



## Farm Views

# Predicting the last irrigation for corn, milo and soybeans

One of the important decisions irrigators must make this time of year is when to shut down the irrigation system for the season. Ideally, you will want to stop irrigating far enough ahead of maturity so the crop will extract as much moisture from the soil as possible, without hurting yield. This makes maximum use of the moisture present in the root zone, minimizes the amount of water pumped and gives you the driest possible soil at harvest time, which minimizes soil compaction and harvest problems.

Research has shown that a **medium season corn** at the beginning dent stage of growth, will take approximately four weeks time and will require an additional 5.3 inches of water to reach physiological maturity (black layer). At the full dent stage, it will take about two weeks to reach maturity and will require 2.5 inches of water.

**Grain Sorghum** requires about 5 inches of water to reach maturity from the soft dough stage, and 2 inches of water from the hard dough stage of growth.

**Soybeans** require about 6.5 inches from the beginning seed fill stage (the presence, when squeezed with the fingers, of bean seeds in pods at one of the four uppermost nodes on the main stem with a fully developed leaf.) At the full seed fill stage (a pod with full-size green beans at one of the four uppermost nodes on the main stem with a fully developed leaf), it takes 3.5 inches to reach maturity.

The actual time required for any of these crops to reach maturity, will vary with the variety in question and the weather. For a given variety, the total moisture required will remain about the same as predicted regardless of the weather. It is, after all, the accumulation of growing degree days that determines the stage of maturity and crop water use is largely dependent on temperature, as well.

An alternative way to look at this would be to figure out on what day a full profile would carry the crop through to maturity. The silty clay to silty



clay loam soils in southeast Nebraska hold about 1.6 to 1.8 inches of available water per foot of soil, respectively. If we assume we have a 4 foot root zone, we have about 7 inches total available water holding capacity in the root zone.

Research has shown that 60 percent of the available moisture in the root zone can be depleted at crop maturity without reducing grain yield. We, therefore, can utilize about 4.2 inches of the available moisture without hurting yield.

Having discussed the above, we can now predict the day when a full profile on a silty clay soil would carry the various crops through to maturity. For a medium season corn, the target date would be when about half of the corn kernels have dented. For grain sorghum, it would occur about one week after the soft dough stage. For soybeans, it would be at or just before the full seed fill stage.

If you use these guidelines, be certain your soil is at field capacity in the top four feet on the target date. If not, you will need to continue to irrigate until you have applied enough water to have filled the profile. For example, if the soil would have held another 1.5 inches on the target date, it will take a total of 1.5 inches of rainfall plus irrigation, in addition to the available soil moisture to finish out the crop.

Predicting the date of the last irrigation is an important water management decision. You can minimize expense and leave your soil in good shape for harvest without harming yields by following these simple guidelines. To learn more about predicting the last irrigation, ask for NebGuide G82-602. This can be accessed by going to the Lancaster County Extension Nebraska Production Ag Crops web site at <http://www.ianr.unl.edu/ianr/lanco/ag/crops/> and then choosing "irrigation" or you can call us at (402) 441-7180. (TD)

# Wheat growing information on the web

Wheat growers have access to a wealth of research-based information about growing wheat and other crops via the Nebraska production ag web site provided by Lancaster County Extension. Internet users may start with the ag/acreage front page at: <http://www.lanco.unl.edu/ag/>.

From the ag/acreage page, one can then enter the **Nebraska production ag** web site. At the welcome screen, a button bar appears with several choices.

Clicking on the **crops** icon brings up the crop production page. At this point, one may select from several topic areas of interest. Clicking on **small grains** accesses extension publications on the culture of wheat and other small grains and variety test information that has been conducted by university researchers. Clicking on the **soils** page accesses extension information on fertility and soil conservation. Clicking on the **weeds** page accesses information on

cultural practices to minimize weed problems, proper timing of weed control measures and herbicide recommendations. One may also select **insects** or **diseases** to access information on these important topics as well. This site not only contains publications and information from Nebraska, but also information from the neighboring states of Iowa, Kansas and Colorado. (TD)

# Calibrating a handheld sprayer

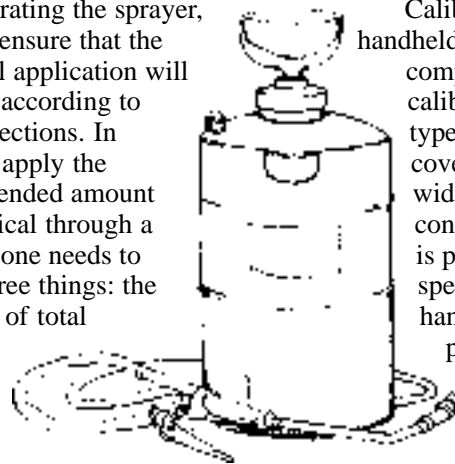
Pesticides must be applied according to label directions. The pesticide label always states a recommended dosage of chemical to apply to a given site for the control of a specific pest. By calibrating the sprayer, one can ensure that the chemical application will be done according to label directions. In order to apply the recommended amount of chemical through a sprayer, one needs to know three things: the quantity of total spray output that is

being applied per unit of area, the formulation of the product and the recommended amount of product or active ingredient (a.i.) to apply per unit area (acres, 1000 square feet).

Calibration of a handheld sprayer is more complicated than calibrating a boom-type sprayer that covers a given swath width, operates at a constant pressure and is pulled at a constant speed. With a handheld sprayer, the product sprayed per acre depends on the spray pattern

created by the operator, the pressure in the spray tank, the spray nozzle used (or nozzle setting on adjustable nozzles) and the area covered per minute as the operator moves along.

A new Lancaster County Extension Fact Sheet has been written to explain how to calibrate a handheld sprayer. Ask at the Lancaster County Extension Office for Fact Sheet # 026-99. This may also be accessed from the Lancaster County Extension Nebraska Production Ag web site at <http://www.ianr.unl.edu/ianr/lanco/ag/crops/hand-hld.htm>. (TD)



# Seed alfalfa in August

The best time for fall seeding alfalfa in eastern Nebraska is during the month of August, provided adequate soil moisture is available. At this time, soil moisture does look very favorable and many producers prefer to seed in the fall rather than spring because weed problems are usually not as great in the fall.

A fall seeding avoids the spring weed problems of foxtail, pigweed and other summer annuals that can destroy a new crop. In Lancaster County we do have to consider the weeds that will cause a problem for a fall seeding if they have a history in that field. The cardinal rule has always been that you should not seed alfalfa into a wheat problem! Pennycress and downy brome have become very competitive over the years to fall seeded crop such as alfalfa and wheat. Therefore, if either of these two weeds are a problem in that field, don't seed there.

Farmers sometimes wait until middle or late September to plant alfalfa. This is most often too late because the plants do not have a chance to become established before the first killing frost. The latest alfalfa should be seeded in the fall is September 10 in Lancaster County. If it cannot be completed by that time, it is best to wait for another season.

Each year, many failures to establish alfalfa have been reported to this office. Our investigations have revealed that the most probable cause is the seed bed is too loose. It doesn't matter if it's a spring or a fall seeding, those who try to plant into loose soil are doomed for failure. Complete tillage is okay if the soil is firmed up by either moisture or packer-seeders; but, no-till planters have also been very successful. In fact, no-till seeding of alfalfa has become the trend among successful alfalfa producers.

Before seeding alfalfa, regardless of spring or fall, do a complete soil test, apply lime if needed and be sure to inoculate the seed. Call the Lancaster County Extension for NebGuide 652, Seeding and Renovating Alfalfa, for complete information. (WLS)

# Fall preparation to sodseed pastures

Hay meadows and pastures provide higher quality feed and are more productive if they have high yielding, high quality legumes growing in them. Legumes, like alfalfa, birdsfoot trefoil and red clover can be added to many hay meadows and pastures to make them more valuable.

But, adding legumes to these grass sods can be tricky. Tricky, that is, unless you begin to prepare your sod for this addition now, during the fall, before the spring sodseeding.

Fall is the time to collect soil samples to determine and apply any needed fertilizer. It also is the time to control many problem weeds like musk thistle, field bindweed and curly dock. Fall also is a good time to weaken the existing grass sod. Weakening this grass sod is kind of fun because this is one of the few times it is actually recommended to overgraze pastures.

One of the biggest challenges to establishing new legume seedlings into a grass on these new, slow growing seedlings is anything you can do to reduce that competition and to slow down grass growth, will help the legume seedlings. Overgrazing during the fall prior to spring sodseeding, will weaken the grasses and their spring growth, thus giving new legume seedlings a better chance to get started.

So, if you plan to add some legumes to your pasture or hay meadow, graze your grass this fall until virtually nothing is left. Then, keep grazing a couple weeks more just to make sure the grass is really hurt. The legumes you add next spring will establish better because of it. (WS)

### A REMINDER FOR INTERNET USERS:

Lancaster County Extension Office has a new, shorter home page address: [www.lanco.unl.edu](http://www.lanco.unl.edu)

#### Some shortcuts:

[www.lanco.unl.edu/food](http://www.lanco.unl.edu/food)

[www.lanco.unl.edu/ag](http://www.lanco.unl.edu/ag)

[www.lanco.unl.edu/enviro](http://www.lanco.unl.edu/enviro)

[www.lanco.unl.edu/neblines](http://www.lanco.unl.edu/neblines)

[www.lanco.unl.edu/hort](http://www.lanco.unl.edu/hort)

[www.lanco.unl.edu/family](http://www.lanco.unl.edu/family)

[www.lanco.unl.edu/4h](http://www.lanco.unl.edu/4h)

[www.lanco.unl.edu/contact](http://www.lanco.unl.edu/contact)