k-state extension AGRONOMY e-Updates

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1. Prescribed burning of CRP fields

Conservation Reserve Program (CRP) contracts signed since October 1, 2000 may require a maintenance burn during the life of the contract. All CRP participants with contracts effective with signup 26 (October 1, 2003) are required to perform a management practice that can include either prescribed burning, interseeding, or light disking. Participants should check with their local Farm Service Agency office for actual requirements.

If CRP ground is burned, it can be burned anytime between February 1 through April 15. This means that CRP ground can be burned before most tallgrass rangeland burning begins. Burning CRP early is a good way to spread out the burning season in Kansas and help prevent the concentration of smoke in April, when most pasture burning occurs.

Producers who burn CRP ground should follow the same general safety guidelines and go through the same permit procedures as those who conduct prescribed burns on rangeland. For detailed information on this see:

* Prescribed Burning: Planning and Conducting (L664)
http://www.oznet.ksu.edu/library/crpsl2/L664.pdf

* Prescribed Burning Safety (L565)
http://www.oznet.ksu.edu/library/crpsl2/l565.pdf

When burning CRP ground, building good fireguards is essential. Fireguards can either be mowed to a width of 20-30 feet or disked. If the fireguard is disked, producers may have to go over the area more than once to make sure all the residue is below ground.

Producers must make sure they notify the proper authorities in their county before burning, and obtain any necessary permits. They need to be careful not to allow smoke to drift over highways or airports so as to cause visibility problems. And they must make extra sure the fire is out before leaving.

The two most common methods of conducting prescribed burns on CRP ground are a ring fire or a flank fire.

With a ring fire, the entire perimeter of the field, within the fireguard, is lit. Starting on the downwind side, backfires are started. The burned area is gradually widened. Eventually, the entire perimeter is lit and the fire then burns in toward the center from all sides. This results in a single large plume of smoke in the middle of the field. The advantages of a ring fire are that it requires less manpower than other methods, and it is quicker. The disadvantage is that it can trap wildlife in the field with no means of escape except flight.

If producers want to avoid trapping and possibly killing animals in the fire, the flank fire is a good alternative. In this method, a series of parallel strips of fire are lit into the wind, creating a slow-moving series of backfires. Backfires are hotter than headfires at ground level, and provide a more complete burn of mulch. This method also allows plenty of escape routes for any wildlife living in the field. The disadvantages of the flank fire method are that it takes longer to complete, and requires more people to conduct and control the burn. Backfires are also generally less effective at controlling woody plants.

Whatever method is used, one of the most important considerations when conducting a prescribed burn on either CRP or rangeland is to obtain an accurate weather forecast for the proposed day of the burn. There are several good broadcast stations for weather information, or producers can access any of several weather web sites, such as: www.weather.com or www.weather.org

Also, the fire danger index rating can be found at
http://www.crh.noaa.gov/product.php?site=TOP&product=RFD&issuedby=TOP
or http://www.weather.gov/view/validProds.php?prod=RFD

The burn should be conducted when conditions for smoke dispersal are optimum. That means there should be few clouds, with little chance of inversions. Wind conditions should be light and steady (5 to 15 mph), and take the smoke away from highways, airports, or population centers.

A prescribed burn on CRP ground will help reduce the thatch layer that can build up, promote grass tillering, and reduce the potential for wildfire. Burning can also help control cedars, and woody seedlings such as cottonwood or Russian olive. Once established, older trees will generally resprout after a fire.

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2. Herbicide seed treatment on grain sorghum could help reduce hunger in Africa

Striga, a parasitic weed, costs $6 billion in crop damage every year in Africa. The weed has huge impacts on food production and hunger because of the crop losses it causes. Kansas State University is involved in an international effort to eradicate Striga from African fields, and the results look promising.

The flowering weed invades fields of sorghum and certain other crops. Underground, Striga parts connect to sorghum roots and feed on them. This dramatically reduces crop yield and sometimes destroys entire fields. African farmers have tried crop rotations and other simple strategies to control Striga, but nothing has worked.

In 2003, Professor Mitch Tuinstra, formerly at K-State and now at Purdue, and I discovered a gene in wild sorghum that provides resistance to ALS-inhibiting herbicides. We moved this gene into sorghum strains in Africa; that way the fields could be treated with these herbicides without harming the crop. However, spraying is out of the question because access to sprayers and other equipment is very limited.

Instead, we began treating the seeds with an inexpensive, low-toxic herbicide. As the sorghum grows, the seed treatment will kill the Striga. All of these new technologies are being developed in Manhattan, and we are testing the seeds in Africa to select the right herbicide, rate, landrace, seed treatment, and other factors.

The treated seed currently is being tested in Mali and Niger with successful results. It has stirred up excitement because of its implications for reducing hunger in these areas. Testing will soon expand to other countries.

The photos below illustrate how Striga grows on grain sorghum plants, and the effect it can have on sorghum growth and production.

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Figure 1. Striga infestation in a field of grain sorghum.


Figure 2. Striga grows into the roots of grain sorghum, reducing the yield potential of the sorghum considerably.

3. Patch-burn research in Kansas

A six-year research project is underway in Woodson County to determine how viable patch-burn grazing is for raising livestock. Patch-burn grazing is a fairly new concept in rangeland management, but has been occurring naturally for hundreds of years.

In the past, Native Americans purposely started prairie fires, and lightning also did this naturally. Bison and other native herbivores were attracted to the new growth; consequently, these animals moved from grazing area to grazing area -- searching out the most attractive areas of new growth.

Some ranchers are mimicking that grazing pattern by sectioning a large pasture into 3 or more burn areas. Every year, one of those sections is prescribed burned, concentrating the grazing pressure in specific areas of the pasture. The cattle are free-roaming over the entire pasture, but tend to gravitate toward the one-third area of the pasture that has been burned, because that is where the most attractive new growth has occurred. When burning, producers may create burn boundaries (fire guards), but using natural breaks would be more efficient because of labor expenses.

The main purpose of patch-burn grazing is ecology-driven; it has a high potential to increase biodiversity and wildlife habitat. Through our research, we would like to determine how it affects livestock performance, if it will compromise the health of the prairie, and if it can control the highly invasive plant, Sericea lespedeza.

This year will be our third year with the project, completing one full cycle. So far, there has been no noticeable difference in cattle performance in the patch-burn pastures. Forage growth has shifted toward annual grasses and forbs, and there has been a decrease in basal cover. Sericea lespedeza plants have decreased in height because of the grazing pressure. Most importantly for producers, though, is maintaining the long-term health of the pasture; with increased grazing pressures, the pasture may not be able to recover. We have three more years to determine this. Cade Rensink, Coffey County Extension agent and a graduate student in agronomy, has been working on this research.

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4. Updated Index to past issues of Agronomy e-Update

An updated index to all past articles in the Agronomy e-Updates will soon be posted on the web site:
http://www.agronomy.ksu.edu/DesktopDefault.aspx?tabindex=356&tabid=586

Click on the top line on that page, “eUpdates Articles and Contributors Index.”

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These e-Updates are a regular weekly item from K-State Extension Agronomy and Steve Watson, Agronomy e-Update Editor. All of the Research and Extension faculty in Agronomy will be involved as sources from time to time. If you have any questions or suggestions for topics you'd like to have us address in this weekly update, contact Steve Watson, 785-532-7105 swatson@ksu.edu, or Jim Shroyer, Research and Extension Crop Production Specialist and State Extension Agronomy Leader 785-532-0397 jshroyer@ksu.edu