



# Field Notes

## Kerr Center for Sustainable Agriculture E-Newsletter

*E-Field Notes*

December 2017

Season's greetings from the Kerr Center!

David Redhage gets this issue rolling with reflections on an article about **breeding crops for particular nutritional needs**.

The rest of this month's newsletter is given over, as usual, to a **look back at the year gone by** to register progress made in each of our main program areas. It's a chance to check in and see what's been happening with our **conservation, livestock, and horticulture projects** - as well as what directions they'll be taking in 2018.

If you've already given to the Kerr Center this year, [thank you for your support!](#) If not, please do consider [supporting our work](#).

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## President's Note: Crop Nutritional Profiles

When it comes to the president's note, I don't follow a topic area other than agriculture. I tend to decide on a subject based on what has caught my eye recently, though it may repeat a topic covered earlier. So it is with this month's note. I came across an article in John Deere's November 2017 publication *Furrow*, entitled "[Functional Foods](#)," by Martha Mintz.



The article covers how breeders and researchers are focusing on nutrition in crop development. The article gives a little twist to the discussion on selecting plants based on human nutrition needs. Plant pathologist David Sands from Montana State University suggests changing not what people eat, but changing the nutritional makeup of the foods they already like.

In a way, this makes sense. I know I have tried to change my diet, but find it difficult to adjust since I like certain foods. The example given in the article is potatoes and diabetes. The idea is to identify potato varieties that rank low enough on the glycemic index to be safe for pre diabetics to eat. It was pointed out there are over 500 different varieties of potatoes but we only have one nutrition label for all of them, yet they can exhibit nutritional differences.

[Continue reading...](#)

## Conservation: Promoting Habitat, Preventing Erosion

Kerr Center President David Redhage serves on the Oklahoma Monarch Steering Committee. He continues to be in high demand as a speaker on [native pollinators](#) and **habitat conservation and restoration**.

In [forestry programs](#), the Center has been taking bids to have **pine stands** on portions of the ranch **thinned in 2018**. Timber stands in these areas will be at **risk of suppressed growth if not thinned** within another year or two.



Some of the ranch roads are serving as **experimental areas** for the addition of "water bars." These consist of used mining belts buried in the actual roadbed at an angle of 30-40 degrees, with the goal of [reducing erosion](#). The performance of these initial installations will be monitored, and they can be expanded if they prove effective.

## Livestock: Grazing Stockpiled Forage with Favorable Rains

The **grazing study** established in 2014 has racked up three years in a row of **above-average rainfall** during the **critical period for stockpiling forage** (July - October).

Overall, the **quality of stockpiled forage** in the study has ranged from around **7-9% protein**, acceptable for a dry mature cow.



In the **high stock density** treatment, the **higher utilization rate** has produced **higher quality forage**. Since more of the mature forage is removed the first time the herd visits the pasture, the regrowth for the second grazing episode contains more fresh, high-quality forage. The overall amount of **stockpiled forage has been roughly equal at high and low utilization rates**.

In the **low stock density** treatment, **less stockpiled forage** is available under the **higher utilization rate**. This is due in part to the difficulty of persuading the cattle to refrain from cherry-picking the most palatable plants under low stock density conditions.

Whenever rains return to a **more normal pattern**, without such abundant precipitation in July and August, we expect to see both **lower amounts and lower quality of stockpiled forage** across all treatments. The current study's **long rest periods** between grazing (120 days) were planned with this in mind.

Outside the grazing study, **ranch demonstrations** reflect both the **practices the Kerr Center promotes** - [gravity flow water systems](#), [rotational grazing](#), and [riparian area management](#) - and the herd size and acreage typical of part-time cattle producers in southeastern Oklahoma.

"The rotational livestock grazing program provides us with a **working model of how it can function under real world conditions**," says Cattle Manager Will Lathrop. "By actually doing it, we as staff learn first-hand all the strengths and weaknesses of pasture and livestock management. It makes us much more credible and effective speakers."

"We are seeing changes week to week and year to year with fluctuating rainfall and temperatures. **Adaptability is the key**, and each year we learn a little more on how to make the needed adjustments for a successful grazing program."

# Horticulture: Plasticulture, Perennials, and Season Extension

The [horticulture program](#) this year published a **comprehensive overview of the organic bio-extensive management** regime developed on the Cannon Horticulture Plots over the past decade. Written by retired Horticulture Manager George Kuepper, who oversaw the program, [Organic Bio-Extensive Management Revisited](#) serves as a valuable resource for home and market gardeners throughout the region.

The Kerr Center's **plastic mulch layer** saw action for the first time in 2017. As expected, it **made earlier plantings possible**. However, there were still lessons waiting to be learned: **rows need to be laid out on the contour, and split in the middle, to allow excess water to drain off the plots**. The same **high rainfall** that made these issues apparent also **created higher than usual weed pressure**.



Work with **perennial crops** expanded further, with the Center securing a two-year Specialty Crop Block Grant to **evaluate six varieties of elderberry for yield, sugar content, disease resistance, and insect pest tolerance**. Potential additions to the perennial crop lineup include pawpaws and Chinese Chestnuts.

[Season extension](#) continues to receive major emphasis in the horticulture program, with another [hoop house workshop](#) conducted this past October in cooperation with the Choctaw Nation. This workshop was the first to use an **updated and streamlined** set of [illustrated plans](#), incorporating refinements and lessons learned over the Kerr Center's several years of work with the Hanley-style hoop house design.

Organic Bio-Extensive Management Revisited



## INTRODUCTION

BY GEORGE KUEPPER  
Horticulture Program  
Manager (ret.)  
March 2017

I retired from the Kerr Center in mid-2016 after nine rewarding years of designing and managing an organic bio-extensive system for the Kerr Center's Cannon Horticulture Demonstration. All of us—staff, interns, and our friends in the horticulture and small farm communities—learned so very much about sustainability, practical horticulture, organic compliance, and the human element in small-scale farming. We captured much of that experience in the 2015 publication *Market Farming with Rotations and Cover Crops: An Organic Bio-Extensive System* (<http://kerrcenter.com/publication/market-farming-with-rotations-and-cover-crops-an-organic-bio-extensive-system>). We have learned even more since then, and are including it in this follow-up publication.

# Don't Miss the Horticulture Industries Show!

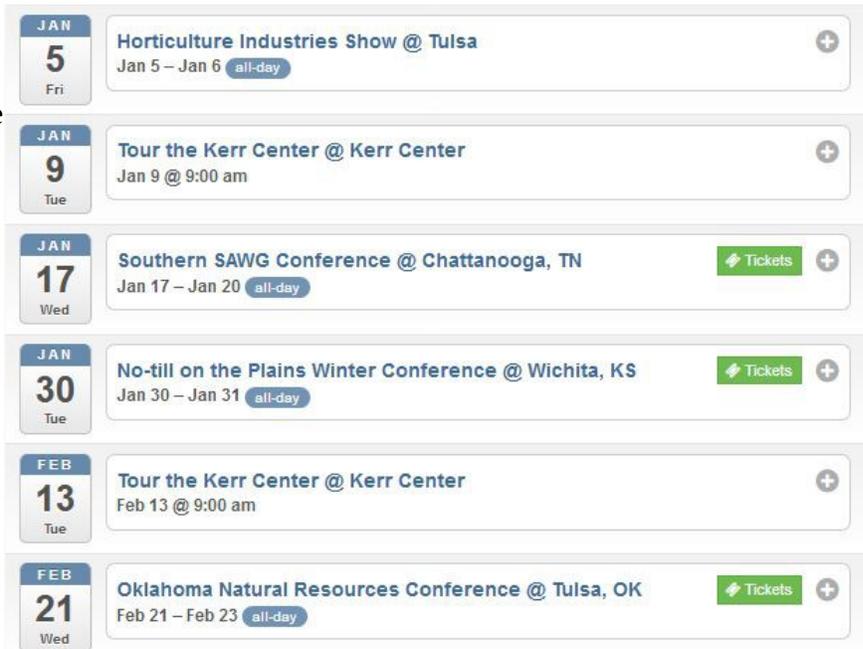
The [Horticulture Industries Show](#) returns to Oklahoma this year, in Tulsa Jan. 5-6. For those itching to travel farther, [Southern SAWG's annual conference](#) takes place in Tennessee later in the month.

The Kerr Center's online [events calendar](#) provides full details on these and many other sustainable agriculture goings-on all around the state and region. It also serves as a reminder for the dates of **monthly Kerr Center [tours](#)**,

which run all year round, every second Tuesday by appointment.

Don't forget that you can also use our online calendar to **keep yourself and your friends up to date** on these and other upcoming events, including our tours:

- **Subscribe to our feed** and receive **updates to your personal calendar** (Outlook, Google+, etc.) as they are made.
- **Share events on the calendar** via a number of **different social media sites**, including Facebook, Twitter, and Pinterest.



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