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Wool & Wattles

The AASRP Newsletter
January - March 2020
Volume 48, Issue 1

Mission Statement of AASRP

“To improve the health and welfare of sheep, goats, camelids and cervids, to further the professional development of the members, provide resources to elevate the standards of small ruminant practice and to be the voice for small ruminant issues.”



Letter from the President



Greetings!

Wow! What a difference a couple of months have made in all of our lives! My sincere hope is that everyone is able to remain safe and healthy in these tumultuous times. The “normal” stresses of our veterinary profession - from our educators, private practitioners, government, industry and students - along with our roles as parents, spouses/partners, caregivers and

global citizens- are compounded by the fear and anxiety and uncertainty brought upon us by this pandemic. Please remember to practice some self-care for your own mental health. Take a walk, hug a lamb, pet your dog, or kiss a goat! No physical distancing required with our four footed buddies. Eat well. Don't hoard paper towels or pasta! There are a lot of resources out there specifically for our profession if you need it. Reach out to friends and family more frequently.

We are so excited about our new effort to provide RACE approved WEBINARS for our members!!!! Dr. Kelly Still-Brooks, president elect for AASRP, has done an awesome job of lining up a great schedule for the next year. Be sure to check the website as the presentation dates are firmed up. The topics expected for the upcoming summer and fall include: **Practical Parasite Control** by Dr. Philippa (Pippa) Gibbons; **Ram/Buck Procedures, Eyes & Feet and Spinal CSF** by Dr. Tanya Applegate; **Rotational Grazing and Forage Management** by Dr. Richard Ehrhardt and Dr. Robert Van Saun will present 3 nutritional sessions including: **Feeding for two: How to feed the rumen and the host animal; Interpretation and application of feed analysis in small ruminant diets; and Feeding the little ones: from colostrum to weaning.** Be sure to check the website and social media sites (Instagram: @aasrppofficial, Facebook: American Association of Small Ruminant Practitioners) for the most up to date information and plan on joining in on the free CE!

The board is currently reviewing the existing policy statements. Comment period is open for the Camelid Ban in National Parks policy. The policy is available for review on the webpage on the “About” tab drop down. If there are other topics that you think we need to develop policies on, please let your regional director or one of the officers know your idea and one or two potential persons to help develop the new policy. We will be reviewing all the policies currently in place prior to developing any new ones.

Keep Safe, Be Kind & Take Care of yourself and your family & friends.

Thank you

Ann Goplen, AASRP President

Gople003@umn.edu



Management Report

Spring Greetings AASRP Members

I hope this message finds each of you safe and healthy during the current pandemic outbreak of COVID-19. These are trying and uncertain times for veterinarians, producers and the public. I would encourage AASRP members to stay current on information coming from AASRP, AVMA and your state associations. Incorporating telemedicine resources into your practice is one way to offer health care to your patients, in certain instances, while minimizing contact with others to decrease your risk of infection or spreading infection. The FDA has released a temporary guidance for veterinarians to allow telemedicine as a method to prescribe extra-label drug use and authorize veterinary feed directives. The AVMA has worked tirelessly to ensure veterinarians are listed as an essential service during public isolation and quarantine orders. Veterinarians can be assured that national organizations continue to advocate for them. To ensure that organizations can continue to provide these services, veterinarians need to maintain membership in them. I would encourage you to continue to pay dues to your national organizations. Together we are a powerful voice!

AASRP not only provides advocacy for its members but also continuing education. Currently we are hopeful that the AABP – AASRP conference will continue in September. During these times it is also important for organizations to offer distance CE. AASRP has these options available for members even before this outbreak occurred. AASRP members have access to recorded sessions from the AABP-AASRP annual conference. These can be accessed by clicking on the purple cow-head logo on the home page of the website and CE certificates can be downloaded at no charge. Previously these modules cost \$40 per hour and are now available to members free! Members can also download the “BCI Mobile Conference” app to listen to sessions from your mobile device. Certificates are not available from your mobile device. This year, AASRP will also offer webinars on clinical topics important to small ruminant veterinarians. These webinars will also be RACE approved and recorded so if you are unable to attend the live session you can listen on the BCI app or through the website. Continue to look to AASRP for great CE opportunities!

Stay safe and healthy!

Sincerely,

K. Fred Gingrich II DVM
Executive Director

American Association of Small Ruminant Practitioners

Student Externship Opportunities

We receive many requests from veterinary students for information about externship opportunities. We are asking AASRP Veterinary members if they are interested in hosting primarily 4th year students for two to four weeks. Our new search function within the website allows members to self-identify if they are able to host externships in small ruminant practice. To update your information, simply log into your membership portal and select Manage My Account and scroll down to the Membership Info section to indicate if you will accept externships by selecting 'Yes'. After that, students who are searching for extern opportunities can find your location and contact you.

Information that the students desire includes: — Small ruminant species seen in your practice, — Busiest months of the year relevant to small ruminant work, — Practice location, — Availability of housing, and — Preferred contact information for externship requests.

Based on student feedback, we see a need to update externship opportunity information from the membership. Thus we are asking for those of you who wish to host student externs to update your current membership information on the www.aasrp.org website. If you have any questions or concerns, or need help accessing the website, email aasrp@aasrp.org or call 419-496-0696 for assistance.

Thanks!
Cindy Wolf, DVM

Samuel B. Guss Memorial Fund

Contributions for 2020 First Quarter



*Dr. Samuel B. Guss
(1916-1984)*

James Allen	Michael Curley	Johanna Kingsley	Jessica Powell
David Allmon	Jennifer Dike	Maxine Kinne	Jeanne Rankin
Kevin Anderson	Karen Dowds	Michelle Kopcha	Caitlin Rizzo
Alexi Baldwin	Chris Duemler	Jodie Kulpa-Eddy	Joan Dean Rowe
Caroline Ballard	Dale Duerr	Jeffrey Kundert	Maura Ruyechan
Alicia Bays	Nancy East	Michelle Kutzler	Robin Skillman
Peter Belinsky	Jim Fallen	Elisabeth Lau	Patrick Skipton
David Bezek	Jean Feldman	Michel Levy	Mary Smith
Diane Biederman-	Phillippa Gibbons	George Lewis	Kraig Stemme
Brynda	Ann Goplen	Joe McCoy	Diane Sutton
Joan Bowen	Lester Griel, Jr.	Frank Merrill	Linda Joyce Taylor
Amy Bright	Colleen Haglan-Lynch	Jody Moffett	Angela Urban
Richard Brungardt	Theresa (Teri) Harty	Dawn Morin	Robert Van Saun
Michael Bruss	Susan Hirsch	Holly Neaton	Pamela G Walker
Christine Camann	Pamela Jennings	Margaret Nichols	Denise Warriner
Ann Cavender	Beth Johnson	Anna Ozio	Elizabeth Williams
Larry Chasteen	Paul Jones	Elizabeth Pannill	Kathryn Wolyn
Natalie Cochrane	Karin Kaczorowski	Dana Pantano	

In order to assist veterinary students interested in small ruminant medicine, AASRP provides grants each year to help student members of AASRP undertake externship opportunities. It is not required that the experience be with small ruminants exclusively, but it should provide at least some chance to observe a modern veterinary practice working with one or more small ruminant species.

Over one hundred AASRP member practitioners throughout the United States - as well as Australia, Brazil, Canada, Germany, Israel and Puerto Rico - offer externships to students seeking experience in small ruminant medicine. To learn more about the AASRP Student Externship Program, call the AASRP Management Office at 419-496-0696, or log on at aasrp.org.

Donations for the Sam Guss Fund can now be made online without membership renewal by going to www.aasrp.org and choosing the tab 'About AASRP'. The direct link is http://www.aasrp.org/guss/guss_fund.asp

WELCOME NEW MEMBERS

1st Quarter

New Students

Alexandra Baker
Emily Barron
Lucretia Bass
Ashlyn Brewster
Mary Clapham
Nabilah Curtis
Sydney Day
Haley Embleton
Amber Forrestal
Simone Godwin
Michelle Gotteiner
Brooke Harvey
Ellen Holbrook

Sara Kotb
Kaitlin Marley
Jaclyn Melvin
Taylor Mittleider
Jacob Moise
Colleen Moore
Hayleigh Moore
Madison Nardi
Jenna Park
Allyson Patterson
Adria Schlesman
Sara Smith
Janna Smith
Arlene Spevak
Rebecca Turcios

Logan Ullery
Kara Vogan
Katherine Williams
Mariah Wilson
Andrew Yacoub

New Active Members

Rita Baumann
Emily Bridge
Meghan Brookhart
Laura Carroll
Betsy Devin-Smith
Marc Driscoll
Emily Egolf

Robyn Ellerbrock
Cassie Faulk
Paige Graziano
Melissa Hale
Heidi Hart
David Lee
Yatta Linhares
Boakari
Erin Masur
Erin McCauley
Katelyn Mencho
Alyona Michael
Katie Nenneker
Benjamin Newcomer
Sara Packebush

Jeffrey Rau
Joe Roberts
Matthew
Rolleston
Rochelle Salwei
Abbie Schultz
Noah Seward
Beth Sondgeroth
Katelyn Waters
Todd Yeagley
Ashley Ziegler

Sam Guss Externship Grants

Thanks to generous donors to the Sam Guss Fund, the AASRP is able to provide externship support for veterinary students wishing to expand their knowledge and experiences in small ruminant practice.
The one externship funded by the Board was cancelled because of Covid-19

Summary of AASRP Board

Meetings January- March, 2020

January 22, 2020 Board of Directors Meeting

Attendees: Ann Goplen, Beth Johnson, Susan Myers, Kelly Still-Brooks, Meredyth Jones, Chris Duemler, Michelle Kutzler, Andrea Mongini, Fred Gingrich and Geni Wren

President Ann Goplen called the meeting to order at 9:02 pm EST.

MOTIONS

- 1. Dr. Kutzler moved to approve the December minutes; Dr. Duemler seconded the motion. The motion passed.**
- 2. Dr. Myers moved to accept the management report; Dr. Johnson seconded the motion. The motion passed.**
- 3. Dr. Myers moved to accept the financial report; Dr. Mongini seconded the motion. The motion passed.**
- 4. Dr. Still-Brooks moved to nominate Dr. Megan Munis to the CE committee; Dr. Myers seconded the motion. The motion passed.**
- 5. Dr. Still-Brooks moved to approve Dr. Virginia Fajt as the primary representative and Dr. Paul Plummer as the alternate representative for the AVMA Committee on Antimicrobials. The motion passed.**
- 6. Dr. Johnson moved to approve a retirement dues waiver for a disabled member; Dr. Kutzler seconded the motion. The motion passed.**

7. Dr. Kutzler moved to accept the revised policy "Unnecessary bottle feeding of newborn camelids"; Dr. Duemler seconded the motion. The motion passed.

8. Dr. Duemler moved to adjourn; Dr. Myers seconded the motion. The motion passed.

MOTIONS PASSED ELECTRONICALLY SINCE THE LAST BOARD MEETING

1. Dr. Susan Myers moved that AASRP apply to be a RACE provider. Dr. Andrea Mongini seconded.

Meeting Minutes Summary

- Management Report – Dr. Fred Gingrich reported the Vanguard fund returned \$23,000 in dividends, interest and value changes during FY2019. Net revenue for FY2019 was \$46,000. AASRP has been certified as a RACE provider.
- Region 1: No report.
- Region 2: Dr. Beth Johnson reported there are several meetings planned with student chapters.
- Region 3: Dr. Duemler reported he is on his way to the Dairy Sheep and Goat Conference in Wales, UK.
- Region 4: Dr. Kutzler reported there is legislation proposed that would restrict llamas' access to the Chugach National Forest.
- Continuing Education Committee is working on topics and speakers for webinars.
- Drs. Myers, Munis, Goplen and Gibbons were in Chicago for the AVMA Veterinary Leadership Conference and House of Delegates meeting.

- Region 3 director Dr. Duemler will complete his second term this year.
- AASRP representatives to AVMA committees are being sought for new terms or renewals.
- The Llama Ban in National Parks policy will be reviewed by the board.
- The meeting was adjourned at 10:45 pm EST

February 19, 2020 Board of Directors Meeting

Attendees: Ann Goplen, Beth Johnson, Susan Myers, Kelly Still-Brooks, Meredyth Jones, Chris Duemler, Michelle Kutzler, Andrea Mongini, Jon Higgins

President Ann Goplen called meeting to order at 9:04 p.m. EST.

MOTIONS

1. **Dr. Kutzler moved to approve the January minutes; Dr. Duemler seconded the motion. The motion passed.**
2. **Dr. Kutzler moved to accept the management report; Dr. Higgins seconded the motion. The motion passed.**
3. **Dr. Jones moved to accept the financial report which was reconciled on Feb 13th; Dr. Kutzler seconded the motion. The motion passed.**
4. **Dr. Johnson moved to provide additional funds of \$1000 for development of 4 additional webinars in 2020 and \$1000 for development of 4 webinars for the beginning of 2021. Dr. Duemler seconded the motion. The motion passed.**
5. **Dr. Meyers moved to place Drs. Yalondo Burton, Chris Chase and Virginia Fajt on the ballot for Region 3 Director. Dr. Mongini seconded. The motion passed.**

Meeting Minutes Summary

- The management report was submitted electronically.
- Region 1 report: Dr. Higgins will be going to UPenn to visit the small ruminant club.
- Region 2 report: Dr. Johnson will be visiting the Ohio State and Mississippi State small ruminant clubs.
- Region 3 report: Dr. Duemler spoke at Indianhead sheep and goat meeting. He recently visited Wales where the lamb market is depressed due to over-production and they are interested in dairy goat and sheep production.
- Region 4 report: Dr. Kutzler reported that the UC Davis Annual Goat Day in January had over 400 attendees.
- Continuing Education Committee has developed webinar topics and speakers. Agreements will be sent by the office and the schedule announced to the members.
- AVMA Delegate Report – new bills in WV and TN will allow lay people to perform certain procedures. The CPG on Compounding has been delayed by 120 days. The board is evaluating who can submit comments for the organization that can develop the necessary information FDA is requiring for compounded products for small ruminant antidotes.
- The annual board meeting will be at the AVMA convention in San Diego on August 1. The membership meeting will be Sunday August 2 at noon.
- A laparoscopic AI seminar will be held at the AABP conference in Louisville, KY.
- Region 1 ballot – Dr. Jon Higgins was the only nominee and is seated for a second term.
- Region 3 ballot – The board approved Dr. Chris Chase, Dr. Yalonda Burton and Dr. Virginia Fajt for the ballot from the list of nominees.

- AASRP will have a booth at the AABP conference in Louisville, KY.
- The meeting was adjourned at 10:24 pm EST

March 25, 2020 Board of Directors Meeting

Attendees:: Ann Goplen, Beth Johnson, Susan Myers, Kelly Still-Brooks, Meredyth Jones, Chris Duemler, Michelle Kutzler, Jon Higgins, Fred Gingrich and Geni Wren

President Ann Goplen called meeting to order at 9:00 p.m. EDT.

MOTIONS

1. **Dr. Johnson moved to approve the February consent agenda including board minutes and electronic reports; Dr. Kutzler Duemler seconded the motion. The motion passed.**
2. **Dr. Higgins moved to accept the management report; Dr. Myers seconded the motion. The motion passed.**
3. **Dr. Duemler moved to approve funding \$750 for Audrey Dollinger's externship at a Scottish practice; Dr. Johnson seconded the motion. A friendly amendment to the motion was made by Dr. Duemler and seconded by Dr. Higgins to ask Dollinger to return the money if the externship does not take place due to travel restrictions. The original motion passed.**
4. **Dr. Higgins moved to approve the appointment of Dr. Kutzler to treasurer; Dr. Myers seconded the motion. The motion passed.**
5. **Dr. Duemler motioned to adjourn; Dr. Higgins seconded the motion. The motion passed.**

Meeting Minutes Summary

- Financial Report: Dr. Fred Gingrich reported that dues renewals are winding down therefore revenue will be stagnant. Revenue will mostly come from ET seminar registrations for the next several months.
- Region 1: Dr. Higgins reported the small ruminant talk at UPenn was canceled due to COVID-19.
- Region 2: Dr. Johnson reported she met with the Ohio State club before the shutdown. All other meetings canceled.
- Region 3: Dr. Duemler reported all face to face meetings have been canceled. He is working on a remote seminar with St. Croix students.
- Region 4: Dr. Kutzler reported that both Washington and Oregon have required veterinary clinics to inventory all PPE and anesthesia machines. The governors could confiscate these materials in a state of emergency. Remote education has been implemented at the veterinary schools.
- Continuing Education Committee: Webinars have been scheduled for the year.
- Student Education Committee: Two externship grant applications have been received. The committee has asked for more information from one applicant.
- Governance Committee: The Executive Committee held a conference call to discuss committee charter templates, action plans and reviewing policies before creating new ones.
- The board would like to sponsor a booth at the AAEP conference in December 2020 in Las Vegas.

- FDA compounding comments: Expertise is needed to formulate comments for AASRP so that it can gather the information FDA is requesting.
- Dr. Kutzler was approved as the new Treasurer of AASRP.
- Using Slack for board communication was discussed.
- The aminoglycoside policy will be reviewed.
- The website design discussion was tabled until August.
- The board meeting calendar was discussed.

The meeting was adjourned at 9:55 pm EDT.

REGION 3 DIRECTOR BALLOT

The ballot for region 3 is available online at <http://aasrp.org/ballot/>. Members in Region 3 can log in to the website to vote. Candidates on the ballot are Dr. Yalonda Burton and Dr. Virginia Fajt.

Biographies of the candidates:

Yalonda Burton

I was born and raised in the small rural town of Stilwell, OK. I remember as a child getting up to milk the goats before school. My love for small ruminants started at a very early age and though it had its ups and downs, I am right back into the middle of small ruminants, especially goats in my life now.

I was a graduate of Stilwell High School in 1993, graduating 3/125 as the salutatorian. I immediately headed to Stillwater and Oklahoma State University. I pursued a degree in Animal Science and went prematurely on to vet school during my undergrad senior year with an early admittance program and graduated with a BS of Animal Science in 1997 while in vet school and from Oklahoma State University College of Veterinary Medicine in 2000.

During my senior year of vet school, I took a loan and purchased a building back in my hometown to renovate into a clinic. I graduated in May of 2000 with a (mostly) ready to use clinic, Patterson Animal Hospital. I have owned and operated the clinic since May of 2000 as a solo mixed animal practitioner, taking breaks from the clinic only to deliver my children. The clinic has been a growing success since its inception, and I am lucky to be able to work for myself and enjoy my family at the same time.

I married my husband, Dean, in June of 1997, while in vet school. Once we moved back to Stilwell and the clinic was partially established, we started a family. We have twin girls, Kate and Kenzie, 16, Grace, 14 and Brianna 12. They have been an integral part of both my practice as well as our love as a family for small ruminants, both showing, milking and raising dairy goats as well as showing market sheep.

Our farm and herd began when the girls were small with a mixed Boer herd. We slowly moved from a primarily Boer herd to now an entirely dairy herd. The girls have varying breed interests, so we have Nubians, Alpines, LaManchas, Saanens and my favorites, our Recorded Grades. We travel nationally with the dairy goats and I am blessed to have met so many of those in AASRP as well as great goat breeders in our travels. We have been fortunate enough to attend 2 ADGA National Shows and 2 ADGA Conventions allowing me to attend AASRP meetings while still spending time with my family.

My career in organized veterinary medicine started in 2009 where I served 4 years as the District Director for the Oklahoma Veterinary Medical Association. My first year on the board erupted with an attack on the practice act and was quite an eye-

eye-opening experience. We did manage as a board to pull the association back together during the battle, hire a new legislative consulting firm and come out in one piece on the other side. I felt I was making a difference in the lives of veterinarians, and from that point I was elected to Vice President. Over the next 4 years, I served as Vice-President, President Elect, President and Past President of the Board. I also managed to help bring the Power of Ten program sponsored by Elanco to Oklahoma new graduates and after assisting in a recent rekindling, the program is once again going strong. During my year as President, we tragically lost our Executive Director, Mrs. Jana Black, and with the help of a wonderful Executive Board, we managed to move past the tragedy and hire a new director who is still with us to this day and moving the association in a promising direction.

I have made 3 trips to the AVMA Leadership Conference in Chicago during my position on the OVMA Board, once as a selection for the Young Leaders Candidate and twice as President/President Elect. I have attended an AASRP meeting at the AVMA Convention and was excited to put some names to some faces. I specifically remember during these early travels meeting an AASRP member, Patty Sharko, and her encouragement of me to join AASRP. I am pleased that I did and am happy to be a member of such an amazing group of small ruminant enthusiasts.

I have enjoyed being considered the 'goat specialist' in my community to help educate and guide breeders and owners in the right directions with their herds and their programs. I have had the opportunity to conduct multiple artificial insemination clinics at nearby events and to help youth prepare and present information on goats and sheep to other youth within our district. We, as a family, are very active in 4H and FFA, especially sheep and goat projects, and feel we have in the past and will continue to contribute to the betterment of the species in our area both in care and knowledge. My husband often says I am not satisfied unless I am challenged. My current project of interest is to bring the ADGA National Convention and Annual meeting, as well as the associated AASRP meeting, to Oklahoma. I feel an opportunity to work on the AASRP board would be a step in the right direction for both my career and my contribution to small ruminant medicine in the United States.

Virginia Fajt

Virginia Fajt has been interested in small ruminants since she spent two lambing seasons at Heifer Project in Perryville, Arkansas before entering veterinary school. She received her DVM from Auburn University, during which she spent part of one summer at the U.S. Sheep Experiment Station in Idaho and preceptored in a practice in Texas with a large Boer goat clientele. After an internship and one year as an ambulatory clinical instructor in Agricultural Practices at Kansas State University, she earned a PhD with an emphasis on clinical pharmacology at Iowa State University and eventually became a diplomate of the American College of Veterinary Clinical Pharmacology. She worked on a web-based antimicrobial decision support system for food animal veterinarians (VADS) and taught at a local university in Pueblo, Colorado for 5 years, and then she took a faculty position at Texas A&M. At Texas A&M, she teaches pharmacology to undergraduates, graduate students, and veterinary students, and

she collaborates on clinically-oriented research on antibiotics and other drugs in small ruminants and other species. She has been the co-author of the formulary in the appendix of Pugh's Sheep and Goat Medicine for all 3 editions, and she has written about and provided CE on legal issues related to drug use in small ruminants. She has extensive experience as a volunteer for other veterinary associations such as AABP and AVMA. She has been an AASRP member since veterinary school, and she has been representing the AASRP on the AVMA Committee on Antimicrobials since 2016.

AASRP Offers Webinars

The AASRP board recognizes members' need for high quality small ruminant CE and has authorized funding of several webinars to be offered over the next 12-18 months. The links for the webinar will be sent to members to view the live session on their computer or mobile device. AASRP members who log in to the webinar with their first and last name will be issued a CE certificate. Webinars are RACE approved for 1 CE credit in jurisdictions that recognize RACE approval. The webinars will be recorded and available on the BCI CE portal through the AASRP website or the BCI Mobile Conference app. Webinars and CE certificates are a free member benefit for AASRP members!

Webinars will occur at 12 pm Eastern time on the following dates:

May 13, 2020 – Dr. Tanya Applegate “Urogenital Procedures in the Ram and Buck”

June 3, 2020 – Dr. Pippa Gibbons “Practical Sustainable Parasite Control”

July 15, 2020 – Dr. Robert Van Saun “Feeding for Two: How to Feed the Rumen and Host Animal”

August 12, 2020 – Dr. Robert Van Saun “Interpretation and Application of Feed Analysis in Small Ruminant Diets”

September 9, 2020 – Dr. Richard Ehrhardt “Optimizing Forage and Grazing Management for Small Ruminant Health and Productivity”

Stay tuned for announcement of links as well as future topics!

STUDENT EXTERNSHIP REPORT -

Comstock Large Animal Hospital in Reno, Nevada

From December 20th, 2019 to January 3rd, 2020, I was a busy extern at Comstock Large Animal Hospital in Reno, Nevada. Primarily an equine hospital, what drew me to the practice was its ever-growing small ruminant client base (>10% of gross at time of writing). The practice has two doctors highly versed in sheep and goat medicine, Drs. Betsy Lau and Ty Blanche, who oversee clients in rural, urban, and suburban areas with pet sheep and goats. They also care for a few small ruminant production clients.

During my two-week visit, I experienced many aspects of the small ruminant services that Comstock provides. One very important service is the initial wellness visit for owners of new kids and lambs, as many individuals in the Reno area acquire pet goats for the management of the dense brush in their Southwestern backyards. Dr. Betsy Lau, my mentor during my visit, had several such appointments during my stay, and I witnessed numerous dehornings, vaccinations, and wellness

exams. Most important, however, was the careful attention paid to teaching the small ruminant novice client how to care for and manage their new pet, especially nutritionally. To the right is a photo of a Nigerian dwarf kid that I dehorned during a routine wellness exam.



Comstock also sees many small ruminant emergencies, as the nearest academic veterinary hospital with an emergency room is 3-4 hours away (UC Davis)—and in the winter, the weather over the Sierra Nevada mountains often prohibits safe travel. During my externship, an adult male Alpine goat suffering from polioencephalomalacia was admitted for critical care, and I learned a lot about one-woman goat restraint at 3 AM while giving IM injections! Due to the quick actions of his owners as well as Dr. Hertel and Dr. Ty Blanche, the goat went on to make a full recovery and is back to ruling his herd with gusto. On the opposite side of the spectrum, an eight-year-old female Boer goat was admitted for a spiraling fracture in the right proximal radius. This case, while it unfortunately ended in euthanasia, was important to me in that I was able to learn about pain management, fracture stabilization, and surgical options for older small ruminants.

Finally, my favorite case of my trip was that of two Toggenburg goat brothers, one of whom the owner reported as “bloated and choking.” As we drove to the appointment, Dr. Blanche and I reviewed the many possible differentials for a castrated male goat, and I was able to apply much of what I’d learned in my vet school curriculum to devising that list. Upon arrival, Dr. Blanche and I performed an exam and discovered a bolus of thick, hardened forage matter in the distal esophagus. With patience and gentle manipulation, we were able to pass a small ororumen tube through the bolus and break it up, pushing it into the goat’s rumen. He immediately improved, and by the time we left the farm was seen butting heads with his larger, feistier brother. It was interesting for me to experience how herd and environmental education played a role in this type of vet call, as well; Dr. Blanche spent quite a bit of time with the owner discussing feed, forage, and behavior that might have led to the choking episode. In the end, it was concluded that the choking goat had been bullied by his brother, so he had begun inhaling his hay in order to get enough to



eat. The owner had a clear plan going forward to rectify her herd issues, thanks to the calm experience of Dr. Blanche.

Overall, my time at Comstock was well spent, and I learned quite a bit about small ruminant medicine, pain management, and surgical techniques. Most importantly, I learned about how to communicate the care and keeping of small ruminants, especially pet goats, to clients in a manner that was educational and yet easy to remember. I feel very fortunate that I was able to extern at this wonderful practice that is on the other side of the country from my veterinary institution—and it would not have been possible without the financial aid of the AASRP!

Lili Becktell, Cornell Univeristy Class of 2021

STUDENT EXTERNSHIP REPORT -

Northwest Mobile Veterinary in Portland, OR

The externship with Drs. Blake Miller and Ashely Grainey, and CVT Sammy Morgan at Northwest Mobile Veterinary in Portland, Oregon provided invaluable exposure to work as a field veterinarian. It fulfilled all of the criteria of a great externship: excellent mentorship, acquisition of technical skills, application of knowledge to working cases, and all the while not contracting orf.

For the week long externship in late January there was a diverse range of appointments with goats, sheep, alpacas, llamas, pigs, cats, dogs and one lone horse. For the small ruminants, services included routine hoof trimming, vaccinations, herd health monitoring, emergency health checks and euthanasia appointments. During my time with Northwest Mobile Veterinary every appointment was different in some regard and provided unique learning opportunities.

My first goal of the externship, to gain more experience with preventative and immediate care of animals, was met through the appointments during the week. On one appointment we saw a 1.5 year old wether that had a previous history of urolithiasis and a perineal urethrostomy. The owner reported bloat 2 days prior that seemed to improve but wanted a follow-up. On rectal examination it was noted that the urethra had a mild pulse and when palpated the animal took a hunched posture and pushed. Blood work revealed elevated BUN and creatinine. Dr. Blake explained that for an ADR male goat, always have a urethral obstruction on your differential and always do a rectal to check for a pulsating urethra. He took the time to explain how to palpate the urethra and what you should be feeling. I also improved my technical skills through performing physical examinations, vaccinations, and blood draws. I improved my animal handling skills and also completely underwhelmed Dr. Blake with my hoof trimming skills. He showed me tips on how to hold the shears, angles to approach the hoof when trimming, to trim the hoof parallel to the coronary band and to not be afraid to trim until you see pink.

Another goal was to gain exposure to work outside of the referral hospital. What struck me most about being a field veterinarian was the ability to appreciate the animals living conditions and status of husbandry care. Sitting in class lectures we were told about the significant role veterinarians play in educating clients about animal husbandry, but it wasn't until this externship that I gained appreciation for just how

significant a role. In every single appointment there was opportunity to talk with owners about husbandry issues. During a pre-partum vaccine appointment Dr. Blake spent time to make sure that the owners had the supplies they needed for the upcoming kidding and talked through what to expect and in what situations to call. He provided another owner with specifics on free-choice supplementations for her goats and showed her where specifically on the railing he recommended that she place the bins. An emergency health check gave an opportunity to educate clients about the importance of clean, dry housing needs. In a smooth-running operation there was still opportunity to fine-tune biosecurity with the suggestion of positioning foot baths at entry ways or around feeding troughs to reduce the prevalence of foot rot in their sheep.

During our week we also saw a referral case that was a follow-up incision check and staple/suture removal. The patient was previously seen by Northwest Mobile Veterinary for a humeral fracture and referred to the university hospital for orthopedic surgery. I was familiar with the case from the hospital side and it was encouraging to get insight from Dr. Blake's perspective of the referral process and to witness the continuum of care.



Thank you to AASRP and the Sam B. Guss Memorial fund for the financial support of this externship, and thank you to Dr. Blake, Dr. Grainey and Sammy for the great experience and mentorship.

Lisa Augustine, Oregon State University, Class of 2020

STUDENT EXTERNSHIP REPORT -

Northwest Mobile Veterinary in Northwest Oregon (Portland)

American Association of Small Ruminant Practitioners has undoubtedly expanded my education during my time in veterinary school and has allowed me to grow as a future veterinarian outside the standard curricula. Perhaps one of the greatest generosityes this organization has provided is support to many students, myself included, through the Sam Guss Memorial Fund. Due to the generosity of AASRP and the Fund's donors, I was awarded a grant that allowed me to travel to Northwest Oregon and embark on what would be a life-changing experience.

The Sam Guss Memorial Fund allowed me to extern with Dr. Blake Miller and Dr. Ashley Grainey at Northwest Mobile Vet, a mobile, large animal focused general practice based out of Oregon City, Oregon. This practice

is unique in that the majority of the practice caseload is camelid and small ruminant medicine. My time in Oregon confirmed what I had been considering for much of my education—I absolutely adore small ruminant and camelid work and cannot imagine my future career without these species. Besides confirming my desire to work with these animals, this experience expanded my clinic skills in a number of ways. From evaluating and treating sick animal cases, to educating clients and implementing preventative care measures for herds, I feel much more competent, capable, and confident in my ability to assess and care for these species. Though the gorgeous Cascade mountains made for a wonderful work environment, the real treasure of this experience was the priceless knowledge both Dr. Miller and Dr. Grainey imparted upon me. Both of these individuals challenged my intellect and my skills and subsequently allowed me to grow exponentially in both areas. The ability of this practice to provide high quality care to these species exceeded my expectations and allowed me to have a higher standard of care for myself, and the skills to implement said standards. Furthermore, all the individuals with Northwest Mobile Vet treated me with the upmost respect and I wholeheartedly recommend this experience to any other students interested in small ruminant or camelid medicine. I cannot put into words what a wonderful experience I had as a result of the generosity of this fund and of this practice. AASRP and its members make possible experiences that cannot be achieved within the halls of the standard teaching hospital. Thank you.

Anne M Marshall, Purdue University, class of 2020

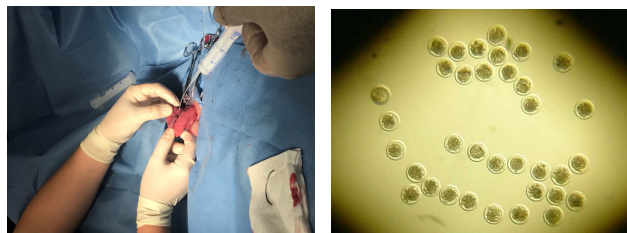
ANNOUNCEMENTS

The **2020 Camelid Health Conference** originally scheduled to be held at The Ohio State University on May 15-17, 2020 has been **postponed**. It was to be a two-day conference (lectures), with a third day wet lab (General examination of the camelid, special procedures, sedation, field anesthesia, ultrasound, reproductive ultrasound, catheter placement, spinal tap, abdominocentesis, castration of the male).

Contact Jeff Lakritz DVM (lakritz.1@osu.edu) for information or check the following website for more information concerning the Camelid Health Conference:

<https://vet.osu.edu/alumni/continuing-education/camelid-health-conference>

AASRP AETA Sheep and Goat Embryo Transfer Seminar scheduled for 6/24-2020 - 6/27/2020 at the Ohio State Large Animal Services at Marysville, Ohio has been **cancelled** because of the Covid-19 pandemic,



At the time of producing this newsletter, the **Theriogenology conference 2020** is still scheduled for July 22 - 25, 2020 in Pittsburgh, Pennsylvania.

The **2020 AVMA Convention** is scheduled for July 31 to August 4 in San Diego, CA. Stacey Byers is presenting the small ruminant subtrack: Diseases and disorders of neonatal camelids, Hyperglycemia in cria and adult alpacas, Lameness and osteoarthritis in camelids, Management of the anemic camelid, Working up the down camelid on the farm or in the clinic. See the website at <https://www.avma.org/events/avma-convention>

The **AASRP-AABP Conference** is currently scheduled for September 24 to 26 in Louisville. Watch the websites of the two organizations for more information as we work through the Covid-19 pandemic

Plan Ahead! The **10th International Sheep Veterinary Congress** will be held in 2021, from September 20th to 24th in Seville, Spain. The website for the congress is <http://isvc2021.com/> The outline of the 8 day technical preconference tour, which will visit many farms between Barcelona and Seville, has already been posted at <http://isvc2021.com/index.php/technical-tour>. The ISVC preconference tours are a marvelous way to see a country in the company of small ruminant veterinarians from around the world. You will arrive at the congress with many new friends and much shared knowledge.

BOOKS, BULLETINS AND COMPUTER WEBSITES

Free **webinars in dermatology** are available to the veterinary community at <https://wvavd.org/continuing-education/webinars/> Although many of the first 25 webinars are directed at small animal skin problems, there are two presentations by Dr. Stephen White (U.C. Davis) on Food Animal Dermatology as well as one on Differential Diagnosis of the Pruritic Horse.

The Reindeer and Caribou - Health and Disease is a text published in 2018 by CRC Press. The book is over 500 pages long and quite comprehensive. The pictures are great as are the reference tables throughout. <https://www.crcpress.com/Reindeer-and-Caribou-Health-and-Disease/Tryland-Kutz/p/book/9781482250688>

AASRP Policy Statement Concerning Unnecessary Bottle Feeding of Newborn Camelids

While there are no doubt understandable indications for bottle-feeding neonatal camelids (llamas and alpacas), human contact during this procedure should be kept to a minimum to avoid undesirable consequences.

The practice of removing newborn camelids from their mothers and unnecessary bottle feeding can lead to detrimental behaviors in the animal. This can result in over socialization of the young animal to humans which may become a severe problem when the animal reaches sexual maturity. Male camelids raised in this way will often become aggressive toward humans. They can be very dangerous in that they attempt fighting and breeding behavior as well as direct social behavior such as spitting toward humans. This behavior has been described as Berserk Male Syndrome/ Aberrant Behavior Syndrome. Male animals that display this behavior are frequently euthanized due to the safety risk they pose. Affected animals do not readily regress from this undesirable behavior even if castrated. Females are not quite as aggressive but may be more prone to aggressive behaviors. In addition to the risk to human safety, the animals themselves do not socialize well and may become aggressive towards other camelids.

The American Association of Small Ruminant Practitioners strongly recommends against unnecessary bottle-feeding of young camelids. In situations where bottle rearing of young camelids cannot be avoided, owners are encouraged to work with their local veterinarian to develop plans to reduce direct contact during feedings.

Revised January 2020

AASRP QUESTION AND ANSWER - Copper Oxide Wire Particles in Dwarf Goats

Question: What are other AASRP members doing for dose rate for Copper Oxide Wire Particle boluses in miniature goats? Lots of references state 2 grams for adult meat and dairy goats and 1 gram for weaned kids of these breeds. However I am seeing a lot of miniature goats now and also with the newly introduced dwarf breeds, Pygmy and Nigerian Dwarfs many of the adult goats of these breeds are only 30-40 kgs. The American Consortium for Small Ruminant Parasite Control fact-sheet states COWP dose is age not weight dependent but I don't want any cases of copper toxicosis developing.

Answer 1: Please determine liver copper levels in your goat herds before administering COWP capsules to goats. I live in an area with adequate copper in the soil, and I see clinical copper toxicosis confirmed at necropsy when producers administer even small doses of copper wires to their goats. Too often goat producers treat based on following internet recommendations rather than testing copper levels first.

Testing liver copper on animals sent to slaughter, deceased stock or on every animal sent to necropsy is worth the effort. Neonatal liver copper may be slightly less than adult copper, but it is more informative than not testing. The most common copper problem I see in Colorado is copper toxicosis caused by iatrogenic administration of COWP. Producers read internet sources advising administration of "x" amount of copper at "y" frequency to prevent copper deficiency, and diagnose said deficiency based on what they read on lay websites. All trace mineral nutrition is local and supplementation should be based on sampling animals prior to treatment. I remember seeing maps of soil copper from California and it was widely variable across the state. Better to test first and supplement next, than to kill goats with toxicosis.

Joan Bowen, Colorado

Answer 2: I do ask clients to get liver samples from any slaughtered goats or suddenly dead goats and freeze them for testing. The only problem is our state lab (only option for livestock) charges \$160 plus a \$24 submission fee to test 1 liver sample and so far no clients have taken up my recommendation.

Lots of deaths from barberpole worms in this area and some farms are developing resistance. Area is marginally deficient for copper and I have seen swayback in kids.

Sandra Baxendell, Australia

Answer 3: GLDH can be used to measure if you are approaching copper toxicity. Pool samples to get flock level monitoring. Marshfield is running the test for <\$11. High levels of GLDH indicate high levels of liver copper. We have used this test in a group of calves and solved a problem of toxic levels of copper in the ration. I currently am working with a flock of goats to see if the toxic level of copper on an 8 week old at necropsy was an individual or flock problem. The flock is going to be bled by age groups and submitted with 5 head per pooled sample. I learned this from Dr Jeremy Scheffers at the UMN-VDL

Phil Gill, Springfield MN

AABP QUESTION AND ANSWER - 4-H Presentations

Question: I've been asked to give a presentation to my kids' 4-H Club on "being a vet." The topic is very open ended. Instead of recreating the wheel, I was wondering if anyone has any presentations they've given for a similar purpose that I could borrow? Obviously, pictures will likely hold their attention the best. Anyone have any pictures of radiographs with common or interesting maladies? It can be small animal, dairy, beef, small ruminant, swine, etc. related.

Answer: Much depends on the age and background of the 4-H kids.

I have a PowerPoint presentation that I use for middle school students (not necessarily 4-H members) on developing the skills needed to become a veterinarian. Naturally, I mention developing good study skills and the importance of academic preparation, but much of the talk is on character traits and communication skills, especially listening, and I emphasize how they can practice all of these things in their everyday lives and at school. If you would like to take a look at this, email me privately and I'll try to send it to you. <0006731063@citlink.net>

When discussing listening I distribute inexpensive stethoscopes and have students work in groups of two or three (I have 8 stethoscopes) to listen to each other's hearts, after making sure that they know how to use them properly. For older kids, counting heartbeats and determining heart rate can be part of this exercise. If these are 4-H kids and we are at a farm or home with animals present, it is usually also possible for them to try to listen to the hearts of the animals.

Another hands-on activity that is popular with kids of all ages is bandaging. Teach them how to bandage a limb and let them practice on stuffed animals, each other, or willing pets, if available (older kids only - beware of possi-

bility of scratches, bites, etc.). This will also present the opportunity to teach proper restraint and how to assist in bandaging. Even a stuffed animal will need to be held by someone to have its leg bandaged.

For older 4-H groups that are interested in small ruminants I sometimes use a PowerPoint presentation that I have prepared for adult audiences on how to know when to call the veterinarian which covers how to perform a physical exam and distinguish normal from abnormal findings, along with some comments on basic health care and first aid. If possible, I have students bring fecal samples to this presentation and our hands-on activity is running quantitative fecal exams, using the modified Stoll's technique. This requires a lot more work on my part, and appropriate facilities, because I need a microscope, scale, centrifuge and supplies.

I think all kids under 14 years of age need some kind of hands-on activity, and it helps teenagers and adults to become more engaged if they can work on one, too. I also think that the entire event will be much more memorable if you bring something for them to take home as a souvenir. It need not be expensive - a brightly-colored roll of cohesive bandage, a few plastic OB sleeves, plastic balling gun (calves), rubber feeding tube (sheep/goats) - preferably something related to your presentation, but even a key chain or refrigerator magnet with their favorite species on it is fine.

Make sure that your practice vehicle is nice and clean. If you find that you need to fill more time, take the kids outside for a show-and-tell tour of your truck!

Have fun, and try not to cram too much material into too little time!

Christine T Camann, Unadilla, NY

Answer 2: Similar to Dr. Higgins description, I removed the pelvis from a deceased three year old Toggenburg doe, cleaned it appropriately and let it bleach in the sun. I made a long legged, floppy necked Nubian kid with Roman nose, two long ears and a tail out of durable material and stuffed it with rice so that it can be bent into all sorts of interesting presentations. Looking back, I should have made multiple kids so that I could show how easily different parts from multiple kids can present through the birth canal at one time. This pelvis and kid have traveled to many meetings across the country to teach both veterinarians and lay people about normal and abnormal parturition, and gives people an opportunity to learn in a hands-on manner how to correct a variety of dystocias. Maybe I need to get my sewing machine out and make a few more kids, and it might not be a bad idea to find a pelvis from a little Nigerian Dwarf dairy goat.

Joan Bowen, Colorado



AASRP QUESTION AND ANSWER - Recurrent Vaginal Prolapse

Question: A 3 year old Pygmy goat has prolapsed her vagina for the THIRD time. The first time was 1/21, second time was 2/15. This time (2/27) she has torn out through the sutures. She is due in two weeks. The owner has placed her on a diet. What are my options at this point? Replace and hope it stays? Alcohol epidural (how do I do that exactly, amounts?)? Induction? Previously, it was replaced +/- sedation and a bootlace type suturing of the vulva. (I wasn't the vet that saw the goat either time.)

Answer 1: Once I started using a prolapse harness I stopped suturing vulvas or using the plastic vaginal retainers (except for the really, really bad ones that required both). You can make a harness yourself but the nylon straps of the purchased harnesses are wider and sturdier. They can usually pass the lamb/kid while in the harness. The harness gives support to the whole rear end instead of relying on those delicate thinning tissues. And it doesn't hurt - I can't imagine how much the sutures hurt when pressure is place on them.

Holly Neaton, Watertown, MN

Answer 2: With the Buhner stitch, if you decide to try that route again, you can also try a Barth Blowout stitch versus tying and watching like a hawk. You place the umbilical tape like a regular Buhner but instead of tying, you pull the vulva "tight" and hold the string in place with a hemostat. Just below the hemostat, put some Braunamid or other non-absorbable skin suture through the umbilical tape in a horizontal mattress stitch, then remove the hemostat. I tried it in a Nigerian Dwarf. It held things in place but don't know how well the suture did as the owner removed everything when she started showing signs of kidding. It's been discussed in cattle before and there is a video describing how to do it as well.

Dustin Lochner, Plain WI

AASRP QUESTION AND ANSWER - Entropion Repair in Goats

Question: I was wondering if there were any recommendations and experience to be offered for surgical fixes for entropion in goats? I've done quite a few in dogs, and know there are many techniques. Was wondering if anyone had advice in the area of goats. Especially interested in your sedation/anesthesia methodology as well.

Answer 1: I have Nubians and LaManchas...All anecdotal....but never have had it in a LaMancha kid, and have maybe 10-12 over as many years....all Nubian kids and at least 90% white (not sure why or if coincidence). If this is a young kid, what I have done is to evert the lid and gently/snuggly pull the lateral commissure back toward ear/temporo-mandibular joint and hold that way for several minutes (usually while feeding bottle or on lamb bar). Doing this several times a day for just a few days has fixed it in all cases, some in as little as 12-24 hours. I believe I have seen somewhere the suggestion to put a small amount of Penicillin SQ in lower lid to effect a stretching and rolling out as well. These seem to be different than those seen in dogs...the goats seem to have

enough eyelid (eyelid margin) to lie flat, just for some reason haven't unfolded/unrolled.

This is one of the things I tend to check for when they are getting their bottle of colostrum. Haven't seen it in older kids though, so may need other intervention(s).

Anne Jones, Flower Mound TX

Answer 2: I have done them every way possible. Quick, easy, cheap is to inject long acting tetracycline until lower lid rolls out..quit..done.. watch proper withdrawals and ages. Don't keep for breeding (owners do anyway!). It is usually irritating enough that it scars down; other solutions have been injected as well. If you chose a hemostat method, if you crush hard enough you don't have to do any cutting or suturing. Clips work nicely as well. Manual rolling a couple of times a day by a shepherd/herder may work as well.

Cliff Shipley, retired from University of Illinois

Answer 3: To add to SHIPLEY doctrine hemostat method ... Once you "grab and smash" you can encourage it to scar with touching a liquid nitrogen chilled instrument to the bleb for a moment.

R. Greg Stewart, Farmington GA

Answer 4: Both for our own Suffolk and Corriedale flocks as well as for clients I used a curved Carmault to just crush the lower lid - no anesthesia or slicing. The resulting swell was usually enough. Too much time under heat lamps was IMHO a predisposing factor if genetics wasn't to blame up front.

LaRue Johnson, Howmo CO

Answer 5: (not posted to the discussion but potentially relevant). I like to use Michel wound clips placed perpendicular to the lid margin to fold up that ridge of eyelid until the clips fall out on their own days later. Sometimes, in kids and in lambs, the orbital fissure is too small and the lid cannot be properly replaced until a releasing cut is made with iris scissors at the lateral canthus. I do block for this cut with a bleb of buffered lidocaine. Certainly advise against breeding these animals!

Mary Smith, Ithaca NY

ABSTRACTS

EXPERIMENTAL EVALUATION OF TULATHROMYCIN AS A TREATMENT FOR *CAMPYLOBACTER JENUNI* ABORTION IN PREGNANT EWES

Off-label use of this macrolide may prevent some abortions during an outbreak, but its use for general prophylaxis is not recommended.

Historically, *Campylobacter*-induced abortions in sheep were mostly caused by *Campylobacter fetus* ssp *fetus* but in the past several decades a hypervirulent, tetracycline-resistant strain of *C. jejuni* has become the predominant cause of these abortions. The only FDA approved feed-grade antimicrobial for prevention of *Campylobacter*-induced abortions is chlortetra-



cycline at 80/mg/sheep per day and this is ineffective. Even if given at a much higher dose of 500 mg/sheep/day, the antibiotic is generally undetectable in fetal tissues and amniotic fluid. Field isolates of *C. jejuni* have been susceptible in laboratory tests to macrolides, including tulathromycin (Draxxin®), which has an elimination half-life of 111 hours in pregnant ewes after subcutaneous injection. The only experimental model for inducing *C. jejuni* abortion involves IV inoculation of large numbers of the organism. The result is abortion in 3 to 12 days, suppurative metritis, placentitis and the presence of many bacteria in uterine, placental, and fetal tissues. However, this aggressive challenge occasionally kills the ewe within 24 to 48 hours because of the presence of bacterial endotoxins in the inoculum. In the current research, 20 Hampshire x Polypay ewes pregnant 2.5 to 3 months were inoculated IV with 8.5×10^8 colony forming units for a 50 kg ewe, dose scaled with weight. Half of the ewes received tulathromycin at 1.1 ml/45 kg SC 18 hours after the *C. jejuni* inoculation. One ewe in the treatment group and one in the control group were euthanized because of severe toxemia within 24 hours. The remaining ewes were euthanized when they aborted or showed vaginal bleeding indicating imminent abortion. This occurred in 2 tulathromycin-treated ewes and 7 control ewes. All 9 of these ewes showed severe metritis and placentitis, with large numbers of *C. jejuni* isolated from uterine, placental, and fetal tissues. The 2 control ewes and 7 tulathromycin-treated ewes that did not abort were euthanized at 21 days. Only one of the 9 ewes (it was treated with tulathromycin) showed any evidence of infection. All 20 ewes were negative histologically for Q fever and chlamydial organisms. During an abortion outbreak, prompt disposal of aborted fetuses and placentas, separation of pregnant ewes from aborted ewes, and removal of still pregnant ewes to a clean environment are recommended measures. However, a single dose of tulathromycin might help to prevent further abortions but would engender prolonged meat and milk withdrawals. It also might limit fecal shedding of the organism, as only 1/9 treated ewes, compared with 7/9 control ewes, had *Campylobacter* isolated from cecal swabs at necropsy. Routine use of this drug would be expected to lead to tulathromycin resistance and is therefore to be discouraged.

Yaeger MJ et al.
AJVR 81(3):205-209, 2020

NEOPLASIA OF THE TUBULAR GENITAL TRACT IN 42 GOATS

Straining and bloody vaginal discharge were common clinical signs. Ultrasound examination was helpful.

A retrospective study was performed investigating the medical records of does evaluated at the University of California - Davis veterinary medical teaching hospital in 1992 through 2011 and the University of Pennsylvania teaching hospital from January 1, 2007 through August 31, 2015. Animals were identified by searching for a diagnosis of uterine, cervical or vaginal tumors or neoplasia or hematuria. Does were excluded if no histopathologic diagnosis was made. A total of 2,737 does were evaluated between the two facilities and 42 (25 at Davis, 17 at Pennsylvania) met the inclusion criteria. The prevalence of neoplasia of the tubular genital tract among adult does was 1.2% and 2.6% at the two facilities. The median age of the study does was 10 years and the range for the 25th to 75th percentile was 8 to 11 years. The median age of the combined general hospital population was only 2 years. Pygmy goats were over-represented, at 52% (22/42) whereas they were only 27% of the general hospital population. Thirteen of the 42 goats survived to hospital discharge and there was no attempt made at follow-up for these animals. Additionally, 3 died and 26 were euthanized, including 10 euthanized during surgery. The reasons for evaluation included bloody vaginal discharge or hematuria in 21, abdominal straining in 9, weak rumen contractions in 8, abdominal distension or bloat in 5 and signs of abdominal pain in 5. Of the 17 does with a previous breeding history, 13 had never been bred or were never confirmed pregnant. Vaginal discharge, when noted at the time of admission, was hemorrhagic in 10 and mucoid or mucopurulent in 10. A digital or speculum exam of the vagina was performed in 6 animals and identified a mass in 3 of them. Ultrasonography, either transrectal or transabdominal, was performed on 34 does and a discrete mass or thickening in the caudal abdominal region was identified in 31. The mass was variably heterogenous, echogenic, or anechoic and intrauterine fluid was detected in 13 of 34. Of 23 does that underwent surgery, 10 were euthanized because of a poor prognosis (extension of the mass caudally, metastasis, adhesions, etc) and a complete or partial hysterectomy was performed on the other 13. During surgery or necropsy, 34 of 42 tumors were found to be of uterine origin. Evidence of neoplasia in other organs was found in 20 of 29 goats necropsied. The histologic diagnosis, made by either biopsy or necropsy, was leiomyoma in 13 does, adenocarcinoma in 13, leiomyosarcoma in 11, sarcoma in 2, and one each for anaplastic carcinoma, fibrosarcoma and adenoma. Metastasis was identified at necropsy in 9 of 10 does with adenocarcinoma. Does with straining had greater odds of euthanasia than those without this finding.

Linton JK et al.
JAVMA 256(7):808-813, 2020

OVIS ARIES PAPILLOMAVIRUS 3 IN OVINE CUTANEOUS SQUAMOUS CELL CARCINOMA

A papillomavirus, along with poor pigmentation of the skin and exposure to ultraviolet radiation, may contribute to the development of this malignant skin tumor.

Papillomaviruses (PV) are highly species specific, small, non-

nonenveloped viruses. Most PV infect the basal layer of the stratified epithelium. In sheep in Australia, two *Ovis aries* papillomaviruses (OaPV1 and OaPV2) have been described. Recently a novel PV (OaPV3) has been described in Sardinia, Italy. It has less than 60% similarity with other PVs. Squamous cell carcinoma (SCC) is the most common form of skin cancer in sheep. This study used 40 cutaneous SCC samples and 40 matched non SCC samples from the same tissue (udder, eyelid, pinna, trunk, planum nasale) from Sardinian sheep. The tumors appeared grossly like horns or cauliflower-like masses from 4 to 9 cm in diameter. The presence of OaPV1,2, and 3 was assessed using appropriate tests and the cellular localization and viral transcription activity were also evaluated. No evidence was found for OaPV1 or OaPV2. By contrast, OaPV3 was detected in 26 of 40 SCC samples but only 12 of 40 non SCC samples. Of the 26 PCR positive tumor samples, 24 showed viral transcription activity.

Vitiello V et al.
Vet Pathology 54(5):775-782, 2017

PATHOLOGY IN PRACTICE (TOXOPLASMOSIS ABORTION)

Typical outcomes for a small ruminant fetus with toxoplasmosis are fetal resorption, fetal death, mummification, or birth of a weak neonate. The diagnosis could be confirmed in this case even though the fetuses were autolyzed and mummified.

A pregnant pygmy goat that was bred 3.5 months earlier was examined for a one day history of vocalization and a dark red vulvar discharge. Abdominal ultrasonography showed scant fluid (and presumably a fetus) but no fetal heart beat. The goat aborted 2 mummified fetuses the next day. They had crown-rump lengths of 14 and 10 cm and the smaller fetus had smaller cotyledons in its portion of the shared placenta, suggesting that it died earlier. Histology was performed on placenta and the mummies; all tissues were diffusely autolyzed. The cotyledons showed multifocal necrosis and mineralization. Foci of necrosis were also seen in the liver and some were mineralized. *Klebsiella* and several nonpathogenic organisms were isolated from the placenta. Fluorescent antibody tests on placenta, lungs, and liver for *Leptospira*, *Toxoplasma*, *Listeria*, and *Chlamydophila* were negative, but a targeted next-generation sequencing panel for ruminant pathogens was positive for *T. gondii* and *Klebsiella pneumoniae*. Such a panel could be very useful when initial tests on an aborted fetus are negative. An immunohistological stain for *T. gondii* was positive on placenta, liver and brain. The owners reported that cats, the source of *T. gondii*, had access to the goat's enclosure and bedding. Because the organism is zoonotic, aborted goat fetuses should be necropsied in a biosafety cabinet. Owners should burn or bury aborted fetuses and placentas, pasteurize milk, and thoroughly cook meat. Cats should be kept out of the feeding area and the areas where hay and grain are stored.

Coe SE et al.
JAVMA 256:183-186, 2020



IN VITRO DETECTION OF CHRONIC WASTING DISEASE (CWD) PRIONS IN SEMEN AND REPRODUCTIVE TISSUES OF WHITE TAILED DEER BUCKS (*ODOCOILEUS VIRGINIANUS*)

Although the prion is present in the semen and reproductive tissues, this does not yet prove that sexual transmission actually occurs under natural conditions.

Chronic wasting disease (CWD) is a prion disease affecting deer, elk, reindeer, and moose. The disease continues to spread across the United States and Canada. Prions are known to be shed in the urine, feces, and saliva of infected deer, making environmental contamination an important source of infection. This study investigated the possibility that semen could also be a source of infection, using protein misfolding cyclic amplification (PMCA) technology. Semen, testicular stroma, and epididymides were collected postmortem from 9 naturally infected whitetailed bucks depopulated because of the presence of CWD in the herd and from 12 bucks from herds free of the disease. The infected deer were classified as early presymptomatic if positive staining for the prions was seen only in the medial retropharyngeal lymph node and late presymptomatic if the obex was also involved as observed by immunohistochemistry. The bucks were 1 to 7 years old and had varying polymorphisms at position 96 of the prion protein. The PMCA assay detected PrPSC in 5 of 9 semen samples, 5 of 9 testicular samples, and 6 of 9 epididymal samples from the CWD infected bucks. No samples from the negative control bucks were positive by PMCA except for one epididymal sample. This gave a sensitivity of 59.3% and a specificity of 97.2% for the assay. Detection was 100% for semen and epididymis in late preclinical animals. Sensitivity was similar to that when using blood to detect CWD. Prion detection did not seem to be affected by the prion protein polymorphism.

Kramm C et al.:
Plos One Dec 30, 2019.
<https://doi.org/10.1371/journal.pone.0226560>



THE ASSOCIATION OF SERUM BETA-HYDROXYBUTYRATE CONCENTRATION WITH FETAL NUMBER AND HEALTH INDICATORS IN LATE-GESTATION EWES IN COMMERCIAL MEAT FLOCKS IN PRINCE EDWARD ISLAND

BHBA is correlated with general health of the ewe but also with litter size. Parasite control is important for preventing ketonemia and grouping and feeding ewes according to predicted litter size should also be helpful.

Forty-eight breeding groups in 34 sheep flocks on Prince Edward Island were visited 1 to 3 weeks before lambing was expected to begin and blood samples were evaluated for serum BHBA (n=382). The sheep were also evaluated for body condition, FAMACHA score, fecal egg count (FEC), fecal soiling and udder health (by palpation). Litter size was determined from the flock lambing book. Observations were compared with the log of the BHBA concentration. Log BHBA increased with increasing litter size, being 19%, 31%, and 85% higher in ewes that had twins, triplets, or higher (4 or 5 lambs) compared with ewes with single lambs. BHBA values were lower in ewes with a BCS of 2.5 to 3.5 than in thinner ewes and tended to be lower in these ewes than in fatter ewes. A FAMACHA score of 3 was associated with higher BHBA than the normal scores of 1 or 2. Presence of strongyle eggs on fecal exam also was associated with a 12% higher log BHBA. Only one ewe was found to have an unhealthy udder.

Ratanpob N et al
Prev Vet Med: Vol 154:18-22, 2018

COMPARISON OF FECAL EGG COUNTING METHODS IN FOUR LIVESTOCK SPECIES

The Mini-FLOTAC was the most accurate test system and also was the most precise for testing samples from sheep and llamas.

Fecal egg counts are used to make targeted anthelmintic treatment decisions and to determine anthelmintic efficacy, via fecal egg count reduction tests. For these purposes the test used needs to have high sensitivity unless the egg count in the patient is high. This paper compared three available tests with high sensitivity: the modified Wisconsin test (detection sensitivity of 5 eggs per gram or epg), a 3-chamber (high sensitivity of 8 epg) McMaster, and a Mini-FLOTAC device with a reusable fill chamber and detection sensitivity of 5 epg. Note that a regular McMaster test has a sensitivity of 25 to 50 epg. Initially cattle feces free of parasite eggs were spiked with eggs recovered from goat samples to give 200

egg in the test. The Mini-FLOTAC recovered 71% of the spiked eggs whereas the McMaster test recovered only 55% and the modified Wisconsin gave the poorest results at 31% recovery. This poor performance of the modified Wisconsin test was further evaluated by eliminating the cheesecloth straining step, which improved recovery. The Mini-FLOTAC's built in sieve filter has a larger pore size, which allows more eggs (and debris) to pass. It is faster to perform than the modified Wisconsin test, which has a centrifugation step. It also is a self-contained reusable device that allows measuring, homogenizing, and filling the Mini-FLOTAC disk with easy cleanup. The Mini-FLOTAC recovered significantly more eggs from sheep patient samples than the other two tests. For llamas with low egg counts the recovery rates were similar with the three tests. For samples from horses, and cattle, the modified Wisconsin test again gave the poorest results. When a single patient sample is being evaluated with a semi-quantitative test, ease and cost may be deemed more important than the detection sensitivity or accuracy of the Mini-FLOTAC system.

Paras KL et al.
Vet Parasitology 257:21-27, 2018

UPDATE ON CASEOUS LYMPHADENITIS IN SHEEP

This disease decreases the profitability of flocks that wish to sell pedigreed stock but also decreases productivity of the sheep.

Caseous lymphadenitis (CLA) is considered an "iceberg disease", one that is production-limiting in a larger proportion of the population than is exhibiting clinical signs at any one time. This paper reviews the disease, with emphasis on recent literature. Animals become infected through either inhalation or skin abrasions. *Corynebacterium pseudotuberculosis* releases an exotoxin phospholipase D and mycolic acid. Chemotaxis of neutrophils is impaired and phagocytes are infected; these phagocytes can carry the organism to regional lymph nodes, where granulomas form and abscesses may have multicentric layers as the toxin kills more tissue. The lesions may fistulate through the skin or into an airway in the lung, thereby spreading the organism. The organism can survive in the environment at low temperatures for 55 days, and in sheep dip for 2 hours. Rams have a role as sentinels for flock status and should be screened before purchase - and retested 12 weeks after arrival, while still in quarantine. In a study in the U.K., over 18 % of terminal sire flocks had at least one seropositive ram. The overall flock prevalence in Great Britain has been estimated to be about 4%, based on gross postmortem evaluations of cull ewes from 56 cooperating flocks. No randomized study has been conducted. Thin ewes with CLA are more apt to have visceral lesions, but a Canadian slaughterhouse study determined that 38.5% of animals with superficial lesions also had internal lesions. Australian studies show that infected animals have lower wool production. At slaughter, increased trim will be required and some carcasses will be condemned because of ruptured abscesses. Some clinical differentials include actinobacillosis, salivary mucocoele, *Trueperella pyogenes* abscesses from tooth root abscesses or drenching gun injuries, and anaerobic *Staphylococcus aureus* abscesses (younger animals and the lesions develop quicker). Bacteriologic culture is considered the gold standard for diagnosis but lesions can take up to 6 months to appear. A serologic test against the exotoxin is

commonly used in the UK (Elitest CLA) with a sensitivity of 87% and a specificity of 98%. Serology will not differentiate infected sheep from animals that have cleared the infection or been vaccinated with the Zoetis Glanvac 6 product, developed in Australia and available with special permit in the U.K. The protocol is two doses four weeks apart followed by annual boosters at least a month before shearing or lambing. An interferon-gamma test is under development that is not affected by the vaccinal status of the sheep. Because antibiotic treatment is rarely successful and the vaccination program provides good protection, culling rather than treatment of infected animals is advised. Do not lance abscesses, as that releases many organisms into the environment, potentially infecting numerous additional animals. If an expensive test and cull program (blood sampling every 3 months) is not employed, the breeding animals can be vaccinated to decrease the infection pressure on the flock and the youngsters that might be sold can be left unvaccinated so that they should remain seronegative if not infected.

Gascoigne E et al.
In Practice 42(2):105-114, 2020

NASAL ADENOCARCINOMA ASSOCIATED WITH JAAG-SIEKTE SHEEP RETROVIRUS INFECTION IN A SHEEP

In the United States and Canada, this type of tumor is caused by enzootic nasal tumor virus and occurs in younger sheep.

Nasal adenocarcinomas are usually caused by a betaretrovirus, enzootic nasal tumor virus 1 (ENTV-1) in sheep and by ENTV-2 in goats. Affected animals are usually under 4 years of age. Secretory epithelial cells in the nasal mucosa are transformed. A different but closely related retrovirus, Jaagsiekte sheep retrovirus (JSRV), causes ovine pulmonary adenocarcinoma by transforming cells in the lung. Additionally, there is an endogenous virus found in multiple copies in the sheep genome (enJSRV) that causes no lesions but might explain why sheep with the tumors do not produce antibodies against the causative viruses. This report from Ireland describes a thin 8-year-old ewe from a flock with endemic JSRV that was culled because of an abdominal hernia. A complete necropsy conducted for student training revealed the presence of a large mass in the caudal nasal cavity. It was histologically consistent with a well differentiated nasal adenocarcinoma, and immunohistochemistry (IHC) also supported that diagnosis, but ENTV-1 has never been found in Great Britain or Ireland. Because the betaretroviruses cross react in the IHC, PCR tests were done on both surface tissue and deep aspects of the tumor. Surprisingly, JSRV and not ENTV-1 was present. This nasal adenocarcinoma was thus a very rare

result of the JSRV, or else some mutant virus not previously described. Because reliable antemortem tests are not available for ENTV-1 and there is no vaccine or treatment, it is important that this virus not be imported into countries currently free of it.

Jahns H and Cousens C
J Vet Diagn Invest 32(1):152–155, 2020

INVESTIGATION OF A *YERSINIA ENTEROCOLITICA* OUTBREAK IN A COMMERCIAL ALPACA FARM IN SASKATCHEWAN

Although the source of the infection was not identified, the outbreak stopped after all adults on the farm were treated with long-acting oxytetracycline.

An alpaca herd of 59 animals, 30 females and 9 crias in one pen and 20 males in a second pen, experienced the sudden death of 4 females before seeking veterinary assistance and referring a fifth animal to the teaching hospital at Saskatoon. This alpaca, a pregnant female, was very thin, recumbent and nonresponsive but seizing intermittently. It was hypothermic with mucoid diarrhea, had metabolic acidosis and hypoproteinemia, and was euthanized soon after arrival in the hospital. Necropsy revealed fibrin, hemorrhage and necrotic material in the intestinal lumen and enlarged, edematous lymph nodes. Histologically a fibrinosuppurative necrotizing enterocolitis and lymphadenitis were confirmed with large clusters of gram-negative rods. Culture produced a heavy growth of *Yersinia enterocolitica* of biotype 3/O antigen untypable. A farm visit was initiated 10 days after the first animal presented to the hospital. By this time 3 more females had died and another was weak and lethargic. All of the losses were from the pen of females; crias were unaffected and the males, in another pen, also appeared healthy. The two pens were each 0.6 acre dry lots. The hay had been switched to round bales stored on the ground with no protection from rodents the month before the outbreak began. There were no pigs on the farm and the herd had been closed for at least two years. Seven additional females were determined to be lethargic and febrile or diarrheic as well as mostly thinner than the unaffected herd mates; they were moved to an isolation pen and treated with 4 injections of long-acting oxytetracycline, 20 mg/kg S.C., at 3 day intervals. The remaining adults in the herd were treated twice. Serologic tests for Johne's disease were negative and fecal flotations showed that parasite burdens were not high. Fecal culture grew *Y. enterocolitica* from 8 of 9 samples. Immune suppression of the pregnant females and inadequate nutrition to support both lactation and fetal growth may have contributed to the outbreak, but management and biosecurity inadequacies were also identified. Pooled fecal samples were negative on culture 12 days after the first farm visit and the individuals in the isolation pen were also negative at 53 days. Overall the farm lost 18.6% of the adult population of 59 - 9 adult females, 1 yearling female, and one adult male. Human cases were not seen on the farm, although yersiniosis causes 117,000 cases of human gastrointestinal disease and 35 deaths in the United States annually.

Ragno VM et al.
Canadian Vet J. 60(8): 877–882, 2019

INCIDENCE, POSSIBLE RISK FACTORS AND THERAPIES FOR PSEUDOPREGNANCY ON DUTCH DAIRY GOAT FARMS: A CROSS-SECTIONAL STUDY

Does in extended lactations were predisposed to the condition and most herds did not follow a recommended treatment protocol; more involvement by knowledgeable veterinarians is advised.

Pseudopregnancy, or hydrometra, is common in dairy goats. Fluid accumulates in the uterus and a corpus luteum persists, leading to anestrus. This study attempted to determine the incidence in Dutch dairy goat herds and possible factors predisposing to the condition. In 2016 there were 358 professional dairy goat herds in the Netherlands with an average of 1226 goats per herd. Goat farmers (n=216) were invited to fill out questionnaires and there was a 21.5% response rate. It is possible that there was a bias towards response by farms experiencing problems with the condition. Participating farmers reported a within-herd incidence of 1 to 54% for pseudopregnancy. The average milk per goat per year was 1165 liters and the most common breed was Saanen. In 77% of the cases pseudopregnancy occurred in goats over 1 year of age with extended lactations (production of milk for more than 12 months without kidding). Only 2% of cases occurred in goats under 2 years of age. A total of 60% of cases occurred during the normal breeding season of August to February. Although estrus was often induced with vaginal sponges followed by pregnant mare serum gonadotrophin, there was not an increase in incidence of hydrometra in the 2 months after this hormonal treatment. On 97% of the farms the affected goats were treated with a single injection of prostaglandin (dinoprost or cloprostenol) often at higher than recommended doses of 5 mg of dinoprost or 0.25 mg cloprostenol. A second dose of prostaglandin 10 to 14 days later was almost never given, even though this is reported to prevent recurrence. The effectiveness of treatment was not followed up on 73% of farms. A high number of ultrasound examinations on the herd per year was associated with an increased incidence, possibly because ultrasound examination was requested more frequently in herds with a higher incidence of the problem. Even though a hereditary component to the problem has been suspected, 97% of herds did not cull the affected doe or her offspring. Veterinarians (n=120) were invited to fill out a different questionnaire and the response rate was 22.5%. Forty-four percent of veterinarians did not advise a repeat treatment, relying instead on the observation of a 'cloudburst' as fluid was expelled from the uterus. Advanced cases can be diagnosed at once, whereas early cases with only scant fluid accumulation in the uterus may require a recheck for confirmation.

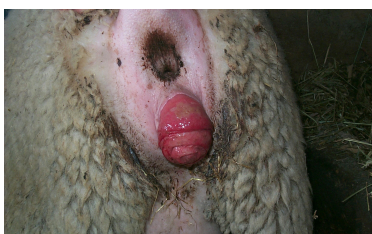
Van den Brom R et al.
Vet Record 184(25):, 2019 doi.org/10.1136/vr.i4136

PRELIMINARY INVESTIGATION OF THE EFFECT OF TREATING SHEEP DURING PREGNANCY WITH A VITAMIN A, D, E FORMULATION ON THE INCIDENCE OF VAGINAL PROLAPSE

A single dose 60 days before the expected start of lambing plus a single oral drench reduced the incidence of vaginal prolapses in ewes 3 years of age or older.

It has been proposed that vitamin D deficiency in post-menopausal women contributes to pelvic floor dysfunction, including pelvic organ prolapse and urinary incontinence. This study from the South Island of New Zealand investigated the association between vitamin D supplementation and vaginal prolapse in sheep. The mating period began March 16th and at the time of ram removal on May 4th ewes were blocked by age (2 year olds, 3-4 year olds, 5 or older) into early intervention, late intervention, or no treatment with supplemental vitamin D. Blood samples were collected from a small subset of each group for vitamin D analysis. Early ewes received 1 ml IM of 500,000 IU vitamin D3, 60,000 IU vitamin A, and 25 mg of vitamin E at this time. On June 11th the ewes were ultrasounded for pregnancy and number of fetuses and open ewes or missing ewes were removed from the trial. At this time both the early treatment and the late treatment ewes were injected with the vitamin product while the control ewes received nothing. On July 18th the ewes were gathered for pre-lambing clostridial vaccinations and selenium injection. The ewes in both treatment groups were drenched orally with 20,000 IU vitamin A, 10,000 IU of vitamin D, 200 IU of vitamin E as well as selenium and iodine. The control ewes were drenched with a product that contained no vitamins. Vaginal prolapses were recorded until the ewes were set stocked on pasture, at which time observation would have been difficult and the risk of causing mismothering unacceptable. Very few of the 2 year old ewes experienced vaginal prolapses. For ewes 3 years or older, prolapses were recorded in 1.8% of early injected ewes and 1.4% of late injected ewes but in 5.3% of the control ewes. Plasma vitamin D levels in controls dropped from 50.4 nmol/L in May to 18.5 nmol/L in July. The level in the late ADE group in July was significantly higher at 144 nmol/L, documenting that vitamin D dropped in unsupplemented animals over the winter (decreased ultraviolet light exposure) and was increased by the supplementation. Ewes 5 years of age or older on this farm had decreased risk for vaginal prolapse, but the farm policy was to cull any ewe that had prolapsed at the time the lambs were weaned, which would have removed the most susceptible ewes from the population. Ewes with multiple lambs were more likely to experience a vaginal prolapse than ewes with singles, with triplet bearing ewes most frequently afflicted.

Allott BS et al.
New Zealand Vet J 68(3):193-197, 2020



SUSTAINABLE APPROACHES TO PARASITE CONTROL IN RUMINANT LIVESTOCK

Factsheets describing these technologies are available at <www.wormx.info>.

In the face of increasing anthelmintic resistance, other methods for controlling gastrointestinal nematodes become important. Copper oxide wire particles (COWP) substantially reduce fecal egg counts (FECs) within 7 days, if the parasite lives in the abomasum where the wire particles lodge and low pH allows elution of the copper. Doses as low as 0.5 g are effective for lambs and kids and reduce the risk of toxicity compared to labeled doses of 2 g for youngsters. Liver AST can be used as an indicator of toxicity. Including copper sulfate in the ration has no value. Efficacy of COWP only lasts 3 to 6 weeks but is improved by good nutrition and feeds with condensed tannins. These condensed tannins are found in plants like sericea lespedeza, sanfoin, sulla, and bird's-foot trefoil. In addition to direct effects on *Haemonchus*, the tannins result in greater protein availability to the host in the small intestine. Longterm feeding can reduce availability of trace minerals and thus feeding should be limited to periods of highest susceptibility, such as around weaning or during the periparturient period. Nematode trapping fungi (*Duddingtonia*) are now available commercially in the US (Bioworma, Livamol with Bioworma) but must be fed daily and are expensive. Selecting for genetic resistance to parasites is very important and if a ram with very high resistance is used, his offspring will shed 50% fewer parasite eggs. The National Sheep Improvement Program, NSIP, uses FECs at weaning and postweaning to assess genetic resistance. In the absence of laboratory testing, FAMACHA scores can assist in the selection of resistant breeding stock. St Croix, Barbados Blackbelly, Santa Ines and Gulf Coast Native tend to be more resistant sheep than breeds that developed in temperate climates with concomitant use of dewormers. Heredity of resistance has been demonstrated in Katahdin sheep. Goat breeds are not very resistant (and should be allowed to browse rather than graze) but Spanish and Kiko goats are more tolerant of worms than Boers. Other parasite control techniques include increased dietary protein, multispecies grazing with cattle or horses and rotational grazing, moving to fresh plots every 3 to 7 days. There is no evidence for efficacy of diatomaceous earth and herbal products such as garlic, pumpkin seeds, papaya, and ginger failed to reduce FECs or worm burdens.

Burke JM and Miller JE
Vet Clin North Amer Food Anim Pract
36(1):89-107, 2020

Additional articles in this issue discuss: Biology, epidemiology and control of GI nematodes in small ruminants; Refugia-based strategies; Epidemiology and control of liver flukes in cattle and sheep; Coccidiosis, *Cryptosporidium* and *Giardia*; and Diagnostic methods for detecting internal parasites.

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NOTE TO STUDENTS: If you cannot reach your liaison contact please contact aasrp@aasrp.org. Your grant application must be signed by your advisor.



**American Association
of Small Ruminant Practitioners**

The AASRP Newsletter
1130 East Main Street, Suite
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AASRP MEMBER BENEFITS

The American Association of Small Ruminant Practitioners takes pride in our organization and the benefits we are able to offer to members. Just a few of these are listed below:

Wool & Wattles: Wool & Wattles is our quarterly newsletter that highlights pertinent information from books and journals in a digest format, upcoming events, and the best of information shared on the listserve.

Website: The AASRP website (www.aasrp.org) provides a wealth of information for members including: membership directory, continuing education opportunities, career center, listserv and much more!

Listserve: The AASRP listserve is a discussion group directed through email that offers members the opportunity to share ideas and discuss problem cases with colleagues who share an interest in small ruminant medicine.

Bugles and Orgles eNews: Current news and information is sent out to members via email to keep our members up to date.

Find a Vet and Membership Directory: Through the AASRP website, the public has access to contact information for any member practice.

Education: Continuing education programs are offered across the country, and student education is promoted at veterinary college through externships and grants.

Free online continuing education. Listen and view sessions from the AABP-AASRP conferences either on your computer or mobile device. Download the BCI Mobile Conference app to listen on your mobile device.

Race approved webinars are being developed. The webinars and CE certificates will be a free benefit to members.

Your voice: By being involved in our organization you are able to make your opinion on important topics heard.

Through AASRP, you are part of a combined strength in small ruminant medicine that focuses on relationships, education, growth, and success. For a complete list of member benefits visit www.aasrp.org.