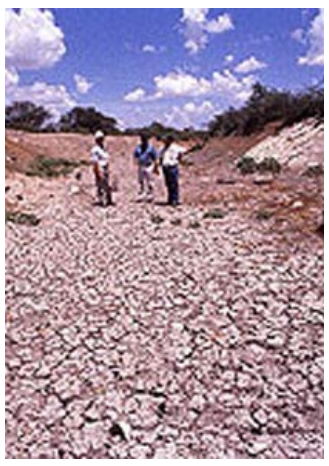
Farm Views

Could We Still Have a Y2K Disaster?

As we all know, January 1, 2000 dawned on an anxious, but normally functioning world. Lights and telephones worked, stores and banks conducted business as usual and people went on with their lives. The Y2K bug turned out to be, perhaps, the biggest non-event in history, due to hard work and well over $100 billion spent in the U.S. alone to fix the Y2K bug before it had a chance to bite us. Could we still have a disaster in 2000? In the non-irrigated grain producing areas of the U.S., a disaster is a very definite possibility, not from new-fangled computers, but from an old-fashioned drought.



The Drought Mitigation Center at the University of Nebraska produces maps, updated weekly, showing the severity of the drought in the U.S. To view the latest map, point your web browser to the Lancaster County Ag/Acreage page at www.lanco.unl.edu/ag/ and look for Drought Severity Map under the "Other University of Nebraska Web Sites" heading. This information can also be accessed from the weather page of the Nebraska Production Agriculture web site at http://www.ianr.unl.edu/ianr/lanco/ag/weather/weather.html.

As this article is being written, essentially all of the grain producing area between the Rockies and Appalachian Mountains is experiencing abnormally dry to first-stage drought conditions with second-stage (severe) drought indicated though large areas of Texas, Louisiana and Mississippi; most of the eastern 2/3 of Nebraska, western Iowa and into southwestern Minnesota. Smaller pockets of severe drought also occur in Indiana and Georgia.

Precipitation in the final six-month period of July to December 1999 was only 8.25 inches at Lincoln. This is six inches below normal for the six month period (58 percent of normal precipitation). The combination of spring planting delays which resulted in late maturing crops and the dry period beginning in July, has left soil reserves at extremely low levels. Our soils in eastern Nebraska currently hold only one to two inches of moisture compared to a normal six inches or so at this time of year. Most of the moisture is in the top 18 inches of the profile (much of which would be lost if the soil were tilled).

A corn crop requires about 25 inches of total soil moisture for normal growth. Most years, we rely on moisture stored in the soil profile to supply around six inches of this total with the remaining 19 inches or so coming from precipitation. Assuming none of the current soil moisture is lost as a result of tillage operations, at present we would need to receive an additional 23-24 inches of effective precipitation between now and harvest to produce a normal crop. Average rainfall effectiveness is about 70 percent in eastern Nebraska (for each inch of rain, about 0.7 inch of moisture is stored in the root zone).

Climatologists have developed computer models to predict precipitation patterns months into the future. The models are based on many factors, including the effect that the El Nino/La Nina phenomenon has on our climate. Based on these models, there is only about a 10–15 percent probability that we will receive the required precipitation between February and the end of the growing season to produce a normal crop. If one wants better odds, there is a 50–50 chance we will receive a total of 17 inches or more of effective precipitation during that period. Considering the dry soil profile, if we would receive 17 inches of effective precipitation, we could be short six to seven inches of the total moisture needed for a normal corn crop. Read *Farming in a Drought* in this issue of the NEBLINE for ideas on what farmers can do to deal with this situation. (TD)

A REMINDER FOR INTERNET USERS:

Lancaster County Extension Office has a new, shorter home page address: www.lanco.unl.edu

Some shortcuts:

www.lanco.unl.edu/food	**www.lanco.unl.edu/hort**
www.lanco.unl.edu/ag	**www.lanco.unl.edu/family**
www.lanco.unl.edu/enviro	**www.lanco.unl.edu/4h**
www.lanco.unl.edu/nebline	**www.lanco.unl.edu/contact**

Farming in a Drought

With much of Nebraska already in a severe drought situation this spring, is there anything farmers can do to prepare? Unfortunately, we can't make it rain. However, we can change farming practices and we can select crops that reduce water demand.

Under normal conditions, about one inch of soil moisture is lost with each tillage pass (requiring 1.4 inches of 70 percent effective rainfall to replenish). In marginal years, conserving soil moisture with no-till farming has proven to be the difference between a crop failure and harvesting a crop in some cases.

Selection of which crop to grow can be the most important decision of the year. Corn will continue to grow physiologically until all available moisture is gone and then tissue death occurs. Once corn has "fired," it does not recover. During the 10 days following silking, corn is twice as sensitive to stress than before or after. Under drought stress, corn may produce tassels, but silking may be delayed enough that most or all of the pollen is gone by the time silks emerge, if they emerge at all.

Changing from corn to grain sorghum could be a wise decision in 2000. Milo uses less total water than corn (20 inches vs. 25 inches) and has some ability to go dormant during a dry spell and then recover and produce grain if rain is received in time. Soybeans also use less total water than corn (22 inches vs. 25 inches) and are generally considered to be a poor dry-weather crop, but they can stand more drought stress than corn. Somewhat like sorghum, soybeans will stop growth when under moisture stress. After drought stress, if rains are adequate in August and the season is long enough, soybeans can produce a good seed crop.

Water demand can be affected by plant population but not as much as might be expected. Evapo-transpiration (ET) is the sum of evaporation from the soil surface and transpiration through the plant. Before the crop reaches full canopy cover, the soil is exposed and surface moisture evaporates readily. If the soil surface is protected by crop canopy or plant residue, the evaporation component is reduced.

Under full canopy conditions, ET reaches a peak value at a leaf area index (LAI) threshold of 2.7. If the plant population is adequate to produce an index above the 2.7 LAI threshold, little difference in ET can be measured. Therefore, to affect crop water use significantly, populations need to be low enough to keep the LAI below the threshold for most or all of the growing season. (Minor differences in total seasonal water use do occur because higher plant populations reach the threshold sooner in the growing season and remain above the threshold a bit longer at the end of the growing season than lower populations.) To get significant savings in total water use, populations of modern, upright leaf corn varieties would need to be under 16,000 to 17,000 plants per acre for medium and short season varieties, respectively (assuming two ton per acre of corn stubble residue). No advantage has been shown for reducing grain sorghum populations under 60,000 or soybean populations under 150,000 plants per acre. (TD)

Stockmen Prepare for Drought

Adapted from information provided by Extension Forage Specialist, Bruce Anderson.

Are you ready for this summer's drought? It may seem too early to talk of drought before spring rains begin, but who knows what summer will bring.

Have you ever heard anyone announce, "Look out for the drought?" Probably not. Droughts are sneaky. The weather service doesn't issue drought alerts like they give blizzard, tornado and flash flood warnings. So, by the time most of us realize a drought has begun, it's too late to make the best adjustments needed to avoid serious losses.

But this year is different. We already know how little moisture is in the soil and the low probability of getting average pasture and dryland hay production. So, what will you do if it stays dry this summer? What if your pastures dry out? Are you prepared to wean early, to cull heavy, to remove yearlings from pasture or to save fewer heifers? These livestock practices will save forage for your base herd, especially if you do it early enough.

Do you have alternative grazing areas? Like adjacent corn fields or hay meadows that might help stretch summer pastures. Or maybe use some extra hay from last year's abundant supply. And how about your grazing management? The sooner you group livestock into a few small paddocks, the better. Grazing will be more uniform and complete with high stock density. Maybe you should even plan to feed your extra hay periodically in drylot as part of your rotation to allow rested pastures to accumulate more growth before grazing them again. This can help increase the total number of grazing days from your pastures.

Listen. Are you hearing any warning signs of drought? If you're ready, it's nothing to fear. (TD)

Tanks vs. Ponds and Creeks for Livestock Water

Could watering cattle from tanks be better than using ponds or creeks? Both amount and quality of water should be considered. The current drought is drying up many ponds and creeks. If you rely on them for cattle water during summer, alternatives might be needed this year. If you decide to change your water supply situation, consider identifying ways to put all water into tanks rather than allow cattle to wade into it.

Tank water is better for cattle and they prefer it to ponds or creeks. It usually is cooler and offers easier access. Plus, when cows walk into ponds and creeks, they stir mud and sediments into the water and often deposit urine and manure. No wonder calves consistently choose tank water over ponds when given a choice!

Investing in a tank will pay for itself. Reports from Montana, Oregon, Canada and elsewhere show that the higher water quality found in tanks provides a boost in cattle gains. Calves often weigh an extra 50 pounds at weaning when tank water is available instead of ponds and yearling steers can gain an extra three to four tenths of a pound per day. With this much added performance, water tanks, pipes and pumps can be paid off in just a few years.

In addition, pumping water into tanks usually improves grazing distribution by attracting cattle to graze areas near the tanks instead of spending time in

the ponds or creek. This can increase your pasture's carrying capacity or grazing season.

Think of it, better grazing, higher gains and reliable water. So much to gain and so little to lose.

Source: Bruce Anderson, Extension Forage Specialist. Bruce credits the February 2000 issue of 'Beef' magazine. (TD)