

AGRICULTURE & NATURAL RESOURCES

March 2017



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

Cooperative Extension Service

Adair County
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DAIRY FIELD DAY
MARCH 30 – 10:00 AM
BRENT BAKER DAIRY FARM
2999 MELSON RIDGE ROAD IN ADAIR COUNTY

- TOPICS:
- Milk Quality
 - Winter Forages

For registration or information on any of the educational programs, call the Adair County Extension Office at 270-384-2317.

Nick Roy 
County Extension Agent
For Agriculture & Natural Resources

ADAIR
COUNTY
CATTLEMEN'S
ASSOCIATION

Monthly Meeting

Monday – March 20th

6:00 pm

Adair County Extension Office



**Sweet Corn
Growers Meeting**

APRIL 4 – 6:00 pm

JR. BROWN FARM

@ 109 Ollie Brown Road in Milltown Community

Topics: Costs & Returns

Planter Set-up & Usage

Soil Preparation for No-Till

Cooperative Extension Service
Agriculture and Natural Resources
Family and Consumer Sciences
4-H Youth Development
Community and Economic Development

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LEXINGTON, KY 40546



Disabilities
accommodated
with prior notification.

Yield Penalty from Second Year Soybean

John Grove, Agronomic Soil Scientist and Director, Research and Education Center, University of Kentucky



Growers are considering planting soybean after soybean, especially full season soybean after full season soybean, over some acreage in 2017.

Many growers have little experience with second year full season soybean, having kept with their existing crop rotations. Other growers, experiencing problems like soybean cyst nematode in some fields, have avoided soybean after soybean on all acres they manage. I observed two extension agricultural economics presentations modeling profit/loss to different crop rotation options, and where second year soybean yield loss relative to first year soybean was set at either 5 or 10 %, in the absence of field data.

One of my long term rotation trials includes the corn-corn-soybean-soybean sequence, with all four rotation components represented each year, since 2008. The 2009 and subsequent seasons allowed comparison of first and second year full season soybean. Each year, a maturity group 4 full season soybean with an excellent disease resistance package was planted in all plots on the same day (always prior to 20 May) at the Spindletop research farm just outside Lexington in 15 inch rows at about 120,000 seed per acre. The plot area was, and is, free of soybean cyst nematode. Soybean grain yield, each year from 2009 through 2016, are given in the table below.

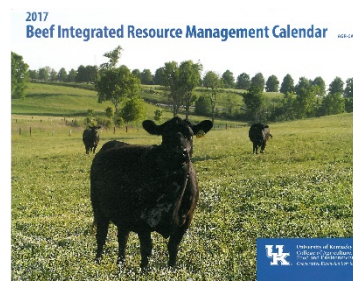
Table 1. Soybean after Soybean Yield compared with Soybean after Corn Yield. Data from Lexington, KY.

Harvest Year	First Year Soybean	Second Year Soybean	Yield Loss %
	bushels/acre	bushels/acre	%
2009	83.4	78.9	5.4
2010	33.0	34.4	-4.3
2011	54.2	49.1	9.5
2012	28.0	29.2	-4.2
2013	70.4	74.0	-5.1
2014	61.0	60.5	0.9
2015	53.2	46.1	13.3
2016	49.9	48.5	2.8
Average	54.1	52.6	2.3

First year soybean yield ranged from about 30 bushels per acre in dry years (2010 and 2012) to 70 to 80 bushels per acre in moist years (2009 and 2013). Statistically significant yield loss to second year soybean occurred in 2011 and 2015, and I have no idea why this happened in these two years. There was no significant difference to rotation in the other six years – second year soybean even yielded a bit more than first year soybean in three of those six years. Over the eight years, first year soybean yielded more than second year soybean in five of eight years, averaging 2.3 % greater yield overall. I concluded that second year soybean usually yields a bit less than first year soybean, sometimes a lot less. On average, however, the yield loss was not nearly as great as the 10 % growers may factor into an economic analysis of rotation options.



Though the variation in yield well represents Kentucky's seasonal weather, readers are reminded that the experiment is optimized for soybean nutrition and weed control. I have observed greater marehail/horseweed (*Conyza canadensis* (L.) Cronquist) pressure in the experiment's soybean plots over time, resulting in my annually hand roguing the trial. Most important, there is no soybean cyst nematode pressure. Before planting second year soybean in any field, take soil samples to determine soybean cyst nematode levels.



Beef IRM Calendars are here! Stop by the Extension Office and get your free copy.

Free Fertilizer? Hay Feeding!

Dr. Jeff Lehmkuhler, Associate Extension Professor, Beef Extension Specialist, University of Kentucky

Pasture fields seem to be overlooked with regards to applying management. Many folks will soil test hay fields and apply some level of fertility, though it may be less than the soil test recommends. This seems to be more evident when profit margins are tight. Corn experts have recommended fertility rates in relation to economic returns rather than maximal yields. In other words, the rate of fertilizer added is based on both soil test recommendations and expected improvement in yield. This concept takes into account the cost:benefit relationship that exists for inputs and outputs. Should beef producers not have this same mindset when it comes to hay production and take this a step further toward pasture productivity?

Low feeder cattle price has reduced the profit margins increasing the importance to enhance forage production on the farm. With the understanding that tighter profit margins may lead to lower inputs devoted towards hay and pasture acres, is there another option?

A ton of hay that contains 2.5% potassium and 0.25% phosphorus would contain 50 lbs of actual potassium and 5 lbs of phosphorus. A ton of hay would then have the equivalent of 60 lbs of K_2O and roughly 11 lbs of P_2O_5 . Consider how many tons of hay you feed through the winter and the potential fertilizer value in this hay. Only a small amount of the potassium and phosphorus consumed by a cow is retained with most being excreted. Applying management to hay feeding areas can provide a source of nutrients that can improve soil fertility and forage production.

Applying management that distributes the animal pressure during the hay feeding period can reduce mud and spread these nutrients. This can be achieved through unrolling hay on the ground, using a hay processor and/or having bales offered in different areas of the field. The goal is to limit the time spent in any one area. Each of these options have advantages and disadvantages.

Bale grazing is gaining popularity in some regions. Bale grazing is simply the process of setting bales in a field area and controlling access to the bales. Access is often controlled using temporary electric fence. Bales would be set in the field prior to the expected hay feeding period. Bales are often placed on approximately 40' x 40' centers. The amount of hay consumed for the herd is estimated such that the cows will clean the hay up in 3-5 days. The number of bales offered will depend on bale weight and cow size, but a general rule of thumb is one bale (assuming 1,000 lb) per every 10 cows. If the herd is 30 cows, one would provide

access to just 3 bales. These bales would be expected to be consumed in 3-4 days. Once the bales are consumed, the electric fence is moved to provide access to the next bales. Managing to reduce the amount of hay left behind is important. Protecting hay to minimize rot and waiting to give new bales to make cows clean up hay is key.

Research conducted in Virginia suggested that soil compaction, forage production, and the percentage of weeds in the field were not different in fields where hay was fed compared to fields that did not have hay fed. They did indicate that the areas around the hay feeding areas were damaged or denuded with these areas being approximately 5% of the field area. Soil phosphorus and potassium levels as well as the percentage of clover were increased in the fields with hay feeding. Canadian researchers found forage production was 3.3-4.7 times greater in fields in which hay feeding was conducted. Their research revealed significant increases in soil fertility in areas with hay feeding. Areas where bale grazing seems to be gaining traction is in areas that ground remains frozen during the winter. Another region it is gaining traction is in areas with sandy soils that are well drained. How will this fit our mud conducive climate?

In Adair County, one farmer has embraced this concept to improve pasture areas. It is a learning process and we are all learning from his management. Last winter, bales were placed close together. Significant soil disturbance occurred but the areas were seeded to a summer annual. Great production of these annuals were observed as the rapidly growing forage used the nutrients left behind. The areas were reseeded to novel fescue in the fall as part of the renovation plan. He reduced the amount of hay fed to about 2/3 bale for his 26 cows. He is using bale grazing again this winter. He has sold his manure spreader. Soil K and P levels were increased about three-fold in the hay feeding areas. An interesting observation is that no broomsedge was seen growing in the hay feeding areas while it was in the rest of the field.

Is bale grazing the solution? I am not convinced yet, but it has opened my mind to alternatives. Hay feeding certainly has the potential to be a source of fertility that I would argue many producers are wasting. Unrolling hay can be another option. Using a single strand of electrified poly-wire down the middle will lower loss from bedding and defecation.

Distributing hay feeding areas in pasture fields will improve animal distribution and manure deposits. Forage production may be improved as a result particularly for pasture fields that have not received fertilizer in years. We'll continue to look at this in the future to see how bale grazing will fit our climate.



Greek Style Spaghetti Squash

1 spaghetti squash (2-3 pounds)	2 cloves garlic, minced	¼ teaspoon salt
2 tablespoons olive oil	1 cup fresh spinach leaves	2 tablespoons
1 cup chopped onion	1½ cups chopped tomatoes	chopped fresh basil
¼ cup chopped green bell pepper	1 teaspoon dried oregano	¾ cup crumbled low- fat feta cheese
	1 teaspoon lemon no-salt seasoning blend	

Preheat oven to 350 degrees F. **Prepare** the squash by carefully **cutting** it in half lengthwise with a sharp knife and **scooping** out the seeds. **Place** on a lightly greased baking sheet, cut-side down and **bake** for 30 to 35 minutes, or until a sharp knife can be easily inserted into the rind. **Remove** the squash from the oven and allow to **cool**. When cooled, use a fork to **scrape** out the stringy flesh from the shell and **place** in a colander. **Press** out as much liquid as possible. **Place** squash in a medium bowl and keep warm. **Heat** the oil in a skillet over medium heat. **Sauté** the

onion and bell pepper until tender. **Add** the garlic and continue to **cook** 2-3 minutes. **Add** the spinach; allow to wilt. **Stir** in tomatoes and **cook** until tomatoes are heated through. **Toss** the cooked vegetables with the warm spaghetti squash. **Stir** in seasonings, basil, and feta cheese. **Serve** warm.

Yield: 8, ½ cup servings

Nutritional Analysis: 120 calories, 6 g fat, 2 g saturated fat, 5 mg cholesterol, 280 mg sodium, 14 g carbohydrate, 3 g fiber, 6 g sugars, 4 g protein.

BEES & Pesticides in the Garden

By: Ric Bessin, UK Extension Entomologist



I received an email from a backyard beekeeper asking how they can avoid problems to bees when using pesticides in the yard. Overwintering losses of honey bee colonies increased in 2006 and remain at unacceptable levels, but at the same time, there has been a huge increase in beekeeping by hobbyists. This article addresses a few steps which can be taken to minimize hazards to bee when using insecticides to manage other insect pests in the garden.

There are two main potential ways that the bees could be harmed when you spray your trees, vegetables, flowers, and lawn in your yard.

The first is: bees can be harmed is through spray drift when the application moves toward and over the colonies themselves. Many of our documented bee kills with pesticides have been due to pesticide drift where bee colonies were located in proximity to areas been treated. So as a long term strategy, try to locate bee colonies in areas that are less likely to be treated with insecticides, or plant vegetation around them to serve as a buffer to reduce spray drift reaching the colonies. Avoid spraying pesticides on windy days, especially on days where the winds may carry spray drift in the direction of the colonies. Many pesticide labels provide guidance on avoiding spray drift. In addition, spraying after 6:00 pm or when the temperature is below 55°F also helps because the foraging of bees is greatly reduced.

The second main route to injuring honey bee colonies with pesticide sprays is: by contaminating their food or water supplies. As a general rule of thumb, you shouldn't spray plants in bloom with an insecticide (in fact, many pesticide labels expressly prohibit this) or in areas where pollinators are foraging. "Plants in bloom" covers more plants than just the ones you planted or may be interested in. This includes weeds that may be flowering. An example may be dandelions or flowering clover underfruit trees in the yard. The easiest way to deal with flowering weeds, is to mow or pull them before you spray. Bees need a constant source of water to survive; you must be very cautious to avoid contaminating these sources with pesticide sprays or other applications. Beekeepers may locate their watering stations for bees away from areas that are likely to be sprayed with pesticides.

The final way to limit damage to the bees, is to only spray if you need to and to use materials that are effective, but also least toxic among your choices. Pesticides are just one strategy to prevent pest damage and should only be used after we have exhausted cultural, physical, and biological control options. When pesticides are used, they need to be timed such that they are applied when most effective, which can reduce the number of applications, and when pests are at a level to warrant the need for control. Different insecticides vary widely in their toxicity to honey bees and other pollinators and there is often several different types to choose from to control a particular pest. Products containing Bt or *Bacillus thuringiensis* are among the insecticides least toxic to honey bees.



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Free Soil Testing

Now thru March 31st

FREE SOIL TESTING!

Sponsored by the Adair County Soil Conservation District

How the free offer works:

- ▶ “Free” soil testing now thru the end of March 2017
- ▶ Limit of 8 samples per Adair County farm operation/landowner.
- ▶ Follow UK soil collection recommendations.
- ▶ Samples should be submitted at the Adair County Cooperative Extension Service located at 409 Fairground Street in Columbia.



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Marcia R. Grider
Administrative Secretary
Adair County Conservation District
965 Campbellsville Rd.
Columbia, Ky 42728
(270) 384-6628 ext 101

Taking Soil Test Samples ...

When you take soil test samples keep in mind that a few ounces of soil are being tested to determine lime and fertilizer needs for what may be several million pounds of soil in the field. It is absolutely necessary to take care to assure that the soil sample you collect accurately represents the area sampled.

A soil probe, auger, garden trowel, or a spade and knife are all the tools you need to take the individual cores that will make up the “field” sample. **Soil probes may be borrowed from the Extension Office for a 2-day period.** You will also need a clean, dry bucket (preferably plastic) to collect and mix the sample cores.

Collect at least 10 soil cores for small areas and up to 30 cores for larger fields. Take the soil cores randomly throughout the area to be sampled and place in the bucket. Samples should be 3-4 inches deep.

After all cores for an individual sample are collected and placed in the bucket, crush the soil material and mix the sample thoroughly. Allow the sample to air dry in an open space free from contamination. **Do not dry the sample in an oven or at an abnormally high temperature.**

When dry, fill a bag (Ziploc bags work great), with field identification, and bring to the County Extension Office.

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