k-state extension AGRONOMY e-Updates

Number 181
March 13, 2009



## 1. Minimizing the risk of corn stand loss or failure

As seed costs go up, it becomes increasingly important that producers do everything they can to ensure a good corn stand. Some of the most important factors for establishing and maintaining a good stand include:

* Seedbed conditions. Don't get in a hurry. Wait until soil temperatures at the 2-inch depth are consistently above 55 degrees F at mid-day, especially if planting early in the recommended time frame. Planting into a wet seedbed can cause sidewall compaction and inhibit root growth into the surrounding soil. Cool, wet soils favor seed rots and seedling diseases. Planting into a dry or cloddy seedbed can result in uneven emergence and may delay emergence long enough for rodents or birds to seriously deplete the potential stand in some situations.

* Seed depth. The general recommendation for seeding depth is 1½ to 2 inches. Seed depth can be adjusted beyond this range to account for soil texture, seedbed conditions, soil moisture, and other factors but should never be less than 1 inch or more than 3½ inches. Planting too shallowly may force the crown to establish at or above the soil surface, potentially resulting in poor anchoring of the secondary root system – the roots that obtain most of the water and nutrients for the growing plant as well as providing physical support for the corn plant. Planting too deeply can slow emergence or reduce stands, especially in cool, wet soils.

* Seed treatments. Virtually all corn seed now comes treated with both a fungicide and a broad-spectrum insecticide such as Cruiser or Poncho. Protection from the systemic insecticide will last 21 to 28 days from planting – not emergence. Cool conditions that delay emergence will not extend the duration of insect protection. Higher rates of seed-applied insecticide are more likely to last the full 28 days, but typically will not extend beyond that.

* Planter maintenance and planting speed. Make sure your planter is properly maintained and adjusted and that you don't get in a hurry in the field. It is important that corn seed be planted at the proper depth, with good seed-soil contact, and with good closure of the seed furrow. This is

particularly important in no-till situations with greater amounts of residue and a firmer seedbed. The goal is to have uniform spacing and plant emergence so each plant has equal access to light, water, and nutrients. Both variable plant spacing and late emerging plants have been documented to reduce yield in some cases, but the greater problem with poor planter adjustment or going too fast is the possibility of reducing final stands.

* Starter fertilizer. Avoid placing starter fertilizer in direct contact with the seed if possible. If you are placing starter fertilizer with the seed, be sure to use less than 10 lbs per acre of N and K combined. On the other hand, starter fertilizer applied in a band to the side of the seed or dribbled on the soil surface at planting time likely will help early corn growth, especially when planting early and/or in no-till.

* Field scouting. Once the corn emerges and a stand is established, producers should be sure to scout fields closely for any early-season insect problems. Seedling corn can come back from a rapid defoliation that occurs early, but repeated defoliations or a persistent insect infestation (such as flea beetles) can eventually weaken or destroy a stand.

* Weed control. Preplant or planting-time herbicides should provide adequate control during the critical stand-establishment phase. However, scouting is important here as well to maintain the stand and to protect potential yield. Keep an eye on your fields to make sure that rainfall was adequate to incorporate and activate the herbicide, and that it is performing as expected. Don't wait too long with follow-up treatments if necessary.

* Watch the weather forecasts near planting time. On some soils, one of the most common causes of stand failure is soil crusting caused by pounding rains soon after planting. This also is related to planting into a good seedbed and proper planter adjustment. Challenging conditions after planting will magnify errors made in those areas.

* Problems resulting from a late spring freeze. One potential problem that producers in Kansas face nearly every year is a hard freeze after the corn has emerged. A hard freeze often burns back the foliage on seedlings or young plants, sometimes to the ground. But as long as the corn is not yet at the V6 (or six-leaf collar) stage, a spring freeze rarely causes death of the entire plant. From the time of emergence through the V5 stage (the first two to three weeks after emergence), the growing point of corn is below the soil surface, and protected from freeze injury. It is possible, at the V3-V5 stages of growth for a freeze to cause some corn development problems as new leaves try to push through dead leaf tissue, but stand and yield losses typically are minimal at this stage. The Easter freeze of 2007 was an exception because temperatures were in the teens for several hours and for more than one night. With that event, freezing temperatures penetrated more than an inch below the soil surface and killed much of the early-planted corn that year. Of course, a hard freeze at the V6 or later stages could severely injure a stand and make re-planting necessary. Avoiding the extremes of the recommended planting window for your area and paying attention to the extended weather forecast should minimize the risk of stand loss from late freezes.

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2. Kansas Banker Awards newest categories: Examples of winning practices

The Kansas Bankers Association Soil and Water Conservation Awards are not just for soil conservation improvements and windbreaks anymore. There are now five categories. Three of the categories are only in their second year: Energy Conservation, Water Conservation, and Water Quality. These new categories accounted for only a handful of the 222 awards presented in 2009.

Since these three categories are not as well known as the "Soil Conservation" and "Windbreak" categories, it is interesting to see the kinds of activities were included in these categories for 2009. The following are a few brief examples, compiled from Extension agent and local NRCS reports:

**Energy Conservation**

* *Cloud County: Koester Farms*. Koester Farms won for replacing commercial fertilizer with animal manure, saving the energy that would have been used to manufacture the commercial fertilizer. Roger and Tricia Koester have been raising swine for decades, and in the 1970's they installed their first pits for manure storage. In 1997, their swine operation moved into 100% confinement production with their swine pit system continuing. In the winter, the Koesters inject manure based on weather conditions to prevent applying manure on frozen soils. Manure application has saved fertilizer costs for the Koesters over the years. Roger Koester says that they have likely saved $60 to $80 per acre in 2008 due to manure usage on their farm acres.

* *Jefferson County: Miller Bros. Farms*. The Miller brothers won for installing a heated water system in the concrete floor of their new farm shop. They installed 5/8-inch pipe, spaced a foot apart, underneath the shop's concrete floor. Through this system, heated water is run to keep the floor a constant temperature as regulated by three thermostats. Used oil, approximately half from their own use and the remainder from others, is burned to heat the water that runs through the floor. Not only is a heat source created, but a waste product is consumed at the same time. The heat is efficient. The unit only burns about 0.8 gallons of oil per hour, even on the coldest days. On an average winter day, it burns about 0.5 gallons of oil per hour. The shop is almost 10,000 square feet, with a 24-foot ceiling. Heating the new shop the old way, with a wood stove and forced air, would have been difficult, at best.

**Water Conservation**

* *Jefferson County: Riverside Farms*. Todd and Debi Meier won for installing a center pivot irrigation system to replace their flood irrigation system. This cut their irrigation water consumption in half. Drop nozzles on the center pivot also aid in water conservation, putting the water closer to the soil surface and resulting in less evaporation prior to reaching the soil surface. Their system puts water where it is needed using a computerized system. It can do the same with nitrogen, delivering nitrogen more efficiently and with less leaching potential.

* *Gray County: Curtis J. and Carol J. Koehn.* The Koehns converted a flood irrigation system to drip irrigation on 160 acres. The drip irrigation system will save a considerable amount of water.

## Water Quality

* *Clay County: Longford Mill Products.* The Longford Mill land is owned by Richard and Don Scripter, and farmed by four different operators. The land borders the Republican River. Since 1994, the land had lost about 10 acres to a slow but steady bank erosion. The soil sediments from this erosion likely ended up in Milford Reservoir. Now, erosion on the cropland is controlled by no-till farming practices and terraces where needed. But the primary line of defense against soil erosion lies along a bend in the Republican River, where 18 rock weirs and 5,000 trees and shrubs protect more than half a mile of the river bank. The weirs are low rock walls that extend up to 100 feet into the river channel. The weirs deflect the river currents away from the bank, giving the eroding areas a chance to heal and become covered with vegetation. Now, instead of the river trucking away tons of soil every day, the weirs create a place where the river dumps part of its load of sediment, gradually rebuilding the banks that were cut away. More than 3,800 feet of river bank have been treated. The project has gained the distinction of being the longest such undertaking in Kansas to date. About 2,734 tons of limestone rock were used in the project.

**Land owned by Longford Mill near Morganville in Clay County. Richard and Don Scripter have installed 18 rock weirs and 5,000 trees and shrubs to protect more than half a mile of the Republican River bank. These measures have helped keep sediments from eroding into the river and moving into Milford Reservoir. For their efforts, the Scripters were awarded a 2009 Kansas Bankers Soil and Water Conservation Award for Water Quality.**

**Rock weirs were constructed by the Scripters to protect from erosion a vulnerable curve on the bank of the Republican River near Morganville.**

* *Gray County: Royal Dairy*. Flush water from the dairy and is run through a pit system, where the solids and salts settle out. The treated water is then used in the irrigation system.

* *Jefferson County: Joe Dix Farms*. Joe Dix uses no-till farming practices, terraces, and subsurface nitrogen placement to reduce sedimentation and nutrient runoff. He uses profile nitrogen soil tests to monitor rates, and dual placement of nitrogen and phosphorus below the surface of the soil to reduce nutrient runoff and improve crop use efficiency. His tillage reduction practices have helped keep sediments from getting into the waterways that serve as a drainage basin.

* *Kingman County: Bar L Cattle Company*. David Lampe runs a cow/calf operation of about 300 head, and usually backgrounds 500 head of steers and heifers. He also has a diverse crop rotation of wheat, soybeans, corn, grain sorghum, forage sorghum, and alfalfa. In 2004 Lampe began working with Kansas Department of Health and Environment, the Natural Resources Conservation Service, and the Kingman County Conservation District to improve the existing livestock facilities that were in place at that time. The existing facilities did not control all of the runoff that left the site. By relocating the pens to a new location and regrading the site, the runoff water was directed to a buffer to filter the nutrients from the runoff water before entering a near by stream. Lampe also converted less productive cropland back to native grasses and bromegrass. These plantings have helped control soil erosion while limiting input costs on these areas. They also provide additional forage sources. Lampe also started a grazing rotation on his native grass pastures. Through the use of rotational grazing the overall health of his pastures has increased and erosion has been reduced.

* *Logan County: Brian and Tracie Ottley*. The Ottley unit consists of over 2,000 acres of grassland in southeastern Logan County. Inadequate livestock water supply prevented controlled grazing on much of the rangeland in this unit. Some areas were over-used, and some barely used at all. In 2004, the Ottley family ran over 7,800 ft of pipeline and installed two 15-foot fiberglass tanks. By doing this, they were able to split the pasture into three grazing areas. Brian began a 1-herd, 3-pasture rotation on this land to improve the grazing distribution, and give his grass a rest during the growing season. This has reduced erosion on the grazing land and improved forage quality. The Environmental Quality Incentives Program contract on the unit expired in September of 2008 and according to the comparison of range clippings from 2004 to 2008, the unit is now producing up to 1,250 lbs more grass/acre than when the contract began in 2004.

* *Pratt County: Robert, Al Joe, Gary, and Tom Sterneker*. Robert and Al Joe are the owners and Gary and Tom are the operators of a section of rangeland in eastern Pratt County. The Sternekers were having problems with proper grazing distribution on this land due to a lack of water. The only water available was in the center of the section, which was not allowing the cattle to graze the entire acreage properly. The native grass near the existing water was being overgrazed and the other parts of the pasture were not being grazed. They utilized the Environmental Quality Incentives Program to help with cost-share on installing a water well, pipelines, and tanks. The well has a pipeline that feeds two tanks for the N1/2 section and a pipeline that feeds two tanks for the S1/2 section. These 15-foot diameter fiberglass tanks were installed near the center of each quarter and all have floats installed. The tank at the end of each pipeline also has an overflow. The Sternekers worked with the Natural Resources Conservation Service to develop a grazing plan to properly stock the pastures and implemented rotational grazing to begin restoring the overgrazed parts of the pastures, and also to start utilizing the areas that had not been grazed. They have completed their fourth year of rotational grazing and are implementing an even more intensive rotational grazing system by providing more paddocks. The reduction in soil erosion has reduced sediment loss and improved water quality.

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