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Call for book chapters - Goats (Capra)

To participate in this book, contact Prof. Sándor Kukovics, the Academic Editor at kovimekk@gmail.com.

About the book

There are several papers published about goats kept and bred around the world, but a breed inventory covering goat breeds on various continents (and countries) is missing. We propose to create this book.

Goats (Capra) will be very useful for people interested in goats. Along with an inventory, there will be summarized information about why these goats were bred, their products, and what kinds of developments in targeting better meat, milk, hair, pelt, and skin production have been carried out until now.

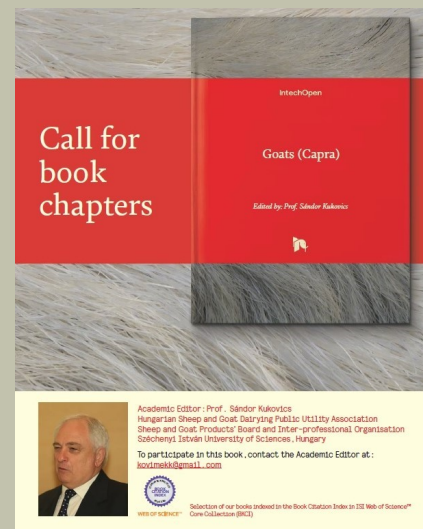
In addition to products, maintenances of countrysides, use of lands, employment for people, new aims have launched, such as pet animals and tools for human therapy, about which only limited information is available. Additionally, a correct evaluation

is missing regarding the coexistence of goats, nature, and human beings covering all of the production systems operating now in the world.

During the last decades, many results were published about DNA studies conducted with goats (especially concerning the genetics of milk, meat, and hair production), but systematic summarized evaluations are still not available to goat people. This book will fix these shortcomings.

Subject areas and keywords for the book include:

- Goat breeds
- Production systems
- Roles in human society
- Co-existence: goats, nature, human
- DNA in development
- Health, diseases, handling
- Milk
- Meat
- Hair



- Pelt
- Skin production

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Invitation to the 2018 ARCG

Dear IGA members,

Greetings from International Goat Association! We are pleased to inform you that the IGA is supporting the Asian Regional Conference on Goats (ARCG-2018) organized by Amity University Rajasthan, Jaipur (India) on Oct. 22-26, 2018. We extend a very warm invitation for you to

attend this conference and to share your experiences with other goat experts, producers and enthusiasts.

Detailed information about the conference is available at www.amity.edu/arcg2018, where you can register online and submit an abstract. Early bird registration is available through August 31,

2018. You may also directly contact the local organizers:

Dr. Jagdip Singh Sohal

(jssohal@jpr.amity.edu)

Organizing Secretary

Prof. G. K. Aseri (gkaseri@jpr.amity.edu)

Chairman Organizing Committee

We look forward to seeing you in India!

Why Does Goat Milk Matter? - A Review

George F W Haenlein

[Nutrition & Food Science International Journal, Volume 2, Issue 4, Feb. 2017](#)

Abstract

The worldwide distribution of goats was discussed leading to the justifiable assumption that more people drink goat milk or eat their products than any other milk after weaning from human nursing. Goats have had a superior growth rate in numbers compared to other milk producing domestic animals, especially in the developing countries with large population increases and high rates of undernutrition and malnutrition. Goat farming, especially with milking goats can be quite profitable regardless of country, if intensive types of management are practiced, leading to the prospect that for the increasing people populations there are increasing numbers of milk producing goats available to fight undernutrition and malnutrition. The choice for goat milk has at least three reasons,

- A. They are more adapted to severe climate and geological conditions than any other domestic milk producing mammal.
- B. They are easier and cheaper kept, especially by women and children than any other domestic milk producing mammal.
- C. Their milk has superior nutritional and health qualities compared to the milk of the other domestic milk producing mammals. Thus it can seriously be asked why does goat milk matter?

Keywords: Dairy goats; Cow milk al-

lergy; Alpha-s-2 casein; Medium chain fatty acids; Conjugated linoleic acid (CLA)

Introduction

Globally considered goats are found on each continent except in the Antarctic, and they are giving milk to man on each continent except in the Antarctic. This is in contrast to other animals producing milk for human consumption, which when ranked by numbers globally are: dairy cows (*Bos taurus*), but they have difficulty living in desert and mountainous countries; then there are sheep, but they have been kept mainly for wool and meat production, water buffaloes are not found nor milked outside of India, Southeast Asia and Italy, BrahmaZebu (*Bos indicus*) cattle milk production is limited to Brazil and Central America, Yak (*Bos gruniens*) are milked only in the high altitude mountains of Tibet and Mongolia, camels are only milked in desert countries, horses and donkeys have been milked in Mongolia, Bulgaria and on specialty farms in Europe, Egypt, Chile, moose are milked on a resort farm in Northern Russia, and reindeer produce milk for people in a few arctic regions of Siberia and Finland, while the South American camelids like llamas and Alpaca have never produced milk for man nor have any other mammalian species there before the time of Columbus, and which is a very strange situation, that people like the Incas, Mayas, Aztecs, who were very advanced technologically and apparently also very athletic, but lived without any milk or dairy products in their diet, contrary to the belief of health authorities in Western

countries stating that about 1,000 mg calcium is a daily dietary requirement of adult humans and which can be obtained best from three glasses of milk.

Worldwide goats have reached the 1 billion population size due to tremendous percentage increases of more than 50% more goats during the last 40 years, especially in Africa and Asia. Their numbers are stagnant in the Americas while slightly decreasing in Europe but actually increasing in the Mediterranean region, which reflects dairy goat increases against the numbers around the world, which are more dual purpose, meat, brush and fiber goats.

The world statistics of goat milk production also shows a 62% increase from 1993 to 2013 or from 11 to 18 million metric tons, with France, Spain, Turkey and Greece leading in tonnage in that order. As the world people population size increased from 5.5 to 7.2 billion during that same period from 1993 to 2013, it is important and comfortable to know that the large goat number increases in Asia and Africa try to keep pace with the need to feed more people, and that more people actually are exposed to goat milk worldwide than to any other milk.

How to cite this article:

George F. W. Haenlein. Why Does Goat Milk Matter? - A Review. *Nutri Food Sci Int J.* 2017; 2(4): 555594. DOI: 10.19080/NFSIJ.2017.02.555594

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Profile - Carol Delaney

Country Representative for Northeast USA

Carol received a Master of Science in Ruminant Nutrition from Cornell University, New York, USA. She is currently the Coordinator of the Farmer

and Partnership grant programs for the Northeast Sustainable Agriculture Research and Education (SARE), a NIFA/USDA on-farm research grant program. Carol has many years of experience owning and operating farm and

Continued on Page 3



Profile - Carol Delaney (Continued from Page 2)

food businesses, working on livestock farms, and raising dairy, meat and draft goats. From 1998 to 2008, she was the Small Ruminant Dairy Specialist at the University of Vermont, USA, in the Department of Animal Science and the Center for Sustainable Agriculture. Before that, from 1989 to 2003, she was Faculty and Farm Manager at Sterling College, Craftsbury, Vermont, USA.

Carol has served as a Farmer-to-Farmer volunteer as a goat and sheep educator, funded by USAID and administered through Winrock International from September 1-14, 2012 in Finkolo Ganadougou, Mali and from April 1-19, 2013 in Tacuba, El Salvador.

Carol is currently pursuing a Ph.D., part-time, in the Department of Plant and Soil Sciences at the University of Vermont in Burlington, Vermont, USA,

investigating 'Optimum Dietary Fiber Levels for Dairy Goats' as her Ph.D. research topic.

Carol published [A Guide to Starting a Commercial Goat Dairy](#) in 2012 which is available for free download from the IGA website. Her other recent publications include:

- Chapter: Dairy Goat Management co-written with Ann Starbard. Dairy Goat Production Handbook. Langston University. May 2016.
- Carol Delaney, contributing chapters on 1. American Dairy Goat Association and 2. History of the Goat, for *The Oxford Companion to Cheese*, Oxford University Press. November 2016.
- Husbandry of Dairy Animals: Goat: Replacement Management, co-author with Dr. Steve Hart, Goat Extension Specialist, Langston, University, Oklahoma, USA, Chap-

ter in the Encyclopedia of Dairy Science, 2nd edition, Elsevier, Oxford, England, UK. (2011)

- "Implementing Dairy Goat Nutrition Programs on Farms for Improved Sustainability" SARE Research and Education grant, LNE04-200, \$135,000. 2004-2008. <https://projects.sare.org/project-reports/lne04-200/>

The title of her presentation at the 2016 ICG in Antalya, Turkey, was Thinking Outside the Box - Innovative Solutions for Dairy Goat Management.

Carol still resides in the state of Vermont, USA. You can visit her website at www.caroldelaneyconsulting.com or contact her at cdhornofplenty@gmail.com.

Want to learn more about our other Country Representatives? [Click here](#).

Profile - Dr. Govind Kannan

Country Representative for Southeast USA

Govind, Professor of Animal Science at Fort Valley State University (FVSU), received his professional degree in Veterinary Medicine in 1986 from Madras Veterinary College, India. He also received his MVSc degree from the same institution in 1988. After serving as a faculty member at Madras Veterinary College for four years, he moved to the US in 1993 and earned his Ph.D. at the University of Maryland, College Park in 1996. After a brief stint at the University of California at Davis as a post-doctoral researcher, he joined Fort Valley State University in 1997 with research and teaching responsibilities. His research focuses on pre-harvest management methods to minimize animal stress and improve meat quality and food safety in small ruminants and post-harvest methodologies to improve quality and safety of goat meat.

Dr. Kannan has held several administrative positions at FVSU, including Coordinator of Animal Science undergraduate and graduate programs, Director of the Georgia Small Ruminant Research and Extension Center, Assistant Dean for Research, and Interim Provost and Vice President for Academic Affairs. Currently, he is a tenured full Professor and Dean of the College of Agriculture, Family Science, and Technology and has provided outstanding leadership to the College.

Dr. Kannan has been an advocate of applied research and outreach programs that empower small and underrepresented farmers with the knowledge and technical skills needed to sustain successful agricultural enterprises. He was recognized at the White House in 2012 as a "Champion of Change" for his efforts in strengthening global food security. He was recently reappointed by the US Secretary of Agriculture to serve on the



National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board representing the National Food Animal Sciences Society constituency. He also recently completed his term as Chair of the Association of 1890 Research Directors, one of the regional associations of APLU's Board on Agricultural Assembly.

Want to learn more about our other Country Representatives? [Click here](#).

Update - 2018 National Goat Conference

September 16-18, 2018, Tuskegee University, Tuskegee, Alabama, USA
 "Building Towards a Sustainable Future via a Healthy and Profitable Goat Industry"

Presented by the National Goat Consortium - An Initiative of the 1890 Land Grant System Hosted by Tuskegee University

Visit the [Conference Information Center](#) for more details or to download a copy of the Agenda, [click here](#).

Sunday, Sept 16 th		
TIME	ACTIVITY	LOCATION
9AM-1PM	Vendor/Exhibit set up	Renaissance Hotel, Montgomery, AL
10AM-4PM	Registration	Renaissance Hotel, Montgomery, AL
11AM-1PM	NGC Group Lunch Meeting (Invitation Only)	Renaissance Hotel, Montgomery, AL
1-5PM	Vendors/Exhibitors	Renaissance Hotel, Montgomery, AL
2-4PM	Poster Session	Renaissance Hotel, Montgomery, AL
3-5PM	Beginning Farmer Workshop	Renaissance Hotel, Montgomery, AL
5PM	Transport to Tuskegee	Buses will run every 15-20 minutes beginning until 6:00PM
6-8PM	Reception at Tuskegee Airmen museum at Moton Field (Heavy O'dourves)	Tuskegee Airmen Museum, Tuskegee, AL
8PM	Transport back to hotel (buses)	Buses will run every 15-20 minutes beginning at 7:30PM

Monday, Sept 17 th		
6:30AM	Transport to Tuskegee University	Buses will run every 15-20 minutes until 7:30AM
7AM	Registration	Tuskegee University, Kellogg Conference Center
7AM	Continental Breakfast	Tuskegee University, Kellogg Conference Center
8AM	General Session (AM)	Tuskegee University, Kellogg Conference Center
10AM	Break	Tuskegee University, Kellogg Conference Center
10:15 AM	Concurrent sessions (4)	Tuskegee University, Kellogg Conference Center
12:15 PM	Lunch	Tuskegee University, Kellogg Conference Center
1:45 PM	Transition to Afternoon Activities	
2-5PM	Hands On and Demonstration Activities	Tuskegee University, Caprine Research and Education Center
3-6:30PM	Vendors/Exhibitors	Renaissance Hotel, Montgomery, AL
3-6:30PM	Poster Session	Renaissance Hotel, Montgomery, AL
6PM	Transport back to Renaissance Hotel	
7PM	Dinner on your own	<i>Harriott II Cruise (OPTIONAL - \$40/person, not included in registration fee, limited</i>

Tuesday, Sept 18 th		
7:00 AM	Registration	Renaissance Hotel, Montgomery, AL
7:00 AM	Vendors/Exhibitors	Renaissance Hotel, Montgomery, AL
7:00 AM	Continental Breakfast	Renaissance Hotel, Montgomery, AL
8AM	Speaker	Renaissance Hotel, Montgomery, AL
830-10	Concurrent Sessions	Renaissance Hotel, Montgomery, AL
10-10:20	Break	Renaissance Hotel, Montgomery, AL
10:20-11	Ask the Expert	Renaissance Hotel, Montgomery, AL
11-1	Lunch	Renaissance Hotel, Montgomery, AL
1-3	Concurrent Sessions	Renaissance Hotel, Montgomery, AL
3-320	Break	Renaissance Hotel, Montgomery, AL
3:20-5	Concurrent Sessions	Renaissance Hotel, Montgomery, AL
6-8	Closing Banquet	Renaissance Hotel, Montgomery, AL

Dairy Goat Udder Health Manual

This manual was written to assist producers, veterinarians, extension and dairy support personnel in the production of quality goat milk. You are welcome to download, use and share.

Please give proper credit to this guide. Let us know what you think!

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A Guide To Udder Health For Dairy Goats



A GUIDE TO UDDER HEALTH FOR DAIRY GOATS

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AUTHORS

Dr. Paula Meazies'	Department of Population Medicine, University of Guelph
Dr. Jocelyn Jansen	Veterinary Science and Policy, Ontario Ministry of Agriculture, Food and Rural Affairs
Colleen Fitzpatrick	PhD Candidate, University of Saskatchewan
Michael Foran	Dairy Food Safety Program, Ontario Ministry of Agriculture, Food and Rural Affairs
Phillip Wilman	Dairy Food Safety Program, Ontario Ministry of Agriculture, Food and Rural Affairs

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Profile - Clara Viviana Rúa Bustamante

Co-Country Representative for Colombia

Clara Viviana graduated with a Masters degree in Biology and an Undergraduate degree in Animal Science from the University of Antioquia, Colombia. She presently works as a Master Researcher for the Colombian Corporation for Agricultural Research (Corpoica) at the Mutilonia Research Center. Her lines of research are nutrition and animal feeds and the productive and socioeconomic evaluation of sheep and goat production systems.

Clara was the secretary of the Sheep and Goat Production Value Chain of Antioquia from 2009 to 2015. She has also held the position of Inter-Administrative Coordinator at the National University of Colombia in Medellín to provide services for the evaluation of the productive characteristics and genetic improvement of goat and sheep. Additionally, Clara Viviana has been Coordinator, Technical Advi-

sor and Technical Assistant of various projects financed by entities such as the Government of Antioquia, the Ministry of Agriculture and Development of Antioquia, National University, La Salle University, Corpoica and the Colombia Association of Goat and Sheep Producers.

She has also been a Lecturer at Lasallista University in Antioquia and the National University of Colombia in Medellín where she taught Non-Traditional Species I, Small Ruminants and Sheep and Goat Production.

Clara has published refereed articles and technical manuals. She recently wrote a technical manual ([Manual Técnico de Producción de Leche de Cabra](#)) about the production of goat milk using good management practices. It is posted on the IGA blog and available through the March 2018 - IGA Newsletter. She has made presentations and has participated in courses, congresses and seminars in Colom-



bia, Mexico, Central and South America and the Caribbean.

Clara hopes to pursue Ph.D. studies in a foreign country to expand her knowledge and horizons. With the help of the IGA community, she hopefully will be able to fulfill her dream.

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Profile - Dr. Farhad Mirzaei

Country Representative for Iran

Farhad graduated with a B.Sc. in Animal Science and M.Sc. in Animal Husbandry Economics from Iran and was awarded a Ph.D. in Livestock Production Management from the National Dairy Research Institute, Karnal, India. His Ph.D. research focused on goat and kid rearing and breeding. Farhad was the organizer and design-

er of World Goat Day to promote the socio-economic status of small ruminant producers through holding of National Goat Day in 2016 and World Goat Day in 2017. He is also a Senior Expert at the Animal Science Research Institute of Iran.

Farhad has established the Aryan Rural & Nomads Animal Production Management Association to support Rural

and Nomadic communities to reach their rights as main suppliers of meat and protein to their nation and as Managing Director of the Association. His next objective is getting official recognition of World Goat Day on FAO's international calendar.

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A New Tool: Genetic Scrapie Resistance in Goats

Written by Stephen N. White PhD, David A. Schneider DVM, PhD, DACVIM (LAIM). Please note that this information was written for the USA and may not be applicable to other countries.

Scrapie eradication requires a joint effort in sheep and goats. Genetic scrapie resistance has been an important tool available to the sheep industry but not to goat industries—until recently. Two goat prion gene alleles have now been shown to confer resistance to classical scrapie. They are S146 (serine [S] amino acid at prion protein position 146), and K222 (lysine [K] at position 222). Goats bearing just a single copy of either one of these alleles have been strongly resistant to infection during natural outbreaks as well as direct challenge experiments.

Over the last 15 years (2002-2017), the European Union has recorded

more than 10,500 cases of scrapie in goats. To address this problem for eradication, the European Commission formally requested that the European Food Safety Authority (EFSA) evaluate the strength of evidence for genetic scrapie resistance in goats. The EFSA brought together a panel of European experts to conduct a comprehensive review of research. In its recently published review, the panel concluded that today's evidence for genetic resistance conferred by the S146 and K222 alleles in goats exceeds the evidence that was available for resistance in sheep. Thus, the commissioned review recommended the use of genetic scrapie resistance in goats to augment eradication programs.

Rules for implementing goat genetics in scrapie eradication programs were left to each European country to develop, but final rules are not yet

A New Tool: Genetic Scrapie Resistance in Goats

Stephen N. White PhD, David A. Schneider DVM, PhD, DACVIM (LAIM)

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Rules for implementing goat genetics in scrapie eradication programs were left to each European country to develop, but final rules are not yet available. While scrapie resistance alleles in goats have not been formally recognized in the U.S., the National Scrapie Eradication Program plans to conduct a herd cleanup pilot project in goats based on S146 and K222 goat alleles similar to that done for sheep in the early days of genetic resistance in sheep.

Goat DNA testing services for S146 and K222 alleles are available at the Veterinary Genetics Laboratory of UC-Davis. Details may be found at this website: <http://www.vgl.ucdavis.edu/prion/goatScrapie.php>. Reduced pricing has been arranged for testing done through VGL for members of two of the largest goat organizations (American Dairy Goat Association and American Boer Goat Association).

Similarly, testing services are in development at McGen Genomics, Inc. (GeneSeek). Service details will be available at this website: <http://www.mcgen.com/en/research-and-development/genomic-discovery/sheep-and-goat>.

USDA has not established an approval process for laboratories to conduct official scrapie susceptibility genotyping in goats, so testing at either lab would not be considered official testing for regulatory purposes.

Both S146 and K222 are naturally occurring alleles in U.S. goats. The S146 allele is common in U.S. goats and has been identified in 7 out of 10 breeds of both meat and dairy types, including: Boer, Tennesseeainting goats (myotonic), Nubian, Alpine, Saanen, LaMancha, and Pygmy goats. Among these breeds, the S146 allele is particularly common in Boer and Nubian goats. S146 is probably present in additional breeds and will likely be found in larger numbers of goats from those breeds get tested.

The K222 allele is most often observed in dairy breeds. One U.S. study identified it in Toggenburg and LaMancha goats. Other studies have identified K222 in most European descended breeds, including Alpine, Saanen, and Anglo-Nubian. The K222 allele is probably present in additional breeds, too, and will be found in larger numbers of goats from those breeds get tested.

As with sheep, goat producers are encouraged to maintain overall herd health, productivity and reduce inbreeding by selecting goats superior for many traits (not only scrapie resistance) and from diverse families. By using such measures, goat producers can boost or add scrapie resistance while

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available. While scrapie resistance alleles in goats have not been formally recognized in the U.S., the National Scrapie Eradication Program plans to conduct a herd cleanup pilot project in goats based on S146 and K222 goat alleles similar to that done for sheep in the early days of genetic resistance in sheep.

Identification of amino acid variation in the prion protein associated with classical scrapie in Canadian dairy goats

Abstract Background

A clear association of amino acid variation in the prion protein gene (PRNP) with susceptibility and resistance to classical scrapie exists in sheep, but not in goats. In this study we examined DNA sequence variation in the PRNP of 149 animals from two scrapie-infected herds of Saanen dairy goats, and identified 6 non-synonymous variants in the coding region.

Results

In the larger herd, all of the 54 scrapie-affected goats tested had at least one allele with the arginine (R) codon at position 211, with 52 being homozygous for that variant. No animal homozygous for the glutamine (Q) codon at 211 were affected and only two heterozygotes (R/Q) were affected. A weak association was

Schulzinger et al. BMC Veterinary Research (2016) 12:24
DOI 10.1186/s12917-016-0664-x

BMC Veterinary Research

RESEARCH ARTICLE

Open Access

Identification of amino acid variation in the prion protein associated with classical scrapie in Canadian dairy goats

Writing: Schulzinger^{1*}, Gordon B. Mitchell² and Bradley N. White¹

Abstract

Background: A clear association of amino acid variation in the prion protein gene (PRNP) with susceptibility and resistance to classical scrapie exists in sheep, but not in goats. In this study we examined DNA sequence variation in the PRNP of 149 animals from two scrapie-infected herds of Saanen dairy goats, and identified 6 non-synonymous variants in the coding region.

Results: In the larger herd, all of the 54 scrapie-affected goats tested had at least one allele with the arginine (R) codon at position 211, with 52 being homozygous for that variant. No animal homozygous for the glutamine (Q) codon at 211 were affected and only two heterozygotes (R/Q) were affected. A weak association was found at positions 146 and no significant associations were found with amino acid variations at the remaining four variant positions (142, 143, 222 and 240), however, the allelic variation was low. Similar patterns were observed in the second scrapie-affected herd.

Conclusions: We also evaluated previous studies on goat herds affected with scrapie and this relationship of Q susceptibility and Q resistance at 211 was present independent of the genotypes at the other positions including 222. The fact that glutamine at 211 provides a significant protective property to scrapie irrespective of the other positions could be important for breeding strategies aimed at improving herd resistance to scrapie while maintaining important productivity traits.

Keywords: Scrapie, Goat, Prion, Resistance, Susceptibility, Breeding, Variation

Background

Scrapie is a fatal neurodegenerative disease that affects sheep and goats. It is classified as a transmissible spongiform encephalopathy (TSE) belonging to a group of prion diseases, which includes Creutzfeldt-Jakob disease in humans, bovine spongiform encephalopathy (BSE) in cattle, and chronic wasting disease in cervids. Prion diseases not only have a serious impact on health and welfare, but control of these diseases impacts animal movement and trade. Prion diseases can occur sporadically as well as through heredity or infectious transmission routes [1] but pathogenesis is contingent on conversion of the normal

host prion protein (PrP^C) to a disease-associated form (PrP^{Sc}). In sheep and goats, scrapie is characterized by the deposition of the abnormal, protein-resistant prion protein (PrP^{Sc}) in the central nervous system and peripheral tissues [2, 3]. The host prion gene (PRNP) encodes the prion protein (PrP^C) and mutations within this gene have been associated with differential resistance and susceptibility to scrapie (as reviewed [4]).

Genetic resistance to scrapie is well established in sheep and three codons (PRNP genotypes) have typically been utilized for risk assessment (as reviewed in [4]):

The association of these three amino acid codons at positions 136, 154 and 171 (proteins Q136R154G170, Q136R154G170, and S136R154G170) is associated with high resistance, whereas V136Q154R170 is associated with higher susceptibility to scrapie [5, 7]. Sheep breeding programs selecting for the ARR genotype have been widely used for scrapie

found at position 146 and no significant associations were found with amino acid variation at the remaining four variant positions (142, 143, 222 and 240), however, the allelic variation was low. Similar patterns were

observed in the second scrapie-affected herd.

Conclusion

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Keywords

Scrapie, Goat, Prion, Resistance, Susceptibility, Breeding, Variation
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Profile - Dr. Jun Luo

Regional Director for Asia (China)

Jun Luo obtained his B.S. degree in Animal Husbandry, M.S. degree in Animal Production and Ph.D. degree in Animal Genetics and Breeding from Northwest Agriculture and Forestry University of China. He is currently a professor in the College of Animal Science and Technology of NWAU and the director of the Dairy Goat Committee of the China Dairy Association. Jun Luo is a member of the Sheep and Goat Resource Committee.

In 1990, he went to the Netherlands for a 6-month training and collaboration research in dairy goat production and milk processing technology. From 1997 to 1999 and 2000 to 2003, he went to the American Institute for Goat Research of Langston University, USA for post-doctoral and collaborative research in goat breeding, nutrition and production.

His research interests focused on dairy goat breeding and reproduction, the developmental utilization of goat breeds resources, and the molecular genetic mechanisms of goat milk fatty acids metabolism. He is also actively involved in dairy goat extension and industry development in China and research collaboration with international partners.



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Profile - Dr. Yongju Zhao

Country Representative for Southwest China

Yongju Zhao graduated with a Bachelors degree in Animal Science from Qingdao Agricultural University and received a Masters of Science in Animal Genetics, Breeding and Reproduction from Gansu Agricultural University. He obtained an MD from the Third Military Medical School University, focusing in Models of Transgenic Animals.

After his medical degree, he attended Northeast Wales Institute (NEWI), United Kingdom, as a Visiting Scholar in Forensic Science and Technology. Then, he attended Aarhus University, Denmark, as a Visiting Scholar in Molecular Genetics, as well as Purdue University, USA, as a Visiting Scholar in Animal Behavior and Well-Being.

Yongju Zhao is presently a Professor at Southwest University, China. Additionally, he is Vice Chairman of Chongqing Animal Husbandry and Veterinary Society, and the Standing Director of the following associations: Chinese Society of Sheep and Goat Production,

Chongqing Society of Technical Task Force, and Association of Chinese Sheep and Goat Husbandry. He is also a member of the European Society of Domestic Animal Reproduction (ESDAR), the Chinese Association of Laboratory Animal Science and the Chinese Genetics Society. As part of his university responsibilities, he teaches both graduate and undergraduate courses. Yongju Zhao has published ten books and numerous refereed journal articles.



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Profile - Sun Haizhou

Country Representative for Northwest China and Inner Mongolia

Sun Haizhou is a researcher and the Director of the Institute of Animal Nutrition and Feed Research of the Inner Mongolia Academy of Agriculture and Animal Husbandry Sciences in Hohhot. He holds a Ph.D. in Animal Nutrition from the Inner Mongolia Agriculture University.

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Diagnóstico de los sistemas de producción ovino caprino del departamento del cesar

Estudio de Mercado local de la carne ovina, carne caprina, leche de cabra y derivados, en el municipio de valledupar

RESUMEN

El diagnóstico de sistemas de producción ovinos y caprinos en el departamento del Cesar es fundamental para la construcción del acuerdo de competitividad y orientar el desarrollo del sector y la cadena de valor a nivel regional. En este estudio se diseñó una encuesta en un aplicativo para los sistemas de producción, la cual fue diligenciada con tabletas. De igual manera se efectuaron encuestas en expendios y restaurantes mediante la plataforma del observatorio económico de la cámara de comercio de Valledupar. Se realizaron 360 encuestas en 25 municipios, siendo Valledupar el de mayor participación (25,3%). El 26.4% de los predios encuestados tienen entre 61 y 100 ovino caprinos, en 187 (52%) predios la actividad ganadera está compuesta por ovinos y bovinos, seguido de predios que combinan la producción ganadera ovina, caprina y bovina (27.5%). El 93.6% producen bajo pastoreo y el 90% tienen ciclo completo para la producción de carne ovina y/o caprina. El 66% de los productores no identifican sus animales y el 97% no

llevan registros individuales (productivos, reproductivos y sanitarios). El 99.2% no se encuentran en programa de certificación para Buenas Prácticas Ganaderas. En el estudio de mercado el 67.4% de los expendios (89 en total) y el 46% de los restaurantes (total 200) encuestados en la ciudad de Valledupar no vende ni ofrecen carne ovina y/o caprina, conociéndose este tipo de carne como “carne de chivo” (88%). Se construyó una base de datos geográfica y se realizaron siete mapas temáticos y siete mapas interactivos en formato 3D, además de tres atlas cada uno con mapa individual de los 25 municipios del departamento del Cesar.

Palabras claves: cabra, oveja, granja, mercados, mapa temático
Fuente: AGROVOC

INTRODUCCIÓN

Los trabajos de caracterización de los sistemas de producción en el Cesar realizados hasta la fecha describen algunos indicadores técnicos - económicos e identifican algunos subsistemas y manejo tradicional extensivo de las especies ovino caprina (Roncallo, et al., 1999), dichos resultados evidencian la necesidad de profundizar en el diagnóstico de las categorías productivas de los sistemas

ovino caprino actuales y sus posibilidades de mejora. Moreno et al. (2017) lograron caracterizar los sistemas de producción de ovinos y caprinos de las regiones norte, centro y valles interandinos en Colombia, basados en el proceso de gestión del conocimiento, la estratificación de los sistemas y la orientación productiva. Con relación a estudios de mercado, Quintero et al. (2010) realizaron el diagnóstico del sistema de producción y comercialización del ganado caprino ovino en el departamento de La Guajira, dentro de las poblaciones o universos analizados se encontraban los transportadores del ganado e intermediarios. Los objetivos de este trabajo fueron conocer la línea base de los sistemas de producción ovina caprinos del departamento del Cesar, identificar el comportamiento del mercado local frente a los productos de la cadena productiva y brindar información geográfica a través de la construcción de una base de datos geográfica y generación de mapas temáticos. Una caracterización detallada de la cadena es considerada una directriz estratégica dentro de las perspectivas tecnológicas y comerciales de la misma (Flórez et al., 2015).

[Descarga el PDF.](#)

Profile - Dr. Stephan Wildeus

Regional Director for USA, Canada, and Puerto Rico

Dr. Wildeus received his B.S. in Animal Science from Montana State University, USA, a Ph.D. in Animal Reproduction from James Cook University, Australia, and completed a post-doctoral fellowship at Texas A&M University.

He initially worked at the Agricultural Experiment Station at the University of the Virgin Islands on St. Croix and has been a research scientist at the Agricultural Research Station of Virginia State University since 1992. His

research has focused on small ruminant breed evaluation, accelerated mating, assisted reproduction, and more recently on pasture-based production systems. Stephan also has an interest in small ruminant breed resource preservation and serves as chair of Small Ruminant Advisory Committee of the USDA National Animal Germplasm Program. He has served on the editorial boards of Small Ruminant Research and the Journal of Animal Science.

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La ganadería caprina en Marruecos

Mouad Chentouf

Director regional de la International Goat Association (IGA) en el norte de África. INRA - Centro Regional de Tánger.

(Este trabajo se ha editado con la colaboración de IGA España - Francisco de Asís Ruiz Morales igaespana@gmail.com)

INTRODUCCIÓN

Con un censo estimado de ocho millones de animales en los años 70, la ganadería caprina en Marruecos cuenta actualmente con 6,2 millones de animales. Esta bajada importante de los efectivos es debida a los años de sequía que conoció el país durante los años 80, pero también al abandono de la actividad hacia otras actividades agrícolas más rentables.

2017 TEMAS CAPRINOS LA GANADERÍA CAPRINA EN MARRUECOS

Mouad Chentouf
Director regional de la International Goat Association (IGA) en el norte de África. INRA - Centro Regional de Tánger.

Este trabajo se ha editado con la colaboración de IGA España - Francisco de Asís Ruiz Morales (igaespana@gmail.com)

- La productividad del caprino marroquí es baja, con una media nacional estimada en 38 kilogramos de leche y 6 kilogramos de carne por cabra y año.
- El sector caprino marroquí está dominado por ganaderías extensivas dedicadas a la producción de chivos, que tienen ventas muy estacionales concentradas principalmente durante la fiesta del sacrificio y el Ramadán.
- La producción de leche de cabra conoce un desarrollo importante, sobre todo en el norte del país, y está permitiendo una mejora importante de la rentabilidad de las ganaderías.

INTRODUCCIÓN

Con un censo estimado de ocho millones de animales en los años 70, la ganadería caprina en Marruecos cuenta actualmente con 6,2 millones de animales. Esta bajada importante de los efectivos es debida a los años de sequía que conoció el país durante los años 80, pero también al abandono de la actividad hacia otras actividades agrícolas más rentables.

La productividad del caprino marroquí es baja. La media nacional se estima en 38 kilogramos de leche y 6 kilogramos de carne por cabra y año. La producción anual del sector es de 25.000 toneladas de carne y 57 millones de litros de leche, lo que equivale respectivamente a un 5% y 3% de la producción nacional.

A pesar de esos bajos niveles de producción, la ganadería caprina juega un papel esencial para la población de zonas montañosas y poco accesibles. El 83% de los efectivos son ubicados en pequeñas explotaciones de menos de 5 hectáreas, siendo las zonas montañosas y las saharianas las que cuentan con el 46% y el 16% del censo respectivamente. En estas zonas, el caprino juega un papel primordial aportando proteínas e ingresos para las poblaciones rurales locales.

RAZAS Y POBLACIONES LOCALES

Las razas autóctonas locales representan el 98% del censo caprino en Marruecos. Cuatro razas son oficialmente reconocidas por el Ministerio de Agricultura. (Ver figura 1)

La raza Diara

Toma su nombre del valle del Diara, oasis en el suroeste del país, del cual es originaria. Con un censo de 210.000 animales, es una raza perfectamente integrada en el sistema agrícola de los oasis. Los rebaños utilizan los subproductos de la agricultura (dátiles, alfalfa, cereales, olivos etc.) y aprovechan bien para mejorar la fertilidad del suelo. Es una raza de doble propósito, leche y carne, siendo los niveles de producción considerados como medios. La producción media de leche para una lactación estándar de 120 días es de 142 kilogramos, con niveles de materia seca, grasa y proteína respectivamente de 13,8%, 4,1% y 3,7%. Los chivos alcanzan un peso estándar a 10, 90 y 180 días respectivamente de 2,4 kilos, 10 kilos y 22,5 kilos con una viabilidad al destete de 0,97. La principal característica de esta raza es la ausencia de estacionalidad de la reproducción y su alta prolificidad. Los niveles de fertilidad de los rebaños en primavera (marzo y abril)

Tabla 1. Calendario alimentario del sistema de producción de chivos.

Recechos	Mes del año											
	1	2	3	4	5	6	7	8	9	10	11	12
Partos												
Destete												
Rececho de carne												

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gramos de carne por cabra y año. La producción anual del sector es de 25.000 toneladas de carne y 57 millones de litros de leche, lo que equivale respectivamente a un 5% y 3% de la producción nacional.

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[LEE MAS...](#)

Profile - David Dowdy

Country Representative for Uganda

David received his Ph.D. in Physical Organic Chemistry. He worked for British Gas from 1983 to 1993 as a research scientist.

David has spent the past 24 years living in Uganda. From 1993 to 2009, he headed JOY Youth Training Centre which was also a goat farm that supplied breeding stock throughout over Uganda, and to the Democratic Republic of Congo, Rwanda & Burundi.

Today he heads the JOY Goat Development Programme which works with farmers' groups to set up cross-breeding projects to improve goat productivity. They also help plan and oversee breeding programmes nationally. Joy Goat assesses the cultural and geographic contexts to plan the most appropriate intervention, for JOY Goat, and other organisations.

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- Access to the MEMBERS area of the IGA website, where you get exclusive information, access to IGA member documents, etc.
- Submit articles for publication in the IGA Newsletter.

- Opportunities for leadership and participation in IGA committees.
- IGA is the voice of goat researchers & producers at national & international levels.

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Remembering Miguel Angel Pérez-Razo

Written by Dr. Christopher D. Lu, IGA Past-President

People who knew Dr. Miguel Angel Pérez-Razo often described him as a humble, determined and optimistic goat scientist who had a special place in his heart for struggling small goat producers.

Miguel Angel Pérez-Razo was born in Mexico City on January 13, 1958. He devoted his entire life to goat science and education. In 1982, he completed his bachelor's degree in veterinary science at National Autonomous University of Mexico (UNAM) with the thesis entitled "Non-pathological aspects that affect reproductive efficacy in goats" ("Aspectos no patológicos que afectan la eficacia reproductiva en las cabras"). In 1996, he obtained a master's degree in animal production from UNAM with the thesis entitled "Evaluation of the productivity of the five goats breeds in northern Mexico" ("Evaluación de la productividad de la hembra en cinco razas caprinas en el norte de México"). In 2004, received a Doctor of Sciences from the College of Postgraduates, Teaching and Research Institution in Agricultural Sciences (CP). His thesis was "Productive longevity in five dairy goats breeds" ("Longevidad productiva en cinco razas caprinas lecheras").

Dr. Pérez-Razo began his academic journey and started to work for UNAM on January 1, 1979. His life was intertwined with UNAM as he moved up gradually to the rank of Career Professor (Profesor de Carrera en la FES-Cuautitlán, Universidad Nacional Autónoma de México). He taught courses in goat and sheep science and production and researched genetic improvement and production systems in small ruminants. He directed both graduate and undergraduate students and published widely in journals such as Canadian Journal of Animal Science, Livestock Production Science, and Journal of Applied Animal Re-

search. He also tutored for more than forty-five students as part of his social service. He had more than 115 presentations in national and international conferences and wrote five book chapters/books. He served as the President of the Mexican Association of Professionals in Caprines (AMPCA) and was a member of the Mexican Association of Technical Specialists in Sheep, Latin American Association of Small Ruminants and South American Association of Camelids. He also chaired research projects, research symposia and research education taskforces. He interacted well with his colleagues, students, and staff and was well respected in the campus community.

Throughout his life, Dr. Miguel Angel Pérez-Razo was attached to the men and women who attended to goats. He was truly Pro-carbra! He often served as a judge for goat contests. With a special talent to know how to approach goat producers, he educated them regarding the importance of productivity rather than just the appearance. He pointed many producers in the right direction to start the businesses and helped guiding them to overcome difficulties.

He was heavily involved in the Humanitarian Center of Works and Cultural and Education Exchange - CHOICE (Centro Humanitario de Obras e Intercambio Cultural y Educativo A.C.). Through CHOICE, he opened the doors and reached out to indigenous communities in Irapuato in the state of Guanajuato where he taught them how to make goat cheeses and process goat meat, among other technologies. Many small goat producers benefited from his teachings, because he communicated in plain language, avoiding difficult technical jargon used by other professionals. He was humble and committed to improving

the quality of life of disadvantaged populations.

Last October, along with Jean-Marie Luginbuhl, Felipe Torres Acosta, Beth Miller and Jean-Paul Dubeuf, I participated in XXIX Reunión Nacional e Internacional Sobre Caprinocultura in Cuautitlán, Mexico. During that meeting, we experienced how humble Dr. Miguel Angel Pérez-Razo was. You could not tell that he was in charge and at the same time served as President of AMPCA. He was warm and hospitable, busy taking care of and driving us to places.

I came to learn that he was one of the faculty members from UNAM responsible for the successful poster session at the 9th International Conference on Goats, Queretaro, Mexico in 2008. We became friends through many in-depth conversations. He was energized and planned to engage more research in production systems. At the time, I was pretty sure that we would meet again to exchange research findings. It is now not possible because his sudden death on April 15, 2018.

I hope that his wife, Georgina Melania Arana Diaz; daughter, Diorella Melania; and son, Miguel Angel, can take comfort knowing that Miguel's life was full and productive, and many people were blessed because they knew him. Perhaps there were many attributes about Miguel that we are not able to know, but I am sure that he will be missed by many of us including his family, friends, colleagues and small goat producers.



Profile - Angel Trejo González

Country Representative for Mexico

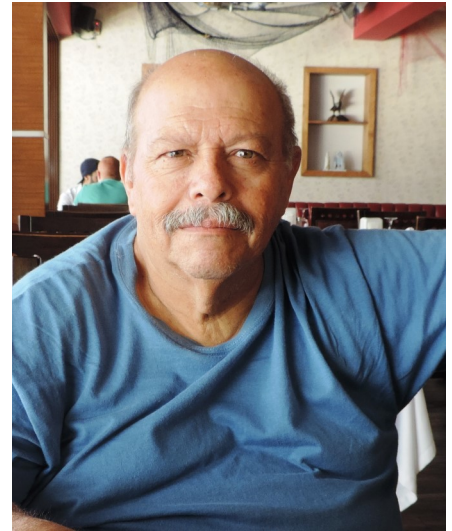
Arturo received a Veterinary Medicine degree as well as a MSc in Animal Reproduction from the National Autonomous University of Mexico (Universidad Nacional Autónoma de México - UNAM). He also underwent research training in sheep and goat reproduction in the USA at Texas A&M University in College Station, Texas. Arturo specializes in sheep and goat reproduction with a special interest in puberty in males, semen production and conservation, and hormonal control of the estrus cycle to improve artificial insemination. During his career, he has directed 10 MSc and 90 undergraduate theses.

He has published 5 research manuscripts, presented 100 research papers at national congresses, 20 research papers at international con-

gresses, written 6 book chapters and 23 producer articles.

Arturo is a member of the Mexico Association of Goat Production (Asociación Mexicana de Caprinocultura - AMPCA) and the Mexico Association of Technical Specialists in Sheep Production (Asociación Mexicana de Técnicos Especialistas en Ovinos - AMTEO).

Recently, Arturo was the driving force behind the invitation of several IGA Board members and IGA Advisory Board to attend the XXIX Mexico National Conference on Goat Production (XXIX Reunión Nacional Mexicana sobre Caprinocultura). Beth Miller, Felipe Torres Acosta, Jean-Marie Luginbuhl, Christopher Lu and Jean-Paul Dubeuf participated and made presentations during this conference which took place at the National Auto-



nomous University of Mexico, Cuautitlan (Universidad Nacional Autónoma de México, Cuautitlan) in October 2017.

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Profile - Dr. Alexander K. Kahi

Country Representative for Kenya

Alexander is a Professor of Animal Breeding and Genomics at Egerton University, Department of Animal Sciences, and a member of the Permanent International Committee of the World Congress on Genetics Applied to Livestock Production. He holds a BSc in Animal Production and MSc in Animal Breeding and Genetics from Egerton University, Kenya and Doctor of Agricultural Sciences degree from the University of Hohenheim, Germany.

He is currently the Deputy Vice Chancellor (Academic Affairs) and International Program Director managing several projects funded by various donors. He is currently conducting a

goat project with E (Kika) de la Garza Institute for Goat Research at Langton University, Oklahoma.

He has diverse experience with livestock production systems and their economics and a special interest in the definition of breeding objectives for different production systems, genetic improvement, computer simulation, genetic evaluation, experimental and observational quantitative genetics, molecular genetics, genomics, health and disease resistance, value chains analysis, development and capacity building in post-secondary education institutions and business incubation. He has served as visiting Professor in Australia (Animal Genetics and Breeding Unit, University of New



England), Japan (Kyoto University) and the Netherlands (Wageningen University) and has published widely.

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Need to contact us?

International Goat Association
12709 Grassy Drive
Little Rock, Arkansas 72210 USA

Phone: 1-501-454-1641

Email: admin@iga-goatworld.com

Site: www.iga-goatworld.com

Goat meat on the up

Dairy farmers of the future could be raising male kid goats (billies) for the meat market as a supplementary source of income, according to James Whetlor, co-proprietor of specialist wholesaler Cabrito Goat Meat.

The market for kid-goat meat is on the rise, with a steady but constant increase in demand that is thanks to Mr Whetlor's innovative trickle-down marketing, who now supplies billies to more than 50 restaurants.

"There is a huge, untapped market out there, but first we need to ensure that people can try the meat quite cheaply," says the former London chef.

Therefore, the next step will very much depend on product development to ensure an easily marketable prepared meat such as goat meat tacos and wraps that can be served in gastro pubs or in supermarkets.

The taste for goat meat in the UK is relatively new, he observes, but with around 90,000 billies being slaughtered soon after birth in the goat milk sector (Defra figures), resources are already in place.

"If the market continues to expand, in ten to fifteen years' time in Britain we will not be euthanasing billies but bringing them on and rearing them for meat."

"In my time as a chef in gastro pubs and fine dining restaurants, I didn't prepare goat meat more than three times in fifteen years," he explains. "But when you think of the growing popularity of goats' milk you realise that there are a lot of billy kids that are slaughtered at birth rather than being brought on for meat."

He points out that goat meat is the most popular meat in many countries, but demand in Britain was almost non-existent. "This is a real shame, as it is a really healthy, tasty meat. It is



lower in fat and cholesterol than beef, pork and lamb, and high in iron and protein - in fact it is lower in fat than skinned chicken."

The business started on a micro-scale, with Mr Whetlor looking to acquire some pigs to tidy a patch of land that he had bought, which met considerable opposition from his neighbours. "By good fortune I got four goats instead.

"At the time I was working for Hugh Fernley-Whittingstall, and took some goats back to River Cottage - and they proved to be a really popular food. That got me thinking that there was perhaps a potentially good market out there."

This is where Mr Whetlor's impeccable credentials as a chef came into their own, as he had first-class contacts in the restaurant industry who were willing to try goat meat. "I was fortunate that I had worked in London and knew the restaurant market well enough to be able to sell in to about 15 restaurants right at the beginning. This soon grew to about 20 - some which were really high-profile restaurants, and

this encouraged other establishments."

The wholesale kid meat business is not London-centric, and there are now restaurants in Bristol, Manchester and Sheffield that are regularly serving kid goat meat, and there are further expansions to come.

However, Cabrito Goat Meat is a wholesaler, and he does not butcher the meat for distribution. So he was very pleased when Ritter Courivard, with butchery facilities came on board as a customer.

"The company is a supplier of top-end restaurants, including a number of Michelin starred ones. Buying the meat through them is often better for smaller establishments who don't have the means to butcher a whole carcass; sometimes the chef will just want 40 portions of boned and rolled shoulders, for example."

He attributes part of the success of the goat meat sector to changing tastes of the British public and noting that there are a lot of foods that are

Continued on Page 13

Goat meat on the up (Continued from Page 13)

now accepted as 'regular' that started off as imported. "Lots of people are now trying goat meat when they are abroad, and this makes them more likely to choose it on the menu when they get back home."

Most of the billies are Saanen, which is the main milking breed in the UK, rather than Boers bred specifically for meat. "When you slaughter at seven months, as we do, as long as they are reared correctly, you get live weight of 35-40kg, which becomes a carcass of 18kg. We haven't seen much difference in weight or quality between these and Boer goats."

Balancing the supply of billies to demand from customers is quite a chal-

lenge and Mr Whetlor has been careful not to take on too many at one time.

"Farmers are, quite rightly, cautious about taking on goats to raise them for meat. In the Gloucestershire area one in particular who was watching to see how the market developed before committing himself; this is completely understandable because you need to know that you will have a customer when the kid is ready for slaughter.

"We would really like some national chains start serving kid goat meat to their customers, that would be a real boost to the industry," he says.

Special thanks to Heather Briggs for bringing this article to our attention.



Ontario Small Ruminant Veterinary Conference, June 17-19, 2019

"Keeping Small Ruminants Healthy and Productive"

Guelph, Ontario, Canada

The purpose of this conference is to provide an opportunity for veterinarians, researchers, educators, producers and support industries to share knowledge and ideas on improving and maintaining the health of sheep and goats, not just in Canada but around the world. SRVO has been offered the unique opportunity to present this conference in conjunction with the Sheep Veterinary Society of the UK as their quadrennial "European" meeting.

We are soliciting abstracts for presentations and posters on research findings, case reports, practice tips related to disease issues in sheep and goats. We are offering technical tours, including farm visits, some tourist delights and a pre-conference tour for those coming from away. We guarantee there will be something for everybody with an interest in the health of sheep and goats.

Important Deadlines:

Abstract Submission - January 31, 2019
Registration (early) - February 28, 2019
On-Line Registration - May 15, 2019

Pre-Conference Tour - January 31, 2019

Questions?

Contact us at OSRVC@srvo.ca

Programme

Below is the draft structure of the meeting. This will be modified and updated with more details after abstracts are accepted, and keynote and plenary speakers are confirmed. At this point, we are planning on three concurrent sessions - dependent on the number of abstracts submitted and registrants. We will have a plenary speaker at the beginning of each day and keynote speakers to provide an overview of specific themes. The final programme will be provided as a downloadable pdf approximately May 15, 2019.

Monday, June 17, 2019

8:00 Registration opens

Continued on Page 14

Ontario Small Ruminant Veterinary Conference (Continued from Page 13)

9:30 Welcome and opening
 10:00 Plenary session
 10:30 1-minute poster presentations
 10:45 Break and poster viewing
 11:15 Theme keynote talks and oral papers
 12:30 Lunch
 13:30 Theme keynote talks and oral papers
 15:00 1-minute poster presentations
 15:15 Break and poster viewing
 15:45 Theme keynote talks and oral papers
 17:00 End of day 1

Opening Reception

17:30 - 19:00

Be our guests for refreshments and hors-d'oeuvres at the Summerlee Science Atrium. Say hello to old friends and meet new ones!

Tuesday, June 18, 2019

8:00 Registration opens
 9:00 Plenary session
 9:45 1-minute poster presentations
 10:00 Oral papers
 10:45 Break and poster viewing
 11:15 Theme keynote talks and oral papers
 12:30 Lunch

13:30 Buses will leave for technical and tourist tours (preregistration required). Buses return by 17:00.
 17:00 End of day 2

Gala Dinner

19:30 - ?

We are working on providing a rural Ontario themed dinner and entertainment that can be enjoyed by all.

Wednesday, June 19, 2019

8:00 Registration opens
 9:00 Plenary session
 9:45 1-minute poster presentations
 10:00 Oral papers
 10:45 Break and poster viewing
 11:15 Theme keynote talks and research papers
 12:30 Lunch
 13:30 Theme keynote talks and oral papers
 15:00 1-minute poster presentations
 15:15 Break and poster viewing
 15:45 Oral papers
 16:30 Present awards
 17:00 End of conference

Visit their website (www.srvo.ca) for the most up-to-date information.

New App for Selling Goats in Nepal Helps Smallholders Compete

A new app for small-scale goat marketing in Nepal is ready to roll out. The smartphone app uses a short message service (SMS) to connect smallholder sellers and buyers of goats. On May 25, master trainers from Heifer Nepal International introduced the app to female managers of goat cooperatives, who in turn plan to train 1,400 representatives from support groups for goat smallholders by the

end of July. The app development is part of the multi-year project - [Designing and evaluating innovations for development of smallholder female livestock cooperatives in Nepal](#) - led by Dr. Conner Mullally from the University of Florida. Its two other main components focus on evaluating forage options to optimize feeding of goats and providing distance learning to women so they can stay at home

and fulfill their various domestic obligations while acquiring the training to become village animal health workers. Plans call for the distance learning tool to enter a training phase in August. The winter fodder crop trial (oats, ber, vetch) and feeding trial with fodder from these crops has been completed, and summer fodder crop trials (cowpea, red bean and teosinte) are underway.

Smoke or Mirrors? Traditional Dairy Containers Face Off with Metal in Ethiopia

Yogurt has deep roots in Ethiopia, particularly for pastoral communities, and now its handling is facing deep scrutiny from a research team at Addis Ababa University (AAU). Led by Dr. Kebede Amenu, the team is using bacterial counts to compare the safety of yogurt stored in aluminum containers versus traditional yogurt containers that women treat with a smoking process for sanitation. The team carried

out a lab-based experiment to assess the effect of smoking of containers using different tree species on the microbial load of milk and yogurt kept in smoked containers. Building its case, the milk safety project collected milk and feces from 217 cows and camels in May and completed microbiological analysis for E.coli O157 and Salmonella. Comparing the results of this analysis to that on microbes

present in the containers will help to determine the efficiency of the sanitation process. Ultimately, Dr. Amenu hopes to improve the sanitation of dairy products in remote parts of Ethiopia. The project, as summarized in this blog post, supports women and families to overcome food insecurity. It also funds three master's students.