

**By Lori Potter**

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□ □ □ *Editor's note: This is the second of two stories that appeared in the Kearney Hub looking at the value of water.* □ □ □

HOLDREGE—It wasn't Nebraska's somewhat warmer winter weather that made a move from North Dakota to Omaha appealing to Steven Shultz, director of the University of Nebraska at Omaha's Real Estate Research Center.

And the fact that UNO has an NCAA Division I hockey team was just a bonus.

The biggest factor was Nebraska's full disclosure of ag land sales data. Shultz told participants at the Holdrege Water Conference in early February that in North Dakota, only county assessors have access to sale details.

Nebraska assessors must send detailed reports, including land prices and equipment sales, to a database for all sales that aren't family to family. That data is used by UNO researchers to create Geographic Information Systems computer models that can sort and compare many variables.

One project involves mapping Republican Basin ag land sales and analyzing the value of water. Shultz said a goal is to identify the premium payments required to get landowners to retire parcels from irrigation.

"The issue of getting the payments, the fair market price, right is important," he said. The research can be used as a guide to the most cost-effective way to retire irrigated acres.

The UNO work is funded by the U.S. Geological Survey through the UNL Water Center and the U.S. Department of Agriculture's National Research Initiative Water and Watersheds Program.

First, land sales are digitized on aerial maps, with the irrigation system and other site conditions identified. Hedonic price modeling, which was used to predict parcel-level land and irrigation values, says price is a function of land use, production and location.

GIS models allow researchers to look at parcel variables that include soil productivity, slope, aquifer thickness, size, cropping patterns, distance to town and grain elevators, well pumping capacity and, most importantly, the percentage of crops under irrigation.

"Once it's in the computer and the GIS, we can tell exactly ... what's going on," Shultz said.

UNO researchers looked at 1,300 ag land sales in the Republican Basin from 2000 to 2007. In contrast, assessors usually look at three nearby, similar land sales when setting property values for taxing purposes.

The many variables make the research challenging. Shultz said it's not like buying a truck and having to choose from one or two options that make one truck different from similar models.

"You don't have a homogeneous product" with ag land parcels, he said, so evaluating the value of water is more complex than simply computing a difference between irrigated and dryland crop production.

"Generally, parcels under irrigation have better soils and better slopes," Shultz said. There can be exceptions if a dryland field is in an area that generally gets more precipitation or has other valuable qualities.

The Republican Basin research asked questions about 2,400 acres in a state incentive program to permanently retire irrigation on land enrolled in the federal Environmental Quality Incentives Program. The Nebraska Department of Natural Resources made a one-time incentive payment of \$675 per acre.

“Overall, I think people were overcompensated in that program,” Shultz said, noting that many parcels were small, irregularly shaped and had steep slopes. Researchers estimated that overpayments ranged from 11 percent to 457 percent, depending on parcel characteristics.

They also estimated what the irrigation retirement premiums per acre should be for the Republican Basin watershed as a whole—\$752 for pivot-irrigated parcels and \$722 for gravity irrigated—and in each of the four natural resources districts.

Estimates for the Lower Republican NRD, based on 315 sales, were \$413 per acre on pivots and \$641 on gravity. For the Republican Basin part of the Tri-Basin NRD, the pivot value was \$487 and the gravity value was \$516.

Schulz said the information tells researchers that if 100,000 acre-feet of water use must be retired in the basin, it’s less expensive to focus on EQIP acres and gravity-irrigated parcels in the Middle Republican NRD that have lower premium values.

Variables still make each situation unique, he added. For example, a farmer preparing to retire might take a different incentive than a mid-career farmer with just the right balance of land, labor and equipment.

After UNO researchers write a report on their Republican Basin findings, they plan to schedule workshops with appraisers and landowners. Shultz said that as funding allows, they’d like to add land sales data for 2008 and 2009, and extend the studies to the Platte and Niobrara basins.