PRECISION CONSERVATION

A GUEST EDITORIAL WRITTEN BY A LEADING CONSERVATION PROFESSIONAL

PC—most people think means "politically correct," but the term that comes to my mind is "precision conservation." Precision conservation is the dynamic nexus of precision agriculture and cooperative conservation. PC is where high technology and conservation join to focus resources directly on problems and measure success more accurately.

Technology is advancing rapidly. Yield monitors, combined with global positioning systems (GPS), for example, can produce maps that provide feedback to measure the effects of managed inputs such as fertilizer, lime, seed, and pesticides, as well as cultural practices such as tillage, irrigation and drainage. To date these technologies have been employed to enhance the productivity of farms and ranches. Precision conservation means using similar approaches to enhance the effectiveness of our conservation efforts.

Producers benefit from precision conservation, through more efficient management of their operations. Auto-steer is an excellent example. GPS plumbed into the steering mechanism of a tractor "reads" the field on the first pass through and then an on-board computer directs each succeeding pass so it will match up perfectly with implement width. The technology can reduce the overlap on each pass for tillage, fertilizer or pesticide application from 18 to 24 inches, to three to six inches. By controlling the traffic, this technology can reduce traffic-compaction, thus reducing runoff and erosion.

Taxpayers benefit because precision conservation focuses public dollars and programs on specific, measurable results rather than simply counting practices or the number of participants in conservation programs. We can do more for the environment at lower cost to taxpayers by focusing our efforts on "hotspots" on the farm and in the watershed. That is what precision conservation is all about. Cooperative conservation relies on volunteers—we work with the people willing to work with us. Unless we are careful, voluntary programs can look more like random acts of conservation. Precision conservation will help us hit the hotspots and save time and money too—time and money we can use to help more producers. Producers, taxpayers, and the environmental all benefit.

Tight federal budgets coupled with the spike in the cost of petroleum, nitrogen, and other inputs will push precision conservation ahead. I believe the next generation of no-till adoption, for example, will be driven not so much by soil conservation as by the need to minimize energy consumption and costs. The conservation benefits to the farmer and to society, however, will be the same: better protection for the Nation's natural resources. Precision conservation—as the special section later in this issue shows—will also help livestock producers, irrigators, and other land managers improve their operations and the environment.

The Natural Resources Conservation Service (NRCS) is committed to developing the knowledge and tools to support precision conservation and to encouraging farmers, ranchers, and conservation professionals to put that knowledge and tools to work. We are building an enabling information technology platform to support virtually all facets of precision conservation.

For example, the NRCS Web Soil Survey has digitized soil maps that a few years ago were only available on paper. Now anyone can download them 24/7 from the NRCS webpage at http://www.nrcs.usda.gov. Any cooperative that requires data can now send out a fertilizer tender with the precise information needed on the underlying soil capability. Similarly the NRCS PLANTS database will enable producers to access information on the characteristics of plants and how they can best be used (or in the case of an invasive, controlled).

In addition, NRCS practices and standards are now available on our website. Technical Service Providers, consultants, farmers, and ranchers can all access them from any computer with Internet access. Of course, NRCS is still available to help with conservation technical assistance, but much more information is now at the fingertips of those who want to move forward on their own.

NRCS will be continually expanding and finetuning its Internet offerings to better enable precision conservation. We want to help landowners make better decisions in the face of changing market, climatic, environmental, and technological conditions. For example, if diesel prices rise 15 percent, what's the best choice for managing this piece of land? NRCS is working on a web-based model that would let farmers plug-in soil type, location, and tillage practice and get an estimate on carbon and fuel savings for various options. A producer could see the savings that might be possible on a specific piece of land by adopting no-till instead of conventional farming.

Precision conservation presents major challenges to NRCS as we seek to develop the enabling platforms, tools, and approaches that farmers, ranchers, and conservation professionals could use effectively to make the best decisions. These challenges are worth tackling because the opportunities they present to landowners, taxpayers, and the environment are so large.

NRCS is committed to helping people help the land. Helping producers employ precision conservation is part of that commitment.

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