

SMALL FARM RESEARCH AGRI-NEWS

Agricultural Research Service

Dale Bumpers Small Farms Research Center Newsletter



Greetings from the Research Leader, Dr. Phillip Owens

I hope this finds you and your family safe and well. Since the distribution of our last newsletter, many of our employees continue to function in a telecommuting mode of operations; however, the Dale Bumpers Small Farms Research Center (DBSFRC) has begun to bring a number of essential, mission critical, and time-sensitive research projects back online. This transition has been accomplished by strictly following all necessary mitigation strategies to limit the spread of Coronavirus Disease 2019 (COVID-19). Despite the challenges of COVID 19, we have added some new employees the past few months which include Dr. Christine Nieman (Research Animal Scientist – Beef Cattle), Kolten Wright (Biological Technician), and Ben Holleman (Biological Technician)—welcome to the DBSFRC team! The following sections within the newsletter describes their background and training. We are happy that we are growing and making important advancements for the small farms community.

During the Easter storm, our center experienced winds over 100 mph and resulted in significant damage on the east end of the farm. We had trees down, fences destroyed, shade structures demolished, and roofs blown off of our barns. You will soon see a new look to the facility on the east side of the farm. The crew led by Larry Huddleston will start rebuilding within a month. Financial support from the USDA-ARS National Headquarters will make these crucial repairs happen—so be on the lookout for our renovations.

Our team at DBSFRC are continually striving to improve the economic and environmental viability of small farms. The creativity of our scientists and resiliency of our employees to challenges is impressive. Despite recent challenges, our Center is continuing research focused on pathogen resistance in sheep; baleage as an option for beef cattle producers; alternative crops and production options focused on niche markets like saffron and Kernza®; and onboard tractor guidance technology. Research is a collaborative effort and good ideas come from thinking about how to solve issues burdening small farms. Keep us informed of your research needs because it helps us define our research missions. Until next time, stay safe, keep in touch, and stay well.

kindest regards,
Phillip R. Owens

In this issue:

- Dr. Owens Greetings (page 1)
- Dr. Franco Research Spotlight (page 2)
- Dr. Burke Sheep Research Spotlight (page 3)
- Staff Spotlight (page 5)
- Cattle Spotlight, Staff News (page 4)

Agroecology and Sustainable Farming Systems Research Spotlight



Dr. Jose Franco

Alternative Forage and Cropping Systems Research Update

Kolten Wright and the farm crew completed burning in the Rodeo Unit in preparation for upcoming planting of alternative organic crops (sunflower, sesame) and an okra cover crop for a termination study that will begin this fall. Overall, burning went smoothly and

more effective burning was achieved in areas planted with cereal rye last fall where there was more fuel accumulation. The termination study will evaluate reduced tillage options to conserve soil resources while reducing weed pressure and maximizing yields of organic specialty grain crops.



Kernza®, a dual-use, perennial small grain and forage crop that offers promising economic potential for small farmers, will be harvested soon from a multi-state project with the University of Minnesota, Montana State University, and Texas A&M University. Stand and tiller counts were completed earlier this year. Initial soil sampling has been completed for another upcoming Kernza® study that will establish baseline grain and forage yields for this dual-use, perennial crop. Field preparation will commence soon. A team from DBSFRC, Winrock International, the Natural Soybean and Grain Alliance, the University of Arkansas, and the ARS-Cropping Systems Laboratory in Lubbock, TX will be working with local producers on this research.

Two station soil types have been identified to begin a study on rosinweed and cup plant (*Silphium integrifolium* and *S. perfoliatum*), two native species to the Midwest and mid-South U.S., in the greenhouse. We will be evaluating their response to defoliation (i.e. simulated haying or grazing) and fertilization. This will help us understand how grazing during the first year of its growth cycle impacts seed production and the second year so that breeding efforts can be targeted for one or both uses (forage and perennial oilseed crop).



Silphium



Kernza®

Silphium and Kernza® have gained interest from the sustainable agriculture community for their potential to provide quality forage while also producing a perennial crop (i.e. oilseed, grain). These alternative dual-use forages/crops and the organic systems we are studying are aimed at producing food and forage in a way that conserves resources and minimizes negative impacts to the environment.

Small Ruminant Research Spotlight



Dr. Joan Burke

Successful sheep sale! On July 9th the DBSFRC conducted a sealed bid sale of 39 head of sheep. Record high bids were received. The highest bid was won on a ram (USD18327) for \$1,105 going to Virginia. Sheep purchased were sent to Indiana, Missouri, North Carolina, Tennessee, Texas, Virginia and throughout Arkansas. The sale

showed that the genetics of the ARS sheep are in high demand. The ARS sheep flock has been selected for parasite resistance, maternal weaning weight, a measure of milk production by the dam, and growth of lambs. Because resistance to de-wormers is highly prevalent across the country, it is difficult to control gastrointestinal parasites. Genetic resistance to these parasites is one of the most important ways to control parasites like barbers pole worm. Katahdin sheep can be resistant (very little infection is established) or tolerant (an infection is established but few signs of disease are apparent). Thank you to all of the bidders. Visit the website for news of future sales and research. <https://www.ars.usda.gov/southeast-area/booneville-ar/dale-bumpers-small-farms-research-center/>



NEW APPROACHES TO WORMING

In an upcoming article in A Greener World's Sustainable Farming Magazine, <https://agreenerworld.org/resources/sustainablefarmingmagazine/>, Joan Burke explores innovative approaches for gastrointestinal parasite prevention and control in sheep and goats. The DBSFRC sheep flock is certified Animal Welfare Approved by A Greener World, one of the leading organizations on farm animal welfare.



Any experienced livestock producer knows that parasites are a natural part of livestock farming. But new farmers may panic when they first realize their animal has worms, feeling they may have somehow neglected their animals. The goal should be to manage or minimize the parasites, but not eradicate them. It is important to stimulate the animal's immune response, but not overwhelm it. Producers should feel comfortable having a few worms on the farm, but not so many as to harm an animal's welfare.

This article aims to explain the basic biology of some common gastrointestinal nematode parasites and outline a number of strategies to manage them, as well as dispel some myths of the commonly touted products that fail to control worms. Genetics, use of copper oxide wire particles, and Duddingtonia flagrans, a nematode trapping fungus are discussed. In addition to this magazine article, many topics on small ruminant parasite control can be found at the American Consortium for Small Ruminant Parasite Control website:

<https://www.wormx.info/>

Staff Spotlight

New Research Animal Scientist Announced



Dr. Christine Nieman is a ruminant nutritionist with an interest in beef grazing systems. Dr. Nieman has worked at the research center for 4 years. She started at the DBSFRC as an (ORISE) collaborator. She then worked as a Post doctoral scientist through the University of Arkansas.

In general, her research strives to determine strategies for increasing the profitability of small beef farms in the mid-South. She studies various management approaches and techniques to achieve this goal, including decreasing costs by reducing hay feeding and extending the grazing season, and increasing productivity through annual forage species, baleage, and supplementation. Dr. Nieman is also interested in agroforestry systems, specifically silvopasture. She works with several producers in the area attempting to incorporate silvopasture on their small farms. Dr. Nieman earned her Ph.D. in Animal Science from the University of Wisconsin-Madison, where her research focused on grazing systems for stocker cattle, including the utilization of warm season annuals and grass and legume mixtures. Dr. Nieman earned her Master's in Animal Science from Michigan State University with an emphasis in dairy grazing systems and she earned a Bachelor of Science in Dairy Sciences from the University of Wisconsin-River Falls.

New Biological Technician Hired



Kolten Wright was hired as a Biological Science Technician in June 2020. Kolten has worked at the Center since May 2015 as a student Biological Aide. While attending Arkansas Tech University, he worked with the farm crew aiding in a wide variety of tasks critical to research until being moved in 2019 under Dr. Franco, Research Ecologist. Kolten help investigate effects of cultural practices and management on forage physiology, yield and botanical composition. He assists in the study of potential non-traditional forages that may be adapted to the region. He is helping to develop improved agricultural management practices.

New Biological Technician Hired



Ben Holleman was hired as an Agricultural Science Research Technician, under a Veteran Recruitment Appointment. In the past, Ben worked as an animal caretaker and a field worker. He started working at the center in 2010 before leaving to serve in the Navy.

Upon his service completion he returned to Arkansas and graduated with a degree in Agriculture Business Management and Marketing from the University of Arkansas. Ben now works on the farm crew to help manage research projects and facilities.

Cattle Spotlight

Breeding season is coming to a close at the DBS-FRC. We will pull the bulls by August 1st, which will give us about a 2 month calving season next spring. All of this year's spring calves have been ear tagged, bull calves banded, and are growing rapidly.



We have 35 yearlings on the long-term watershed study. The 35 yearlings are used for grazing 12 of the 15 runoff watershed plots. The 15 plots have 5 treatments replicated 3 times which include continuously grazed, rotationally grazed, rotationally grazed with a grass buffer, rotationally grazed with riparian buffer and hayed which are all 1/3 acre each. The yearlings rotate on and off the plots to keep the forage at the desired level. The project is a long term nutrient management runoff study in the 18th year to evaluate the management effects of nutrient runoff. Find more information with an article in CSA News: <https://access.onlinelibrary.wiley.com/doi/10.1002/csan.20116>

Staff News



The University of Arkansas Department of Animal Science recently announced its 2020 Awards of Distinction. Sam Tabler, retired DBSFRC Animal Scientist was recognized for his years of service to Arkansas Agriculture. To read the full article, please follow the link below:

<https://www.boonevilledemocrat.com/news/20200611/tabler-recognized-with-ua-department-of-animal-science-award-of-distinction>

Outside of work DBSFRC employees continue bettering themselves in many ways. One example of this is the effort put forth by Larry Huddleston (age 51) and Kolten Wright (age 24) in reaching their physical fitness goals. In the early parts of 2019 Larry began running as a means to improve his overall health.



Larry and Kolten ran their first 5k in October of 2019, both taking home metals in their age groups. Continuing into the summer of 2020 Larry completed two 5k's and a 10k with his son, Cole. Kolten and Larry both placed first in their age groups at the Scott County Fair Association 5k and 2k fun run and Kolten placed first overall. As an added bonus, four of the 2k fun run metals went to the young family members of another DBSFRC employee, Tiffany Herman.

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