The January-February edition of

Nikki’s News

Marshall County’s Agriculture and Natural Resources Update

Upcoming Agriculture Events at the Extension Office

Private Applicator Certification
February 27th @ 8 am

Who needs this?
Anyone who uses restricted use pesticides.
How long is it good? Private applicator certification is valid for 3 years and expires on December 31 of the final year.
How do I get recertified? Applicators must go through the county training program to renew certification.
Please call (270) 527-3285 to researve your spot.

Noninsured Crop Disaster Assistance Program (NAP)
NAP Meeting to be held on Friday the 20th at 10am

The NAP program provides financial assistance to producers of noninsurable crops to protect against natural disasters that result in lower yields or crop losses, or prevented crop planting. Informational meeting will cover new buy-up provisions.

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Corn Seeding Rates in Kentucky

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Wheat DON Trials

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Emergency Calf Management After Dystocia and IRM Pocket Books

From the Field to the Table
Broccoli Chowder

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Corn yields have steadily increased over time in part to increasing the seeding rates. Identifying the proper seeding rate is a balance between having enough plants to maximize yields with having too many plants to hurt yield in stressful conditions.

The following is the University of Kentucky guidelines for corn populations on various soils in Kentucky.

Table 1. Corn Seeding Rates for Kentucky

<table>
<thead>
<tr>
<th>Soil Productivity</th>
<th>Target Seeds per Acre</th>
<th>Comments</th>
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<tbody>
<tr>
<td>Low</td>
<td>24,000 to 26,000</td>
<td>Soils that are shallow, sloping, or non-tilled clays. Expected yields are less than 140 bu/acre on average.</td>
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<tr>
<td>Medium</td>
<td>26,000 to 30,000</td>
<td>Many soils in Kentucky with less than 12% slope and depth of about 3 feet.</td>
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<tr>
<td>High (non-irrigated)</td>
<td>32,000 to 34,000</td>
<td>Deeper soils (river bottoms) with about 6 feet of rooting depth and excellent water-holding capacity.</td>
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<tr>
<td>High (irrigated)</td>
<td>32,000 to 42,000</td>
<td>The lower range is for limited water supply. The upper range is for fields at very low risk for water stress. Stalk strength is extremely important at the upper range. Consult with seed representatives on stalk strength and hybrids suited to the very high populations.</td>
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</table>

These seeding rates were developed from research, from soil depth and water holding capacity, and from the risk of soils running short on water for the season. The logic behind these seeding rates is that soils at greater risk of running out of water will have a lower seeding rate. Deep soils that are more likely to carry sufficient water throughout the growing season will have higher seeding rates.

There are a range of rates for each soil type and that reflects the variability in the data we currently have. More data from more research may help us refine those numbers.

Water availability can drastically impact corn response to plant population as displayed in Figures 1 to 3. In Figure 1, the red line is corn yield response to plant population in 2009 (adequate and timely rainfall). In 2009, yields increased as plant population increased. Just the opposite occurred in 2008, where rainfall was scarce and water was limited. In 2008, yields dropped as plant population increased. The same four hybrids were planted each year into the same soil type with the same crop rotation and the same fertilizer program. Water - or the lack of - greatly influenced crop yield response to plant population. Corn yields in Figure 2 are during a very dry year (2012) and corn yields in Figure 3 are from a year with much better rainfall (2013). In a year with more water, corn yields increased as populations increased and in a year with very little water, corn yields decreased as population increased. The hybrids in Figures 2 and 3 are the same. If we could predict how the frequency of rainfall and the quantity of rainfall during the growing season, we could very accurately predict a seeding rate. Until that happens, we are left with trying to find the correct balance between enough plants to produce high yields while not having too many plants to severely hurt yields in stressful years.
More Crop News

Attention Wheat Growers! Here is your chance to participate in University of Kentucky Grain Crop Research!

2015 Kentucky Wheat Vomitoxin Survey

I. Objectives: The objectives of the Kentucky Wheat Vomitoxin Survey are to gain an understanding of annual variations in wheat vomitoxins (DON; deoxynivalenol) and the economic impact of wheat vomitoxins for Kentucky producers.

II. Identification of Participants: County agents will identify up to 5 willing producer cooperators by March 15, 2015. (Please collect a maximum of 2 samples per producer.) Producer cooperators will agree to share the below agronomic and post-harvest information. All information will be coded and remain anonymous when presented or discussed at meetings or any other venue. Location of fields will be used only to summarize geographical trends of the data collected.

III. Sample Collection: Cooperating producers will request a sub-sample of the grain samples collected by the elevator/mill/or other distribution point that collects samples and tests for DON (vomitoxin). Samples need to be stored in a one gallon Zip-loc type bag labelled with:

- Producer Name
- Field Designation
- County Sample Number
- Date Tested at Elevator
- Date Received by County Agent

IV. Sample Storage: Samples need to be stored indoors that is air-conditioned at room-temperature. Please do not leave in a vehicle or outdoors where fluctuating temperatures occur.

V. Sample Submission: Samples must be obtained from producers within 5 days of the vomitoxin (DON) test at the elevator/mill/other distribution point. If collected samples are stored in climate controlled offices, agents can submit all collected samples to Carrie Knott at one time. Please try to obtain and mail samples no later than August 15, 2015.

VI. Sample Results: All cooperators will receive a copy of their sample results. These will be provided as soon as possible, but may take several months for processing and analyses.

-Carrie Knott, Ph.D.
Grain Crops Extension Agronomist
Horticulture News

University of Kentucky 2015 High Tunnel Webinar Series

Learn about season extension in high tunnel production systems in a new webinar series sponsored by the Center for Crop Diversification and the University of Kentucky College of Agriculture, Food and Environment. There will be six webinars, each 75 minutes long, in February and March 2015. The series will cover market opportunities, structure options and construction, organic production and certification, crop and equipment options, pest pressure and control, as well as a summary of the Environmental Quality Incentives Program (EQIP) Seasonal High Tunnel Initiative. For more information, and to register, please contact Miranda at 859-218-4384 or miranda.hileman@uky.edu.

All webinars will be broadcast from 6:30pm – 7:45pm EST.

- **February 17** - Season Extension Opportunities & EQIP Funding
- **February 24** - Structure Options, Construction, Ventilation & Temperature Control
- **March 3** - Organic Certification & Marketing High Tunnel Crops
- **March 10** - Crop, Irrigation and Equipment Options
- **March 17** - Insect, Weed, and Disease Control
- **March 24** - Producer Views & Series Wrap-up
Dystocia can be defined as a difficult or abnormal calving due to a prolonged, unassisted birth or due to a prolonged and/or severe assisted calf delivery. Factors known to cause dystocia include pelvic size of the dam, calf size, calf presentation (for example, backwards or head turned back), and maternal factors including weak labor, insufficient dilation of the cervix and uterine twist or torsion. The most common cause is a mismatch in dam pelvic size and calf weight, often seen in heifers delivering large bull calves. Inappropriate timing of human intervention or excessive force applied during delivery may cause additional fetal trauma, stress and even stillbirth. Following dystocia, a calf is 6 times more likely to get sick than a calf born normally, with 69% of all deaths between birth and weaning occurring within 96 hours of birth.

The key event in the transition from life inside the uterus to an independent existence is the initiation of breathing so the lungs become inflated and the blood oxygenated. The first breath is the hardest to take similar to the first hard push of air necessary when inflating a balloon. In order to facilitate this process after a dystocia, immediately after delivery (within 30 seconds), the calf should be placed upright on its sternum (breastbone) to maximize ventilation. Calves should have their upper respiratory tract (nose and mouth) cleared of any fluid or other physical obstruction, either by hand or suction bulb. Calves should never be hung by their rear legs for more than 90 seconds or swung around by their back legs to remove fluids by gravity flow. Instead these procedures have been proven to increase pressure within the chest cavity, making it much more difficult to expand the lungs. Calves should make active respiratory movements within 30 seconds of being delivered.

If spontaneous breathing does not begin, it is imperative to establish an airway and stimulate respiration. Many methods have been tried but very little published information is available as to their efficacy. Once the calf is placed on its sternum, vigorous stimulation of the calf by rubbing around the head or body and placing a finger or piece of straw in the nose should initiate a gasping reflex that helps aerate the lungs. Pouring cold water over the calf’s head or down the ear has also been used with some success to stimulate respiration. Mouth-to-mouth or mouth-to-nose resuscitation is commonly tried but very difficult to do effectively. Establishing a tight seal to prevent air leakage is difficult but, even more importantly, the air blown in has a tendency to go down the esophagus and fill the stomach which makes breathing more difficult for the struggling calf. To avoid these problems, a veterinarian may use a cuffed endotracheal tube to provide positive pressure ventilation effectively. Certain prescription medications such as doxapram may also be used to stimulate respiration although severely affected calves do not seem responsive to it. Veterinarians may also choose to use buffer therapy with injectable sodium bicarbonate to correct metabolic acidosis, a condition that often occurs following dystocia in which the calf’s blood is more acidic than it should be. In general, cardiac resuscitation is not attempted in calves born without a heartbeat due to very poor chance of survival. Similarly, calves that do not respond to respiratory stimulation techniques and cannot sit up on their own after 10 minutes generally do not survive.

In moving from the uterus to the outside environment, baby calves experience a dramatic shift in temperature. Calves delivered normally maintain their body temperature (thermoregulation) by shivering and by mobilizing energy from brown adipose (fat) tissue. Simple, natural physical activity such as standing,
walking, and consuming colostrum will also generate body heat. Following dystocia, calves have an impaired response to cold temperatures. Inadequate oxygen can reduce muscle tone and prevent shivering as well as decrease the calf’s ability to utilize its brown fat. Calves with thermal stress and low vitality are slow to stand and nurse, limiting their ability to warm themselves through this natural physical behavior. These calves should be exposed to an infrared heater to improve rectal temperature, blood oxygen level, and respiratory rate. If electric heating pads are used, they must be closely monitored because they can get hot enough to cause burns, particularly if the calf is unable to move off the pad. Heat lamps must also be monitored to prevent burns.

Of course the single most important factor in calf survival is that it receives and absorbs adequate colostrum. It is essential that all calves receive 3-4 quarts of colostrum within the first 6 hours of life. Consumption of colostrum by calves in fetal distress has been found to be reduced by up to 74% in the first 12 hours of life. Since a calf is unlikely to voluntarily suckle after dystocia, it is recommended to feed colostrum via stomach tube (“esophageal feeder”) within one hour of birth if there is any doubt as to the calf’s vitality. Colostrum contains immunoglobulins that form the calf’s immune system as well as nutrients vital to the newborn such as fat-soluble vitamins and sugars. Dystocia resulting in a weak newborn calf is a major cause of failure of passive transfer (FPT) due to low volume and delayed consumption of colostrum. FPT is known to increase susceptibility to infectious disease, increase neonatal sickness and death as well as result in long-term decreases in productivity (such as lower average daily gain) if the calf survives.

Other problems may arise due to complicated deliveries. Calves that are wedged in the pelvic canal for prolonged periods may be born with a swollen head and/or tongue. This condition will usually resolve itself within one to two days but feeding the calf with a stomach tube is required since the calf cannot suckle. Dystocias may result in trauma such as fractures of the legs, ribs and spine and luxations of the hip and spine. The extent of these injuries may not be obvious at birth but will become apparent over the next one to two weeks. The umbilicus (or “navel”) may become infected due to prolonged contact with the ground, predisposing the calf to septicemia or “navel ill”. Mild antiseptics should be used on the cord but avoid strong, caustic agents as these will cause irritation and inflammation of these sensitive tissues. Maintaining a clean, dry umbilicus and ensuring adequate high-quality colostrum ingestion are the best ways to prevent disease in newborns.

In summary, success in saving a calf after dystocia will depend largely on the condition of the calf at birth. Some will suffer major trauma during delivery resulting in severe bruising, fractured ribs, bleeding in the central nervous system, and other maladies resulting in death irrespective of treatment. Other calves will be born with a heartbeat but not breathing; these calves are good candidates for resuscitation. Establishing a patent airway, initiating breathing, and establishing adequate circulation are the cornerstones to immediate calf survival. However, early and adequate colostrum intake is essential for passive transfer of immunoglobulins, energy, thermoregulation, and long-term survival.
## Broccoli Chowder

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<th>Ingredient</th>
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<tr>
<td>2 tablespoons carotenoids</td>
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<tr>
<td>½ cup chopped onion</td>
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<td>3 cloves garlic, finely minced</td>
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<tr>
<td>½ cup chopped carrots</td>
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<tr>
<td>2 cups diced, unpeeled red potatoes</td>
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<tr>
<td>3 cups broccoli florets</td>
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<tr>
<td>½ teaspoon dried Italian seasoning</td>
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<tr>
<td>½ teaspoon salt</td>
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<td>¼ teaspoon pepper</td>
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<tr>
<td>3 tablespoons all-purpose flour</td>
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<tr>
<td>3½ cups low sodium chicken broth</td>
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<tr>
<td>½ cup half-and-half milk</td>
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<tr>
<td>½ cup low-fat, shredded cheese</td>
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In a large heavy pot, heat the oil over medium heat. Add the onion and garlic and sauté 2-3 minutes. Add the carrots, red potatoes and broccoli one at a time; sauté each about 2 minutes. Add the Italian seasoning, salt, pepper and flour and toss until vegetables are coated. **Cook** 1-2 minutes. Add the chicken broth and bring to a boil. Reduce heat to low, cover pot and simmer for 15 minutes. Remove lid and stir in the half-and-half. Bring back to a simmer and remove from heat. Ladle into bowls and top with cheese to serve. **Yield:** 8-10 cup servings.

**Nutritional Analysis:** 180 calories; 8g total fat; 25g saturated fat; 15mg cholesterol; 340mg sodium; 18g total carbohydrate; 3g dietary fiber; 4g sugar; 8g protein.

## Kentucky Broccoli

**SEASON:** May through early July; October through mid-November

**NUTRITION FACTS:** Broccoli is a good source of vitamin A, vitamin C and phytochemicals, all of which have health benefits.

**SELECTION:** Choose tender young, dark green stalks with tightly closed buds. One and one-half pounds of broccoli will yield 4 half-cup servings.

**STORAGE:** Store broccoli, unwashed, no more than 3 to 5 days, in a perforated plastic bag in the refrigerator. Wash broccoli just before using.

**PREPARATION:** Wash broccoli under cold running water. Trim the leaves and peel the stalk.

**To Steam:** Place on a rack above boiling water and steam 6-8 minutes. Rinse with cold water. Drain.

To **Boil:** Place in a saucepan with 1 inch of boiling water. Cover and cook 5-7 minutes.

**To Microwave:** Place broccoli in a microwave-safe dish. Add 1 inch of water and cover with a glass lid or plastic wrap. Microwave 3-4 minutes or until crisp-tender.

## Kentucky Broccoli

**Kentucky Proud Project**

County Extension Agents for Family and Consumer Sciences

University of Kentucky, Dietetics and Human Nutrition students

October 2014

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For more information go to [http://marshall.ca.uky.edu/AgNaturalResources](http://marshall.ca.uky.edu/AgNaturalResources)

Or follow us on Marshall County Agriculture and Natural Resources Facebook Page

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