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A bad year can have its silver linings. This year the yield-limiting impacts of irrigation problems will be clearly visible in some fields. The silver lining? You can take this opportunity to assess your system, identify any problems, and fix them while they're still fresh in your mind.

Most Nebraska farmers would say that the 2012 growing season has been the hottest and driest they have ever experienced. In a year like this, with irrigation systems being stressed statewide, you can't help but marvel at the impact of irrigation on the state's crop production.

It also takes a year like this to more fully see how some water distribution systems are growing older or underperforming. Little problems that affect water application uniformity can reduce yield. In a "normal" year these likely wouldn't be visible. This year, however, the impact is visible and the yield reduction is likely to be more evident.

All you have to do is fly over center pivot-irrigated fields to get a birds-eye view of where water application uniformity could be improved. Such problems can be caused by a number of things:

- Sprinklers can blow out of their hole, creating a geyser on the pivot pipeline.
- Sprinklers can wear out and stop rotating or rotate out of control.
- Pumping water level declines so that the system flow rate and pressure no longer match the original design.
- Boots, gaskets and other seals begin to leak.
- Sprinkler spacing is too wide, leaving gaps of unwatered crop.

Each of these sprinkler issues can result in extra water being applied is some areas and insufficient water being applied in others. In a year like 2012 neither outcome is desirable. In one study, this inconsistency amounted to a yield decrease of 20-40 bu/ac for the affected field areas.

To determine the yield impact of such problems in your fields, try this field survey method:

1. Identify the position of the problem sprinkler or gasket from the pivot point.
2. Go to the area of the field where the center pivot is perpendicular to the crop row direction. Go to the point that would be the same distance from the pivot point identified in Step 1.
3. Hand harvest and weigh the grain produced in 20 feet of each row for four to six rows on either side of the problem. Similar response should be expected for the other issues listed.

Most of the problems I listed here are easy and relatively inexpensive to fix. However, depending on the location of the problem along the pivot pipeline, the economic impact of a single sprinkler or gasket problem can be significant in the amount of yield reduction it causes.

Assessing your irrigation water delivery system now–when the system is working its hardest–can help you see exactly where the problem is on the pipeline as well as the effect it's having on your crop.

Also remember that problems like those you identify in 2012 likely have been having a subtle impact on grain or forage yield for a number of years. This means that even though the yield impact is more significant in 2012, a small yield loss likely occurs even when rainfall is more normal.

Don't let a poorly maintained system eat into your bottom line. Capitalize on the long irrigation season to assess the water delivery from your pivot, record the problem, and, if possible now, fix the problems and test the solutions. You also may want to do as we did and take yield samples from affected and unaffected areas. It can be an eye-opener.