

NO-TILL AND THE TRUST

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The North Dakota Natural Resources Trust (Trust) has long been a part of the promotion of conservation tillage through the use of no-till drills across the state of North Dakota. Since the early 1990s, the Trust has helped early adopters realize the benefits of reduced tillage. The Trust's board of directors has approved financial assistance and Trust staff has provided technical assistance in many counties to increase the awareness of no-till agriculture.

The demonstration equipment and education and demonstration projects the Trust has helped fund have contributed to improved agriculture and conservation efforts on many farms. Mold board plowing, summer fallowing, and multiple seasonal tillage passes add cost to annual production, and can result in depleted rather than enhanced soil moisture, and often fail to provide optimum production. Conservation and agricultural organizations like the Trust have demonstrated the benefits of no-till in decreasing soil and water erosion, retaining soil moisture, and providing producers time and energy savings.

History

The Trust's first involvement with no-till promotions was prompted by the purchase of 633 acres of land in Ramsey County, known as the Kenner Marsh or Dry Lake-Grand Harbor Coulee Project. This project involved restoring a large marsh for water storage near Churches Ferry. The Kenner Marsh Project watershed had substantial wetland drainage and conventional fall tillage, which

created a concern for the longevity of the wetland.

The Trust created a partnership with the Ramsey County Soil Conservation District (SCD) to enhance watershed management. It provided funds to the SCD to purchase a no-till drill in order to demonstrate conservation tillage in the Kenner Marsh watershed. The project was successful in reducing soil and water erosion, extending the life of Kenner Marsh, and beginning the Trust's efforts in promoting improved tillage. The success of this partnership showed the ability of agriculture and conservation to achieve mutual goals.

From this first involvement in conservation tillage promotion, the Trust has provided other county SCDs with financial assistance for the purchase of drills (both grain and grass) and row crop planters. The majority of no-till equipment is owned by county SCDs and rented to producers who are interested in the no-till concept. This approach encourages producers to try a new technique by providing a convenient, risk-free way to test no-till in their farming operation before making the financial commitment of purchasing or leasing no-till equipment of their own. The Trust has successfully assisted the purchase of 13 no-till drills, seven no-till grass drills, and one no-till row crop planter, contributing more than \$250,000 toward the purchase of this "experimental" equipment.

Conservation Agriculture and Residue Management

The conservation program with the single most interest to the Conservation Agriculture (CA) demonstration farmers is residue management. The farmers have embraced the program by applying the management to considerable acreage and have made significant increases in the amount of the residue conserved within the three years the project has been on the ground (see graph).

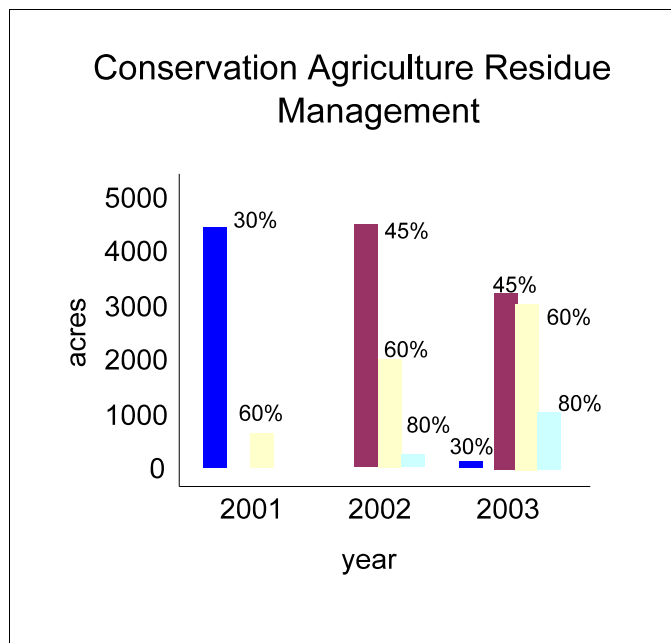
The advisory board for the Conservation Agriculture project developed some program options for the CA demonstration farmers. Among those options was a series of step payments for residue management. Elements the board considered in developing the payment scale were increased soil quality, reduction in wind and water erosion, increased cover for wildlife, carbon sequestration, and management conversion costs.

New no-till drills can run as much as \$80,000 to \$90,000. No small investments when you consider that the farmer has in his machinery inventory a drill, cultivator, disk, and anhydrous applicator. No-till conversion costs include the consideration for application of nitrogen with as little disturbance as possible. Anhydrous ammonia is the cheapest in application costs but requires disturbance to apply. Urea is a more expensive nitrogen source but application can be broadcast.

Another factor the board considered was the annual value of carbon sequestration. A market-based approach to incentives for conservation is of heightened interest to the board. The Chicago Climate Exchange is testing a market for carbon credits. The advisory board decided to consider this factor when developing the incentive payment scale.

The US Department of Agriculture (USDA), Agricultural Research Service Mandan Station’s “Long-term Cropping System Study” from 1983 to 1996 has shown that the carbon sequestration value depends upon the crop rotation and the value of carbon in the marketplace. If the carbon were \$16.50 per ton in the marketplace, on the farm the value would be \$1.56 per acre. If, as some predict, the value in the marketplace was \$165 per ton, the value on the farm for a spring wheat-winter wheat-chem fallow rotation would be \$15.65 per acre.

The board decided to set the incentive scale base upon the above considerations and to measure the residue remaining after spring seeding. The rates based on residue remaining are greater than 30-44% at \$5, greater than 45-59% at \$8, greater than 60-79% at \$10, and greater than 80% (no-till) at \$12.50. The graph shows that these rates are appealing to the CA farmers resulting in appreciable changes in residue management and, consequently, many acres protected and conservation goals achieved. Also of note,



one farmer has invested in a secondhand, double-disk opener, no-till drill.

The most recent rules for USDA’s Environmental Quality Improvement Program (EQIP) have a residue management incentive component. Farmers new to residue conservation can enroll up to 800 acres per farm for three years with one additional year of practice maintenance. The conservation goal is to achieve T (erosion of less than five tons per acre) and a minimum of greater than 30 percent residue remaining after spring seeding. The incentive payment is \$6 per acre for three years of the contract. USDA will provide farmers previously engaged in residue management through the Conservation Security Program (CSP) once they start that program.



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In addition to contributing to the purchase of equipment, the Trust has also been actively involved in producer education and demonstration of reduced tillage throughout North Dakota. We have helped with many field days, winter producer meetings, and related educational efforts. Through grants to conservation partners such as Ducks Unlimited, Inc. (DU), the Trust has also made a significant contribution to what we consider the “next step” beyond simply no-till cultivation practices. DU has established a multi-year initiative to promote winter wheat planting in combination with no-till. The Trust and others partnered with DU to promote this more “holistic” farming approach that reduces soil disturbance, maximizes moisture retention, and maximizes wildlife cover on the land.

Survey

Several years ago, the Trust’s board of directors began tightening its criteria for funding no-till equipment. It set guidelines on how grant recipients would make their equipment available to producers, set educational requirements, set land characteristic requirements based on wetland densities and required participating producers to make a multi-year commitment to no-till to give it a chance to work. And, adhering to a long-standing policy, the Trust would pay no more than one-third of the total cost of no-till equipment.

As might be expected, however, after putting significant fiscal and staff resources into no-till equipment and promotion over many years, the board members began to ask themselves and their staff additional questions, such as, “What is the status of no-till in the state? Have our efforts had the desired effect? How much have we done, and how much more can we afford to do in this area, given our fiscal constraints and tremendous need in so many other areas?”

At the Trust’s December 2002 meeting, the board concluded it needed more information on no-till usage and the impact of past Trust contributions. As a result, Trust staff completed a survey on no-till usage and availability to measure our past results and analyze future actions. A questionnaire was created and mailed to 53 county SCD offices. Cooperation from survey recipients was excellent, and with a few follow-up phone calls and reminders, the return rate on the survey was 100 percent. The survey consisted of 12 questions. This article is intended to report

major findings, but if you have an interest in the complete survey results, contact Linda Roeder at 701- 223-8501 or e-mail her at nrtlinda@btinet.net.

Findings

Access to No-till Equipment

The Trust was concerned about access to drills for producers to rent or lease. The survey results showed that **53 percent of all SCDs in North Dakota have access to conservation tillage drills**. Most of these counties were in the Missouri Coteau Region, with fewer drills available through SCDs in other portions of the state.

Impact of the Trust’s Contributions

Among the counties where the Trust had contributed to the purchase of no-till equipment, the survey showed that **the Trust had provided 22 percent of the needed fiscal resources**.

Current No-till Usage

All counties reported increased no-till usage, promoted somewhat by drier growing conditions. Most county SCDs reported a **20-30 percent reduced tillage rate** (a combination of no-till and conservation tillage) with **some counties as high as 70 percent**. No-till use, with its proven ability to retain soil moisture, has been well accepted in some western North Dakota counties. Golden Valley County, for example, reported that no-till or reduced tillage was practiced on 70 percent of the farmland in the county.

Continued Interest in No-till Equipment by Soil Conservation Districts

Of the counties that did not have a no-till drill already, only 40 percent showed any interest in a no-till drill purchase. While there is obvious and enthusiastic interest by a few counties in receiving cost share for no-till equipment, the survey data showed that **most SCDs who want to engage in promotion of no-till already have the equipment to offer their producers**.

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Acquisition will Preserve/Protect Historical Wildlife Lands

In September, North Dakota Governor John Hoeven approved acquisition of the Tim Neu property located on the confluence of the Missouri and Yellowstone Rivers. The North Dakota Natural Resources Trust (Trust), in cooperation with various other conservation groups, organizations, and agencies has been negotiating with several landowners to purchase lands lying south of the confluence. The lands in question are directly across the river and in full view of historic Fort Buford and the new two-plus million dollar Missouri-Yellowstone Confluence Interpretive Center just completed and opened to the public this summer. The various groups' primary interest in preserving and protecting this area is to prevent development on the lands in the view shed from the visitor center, preserve the habitat that is so vital to several endangered species that frequent the adjoining sandbars and the rivers themselves, and to protect and maintain the pristine area to resemble, as closely as possible, the area as Lewis and Clark found it on their journey in 1804-1806.

The Trust first became interested in helping to preserve lands in the confluence area when it was contacted in early 2002 by a real estate agency representing the Ochs brothers and about 997 acres they were offering for sale. The Tim Neu properties, located directly across the Yellowstone, total about 388 acres. The lands were appraised and it was obvious that high recreational values would push the funding requirements beyond what the Trust could handle alone. The Trust solicited partnerships with The Conservation Fund, a national conservation group, and with the American Foundation for Wildlife (Foundation), a state of North Dakota conservation organization, to negotiate a settlement with landowners and help raise funds for the purchase. The Natural Resources Conservation Service played a vital role in evaluating and ranking properties for the Wetlands Reserve Program. Considerable guidance,

support, and advice were also received from the US Fish and Wildlife Service, the ND Game and Fish Department, Friends of Fort Union (a local historic interest group), and several other groups interested in preservation/protection of the confluence area.

The Conservation Fund staff completed the purchase agreement with Tim Neu. The Foundation will complete the acquisition/closing on the property and will be the temporary owner/deed holder until the lands can be transferred to the ND Game and Fish Department for ownership and management. The lands will be enrolled in the Wetlands Reserve Program, which will require



Mike Anderson, ND Game & Fish Department

restoration of any drained/alterd wetlands and restoration of native grass on all cropped/disturbed areas.

Trust Board to Meet

The North Dakota Natural Resources Trust board of directors fall meeting is scheduled for December 17 and 18, 2003, starting at 8:00 a.m. at the Best Western Ramkota Hotel, 800 S. 3rd Street, Bismarck, ND 58504. Grant proposals already submitted to the Trust will be reviewed at this meeting.

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Remaining Areas of Interest

The Trust was interested in responses from SCDs about how we could be most effective in future no-till promotion. Interestingly, the majority (56 percent) of the counties indicated that **education and producer tours/workshops were the key** to continuing the increase in no-till usage.

Conclusion

The data provided by survey respondents was most helpful to the Trust's board, and it wants to express a sincere "*thank you*" to all who helped. While the job is never totally done, it is obvious that use of no-till agricultural practices has increased dramatically in the state, resulting in reduced wind and water erosion, reduced wetland degradation, increased wildlife habitat, improved water quality and, perhaps most important, improved agricultural profitability. After all, in the business of farming and ranching, tools and techniques still have to prove themselves at the bottom line. Many producers would not be making the conversion to no-till and sticking with it if it did not improve their operation over the long term. We are pleased with the part we played in facilitating that improvement.

So, it is the Trust's conclusion that most counties that wanted to be involved in no-till promotion have done so. Some with the help of the Trust, some with the help of other conservation partners like DU, and some entirely on their own. Many producers have been exposed to no-till techniques, the base of knowledge among producers is growing, and the "converts" to no-till or conservation tillage are growing and becoming mentors to others. Our conservation partners agree, generally reflecting a "*mission accomplished*" attitude, being pleased with the overall acceptance of no-till in North Dakota.

While the Trust's board has decided not to fund no-till equipment in the future, it will still consider, on a case-by-case basis because of survey input, limited involvement in no-till educational and demonstration-type projects.



Conservation Agriculture Video

Conservation Agriculture (CA) has just released a video "Conservation Agriculture; Farm the Best, Alternatives on the Rest." The video is produced by the ND Natural Resources Trust (Trust) with support from the ND Department of Agriculture and the Northern Plains RC&D. Narrated by Roger Hollevoet, district director, Devils Lake Region Wetland Management District Complex for the US Fish and Wildlife Service, the video describes the concept and the problems that prompted the CA project. The demonstration farmers are featured describing their perception of the project's success, and the video leads into the need to implement US Department of Agriculture's Conservation Security Program.

In addition to the US Fish and Wildlife Service, the video highlights the farmers, the Trust and several of its other partners, the ND Farmers Union, Natural Resource Conservation Service, and a citizen. Vicki Rosenau states clearly that she is totally dependent upon farmers to produce safe, healthy food in an environment that is healthy for her and her family.

The mission for CA is to demonstrate that when agriculture and conservation thrive together, agricultural profitability is enhanced and conservation of natural resources and societal benefits are realized.

Run time is 31.5 minutes. A copy can be loaned from the Trust office in Bismarck, or if you wish a personal copy, contact Sharon Clancy at 701-662-4088, ext. 123, or e-mail her at Sharon.Clancy@nd.usda.gov.



Natural Resources Trust Background

The North Dakota Wetlands Trust was established as part of the Garrison Diversion Unit Reformulation Act of 1986. The purpose of the Trust was to “preserve, enhance, restore and manage wetlands and associated wildlife habitat in the State of North Dakota.” With the passage of the Dakota Water Resources Act (DWRA) of 2000 by Congress, the Trust, now known as the North Dakota Natural Resources Trust (Trust), has added to its mission the conservation of grasslands and riparian areas. The Trust received \$12 million in funds from Bureau of Reclamation appropriations for Garrison Diversion and will receive \$1.2 million in state funds. The Trust will receive an additional \$25 million in federal dollars to fund its expanded mission. These funds are placed in a trust account and interest money is used to do the Trust’s work.

A six-member board of directors oversees the Trust. Three board members are appointed by the governor, one by the North Dakota Chapter of The Wildlife Society, one by the National Wildlife Federation, and one by the National Audubon Society. The board of directors guides the Trust’s strategic direction and makes decisions on Trust projects.