Zones pay off

By **LON TONNESON**

PAUL and Diane Overby, of Wolford, N.D., began creating nutrient management zones in their wheat and oilseed fields in the fall of 2005. They quickly discovered that they could apply less nitrogen to marginal production areas.

"We're putting on less fertilizer and getting the same yield now," Paul says.

As fertilizer and seed prices rose, they also learned that they shouldn't even be trying to grow crops in some areas.

"Now we're trying to figure out the best alternative use for them," Paul says.

The couple is still testing the concept of applying more or less fertilizer to the best zones.

"There is still some work that needs to be done in understanding the role of organic matter mineralization and N availability," Paul says. "Often, high-yielding areas are in high organic matter. It seems that the N applied in those zones, at least in my fields, should maybe be lower than what the soil tests would indicate is needed for the yield goal."

Immediate rewards

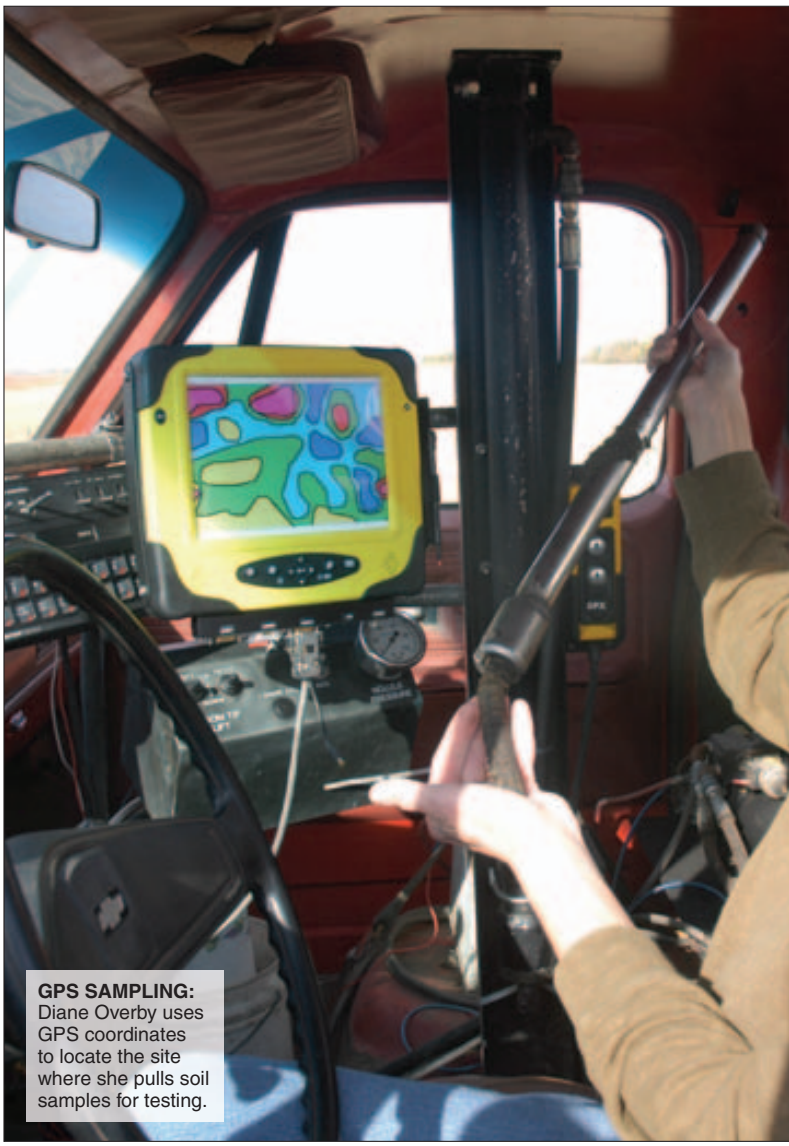
It took a real commitment of time and resources to make intensive zone management work, but the Overbys say it's been worth it.

"The economic rewards are immediate," Paul says.

They also like the fact that they are doing their part to protect the environment by reducing unnecessary N use and finding the best use for marginal land.

The Overbys say they might be able to capture more savings and increase profit from zone management in the future. When they trade in their air seeder, they hope they can buy one with equipment that will allow them to vary phosphorus and seed rates by zone, too.

"That's next," Paul says.



GPS SAMPLING: Diane Overby uses GPS coordinates to locate the site where she pulls soil samples for testing.

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7 lessons about using zone management

Editor's note: The following article is excerpted from the Manitoba-North Dakota Zero Tillage Farmers Association 2008 proceedings.

By **PAUL OVERBY**

SOME of the lessons that I have learned about adopting zone management include:

1. Even if a piece of land is now farmed as a single unit, if it has a history of being managed as multiple fields, zones need to be based, at least initially, on those smaller field boundaries. The system that was developed in the soil on those smaller fields does not disappear easily.

2. The initial payback can happen quickly as areas of the field with chronically low yields, but a consistently overapplied rate of nitrogen, are identified.

3. In my fields, I have identified several areas where the low yields are caused by salinity. In that case, adding more fertilizer can make the problem worse instead of better. Reducing N application is not affecting yield, since it yields so poorly anyway. Saline soils are often hundreds of yards bigger than the "saline spot" that is seen.

4. While more zones mean more management and more soil testing costs, having three zones is a minimum and sometimes five zones is preferred. An analysis of the cost-effectiveness based on the zone size, the expected change in N rates and the cost of soil testing is dependent on each field's soils, cropping and soil-testing history.

5. A well-developed field management zone map will have a pretty good correlation to the next year's satellite image of the crop growing in that zone. Plus, it usually will have a pretty good correlation to a yield map of that crop. However, in 2007 I experienced some very bad disease issues in my wheat, and my yield monitor went down, instead of up, in my "high-yielding zones"! The stand was very heavy, and a satellite image reveals good vegetative growth. But the yield wasn't there. That is one of the challenges of using a yield monitor map for zones.

6. To use yield monitor maps for building zones, proper operation of the combine, proper setup of the monitor and a working monitor are necessary! Some of my fields' yield maps have been of questionable quality or non-existent due to operator error and yield monitor problems. In this case, the yield data is forever lost. If I depended solely on a yield monitor, I would have to wait another year to gather data for that field.

7. I believe my preference for multiple years of data has proven to be correct. In some fields, due to shortness of time, I only used a single year's satellite image for a zone map. I found inconsistent soil test variability in those zones compared to multiyear zoned fields. For example, in multiyear zoned fields with "good" management zones, the soil tests often provide a strong clue as to the reasons for yield variation, such as a direct correlation between pH levels and yield levels. Sometimes it is the organic matter.