All over the country goats of long or short fur and of good milk production can be found, which are prone to be improved with selected sires either found within the population or imported ones." "One of the best breeds was found at Temeslippla,

where the farmer József Halas attempted to breed Angora goats around 1860-es. Pretty white goats are to be found in the region of Budapest and Kecskemét."

In his book of 1911 dealing with goat breeding information is given on the "Hungarian white milking goat" only. The same author mentioned, however, the diminishing interest in the crosses with Angora goats. He was discontent with the fact that "nobody cares with the breeding for milking performance." "Pretty white goats are found in county of Baranya on hills of the border towards Tolna county, but in general, to the white colour few attention is paid, which would do much more harm, but the spirit of selecting the better characters, would, certainly, find followers among the small owners."

Rezső Károly (1910) introduced a little bit larger variability: "The Hungarian goat population is utterly mixed, thus no distinct varieties could be recognised. Main differences are observed in the colour and the length of hair. However, neither of those traits nor the form of horns are coupled with each other and the performance of milk yield. Most abundantly, the white goats of medium long fur are found all over the country, but especially in Nyitra, Pozsony and Temes counties. Black goats occur too, pure or spotted, sometimes entirely black billy goats are met. Moreover, entirely or flecked red goats in combination with other colours can be seen. Entirely grey specimens are also found in Pozsony county. The goats held at the farms and guided daily to the common pasture are entirely different from the mountain or Alpine goats, which live all over the summer grazing in the mountains."

After World War II the situation of goats in Hungary was characterized

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A Short History of Goats in Hungary *(continued from Page 5)*

by Horn (1948) concerning the varieties as well as the status of husbandry: "In Hungarian population the milk performance is estimated on the basis of data available which is about 200-250 kg per goat. The Hungarian population is rather mixed. Many of the specimens are like of Saanen, Toggenburg, Appenzell, Thuringian, Charmois-coloured mountain goat, Verzasca, Wallis (Valashian), etc. It would be advisable in general to keep the rate of Saanen types (white) around 70%, and the fawn-coloured the other 30%."

Molnár (1996) dealing with the native goat, mentioned the long hairs (fur) as criterion. If the hairs were distributed on the whole body, that was called "tincses" (tressy), and if they were concentrated to the hind-legs "gatyás" (rough-legged). The latter is considered a variant of uncontrolled segregation in hybrids arisen by crossing between native and western breeds.

In 1970's, a new wave of breeding started with imported stocks from the Alpine regions. Repeatedly, at the early 1980's and the middle of 1990's animals from imports improved the populations, thus some more uniformity was gained.

After all, we could ask again: what was the Hungarian native goat like? The variable fallow native goat "called native goat" does not belong to any distinct breed, by all means, it did not achieve the status of a breed, but what could be the traits common to the native population? This breed was spread across ancient Hungary. Types were distinguished by mountains or on the plains (lowlands). Variability was conspicuous because no breeding objectives were followed. That was the basic trait of "breed". The size was small or mediocre, horns were large (on the majority of the she-goats as well), and long hair with variable

colours (white, grey, brown, red, black, pied). Specimens of high milking performance were not an exception. The main utilisation was the milk and the meat, but also the fur and hide was a commodity, as well.

The traits of Hungarian fallow goat are summarised as related to the registered breeds: the withers of she-goats are 60-65 cm, the length of trunk 64-67 cm. Those of the billy goats: 65-75 cm and 70-80 cm. The skull of males is short, ears are short and erect (Sándor Kukovics, 1999). Both sexes are horned, the horns are twisted, and the length of horn on billy goats may attain one meter. The hairs are rather long. The colour is variable, though the charmoise colour is a sign of foreign influence. The fallow goat is resistant to weather adversities and poor keeping conditions.

Most authors agree that the fallow goat is native in the Carpathian basin and is bound to extinction. According to their horn, the first group of varieties represents the West-European breeds (Saanen, Alpine, etc.), while the second one are the Markhor goats with twisted, corkscrew horns. There are included specimens and breeds of horns bent backward and spread out wide, "prisca" horns. They grow horns in general, long hairs and are white, black, wolf or reddish coloured. They are poor performers, but their long hair and appearance is corresponding to the native type. On many sites goats with "prisca" horns can be found with mostly long hair, but with relatively poor milk production and brick shape.

The ancient Hungarian goat does not exist anymore. The genes are though maintained in the fallow goats, but a distinct breed was not developed yet.

History since 1990

The history of the imported goat

breeds and the Hungarian native goats has diverged since mid-1990's when the last bulk importations of breeding livestock arrived from The Netherlands and France, and the first breeding societies were organised. First, the Hungarian Improved Goat Breeders' Society in 1994 was developed, followed by Saanen and Alpine Goat Breeders' Society in 1995, and the Milk and Meat Goat Breeders' Society in 1996. The first one wanted to cover all the goats originated from the crossings of Saanen and Alpine bucks and Hungarian Native goats. Later the Hungarian Goat Keepers and Breeders Association was founded at the beginning of 1998.

Because the dominant part of the goat population in the country did not belong to any of the societies, there were no programs available for them to join, a new breeding program was developed. On the basis of the survey, the development of the following three breeds were started in 1999: Hungarian White, Hungarian Brown and Hungarian Multicolour. The breeding works carried out during the period between the two World Wars and followed in the first ten years after the second one were the starting basements of these new breeds. In this breeding projects, three quarters of the domestic goat population could get the points to join. Practically the breeding works of four imported (Saanen, Alpine, Boer, Nubian) and three Hungarian goat breeds (the breeding of so-called Hungarian Improved Goat stopped) were carried out during the next decade. The organisation had almost 1 000 members and another 2 000 associated members in 2003; and it covered more than three-quarters of the goat sector in the country.

The Association helped farmers with breeding, organised the selling kids for slaughter, and purchasing of surplus goat milk. In addition, the milk

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A Short History of Goats in Hungary (continued from Page 6)

processing companies were members of the organisation, and the Association helped them in raw milk classification, product developments, and promotion of the products.

After ten years of successful activity the breeding projects of these Hungarian goat breeds were handed over to the Hungarian Sheep Breeders Association at the end of 2008; and the milk processing firms joined to the Hungarian Sheep Dairy Public Utility Association; and the Hungarian Goat Breeders' Association was ceased because of missing available resources for covering the activity costs.

By 2012, a couple of hundred Saanen, and Alpine purebred goats remained in the nucleus herds, along with less than 100 Nubian and 100 Boer goats. The Hungarian goat breeds having long hair were select-

ed out, and since 2010 they have been called Hungarian indigenous goats. A couple hundred of these are still in the nucleus.

Today, about 44 000 heads of does are kept in production in the country on about 3 000 goat herds. About 21 000 heads are in the registration system (within it less than 1 000 are in nucleus herds altogether), and they are having individual identification with conventional and electronic ear tags.

Approximately 150 kinds of goat cheese are being produced in the country. Some 10 small-medium sized officially registered goat dairy factories are producing various kinds of goat milk products. Additional, goat milk manufacturing and on-farm cheese selling activities are ongoing in 15-20 goat farms, more or less under official veterinary control. How-

ever, several other goat farms are selling products to the local market without control.

Because the limited amount of goat milk produced on one average farm - and most of the goat milk processing firms are working on a system of buying up goat milk - some new investments, with several hundred milking does have emerged and are developing. Their technology and breeding techniques are following the most up to date developments in order to maintain profitable production. Most of their goat populations originate from imports. Beside the large farm milk production system new medium to large sized milk processing plants were also founded to be able to produce required amounts and various kinds of cheeses (and yoghurt, kefir, cream, etc.).

Announcement: 13th ICG, September 2020 (continued from Page 1)

numerous historical events and also played an important role in establishing Eger's reputation. The name of Eger represents, for every Hungarian, the story of determined patriotism, when the outnumbered heroic defenders in the fortress, led by István Dobó, held out against the Turks (more than 100,000) in their initial attack in 1552. Later, the Turks returned to take and occupy the town from 1596 to 1687.

In the 18th century, after 100 years of Turkish occupation, Count Károly Eszterházy, the Bishop of Eger, launched an ambitious city planning effort resulting in the construction of new churches, monasteries, the Lyceum building, the little and big provincial palaces and the county hall; the outlines of the present Baroque city center were established as well.

Of all the wines made in the Eger region, Bull's Blood remains the most

famous, despite the fact that there are also some fine white wines, like Leányka, Traminer and Italian Riesling, which are produced in much larger quantities. There are several legends explaining the wine's rather unusual name; the most famous is connected with the siege of Eger Castle in 1552. Bull's Blood is a cuvée, a blend of wines made from several types of grape; it is a full-bodied red wine.

Eger is a colourful Baroque town known not only for its history, mellow charm and vineyards, but also for its thermal baths. Visitors looking for a bit of time-out can unwind in the peaceful Archbishop's Garden, a leafy park enclosing swimming pools and hot thermal baths.

The new Board and I look forward to seeing all of you in Hungary in 2020!

With warm wishes,
Beth Miller

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Recent Interesting *Small Ruminant Research* Articles

Post-thawing quality of ram spermatozoa is impaired by inclusion of boar seminal plasma in the freezing extender

November 2016, Volume 144, Pages 229-233

K.R. Martins, S.S.M. Gheller, C.E.R. Ferreira, K.L. Goularte, C.D. Corcini, R.G. Mondadori, A.D. Vieira, T. Lucia Jr.

Abstract

Addition of seminal plasma (SP) to freezing extenders may help reducing post-thawing sperm cryoinjuries. This study evaluated the effects of adding heterologous (boar) SP to the freezing extender on ram sperm quality after thawing. Protein content was quantified in pooled SP samples from rams and boars. Five ejaculates from four rams were frozen in a Tris-egg yolk-glycerol extender including: no (control), ram and boar SP (both at 20% of the volume, with 48 µg protein/mL). After thawing, total and progressive motility for sperm treated with SP were lower than that of the control ($P < 0.05$). For spermatozoa with intact acrosome, those in contact with boar SP had the lowest membrane integrity ($P < 0.05$), but for spermatozoa with damaged acrosome, the lowest membrane integrity occurred for those in contact with ram SP ($P < 0.05$). Greater percent of high post-thawing mitochondrial membrane potential occurred in the control than in contact with both SP ($P > 0.05$). Apoptotic-like changes were similar among treatments ($P > 0.05$), but there were fewer intact spermatozoa extended with boar SP than in the control ($P < 0.01$). Contact with extenders including boar SP harmed ram sperm quality after thawing. Post-thawing motility was decreased for ram sperm extended in contact with both homologous and heterologous SP.

Breeding systems for genetic improvement of dairy goats in small-holder production systems in Kenya

November 2016, Volume 144, Pages 176-183

A.A. Amayi, T.O. Okeno, M.G. Gicheha, A.K. Kahi

Abstract

A deterministic simulation model was used to test the hypothesis that utilization of untested juvenile bucks could be an alternative to old buck strategy in dissemination of superior genetic materials in dairy goats breeding program. We compared the genetic and economic gains realised when the untested juvenile and old bucks were used to disseminate genetic materials in a two-tier closed and open nucleus breeding systems. In the untested juvenile buck strategy, 95 and 70% of nucleus and commercial does, respectively, were mated to the untested juvenile bucks. In the old buck strategy, all the females in the nucleus and 70% of commercial does were mated by old bucks from the nucleus. In the open nucleus system, 20% of the does born in the commercial sector were recruited into the nucleus to produce nucleus does of does. Utilization of untested juvenile bucks realised 5.92 and 7.30% more annual returns and profitability per doe, respectively compared to old buck strategy. The old buck strategy, however, outperformed untested juvenile buck strategy by 23.37 and 14.85% in total annual genetic gain in closed and open nucleus breeding systems, respectively. Comparison between closed and open nucleus breeding systems demonstrated that open nucleus systems are superior to closed nucleus systems both in genetic and economic response. These findings therefore demonstrate that untested juvenile bucks could be an alternative to old buck strategy when economic viability of the breeding program is the main focus. There is, however, need to strike a balance between economic and genetic gains in the breeding program.

Evaluation of variability in antibody response induced by vaccination against Peste des petits ruminants (PPR) in Malpura and Avikalin sheep

November 2016, Volume 144, Pages 104-108

G.R. Gowane, Najif Akram, L.L.L. Prince, Ved Prakash, C. Paswan, R.C. Sharma, Arun Kumar

Abstract

Amongst several trans-boundary diseases of small ruminants in India, Peste des petits ruminants (PPR) is a devastating disease due to its spread and economic importance. The main strategy for prevention of this disease is the vaccination with attenuated whole virus vaccine. Present study was carried out to identify the sources of variation and also to unravel the genetic variance in the PPR virus (PPR) vaccine elicited immune response in 231 Avikalin and 398 Malpura sheep lambs maintained at organized institute flocks in the semi-arid region of India. Average age at vaccination was 108.5 days. Sera were tested by competitive ELISA (C-ELISA), an attenuated PPR (Sungri) was used as the coating antigen. Results revealed significant variability for response to vaccination. Per cent inhibition (PI) values at 0 day of vaccination (ODPrV) was 33.9% and 29.8% in Avikalin and Malpura lambs, respectively. At 28 days post vaccination (28DPV) PI was 62.7% in Avikalin and 58.7% in Malpura lambs. On 28DPV, the protective titre (PI > 50%) was shown by 82.4% Avikalin lambs and 76.2% Malpura lambs. Among environmental determinants, breed, cohort, season and age at vaccination proved to be significant sources of variation ($P < 0.05$). Factors determining the better odds of protection need to be exploited properly to assure protection. The estimate of heritability ($h^2 \pm SE$) at 28DPV was 0.02 ± 0.12 in Malpura sheep, however it was 0.54 ± 0.28 in Avikalin sheep.