

## Farm and Ranch Management

# Software designs ponds quickly

By LYNN BETTS

**G**ETTING a quick and accurate estimate of the cost of building a farm pond on your land could be a whole lot easier in the future, thanks to a new online computer program.

Called PondBuilder, the one-of-a-kind online program can place a proposed pond in the landscape; generate an aerial photo with the pond's permanent and temporary pool areas clearly drawn; estimate the number of cubic yards of earth to be moved, and size and length of pipe needed; and generate an accurate cost estimate — all in under 15 minutes.

That rapid turnaround compares to several months using current methods in most parts of the U.S., where it takes time for USDA field office conservationists to schedule and make a site visit for preliminary surveys, then takes more time in the office to make the calculations for sizes and costs.

PondBuilder is one of several new online programs now possible because of new LiDAR, or light detection and ranging, elevation data being made available by government agencies in

### Key Points

- New computer software offers significant time savings.
- Programs can only be used with LiDAR information.
- The Internet-based programs are quite accurate.

some states. LiDAR data, gathered by aircraft with mounted laser equipment, is accurate within 1 foot in most terrain. Billions of LiDAR-generated points, in effect, reproduce 3-D terrain location and elevation sketches, including waterways, ditches, hills, roadways and tree cover. Agencies are using it to plan road-building projects, update floodplain maps and in other ways to save time spent in traditional land surveying.

The PondBuilder program was developed by Agren Inc. of Carroll, Iowa, as part of a conservation innovation grant from the Natural Resources Conservation Service.

"Before we awarded the grant, I visited field offices and talked to people who had used some of the tools on a trial basis," says Rich Sims, NRCS Iowa conservationist. "I was impressed by



**POND PRICES:** A detailed, accurate cost estimate to build ponds like this one can be made in the NRCS office in less than 10 minutes using new computer software and LiDAR elevation data.

their enthusiasm for the time savings the PondBuilder offered. Even better, though, was that extensive ground-truthing by field offices showed that cost estimates made in the office from this program were very accurate. It's important to us to be able to rely on original cost estimates, so we don't have to go through contract modifications that take time and create problems for us," Sims says.

### Expanding nationwide

In Iowa, the Department of Natural Resources has about 90% of the needed LiDAR information collected now, with plans to have it all available by March.

LiDAR information is being gathered nationwide, says Tom Buman, Agren president. "We've been talking with people in Ohio, Michigan and Nebraska, and there's some interest in these programs in Missouri and Minnesota. I believe Pennsylvania and Louisiana are using LiDAR data, too."

Agren is also working on programs for basins, rainfall runoff, erosion and wetlands.

The tools are Internet-based, Buman says, because up-front costs for geographic information systems software and storage would be too costly for individuals. "This technology is easy to use, fast and accurate, and that's

what we all want," Buman says.

Because of logistics, the huge amounts of data, and current lack of complete LiDAR coverage, don't expect to be able to get your pond estimate or benefit from the use of the other programs in the next 15 minutes. But the technology is something that has potential to be used across the country, and could well one day be in common use.

Agren periodically hosts daytime and evening webinars to explain how the software works. For more details, contact Buman at [tom@agren-inc.com](mailto:tom@agren-inc.com) or see the Web site at [www.agren-inc.com](http://www.agren-inc.com).

Betts writes from Johnson, Iowa.

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