Partners

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Conservation Technology Information Center

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On the Cover

Champion of Conservation

Tim Warner, producer in Darke County, Ohio, exemplifies what it means to be a true Champion of Conservation. Every aspect of his operation is environmentally and economically viable.

Photo courtesy of Nicole Reese.

Partners
Conservation Technology Information Center

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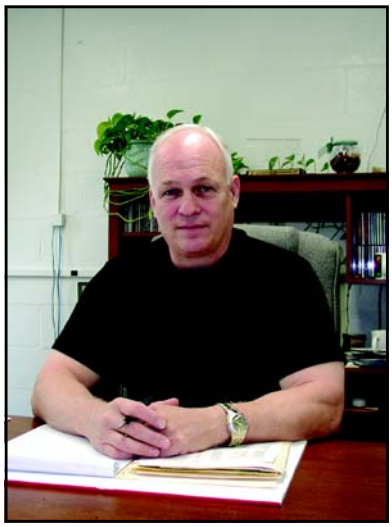
Mission: CTIC leads the development of public/private partnerships that promote the enhancement of soil, water and air quality and sound habitat management by equipping agriculture with realistic, affordable and integrated solutions.

The truth is ....

It's time to get down and dirty about conservation. Depending on whom you talk to, there are mixed messages regarding the progress in conserving natural resources in the United States, and around the world. One group says we are doing a tremendous job, while another group says things are not much better than they were 20 years ago.



CTIC

John A. Hassell, CTIC executive director

Here's my perspective. I think we spend a lot of time and energy talking about the wonderful things we have accomplished in the field of conservation. Looking at the past 40 years there are significant improvements. We don't see raw sewage dumped into streams and lakes. Today, municipal treatment plants and industrial processing and manufacturing facilities are permitted and required to protect our water and air resources. In addition, significant land treatment has eliminated the dust storms that plagued the U.S. in the 1930s.

We have achieved great success, but unfortunately, there is still an enormous amount of conservation work that needs to be done. We still have a goal in this country of reducing erosion to four tons per acre per year. This is not an acceptable level, especially if we are to see improvements in water and air quality and wildlife habitat. Our goal should be reducing erosion to zero tons per acre per year.

We need to spend more time discussing what still needs to be accomplished. In the past, I discussed redirecting our conservation efforts from managing for erosion control to managing for soil quality. I firmly believe that if improved soil quality were the goal, we would see improvements in water quality, air quality and habitat, and a reduction in the use of chemicals, fossil fuels, etc. With an ever increasing and demanding population, we have to look to the future and insure that our soil resources are protected so we can continue providing safe, economical and viable food, fiber and energy. We need to spend more time promoting the change from managing for erosion control to managing for soil quality.

The truth is we should be more concerned about our soil resources today than ever before. This truth is echoed in unexpected places outside of the conservation community, such as in a quote by the Dalai Lama found on page 144 in his book, *The Dalai Lama's Little Book of Inner Peace*:

> "The threat of nuclear weapons and man's ability to destroy the environment are really alarming. And yet there are other almost imperceptible changes - I am thinking of the exhaustion of our natural resources, and especially of soil erosion - and these are perhaps more dangerous still, because once we begin to feel their repercussions it will be too late."

The truth is, "Conservation is more than just a word, it's a way of life — and its forever."

CTIC Initiative

Water Quality Trading Project

Conservation Technology Information Center (CTIC) was recently awarded a grant from the U.S. Environmental Protection Agency to conduct a water quality trading project. Water quality trading utilizes voluntary incentives as a tool that could be useful in a watershed restoration project, or as a funding mechanism for the implementation plan of a Total Maximum Daily Load (TMDL). The project will focus on water quality trading from the nonpoint source perspective. "We are excited about providing information to conservation leaders on this market-driven approach to getting more conservation on the ground," said John A. Hassell, CTIC executive director.

One major project component is the creation of a publication, *Nonpoint Source Pollution Reduction through Water Quality Trading*, which will provide an overview of the basic components of a trading program. It will also feature the concept of creating a trading bank working closely with a state agricultural cost-share program. A trading bank can combine the assets of a trading program and a cost-share program. Each program is enhanced by offering additional incentive options for landowners to install best management practices and facilitating the sale of credits to buyers.

A future workshop will also be presented in an area where a trading program is being developed. Gerald Talbert, a CTIC consultant, will serve as project manager and will be available for speaking engagements and consultation to local leaders who are interested in establishing a trading program.

Tim McCabe, NRCS

Seeing Clearly

California Resource Conservation Districts' Ron Harben helps landowners tackle air quality challenges

Dust kicked up by farming practices is one target of strict new air quality measures enacted in the San Joaquin Valley. Photo courtesy of Steve Werblow

By Steve Werblow

Few issues are as cloudy as air quality regulations in California's San Joaquin Valley. Layers of regulatory agencies have grappled this year with a raft of new state and federal rules, a blizzard of data and strict deadlines on formulating management plans to reduce emissions of tiny airborne particles just one-sixth the diameter of a human hair. On the plus side, there have been few better opportunities for California's Resource Conservation Districts (RCDs) to define themselves, and maybe show districts in other states the shape of things to come. As local governments charged to promote voluntary, locally led conservation efforts in an array of natural resources, California RCDs enjoy a wide playing field.

In any of the dozens of meetings of agencies and stakeholder groups addressing air quality issues, Fresno-based California Association of Resource Conservation Districts (CARCD) air quality specialist Ron Harben is a conduit of information to and from the 6,400 members of the San Joaquin Valley farm community who have to file air quality plans. Sometimes he passes along complaints from Valley farmers about undue pressure to take on too much of the burden of air quality improvement. For instance, many say they are blamed for dust that is actually caused by people from town riding ATVs, or when trucks kick up plumes of dust because rural road shoulders aren't adequately paved.

In the farm community, Harben tries to drive home the point that everybody in the Valley – from the oil companies to the Air Force to the drycleaner down the road – is participating in the air quality effort. And he is quick to note that it is a mammoth effort, especially because there are significant

regional influences on local air quality that range from traffic jams in San Francisco to power plants trying to keep up with growing cities – even dust storms in China.

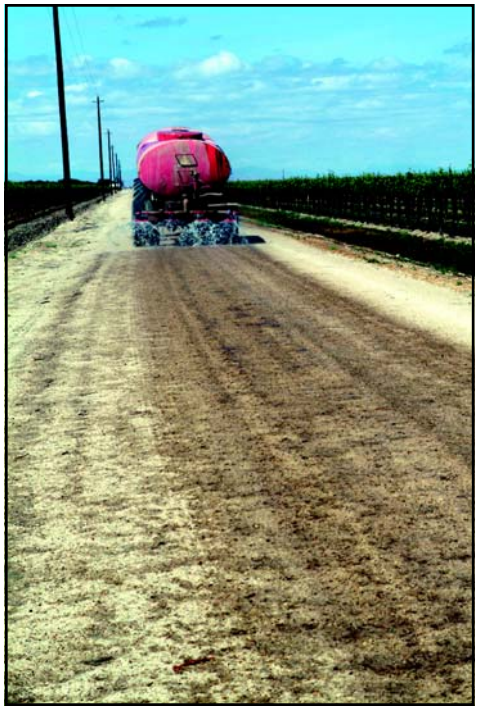
Close Ties

Not surprisingly, Harben maintains a close working relationship with the districts' long-time partners at the Natural Resources Conservation Service (NRCS). And the districts have expanded their working relationships within the universe of agencies and organizations, from the San Joaquin Valley Unified Air Pollution Control District (called "the air district" for short) to the California Air Resources Board, the U.S. Environmental Protection Agency and an array of farm groups.

Harben helped a committee of regulators, academicians and farm representatives develop a checklist of acceptable practices that farmers could employ to help address air quality concerns, which were bundled into conservation management plans (CMPs). Last summer, CARCD helped NRCS, the air district and a consortium of commodity groups put on a series of 35 workshops for farmers and dairy producers on CMPs; another round of meetings is being scheduled for the fall. The districts also secured a grant to hire eight air quality technicians to help farmers develop and implement their air quality plans, guiding them through the laundry list of options.

An endless string of meetings and stacks of paperwork are a long way from the traditional role of a district employee out in the field, marking contours with a local farmer to create an erosion-control structure and spending weeks talking about a comprehensive resource management program, Harben notes. The new role is one of motivator and guide. "A lot of it is interpretation: the farmer asking, 'what do I have to do to meet the new laws?'" he says. If a farmer doesn't recognize a CMP by its name, such as 'conservation tillage' or 'combined operations,' Harben gives an easily understandable definition so the grower knows if it fits his operation.

Steve Werblow



Watering farm roads is one of many emissions-reducing steps growers can take to improve air quality. Ron Harben and his California RCD colleagues help growers sort through dozens of such options.

The next step in fulfilling the role of guide is to position RCDs as a clearinghouse for conservation information, says Harben. CARCD president Nadine Scott says that's part of CARCD's strategic plan – the trick will be to secure funding to develop the intricate web site and pick through layers of regulations, some of which are duplicative and some actually contradictory. That's no mean feat: cash-strapped California offers little or no funding to its districts, and few have taxing authority, so most initiatives are funded by grants.

Over the Border

The San Joaquin Valley's focus on air quality – and the central role in the RCDs in helping shape farmers' strategies and communicating the rules – represents the latest giant step in the districts' addition of air along with soil and water to its list of priorities.

From Ron Harben's desk to the far reaches of the state, working with water and air quality issues is forcing California's 102 districts to look beyond their own borders and seek help from traditional as well as new partners to tackle resource issues, notes Brian Leahy, a former organic rice farmer who was recently named CARCD's executive director. "Unlike soil erosion, which was handled on a very local basis, we deal with broader concepts that include all natural resources, including air and water, that cover multiple locales," says Leahy.

Steve Werblow

California's Resource Conservation Districts have worked hard to promote technologies such as fine-grinding machinery for prunings that eliminate the need to burn.

Resource Conservation Districts in California help promote conservation tillage, a key step in reducing emissions of dust particles on farms.

Selling the Experience

Fee-based Agri-tourism Can "Sell Conservation" to Guests

A cheerful resident of Colorado Alligator Farm enjoys a dog's life – he is part of the clean-up squad for the on-site fish farm, and a cash generator to boot. Photo courtesy of Steve Werblow.

By Steve Werblow

Editor's Note

Alternative enterprises take many forms, but one of the most high-profile – and challenging – is agri-tourism. In this month's installment of our year-long series on alternative enterprises, managers of two very different operations share their experiences in the tourism realm as they "sell conservation" to guests.

Conservation farming is a lot of things, but "entertainment" isn't a word that typically comes to mind. Nevertheless, entertainment is part of the business at Imperial Stock Ranch, where Dan and Jeanne Carver raise cattle, sheep and wheat on 30,000 acres of high desert near Maupin, Ore.

While no-tilling wheat and carefully managing grazing schedules from pasture to pasture have improved the economic and environmental viability of the Carvers' historic ranch, what Dan Carver calls "entertainment" – a combination of marketing his family's ecologically friendly products and hosting tours of the property – helps bolster margins. Halfway across the country and just as entertaining, a clever scheme to utilize waste from a fish farm got derailed, and then reinvented as a tourist attraction that draws valuable income. The common denominator: agri-tourism, selling an experience to visitors and delivering a few important messages along the way.

Tough Sell

Agri-tourism can generate some cash, inspire new customers, and – maybe just as valuable – help build important contacts and alliances. However, Dan Carver is quick to point out that hosting groups and getting them to pay for the experience can be a tough way to earn money.

"We try charging for tours, but the way the American West was settled and developed, the door was always open," he says. "That's kind of the way it is. People will spend $100 to play a round of golf, but it's hard to get them to pay $10 to visit a working ranch."

For every paying van load of enthusiastic tourists on holiday or diligent students of conservation, there are a couple of elderly visitors who roll up to the gate looking for a quick (and free) peek at the rolling hills where they were raised. "We like big groups

because we can say, 'our fee is $200. At 20 people, that's $10 a head. It costs more to go to McDonalds,'" says Carver.

Tie-Ins

Just as improving percolation in the uplands is linked directly to water flow in the streambeds below, telling the conservation story ties closely to the Carvers' marketing plan for meat and wool. Visitors to Central Oregon can see handmade garments woven with Imperial Stock Ranch wool at top-flight boutiques, dine on Imperial Stock Ranch lamb at lunch and spend the night at the Imperial River Company's inn, operated by the Carvers' daughter and son-in-law. From the inn, guests can arrange a $20-per-head two-hour tour or a $50-per-person four-hour tour of the ranch. Special workshops – like an upcoming anthropology weekend – also bridge the ranch and lodge.

Every step of the way, the Carvers emphasize their conservation values, allowing them to differentiate their meat, wool and experience in a crowded marketplace, and tie them all together. It's a lot like the strategy adopted by thousands of small wineries around the world: link a lovely day in the vineyard, some personal contact with winery staff and a taste of the product to cultivate a loyal customer base.

A Marketing Program With Teeth

Agri-tourism can also emphasize novelty. In 1977, Erwin Young bought an 85-acre farm in Mosca, Colo., to pursue his dream of farming tilapia, a tasty white-fleshed tropical fish. The high-elevation in San Luis Valley seems a more forbidding place for tropical fish than Young's starting point in Texas, but a 2,050-foot-deep artesian well brings water to the surface at a balmy 87 degrees Fahrenheit, providing an energy-free heat source. Soon Young was shipping fillets to Denver.

The problem with fillets is that 60 percent of each fish doesn't make it to market. To avoid landfilling or composting fish waste, Young hit upon a clever rotation strategy – bring in alligators, feed them the scraps from the fillet line, grow the 'gators to a six-foot market size and send them back to their native Florida for processing into meat and hides. In 1987, Young brought in 100 small alligators.

But as the alligators basked in warm geothermal pools and dined on tasty tropical fish, their owners grew to enjoy their reptile-enhanced ecosystem – and they realized that they were gaining notoriety as "the alligator farm." A new opportunity had literally knocked at the door.

"People were showing up asking, 'we heard you have alligators here – can we see them?'" recalls farm manager Paul Wertz. In 1990, Colorado Aquaculture created a new entity it dubbed Colorado Alligator Farm, and officially opened its doors to the public after some infrastructure improvements.

"People were showing up to see these things, so we figured we probably ought to make it safe and educational," says Wertz. Signage, double fencing around the ponds ("We like a little cushion space between customers and the alligators," Wertz explains) and graded pathways wind through the farm complex, giving visitors a chance to see the 20- and 30-foot fish ponds; the garden and hydroponics houseplant operation that use water from the fish tanks; and, of course, hundreds of alligators. Colorado Alligator Farm also started taking in reptilian pets whose owners could no longer handle them, expanding the tourist lure, but demanding costly infrastructure such as special enclosures, heat lamps and special diets.

Each year, 20,000 to 30,000 visitors flock to the farm between Mothers Day and Labor Day each year, paying $4 to $6 per head in admission fees. Newsletters on racks from Santa Fe, N.M., to Boulder, Colo., help spread the word; so do educational programs presented by Wertz and his wife, accompanied by cooperative reptiles that help teach school kids and Colorado audiences about their scaly neighbors.

Colorado Alligator Farm was pushed out of the fillet business by competition with low-wage countries, but adversity spawned diversity. Today, the company delivers 2,000 live tilapia each week to specialty markets in the Denver area. Wertz balances fish production with the farm's feed garden and ornamental operations, as well as a steady flow of tourist traffic. Visitors to windswept Mosca walk away with a new appreciation for fish, alligators and a comprehensive system of tanks and wetland habitat that keep the farm viable.

Dan and Jeanne Carver

Dan Carver (shown filling wool bags the old-fashioned way) and his wife Jeanne link agri-tourism to their marketing program for meat and wool produced on their conservation-oriented ranch in Oregon.

Important Messages

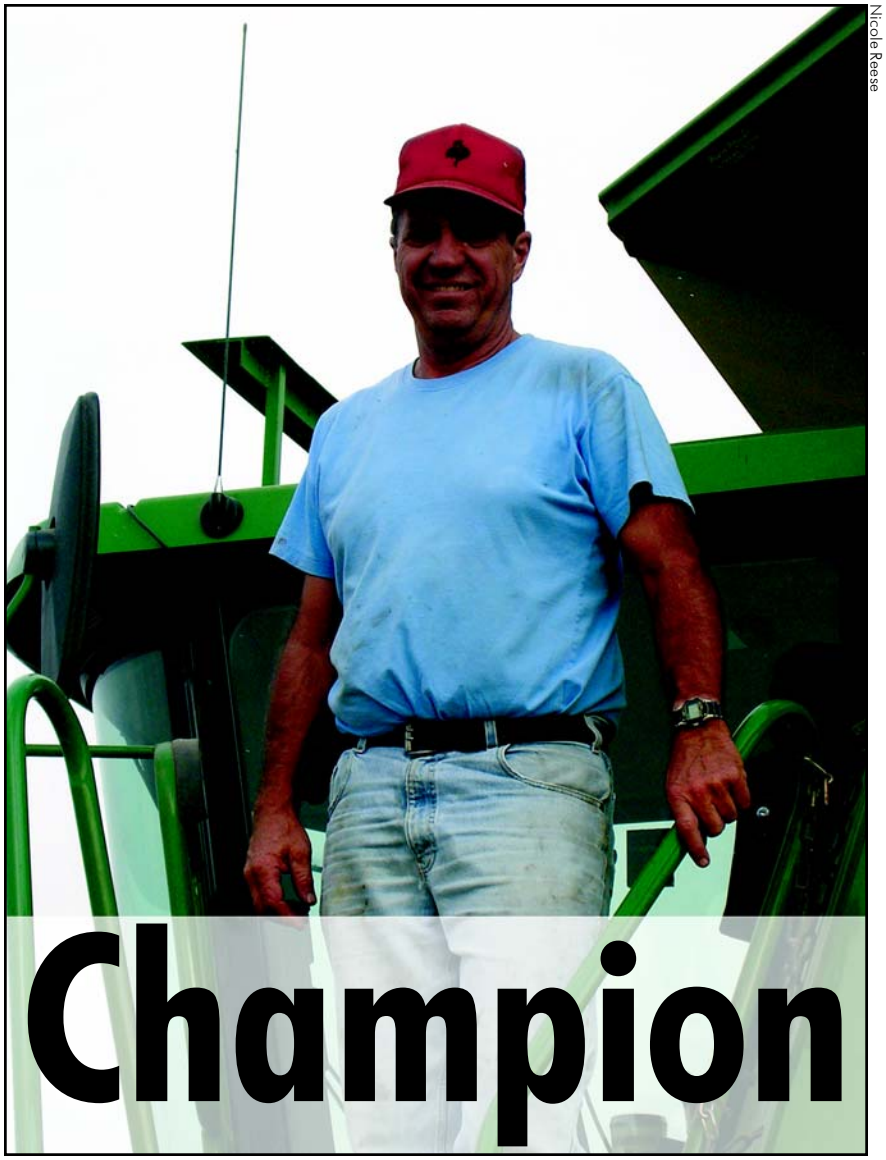
At the end of a tour – through the ponds of Colorado Alligator Farm or the sagebrush of Imperial Stock Ranch – guests have left a little money, and have usually picked up something that can be as valuable to their host as it is to them: perspective.

"When people leave here, they have a whole different mindset," says Carver in Oregon. "We can show them what the land looks like after grazing. I can tell them how no-till saved me $20,000 in fossil fuels and how we will never lose another inch of topsoil as long as I'm alive on the ranch. People are a little overwhelmed – they see ranching in a different light."

For information on Imperial Stock Ranch and its nearby guest lodge, visit www.deschutesriver.com.

For information about the Colorado Gator Farm, Tel: (719) 378-2612 or Web: www.gatorfarm.com.

Steve Werblow is a free-lance writer based in Ashland, Ore.



Nicole Reese

Champion of Conservation

By Angie Fletcher

In an area of the Midwest where no-till corn is not a popular practice, one producer is showing it as a financially and environmentally enhancing practice. Tim Warner is making a name for himself as an innovative conservation guru.

Warner began full-time farming in the late '70s, after studying agronomy and soils at The Ohio State University. In 1982, Warner began experimenting with no-till after he realized he was having erosion problems on a slightly rolling field. "I also was having trouble getting corn to break through the crusted soils," says Warner.

Warner no-till planted the first half of the field, and then, he says, "I chickened out on the second half of the field." Warner wasn't confident he would get the yields he needed from the no-till portion. But he was wrong.

The results were inspiring. The no-till portion of the field yielded much better than the tilled, reports Warner. "From that year forward, that field has not seen tillage equipment," says Warner, adding that he has little, if any, erosion on that field.

Rolling On to Flatter Ground

The results from that first field convinced Warner to no-till other fields. "I wanted to see what would happen on flat ground," says Warner. The next year he planted a few more fields in no-till. Soon after, Warner's entire corn crop was converted to 100 percent no-till.

"I was looking for a way to save fuel and time," says Warner. With rising fuel costs, Warner needed to decrease fuel consumption. And with his wife working off the farm, Warner needed to eliminate some of the excess work. No-till was the answer. Fuel and labor costs declined because he was no longer making several passes in fields, and outside help was no longer necessary. Warner's wife and son, however, work evenings and weekends on the farm.

Another benefit Warner noticed early was that he no longer needed a big tractor. "Mine needed to be replaced, and when I priced a big tractor, I just couldn't justify the cost," says Warner. Today, Warner has two 150-horsepower tractors, no hired hands and uses half as much fuel as he did before no-tilling.

According to experienced no-tillers, Warner started out the hard way by no-till planting corn into bean stubble. "It's much easier to plant beans into corn stalks," says Warner. "I discovered that a few years later."

It wasn't always easy, says Warner. "The first two years, my neighbors who plowed their fields were out a lot earlier than I was. But every year, I was able to get in earlier." After three or four years, Warner was in the fields the same time neighbors were, and now he is able to get in two or three days earlier than they are. It opened Warner's window of planting time by two weeks.

Producing Compound Benefits

Since 1991, Warner has no-till planted 100 percent of his crops and has experienced great benefits from it, including building more organic matter every year.

"The soil tilth is better, which increases water holding capacity and infiltration, and generates deeper root growth. The worm population is great, which also helps with deeper root systems, and that helps plants hold up under stress," says Warner. "When there's too much rain, the fields hold the water better. When there's not enough rain, the residue preserves moisture to help with dry spells," explains Warner.

In addition to soil quality improvements, Warner says water quality gets immediate improvement with no-till. "It's all connected to erosion: keeping soil where it is supposed to be, and out of the waterways, alleviates that problem," he says. Another benefit of no-till, Warner has noticed, is the increased wildlife. "For a while we didn't see fox or deer. Now we have abundance of both," says Warner, adding that they are beginning to see more pheasants too.

Perfecting Conservation

Today, Warner farms over 900 acres with a continuous no-till corn/soybean rotation. He grid soil samples his fields to ensure he applies the proper amount of fertilizer. "I used poultry manure from 1998 to 2002, and am planning to again," he says. "I've found I get the best over-all results from poultry manure."

Warner says that since he began no-tilling, he uses half as much weed control chemicals. "My chemical costs are at least half of what they were when I was conventional tilling," he says. "I don't use full-strength of anything. It's either half-strength or quarter-strength."

On Warner's property there are grassed waterways and filter strips. According to Dan Towery, NRCS natural resources specialist, Warner's next step is to include plots of an annual rye grass cover crop to improve soil tilth, increase rooting depth and aid in weed control. Annual rye grass also acts as a nitrogen scavenger and reduces nitrogen leaching. "It's a part of a no-till systems approach," says Towery.

Dennis Baker, retired extension agent, says, "Warner manages his system very well."

Spreading More than Manure

When nearby neighbors started feeling the pressure of rising fuel prices, they began taking notice of Warner's farming practices and savings. "I went from being made fun of because I was no-tilling, to being one of guys people go to for advice about no-till," says Warner.

As a joint board member and co-founder of the Stillwater Watershed Project, Warner uses his position to help area producers implement conservation practices on their land. "We help producers get cost-share funds for conservation practices," says Warner.

Warner also helped create Agriculture for a Clean Environment (A.C.E.), according to Nikki Reese, A.C.E. project coordinator. Both A.C.E. and the Stillwater Watershed Project promote conserving the land and protecting waterways for future generations. Warner has been a Trustee of Van Buren Township for 27 years and was a Darke Soil and Water Conservation District Board Member from 1991 to 1993.

Warner participated in a five-year research project with Ohio State Extension. "I do it because it gets conservation on the ground," says Warner.

He likes to try new things to make sure he is doing the most he can for his land. "I want to know that I am doing the right thing," he says. Baker concurs, "When I was asked to head up a research project in our area, the first producer I thought of was Warner."

For more information about Warner, A.C.E. or the Stillwater Watershed Project, contact Tim Warner, Tel: (937) 548-8035; or Nikki Reese, E-mail: nreese@myvine.com.

Champions of Conservation

- Implement a comprehensive system of conservation practices that focus on improving soil quality,
- Follow a "manage for C (carbon)" philosophy, rather than "manage for T (tolerable soil loss)," and perform soil tests to monitor the results,
- Address resource concerns, such as water quality, wetlands degradation, wildlife habitat management, air quality, etc.,
- Manage the operation for both environmental and economic benefits, and
- Are innovative and share knowledge - both the hard-learned lessons and the tricks of the trade - with neighbors, colleagues and others.

If you know a Champion of Conservation, visit the CTIC web site at www.ctic.purdue.edu/ConservationChampion to send us the Champion's name and contact information. We'll take it from there.

Stillwater Watershed Project/Agriculture for a Clean Environment

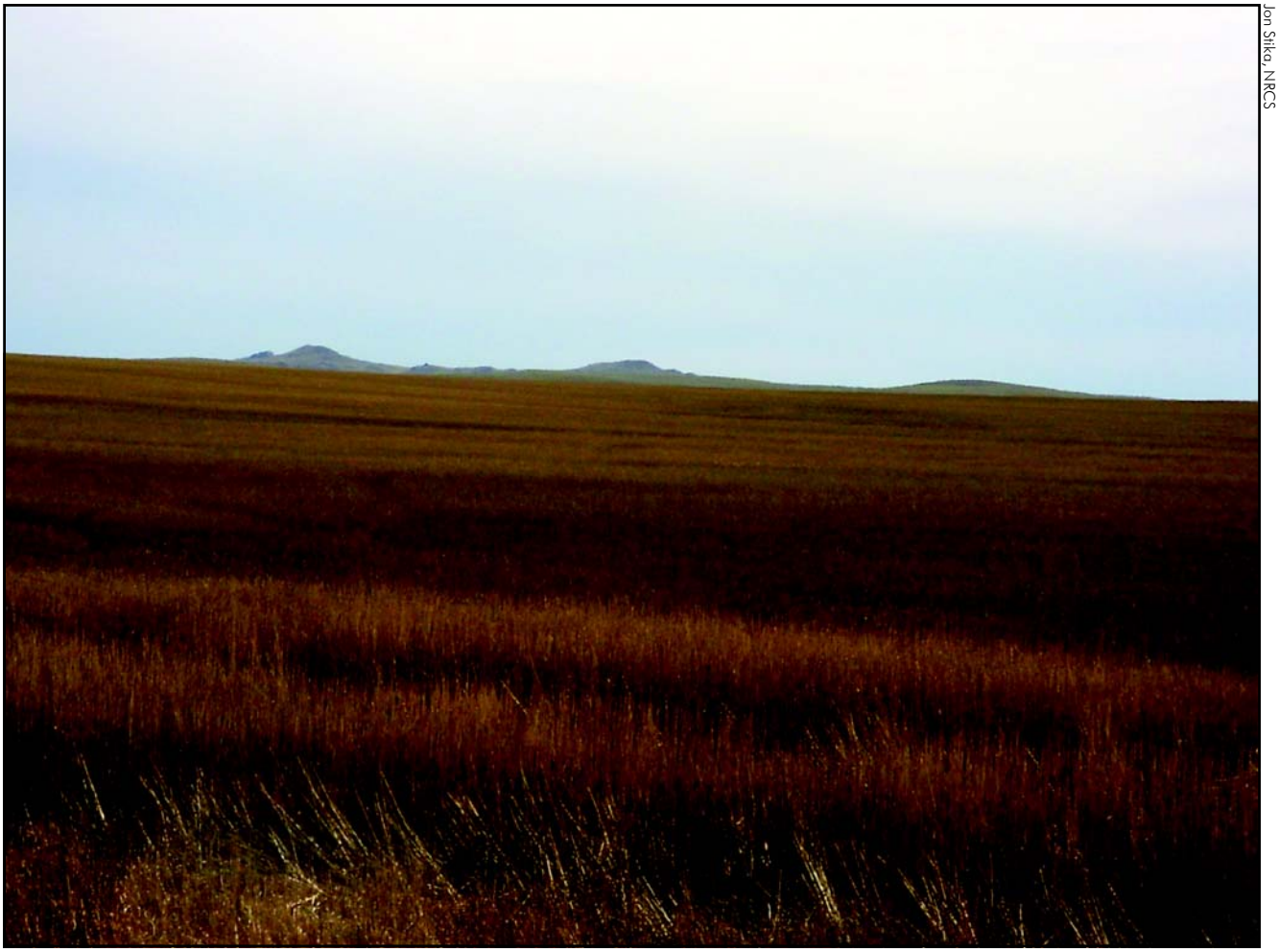
The Stillwater Watershed Project, developed by the Darke and Miami Soil and Water Conservation Districts (SWCDs), was created to address issues related to highly erodible crop land, livestock and nitrate alerts occurring in the City of West Milton. Stillwater River is the drinking water source for West Milton residents. The project became functional in 1993 when it received its first Ohio EPA 319 Nonpoint Source Pollution grant.

A.C.E. was established in 1994, and is made up of local farmers in the Stillwater River Watershed who promote conservation programs offered through the Stillwater Watershed Project and the Darke and Miami SWCDs. Farmers are more likely to listen to peers rather than government agencies, and the Stillwater Watershed Project is closely tied to government agencies. The Stillwater Watershed Project provides funding for A.C.E.'s mailings announcing watershed events and meetings. A.C.E. and the Stillwater Watershed Project have similar goals and objectives that apply to the watershed.

Top No-till County in North Dakota

Golden Valley County Commits to Conservation

By Angie Fletcher



Jon Stika, NRCS

No-till started in Golden Valley County, North Dakota, as a means to lessen the impacts of soil erosion. Today, nearly 90 percent of the cropland is no-till because it helps reduce erosion, improves soil quality and increases yields.

Commitment. That's the reason Golden Valley County in North Dakota is a top no-till county in the country. In all of North Dakota, 11 percent of cropland is planted no-till. In Golden Valley County, approximately 90 percent of the cropland is planted no-till.

"We just don't give up," says Jon Stika, Natural Resources Conservation Service (NRCS) agronomist in Dickinson, N.D.

The push for no-till started in the late '70s, says Dale Ferebee, NRCS district conservationist in Beach, N.D., when the county participated in a no-till pilot program and the district board bought a no-till drill. "The wind erosion on the no-till fields was zero," says Ferebee. From there, no-till exploded.

"Producers in our area began no-till years ago as a means to control wind erosion," says Stika. As they continued leaving the soil undisturbed and leaving the residue on the soil surface, producers realized they also were conserving moisture and reducing the amount of fallow acres.

Adding Diversity Improves Soil Quality

"With those acres freed up, it allows producers to diversify crop rotations from just wheat and fallow," says Stika. Today producers in the area grow many different crops including: wheat, barley, oats, corn, beans, canola, mustard, peas, lentils, sunflower, safflower, alfalfa, flax and perennial grasses.

"When you diversify the rotation, it not only improves soil quality but it minimizes the risk associated with North Dakota weather," says Stika. "It's so extreme. This year we only had 60 frost-free days, and some crops don't grow well in the cold." North Dakota normally has more than 90 frost-free days. "If you have numerous crops, some may be ruined by the extreme weather, but some may be able to withstand (or even thrive) in it," he says.

Stika explains that little or no soil disturbance and a diverse crop rotation greatly improve soil functions, such as storing and cycling water and nutrients, and that enhances crop production. "The improved soil quality and increased soil organic matter has pushed crop yields far above those achieved in years past using conventional tillage," says Stika.

Getting it all Together

"We're all on the same page," says Stika. "The Soil and Water Conservation District and district conservationist bring together the pesticide and fertilizer dealers, elevator managers, bankers, extension agents and equipment dealers, and educates them on what works, how it works and the benefits of a no-till systems approach."

Ferebee says, "There is no way any one person or entity is responsible for this success." It's a partnership, he says, like an informal alliance.

"It doesn't matter where producers go for information; they always get the same message," says Stika. "This may be the reason other counties fail to achieve success."

Ferebee adds, "The farmers have to want to change."

Stika and Ferebee agree, no-till isn't something you just do. "You can't just go buy a drill and pull it around your field. You have to understand the whole system: how it's supposed to work, where the pitfalls are, what you need to do to make it work. You have to be a committed student of no-till," says Stika.

Ferebee goes on to say that it isn't a three-year program. "It is a continuous program, and it will take up to five years to see results."

When a producer doesn't get the desired results, Ferebee, Stika and all the other players provide assistance to make sure he won't fail. "We help find the answers," says Stika. "We are committed to not let anyone fail."

For more information about Golden Valley County and its success, contact Jon Stika at Tel: (701) 225-5113 or E-mail: jon.stika@nd.usda.gov.

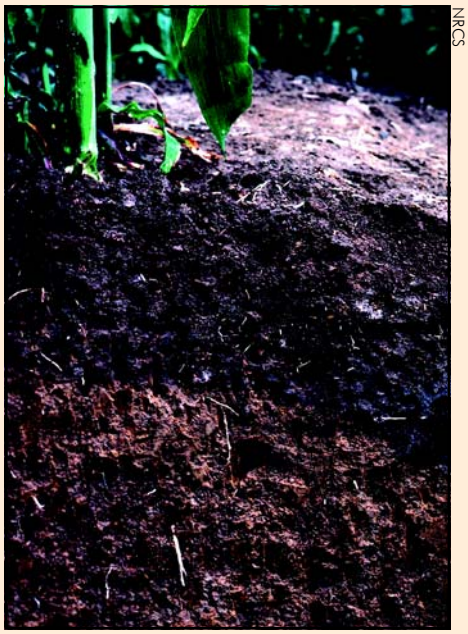
Soil Conditioning Index

The Soil Conditioning Index (SCI) is a tool to predict the consequences of management actions on soil organic matter. Factors considered in the SCI, which affect organic matter changes, include the following: soil type, climate, crop rotation and tillage system used. The SCI does not predict the amount of change in organic matter. It predicts if organic matter is increasing, decreasing or stable. Organic matter is an indicator of soil quality as it affects cation exchange, aggregate stability, water holding capacity and soil biological activity.

SCI rating values range from -4 to +4. A positive value generally means that the soil quality of a management system is in an upward trend. A negative value is an indication that the soil quality is in a downward trend and needs a change in crop rotation and/or less intensive tillage systems to improve the SCI rating or increase organic matter.

The SCI is part of the RUSLE 2 (Revised Universal Soil Loss Equation) calculations and can be an additional outcome from the soil loss calculations. RUSLE 2 is a software program that is used to predict soil loss due to water erosion.

The Conservation Security Program requires a positive SCI for a farmer to be eligible for funding.


NRCS

Soil organic matter is important because it improves tilth, reduces crusting, increases water infiltration, reduces runoff and aids in root development.

For more information

For more information about the Soil Conditioning Index, visit http://fargo.nserl.purdue.edu/rusle2_dataweb/RUSLE2_Index.htm.

For specific soil conditioning index examples visit www.ctic.purdue.edu/soilconditioningindex.

For information on the CSP visit http://csp.sc.egov.usda.gov.

Campers Learn Conservation Ethic

Importance of Conservation Taught at Camp Wittman

By Angie Fletcher

Wittman Farms

Bob Liming, Valley Boys and Girls Club executive director, created the initial concept of Camp Wittman, and organized countless volunteers to build and maintain the camp facilities.

Camp Wittman is more than a place for youth to spend a fun-filled summer week away from home. Camp Wittman is a mountain-top retreat where visitors discover an appreciation for timber, wildlife and water while learning about the importance of preserving natural resources.

"A joint goal between Wittman Farms and the local Boys and Girls Club is to provide a facility that offers youth development and outdoor and natural resource education for students, teachers and natural resource professionals," says Dick Wittman, president of Wittman Farms and Pacific Northwest Direct Seed Association board member.

In 1986, Wittman Farms, a fourth-generation family farm located 23 miles from Lewiston, Idaho, offered the Boys & Girls Club a small section of its Craig Mountain property to use as a camp for at-risk and under-privileged children. "We are farmers, cattlemen, and timber and wildlife resource managers, and we have a responsibility to help educate consumers, teachers, industry professionals and public policy makers about our industry," says Wittman.

Funding for camp programming comes from several sources, including the Camp Wittman Fund. The facilities are maintained by donations and grants for improvements, plus volunteer time and donations.

"This camp facilitates a real-life learning experience about a multiple-use approach to natural resource management," Wittman says. "At the camp, we focus on renewability, sustainability and economic multiplier concepts behind natural resource management."

Learning from the Pros

Students are exposed to real-life agricultural, timber, conservation and wildlife professionals who pursue their vocations to enhance the quality of life through sound stewardship practices. Students learn about agriculture by studying grazing strategies of livestock. They gain insight into timber resources by studying species and age identification. Discovering wildlife, they explore hunting issues, habitat management and how to determine how much wildlife harvest to allow.

Students identify the impacts of pollution and the importance of taking preventive measures to avoid polluting resources. They learn to trace the complete water cycle from a creek that originates near the camp and eventually ends up in the Pacific Ocean. They are asked to identify the many ways water affects society and how it gets replenished.

Camp patrons gain an understanding of how natural resources impact jobs, food, homes and general economic growth. They learn how to trace the biological and economic chains from topics such as pasture grass to the hamburger they eat and from a tree to the paper they write on. As they follow the economic chain they gain an understanding of the multiplier effect created by harvesting natural resources and how numerous jobs are created along the chain.

Visitors range in age from 9 to 80. The camp specializes in school environmental education and summer camps for children ages 9 to 13 but also helps older teens to learn team and outdoor survival skills. Camp Wittman is also a place where organizations such as FFA and 4-H can send student leaders to attend leadership development classes.

Camp Wittman is designed to accommodate 20 to 40 students in a classroom setting, but it has had as many as 200 visitors at one time. Annual enrollment is between 500 and 600 students who typically stay two days.

Lans Richardson, past student and Western Montana vocational agriculture teacher says, "The lessons I learned at Camp Wittman stuck with me for a long time, and I know I will always think differently about the industry after the internship."

The camp is solar powered and includes a natural resource education center, covered campfire and amphitheatre area, kitchen and dining rooms, arts and crafts pavilion, soils pit, boys and girls dorms, lighted restrooms, water cistern and supply system, shower houses with hot water, Indian teepees, ropes course, horseshoe pits, archery range, storage building, cook's corner (private sleeping cabin) and parking area.

For more information about Camp Wittman, the Boys and Girls Clubs and the Camp Wittman Fund, contact the Boys and Girls Club of the LC Valley, Tel: (208) 746-2301, or Dick Wittman, Tel: (208) 843-5595.

CTIC Board Meeting Followed by Conservation Forum

The CTIC Board of Directors fall 2004 meeting will take place Oct. 20, from 8 a.m. to 4 p.m., at the Syngenta America, Inc. offices, located at 1399 New York Ave, NW, Suite 750, Washington, DC. For directions to the Syngenta offices visit www.ctic.purdue.edu/Tammy/Directions.html.

A block of hotel rooms is being held for CTIC members and advisors at the Holiday Inn on the Hill, 415 New Jersey Ave., NW. To reserve a room, Tel: (800) 638-1116 and ask for the "Agri-Pulse" rooms.

For more information about the board meeting, contact CTIC at Tel: (765) 494-9555; or E-mail: ctic@ctic.purdue.edu.

Charting the Future of Conservation Policy: An Insider's Perspective

On Thursday, Oct. 21, CTIC and NACD will host a conservation issues forum for business and industry leaders, Charting the Future of Conservation Policy: An Insider's Perspective. Speakers, including NRCS Chief Bruce Knight and other top Bush Administration officials, will discuss key conservation programs and the prospects for change in the next Congress.

A reception will be held from 5:30 p.m. to 8 p.m. on Wednesday, Oct. 20, at the Holiday Inn on the Hill. The issues forum begins with breakfast at 7:30 a.m. on Oct. 21, and will conclude by 5 p.m. For a registration form and for more information visit www.ctic.purdue.edu/Tammy/ConsMtgInviteOct2004.pdf.

Is No-till and Conservation Tillage Increasing in Your County/ Watershed?

The 2004 Crop Residue Management Survey will be released in early November.

Contact CTIC for more information. Tel: (765) 494-9555 or E-mail: ctic@ctic.purdue.edu.

Joy Hardwick

Protecting the Future of American Agriculture

CTIC, with support from its members, works for the future of agriculture by:

- Bridging the public and private sectors working to advance profitable conservation in agriculture
- Connecting ag and conservation leaders around the country in a common vision
- Providing current information and technology on improving soil quality
- Improving the health and vitality of local communities, their economies and their environment

Members will soon be asked to renew their commitment to support CTIC.

If you're not a member, contact us today to find out how you can join the largest public/private network working to protect the future of American agriculture. Call (765) 494-9555.

No-till on the Plains, Inc.

More than 39 people attended the 10th annual South Dakota No-till Bus Tour Aug. 2-4. The tour began at Ward Laboratories, Kearney, Neb., which is a soil testing laboratory founded by Dr. Ray Ward, soil scientist. Ward has worked extensively with soils and crops of the Great Plains and possesses enormous technical expertise in soil testing methods and soil chemistry. Dr. Ward accompanied the group on the remainder of the journey, discussing soil properties and fertilization methods, as well as the geology of South Dakota and Kansas soils.

During the next two days, the group toured South Dakota and Nebraska, including the Dakota Lakes Research Farm, Pierre, S.D., where Dwayne Beck, research manager of Dakota Lakes Research Farm, guided them through his plots of continuous no-till corn, soybean, sunflower, field peas, lentils, garbanzos (chickpeas), canola, winter wheat and spring wheat. At Cronin Farms, Gettysburg, S.D., Dan Forgey presented several farm locations that have been permanent no-till since the early '90s, and in White Lake, S.D., David and Carol Gillen invited the tour to see their cropping and hunting plots. Then, at the Rogers Memorial Farm in Lincoln, Neb., Paul Jasa, extension agricultural engineer, explained the long-term no-till research at this site.

No-till on the Plains

Dwayne Beck, research manager of Dakota Lakes Research Farm and professor at South Dakota State University, speaks to participants of the South Dakota No-Till Bus Tour.

No-till on the Plains winter conference will be Jan. 24-25, 2005, at the Salina, Kan., Bicentennial Center. Featured speakers are Dwayne Beck and Jill Clapperton, rhizosphere ecologist at the Agriculture and Agri-Food Canada Lethbridge Research Centre. Contact No-till on the Plains, Inc. at Tel: (888) 330-5142; or Web: www.notill.org.

Agriculture for a Clean Environment

On July 23, more than 110 volunteers participated in the fifth annual Stillwater River Trash Clean Up, sponsored by the Agriculture for a Clean Environment (A.C.E.) in Ohio. Each volunteer received a free T-shirt and lunch for their services.

A.C.E. hosted an informational meeting for members of the Tippecanoe River Watershed Project in Indiana on Aug. 4, which included a tour of Fetters Test Plots. During the meeting, each group gave an overview of the organization and projects it has implemented.

On Sept. 1, more than 60 people attended the annual Fetters Field Day and viewed a no-till and conventional tillage demonstration, learning various techniques and benefits of no-till. The intent of the test plots and field day is to provide landowners and operators the opportunity to see the environmental benefits of no-till and learn how to implement a no-till farming system on their land. Bill Richards, a farmer from Circleville, Ohio, agricultural adviser to U.S. Senator Mike DeWine and former chair of CTIC, explained how he uses controlled traffic patterns for planting and spraying operations on his farm, and how this practice helped improve infiltration rates and increase organic matter.

For more information about A.C.E., contact Nikki Reese, Watershed Project Coordinator, at Tel: (937) 448-0509 or E-mail: nreese@myvine.com.

Tri-State Strip-till Alliance

Due to some state-to-state legal issues, growers in Nebraska, Kansas and Colorado (upper sections of the Republican River watershed) are facing limits to the water they can pump from the Ogallala Aquifer onto their crops. To show area growers high economic corn yields grown with less pumped irrigation, researchers in the Tri-State Strip-Till Alliance held six field days near Mingo, Kan., and Yuma, Colo. The field days attracted more than 550 growers and demonstrated the benefits of strip-till and the impact it has on limited irrigation projects.

At summer field days near Mingo, growers witnessed the results of a side-by-side comparison between strip-tilled and conventionally tilled corn fields with only 10 inches of pumped water. The yield from the strip-till field (156 bushels) was more than 20 bushels greater than the conventional tillage field (130 bushels).

Field days at the Irrigation Research Foundation (IRF), near Yuma, demonstrated how strip-till saved 5.5 inches of water ($3.50 - $6.00 per inch) by not cultivating the soil, by reducing evaporation and by increasing infiltration.

"An inch of water pumped on a 130-acre field is more than 3.5 million gallons of water. Strip-till system technology helps growers save moisture losses to spring winds, catch snow, soak in the spring and heavy summer rains and reduce the effects of early weed pressures compared to conventional-till farming," says Mike Petersen, irrigation agronomist, Natural Resources Conservation Service (NRCS) in Colorado.

For more information contact Mike Petersen, NRCS, at Tel: (970) 330-0380 or E-mail: Michael.Petersen@co.usda.gov.

Educating growers about the importance of proper soil fertility requires good information. That's why our *Back-to-Basics* program offers dealers the marketing and educational materials they need to explain the benefits of a balanced fertility program. Of course, you can always rely on our experience, technical support and quality potash and phosphate products – as well as K-Mag® – to help keep your business successful. Visit our Web site at www.back-to-basics.net. Together, we'll make sure growers understand the difference between soil and pay dirt.

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DID YOU KNOW?

Only 3 percent of the water on Earth is freshwater, with only 1 percent available for human consumption.

69 percent of the world's freshwater withdrawals are used for agriculture; **23 percent** are used for industry; **8 percent** are used for municipal (drinking water, bathing and cleaning, and watering plants and grass).

49 gallons of water are necessary to produce just one eight-ounce glass of milk. That includes water consumed by the cow and to grow the food she eats, plus water used to process the milk.

52 countries — with two-thirds of the world's population — will likely have water shortages by 2025.

80 gallons of water *per person* each day in the United States are used by the average single-family home in the winter; **120 gallons** in the summer. Showering, bathing and flushing account for about two-thirds of the average family's water usage.

About 6,800 gallons of water are required to grow a day's food for a family of four.

Source: US EPA Office of Water and the National Wild and Scenic Rivers System.

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Watershed Educational Give-Aways

The Conservation Technology Information Center's Know Your Watershed Program is awarding several EnviroScape® models to local watershed groups to be used to demonstrate the effects of water pollution and promote watershed awareness. The Watershed / Nonpoint Source model demonstrates how different land uses affect water quality.

More information on the model is available at www.enviroscapes.com. The award application is available at www.ctic.purdue.edu / kyw / model, and must be submitted by Dec. 1, 2004.