

**Agricultural Research Service  
Small Farm Research Agri-news**



**Dale Bumpers Small Farms  
Research Center  
Booneville, Arkansas**

**Greetings from the Acting Research Leader, Dr. Zamir Libohova**



**Dr. Zamir Libohova**

Three months have passed since I was appointed as Acting Research Leader while Dr. Owens serves as Acting Director of Operations, Partnerships for Data Innovations for the USDA Agricultural Research Service, Office of National Programs in Beltsville, MD. Despite the COVID situation, and the uncertainty it brings, the center continues to operate at its highest level, especially during the busy summer field season. Everything we do is accomplished due to the dedication and hard work that our employees exhibit every day. During this busy summer, we were fortunate to have students work along our staff and contribute to the success of the center’s mission. Thank you for all the hard work and looking forward to seeing some of you again next summer. On August 18th, we are hosting a Field Day. The program is starting at 10 am. Please join us and see what we have been working on and provide us feedback on your ongoing issues.

During our annual budget meeting with the South East Area Office Leadership, the center was commended by the Area leadership for the impact the research programs are having in helping small farms through its sheep and cattle research program, grazing and organic agricultural research, as well as, implementation of new precision technologies. After the meeting, I was very proud of our research center. Dr. Owens asked me about what I learned from the meeting and my response was that, “Basically, you have one of the hardest jobs as research leader, leading one of the most complex multifaced research centers; yet, the center is one of the most successful ones in the Southeast Area”. For example, in the last year alone (continued on page 2)

**SAVE THE DATE!**

Innovations of Ag Field Day

AUGUST 18, 2022 9AM-3PM

Dale Bumpers Small Farms Research Center

6883 South State Highway 23

Booneville Arkansas

See page 10 for more information!

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(continued from page 1) the center has published 9 papers on average per scientist, from the minimum 2 papers required per year. And that speaks more than words regarding the high caliber research scientists at the center.

As you may know, we excess animals to maintain herd size. This year, the online sheep sales were very successful. Our animals went to regions across the USA where producers are using the genetics, developed by Dr. Burke and her team, aimed at increased parasite resistance traits. The fact that people across the US target animals from the DBSFRC is a testament to the impactful research program Dr. Burke and her staff leads.

My last few words before I pass the baton to Dr. Neiman. I was fortunate to work with and lead this group of people during these last three months. Under pressure and often unpredictable circumstances the dedication and professionalism were outstanding. Acting as a Research Leader made me very aware of day-to-day things that need constant attention and the hard work that our employees put into making the center successful.

Dr. Zamir Libohova

### 2022 Awards Hall of Fame



**Dr. Phillip Owens**

Congratulations to Dr. Phillip Owens for being selected as a 2022 Awards Hall of Fame Soil Science Society of America Fellow. This is one of the greatest achievements that is awarded to a very select group of scientists for their contribution to the science community and professional societies. The Fellow designation is the highest recognition bestowed by Soil Science Society of America. Nominees are selected based on their professional achievement and meritorious service. Each year only a select few are bestowed the Fellow designation. This designation recognizes the contributions and achievements of Dr. Owens and we are proud that Dr. Owens was presented this award.

### Dr. Christine Nieman's Cattle Research Spotlight



**Dr. Christine Nieman**

The 2022 field season has been a busy one. We have been working on a total of six field projects with two major grazing studies. One grazing project is an evaluation of three cow-calf grazing systems, a conventional tall fescue (KY31) system, and two “complementary systems”. The complementary systems are composed of tall fescue grazing in spring and fall and big bluestem or eastern gamagrass grazing in the summer months. The second project aims to evaluate three summer grazing systems for stocker cattle and compares treatments of bermudagrass, sorghum-sudangrass only, and sorghum-sudangrass cowpea mixtures. Both projects are complex, involving the evaluation of interactions among various components, but we will summarize our progress so far.

The first grazing project began on May 10th with 12 cow-calf pairs and 1 bull turned out onto the all fescue and the native warm season replicates on the same date. The two tall fescue replicates are 30 acres and the native warm-season replicates (2 replicates for each species, eastern gamagrass and big bluestem) are 10 acres each. All pastures are rotationally grazed with 8 paddocks in the native warm season pastures and 6 paddocks in tall fescue pastures. The eastern gamagrass stands (continued on page 3)

(continued from page 2) have poor density (Figure 1) and cattle have only grazed those pastures for 35 days (from May 10 to June 16), while bluestem pastures (Figure 2) were grazed for 57 days, from May 10 to July 6. Cattle are removed from warm-season pastures when the post-grazing biomass targets of 14-inch height cannot be maintained. Grazing native warm season species severely, below 14 inches, increases the time for regrowth and allows for weed invasion, weakening native warm season stands. When the cattle are removed from native warm season pastures, they go to the paired 20-acre complementary tall fescue pasture.



Figure 1

With this extremely hot and dry summer, one might be wondering why the cattle on the complementary system are not grazing natives in the summer. A few reasons why this may have occurred this year. 1. The systems may be overstocked, maintaining 12 cow-calf pairs and 1 bull on 10 acres may not be achievable for these native warm season stands; 2. Pastures were slightly overgrazed, and the rest period was not long enough, especially when drought set in. Post-grazing biomass heights were more around 8-10 inches rather than the recommended 14 inches and the rest period for the native warm seasons was 14 days (2 days of grazing on each of the 8 paddocks). Although cattle had to be removed from the native warm season pastures to allow for additional regrowth time, the native grasses are regrowing, unlike tall fescue which has gone completely dormant. Based on this year, we may need to make some adjustments to future management of the native warm season grasses.



Figure 2

The second grazing project evaluates three summer grazing systems, bermudagrass pasture (with other species – crabgrass, broom-sedge, dallisgrass), sorghum-sudangrass only pasture, and sorghum-sudangrass and cowpea mixtures (alternate row passes). Each species or species mixture have three 5-acre replicates. Eight 650 lb steers were assigned to each replicate.



Figure 3

This year, warm season annuals were planted on May 20, 27 days earlier than we planted last year. Grazing started on the bermudagrass pastures on June 2 and grazing started on the annuals on June 29. Cattle are rotationally grazed through all treatments, there are 4 paddocks and steers are rotated every 10 days, allowing for 30 days of regrowth.

The grazing season started as anticipated with adequate forage production on each pasture to maintain the 8 steers. However, as we go into mid-July, bermudagrass pastures are starting to brown from prolonged drought and hot temperatures, and growth has stopped (Figure 3). We are estimating that without rain and cooler temperatures, we may only have 15-20 days before steers will need to be removed from bermudagrass pastures. Growth and regrowth has also slowed in sorghum-sudangrass and sorghum-sudangrass cowpea mixtures, however, the sorghum-sudangrass was able to accumulate large amounts of forage mass before the drought began (continued on page 4).



(continued from page 3) As a result, sorghum-sudangrass (Figure 4) and sorghum-sudangrass mixtures (Figure 5) have a substantial amount of forage mass for grazing that may last the next 6 weeks, even without rain.

An important note about sorghum-sudangrass is that during times of stress the plant may be high in prussic acid. It is generally advised that sorghum-sudangrass not be grazed during extreme drought. Based on our observations of the sorghum-sudangrass plants, they are not facing extreme drought at this time. Cattle should also be removed from sorghum-sudangrass pastures if significant rainfall occurs during drought, this too can increase prussic acid levels. We are closely monitoring the situation and may remove cattle from sorghum-sudagrass pastures if risk for prussic acid poisoning increases.

Overall, the weather conditions are certainly challenging this year, but by managing through these issues on study, we hope to provide farmers in the region with helpful best management practices for maintaining productive forage systems even under harsh conditions.



Figure 4



Figure 5

### Dr. Joan Burke's Small Ruminant Research Spotlight



Dr. Joan Burke

#### Summer hires help with sheep research

A lot of the sheep research focuses around the fall born lambs since most of the ARS ewes are bred to lamb in the fall. That means that research on the ewes around the time of lambing takes place between September and December, and on the offspring between December and March. There are a smaller number of ewes that lamb in January and research activities on their lambs occur between April and June. We typically hire agricultural students during the summer months to help with the sample collection,

care of sheep, and pregnancy examinations, which occurs in July. There are also a couple of premier sheep sales to prepare for. Even though most of the research activities that involve sample collection are past, there are always things to do to get ready for the next round of lambs. It has been a pleasure working with all of them and my regular crew. We have fun and get to experience new things as there is always something to learn with sheep, from adverse health outcomes (from parasites, accidental injuries such as a bee sting, and preventing heat stress) to successes in the breeding program that bring about outstanding parasite and disease resistance. Thanks, Sheep Crew!!

Four students talk about their experiences this summer with the sheep crew:

- **Abby O'Bar**, Booneville High School graduate (2022): So far working here this summer has been pretty good. Working with this crew is like a family and always taking care of each other. I can say that one of my favorite parts was pregnancy checking, being a sheep breeder myself I have never experienced pregnancy checking sheep before and this was very exciting for me to see the babies instead of feeling them kick.

(continued on page 5)

(continued from page 4)

- **Josie O'Bar**, Arkansas Tech: Working here this summer has allowed me to take my livestock/farming knowledge and apply it to a species that I'm not as comfortable with -sheep. I have been able to take what I know from farming with cattle and apply it to sheep. The tasks that I've done here included daily feeding and checking the sheep, cleaning up around the barns, working the sheep when needed, and helping get the sheep ready for the Premier Sale this summer. I love farming so working at a place where I can do that daily has been a great experience for me.
- **Joie Bogart**, Arkansas Tech: This is my 4th summer working on the sheep crew. When I started this job, I didn't know much about sheep. It has given me the opportunity to expand my knowledge in livestock production and has been an overall great learning experience. The people on this crew are great to work with. Everyone has a positive attitude, and we all work together well.
- **Jessie Tanner**, Arkansas Tech: This is my fourth summer to be working on the sheep crew, and I have learned so much about sheep maintenance and production throughout my time here. The people on this crew all work so well together and we all get along great. My coworkers have given me many opportunities to learn new things about maintaining a successful farm.

### Dale Bumpers Small Farms Research Center Summer Sheep Sale

The Dale Bumpers Small Farms Research Center held their Summer Katahdin online sale on Wednesday July 19, 2022. The sale included rams and ewes with standout breeding traits. The animals are enrolled in National Sheep Improvement Program (NSIP) and included animals in the top of the breed for parasite resistance, growth, and maternal traits. There were 35 animals offered for sale which received over 400 bids from 33 bidders from across the country. This auction grossed an impressive average with \$250 per head higher than previous sales. The top selling animal was a ewe lamb that sold for a record-setting highest price ewe ever sold from our location. It is an honor to share our genetics and provide top quality breeding stock to our stakeholders.



### Getting Ready for Fall Lambing

Fall lambing is coming up fast with a large roster of soon-to-be moms. The crew used ultrasound technology to determine pregnancy for animals bred for fall which resulted in 115 ewes bred with an excellent conception rate of 91% for mature ewes. Breeding for fall lambing can be tricky as it is considered out-of-season for most ewes. At the research center, Dr. Burke has developed a very successful breeding program which includes exposing ewes to teaser rams approximately 14 days prior to introducing intact breeding rams and using multiple sires. A teaser ram is a ram that has been vasectomized but maintains his testosterone levels and libido. The introduction of teasers stimulates ewes to begin their cycle so that when intact rams are introduced ewes are more likely to conceive. After the teasers are removed, multiple sires are added to the breeding groups at a ram/ewe ratio of 1:20-25. Due to using multiple sires, a DNA sample is submitted to determine sire. The sample is also used in the 50K SNP genotyping for NSIP, contributing to the growing reference population of more than 10,000 samples in the Katahdin breed with matching performance records. To learn more about the 50K SNP genotyping refer to the February 2022 newsletter article about Genomic Enhanced Estimated Breeding Values.



Ram and ewes on pasture



## Summer Employees of 2022

Every year we have college students work during the summer. Meet this year's summer employees.

· **Erin Langhoff:** I am graduating from A&M this year with an animal science degree, with hopes to start working towards my master's degree. I am originally from Sioux City, Iowa. This is my first summer working here and I have helped a lot with one of the clean up projects that is happening here at the station.

· **Ty Goff:** I'm returning to UAFS to continue studying Criminal Justice. I have worked with the Cattle Crew this summer and have learned a lot about the extensive work that is put forth to care for the animals on and off of research.

· **Jessie Tanner:** I will be graduating from ATU this year with a bachelor's in general biology. This is my fourth summer to be working with the sheep crew and I loved them all. After graduating I am hoping to continue to pharmacy school.

· **Joie Bogart:** I am graduating from ATU in December with a bachelor's degree in horticulture. This is my fourth summer working with the sheep crew and I am thankful for all of the experience that I have received so far.

· **Laney Moore:** I am attending ATU to obtain my bachelor's in Ag education.

This summer I've had a lot of exposure to the various aspects of research as well as the opportunities that can lie ahead. I am hoping to further my education with a Master's degree relating to soils so, the work I've done here is a valuable experience for me.

· **Josie O'bar:** I am acquiring my bachelor's degree in Ag education from Arkansas Tech University. This is my first summer working at DBSFRC and I am excited to be working with the sheep crew.

· **Abby O'bar:** This is my first summer working with the sheep crew. I am starting my bachelors this year at UAFS majoring in Elementary Education. I have enjoyed my time working here so far and I'm looking forward to more.

· **Isaac Duran:** I'll be obtaining a bachelor's degree in Ag business with an emphasis on horticulture next year from ATU. This summer I have gained a lot of research and equipment experience working under Dr. Nieman at the DBSFRC and I'm hoping to come back next year.

· **Troy Gray:** I will be starting college at SAU this fall hoping to obtain a bachelor's in Ag education. This summer I have worked to help with Dr. Nieman's forage research projects. I have enjoyed learning how things work here at the station and I am hoping to one day apply this knowledge to benefit my students.



Summer workers 2022:(from left to right) Erin Langhoff, Tyler Goff, Jessie Tanner, Joie Bogart, Laney Moore, Josie O'Bar, Abby O'Bar, Isaac Duran, Troy Gray

## Drought and Fires

Much of the state is experiencing drought conditions, and the Dale Bumpers Small Farms Research Center is no exception. With record temperatures well above 100 degrees for weeks and little to no rain, animal welfare is a top priority. The crew has taken several measures to ensure animals stay healthy and cool during this time including feeding and working animals in early morning (often times before the sun rises), ensuring animals have more than enough shade and fresh/clean water, and providing hay due to pasture deficiencies from lack of rain. The animal care staff will continue their valiant efforts to keep animals cool through this heat-wave.

With drought and high temperatures, fire is another risk this time of year. We all know that fires start from people along roadways or burning trash; but, lightning and farming activities can cause a chance for fire. Welding, Baling and hay storage are some of those activities that can increase the risk for fire. One spark can turn into an uncontrolled blaze.

On July 28th, we had a grass fire at the research center which was started due to a bearing going out on the baler (see photos below). It was 105 degrees with a slight wind. Our team went into action building a fire line by discing the edge of the field and using water wagons to wet the grass. Everyone at the Center contributed to extinguishing the fire. Without the effort of our team, this fire could have spread broadly and caused a lot of damage. Being prepared and training can be the difference between disaster and success in stopping unexpected difficulties.



**Battling wild fire!**



## Shrimp Boil and Family Day at the Lake

Employees had a family day in late June. Jennifer Keatts rented a campsite beside the lake to have a specific place to gather. Larry Huddleston and Michael Schmidt cooked the shrimp boil. With the shrimp boil there was a potluck of boudin, bread, hamburgers, hot dogs, chips, and various desserts. There were many spouses, significant others, and kids present for this event. Two employees brought ski/fishing boats and took employees and families on the lake to swim and tube. Kayaks were used for anyone who wanted to paddle around the lake. Some employees went fishing as well. It was a great way to relax and visit in this very hot and busy season.



To view archived newsletters or to find publications, please visit our website at :



<https://www.ars.usda.gov/southeast-area/booneville-ar/dale-bumpers-small-farms-research-center/>



**USDA, Natural Resources Conservation Service**  
**Booneville, Arkansas Plant Materials Center**

PMC Information is available online at: <http://www.plant-materials.nrcs.usda.gov/arpmc/>

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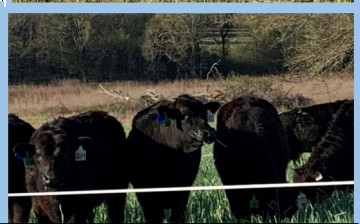


**Agricultural Research Service  
Dale Bumpers Small Farms Research Center**



**Innovations in Ag Field Day  
6883 South State Highway 23  
Booneville, Arkansas 72927**

**August 18, 2022  
Open to visitors!  
9:00am-3:00pm**



**Agenda**

**9:00 AM- Coffee and Tour of Farm Equipment**

**10:00 AM- Welcome and overview of Research Center- Dr. Phillip Owens**

**Presentations from Scientists:**

**Dr. Zamir Libohova- Optimizing Farm Operations Using Technology**

**Dr. Christine Nieman- Utilizing Alternative Forages for More Productive Beef Systems**

**Dr. Joan Burke- Producing More Efficient and Healthy Sheep**

**Steve Haller- Overview of USDA NRCS Plant Materials Center**

**12:00 PM- Complimentary lunch**

**Stakeholder discussion after lunch – Soils and Crops, Beef Production and Sheep Production**

**3:00 PM - Adjourn**

**For more information contact us at 479-675-3834 or [jennifer.keatts@usda.gov](mailto:jennifer.keatts@usda.gov)**

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