

# Missouri Ag News

A Publication of University of Missouri Extension - Southeast Region

Volume 3, Issue 1

January 1, 2013

## Preparing Forages for the Next Drought

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Crops	Horticulture
Engineering	Livestock
Forestry	Other



While the drought has diminished in severity from this summer, conditions remain dry. The U.S. drought monitor rates much of Southern Missouri as “moderate”. Some counties, including much of Oregon, Shannon, and Howell Counties are still rated as “severe”. Therefore, it is important to prepare for further dry seasons and learn from past experiences.

Described below are a few things that have helped forage producers survive an extreme drought.

First, have a rotational grazing system. Farmers with a strong rotational system were able to graze grass longer into the drought and recovered more quickly than those with a continuous systems. This is because rotational grazing allows the plants to develop a strong root system. In good conditions, adequate rest between grazing allows the root reserves of the plant to recover completely, which over time creates a strong, extensive root system. In continuous systems, plants do not have time to recover shoot and root growth between grazing, which creates a less extensive root system.

Second, have warm-season forages to graze during the summer months. All crops need water to grow, and warm-season crops are no different; however, these types of grasses have

cellular mechanisms that allow them to better manage heat and water stress. From observations this year, caucasian bluestem, native grasses (big bluestem, little bluestem, switchgrass, etc.) and bermudagrass, all perform the best; crabgrass also did well this year but did not germinate until late in the summer. Alfalfa and annual lespedeza were legume crops that appeared to perform well for most farmers. When establishing warm-season forages make sure to plan ahead, as many of these crops need to be planted in May after preparing a seed bed.

Third, manage grazing to allow for optimal regrowth. Forage specialists have a saying, “it takes grass to grow grass”. This means that if you graze the grass into the dirt there is nothing left for the grass to grow from. The grass plant must have a portion of the leaf remaining in order to photosynthesize and recover the carbohydrates that were lost. Therefore, don’t overgraze! It is important to manage grazing so that a portion of the leaf material remains for quick recovery. Make sure to rest the paddock long enough between grazing to allow the root system to recover and develop.

## Preparing Forages.....continued

All forages need to be managed slightly differently as far as residual grazing height but one quick tip works well for most forage species. To prevent overgrazing, do not graze below the leaf collar. The collar is where the stem meets the leaf blade (Figure 1). The leaf contains the most chlorophyll that will capture energy from sunlight. Grazing above the leaf collar will leave a piece of the leaf; the more energy that is captured from sunlight the quicker the plant can recover from grazing. For tall fescue the collar region naturally occurs around 1 ½ to 2 inches from the ground; therefore, leaving 3 inches will ensure that enough leaf remains. For warm-season grasses like big bluestem, sorghum, and millet the collar region is naturally higher; therefore, these species need a higher residual, for most of these grasses it is recommended to leave 6 inches of plant stubble.

Lastly, monitor forages closely. Paddocks should be monitored regularly for forage yield and stand health, which can be

done using a grazing stick, a rising plate meter, visual estimation, or a ranking system. It is even more important to write down the observations and look at the farm as a whole. This can help you determine if you will experience a forage shortage soon. One can use this information to make management decisions that extend the forage supply or to cull livestock before the market floods. For specific planting information or to determine which forage will work best for your operation, please give extension a call.

Sarah Kenyon,  
Agronomy Specialist,  
University of Missouri  
Extension, Alton, MO

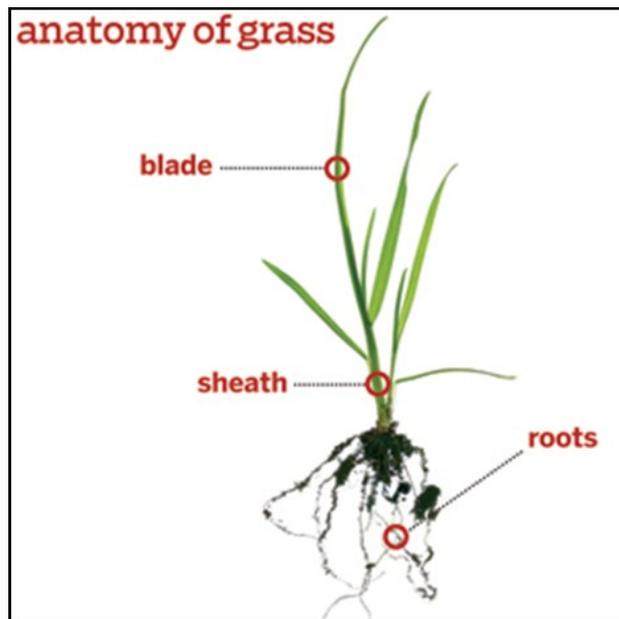


Figure 1: The leaf collar is the area where the sheath meets the leaf blade. Grazing above the plant collar will leave enough leaf material for photosynthesis to recover plant sugars used to recover from grazing. Photo: Gusto Images/ Science Photo Library

**Ag Expo January 18 - 19, 2013**

**Black River Coliseum, Poplar Bluff, MO**

**Private Applicator Training at 2:00 pm January 18**

# 10 Reasons to Add Legumes to Your Pastures

**1. Lower Nitrogen (N) Costs:** Legumes have the ability to obtain N from the atmosphere and fix N in the nodules of the roots. The amount of N fixed varies depending on species, stand density, soil fertility, weather, and the amount of leaf surface on the legumes. The range is 60 to 200 pounds per acre per year.

**2. Improved Forage Quality:** Forage quality of legumes is generally higher than that of most grasses at the same stage of maturity. Legumes are generally higher in crude protein, digestibility, mineral content, and digest quicker than most grasses.

**3. Better Growth Distribution:** The addition of legumes to grass pastures often extends the grazing season and fills voids in grass monocultures. Some legumes can provide quality grazing during the summer months, when cool-season pastures are less productive.

**4. Increase Forage Yield:** The total yield from grass/legume mixtures is usually increased over pure grass pastures. Studies at the University of Kentucky have shown that red clover grown with tall fescue can produce more total yield than tall fescue fertilized with 180 pounds of N per acre.

**5. Reduced Risk:** Mixtures of grasses and legumes constitute a lower risk than a pure stand of either. Mixed stands are less susceptible to devastation from disease, insects, and adverse weather.

**6. Added Benefits:** Legumes can improve soil tilth by creating deep root channels, which also improve soil drainage and the amount of air that is in soil.

**7. Reduced Animal Toxicities:** Growing legumes with tall fescue is the number one strategy used to combat endophyte problems associated with tall fescue; the addition of legumes dilutes the total amount of endophyte-toxin that is in the diet.

Grass tetany problems can also be greatly reduced with legumes in the diet.

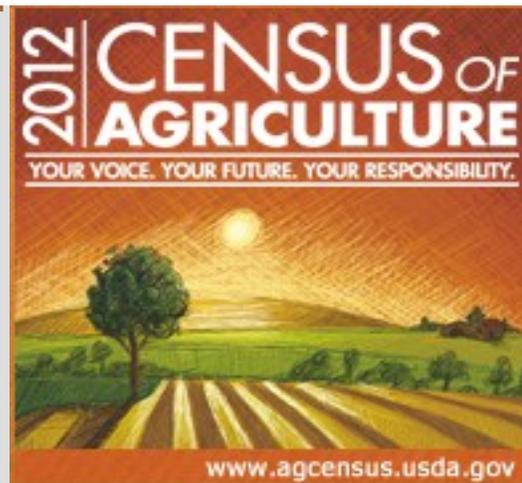
**8. Environmental Acceptance:** Because each legume plant has the ability to "fix" nitrogen through Rhizobium bacteria, legumes provide a natural, slow-release nitrogen. Furthermore, their flowering ability, pollen and nectar production, encourage honeybees to migrate to the area.

**9. Aesthetic:** Legumes provide color and diversity to grass meadows and pastures.

**10. Increased Profit Potential:** More milk production, higher weaning weights, higher average daily gains, and higher reproductive efficiency are common when legumes make up a significant portion of the forage mix.

For these reasons, legumes are agronomically sound, environmentally friendly, and economically advantageous. Clovers and annual lespedeza can be frost seeded from mid-January to February or no-till drilled in April into existing grass pastures.

Adapted by Sarah Kenyon from the article: Management Intensive Grazing in the Ozarks, Edited by Mark Kennedy.



Please complete the agriculture census and return.

## MO Grain Farmers Urged to be on Lookout

Wayne Bailey, University of Missouri Extension specialist in plant sciences, urges Missouri corn producers to keep an eye out for indications of corn rootworm, caused by continuous planting of Bt hybrid corn on cropland.

Most of the corn planted in the United States is Bt corn, and the Cry3Bb1 toxin is the major one deployed in corn against rootworm.

Research at Iowa State University shows evolving resistance in progeny of adult western corn rootworms collected from northwestern Iowa fields in which Bt hybrids that produce the Cry3Bb1 protein had been planted for several consecutive years. The pest has also been seen in Illinois.

Bt hybrids used for corn rootworm control are low-to moderate-dose events that leave survivors in the field. When enough heterozygotes survive and mate, a Bt-resistant population can increase rapidly.

Bailey said there is no evidence of a problem in Missouri yet, but some producers are concerned because Illinois grain producers are seeing it in some counties. He said less than 10% of the corn fields in Missouri are at risk. Those at risk include fields planted in corn for three or more continuous years, fields where CryBb1 protein has been used, and those where there is relatively high western corn rootworm pressure.

He suggests that corn producers watch for evidence of rootworms in spring fields. They can slow growth of rootworm in fields by using soil insecticides in furrow. Producers who use Cry3Bb1 more than three years should consider an alternate hybrid.

Bruce Hibbard, research entomologist for the USDA Agricultural Research Service and a leading expert on rootworms, has published research documenting resistance to Cry3Bb1 within three generations of selection. He said producers “need options to control rootworms and their options are becoming fewer because of resistance developing in the field.”

Crop rotation provides the best defense against rootworm, he said, but there are pockets of farmland that are not in a rotation sequence. This land would include land generally dedicated to producing corn for livestock and ethanol, and geographic pockets where corn has been the only crop planted. “In some regions, rootworm management options are limited because of resistance to Cry3Bb1,” he said.

This past summer Hibbard began a small-plot study at MU on rootworm and drought pressure using a rainout shelter. He will continue the study one more growing season before publishing. Preliminary results suggest Pioneer’s drought trait in combination with its rootworm trait is highly effective when both drought and rootworm are present.

### Organic Vegetable Meeting

Colton’s Annex, Poplar Bluff, MO

Tuesday, February 26, 2013

8:00 am to 3:00 pm

## Wheat Management - Spring Green-up

January is a good month to begin counting wheat tillers to determine if green up nitrogen application is needed. If wheat tiller numbers are below target, applying a green-up fertilizer application should be considered. Typically green-up is mid-February for southeast Missouri. You have approximately a 30 day window between green-up and jointing for additional tillering. In fields with thin stands a green-up application should be applied. However, with adequate tillering and plant development this should be delayed until pre-jointing, Feekes 5 (mid-March).

In fields with less than 60 tillers per square foot at green-up, apply 30 to 40 pounds of nitrogen to increase tillering and head size. For fields with 60-80 tillers per square foot apply 20 to 30 pounds. Applying nitrogen at green-up in a field with over 90 tillers can lead to a thick lush canopy which may increase the risk of disease, lodging and injury from a late cold snap. The time of greatest nitrogen uptake is between jointing (Feekes 6) and

flowering. Therefore pre-jointing applications would supply this upcoming demand and reduce plant damage from ground applicators. Research shows a yield boost by splitting applications on less nitrogen efficient sandy and clay soils. Tissue tests just before jointing can help determine nitrogen needs at jointing.

Remember that soils with low organic matter (usually sandy) as in southeast Missouri are also prone to low sulfur conditions and sulfur fertilizers should be part of the nutrient program to prevent deficiency. Most low sulfur soils require 10 to 15 pounds per acre of sulfur.

For more information on wheat management during stem elongation contact your local MU Extension office and ask for IPM 1022 "Management of Soft Winter Wheat" or find it on the web at <http://extension.missouri.edu/>.

Anthony Ohmes, Agronomy Specialist, University of Missouri Extension, Charleston, MO.



The Southeast Missouri Food Bank is eager for donations of specialty crops. The food bank will bring a 24 foot box truck to pick up available produce. Edible produce, including seconds, should be in a crate or box.

Contact James Landewee, Operations Director at 573-651-0400 several days ahead of time if possible and specify if a refrigerated truck is needed. He will provide you with a tax receipt for anything you donate to use as a tax right-off.



## New APP Helps to ID Weeds

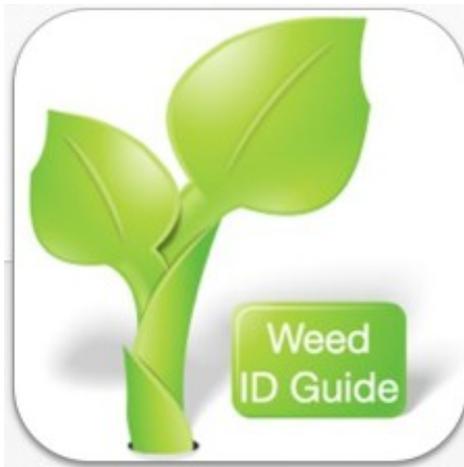
University of Missouri Extension has released a free app compatible with iPhone, iPod Touch and iPad (running iOS 5.1 or later) or devices running Android 2.2 or later, to help people easily identify weeds in the field, lawn or garden.

The app, ID Weeds, has information on more than 400 plant species that could be encountered as weeds in crop fields, pastures, lawns, gardens or aquatic areas in Missouri and surrounding states.

ID Weeds lets users narrow the list of suspects with a series of drop-down boxes for various plant characteristics. Don't worry if you're not familiar with technical terms such as ligules or spatulate.

For most characteristics, users can click to see an illustration.

Clicking on "Identify" will produce a list of weeds that match the characteristics you've chosen. The more characteristics you



specify, the shorter the list will be. Selecting a weed on the list brings up detailed information and one or more photographs.

You can also look up a weed by searching for its common or scientific name, or select from an alphabetical list, from "Alligatorweed" to "Yucca."

Proper identification of weeds is important so that you choose an appropriate and cost-effective method of control.

The app was developed by James Meng, a programmer for MU Extension Technology and Computer Services (ETCS).

*To download:*

[itunes.apple.com/app/id-weeds/id559906313](https://itunes.apple.com/app/id-weeds/id559906313) for iPhone and other iOS devices.

For Android search for "ID Weeds" at [play.google.com/store](https://play.google.com/store).

A web version is available at [weedID.missouri.edu](http://weedID.missouri.edu).

Kevin Bradley, Weed Scientist, University of Missouri Extension, Columbia, MO.

## University of Missouri Extension

We at extension would like to thank you for the opportunity to provide you with research based knowledge in the form of programs, group education and one-on-one discussions that have helped you in your farming enterprises.

Although the 2012 year has provided many climate related challenges, we have met these trials along with you and worked to help you get through them. It has been our pleasure to help by offering the latest information related to agriculture engineering, crops, forestry, forage, horticulture and livestock.

We already have many programs planned for 2013 and look forward to seeing you there. Our offices are open to you and we are ready to continue our service for you. Happy New Year from all of us at the University of Missouri Extension!

## **Crop Management and Soybean Meeting**

**January 24, 2013**

### **Miner Convention Center (New Location) in Miner, Missouri**

**Soybean Response to Maximum Yield Environment** - Ryan J. Van Roekel, University of Arkansas

**Weed Control Strategies for Resistance Weeds / Grain Marketing Outlook & Strategies**

**Soybean Production Update** – Grover Shannon, University of Missouri

**Soybean Insect Update** – Gus Lorenz, University of Arkansas

**Using Fieldwork Days to Make Equipment & Management Decisions** – Ray Massey, University of Missouri

**Soybean Association Update** – JP Dunn, MO Soybean Assoc.

## **Missouri Rice Production Meeting**

**Tuesday, February 19, 2013**

**Registration 7:30 a.m., Program at 8:00 a.m.**

**Eagles Club on Highway 25 in Dexter, MO**

**8:00 am – Rice Field Conservation Program- Brandon Wirsig, MoDoc**

**8:15 am – Irrigation, Pumps & Wells – Joe Henggeler, MU Delta Center**

**8:45 am – Arsenic in Rice Issue – Dr. Michael Aide, SEMOU**

**9:15 am – Rice Varieties – Dr. Donn Beighley, SEMOU**

**10:00 am – Rice Production Issues, Weeds etc. – Dr. Jarrod Hardke, UAR**

**10:40 am – SEMO Aquifers – Scott Kaden, MO Dept. Natural Resources**

**11:20 am – U.S. Rice Markets – David Reinbott, MU Ag Business Specialist**

**11:40 am – Rice Market Outlook –Greg Yielding, MO Rice Producers**

# UNIVERSITY OF MISSOURI Extension

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## Future Meetings & Events -

**Great Plains Growers Conference:** January 10-12, 2013 in St. Joseph, MO. Contact [alpersm@missouri.edu](mailto:alpersm@missouri.edu), (816) 279-1691.

**Ag Expo:** January 18-19, 2013 at the Black River Coliseum in Poplar Bluff, MO.

**2013 Crop Management and Soybean Meeting:** January 24, 2013 at the Miner Convention Center in Miner, MO

**Missouri Cotton Production Conference:** February 6, 2013 at the T.U. Jake Fisher Delta Center in Portageville, MO

**Missouri Rice Meeting:** Tuesday, February 19, 2013 at the Eagles Lodge in Dexter, MO

**Peach and Fruit Meeting:** Tuesday, February 12, 2013 in Dexter, MO

**Commercial Vegetable Production Workshop:** Tuesday, February 26, 2013 at Colton's Annex in Poplar Bluff, MO

Commodities and markets - <http://extension.missouri.edu/seregion/fmmkt.htm>