

Russell County Agriculture and Natural Resources March 2024 Newsletter

In this issue...

- Economic Update - Kentucky's Agricultural Districts Program
- Tips to Stretch Short Hay Supplies
- Chasing the Silver Bullet - Increasing Corn and Soybean Yields
- Kentucky Proud Recipe - Honey Raisin Muffins
- Minerals: Too Much of a Good Thing
- Timely Tips for a Spring Calving Cow Herd
- Upcoming Events with Informational Fliers and MORE!


Jonathan Oakes, CEA for Agriculture and Natural Resources

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Economic & Policy Update

E-newsletter Volume 24, Issue 1

Editors: Will Snell & Nicole Atherton



Department of Agricultural Economics
University of Kentucky

JAN
2024

Kentucky's Agricultural Districts Program

Author(s): Jerry Pierce Published: January 30th, 2024

Someone asked about Agricultural Districts recently. It sounded like a farm tax program, but I had to admit that I knew nothing about them, and that I would look into it.

The Agricultural Districts Program *does* include the Farm Tax Exemption for real estate taxes. But it also provides certain protections to farmland from annexation and condemnation (as in for a highway or landfill). Enrolled farms qualify for preferential treatment for certain cost-share programs with the Division of Conservation website saying:

"Land enrolled in the Agricultural District Program cannot be annexed, cannot be condemned without mitigation, is taxed at the agricultural rate, is eligible for deferred assessment costs when water lines are extended, and receives extra points when applying for state Cost Share or to the Purchase of Agricultural Conservation Easements (PACE) Program."

The program was created by the Kentucky Legislature in 1982. The purpose of the legislation is "to provide a means by which agricultural land may be protected and enhanced as a viable segment of the state's economy and as an important resource."

Requirements

Any landowner or group of landowners may submit a petition to the local conservation district requesting the creation of an agricultural district within the county. The petition is simple: name, address, and number of acres included by each petitioner and the names and addresses of adjacent landowners. It requires a map of the proposed district identifying boundaries of the property to be included in the district and of adjacent landowners. See the Property Valuation Administrator (PVA) or Farm Service Agency for help. Generally, the district must include at least 250 acres of farmland within a contiguous boundary, and no land can be included without the consent of the owner.

The Process

The petition is submitted to the County Conservation District Board of Supervisors. They notify the local planning and zoning authorities and the fiscal court for input. The Board has one hundred days to make a recommendation to the Soil and Water Conservation Commission in Frankfort. The commission has one hundred days to make its recommendation. That's about a year of working days from the time the original submission is made. The Commission may consider the number of acres with a conservation plan or agriculture water quality plan, acres considered prime farmland, soil capability classes, and farming activities, as well as any opposition offered.

Every five years the Board of Supervisors will review any changes in the agricultural district and your desire to continue participation. They will then make a recommendation on recertification to the Commission.

For more information look up Natural Resources Conservation Agricultural Districts online or visit your county Conservation District.

Tips to Stretch Short Hay Supplies

Dr. Jeff Lehmkuhler, PhD, PAS, Beef Extension Professor, University of Kentucky

Below are a few tips to consider stretching limited hay supplies. For additional information contact your local Extension agent. It is recommended to consult with your feed nutritionist or County ANR Agent before making drastic changes in your feeding program.

- 1) Inventory hay – know how much hay you available; weigh a few bales to get an average weight or estimate the weights based on available information from Extension publications.
- 2) Minimize storage losses – keep hay off the ground on a surface that will allow water to drain away; keep bales covered or stored inside a barn; if bale grazing limit the number of bales placed in the field to provide 2-4 weeks of feeding to reduce weathering losses.
- 3) Reduce feeding loss – consider minimizing feeding losses; using hay rings with skirts / metal on the bottom, tapered ring designs, chains to suspend bales, or cone inserts to keep hay inside the feeder has been proven to reduce hay feeding losses compared to hay rings with openings at the bottom; using an electrified temporary poly-wire placed down the center of unrolled hay will reduce losses from cows laying on the hay, trampling it into the mud, and defecating on the hay; feeding processed hay into a bunk or large industrial tire reduces waste compared to feeding processed hay on the ground.
- 4) Cull – consider selling less productive females, open cows, and cows with structural/functional issues to reduce the number you must over winter; consider selling the bull as the market may provide the opportunity to sell a mature bull and replace him with a younger bull next spring.
- 5) Limit time access to hay – research has shown dry cows in mid-gestation can be maintained on good quality hay when they have restricted access time to only 6-8 hours a day; the hay savings comes from less waste as feeding behavior is altered; all cows must be able to access hay at any given time; this is not recommended young or thin cows, lactating cows or growing animals.
- 6) Substitute hay with grain – calories and protein can be provided from supplements; grain/commodity mixes can be used to replace hay; cows can be maintained on a low hay diet by using grain supplementation that balances the nutrient supply and animal requirements; consult a nutritionist before making extreme feeding changes.
- 7) Deworm young animals – animals with an internal parasite burden will have reduced efficiency.
- 8) Feed an ionophore – if grain supplementation will be used, consider adding an ionophore to increase the energy efficiency of the feed consumed. Consult your nutritionist to discuss inclusion rates and developing a supplement program. Previous work has shown that feeding 200 mg of monensin allowed cows to maintain body condition on 10-15% less hay.



Winter and Early Spring River Flooding

Jane Marie Wix – National Weather Service Jackson, KY



I came across an interesting quote recently from a man named Dean Acheson that said, “You can’t argue with a river - it is going to flow. You can dam it up, put it to useful purposes, you can deflect it, but you can’t argue with it.” As we head into the winter months, rivers seem to become more “argumentative” as they swell and flood. So why do we typically see most of our river flooding in the winter and early spring here in Kentucky?

There are several factors...

1. During the winter months, the lack of vegetation, and the cold and occasionally frozen ground make it unable to absorb as much water. This creates more runoff into area creeks and streams, and eventually into the riverways.
2. The winter also tends to bring more amplified/stronger storm systems, which can result in more widespread significant precipitation. Typically in the spring and summertime, heavy precipitation associated with storms is more localized, while in the winter, it can cover vast expanses, leading to more impacts on the rivers.
3. Jam - it isn’t just for bread! Ice floating down the river can get backed up and dam up the waterway, known as an ice jam. The water behind the jam will rise and flow out of the banks, leading to areal flooding. Subsequently, the jam will eventually release, sending large chunks of ice down the river, and leading to potential damage downstream as well. This is more typical farther north than Kentucky, where rivers are more likely to freeze over.
4. As we head into the early spring months, or even a warm spell after a large winter event, rising temperatures begin to melt away at the snow and ice on the ground. If too much ice or snow melts at once, this creates a large amount of runoff into the waterways, leading to significant river rises. This gets amplified when heavy rains also fall on top of the melting ice and snow.
5. According to FEMA and the National Inventory of Dams (2007), there are more than 80,000 dams in the United States. Dam failure or levee breaches can occur with little warning. Failures and breaches can be slow, lasting from days to weeks, or can be very abrupt with profound impacts to locations downstream. Causes of dam failure vary from natural causes such as prolonged rainfall, landslides, earthquakes, or erosion - to human causes such as improper maintenance and design, and negligent operation.

Know your risk... Is your home, business, or school near a river or stream? Are you in the flat land adjacent to that river or stream? More than likely if you answered yes, you are located in a floodplain. Floodplains are the natural overflow for rising waters in these streams and rivers, and were formed/flattened by repeated flooding and water flows. Where is water likely to collect on the roadways you most often travel? What is the fastest way to get to higher ground? Knowing the answers to these questions ahead of time can save your life.

Chasing the Silver Bullet – An Exercise in Futility?

This is the time of the year when contest winning corn and soybean yields are announced. Some of the winners set records for the highest yield ever – yields that can be as much as 3 or 4 times the average U.S. yield. Yields that high bring to mind the silver bullet syndrome – what single management practice was responsible for that extraordinary yield? The unspoken idea behind the silver bullet syndrome is - if we can identify a silver bullet, we can increase everyone's yield.

The production of yield by a crop community (a field of corn or soybean) is complex, starting with all the cycles, reactions and processes responsible for plant growth. The system requires a supply of raw materials (mineral nutrients, water and carbon dioxide), solar radiation to provide the energy to run the system, and the appropriate temperatures. Yield then is the integration of this system over the 100 to 120 or more days the crop takes to reach maturity. Identifying one aspect of this system, a silver bullet, which can be manipulated to dramatically increase yield is not easy.

Historical yield growth of corn and soybean was a result of genetic improvement (better varieties or hybrids) and improvement in crop management. Genetics removed negative plant characteristics (e.g., tendency to shatter and lodge, disease susceptibility) and improved the plant's inherent productivity. Management improved the crop's environment by controlling weeds, fertilizing, irrigating to avoid drought stress, manipulating planting date, row spacing, plant population, and controlling disease and insect infestations. These activities remove negative aspects from the crop's environment, pushing it closer to the perfect environment that will maximize yield. However, the closer the crop is to the perfect environment, the less room there is for improvement.

These improvements resulted in a steady increase in corn and soybean yields in the US, (1.9 and 0.5 bu/acre/year, respectively, based on trend lines from 1980 to 2023). These steady improvements don't provide much support for a role for a silver bullet – a single change that drastically increased yield.

We have a good idea of what it takes to produce high yields. High yield starts with the latest variety (hybrid) that has high-yield potential, good agronomic characteristics, and broad-spectrum disease and nematode resistance (when needed). Growing this variety (hybrid) in a fertile soil with high water holding capacity using recommended management practices (planting dates, populations, row spacings, fertility levels, good weed, disease and insect control) provides the foundation for high yields. Unfortunately, weather conditions and the water supply have the final say and they cannot be manipulated, unless irrigation is available. These management practices have evolved over many years and are the result of detailed field experimentation; testing and verifying individual practices in many environments.

It is worth noting that there are probably greater opportunities to improve efficiency of these systems

(principally as a result of new technologies – precision agriculture, see and spray systems, drones, remote sensing etc.) than to increase yield. Efficiency doesn't necessarily increase yield, but it can improve the all-important bottom line.

Chasing the silver bullet can distract producers from the use of tried-and-true best management practices known to provide high-yield potential. It can lead to excess and unnecessary fertilizer or pesticide applications that not only reduce profits but can contribute to pollution that may ultimately lead to unwanted governmental regulation. Overuse of pesticides may encourage development of resistance that reduces their effectiveness.

In my opinion, the search for a silver bullet that will lead to much higher yield is futile. Actually, it is worse than futile if it distracts producers from applying best management practices. If a silver bullet is found, it will be more likely to come from careful, detailed laboratory and field research than from haphazard trial and error efforts in farmer's fields. Producers will be better off focusing on applying well-understood best management practices as efficiently as possible to improve their bottom line and keep their banker happy. In these matters, it is a good idea to remember the words of Hippocrates (Greek physician, 460 – 375 BC) "There are, in fact, two things, science and opinion; the former begets knowledge, the latter ignorance".

Adapted from Egli, D.B. 2021. Applied Crop Physiology: Understanding the Fundamentals of Grain Crop Management. CABI. 156 pp.

Dr. Dennis Egli

UK Professor Emeritus (859) 218-0753 degli@uly.edu

Forage Timely Tips: March

- Continue pasture renovation by no-tilling seeding legumes.
- Place small seed at 1/4 to 1/2 inch deep and check depth several times during planting; slow down for more precise seeding.
- Continue feeding hay until adequate forage exists in the pasture for grazing.
- Spring seeding of grasses should be done in early to mid-March (but fall is preferred)
- Begin smoothing and re-seeding hay feeding and heavy traffic areas.
- Graze pastures overseeded with clover to reduce competition from existing grasses (Pull off before grazing new clover plants).
- Provide free choice high-magnesium mineral to prevent grass tetany on lush spring growth.

Originally Published by University of Kentucky Forage News, March 6th, 2023.



Honey Raisin Muffins

½ cup + 2 tablespoons all purpose flour	¼ teaspoon baking soda	1 cup skim milk
½ cup + 2 tablespoons whole wheat flour	1 teaspoon ground cinnamon	½ cup honey
¾ teaspoon baking powder	¼ teaspoon salt	2 egg whites
	2 cups bran flake cereal with raisins	3 tablespoons unsweetened applesauce
		2 tablespoons canola oil

- 1. Combine** flours, baking powder, baking soda, cinnamon and salt in a bowl and set aside.
- 2. In a large mixing bowl, combine** cereal, milk and honey; let stand for 2 minutes to soften. **Stir** in egg whites, applesauce and oil; **mix** well.
- 3. Add** dry ingredients and stir until moistened.
- 4. Fill** a greased or paper-lined muffin pan $\frac{2}{3}$ full.
- 5. Bake** at 400°F for 15-18 minutes.
- 6. Cool** 10 minutes before removing from pan.

Yield: 12 muffins.
Nutrition Analysis:
 150 calories, 3 g fat, 0 mg cholesterol, 170 mg sodium, 30 g carbohydrate, 2 g fiber, 15 g sugar, 4 g protein.



Buying Kentucky Proud is easy. Look for the label at your grocery store, farmers' market, or roadside stand.

Kentucky Honey

SEASON: Honey is harvested in July and August.

NUTRITION FACTS: 1 tablespoon of honey has 60 calories, 0 g fat, 17 g carbohydrate, 0 g protein.

SELECTION: Bees prepare honey from nectar collected from the flowers and blossoms of trees. Color and flavor is determined by the blooms.

STORAGE: Store honey at room temperature, in an air-tight container for up to 2 years.

PREPARATION: Honey can be used in cooking in place of sugar. For baking with honey, substitute honey for up to $\frac{1}{2}$ the sugar in recipes. Reduce

the liquid in the recipe by $\frac{1}{4}$ cup for each cup of honey used. Add $\frac{1}{2}$ teaspoon baking soda for each cup of honey and reduce the oven temperature by 25° to prevent over-browning. Honey has a higher sweetening power than sugar. It will take less to sweeten your recipe.



HONEY

Plate it Up! Kentucky Proud Project

County Extension Agents for Family and Consumer Sciences
 University of Kentucky, Nutrition
 and Food Science students

March 2012

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Source: www.honey.com

Minerals: Too Much of a Good Thing

Dr. Katie VanValin, Assistant Extension Professor, University of Kentucky

Minerals are an essential nutrient for beef cattle. This means like protein and energy, minerals must be supplied in the diet, however minerals make up a very small portion of the total diet. Many feedstuffs are deficient in one or more essential minerals which is why mineral supplementation is a critical component of meeting the nutritional needs of the herd. So, this begs the question, “if a little is good, isn’t more better?”. The truth is we can have too much of a good thing when it comes to minerals, and this can lead to serious and sometimes fatal consequences.

Sulfur

The sulfur requirement for beef cattle is 0.15%, with maximum tolerable concentrations of 0.3% in high concentrate diets (15% roughage or less), and 0.5% in high roughage diets (40% or greater roughage). By-product feeds including corn gluten feed and distillers grains can be high in sulfur content. According to the Nutrient Requirements of Beef Cattle (NASEM, 2016), sulfur content of corn gluten feed, dried distillers grains, and distillers solubles averaged 0.58%, 0.66%, and 0.82% S, respectively. Sulfur content of forages also need to be accounted for and can range between 0.15-0.20% S. Lastly, sulfur content of water can vary greatly from one source to the next but can also add to the total S intake of the animal. Thus, it is possible to overfeed sulfur if careful consideration is not taken when formulating the diets, especially when utilizing by-product feeds. When sulfur is fed above the maximum tolerable concentrations, it is possible for cattle to develop sulfur toxicity which causes Polioencephalomalacia (PEM), a neurological disorder resulting in blindness, ataxia, seizures, and death.

By-product feeds can be a great asset to the feeding program, but care should be taken to avoid complications from over-feeding. Just because a feed ingredient is “free” or “cheap” does not mean we should be feeding as much as the cow wants to consume. Unfortunately, it is not all that uncommon to see rations with sulfur concentrations above maximum tolerable levels, and this is often caused by over feeding of by-product feeds.

Calcium and Phosphorus

~~Calcium and phosphorus~~ requirements vary depending on stage of production, but in general the requirements of calcium compared to phosphorus are a 2 to 1 ratio. However, many concentrate feed stuffs such as corn or distillers grains actually have an inversed calcium to phosphorus ratio, meaning they are higher in phosphorus than calcium. Evaluating the calcium to phosphorus ratio of the diet is an important step, when developing a feeding program because when calcium in the diet is low and phosphorus is high, cattle are at risk of developing urinary calculi or stones. A simple solution is to feed a co-product balancing mineral product which will have higher levels of phosphorus and lower levels of calcium compared to a more typical or 2:1 cow-calf mineral.

Selenium

~~Initially,~~ selenium was known for its toxic effects and negative impacts on human and animal health. It was not until 1957 that selenium was recognized as an essential nutrient, and research was conducted to understand the dietary selenium concentrations needed to prevent deficiency and toxicity in livestock. It was not until 1978 that the FDA approved feeding supplemental selenium to beef cattle. Mineral tags will often include verbiage stating that this product was formulated to provide 3 mg of selenium per

head per day, which is the maximum level allowed by the FDA. This means that for a free-choice mineral product with a target intake of 3 oz. per head per day the selenium concentration shall not exceed 35.2 ppm, and for a target intake of 4 oz. per head per day selenium concentrations shall not exceed 26.4 ppm.

Regulations on the selenium content of mineral supplements, help to prevent selenium toxicity, and instead we often talk more about selenium deficiency. In Kentucky and other parts of the southeast it is not uncommon for forages to be deficient in selenium, making a good mineral program that includes selenium an important management practice. However, other parts of the world have areas where selenium concentrations in plants can be quite high, resulting in selenium toxicity. For this reason, selenium is another example of a mineral where a little is good, but more is not always better.

Minerals have many complex interactions with one another, which can make understanding and developing mineral requirements difficult. At the same time, it is possible to overfeed certain minerals in the diet which can result in serious complications. For this reason, it is recommended to work with a nutritionist to develop a feeding program to meet the needs of your herd while minimizing the potential for negative or unintended complications. For most herds a good quality, complete free-choice mineral is a great starting point for ensuring the mineral needs of the herd are being met, but if concentrates or by-product feeds, a co-product balancing mineral might be recommended. For questions regarding mineral supplementation, reach out to your local county extension office.

Timely Tips

Dr. Les Anderson, Beef Extension Professor, University of Kentucky

Spring Calving Cow Herd

- Study the performance of last year's calf crop and plan for improvement. Plan your breeding program and consider a better herd sire(s). Select herd sires which will allow you to meet your goals and be willing to pay for superior animals.
- Consider vaccinating the cows to help prevent calf scours.
- Keep replacement heifers gaining to increase the probability of puberty occurring before the start of the spring breeding season.
- Start cows on the high magnesium mineral supplement soon. Consider protein supplementation if hay is less than 10% crude protein. If cows are thin, begin energy (grain) supplementation now. Cows must reach a body condition score of 5 before calving to maximize their opportunity for reproductive success. Supplementation now allows adequate time for cows to calving in adequate body condition score.
 - Get ready for the calving season! See that all equipment and materials are ready, including obstetrical equipment, record forms or booklets, eartags, scales for obtaining birthweights, etc. Prepare a calving area where assistance can be provided easily if needed. Purchase ear tags for calves and number them ahead of time if possible. Plan for enough labor to watch/assist during the calving period.
- Move early calving heifers and cows to pastures that are relatively small and easily accessible to facilities in case calving assistance is needed. Keep them in good condition but don't overfeed them at this time. Increase their nutrient intake after they calve.

Upcoming Events

Cattleman's Meeting

Location: South Kentucky RECC

2405 N. Main Street, Jamestown, KY 42629

Date and Time: Tuesday, March 5th | 6:00 PM CST

Living on a Few Acres

Location: Woodstock Community Center

13215 KY-39, Somerset, KY 42503

Date and Time: Saturday, March 16th | 8:00 - 11:00 CST

Estate Planning Workshops

Location: Russell County Extension Office

2688 S. HWY 127, Russell Springs, KY 42642

Date and Time:

Monday, March 18th | 5:30 PM CST

Thursday, March 21st | 5:30 PM CST

Hunter's Education Course

Location: Russell County Extension Office

Date and Time: Saturday, March 23rd | 8:00 - 2:00 CST

Farmer's Market Meeting

Location: Russell County Extension Office

Date and Time: Thursday, March 28th | 5:00 PM CST

LIVING ON A FEW ACRES

March 16th
9 am - 12 noon

Woodstock Community Center
Call: 606-679-6361 to RSVP

Classes to Include:

- I bought a farm now what? USDA Update
- Soils for success
- Sheep & Goat Production
- Back yard poultry & rabbits 101
- Introduction to bee keeping
- Growing mushrooms logs
- Vegetables & Season Extension



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MARCH 18TH 5:30 PM

MARCH 21ST 5:30 PM

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📞 (270) 866-4477

🌐 russell.ca.uky.edu



RUSSELL COUNTY AGRICULTURE & SERVICES
BROCHURE APPLICATION

Please complete this form for your agricultural product(s) and/or services to be included in the brochure. Please return this form to the Russell County Extension Office.

Farm/Business Name: _____
Name: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone Number: _____ Email Address: _____
Cell Number: _____

Products & Services Available

Feed/Grain: _____ Corn _____ Ear _____ Shelled _____ Other* _____
Form - _____ Hay _____ Round _____ Square _____ Wheat
_____ Other* _____

Livestock: _____ Cattle _____ Hogs _____ Goats _____ Sheep _____ Horses
_____ Other* _____
Breed(s)* - _____

Horticulture: _____ Flowers _____ Shrubs _____ Landscaping
_____ Other* _____
Varieties - _____

Fruits & Vegetables: _____ Fruits _____ Vegetables
Varieties - _____
Type - _____ U-Pick _____ Freshly Picked _____ Other* _____

Tobacco: _____ Plugs _____ Finished Plants _____ Other* _____

Other: _____ Honey _____ Sorghum _____ Jam/Jellies
_____ Gourds _____ Popcorn _____ Other* _____

Custom Work:
Service* - _____

Over →

RUSSELL COUNTY AGRICULTURE & SERVICES
BROCHURE APPLICATION

Other necessary information that we may choose to include. Seasons, days, or hours of availability, etc. for products or services.

*Specify

The listing of commodities is subject to change based on applications received. All submissions subject to Extension Council Review and must be produced in Russell County.