

PLOWING AHEAD

AGRICULTURE & NATURAL RESOURCES

February 2024



WINTER MEETINGS CONTINUE AT THE MADISON COUNTY EXTENSION OFFICE

Join us for the following Winter Meetings at the Madison County Extension Office, 230 Duncannon Lane, Richmond, KY. Call 859-623-4072 to register.

Each of these meetings qualify for the CAIP Educational Credit

Corn and Soybean Meeting

February 12th at 6:00 pm

Dr. Chad Lee will talk about practices top yielding corn and soybean farmers in KY use to grow their crops. He will also cover production practices for our UK variety trials program. Topics include plant population, planting date, varieties, soil fertility, (amounts, timing and type) fungicide use, herbicide use, etc. Will be a good general discussion and chance to ask questions. **Call 859-623-4072 to register.**

Beef Cattle Veterinary Clinic

February 19th at 6:00 pm

The Madison County Beef Cattle Association presents a Beef Cattle Veterinary Update Monday February 19th at 6:00 pm at the Madison County Extension Office. UK Extension Ruminant Veterinarian, Dr. Michelle Arnold and local veterinarian Dr. Nick Werle will share information about current health recommendations for managing beef cattle. A representative from DuraVet will speak about their newest products for the beef market.

A burger meal will be served. Members eat for free, non-members \$5 per person. **Call us at 859-623-4072 to reserve your spot!**



UK Martin-Gatton
College of Agriculture,
Food and Environment
Cooperative Extension Service
Madison County
230 Duncannon Lane
Richmond, KY 40475
(859) 623-4072
Fax: (859) 624-9510
<http://extension.ca.uky.edu>

WINTER MEETINGS CONTINUED

Private Farm Pesticide Applicator Certification

Three (3) private pesticide applicator sessions will be offered at the Madison County Extension Office, 230 Duncannon Lane, Richmond, Kentucky on the following dates.

Choose to attend one session only!

- **Monday, February 26th: 12:00 noon**
- **Monday, March 4th: 12:00 noon**
- **Monday, March 4th: 6:00 pm**

You may attend either one of these sessions to be certified to use restricted-use pesticides on your farm. There is no cost associated with this certification. Your re-certification is good for three years. **Call 859-623-4072 to register.**

Small Ruminant Parasitology Clinic

February, 29th at 6:00 pm

"Fecal egg count workshop" presented by Kentucky State University Veterinarian Dr. Jesse Lay DVM. **Call 859-623-4072 to register.**

Cow Calf Conference

March 14th - 9:00 am to 4:00 pm

"Managing Cow-Calf Operations for Profit"
Hold the date for this important conference! More details and registration info coming soon.

Brandon Sears

Brandon Sears
County Extension Agent
for Agriculture & Natural Resources
859-623-4072

brandon.sears@uky.edu

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University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating.
Lexington, KY 40506



Disabilities
accommodated
with prior notification.

KDA NUISANCE WEED SPRAYING PROGRAM

This program consists of weed spraying demonstration plots. The department will provide the sprayer and enough chemical for the treatment of 10 acres of agricultural land or 100 gallons of spot spraying mix to be used on agricultural land. The department's representative will demonstrate proper mixing and application techniques. A number of nuisance weeds can be treated under this program depending on the needs of the participant. This program is limited to broadleaf weeds.

Broadcast Spraying demonstration plots consist of:

- 10 acres of agricultural land will be treated with chemical provided by the department
- Application is performed with a two-wheeled trailer type sprayer equipped with boomless nozzles
- If additional chemical is provided by the participant, an additional 10 acres can be treated
- Spot Spraying demonstration plots consist of:
 - 100 gallons of broadleaf chemical mix which is applied until sprayer is empty
 - Application is performed with a two-wheeled trailer type sprayer equipped with a handheld spray wand used by the tractor operator
 - If additional chemical is provided by the participant, an additional 100 gallons can be sprayed
- For each demonstration:
 - The participant must provide water source
 - The participant must provide tractor and operator
- All chemical products must be labeled and the product label will be strictly followed
- A maximum of 7 participants per county
- This program is designed to target weeds that have a negative impact on the participant's agricultural production.

There will be an annual online application period to participate in this program. **Applications can be completed online from February 1 to February 29.** <https://www.kyagr.com/consumer/nuisance-weed-spraying-program-application.aspx>

Seed Swap

Monday, March 4th at 12 noon to 1:30 pm

Interested in learning more about saving seeds? This program will discuss the basics of the seed saving process and be followed by a seed swap.



If you have seeds to share, bring them. But if you don't have any seeds, that's OK! There should be plenty to share. Acceptable seeds to bring include those you have saved from open pollinated varieties of plants or any unused seed from packets. If you have

questions, contact (amanda.sears@uky.edu).

Call 859-623-4072 if you plan to attend so we will know how many handouts to prepare. Everyone is welcome!

Farm Machinery Show Bus Trip

Interested in going to the National Farm Machinery Show in Louisville this February? Want a ride to the show? On Thursday February 15, a bus will leave Ag Credit at 7:30AM and return at 4 pm. The cost is \$10 a person.

Attendees can pre-pay at Ag Credit. Bottled water, soft drinks and snacks will be provided on the bus. Special thanks to Madison County Farm Bureau, Madison County Beef Cattle Association, Central KY Ag Credit and Madison County Soil Conservation District for sponsoring!

Please call the Madison County Extension Office at 859-623-4072 to register soon!

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.



MADISON COUNTY BEEKEEPERS ASSOCIATION

Madison County Beekeepers Association next meeting is planned for February 26, 6:00 pm, Madison County Extension Office. For more info, call Kent, 859-623-3576 or Paul, 859-582-6172.



PLATE IT UP! KENTUCKY PROUD!

Whatever the season, Plate It Up with delicious recipes that put a new twist on your favorite Kentucky Proud foods. Visit <http://fcs-hes.ca.uky.edu/piukp-recipes> to find all the Plate It Up recipes using Kentucky Proud products.

REVIEWING 2023 AND LOOKING AHEAD TO 2024

Dr. Kenny Burdine, Extension Professor, Livestock Marketing, University of Kentucky and Dr. James Mitchell, Assistant Professor, University of Arkansas

The U.S. cowherd reached a 60-year low in 2023. Some of this decline is driven by efficiency in the beef industry. We produce more with less. As such, it would be misleading to compare today to 60 years ago. It still does speak to how significant the recent declines in beef cow numbers have been. For a more recent comparison, the 2023 cowherd is slightly smaller than in 2014, a year fondly remembered by most in the cattle business. Expansion resulting from those 2014 / 2015 price levels continued until 2019, and the cowherd has been getting smaller since then. Figure 1 below shows beef cow inventories from 1940 to 2023.

2020 was set to be the high-water mark for U.S. beef production. While production increased slightly in 2020, COVID backlogs pushed some of that production into 2021. Then, widespread drought led to significant increases in female slaughter in 2022, which resulted in another year-over-year increase. That brought us to 2023, which ended up being the first year-over-year decrease in beef production in eight years.

Data on cow slaughter and the share of heifers on feed both imply another year of declining inventories. Nationally, there is no doubt this cowherd got even smaller during 2023. Weather and hay supply has been an issue in some areas, but we also think we have to consider the impact that input costs and high interest rates have on the cost of expanding one's cowherd. At some point, expansion will occur, but farmers are not at that point yet. All this is to say that the 2024 calf crop will be smaller than the 2023 calf crop, and the feeder cattle supply will continue to shrink. Certainly, numerous things impact markets, but we expect calf prices to be stronger in the spring of 2024 than in the summer of 2023.

It is hard to see beef cow numbers increasing until 2025 at the earliest. So, cow-calf operators should get relatively strong calf prices for a few years. Some may choose to expand during this time, but we always like to point out that there are other ways to capitalize on a solid calf market. Investing in facilities, genetics, grazing systems, etc. has the potential to lower costs and/or increase efficiency. At the same time, paying down debt and/or building up working capital can put a farm in a better financial position for the future. The point is that each cow-calf operation should take a long-term view when they make decisions and know that what makes sense for one operation may not make sense for another.

CAN WE COMPETE?

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

Do you know what it costs per pound of beef produced from your farm? How much does it cost to maintain a cow annually? How has the increase in inputs impacted your beef operations profitability? The old saying of you can only manage what you measure still holds. One cannot control the market price. The commodity markets have trends in which prices ebb and flow.

Most of us are familiar with the cattle cycle. The cattle cycle historically was a 10-year period between the peaks or valleys of cattle inventory and subsequent prices as a function of macroeconomics.

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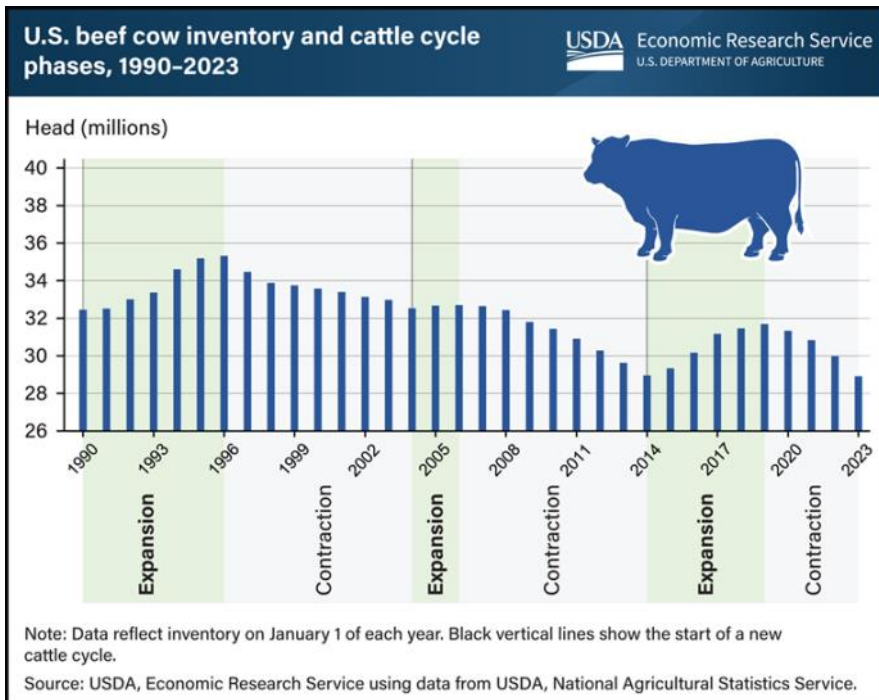
Figure 1: January 1 US Beef Cow Inventory - 1940 to 2023
USDA-NASS (1,000 cows)



CAN WE COMPETE?

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This cycle can be seen in Figure 1 from USDA ERS. The impact of continued drought, land prices, aging farmers, and other factors have resulted in the US Beef Cow inventory being at levels similar to those of the mid 1960's. This bodes well for market prices over the next couple of years as demand for beef holds steady.



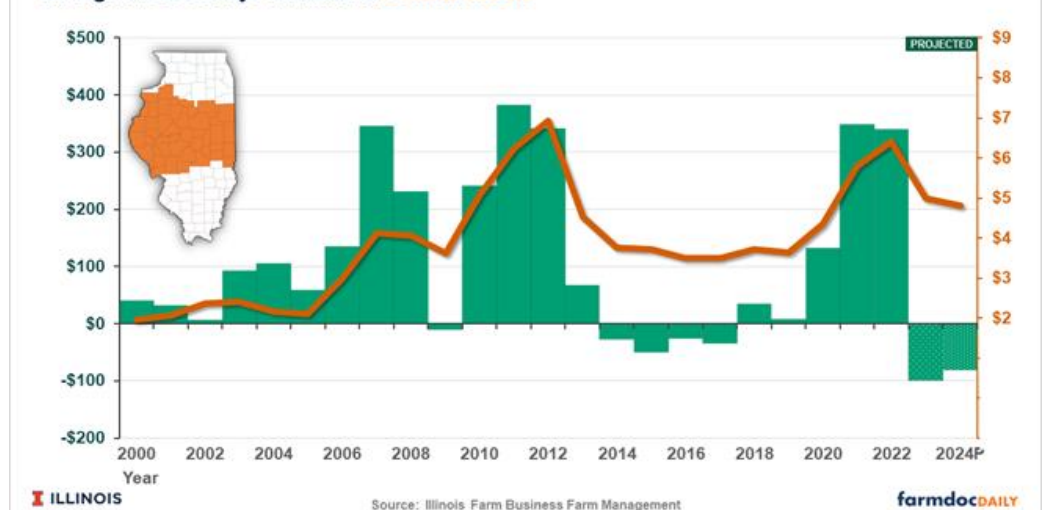
I started my professional career during the early 2000's. At this time, I was pondering in my mind whether beef cattle systems could compete with grain production. Corn prices were \$2.05 to \$2.46 per bushel. Figure 2 illustrates the price per bushel and return per acre from corn production for central Illinois as an example. The corn belt area had corn yields that averaged 120-165 bushels per acre for state averages. A gross value of production of 160 bushels at \$2.25/ bushel would be about \$350/acre. I wondered if converting cropland to pasture would be economically viable; the return per acre was less than \$50/acre from grain. Look at the chart closely for recent years and ponder if marginal land is profitable for grain. I had deduced that if beef production per acre could be near 1,000 pounds, the beef system could compete economically with grain production. Much of this was

Figure 1. U.S. beef cow inventory and cattle cycle as reported by USDA ERS.

based on the economic conditions. Heavy feeder cattle were selling for \$70-\$80/cwt while light weights were near \$110/cwt. Value of gain was near \$0.50 so 700 pounds of gain per acre would gross \$350 per acre. I was accounting for a bit of market fluctuations plus 1,000 pounds of beef gain per acre was a lofty goal to shoot for in a northern grazing season of about 180 days.

Some quick math means one would need just over 5 pounds of gain daily per acre to achieve the **1,000 pounds of gain per acre** mark. This would require a stocking density of roughly two animals per acre that would gain 2.5 pounds/day grazing along with no grain inputs. Putting 450-pound calves out in the spring and pulling them ~ 200 days later weighing 950. An average weight of 700 pounds from start of the grazing season to the end could be used to estimate forage production required. Assuming a dry matter intake of 2.5% of body weight, 1400 pounds of animal weight per acre, recall two animals per acre, would be 3.5 tons of forage consumed. If one assumes a 60% forage utilization in a managed grazing system, then forage production would need to be roughly 11,700 pounds or just under six tons of dry matter per acre.

Figure 2. Corn Prices in \$ per bushel and Farmer Returns in \$ per acre on High Productivity Farmland in Central Illinois



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CAN WE COMPETE?

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This is where reality began to challenge theory. I knew that we had alfalfa yields that were in the 6-7 tons per acre range. I also knew that forage production would not be linear over the growing season with more grass production coming in the spring and fall. From a scientific perspective, we used a put-and-take system to adjust stocking density based on available forage. We used endophyte-free tall fescue or orchardgrass as the cool-season grass with or without either white or kura clover. We also were studying gains of Holstein steers in comparison to beef steers and heifers back at this time.

Can we compete with corn production on high quality soil and achieve the gain per acre needed to financially compete? With regards to forage production, I would argue that soil moisture or rather precipitation received combined with temperature has more of an impact on grass growth than our corn hybrids today. In other words, researchers through breeding and selection have developed corn hybrids that are quite productive under marginal precipitation. Corn handles higher temperatures better than the cool-season perennial grass species that dominate the pastures in our region. In addition, animals subjected to heat stress are not going to achieve maximal performance. Internal parasites also can pose a greater detrimental impact on gains when stocking rates are higher and must be managed.

So how did we fair? It took us a couple seasons to convert the fields and get decent stands for grazing. Our results are shown in Figure 3. This three-year study began in 2005 and we never quite achieved the 1,000-pound target for any of the forage systems we were studying. My colleague, Dr. Ken Albrecht, had achieved 1,000 pound/acre at the Lancaster station grazing kura clover-grass mixture. They removed heavy animals and replaced them with lighter animals while we kept the same animals the full season. However, we did hit the 700+ pound per acre mark in several systems over a few years. The effect of drought can be seen in 2007 and the reason for such gain per acre. Do you know what your beef production per acre is in your stocker or cow-calf system? If we assume three acres to support a cow-calf pair and have an adjusted weaning weight of 450 pounds, then it is 150 pounds per acre. If a steer is grazing 0.75 acres for the season and gaining 1.5 pounds per day over 240 days (8 months), the gain per acre is 480 pounds. I also want to note that our beef cattle systems are also not going to be utilizing the most fertile soils either and there will be limits of production that can be achieved.

So, what's the point? I was unsuccessful at reaching 1,000 pounds of beef gain per acre, but land availability is decreasing while land prices are increasing. How many of us think as grain producers in product production per unit of land mass like bushels per acre or pounds of beef produced per acre? As the beef industry continues to be berated about greenhouse gas emissions, we can chase a lot of technology. However, let's not overlook the tools we currently have available to us for reducing inefficiencies in the production system. For cow-calf production, pounds of calf weaned per cow exposed is a key factor in profitability but also system efficiency. Changes in forage systems or slight improvements in forage systems can yield improvements in production. Yet, we don't even have to make changes in the forage system, just improving our management of the forages currently in the fields can have a positive impact. I have mentioned this before and will reiterate that managed grazing is recognized as a climate smart agricultural practice. Use of growth promoting implants can increase daily gains by 0.1-0.2 of a pound per day. Use of vaccines to keep cattle healthy and reducing abortion losses is a simple technology to improve efficiency. Spend the next few weeks before spring thinking about what small changes in your production system can be made to improve your production efficiency and profitability.

