

Hoof Print

The Small Ruminant Magazine



**TARGETED GRAZING
WITH SMALL RUMINANTS**

**PREVENTING
HEAT STRESS
IN SMALL RUMINANTS**

**FIND THE PAIR
AND WIN A PRIZE**





Become a Mentor

Remember your first couple of years in your sheep or goat operation? Ever have some nerve wracking experiences and times when you just really needed to talk to someone? Or, maybe you did have a mentor available that helped make the nerve wracking moments much easier to handle with just a simple phone call or email?

KSWPA and KGPA need your help! With the increasing population of goats and sheep in our state, there are lots of people who could benefit from your knowledge. Consider becoming a mentor so that we can continue to strengthen and grow our industries.



MENTOR JOB DESCRIPTION

A KSWPA and KGPA Mentor is a person who:

- ◆ has a passion for the sheep and goat industries in the nation, and more specifically in Kentucky
- ◆ be a person that is willing to help other producers become successful in their operations
- ◆ will give time and talent to new producers to help the new producer implement management practices into his/her operation that will ultimately benefit the new producer

Qualifications:

- ◆ Mentors must be a KSWPA or KGPA member
- ◆ Mentors must have been in the sheep or goat industries for a minimum of 5 years
- ◆ Mentors can have backgrounds in meat, dairy and fiber operations
- ◆ Mentors must be willing to provide contact information to new members seeking a mentor

To become a Mentor, complete the application below and mail to KSGDO, PO Box 4709 Frankfort, KY 40604, or go to www.kysheepandgoat.org/become-a-mentor

Mentorship Application

Name: _____ Farm Name: _____

County: _____ Years in Business: _____

Type of Operation (commercial, purebred, dairy, fiber, etc.):

Breeds:

Email: _____ Phone: (____) _____ - _____

Comments (anything else you want people to know):

Hoof Print Magazine

Published Quarterly

\$24 per year

Free with paid membership to one or more of our partner organizations.

HoofPrint: The Small Ruminant Magazine is a periodical to promote better animal health, husbandry, and knowledge among sheep and goat producers. **HoofPrint** is the joint effort of members of the sheep and goat industries and serves as a united voice for all small ruminant producers.

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Executive, Editorial & Advertising Sales directed by Kentucky Sheep & Goat Development Office: P.O. Box 4709 Frankfort, KY 40604-4709

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Find the hidden pair inside the magazine and you could win a sheep and goat gift set.






To win you must be the first to email a screenshot of your finds to kyates@kysheepandgoat.org. Gift set includes 2 American Lamb market bags, 1 KGPA Hat, 1 KGPA shirt, and a goat tag necklace.

Letter from the President

Greetings from middle Tennessee! I sure hope everyone took advantage of the crazy lamb prices this spring and maybe they will not fall off too bad throughout the summer as our other expenses are surely on the rise. Grass is coming on along great and by the time this is in print my summer annuals should be in full swing.

I use Greengrazer sudangrass as a summer annual to keep my permanent fescue pasture from taking such abuse in the summer heat. It has really helped keep them in better shape going into fall and winter for stockpiling versus the continuous heavy grazing all summer like normal. The seed is very cheap and for the price of a round bale of hay, I can drill an acre that will last me through October with no issues, while my fescue pastures rest with no grazing pressure. Disclaimer, be sure to pay attention to drought conditions and frost if using sudangrass as prussic acid and is very toxic under those conditions. In my case, I will terminate it in September to follow with a winter annual mix so frost will not be an issue for me.

One thing to be aware before planning breeding's this fall is taking a close look at the ethnic calendars if you are trying to hit those markets for better pricing. Those holidays change every year and if you do not adjust accordingly, you could possibly miss them altogether. If you have not considered fall lambing, for sure this past season will have a lot of people considering it or moving some of the flock that way to try it out. I know the older I get, the colder and wetter the Jan/Feb lambing's are, the more I hate them!

Some good news for all you wool producers, we have been awarded several grants to help us facilitate the purchase of a new wool press and trailer to transport it, and some other equipment as well. I do not think we will have everything together by fall but be on the lookout for the wool pool to start back up in 2022! It has been a huge deal in our state for many years and some are feeling the impact of not being able to sell in a pool.

The Board has decided to cancel the annual sheep shearing school at this time. It may be possible to reschedule later this year



sheep producers association
www.tennesseesheep.org

but due to the COVID-19 restrictions at most public venues it makes it impossible to plan for at this time. Visit our website often for updates and changes as they come about.

Some events happening this summer and early fall that we have dates on so far:

- July 23-24 - Southern States Dorper Show and Sale, Hyder Burks Ag Pavilion, Cookeville, TN
July 30-31 - TN Cattleman's Association Convention and Livestock Conference, will have small ruminant sessions, Sevierville Convention Center, Sevierville, TN
October 21-23 - TN Jr Livestock Expo, Hyder Burks Ag Pavilion, Cookeville, TN

Hopefully, we will be doing some updates to our website and Facebook page for information that comes up or changes so visit often.

Good luck and hope everyone can stay safe and healthy during this stressful time.

Robert Walker, President
Tennessee Sheep Producers

Membership Application



Name: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____ E-Mail: _____
Breed(s) of Sheep: _____

ANNUAL DUES: Adult: \$30.00 Junior \$10.00

If you are interested in a committee please select below:

- Wool Youth
Jr. Expo Sale
Production Education Membership/Revenue
Publicity Annual Meeting

Please enclose a check for amount made out to TSPA and mail to:
Tennessee Sheep Producer's Association
4233 Poplar Hill Road, Watertown, TN 37184

JOIN ONLINE TODAY!
Pay dues and join online at
www.tennesseesheep.org/joinonline.htm



Tennessee Junior Sheep EXPOSITION

October 21-23, 2021
Hyder-Burks Agriculture Pavilion
Tennessee Tech University, Cookeville, TN

The Tennessee Sheep Producer Association is again working with The University of Tennessee to secure funding for appropriate awards for sheep exhibitors. As a member of the Tennessee Sheep Producers Association, I wanted to ask that you consider contributing to help defray some of the cost for these awards. Any amount you would like to donate would be helpful.

Checks can be made payable to the Tennessee Sheep Producers Association and mailed to:
Mark Powell 4233 Poplar Hill Road Watertown, TN 37184

If you wish to donate online, visit www.tennesseesheep.org/expo.htm

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PRESIDENT'S LETTER



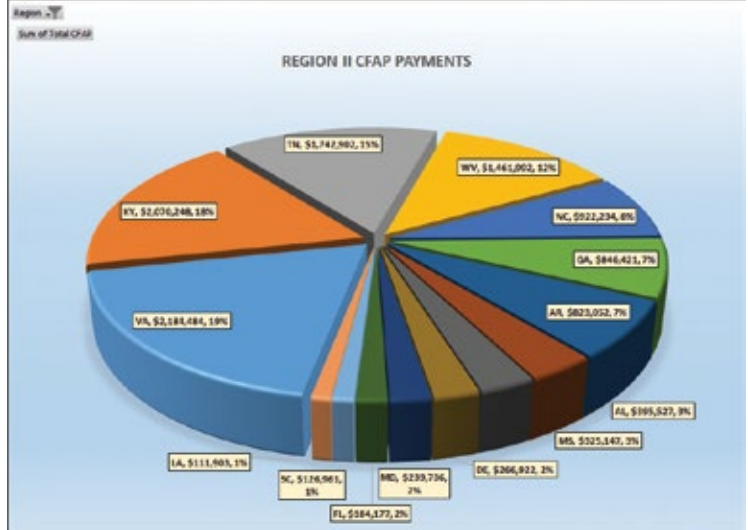
Dear KSWPA Members,

It was sure good to see the Fiber Festival return this year! The weather cooperated and it was nice to see families out together enjoying the vendor offerings, the seminars, and maybe even a little ice cream.

This really is a nice festival and we owe a lot of thanks to Sarabeth Parido, KSGDO Fiber Director, and everyone who works so hard to make this happen. If you weren't able to attend this year, make sure you come May 21-22, 2022. It's a great way to spend an afternoon while helping promote the sheep industry in Ky.

On June 5, KSWPA hosted the annual Wool Pool. We took in almost 16,000 pounds of wool this year. Kelley, KSGDO Executive Director, did a great job negotiating a better price for the wool than producers could likely have gotten on their own.

The Wool Pool is provided for KSWPA members. With the repair bill for the baler, purchasing wool bags, and cost to transport the wool, it is an expensive, but much needed service. It would be nice to see a more wool producers participate in 2022. Many thanks to those who spent a long day to help other producers!



Thanks to efforts made by the American Sheep Industry, US sheep producers received CFAP payments that were a big help to many of us. The chart below shows how many dollars were distributed in each of our states in Region II. All fourteen states in our Region benefited.

If you didn't send wool to the pool this year, I would really like to hear why. Is the timing bad? Is the location a problem? Although we had a full day of baling wool, I would like to see as many wool producers as possible take advantage of this service.

If you would like to help promote KY sheep, consider joining the KSWPA board. If you don't want to be a board member but would like to help in some other way, contact any board member or Kelley Yates. As the saying goes, "many hands make light work". The opportunity is here for KY to be a major sheep state. So, utilize the services KSWPA offers and get involved to make your organization even better.

Richard Popham,
KSWPA President



KSWPA Membership Benefits

- Quarterly issues of HoofPrint Magazine plus the newly designed 2021 Sheep and Goat Management Calendar
- A unified voice for the sheep industry and representation on important state and national committees
- Assistance with new marketing opportunities such as The Kentucky Sheep and Fiber Festival and HoofTrader.com
- Receive a membership to the American Sheep Industry, our national lobbying, marketing and promotional support system.
- Support of various educational and youth activities

Name: _____ Phone: _____

E-Mail: _____

Address: _____ City: _____ State: _____ Zip: _____

Please enclose a check for \$30.00 made out to KSWPA and mail to:
Kentucky Sheep and Goat Development Office
P.O. Box 4709, Frankfort, KY 40604-4709.

Breed: _____
Dairy Club Lamb Fiber
Commercial Purebred

JOIN or RENEW TODAY!
Visit www.kysheepandgoat.org

CALENDAR OF EVENTS

- JULY**
- 7 Pipestone Lamb and Wool Sheep for Profit School, MNWest.edu/programs-courses/training-management/lamb-and-wool/sheep-for-profit
 - 8 graded sale Bowling Green
 - 9-10 Eastern Alliance for Production Kathadins Symposium and Sale, <https://easternalliancekatahdins.com/symposium-registration/>
 - 12 graded sale Richmond
 - 12-14 NSIP Online Sale
 - 15 Barren County Sheep and Goat, 6:30pm, Barren County Extension Office
 - 17 graded sale Springfield
 - 19-23 Eid al-Adha
 - 20 graded sale West KY
 - 22 graded sale Bowling Green
 - 22 Livestock Guardian Dog Reproduction & Common Problems, agrilife.zoom.us/j/96377395433
 - 26 graded sale Richmond
 - 27 graded sale Paris
 - 31 Center of the Nation NSIP Sale, Spencer, IA
- AUGUST**
- 12 graded sale Bowling Green
 - 8 graded sale Richmond
 - 17 graded sale West KY
 - 12-22 Kentucky State Fair
 - 21 graded sale Springfield
 - 23 graded sale Richmond
 - 24 graded sale Paris
- SEPTEMBER**
- 4 Virginia Tech 22nd Annual NSIP Production Sale, apsc.vt.edu/facilities0/copenhaversheepcenter.html
 - 6-8 Rosh Hashanah
 - 9 graded sale Bowling Green
 - 13 graded sale Richmond
 - 18 graded sale Springfield
 - 21 graded sale West KY
 - 21 Barren County Sheep and Goat, 6:30pm, Barren County Extension Office
 - 23 graded sale Bowling Green
 - 24 Virginia Tech Southwest AREC Forage Based Ram Test Sale and Field Day, apsc.vt.edu/extensionandoutreach/Sheep-Extension/sheep-programs/swarec-ram-test.html
 - 27 graded sale Richmond
 - 28 graded sale Paris



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- Warren Adcock, Henry Co. – wadcock6307@hotmail.com
- University of Kentucky Representative: Matt Hamilton
- Harry Frederick, Monroe County – windingcreekfarmsKY@gmail.com

KGPA hosted a Virtual Field Day

On April 13-27, 2021, KGPA hosted a Virtual Field Day. Speakers included Jeremy McGill from Gallagher, Susan Schoenian from the University of Maryland, and Dr. Chris Teutsch from the University of Kentucky. If you missed the presentations or want a recap, visit <https://www.kysheepandgoat.org/goat-field-day>.

KGPA Virtual Field Day
Using Dewormers Right



April 20th
8pm (EST)



Susan Schoenian
Sheep & Goat Specialist
University of Maryland

KGPA Virtual Field Day

Fencing Ins & Outs



April 13th
8pm (EST)



Jeremy McGill
Territory Manager
and
Regional Product Specialist
Gallagher

Register at <https://www.kysheepandgoat.org/goat-field-day>

KGPA Virtual Field Day

Pasture Renovation



April 27th
8pm (EST)



Dr. Chris Teutsch
Extension Associate Professor
University of Kentucky



JOIN or RENEW TODAY! KGPA Membership Application

Your \$30 membership includes:

- 4 issues of the *HoofPrint* Magazine plus the newly designed 2021 Sheep and Goat Management Calendar
- A unified voice for the goat industry on the state and national level
- Representation on important committees such as the Check-Off and the Animal Care Standards boards
- Support of various educational and youth activities
- Youth Membership forms can be found at [kysheepandgoat.org/KGPA.html](https://www.kysheepandgoat.org/KGPA.html)
- **And much, much more!**

Name: _____

Address: _____ City: _____

State: _____ Zip: _____ Breed: _____

Club Lamb Fiber Dairy

Phone: _____ Commercial Purebred

E-Mail: _____

Please enclose a check for \$30 made out to KGPA and mail to:

Kentucky Sheep and Goat Development Office
P.O. Box 4709, Frankfort, KY 40604-4709.

Mail form or Visit www.kysheepandgoat.org to join today!

Letter from the President



Hello All,

Hope this issue finds you surviving the hot, wet summer. As we look back over the past several months, the KGPA hosted its first virtual Field Day. Producers joined together by Zoom to hear knowledgeable speakers discuss different topics that are all a part of goat production. Over a one hour session, for three consecutive weeks producers learned about fencing from Gallagher, correct usage of dewormers, and pasture establishment. All sessions are available for replay on the Kentucky Sheep and Goat Producers website.

As restrictions are lifted, the board is ready to be out in the goat community. Starting with association meetings and having an information booth at the State Fair, the board and I plan to spend the summer spreading our knowledge and mentoring new producers. We are ready to see producers face to face! Please let any of us know how we can be of help.

President,
Angie French Downs

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- David Watson,**
dvwatson@logantele.com, Logan County

CALENDAR OF EVENTS

JULY

- 8 graded sale Bowling Green
- 8 Jessamine County Goat Producers, 6:30pm,
Ag Learning Center Jessamine Co. Fairgrounds
- 12 graded sale Richmond
- 15 Barren County Sheep and Goat, 6:30pm,
Barren County Extension Office
- 15-17 American Meat Goat Classic, Greenfield, Indiana,
<https://www.usamgc.com/>
- 17 graded sale Springfield
- 17-23 American Dairy Goat Association National Show,
Kentucky Expo Center, Louisville, Kentucky,
<https://nationalshow.adga.org/>
- 19-23 Eid al-Adha
- 20 graded sale West KY
- 22 graded sale Bowling Green
- 26 graded sale Richmond
- 27 graded sale Paris

AUGUST

- 12 graded sale Bowling Green
- 8 graded sale Richmond
- 17 graded sale West KY
- 12-22 Kentucky State Fair
- 21 graded sale Springfield
- 23 graded sale Richmond
- 24 graded sale Paris
- 26 graded sale Bowling Green

SEPTEMBER

- 6-8 Rosh Hashanah
- 9 graded sale Bowling Green
- 9 Jessamine County Goat Producers, 6:30pm,
Ag Learning Center Jessamine County Fairgrounds
- 13 graded sale Richmond
- 18 graded sale Springfield
- 20-21 National Goat conference, Prairie View A&M
University, Texas, This will be a virtual conference,
<https://www.nationalgoatconsortium.com/>
- 21 graded sale West KY
- 21 Barren County Sheep and Goat, 6:30pm, Barren
County Extension Office
- 23 graded sale Bowling Green
- 24-25 Spanish Goat Gathering Seed Stock Sale &
Educational Event, Mrfreesboro, Tennessee,
<https://spanishgoatsllc.com/>
- 28 graded sale Paris
- 27 graded sale Richmond





Targeted Grazing with Small Ruminants

Dr. Ken Andries

Kentucky State University

There are a lot of different discussions today related to livestock management and grazing that all seem to be similar and it can be confusing. Terms such as targeted, regenerative, mob, holistic and others are used to describe different types of grazing management that blur together when we start digging into them. Targeted grazing is the use of specific livestock at the specific season, duration, and intensity to accomplish specific goals for your vegetation and landscape. To be effective it will involve other grazing management strategies to achieve these goals.

The goal of targeted grazing is to be able to manage livestock, sheep and goats are ideal for this, to help reduce unwanted plants, manage growth, and reduce bare soil. This results in improved forage stands, more drought resistant pastures, improved nutrition for your animals, reduced risk of erosion by wind or water, and greater sequestration of carbon in the soil, also known as increased organic matter in the soil.

Effective targeted grazing requires that you become familiar with the growth patterns and physiology of the different plants you are working to manage. This includes the desirable and undesirable plants. Grazing at different times and different intensities can favor or harm specific plants. Knowing when to graze and how intense to graze allows you to manage the plants and improve plant diversity. It also allows you to improve root mass which increases drought tolerance in your forage.

To start a targeted grazing program you need to consider several factors. The first is to make sure the livestock you plan to graze fits the program. This includes knowing the preferred grazing practices of the animals, plants that are in the area and other considerations. Sheep are more grazers while goats are more of a browser. If you have desirable trees, an orchard or other structures that are important to your operation, then goats may not be the best choice. Sheep may not be as effective though in controlling woody species. It is important to stick to the plan as it can take up to three years to see the results.

Once you have identified your area and chosen the appropriate livestock for your

needs, you need to make a plan to address the area. Here are the first steps in planning:

1. Identifying the goals and the targeted species for control or benefit.
2. You also need to remember the nutritional needs of your animals. Most plants are highly digestible and most nutritious when they are young and growing. But this may not always be the best time to graze them.
3. Consider the palatability of different plants. Animals prefer specific plants, and this is both a natural and learned behavior. Young animals learn from their dams before weaning what plants are safe to consume and what to avoid. They often will not try plants that are very different in texture, smell, taste, or other attributes unless trained to do so.
4. A final thing to remember when planning is that both desirable and undesirable plants are in the community together. Targeted grazing works to give the desirable plant an advantage. This requires proper selection of the animal, timing, stage of maturity and other aspects to impact the targeted species while favoring the desired species. This is not always easy.

Let us look at an example of a possible situation. You are looking at grazing an old graveyard that has grown up over the years and has a mix of invasive plants and native plants. The concern is that the head stones are not all up right and easy to find so mowing is not possible. The area involved is around ½ acre total.

We start with discussions with the land owner, others, or ourselves that are wanting to clear this area to determine the goal of the grazing project. It can involve different steps and they all need to be identified. The first step in general would be to discover the location of the head stones and other features within the area to allow for additional clearing and maintenance. Another goal is to not do any additional damage to the cite if it can be avoided. With this, we will need to identify the plants on the cite and discuss what will need to be done to get full control of them.

In identifying the plants in the area, we need to look for and identify all plants there, not just the targeted ones. We need to know if

there are any toxic plants and the amount in the area, any desirable plants and what status are they in, i.e., mature trees or native flowering forbs. These can impact what and when you would plan to graze. Also check for things that may harm your animals such as debris and old chemicals in the area before you start.

Once the plants are identified and the goal of controlling, clearing for additional hand removal, or other goals are finalized we will determine the number of animals that the area can support and for how long. Higher numbers for shorter periods can work, but the more pressure you place on an area, the more likely you are to have issues with fencing and consumption of non-target plants or toxic plants. You also need to consider the stage of production of your animals and their nutritional needs for that specific time. Therefore, most companies doing this type of work use castrated males or non-breeding herds to keep the nutritional demands consistent.

The selection of goats to control woody invasive plants is a good choice, if you are looking at some forbs and grass, sheep can do the work. If you are wanting to control or eliminate plants, grazing them before they are mature is desired. You would also need to let them recover some and then graze them again to continue to deplete the root reserves.

Realize that if plants are not defoliated, they can recover some and the rate of recovery does change so plan this in your timing.

If plants are taller than the animals can fully defoliate, they will need to be manually cut down to get good control. After the first grazing, cut them close to the ground and allow them to sucker out, the goats or sheep will then graze the suckers and be able to deplete the plant reserves. This should be included in the planning. Do not poison the stumps if you plan to graze the area again unless the product used is labeled for use in pastures as the animals may chew the stumps.

When grazing the area check to make sure the animals are consuming the desired plants. Also watch closely to know when the targeted species is consumed, and animals may start to graze desired plants you want to keep in the area.

You will need to balance the grazing of targeted species and the need to allow the desired species thrive. The growing seasons may be different or the same for the different species so be aware of this. Plan for other areas to be available to give the desired species a chance to grow and store reserves.

Finally, it is critical to remember that targeted grazing is not a one pass solution to the issues. You will need to graze the area multiple times and may need to graze over

multiple years as well.

One final thing, targeted grazing can also be used to maintain areas around utility lines, pump stations, and other locations. These areas often need control of grass height and weeds but are difficult to mow with conventional equipment. Watch for wires and other items in these areas that may be damaged by your animals moving around or chewing on them before you start. Be sure to monitor the forage availability and move animals as needed to new grazing. Also make sure the company understands that grazing is not the same as mowing, the results are often not as uniform, but will be effective over time.

Dr. Andries is the Associate Dean of the College of Agriculture, Communities, and the Environment and an Associate Professor of Animal Science at Kentucky State University. He has worked with the meat goat industry for 15 years in Kentucky and has developed programs related to herd performance, health, and grazing management for small ruminants. He has been a member of the board of directors of the American Goat Federation and the National Sheep Improvement Program. He has written several extension and research publications related to goat production and management.



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The following article is a reprint courtesy of Cornell University.



DAVID R. ATKINSON CENTER

for a Sustainable Future

The agricultural, economic and environmental potential of co-locating utility scale solar with grazing sheep

Nikola Kochendoerfer – Cornell University, Animal Science Department

Lexie Hain – Agrivoltaic Solutions LLC

Michael L. Thonney – Cornell University, Animal Science Department

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Cornell University

This report summarizes the results of a Rapid Response Fund project "Have Your Cake and Eat It Too
Can grazing sheep on solar farms evolve to a profitable and climate resilient agrivoltaic strategy?"
funded by the Cornell University David R. Atkinson Center for a Sustainable Future

The agricultural, economic and environmental potential of co-locating utility scale solar with grazing sheep

Large-scale solar encompasses multi-acre solar sites of ground-mounted solar panels, feeding electricity to wholesale buyers or community-based consumers. Currently, 1,462.93 megawatts (MW) of utility scale solar is installed in NYS, equating to approximately 10,200 acres of solar sites (5 to 8 acres are required per MW) powering 260,884 homes with 1.33% of the total state's electricity demand met by solar energy. An increase of utility scale solar sites is forecasted to reach another ~3,200 MW (~22,000 acres) between 2020 and 2023.¹

New York State made a commitment in 2016 to obtain 50% of the state's electricity from renewable energy by 2030. Due to the commitment of New York State government to the Clean Energy Fund in 2016, the NYS solar industry has projected steady growth for the next decade. The goal of a variety of funding opportunities is to incentivize the growth of renewable energy sources with major funding managed by NYSERDA, New York State's Energy Research and Development Authority. The funding is designed to fast-track and sustain the growing solar electric market.

Site leases for solar fields are long term (25 to 40 years). Ideal site characteristics include treeless, flat, low-value land with easy road access for construction and low lease costs. Project developers use a host of criteria to find this land, searching for land that meets the criteria of the electrical grid, proximity to transmission capacity and ease of permitting. Environmental concerns during construction, operation, and decommission include soil erosion and compaction, stormwater runoff, herbicide contamination, the introduction of invasive species, and aesthetics.² Project developers must comply with a host of requirements by government authorities and the local land owners in order to successfully bring a solar project to operation.

Operation of solar sites in summer, which is the prime period for electrical generation, hinges on ensuring that the vegetation does not shade the panels. Typically, sites in warm, humid, summer continental climate zones are mowed two or three times per year and undergo one string trimming to remove the vegetation underneath the panels. To limit environmental impacts of vegetation management, a different system for solar sites was tested: grazing sheep.

The aim of this study was to compare economic and agricultural benefits and challenges of traditional land management strategies (mowing, string trimming) with rotationally grazed sheep on solar sites.

Data were collected from the Cornell University Musgrave Research Farm solar site located in Aurora, NY. Sheep were grazed between May and November 2018 to obtain agronomic and economic data, as well as to gather knowledge of the feasibility of grazing sheep on solar sites. Data for traditional management (labor and equipment running hours) were obtained from a landscaping contract for a comparable Cornell University solar site at Harford, NY.³ Additionally, a survey was sent to three entities: 1) sheep farmers grazing solar sites; 2) landscapers maintaining solar sites; and 3) solar site managers. The survey collected data to assess economics of solar sites across NYS and the Eastern US and to gain a better understanding of co-located, agrivoltaic systems and the emerging solar grazing industry. The survey results were used to underpin agricultural and economic analyses of solar grazing for sheep farmers.

¹ SEIA. 2018. Utility Scale Solar Power. Solar Energy Industries Association, <https://www.seia.org/initiatives/utility-scale-solar-power>.

² Ifft, J. 2017. Large-Scale Solar Information and Research Needs for NYS, Cornell University David R. Atkinson Center for a Sustainable Future, Ithaca, NY.

³ Scott Land & Yard Services, P.O. Box 13, Slaterville Springs, NY 14881.

Agricultural results

The 22-acre Musgrave solar site used for this study was established in 2017. It was abandoned as cropland by the research farm due to poor drainage. Three years prior to installation, the field had been used to grow wheat with legume cover crops. After installation of the panels, the site was reseeded with creeping red fescue and perennial ryegrass in areas where seeding was needed. Legume varieties like red, white, and Alsike clover, as well as alfalfa and birdsfoot trefoil volunteered throughout the site in the grazing season of 2018 and provided nutritious forage for the sheep. Honeoye-Lima silt loam is the typical soil of the area. A soil sample was collected and tested on January 20th, 2015. The sample contained low phosphorous, medium potassium, and very high calcium and magnesium levels. The soil pH was 7.5 and the organic matter content 4.5%. The soil sample drawn after a season of sheep grazing on November 16th, 2018 had pH of 7.6 and an organic matter of 6.6%. However, due to the limited duration of the grazing trial (1 grazing season), we cannot conclude that sheep grazing increased soil organic matter.

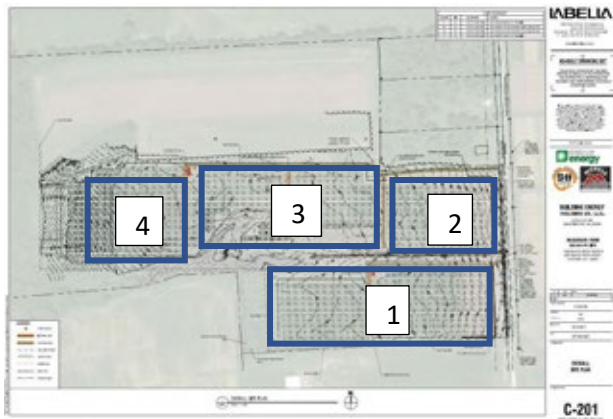


Figure 1. Site plan.

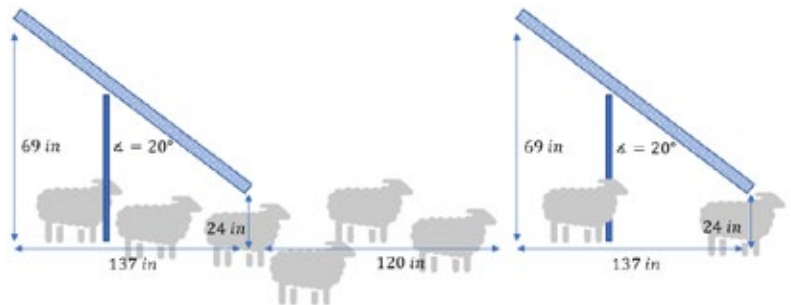


Figure 2. Panel dimensions.

The site was divided by permanent and Electronet[®] fencing into 4 plots for the grazing trial (Figure 1). The 56 Katahdin ewes (medium sized sheep less than 3 feet high with an average weight of 120 pounds) were rotated 8

times through the plot from the first time they were put on site on May 1st, 2018 until they were removed on November 5th, 2018. The *stocking rate* (total sheep on the site, per acre) was 2.5. The *stocking density* (number of sheep over a certain timeframe in subplots of the site, per acre) varied between 3 and 7 sheep per acre. The site was checked every three days. Each visit had a duration of ~45 minutes and included adding water to the water tank (Figure 3), checking animal health and welfare, and – when necessary – movement of the sheep into a new plot. All ewes were dry (non-lactating) when they were moved on site and breeding rams were introduced in September 2018 for January 2019 lambing. No health incidents were observed. No signs of internal parasites were detected.



Figure 3. Water access and Electronet[®].

The sheep were FAMACHA scored (checking inner eyelids for color as an indication of anemia) on May

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28th, 2018; no barber-pole worm-caused anemia was detected. Additional 5-point checks for internal parasites⁴ were conducted throughout the grazing season and did not lead to concerns about internal parasites. There was no need to conduct fecal egg counts. The ewes' body condition scores remained stable throughout the season, suggesting adequate levels of intake and nutrients. No predator issues were recorded, the chain linked fence proved to be enough protection; no guard-animals were necessary. The sheep had access to water and sheep mineral *ad libitum*. The water was provided from water tanks that flowed into troughs (Figure 3). Rest periods for the grazed forage varied between 18 and 48 days for plots 1 and 2, and between 21 and 29 days for plots 3 and 4. The rest periods were chosen to be relatively short due to fast growing vegetation and the priority of preventing panel shading. Shade prevention and vegetation management was successful; at no time throughout the grazing season did the vegetation shade the panels (Figure 4).



Figure 4. Vegetation management success.

Prior to each rotation, the vegetation in each plot was sampled and analyzed for the nutritive value for sheep. Throughout the grazing season the forage consisted of 39% grass (61% legumes and forbs) with more than adequate suggested levels of feed components for dry ewes (Table 1).

The sheep left the site healthy at the end of the season, with good body condition and low parasite load. The goals for both the solar company and the shepherd farmer were met in this grazing trial. Vegetation never shaded the panels, and the farmer was compensated at a profit for extra work at a remote location.

The sheep farmer, landscaper, and electrical operations contractors communicated regularly throughout the study period, resulting in full compliance with safety and profitable arrangement for all the solar site O&M providers.

Table 1. Stocking density, days grazed, dry matter consumed, and forage components compared with suggested component levels for dry ewes.

Date	Plot	Sheep	Time, days	DDM per head, lb	DM, % of forage	% of dry matter							
						DDM	CP	NDF	Ca	P	Mg	K	S
5/24/18	2	23	25	2.54	18.4	61.0	17.8	54.0	0.67	0.34	0.31	2.53	0.23
5/24/18	4	33	29	1.92	15.2	58.7	18.1	50.5	0.89	0.33	0.34	2.20	0.24
6/18/18	1	23	25	15.35	23.3	68.3	14.6	47.2	0.96	0.32	0.28	2.06	0.19
6/22/18	3	33	71	3.38	24.3	60.0	14.1	50.8	0.90	0.22	0.23	1.71	0.28
7/16/18	2	23	18	7.40	28.3	63.3	12.8	51.2	1.08	0.27	0.31	1.73	0.21
7/16/18	4	33	65	1.45	25.1	62.0	14.3	48.4	1.17	0.27	0.25	1.86	0.23
8/2/18	1	23	48	3.46	23.5	56.3	14.1	57.8	0.60	0.38	0.27	2.13	0.19
9/19/18	2	23	49	1.77	19.9	62.3	19.9	42.5	1.23	0.34	0.35	2.35	0.27
Suggested levels for 150-lb dry ewes				3		55.0	10.0		0.40	0.20	0.18	0.80	0.26

⁴ <https://www.wormx.info/>.

Economic results

During the grazing trial at the 22-acre Musgrave site, all farm-side economic data for vegetation management (grazing) were recorded. Investment costs, income, and operating costs to establish benchmarks per head of sheep and per acre are shown in Table 2.

Investment costs included: water tanks, troughs, and a small water transfer pump water pump to fill the troughs, as well as Electronet® fencing and a charger to divide sections for rotational grazing. Mileage included depreciation and was calculated at \$0.54 per mile. The sheep were checked every three days amounting to 63 checks in the 188-day grazing season. 47 hours were spent on-site checking the sheep; 139 hours were spent including the drives to and from the site. Labor was valued at \$15 per hour. The site was subcontracted from a landscaping business, and Lexie Hain received \$250 per acre for her grazing efforts. Income statements for both scenarios (contracted directly and subcontracted) are shown in Table 2. General liability insurance was covered by the landscaping business and was subtracted as a cost only in the directly-contracted scenario. In the subcontracted scenario the insurance was covered by the landscaping business. Ideally, sheep farmers would contract directly with the site O&M contractor because, given an ideal stocking rate, sheep alone will be enough to provide vegetation management and prevent panel shading so that the tools of a landscaping company would not be needed.

Table 2. Income statement for grazing 56 sheep on 22 acres.

Item	Total	Per acre	Per head of sheep
<i>Investment</i>	\$1,690	\$77	\$30
<i>Grazing income</i>			
Directly contracted	\$11,000	\$500	\$196
Subcontracted	\$5,500	\$250	\$98
<i>Grazing expenses</i>			
Mileage	\$2,125	\$97	\$38
Labor	\$2,084	\$95	\$37
General liability insurance	\$1,500	\$68	\$27
Directly contracted total	\$5,709	\$260	\$102
Subcontracted total	\$4,209	\$191	\$75
<i>Net</i>			
Directly contracted	\$5,291	\$241	\$94
Subcontracted	\$1,291	\$59	\$23

Labor

Landscaping data obtained from the comparable 10-acre Harford site³ were used to establish values for required labor per acre for traditional management (mowing and string trimming). The 10-acre site required 16 hours of mowing (8 hours, twice per year), as well as 140 h of string trimming underneath the solar panels (Figure 5) per year. That amounts to a total labor requirement of 156 hours per year for a 10-acre site. Extrapolating to the 22-acre Musgrave site, the traditional vegetation management requires 36 hours (18 hours twice a year) of mowing and 308 hours of string trimming per

year, amounting to 344 total labor hours on site. Mowing was conducted with equipment comparable to a 70-horsepower skid steer machine and a 72-inch mower at 3 mph speed. The ground can be uneven, especially in newly established solar sites. Depending on the design of the site, the panel rows are narrow, making it time consuming to navigate without damaging the solar panels. Five-point turns are needed at the end of panel rows to navigate to the next row for mowing. Mowing occurs two times per year. Heavy duty string trimmers are used to string trim underneath the solar panels.

Utilizing sheep for site vegetation management required a total of 139 hours including travel time, resulting in 2.5 times fewer labor hours than traditional vegetation management (mowing and string trimming) on site.

Contracts and insurance

Solar site owners range in corporate size, hierarchy, and site management structure. Some have an internal division that manages the operations and maintenance (O&M) while others hire a specialty firm to execute these functions. The O&M managers are responsible for the year-round performance of the array, including vegetation management. During the growing season, prevention of shading will be the key focus of an O&M manager’s job with respect to power production and module performance, while operating cost-consciously. Many O&M

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managers have business management or electrical engineering backgrounds and operate entirely remotely – from urban offices – and may only make an annual site visit. They tend not to be familiar with farms, farmers, or vegetation, and often lean heavily on landscape subcontractors for knowledge in this area.

Contracts for the vegetation maintenance may be expressly for single passes of a mower or may be comprehensive multiyear agreements. Where solar sites are dispersed geographically, regional solar O&M managers may contract for the vegetation management with local firms, typically landscape contractors or sheep farmers in each region. A formal legal contract is typically required by the solar operator. The legal departments at O&M firms that review outside contracts can insist on a lengthy review process. As the solar asset itself is quite valuable once operational, this sometimes-meticulous review process is justified in the eyes of the operator. The downside for a sheep farmer or small landscaping business is that they are entirely at the mercy of these contracts and may not be able to afford legal support of their own. This risk of liability is why emerging industry associations such as the *American Solar Grazing Association* now offers free contract examples to sheep farmers who wish to become solar graziers. This legal support should prevent farmers from unnecessary exposure to liability and potential expense. The best contracts for sheep farmers will offer a regular payment schedule for their services at the site and automatic renewal for multiyear contract extensions.

Solar O&M firms typically require any contractors on their sites to carry insurance. They may have a suite of requirements that more closely resemble the liability needed for a construction firm than for small farm or local landscaper. Farmers may be able to negotiate different aspects of the coverage, using these added fees as leverage in negotiating their payments. Solar graziers typically find that, after a season or more, O&M managers gain trust in their performance and see that the liability is quite low from grazing sheep, waiving the more stringent insurance requirements and/or easing up on the stricter contract requirements as everyone gains familiarity with the arrangement.

Solar grazing in the Eastern United States and New York State

In a survey of sheep farmers grazing solar sites, 14 total sheep farms responded, and of that 4 were in New York State. Survey respondents reported a total of 3,503 acres of utility solar grazed in the eastern US, with 79 acres in NYS. All grazed sites were established between 2012 and 2018. The grazing season was March to December, but in NYS it was April to November due to more extended grazing periods farther south. Average stocking rates were lower in the US average east of the Mississippi (3 sheep per acre) compared with NYS (4 sheep per acre). A variety of sheep were used for solar grazing; hair sheep like the Katahdin and Dorper breeds were most prevalent. On average, sheep farmers drove 42 miles (US) and 27 miles (NYS) from their home farms to the solar site grazed with sheep. The grazing contracts were mostly directly between the solar site O&M contractors and the sheep farmer. Less often, but also prevalent, the contracts were bid upon and obtained by landscaping contractors and then subcontracted to a sheep farmer. This system has the advantage of no additional insurance needs for the farmer, as well as the security of a landscaping company being available to remove invasive plant species. These contracts are renewed through a bidding process. With a few multi-year exceptions, sheep farmers obtained yearly contracts. From the survey, the O&M managers reported budgets of \$868 per acre per year for vegetation management in 2018. Per acre income and expenses for sheep farmers under direct or subcontracts in New York State and the Eastern United States are summarized in Table 3.

Table 3. Per acre income and expense of solar grazing in New York and across the Eastern United States.

	New York State		Eastern United States	
	Directly contracted	Subcontracted	Directly contracted	Subcontracted
Income	\$555	\$320	\$326	\$308
Expenses	\$46	\$46	\$64	\$64
Net	\$509	\$274	\$262	\$244

Conclusions

Grazing sheep on solar sites is a cost-effective method to control on-site vegetation and prevent panel shading (Figures 5 and 6). At no time in the growing season did vegetation shade the panels. It was less labor-intensive than traditional landscaping services and, thus, less expensive. The grazing trial at the Musgrave solar site was a full success for the site owners and operators, as well as the sheep farmer.



Figure 5. After mowing, prior to string trimming.



Figure 6. Rotationally grazed with sheep.

invasive species should be explored. An important question for the successful management of solar sites with sheep will be determining what stocking rates and densities should be chosen. Future research is needed to establish sound recommendations.

Solar site developers should include amenities like on-site wells and power outlets as well as high quality, predator-proof fencing to reduce investment costs for sheep farmers. Multi-year contracts should be used to encourage more sheep farmers to become interested in grazing solar sites and to ensure that agricultural land will remain in production.

New marketing strategies could emerge for solar farm-raised, grass-fed lamb that can also be a direct benefit for small-scale sheep farmers from co-locating sheep grazing with renewable energy.

More thorough research is needed to investigate the environmental impact of traditional landscaping vs grazing to control vegetation on solar sites. Future studies are needed to assess long term impacts like soil response and pasture quality, and the effects of grazing on pollinator plants or invasive species. A broad variety of soil quality indicators should be measured, such as soil organic carbon sequestration and the possibility of creating carbon sinks through grazing, soil nitrogen responses, and changes in bulk densities. Herbicide use and run-off in traditional vegetation management systems on solar sites should be investigated. The suitability for co-locating grazing with pollinators by the enhancement of pollinator plant species, effective grazing management, and control of

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Laughing Goat Cheese



Montchevre Cheese co-founder Jean Rossard has found a new venture in the dairy goat industry, one he can share with his sons Simon and Julien. Jean, a fourth generation cheese maker from France, stepped down from the leading US goat cheese brand in 2018 but wasn't quite ready to retire. So he was happy when his son Simon became interested in raising dairy goats, it was a chance for Jean to pass on his knowledge to the next generation. Jean, Simon and Julien, set out on a venture which would lead to establishing a new dairy, The Laughing Goat, in 2019.

They started on a farm lease with 400 animals near Darlington WI where Simon trained from 2018. About a year later the family decided to set up their own dairy, near their home by Belmont in Lafayette County WI. They spent a year looking for the ideal goat rotary, reviewing the options with several dairy dealers, visiting milking

“Our goal was to find a simple milking and feeding system, with technology, built using high quality materials to resist a harsh farm environment and of course to be animal friendly.”

plants in the US, Canada and France.

“We decided to go with the Waikato Milking Systems goat rotary parlor to replace our 2 x 16 rapid exit stanchions and an archaic feed system,” Jean said. “Our goal was to find a simple milking and feeding system, with technology, built using high quality materials to resist a harsh farm environment and of course to be animal friendly.”

The Waikato Milking System rotary satisfied most of their requirements. Plus, the company's midwest team was in Verona, WI, about one hour from the farm.

“We knew that if we needed an

urgent service repair or to obtain critical replacement parts, we could do that right away.”

The family was impressed with the rotary design and its lightweight composite deck. They liked that the inflators, pulsators, vacuum lines, milk pipeline were accessible outside and inside the rotary. The family began to set up Laughing Goat in the fall of 2019. The rotary was ordered in August and it was delivered from New Zealand just before the pandemic hit in March 2020.

The family moved to the new farm on April 16, 2020 and worked with



Laughing Goat Family pictured left to right: Simon Rossard – Son, Julien Rossard – Son, Jean Rossard – the owner.

for an emergency stop which needs to be cleared and reset on the control panel to resume milking.

The goat rotary also features an automatic cluster presentation arm unique to Waikato Milking Systems.

It automatically returns the cluster to the platform height, ready for cupping, so the operator does not have to constantly bend over to reach for the clusters.

“The automatic detach is also a good option which saves a lot of walking around the rotary.”

The only challenge setting up the rotary was learning how to use the dairy management software. The family worked with their local Waikato Milking Systems representative from Belmont, and with the company’s technicians in New Zealand via audio-visual, to calibrate, create groups and manage the feed system.

“It is a great tool to manage, schedule the amount of feed and feed choice that needs to be dropped per animal, per day in a selected group (lactate, dry or freshen group).”

The feed weights can also be automatically increased or decreased per goat in a group through the year on a weekly basis.

“The feed weight control is definitely a saving factor knowing the high feed price per ton and a way to be sure each goat is getting the right amount of feed.”

Jean said the dairy management

software has other useful features like milk volume data per animal and per milking, animal alerts and animal health history.

The rotary plant is designed so additional technology can be added later on and Jean said future additions could include a pre and post dip system to keep the Somatic cell and bacteria count under control.

Waikato Milking Systems Regional Sales Manager for the Midwest, Stephanie Schroeder, said there’s been a lot of interest in Laughing Goat with its new Optima External Goat Rotary.

“We’ve had quite a few people tour the new plant, not just farmers but also universities too.

“Jean is well known with his background in the goat cheese industry and it’s been a great opportunity for us to take people through the new plant.”

She said people were impressed with the simplicity of the goat milking system.

“Our competitors in the industry tend to have quite complicated systems to operate compared to ours which are simple, basic, something every farmer can look after.”

Stephanie lives about 10 minutes away from Laughing Goat farm and has been able to watch its progress during its first milking season.

“There was a bit of fine tuning at the start but the system is working really well now.”

local contractors and Waikato Milking Systems to assemble the parlor, which was commissioned in June 2020.

Jean said the rotary is easy to operate and safe to use with just two people, one to take care of the milking and the other to move the animals around and to take care of post-dipping. The platform operates with a simple switch to put it into milking or cleaning mode. Another switch controls the platform speed or rotation per minute.

In March this year, Jean said the plant was milking about 300 goats, with another 90 to freshen.

“The rotary is set at 7.5 minutes per rotation which is capable of milking about 480 goats per hour.”

The rotary would allow the farm to increase to 1000 milking goats in the near future. Milking is twice a day and the farm supplies to Supato.

Jean pointed out the rotary’s quick stop and start feature. The operator can pull on a blue line above their head for a quick stop and quick start. The red line can be pulled



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Kentucky AgVets Program Overview



The Kentucky Center for Agriculture and Rural Development, along with the Kentucky Department of Agriculture, Kentucky Sheep and Goat Development Office, and Kentucky Horticulture Council are working together to provide educational opportunities, develop a self-sustaining peer network, and to construct a direct pathway that facilitates veterans' entrance into agriculture-related careers.

Mentorship

The Kentucky AgVets program is working with existing agriculture producers to establish a mentor program for veterans interested in learning more about agriculture production. Mentorships are a minimum of nine-months.

Education

Program partners will offer four workshops each year of the grant with on-farm activities when possible. Veterans who are interested in taking coursework through KCTCS can take two 3-hour classes through this grant program.

Networking

In-person and virtual networking events will be held to develop a peer-to-peer network for veterans in agriculture to provide support, share helpful production and marketing resources, and network with key stakeholders.

Who Qualifies for The Program?

- Any veteran or transitioning service member who has or is working with KCARD on business plans, financials, or grant facilitation.
- Any veteran or transitioning service member who is interested in learning more about how to start, or expand, an agriculture business in the state of Kentucky.
- Transitioning servicemembers who are interested in participating in an internship or CSP program through Fort Campbell or Fort Knox during their last 6 months of active duty.

Want to Learn More?

Visit our website www.kcard.info/kentucky-agvets to learn more about the Kentucky AgVets program or to sign up for more information. Be sure to check out our monthly newsletter and to reach out with any questions!

The Connecting Kentucky Veterans to Agriculture Opportunities (Kentucky AgVets) program is funded by the U.S. Department of Agriculture's National Institute of Food and Agriculture (NIFA). The Kentucky AgVets Program was one of 17 projects that are designed to help equip military veterans with skills, training, and experience for careers in food and agriculture. For more information, please visit www.kcard.info/kentucky-agvets or 859-550-3972.



Photo by cottonbro from Pexels



Preventing Heat Stress in Small Ruminants

by Dr. Jerusha Lay, DVM

Heat stress can have many negative effects on not only the health of livestock but also the production. The major production losses we see come in the form of decreased weight gain, lowered milk production, increased susceptibility to diseases and, most commonly, decreased fertility. During times of extreme heat, animals tend to spend more time laying around and less time up grazing; in combination, metabolic changes create less energy available for growth and milk

production. With rams and bucks, heat can be very detrimental to their ability to settle females as breeding season begins in the fall.

In dairy animals, it is very common to see lower milk production in times of heat waves or warmer weather. This can be related to decreased appetites and increased stress due to higher temperatures. If operating a small ruminant dairy, care should be taken to keep the does as comfortable as possible and provide free access to a clean water source. Young growing kids/lambs may also see decreased growth rates during the summer months.

Heat may have the most effects on bucks and rams. Toward the end of summer, as temperatures are often still high, the day begins to become shorter and breeding seasons begin. The effects on breeding are twofold: First, the increased temperatures will decrease overall libido in rams. When the animals are hot and stressed, they have less desire to breed the females. The other issue is that it can decrease semen quality. In livestock, sperm development depends on temperatures lower than the normal body temperature of animals. Normally, the testicles' location outside the abdomen

allows the testicles to be cooler than the core body temp; however, when temperatures outside the body are higher than that of the animal, the testicles cannot sufficiently cool enough for sperm development. Since the process of sperm development takes 6 weeks, it may take up to 2 months for semen quality to improve even after the temperatures decrease.

All warm-blooded animals have a “zone of thermal neutrality.” While it may sound complicated, it is basically the range in temperatures where the animal does not have to use any extra energy or calories to keep itself warm or keep itself cool. It’s the temperature range in which they are comfortable. In the wintertime, animals will use energy to keep their bodies warm; when the temperatures become higher, they must also use energy to keep themselves cool. For example, panting or rapid breathing will require more energy because all the chest muscles contract more frequently. In areas of the country like Kentucky, hot days are often accompanied by a high humidity, which makes the potential for heat stress more likely. As we look at the risk of heat stress, we often refer to the heat index. The heat index also factors in humidity, wind speed and solar radiation and is more accurate in accessing the overall weather conditions.

Within livestock, many other factors make some animals more vulnerable than others. First is the species; luckily, sheep and goats are more heat tolerant than species such as cattle or alpacas, with goats being more tolerant than sheep. Within each species, some breeds are able to withstand higher temperatures than others. For example, within sheep, the hair breeds of sheep seem to be more heat tolerant than wool sheep. Several things contribute to these differences. Animals with horns, long floppy or loose skin may dissipate or give off excessive heat through horns or skin. As the animal’s blood flows through the extremities closer to the skin surface, it gives a chance for the blood to be cooled before being returned to the animal’s core. Overly conditioned or fat animals are at an increased risk of heat stress. Animals with dark-colored hair coats are more susceptible to the sun’s radiation because the darker colors will absorb heat, so breeds of animals that have white hair coats do better in hotter temperatures.

Within sheep, the hair breeds such as katahdin tend to be less vulnerable to heat stress than the wool breeds. When we think of wool, our first thought is of clothing that keeps us warm in the winter; however, wool

acts as an insulator and in extreme heat may also act to block heat away from the animal, just as an insulated cup keeps cool fluids cold or warm fluids warm. Wool sheep need at least 1 inch of wool for protection from the sun; sheep should be shorn in the spring to allow enough time for growth before the heat of summertime.

All the factors that make certain animals more or less susceptible may influence decisions on what breeds to buy depending on the location and climate that your farm is in. Regardless of the species of animal and location, there are several things we can do to help prevent heat stress, especially if your farm has animals that are more vulnerable and you’re located in areas where high humidity commonly increases the heat index.

Always have a clean water source available for animals. During times of heat, water intake may be twice that of what they consume during cooler temperatures. With no other choice, animals will drink water that is either hot from the sun or dirty from manure or algae, but it is not appealing to them. Research suggests that under certain conditions small ruminants may consume 10 times more water during times of extreme heat versus when it is cold. If possible, water troughs should be placed in shaded locations or changed frequently to prevent the temperature of the water from becoming too warm. Self-replenishing water troughs may also be used. Water troughs should be cleaned frequently to encourage animals to drink when needed. If in large fields, water troughs in multiple locations may help by making access easier when the animals are grazing.

The sun’s radiation is a major source of heat. Having a shaded area allows animals to have a place to get out of the direct sunlight. This is especially helpful for the breeds with dark-colored hair coats. Shade sources can be in the form of trees, sheds, barns or shade clothes. If animals are allowed access into barns or sheds, make sure that proper ventilation is provided. While shade does block the direct sunlight, metal barns can also become very hot if the doors aren’t open or without ventilation or fans. Mist sprayers to put on fans may be beneficial but can make it more difficult to clean barns if bedding is wet; in dairy operations, mist sprayers could potentially increase the risk of mastitis if the area is not cleaned often enough. Trees in pastures for shade in many cases are adequate; however, it can create sanitation issues if manure and mud build up in one

location where the animals are spending large amounts of time. Shade clothes are large durable clothes that are put on frames that may be able to be moved from location to location.

Sheep and goats are ruminants, which means they use fermentation to digest forages such as grass and hay. The process of fermentation creates heat (think of how warm compost piles become), so low-quality forage diets can also be an internal heat source of ruminants. For high-producing animals in hot weather, it may be beneficial to provide a high-quality roughage source and/or supplement with more digestible feedstuffs such as grain. You may want to discuss summertime rations with your local nutritionist. Also, avoid getting animals over-conditioned, as it may also decrease their tolerance to heat.

For rams and bucks, it can be frustrating if temperatures in early fall are still unfavorable for breeding season. You may consider waiting longer before putting the males in for breeding. For rams with wool scrotums, some producers will shear wool off the scrotum to decrease temperatures. Another option may be keeping the sires in a cool barn or under fans during the daytime and turning them out with the females in the evenings when conditions are cooler.

If your animals become ill from extreme heat stress, symptoms may include panting, open-mouth breathing, or weakness. Consult with your herd/flock veterinarian if you suspect that an animal is suffering from heat stress or for further information on prevention.

References:

<https://www.sheepandgoat.com/heatstress>
https://www.canr.msu.edu/news/avoid_heat_stress_in_your_sheep_and_goats
<https://agriculture.vic.gov.au/support-and-resources/newsletters/sheep-notes-newsletter/sheep-notes-autumn-2020/signs-and-management-of-heat-stress-in-sheep>

Dr. Jerusha Lay, DVM – *Dr. Lay grew up raising sheep and cattle in central Kentucky. She attended vet school at Auburn University and spent 10 years in mixed animal practice. She is now the Extension Veterinarian and Animal Health Specialist at Kentucky State University.*

Instilling New Genetics in Small Ruminants: Tips for Success

by *Jessy Shanks*

Breeding season is just around the corner! In the livestock world there are several options for inseminating females. Artificial insemination (AI) is a popular method of breeding animals that does not require live cover, i.e. a male physically breeding a female. You just need semen from the male and a way to put that semen into the female's reproductive tract. Artificial insemination, along with embryo transfer, semen cryopreservation, etc., falls into a category labeled advanced reproductive technologies or ART. These technologies are performed in a variety of species including various zoo animals, cattle, pigs, horses and even humans. When you are working with elephants an AI procedure is understandably quite involved, but with livestock species it is typically simple. Producers are using AI successfully in small ruminants for a variety of reasons. Utilizing AI leads to a more concentrated lambing/kidding season, more uniform lamb/kid crop (depending on sires used), and it opens up the possibility of using new genetics. You might not be able to spend thousands of dollars on a male for your operation, but you might find it possible to purchase semen from an expensive male for \$100-\$300 per straw. Different males may be more or less expensive, but the genetic possibilities are endless if you are willing to invest the time and money.

Small ruminants are typically inseminated via laparoscopic artificial insemination (LAI). This means that a laparoscope is used to visualize the uterus through a small incision in the female's abdomen, and semen is placed into the uterus through a second incision. By doing this the veterinarian is able to bypass the anatomically unique cervix of small ruminants and put the semen exactly where it needs to be to ensure optimal pregnancy rates. Insemination typically takes only minutes and is performed under light sedation. The procedure is relatively simple but this does not mean that preparation and timing should be taken lightly. We could talk for hours about LAI, what to do and what not to do, but a few simple tips will help you get started.

First, you need to select healthy females who display ideal body condition scores

(BCS) to breed, not too skinny or too fat. Sick animals who are underweight do not respond well to sedation and are typically not going to become pregnant even under the best of circumstances. Obese animals don't respond well to synchronization and typically make the procedure more difficult due to their increased body fat. So choose your females carefully! Second, follow all the instructions that your veterinarian gives you from start to finish. Preparation for a procedure like LAI should start weeks in advance beginning with good nutrition for your females. Your veterinarian might also want you to deworm animals as needed and also perform other management procedures such as vaccinations and hoof trimming to make sure everything is optimal when it comes time to breed. We also want to minimize stress during the weeks leading up to LAI, so get these chores out of the way and do them in a stress-free manner. That way your females are nice and relaxed prior to the big day. When you look at an LAI protocol you might think that the times are a bit drastic (2:00 am injection times, 4:00 am CIDR pull times etc.), but I assure you that your veterinarian has done that for a reason. Your vet has taken the breeding time and date and scheduled each and every injection around that, down to the minute. So if they tell you to pull CIDR's at 3:00 am on Wednesday then you better be in the barn ready to start right at 3:00 am. You can't pull them at 7:00 am that day and expect good results. Timing is everything when utilizing ART. We don't have a male selecting the perfect time for breeding, so we have to rely on our knowledge of the female's reproductive cycle to time everything to the best of our ability. So follow all the instructions your veterinarian gives you, including removing feed and water when they tell you (this includes pasture and any bedding they might eat). If a ewe or doe comes in with a full rumen to be inseminated then this creates complications, and very likely can cancel the surgery. You wouldn't eat a whole meal before a scheduled surgery would you? So don't make your veterinarian deal with this on LAI day. I promise they aren't making this stuff up! My third and final piece of advice is to be prepared when those lambs/kids start hitting the ground. You may be used to lambing and



kidding over a three-month period, but you have shortened that time period drastically by using LAI. If you breed 100 females on one day, and you get an 80% pregnancy rate then approximately 80 of your females are going to give birth within a short time frame. This usually happens over roughly a week's time because gestation times vary. Plan accordingly and be prepared because lambs/kids will be arriving quickly!

If you are interested in utilizing LAI or any form of ART in your flock or herd do some careful research and be well aware of the cost, time and labor involved. Talk to your veterinarian so you can become familiar with the process and know what is expected. The first time will be frustrating and you will most likely be doubting yourself about halfway through, probably at 3:00 am when you are pulling CIDR's! With careful planning and preparation you can make LAI work for your operation if it aligns with your goals and intended market. Talk to fellow producers who have utilized LAI before and get their feedback as well. The more you know then the better equipped you are to tackle any situation that might come up. Feel free to reach out to me with any questions you might have at jharri50@utk.edu or 865-974-4160.

Jessy Shanks is the *Small Ruminant and Youth Programs Specialist at the University of Tennessee, Knoxville*. Jessy raises Southdown and Dorper sheep with her husband and daughter just below Knoxville. Her background is in reproductive physiology and she enjoys teaching producers and youth about small ruminants in any way possible.

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Researchers from Purdue and the USDA are studying how to reduce the threat **black vultures** pose to livestock. Black vultures are known to occasionally attack newborn or weak livestock, as well as scavenge livestock immediately after death. Our first step is to look for ways to distinguish between livestock that have been killed by vultures from those that died of other causes and were then scavenged. To do this, we will conduct necropsies on livestock that have been killed by vultures. Therefore, we are asking for donations of any calves you lose or suspect you have lost to vulture predation. If you experience such a loss, please call or text Marian Wahl at 317-647-5294 as soon as you can and she will coordinate collection of the animal. The donation of these carcasses will help us define the extent of the problem caused by vultures.



We are also conducting a survey to better understand producers' experiences with vultures across the region. We'll be asking you about any problems you've had with vultures, and any techniques you've found useful (or not useful) in dealing with them. This survey is voluntary and completely anonymous. Take our survey at tinyurl.com/LivestockVultureSurvey.

We rely on help from producers like you to find the best ways of addressing human-wildlife problems like these with practical solutions. If you have any questions about our work, contact Marian at 317-647-5294 or wahlm@purdue.edu, or visit our website at tinyurl.com/PurdueBlackVultures.

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Nigerian Dwarf Goats, What's all the Hubbub?

by Patricia Stewart
Hames & Axle Farm, Massachusetts.

“So what’s up with Nigerian dwarf goats? They seem to be everywhere. Why?” I’ve heard this from goat breeders for years. Until the Internet, Nigerian dwarves (ND) were a rare breed in the USA, developed from Pygmy stock. Since the Internet, they have taken over. But how did they get started and then become the phenomenon that they are now?

Until the 1970’s and early ‘80’s, ND’s were primarily zoo food. Since they were small, reproduce rapidly, and mature pretty quickly, they were a great choice for zoos to feed their lions, tigers, leopards, etc. These West African Dwarf (WAD) goats were imported and displayed in zoos. Around that time several individuals noticed that some West African dwarf goats came in two distinct forms. One was a heftier, stockier, and more meat-like goat. These became the Pygmy goat, easily adopted into small farms and menageries through the country.

Other WAD goats seemed to have longer, leaner necks, longer bone patterns and represented more of a dairy-type of goat. These became the foundation animals for the Nigerian Dwarf goats that were first accepted by the International Dairy Goat Registry in 1982. The registry accepted horned goats, with a standard height of 18” for does and 20” for bucks. The following year, the American Goat Society opened a herd book for the breed, using a 20” height for does and 22” for bucks. Their ideal height was 19 inches at the withers. The herdbook stayed open until 1997 though it had closed for a short time, and reopened to allow for a more diverse gene pool.

As different associations and registries developed, the standard has increasingly gotten taller. The Nigerian Dwarf Goat Association still uses the original AGS standard because they value a truly miniature goat. AGS and the American Dairy Goat Association, value more of a working miniature, so the



CH Castle Rock Tahitian Sunset 2019 National Champion ADGA Doe, (Photo by Steve Pope)

height as gotten taller in those registries.

Why the height changes? Partly due to outcrosses that were made in the development of the breed. Standard sized goats were crossed with ND’s and that gives us the tremendous range of colors that we see now. Also, veterinary science has finally recognized goats, so more research is done about their parasite reactions, diseases, and other issues that effect growth. Lastly, the nutrition of goats has changed dramatically from the days when they were fed horse feed and pasture, to now where there are specially formulated dairy rations, fermented alfalfa, and chelated minerals, all which make it easier for goats to be healthy longer.

When the breed first came to America,



Gladys Porter Zoo's Usiku, (Photo by Katrene Johnson)

the focus was on reproduction for the sake of available food. Once the goats became valued on their own, people began really focusing on production and conformation. In 1988, Kathleen Claps, owner of the Goodwood herd, put the first doe, Goodwood Rosa

Parks, on test. Rosa Parks earned her Dairy Star (*D since it was through AGS) with 427 pounds of milk, 25 pounds of butterfat and 20 pounds of protein as a first freshener. Today's top performers in the breed are milking over 2000 lbs, with more than 100 lbs of butterfat and 70+ lbs. of protein. That is a change over 33 years! That is amazing progress.

Visibly you can see the difference between the early ND represented by Gladys Porter Zoo's Usiku, (Photo bottom left by Katrene Johnson) one of the early registered stock, and recent ADGA National Champion Doe, (Photo top left by Steve Pope) CH Castle Rock Tahitian Sunset 2019 National Champion ADGA Doe.

While there are definite similarities, you can see the depth of barrel has increased, as has the circumference of the barrel. The udder is much more developed, though Usiku is a yearling in the first photo (opposite page bottom photo). Here is another picture of her, in milk (top middle photo this page). Certainly the udder has changed a great deal over the last 25 years.

So why are these little goats so popular? From a dairy standpoint they have superior milk solids and butterfat, making their milk sweet and rich, wonderful for cheesemaking. While these does above are



Usiku, Photo from Ruminations 1995

single colored, they come in a wide variety of color patterns, none of which is supposed to have anything to do with their value as a dairy goat - but tell that to the Internet. They are prolific, able to be bred year round, with freshenings yielding 1-6 kids, though recently 7 kids have been delivered from several different does.

When the first ND showed in the ADGA National Show it was met with disdain, until they took the ring. Suddenly people who had been downplaying the breed were seeing truly wonderful representations of the dairy goat, in a more manageable size. For older goat breeders the chance to continue in the goat world without having to deal with full sized Nubians or Saanens sounded appealing.

Lastly, ND's love people. While I know of some nasty ones, generally they

are relatively easy keepers who love kids, their owners, and attention. They are portable and are now found in several cities throughout America. They make a great little backyard milkers, and are perfect 4H projects.

I got into Nigerian dwarfs because I wanted to help develop a breed. Now that breed has the highest number of registered goats of any breed in the US. They have gone from obscure to popular, all within my lifetime. An amazing feat for four little hooves, times many.

Pat Garland Stewart, Raised in the suburbs of Detroit, Pat Garland Stewart found her home in the barn of several farms, finally her own. She started Hames & Axle Farm as a way to teach children where their food came from, and now uses those skills to teach people how to care for their goats, support local farms and uses her Surfing Goat Soaps to bring it home to her customers. Hames & Axle Farm started in 1996 and has been raising Nigerian dwarf goats ever since.

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