

NIKKI'S NEWSLETTER

Marshall County's Agriculture and Natural Resources Update



Cooperative Extension
University of Kentucky
Marshall County
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\$ Free \$
Soybean
Cyst
Nematode
Testing

As we make our way into the holiday season, I want to remind my grain producers that it's also the season to be thinking about **soybean cyst nematodes**. I know the soil is about like concrete right now from the drought, making soil probing almost impossible but hopefully that will

change because the Kentucky Soybean Board has decided to continue funding free soybean cyst nematode (SCN) testing this year. Fall is a great time to collect SCN soil samples from fields for testing. To take advantage of the free SCN testing, contact me and I will get the form and instructions to you. Once complete, we will send the samples to the University of Illinois Plant Clinic. The KY Soybean Board will get the bill and you'll get the results. Why is this important? Checkout the article on SCN on pages 2-3 for more information.

Another noteworthy topic is an upcoming event that I am collaborating on that has to do with the new standards being imposed

Attention Livestock Owners!!!

on livestock owners. The food and drug administration is calling this "**GFI #263**" or **Guidance for Industry number 263**. This new "guidance" will change how we can buy **antibiotics**, basically eliminating over the counter purchasing and also requiring us to obtain a "veterinarian client patient relationship." Our goal for the meeting is to have the state veterinarian explain these changes and have the panel of local vets explain how they plan on handling this. The program is being hosted by the Calloway County Cattleman's Association and the flyer can be viewed on page 8.

Just a reminder that I am always looking for programming suggestions. Please let me know if you have a need or an idea. Your neighbor probably has the same need! Until next time. You know where to find me!


Nikki Rhein
Agriculture and Natural
Resources,
Marshall County

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Management of Soybean Cyst Nematode Starts with Soil Sampling this Fall

Carl Bradley, Plant Pathology Extension Specialist

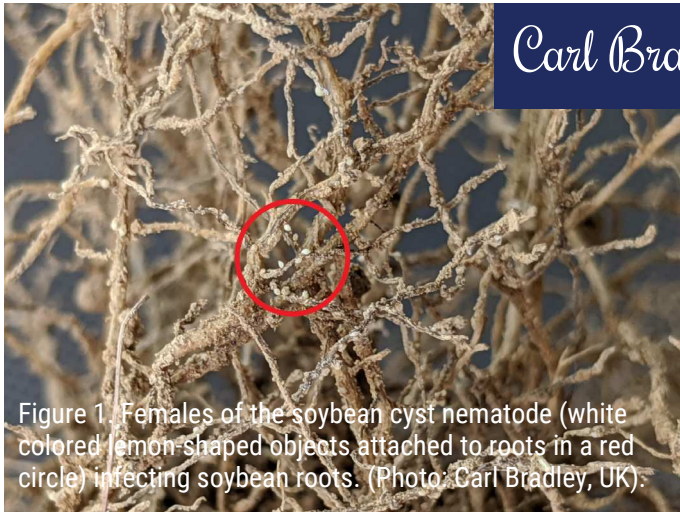


Figure 1. Females of the soybean cyst nematode (white colored lemon-shaped objects attached to roots in a red circle) infecting soybean roots. (Photo: Carl Bradley, UK).

The soybean cyst nematode (SCN) (Figure 1) causes greater annual yield losses in Kentucky than any other pathogen of soybean. Preliminary results from an on-going SCN survey initiated in 2019 show that approximately 80% of Kentucky fields are infested with SCN (Figure 2). Risk of yield loss due to SCN can be estimated by the initial SCN egg count at the beginning of the season, where 0-499 eggs/100 cm³ soil is a low risk of yield loss, 500-1,999 eggs/100 cm³ soil is a moderate risk, 2,000-9,999 eggs/100 cm³ soil is a high risk, and at least 10,000 eggs/100 cm³ soil is a very high risk. According to the ongoing survey (based on 360 samples representing 35 counties), nearly 40% of the fields surveyed have populations that will likely cause yield loss.

Although above-ground symptoms (stunting and yellowing) caused by SCN can occasionally be observed, affected soybean plants generally appear to be healthy. Unfortunately, "healthy-looking" soybean plants that are infected by SCN can still have up to a 30% yield reduction.

Management of SCN has gotten much more complex in the last few years, since SCN populations have adapted to the use of SCN-resistant soybean varieties. The primary source of SCN resistance used by commercial soybean breeding programs came from a soybean germplasm line known as "PI 88788." This source of resistance was highly effective in managing SCN for several years, but prolific use of soybean varieties with the PI 88788 background has selected for SCN populations that are able to overcome this source of resistance. In the 2006-2007 University of Kentucky SCN survey, the PI 88788 source of SCN resistance was not very effective against approximately 60% of the SCN populations in Kentucky, making management of this pathogen much more complex than before.

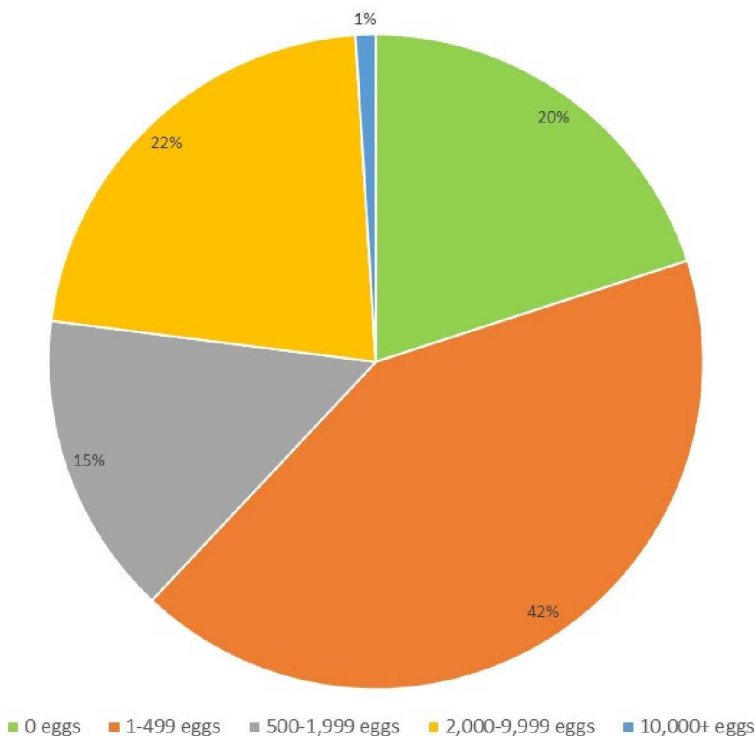


Figure 2. Preliminary results of an ongoing survey of soybean cyst nematode egg densities from Kentucky soybean fields. Eggs numbers are shown as number of eggs per 100 cm³ soil. These results represent 360 soil samples from 35 counties.

Managing SCN

As complex as it is, management of SCN is still doable, and is important for maintaining and increasing soybean yields. Below are the main steps for managing SCN:

Test your fields to know the number of SCN eggs in your field. The best times to sample for SCN in your fields is in the fall or in the spring (before planting). A Fact Sheet on sampling for SCN is available here. Although the University of Kentucky does not currently have an active SCN Laboratory, samples can be sent to either the University of Illinois Plant Clinic or the University of Missouri SCN Diagnostics Lab. Similar to the past two seasons, the Kentucky Soybean Board is continuing to sponsor free SCN testing for Kentucky farmers. With this program, a limited number of samples for each county can be tested for free. Please check with your local County Extension Office for more information about the limited free SCN testing program.

Continued on the following page...

SCN Continued:

Rotate resistant varieties. If varieties are available that utilize sources of SCN resistance other than PI 88788 (such as Peking or Hartwig), then rotate the source of resistance every time you plant soybean in a field. Unfortunately, nearly all the soybean varieties adapted for planting in Kentucky utilize only the PI 88788 source of resistance. However, it is still important to rotate to different resistant soybean varieties, even though they are utilizing the same source of resistance. SCN is good at adaptation, so switching soybean varieties will help.

Rotate to non-host crops. Rotating fields to a non-host crop, such as corn or grain sorghum, will help reduce SCN populations in fields. Wheat is another non-host crop that may help lower SCN populations by having it in the rotation. Several years ago, Dr. Don Hershman with the University of Kentucky evaluated the effect of wheat residue on SCN populations. His research found that planting soybeans into fields with standing wheat stubble reduced SCN populations at the end of the growing season. More information about that research can be found here.

Consider using a nematode-protectant seed treatment. Several nematode-protectant seed treatment products are now available on the market. Although the effects of these seed treatments have not always been consistent in field research trials, they are additional tools that can be used along with resistant varieties and crop rotation to help manage this important pathogen.

A multi-state initiative funded by the Soybean Checkoff Program known as the SCN Coalition is helping to promote awareness of the damage caused by SCN and the importance in managing this pathogen. More information about the SCN Coalition is available on their website. Be on the lookout for information from the SCN Coalition about this important pathogen.

References

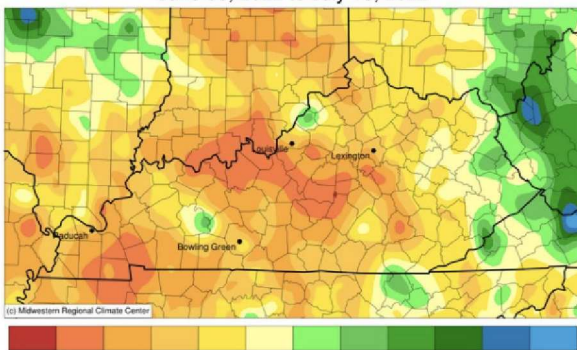
Hershman, D. E., and Bachi, P. R. 1995. Effect of wheat residue and tillage on *Heterodera glycines* and yield of doublecrop soybean in Kentucky. *Plant Disease* 79:631-633. [Link](#)

Hershman, D. E., Heinz, R. D., and Kennedy, B. S. 2008. Soybean cyst nematode, *Heterodera glycines*, populations adapting to resistant soybean cultivars in Kentucky. *Plant Disease* 92:1775. [Link](#)

Timing is Everything on Corn Yields this Year

Accumulated Precipitation (in): Departure from 1991-2020 Normals

June 08, 2022 to July 15, 2022

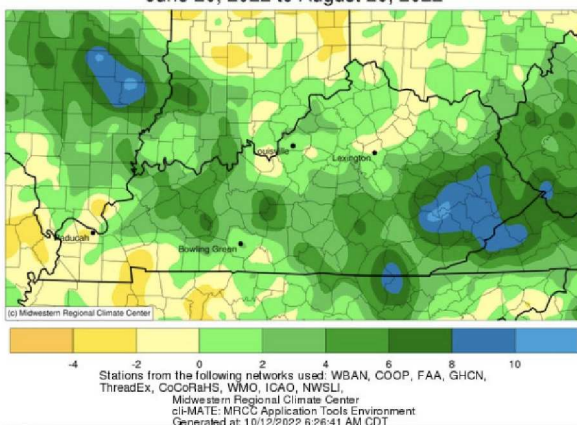


Chad Lee, Grain Crop Specialist

A county agent sat in the buddy seat on a combine and watched the yield monitor swing from 300 bushels per acre to zero and back again. One hundred-forty miles away a farmer videoed his yield monitor starting at 260 bushels per acre in the low areas and drop to zero as the combine climbed to higher elevations. These are just two examples of what we are seeing across Kentucky this year. It is a reminder of just how important water to corn yield was this season, but also, how important the timing of that water was this year.

Accumulated Precipitation (in): Departure from 1991-2020 Normals

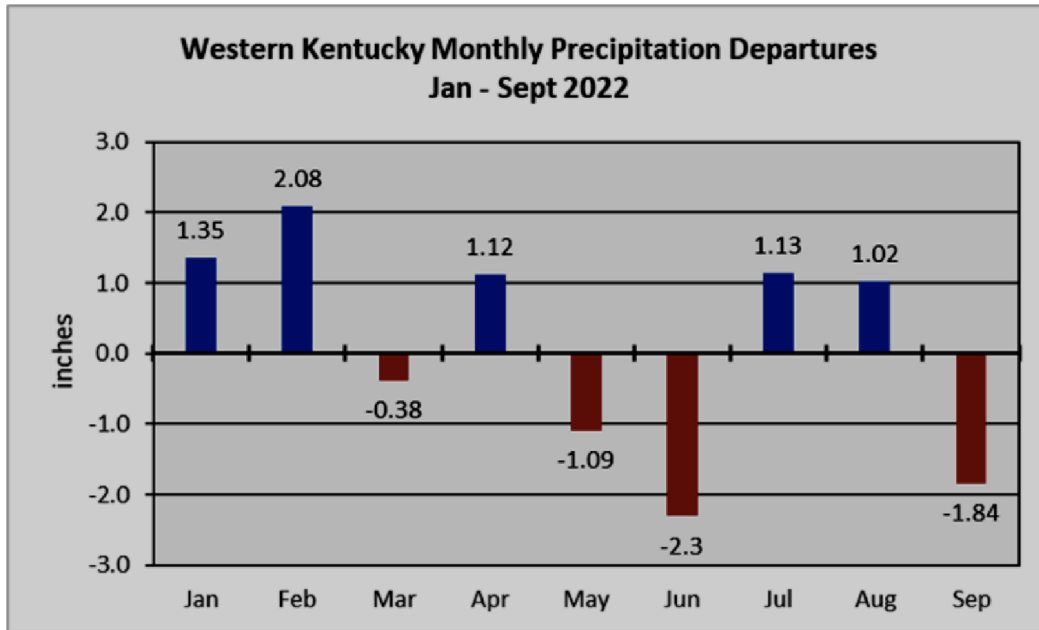
June 20, 2022 to August 20, 2022



From June 8 to July 15, most of Kentucky was short on rainfall by as much as 3 inches in some areas (picture top left). Shifting the calendar to June 20 to August 20 shows that Kentucky was closer to normal in rainfall, except on far western Kentucky. The monthly precipitation for western Kentucky further de-fines just how dry May and June was for that part of the state (picture bottom left). Our corn crop agrees with these weather maps. Much of our corn was pollinating in the early part of July, especially corn in western Kentucky. For corn that pollinated later, because of later planting dates, that corn pollinated in less stressful conditions and has better yields.

Graphics courtesy of the Kentucky USDA-NASS Office.

Figure 3. Western Kentucky Monthly Precipitation Departures from Normal. Data obtained by Matt Dixon with UKAg Weather Data Center from the MRCC database: <https://mrcc.purdue.edu/CLIMATE/>



The Kentucky USDA-NASS is projecting corn yields to be 149 bushels per acre, down 22% from the record yield in 2021. In my much, much less scientific conversations with farmers around Kentucky, the number is probably close to that. Given the amount of corn pollinating during the water deficits in June and July, this is an amazing number.

About 66% of the Kentucky corn crop underwent water stress during the worst possible time. The only management option that would have helped at this time was irrigation. If a farmer could not irrigate, then no management was going to fix this problem.

Once pollination was damaged, corn cannot make up the yield difference. Some plants might have produced larger kernels, but that larger seed size was not enough to make up the yield.

To repeat, no crop management method, except for irrigation, was going to overcome the extent of dry weather the corn crop faced this summer. As farmers look at this year's yields and ponder next year's decisions, there are some key points to consider:

1. The timing of rainfall relative to corn growth and development was more important than any other management factor this year.
2. This is a bad year to compare one field to the next. The water and crop growth timing was slightly different from field to field and from low spot to high spot in the same field.
3. This is a bad year to assess a new hybrids. See bullet point 1. Differences in hybrid yields this year has more to do with timing than genetics.
4. This is a bad year to compare late-maturing hybrids to early-maturing hybrids. In some parts of the state, 118-day corn will do better than 110-day corn. In other parts of the state, the reverse is true. See bullet point 1.
5. This is a bad year to look at planting date. Early planting was better in some areas and late planting was better in others.
6. This was a great year to test products promoted to alleviate stress... if you had a check strip of two in the same field. You cannot compare one field to the next. See bullet point 2.
7. This is a good year to reconsider marketing strategy and determine just what percent of the expected crop can be marketed ahead for the 2023 harvest.

This year was a difficult one in which to grow a corn crop. If the USDA NASS estimate of 149 bushels per acre is correct, then the yields are a testimony to excellent hybrids and crop management. However, the timing to the dry weather was such that everyone should be very cautious about using the results from this year to apply to decisions in the future. Thanks to David Knopf and Matthew Dixon for allowing me to use their weather data and graphics. Thanks to Conner Raymond for reviewing this article.

Resources:
 MRCC Database: <https://mrcc.purdue.edu/CLIMATE/>
 USDA NASS Kentucky website: https://www.nass.usda.gov/Statistics_by_State/Kentucky/index.php
 USDA NASS Kentucky Crop Progress and Conditions page: https://www.nass.usda.gov/Statistics_by_State/Kentucky/Publications/Crop_Progress_&_Condition/index.php
 USDA NASS National Crop Progress page: https://www.nass.usda.gov/Publications/State_Crop_Progress_and_Condition/index.php

University of Kentucky 2022 Crop Pest Management Webinar Series begins in November

Information regarding your pest management questions is just a few mouse clicks away. As offered in previous years, the University of Kentucky has once again organized five webinars on field crop protection topics that will be hosted through the Southern Integrated Pest Management Center beginning on Nov. 8, 2022. The weekly webinars will feature University of Kentucky Extension Specialists speaking on topics ranging from Weed Science, Plant Pathology and Entomology.

Credits have been applied for regarding Kentucky Pesticide Applicator credits and Certified Crop Advisor continuing education. Pre-registration for the webinars is required through the registration URL provided. Dates, speakers and registration links are listed below. All webinars will begin at 10 a.m. EST/ 9 a.m. CST, on the Tuesday morning listed. For more information contact Jason Travis, Agricultural Extension Associate for the University of Kentucky, at (859) 562 -2569 or by email at jason.travis@uky.edu.



Webinar #1

Date: November 8, 2022

Speaker: Dr. JD Green

Title: Weed Control Lessons Learned From the 2022 Crop Season

Registration URL: https://zoom.us/webinar/register/WN_4JQovXYvR76AZXp_tSmBwg



Webinar #2

Date: November 15, 2022

Speaker: Dr. Carl Bradley

Title: Managing Important Soilborne Diseases of Soybean in Kentucky

Registration URL: https://zoom.us/webinar/register/WN_t6D6toO8Sh2BhyoD3iw1HQ



Webinar #3

Date: November 22, 2022

Speaker: Dr. Travis Legleiter

Title: Implementing Defensive Shifts Against Problematic Kentucky Weeds

Registration URL: https://zoom.us/webinar/register/WN_QnugWPJJQUynBXDf4io9zg



Webinar #4

Date: December 6, 2022

Speaker: Dr. Kiersten A. Wise

Title: Corn Disease Management Questions Asked in 2022

Registration URL: https://zoom.us/webinar/register/WN_KwibLTsHQY6oJjiKzURCEQ



Webinar #5

Date: December 13, 2022

Speaker: Dr. Raul Villanueva

Title: Entomological Studies in Corn and Soybeans Under Difficult Circumstances (Covid, and Tornado and Drought) in 2022

Registration URL: https://zoom.us/webinar/register/WN_3KVvBMYKQYKnxzW1K-A0-g

“Dusting In” Wheat in Drought Conditions

Conner Raymond, Dr. Carrie Knott, & Dr. Lloyd Murdock

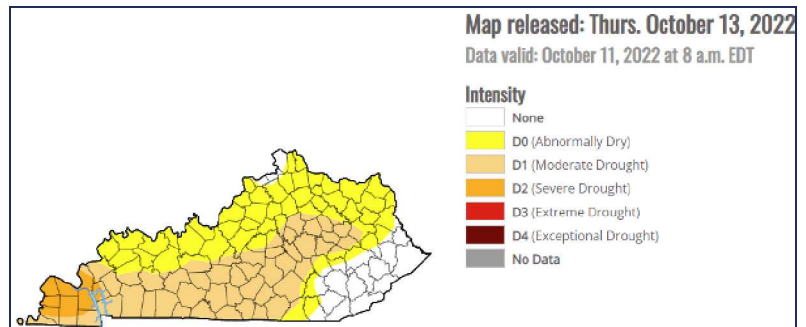


Picture 1: No-till drill planting attempt on October 11, 2022 in drought conditions on UKREC Farm in Princeton, KY.

Under “normal” conditions, most Kentucky wheat producers have already begun to plant. However, much of Kentucky is classified as abnormally dry with far western Kentucky in a moderate to severe drought which can make planting difficult (Figure 1). Fortunately, wheat producers have a few options.

- “Dust in” wheat seed
- Plant deeper than normal
- Wait for rain then plant

Figure 1: U.S. Drought Monitor for Kentucky (below)



“Dusting in” seed

Two risks associated with “dusting in” seed can be seed germination and seedling establishment. With soil conditions as dry as they are across most of the state, adequate soil moisture may not be available for planted seed to start germination. The risk is when seeds are planted at the correct depth (1 ½ - 2 inches for no-till and 1 inch for tilled soil) and have only enough moisture for seed to germinate. Even if the radicle root has enough water to emerge there is still a risk that not enough water is available for seedlings to establish and total stand loss can occur. Planting no-tillage is

preferred to tilled ground in dry years. Tilling the soil in very dry conditions leaves the soil in a pulverized condition that can lead to crusting and surface erosion when a heavy rain occurs. This can result in decreased and uneven plant emergence.

Plant deeper than normal

The recommended seeding depth for Kentucky is 1-2 inches. In dry soil conditions it can be nearly impossible to reach this mark. If 2-inch seeding depth can be achieved (but NEVER deeper than 2 inches) additional soil moisture can be reached to facilitate germination. Although seeds may germinate at this depth with proper soil moisture, if rainfall does not occur and additional moisture is not added, plants can easily germinate and then die prior to emerging above the soil surface.

If seed is planted too shallow (less than 1-inch depth) in dry soil this can cause uneven germination and emergence. Shallow planting depth can lead to increased variability in soil temperature and moisture. At shallow planting depths seed could be prone to germinate after a small precipitation event when not enough moisture is available for seedling establishment resulting in plant death and in severe cases stand losses. Shallow planting depth can also result in winterkill caused by heaving or uplifting of the plant and root system due to freezing and thawing of the soil.

Wait for rain then plant

The recommended planting window for wheat in most of Kentucky is October 10th through 30th. This window still leaves plenty of time for a rain event that would make soil conditions more ideal for planting. Recent work conducted at Princeton to determine if increased seeding rate can mitigate the effects of late plantings: early November, late November, December. Three late plantings occurred across two years on two soil types. Of these twelve late plantings, only two had statistical yield differences, Crider early November 2020 and Zanesville late November 2020. The increased seeding rate increased yield in the Zanesville late November planting but the increased seeding rate decreased yield for Crider Early November planting. Although an increased seeding rate may be thought to be beneficial when dealing with planting after October, data from Princeton suggests there is not a consistent yield increase when increased seeding rate are used for late plantings.

It may be tempting to add additional fertilizers, but this is not recommended. In years of drought like Kentucky has experienced this year not all the nutrients applied to the previous crop has been utilized. These carry over nutrients should be sufficient for the seedling wheat. Fungicide seed treatments would also not be expected to be helpful on this very dry year. Continued on following page...



Picture 2: Wheat seed only reaching ¼ inch depth after a planting attempt on October 11, 2022 in Princeton, KY with a fully loaded grain drill

Continued from previous page...

2020 Planting Date	Zanesville			Crider		
	35 Seed/sq ft	56 Seed/ sq ft	P- Value	35 Seed/sq ft	56 Seed/sq ft	P- Value
October	116.52	119.82	0.2785	68.93	68.81	0.9833
Early November	105.65	92.95	0.1863	115.66	107.98	0.0993
Late November	99.67	105.18	0.0585	110.89	115.8	0.3623
December	101.29	88.62	0.1117	106.07	106.01	0.9227

Table 1: Results from 2020 planting date and seeding rate study at

Princeton, KY on Crider and Zanesville soils.

2021 Planting Date	Zanesville			Crider		
	35 Seed/sq ft	56 Seed/ sq ft	P- Value	35 Seed/sq ft	56 Seed/sq ft	P- Value
October	100.86	101.94	0.8953	92.28	103.23	0.3449
Early November	71.67	69.67	0.1765	*	*	*
Late November	63.57	58.28	0.6545	78.08	88.8	0.1278
December	*	*	*	60.78	69.49	0.2279

Table 2: Results from 2021 planting date and seeding rate study at

Princeton, KY on Crider and Zanesville soils.

Additional Resources

- De Oliveira Silva, A. 2020. Wheat producers – What should we do with dry conditions in the forecast?
- Daniel, S. Klein, R. 2022. Planting Winter Wheat in Severe Drought: What are the Options?
- Pennington, D. 2017. Planting wheat into dry soil
- Knott, C. Raymond, C. 2021. Developing Agronomic Recommendations to Late Planted Wheat

Lunch Break Gardening Series



University of
Kentucky
College of Agriculture,
Food and Environment



December 7th's Topic:
Native Plants

Join Extension Agent, Matt Chadwick, as he describes the best ways to use native plants in your landscape!

Join us during your lunch break for a gardening workshop!

\$10

Includes a boxed lunch from a local restaurant

1st Wednesday Monthly
12:15-12:45pm
at the Marshall County Extension Office



RSVP by Dec. 5th
Call 270-527-3285



Marshall County Adult Farmer Beef and Forage Meetings

Young Farmer Educator, Jeff Futrell, has teamed up with Extension Agent, Nikki Rhein, to offer another beef series at the Extension Office. We hope you will join us!

Every Monday Night (except 10/31)
Oct. 17th- Dec. 12th
7:00pm
Marshall Co. Extension Office
1933 Mayfield Hwy.
Benton, KY 42025

Topics and Speakers

Oct. 17th- Cattle Market Outlook, Jeff Futrell (JF)
Oct. 24th- Beef Production Systems, Kevin Laurant
Oct. 31st- Halloween No Meeting
Nov. 7th- Stretching your Fertilizer Dollar, Dr. Chris Teutsch
Nov. 14th- Cattle Disease and Insect Management, JF
Nov. 21st- Legislative and Gov't Issues, JF
Nov. 28th- Farm Injury Preparedness, Jeff Curtsinger
Dec. 5th- Cattle and Forage Cost of Production, JF
Dec. 12th- Cattle Mineral, Dr. Katie Vanvalin

November Tips & Tidbits

Preparing for Winter

- Horses that are kept outside require protection from wind and the elements. This can be done with a wind break of trees, a run-in shed or a high porosity wind fence.
- Check all water systems and put away all parts that are not permanent and cannot withstand freezing temperatures.
- Clean and store temporary fencing systems that have been used for rotational grazing.
- Check living quarters in the horse trailer to ensure all systems are ready for winter.

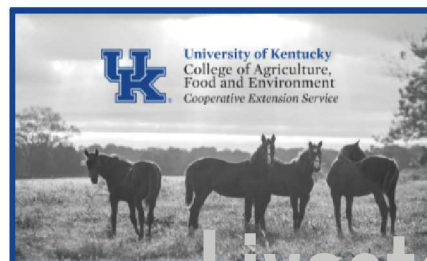
Feeding Horses During the Winter

- Be sure all horses have adequate access to feed and clean water.
- Feed hay in a suitable feeder to reduce waste.
- Horses can be wintered on hay alone if its quality is high enough to meet their nutritional needs.
- If they are at the optimal BCS, horses should be provided 1.5 to 2 percent of their body weight in high-quality forage per day.
- Cold temperatures can increase a horse's hay requirement by one-third.

- Compensate for low-quality forage or a lack of hay by adding a grain ration.
- Assess your horse's body condition score once a month to evaluate your feeding program.

Winterizing Horse Tack

- Most horse owners are not as actively riding in the winter months, thinking about winterizing your tack can help to prolong your equipment.
- Place all saddles, bridles, general tack, etc. in a dry place for the winter away from the elements.
- Oiling any leather before storing away will help to prolong the longevity of your more valuable pieces of tack.
- One idea would be to store away in some rubber totes and cover with a lid; this will provide you with winter care protection and keep everything all in one place.





Twice Baked Acorn Squash

Ingredients:

- 2 medium acorn squash (1 - 1 1/2 lbs.)
- Nonstick cooking spray
- 2 cups fresh spinach, chopped
- 4 strips turkey bacon, cooked and crumbled
- 1/2 cup grated parmesan cheese
- 1 thinly sliced green onion
- 1 tablespoon olive oil
- 2 teaspoons garlic powder
- 1/2 teaspoon salt
- 1/4 teaspoon black pepper
- 1/4 teaspoon nutmeg

Directions: Preheat oven to 350 degrees F. Cut squash in half; discard seeds. Place squash flesh side down on a baking sheet coated with nonstick cooking spray. Bake for 50 to 55 minutes or until tender. Carefully scoop out squash, leaving a 1/4-inch-thick shell. In a large bowl, combine the squash pulp with the remaining ingredients. Spoon into shells. Bake at 350 degrees F for 25 to 30 minutes or until heated through and top is golden brown. Store leftovers in the refrigerator within two hour

Nutritional Analysis:

210 calories, 9g total fat, 3g saturated fat, 25mg cholesterol, 710mg sodium, 27g total carbohydrate, 4g fiber, 1g total sugars, 0g added sugars, 9g protein, 0% DV vitamin D, 15% DV calcium, 15% DV iron, 20% DV potassium

Kentucky Winter Squash

SEASON: August through October

NUTRITION FACTS: Winter squash, which includes acorn squash, butternut squash, pumpkin, and other varieties, is high in vitamins A and C and is a good source of potassium and vitamins B6, K, and folate.

SELECTION: Winter squash should be heavy for its size with a hard, tough rind that is free of blemishes or soft spots.

STORAGE: Store it in a cool, dry place, and use it within 1 month. Once sliced, wrap dry pieces in plastic wrap and refrigerate for up to 5 days.

PREPARATION:

To steam: Wash, peel, and remove seeds. Cut squash into 2-inch cubes or quarter, leaving rind on (it will remove easily after cooking). Bring 1 inch of water to a boil in a saucepan and place squash on a rack or basket in the

pan. Do not immerse it in water. Cover the pan tightly and steam the squash 30 to 40 minutes or until tender.

To microwave:

Wash squash and cut it lengthwise. Place it in a baking dish and cover the dish with plastic wrap. Microwave until tender, using these guidelines:

- **Acorn squash:**
1/2 squash, 5 to 8 minutes;
1 squash, 8 1/2 to 11 1/2 minutes.
- **Butternut squash:**
2 pieces, 3 to 4 1/2 minutes.
- **Hubbard squash:** (1/2-pound pieces) 2 pieces, 4 to 6 1/2 minutes.

To bake:

Wash squash and cut lengthwise. Smaller squash can be cut in half; larger squash should be cut into portions. Remove seeds and place squash in a baking dish. Bake at 400 degrees F for 1 hour or until tender.

Kentucky Proud Project

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

Source: FruitsAndVeggies.org

August 2022

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



PlateltUp.ca.uky.edu

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University of Kentucky
College of Agriculture,
Food and Environment
Cooperative Extension Service

Nikki Rhein

Nikki Rhein

*Agriculture and Natural Resources Agent,
Marshall County*

For more information go to:
<http://marshall.ca.uky.edu/AgNaturalResources>
or follow us on Facebook @marshallcountyanr