September 2024 ISSUE

# **AGRICULTURE &** NATURAL RESOURCES **NEWSLETTER**





Sessions will begin at 5:30 pm and last approximately 2 hours \*Participants must complete all 5 of the sessions to be certified\*

JANUARY 9TH- HARRISON CO. JANUARY 16TH- BOURBON CO. JANUARY 23RD- SCOTT CO. JANUARY 30TH- HARRISON CO FEBRUARY 6TH- SCOTT CO. FEBRUARY 13TH- LOUISVILLE

SOILS- HELP THEM HELP YOU **COOL SEASON FORAGES** WARM SEASON FORAGES WEED CONTROL FORAGE HARVESTING & STORAGE Field trip to the National Farm Machinery Show

**Registration fee: \$50** Includes all meals, materials, farm sign, transportation and 1 meal at the National Farm Machinery Show

#### **REGISTER** BY CONTACTING YOUR LOCAL COUNTY ANR AGENT:

🔚 Bourbon

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Martin-Gatton College of Agriculture, Food and Environment University of Kentucky.

Lirdsay Arthur Bourbon County Cooperative Extension Agent For Agriculture and Natural . Sources

**Bourbon County Extension Service** 603 Millersburg Road Paris, KY 40361 Office: (859) 987-1895 Fax: (859) 987-3120 bourbon.ca.uky.edu



## **A Note From Your Agent:**

Hello everyone and happy September!

Hopefully this month brings us cooler temperatures and a bit more precipitation. Unfortunately, because of the drought, this month's newsletter contains information on harvesting and feeding drought stressed soybeans and corn. It also contains information on numerous upcoming programs happening this fall and winter. As always, feel free to reach out with any questions or needs that you have.

Lindsay Arthur

Lindsay Arthur Agent for Agriulture & Natural Resources Lindsay.arthur@uky.edu

#### Cooperative Extension Service

#### MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

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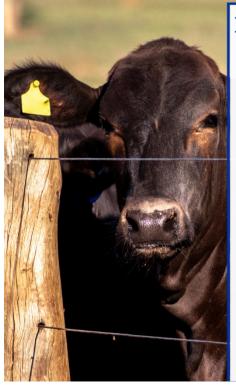
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Cooperative		Content of Kentucky College of Agriculture, " Food and Environment Cooperative Extension Service	"Today's Challenges, Tomorrow's Opportunities"
Extension Service		Kentucky Bee	Kentucky Beef Conference
HARVESTING		Octo	October 24, 2024
WEALTH FARM			10:00-Welcome & Sponsor Recognition
FINANCIAI			Beau Neal, Woodford County Agriculture & Natural Resources Extension Agent
		Fayette County Extension Office 1140 Harry Sykes Way	Fayette County Extension Office University of KY Remarks & Welcome
C [ 433		Lexington, Kentucky 40504	Dr. Laura Stephenson, UK Director of Extension
			Genomics Technology
Learn about farm structure, filing farm taxes,	farm taxes, ag tax exemption,	9:00-10:00	Dr. Troy Rowan, University of Tennessee
and ag production loans during this free online class	ng this free online class	Registration, visit	Institute of Agriculture Beef Genetics
—	Dr. Isaacs, UK Farm Managment Specialist	sponsors	Extension Specialist
<b>Speakers</b> Jerry Plerce, Local Lender	Jerry Plerce, KFMB Program Coordinator Local Lenders for Production Loans		11:00- Marketing Update & Outlook
		\$10 registration fee	Dr. Kenny Burdine, UK Beef Economic
			Extension Specialist
			12:00 Lunch
	OCTOBER 15TH	<b>RSVP by October 22nd</b>	RSVP by October 22nd 1:00— Animal Tagging Update
	AT 6PM	_	Dr. Michelle Arnold, UK Extension Ruminant Veterinarian
	PLEASE CONTACT THE CLARK COUNTY OR BOURBON COUNTY	extension Uffice 859.254.3967	1:30— KY Beef Cattle Health Update
Watch parties available at the	EXTENSION OFFICES WITH MORE		Dr. Steve Velasco, KY Department of
Bourbon and Clark County Extension Offices for three	CIARK: 859-744-4687		Agriculture State Veterinarian
			2:00—Adjourn
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## Harvesting Drought Stressed Soybeans as Dry Hay

If it is not possible to harvest drought stressed soybeans as baleage, they can be harvested as dry hay. However, leaf shatter during raking and baling can be high. The following tips will help to minimize leaf loss and maintain nutritive value when soybeans are conserved as dry hay.

- Mow early in the day. Mowing early in the day, just after dew has dried off, maximizes first day drying time. This shortens the curing period, reducing dry matter losses to respiration.
- Use mower-conditioner. Always use a mower-conditioner to crush stems. More roller pressure than normal will be needed to crush the larger diameter stems of soybeans.
- Adjust mower-condition to leave the widest possible swath. Make mower swaths as wide as possible to maximize surface area exposed to solar irradiation. This will shorten curing time and result in more uniform drying.
- Do not rake when leaves are dry. Raking soybean hay that is below 40% moisture will result in high levels of leaf loss. This reduces the nutritive value and palatability of the hay, and ultimately dry matter intake by livestock.
- Do NOT ted soybean hay. Tedding soybean hay will result in high levels of leaf loss. It is better to gently turn windrows over with a side delivery rake.
- Bale at 16-18% moisture. Baling hay above 18% moisture will result in mold growth, heating of hay, and reduction in nutritive value. Excessive heating can also result in hay fires.
- If hay becomes too dry, wait to bale. Soybean hay that becomes excessively dry can experience very high levels of leaf loss during baling. Leaf loss can be minimized by baling in late morning after the dew has dried off, or late evening after higher humidity levels have made leaves more pliable.
- Store hay undercover. If at all possible, store soybean hay in a shed or covered with a well secured heavy duty tarp to prevent dry matter and nutritive value losses. Like other legumes, soybean hay tends to be more susceptible to weathering than grass hay. The stems and leaves of soybeans do not shed water as readily as grass hay.



# BEEF QUALITY CARE & ASSURANCE (BQCA) TRAINING

\*Required for Large Animal CAIP Investment Area\* Thursday, September 19th 9:00 a.m.

Bourbon County Extension Office, 603 Millersburg Rd., Paris

Call the Extension Office at 859-987-1895 to reserve a spot

FREE for the month of September

## Growing On-feed Inventory, Lower Placements, and No Sign of Heifer Retention

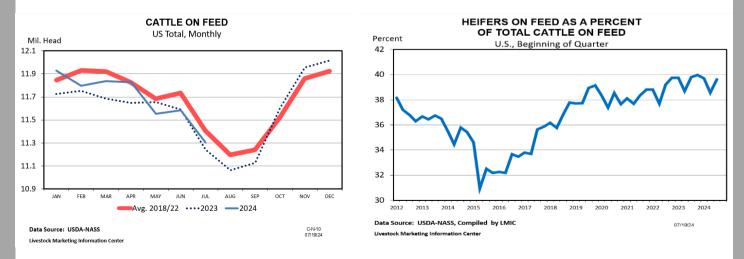
Dr. Kenny Burdine, University of Kentucky

USDA's July Cattle on Feed report was released on Friday July 19th. These monthly reports estimate inventory in US feedlots with one-time capacity exceeding 1,000 head, which represent more than 80% of total on-feed inventory in the United States. The July report is also a quarterly report that includes data on the steer-heifer mix in feedlots. This brief article will walk through last week's report and some of the implications of it.

Total on-feed inventory declined during the month of June with July 1 inventory estimated at just over 11.2 million head. This trend is normal as on-feed numbers tend to decline seasonally from winter to late summer. Compared to 2023, July 2024 inventory was about 0.5% higher. On the surface this seems odd given the recent declines in the size of calf crops, but I maintain that cheap feed and higher slaughter weights are largely the reason for this as cattle are being fed longer.

Feedlot placements have been the most interesting number to watch in recent months. For the month of June, placements were down almost 7% from last year. This contrasts with placements being 4% higher year-over-year for the month of May. These last two months illustrate why it is sometimes hard to look at things purely on a monthly basis. If I instead calculate feedlots placements for the first 6 months of 2024, as compared to the first 6 months of 2023, total placements have been down by 3.2%. This likely tells the feeder cattle supply story a bit better.

Since USDA will not be publishing a July Cattle Inventory report this year, the July steerheifer mix on feed is especially important as it provides some perspective on heifer retention. Heifers accounted for 39.6% of on-feed inventory in July, which was higher than the previous estimate from April. If retention were occurring, one would expect the heifer percentage to be in the low-mid 30% range, so this continues to suggest that expansion is not on the near horizon.



### Temperature and Water Use by Crops

Dr. E.B. Egli, UK Professor Emeritus

Summer is when farmers stress about the weather – when will it rain, when will it cool off? This obsession is not surprising - rain is the key to high crop yields (unless you can irrigate) and high temperatures increase water use, making rain less effective. Crops use enormous amounts of water – a well-watered corn or soybean crop can use 0.25 inches (6788 gallons per acre) or more in a day. That is an inch every 4 days that must be supplied by rain, by irrigation or by water stored in the soil to avoid stress. High temperatures make this challenging situation worse. Let's review the processes that control water use by crops to help us understand the effect of temperature. Transpiration is the movement of water vapor out of leaves through stomata, which are tiny pores in the leaf. Transpiration accounts for most of the water used by crops.

Water is also lost by evaporation from the soil, which is usually less than transpiration, especially when the soil surface is dry or when crop leaves completely cover the soil. The combined loss is called evapotranspiration (ET). Transpiration occurs when water in the leaf evaporates, and the vapor moves out of the leaf by diffusion. The rate of diffusion depends upon the amount of water vapor in the air inside the leaf vs. the amount in the air surrounding the leaf. Diffusion occurs only when there is a gradient in water vapor concentration between the air inside the leaf and the outside air. Air inside the leaf is saturated with water vapor, but the atmosphere is usually not saturated (relative humidity < 100%) providing the gradient that drives transpiration. The larger the gradient, the higher the rate of transpiration. Transpiration will be higher if the air is dry (low relative humidity - larger gradient) than if the relative humidity is high (smaller gradient).

Temperature affects transpiration by changing the gradient from inside the leaf to the atmosphere. Increasing temperature increases the gradient and transpiration. The same logic applies to evaporation from the soil. The temperature effect is significant – increasing the temperature from 68 to 86°F increases the gradient by 1.8 times or more depending on changes in relative humidity of the air surrounding the leaf. A further increase in temperature to 104°F increases the gradient by 1.7 to 2.4 times over the gradient at 86°F. Increasing the temperature from 86°F, a fairly normal summer temperature, to 104°F would roughly double the gradient and significantly increase the rate of transpiration if plenty of water is available to the crop. Wind also affects transpiration by influencing the water vapor gradient between the leaf and the air. In still air, the water vapor that diffuses out of the leaf increases the water vapor content of the air next to the leaf which reduces the gradient and reduces transpiration. Wind sweeps the water vapor away from the leaf, maintaining the gradient and the rate of transpiration. It takes a lot of energy to evaporate water (585 calories per g) – which is why transpiration is so effective in cooling the plant.

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When a lack of water limits ET, some of the energy that would have been used to evaporate water heats the plant and the air. Air and plant temperatures are usually higher during a drought. Plants in a desert can actually be cooled below air temperature by high transpiration rates resulting from the dry air and the large gradient. Climate change and the resulting higher temperatures will increase water use by crops which will, in turn, cause a more rapid depletion of the soil moisture reservoir causing stress. High temperatures increase ET, deplete the soil water reservoir faster, and the lack of water makes it hotter. Isn't that a kick in the head?

The size of the soil moisture reservoir plays a critical role in matching the intermittent supply of water (rain + irrigation) with the relentless daily demand from ET. It is not surprising that soils that store large amounts of water often produce the highest yields. The increasing temperatures associated with climate change will increase ET making the size of the soil moisture reservoir even more important. "Human vanity can best be served by a reminder that, whatever his accomplishments , his sophistication, man owes his very existence to a six-inch layer of topsoil – and the fact that it rains." (Richard L. Evans, 1906 – 1971, author and radio personality).





219 EAST 19TH ST. PARIS, KY. 40361 PARIS RECYCLING CENTER

Repeat steps 2 through 5 two more times.

Puncture container.

drain for 30 seconds or more.

Chabilities Disabilities accommodated with prior notifics

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## Considerations for harvesting drought-stressed corn to feed to cattle

Donna Amaral-Phillips, Jeff Lehmkuhler, and Chad Lee Extension Dairy Specialist, Extension Beef Specialist and Extension Agronomist, University of Kentucky

Even with recent rains, some corn was too damaged by droughts to produce adequate yields. Some drought-stressed corn can be salvaged as cattle feed. Here are some things to consider if harvesting drought-stressed corn.

#### When Considering Your Harvest Options:

1. If corn is going to be fed as green chop, grazed, or as hay, test for nitrates before harvest to be sure the crop will be safe to feed. For corn harvested properly as silage or baleage and which goes through a good fermentation, nitrate levels could decrease 30 to 50% and can be tested after fermentation and before being fed. If you need to decide which corn fields to harvest as silage or hay, testing before harvesting will allow one to determine which fields need to be harvested as silage (those higher in nitrates) and those with safe levels of nitrates which can be harvested as corn hay. For sorghums and sorghum-sudangrasses, nitrates should be tested before harvest to be safe for your harvest method.

2. Check herbicide withdrawals to make sure the crop can be fed to livestock. Read the herbicide labels to identify if feeding restrictions are in place.

3. Raise the cut height—nitrates are highest in the plant stem closer to the ground. This may be more difficult if using a disc mower or other hay equipment for the purpose of making hay or baleage.

4. If at all possible, harvest as silage and let ferment for 4 to 6 weeks before feeding. You may want to consider using a silage inoculant. Again, test for nitrates before feeding.

Immature corn will be more variable in nutrient content than "normal corn silage". After harvest, test the forage for its nutrient content and develop and feed a balanced ration to your cattle. Making a yield estimate prior to cutting corn will be a challenge if corn is harvested before the dent stage.

6. Watch the moisture content of the crop closely. Corn silage should be harvested between 62-65% moisture (35-38% dry matter). A small amount can be chopped to determine the current moisture content. Corn is drying down quickly in parts of Kentucky. Use a Koster tester (preferred) or microwave (acceptable, but be prepared to buy a new one for the house) to determine the actual moisture content. Silage and baleage need to be correct moisture to ferment properly and make good feed. Corn silage harvested at or less than 60% moisture (at or greater than 40% dry matter) results in a lower animal performance and should be avoided.

7. Tonnage may be low. Most corn is harvested for silage when the kernel is between ½ to ¾ milkline . In a healthy cornfield, the ear will make up half the total silage weight. Corn harvested before seed development will be much lighter.

8. Corn harvested early for silage will not have as much grain and the energy value of the subsequent silage will be less than normal. If the corn is severely droughtstressed, it will not make full kernels anyhow, and silage is an excellent option, but it will have a different feed value than "normal" corn silage. The corn silage should be sampled for nutrient analysis after fermentation and cattle rations should be adjusted accordingly.

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9. Can you add enough water at the bagger or silo blower to increase the moisture content of the silage? For each 1% increase in moisture content, approximately 7 gallons of water is needed per ton. A typical garden hose delivers approximately 8-10 gallons per minute. Thus, it is nearly impossible to deliver enough water to make a difference. For example, to increase the moisture content from 45% moisture (55% dry matter) to 60% moisture (40% dry matter) for a wagon load of silage (4 ton capacity), you need to add 420 gallons of water. That is not feasible!!

**Can you make baleage out of corn?** Yes- but moisture and other harvesting techniques are important.

1. Moisture content needs to be between 30 to 50% for baleage. Getting the crop at the moisture content can be very challenging.

2. Plant material needs to be crimped and/or conditioned before baling. Conditioning is a must to get the crop to ferment. Using a rotary mower (i.e. bushhog) may also work but make sure the blades are sharp to reduce shredding of the corn plant. If your baler has knives, they can be used to chop the corn plant.

3. Newer balers work the best. This is a very coarse crop that is tough on hay equipment and some older style balers may have difficulty handling the crop.

4. Inoculant can be added at the baler, if you are equipped to handle this.

5. Wrap with at least 2 extra layers of plastic for a total of 7 layers of plastic due to corn stalks puncturing the plastic.

6. Net wrap may work better than string tie balers. If you use a string tie baler, additional wraps of string should be used.

#### Can you make hay out of the crop? YES--- BUT

1. Nitrates will not decrease from the standing crop. The crop needs to undergo normal fermentation to decrease the level of nitrates. Hay does not ferment!!! If nitrates are high in the standing crop, they will not decrease with harvest and hay storage.

2. Whole plant moisture needs to be about 15% for hay. If the crop is harvested with over 18% moisture, it will heat and make a very poor feed. It can spontaneously combust if too wet and goes through a heat.

3. Corn stalks protein and energy content will vary. Bales should be sampled for nutrient analysis and the hay may require supplementation depending on the cattle being fed.

#### Can you graze the corn left standing in the field? YES-BUT

1. Fencing and watering is a necessity for the livestock.

2. Strip-grazing is needed to reduce the risk of foundering/acidosis. Cattle will quickly learn to consume the ears first increasing starch intake. Using strip-grazing will increase intakes of leaves and upper portion of the stalk to reduce grain intake. 3. Consider a grass area for cattle to loaf/lay.

4. Provide free-choice access to hay. This will increase fiber intake and lower the risk of rumen digestive disorders. Hay intake can also be used as a gauge of corn allocation. As cattle consume more hay, this could mean they have consumed as much of the leaves, stalks, and ears from the area provided and a new section of standing corn should be provided.

5. Nitrate toxicity is a risk. However, most of the nitrates are in the lower portion of the stalk that cattle tend to avoid consuming.

6. Have a pasture area to move cattle to during periods of high precipitation to limit compaction.

# Plate it Up Kentucky Proud Recipe



# Corn and Sweet Potato Confetti Salad

3 cups sweet potato, peeled and diced

3½ cups cut fresh corn kernels (7 ears) or frozen corn kernels 2 green bell peppers, diced

1 red bell pepper, diced 1 small red onion, diced 1 tablespoon olive oil

½ cup cider vinegar ½ teaspoon salt

cooking until tender. Combine red

add skillet vegetables; toss and salt

onion and cider vinegar in large bowl;

to taste. Serve warm or refrigerate for

Nutritional Analysis: 70 calories, 1.5 g

fat, 0 g saturated fat, 0 mg cholesterol,

95 mg sodium, 13 g carbohydrate, 2 g fiber, 4 g sugars, 2 g protein.

Bring one cup of water to boil in a 2 quart saucepan; add diced sweet potatoes. Cook sweet potatoes 10 minutes or until slightly tender. Drain and set aside. Remove shuck and silk from fresh corn ears; cut kernels from cob. Dice peppers and red onion. Heat olive oil in a large skillet on medium setting; add sweet potatoes and cook until slightly browned. Add peppers; cook 5 minutes; add corn kernels,



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

chilled version.

Yield: 16, ½ cup servings

# Kentucky Sweet Corn

SEASON: July through August.

NUTRITION FACTS: Corn is low in fat and is a good source of fiber and B vitamins. A half cup serving of corn contains 90 calories.

SELECTION: Look for ears with green shucks, moist stems and silk that is free of decay. Kernels should be small, tender, plump and milky when pierced. They should fill up all the spaces in the rows.

STORAGE: Keep unshucked, fresh corn in the refrigerator until ready to use. Wrap ears in damp paper towels and place in a plastic bag for 4 to 6 days.

#### PREPARATION:

To microwave: Place ears of corn, still in the husk, in a single layer, in the microwave. Cook on high for 2 minutes for one ear, adding 1 minute per each additional ear. Turn the ears after 1 minute. Let corn set for several minutes before removing the shucks and silks.

Source: www.fruitsandveggiesmatter.gov

To boil: Remove shucks and silks. Trim stem ends. Carefully place ears in a large pot of boiling water. Cook 2-4 minutes or until kernels are tender.

To grill: Turn back the shucks and remove silks. Sprinkle each ear with 2 tablespoons of water and nonfat seasoning such as salt, pepper or herbs. Replace shucks and tie them shut with a string that has been soaked in water. Place ears on a hot grill for 20 to 30 minutes, turning often.

#### KENTUCKY SWEET CORN Kentucky Proud Project

County Extension Agents for Family and Consumer Sciences
University of Kentucky, Dietetics and Human
Nutrition students
Jane 2014
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