

Partners

Alternative Enterprise Series

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Linking Soil to Water Quality

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Featuring

Dave & Cathy Mosman

CHAMPIONS of Conservation

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CONSERVATION TECHNOLOGY INFORMATION CENTER BOARD OF DIRECTORS

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ON THE COVER



Champions of Conservation
Great innovators and great hosts to legions of farmers and regulators, David and Cathy Mosman exemplify the Champion of Conservation ethic on their Idaho farm.

Cover and inset photos are courtesy of University of Idaho.



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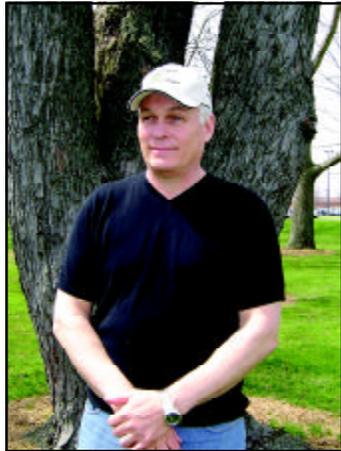
A Time for Change

Dear Partners Readers,

Your Conservation Technology Information Center is changing – and that's a good thing.

First, we are pleased to introduce our newly elected officers. At the 2004 winter Board of Directors meeting, the following officers were elected for a one-year term:

Scott Hedderich, *Chair*,
Pioneer, a DuPont Company
Neil Strong, *1st Vice Chair*,
Syngenta Crop Protection
Ray Hoyum, *2nd Vice Chair*,
IMC Global
Chris Foster, *Treasurer*,
John Deere
Ron Sorensen, *Secretary*, Corn and Soybean Digest



John A. Hassell, CTIC executive director

CTIC also extends a warm welcome to Tim Healey, Agrotain International, who was elected to a three-year term as a CTIC Board Member. We expect a lot from Tim as a new board member.

Change has also taken place within our parent organization, the National Association of Conservation Districts. Krysta Harden, formerly with Gordley Associates, a Washington, D.C., consulting firm, has joined NACD as its new chief executive officer. We congratulate, Krysta, who has come to work for a great organization with an impressive history and an exciting future. The CTIC Board of Directors and staff are eager to continue working with NACD and Krysta to increase conservation on our working lands.

Change is also underway at the heart of CTIC. For many years, people have known CTIC programs and initiatives, but few really knew about the Center itself. Last fall, the Board of Directors requested that CTIC staff work on a new message that promotes CTIC (not just its programs). At the winter Board meeting, CTIC staff presented for the Board's consideration a draft message – "CTIC is a trusted and reliable source for technology and information about improving soil quality." A board-staff committee will now work to refine and distribute the message. This new message is not only important, but also timely. We all need to be thinking more about the future and how we are going to continue to provide a safe, inexpensive source of food, fiber and energy. Without protecting our soil resource, we are not protecting our future and future generations.

As I have said here before, I believe we must reevaluate our conservation programs and move away from managing for erosion control and start managing for soil quality. Continuing to manage our soil resources as we have in the past gives a false sense of security that we are protecting this vital resource, when in effect we are temporarily delaying a natural resource crisis. This is like getting in your car, fastening your seat belt for protection and then driving with your eyes closed.

The CTIC Board of Directors has that vision for the future. That's why they saw that it was time for a change. I urge you to join them and make the change from managing for soil erosion to managing for soil quality. Future generations are counting on us.

CTIC Initiative

Promoting Agricultural Improvements for Air Quality in the San Joaquin Valley

Producing more than 260 crops in an eight-county region, the San Joaquin Valley of California can be aptly described as the food basket of America. Unfortunately, the Valley is also known for significant air pollution problems. Before 1991, air quality monitoring indicated that the San Joaquin Valley Air Basin exceeded standards for both the annual and 24-hour particulate matter of 10 microns or less (PM-10) in diameter. The Valley's plan to reduce the pollution was rejected by the U.S. Environmental Protection Agency, and there is no plan currently in place for the region.

CTIC currently is working with several partners in San Joaquin Valley to promote the positive work being done by agriculture to reduce air emissions. Producer representatives, organizations and commodity associations in the Valley are helping CTIC to identify producers who are actively working to reduce air emissions on their operations. CTIC will develop and promote success stories that describe the positive activities of agriculture in the Valley. A special California edition of Partners, published within the next few months, will feature these success stories as well as interviews with leaders in California and agriculture.

For more information on CTIC's work in the San Joaquin Valley, contact CTIC at Tel: (765) 494-9555 or E-mail: ctic@ctic.purdue.edu.

CTIC





A New Partner

The Conservation Security Program

By José Acevedo

The Conservation Security Program is an innovative program that moves beyond fixing resource problems to offering options that enhance resource conditions beyond the minimum levels.

With the publishing of the proposed rule in the Federal Register, the much-anticipated Conservation Security Program (CSP) is one big step closer to reality. While many of the details regarding the program's administration are still being finalized, CSP is well on its way to becoming one of the most important and innovative conservation programs in the history of our nation. Many believe it will become America's new partner in conservation.

CSP is a program that moves beyond fixing resource problems to offering options that enhance resource conditions beyond the minimum levels. As NRCS Chief Bruce Knight says, "CSP recognizes the valuable conservation work farmers and ranchers have done in the past, and it provides additional incentives for those who want to do more."

And here's how: CSP will motivate producers to be better stewards. By recognizing producers who practice good conservation, CSP provides strong incentives for producers to improve their stewardship.

CSP will measure improvements to the environment. CSP has an enhancement component that includes the opportunity for assessment and evaluation activities. The available activities will be outlined in the sign-up announcement. To qualify for the pro-

gram, producers will assess the conservation accomplishments on their operations and will agree to install additional conservation practices and management actions that enhance the natural resources. When these accomplishments have been verified, producers will receive additional payment for the enhancement component of the program—the largest portion of the payment. Demonstrating positive environmental results will show producers, Congress, and taxpayers that CSP is a new program to help producers achieve the environmental benefits that society expects.

CSP will improve the sustainability of America's working farms and ranches. The conservation benefits gained through CSP will help make farms and ranches more sustainable, while improving our natural resources for all Americans. That's good news for agriculture, agribusiness and America's rural economies.

Most agricultural land will be eligible for CSP eventually. Producers on cropland, orchards, vineyards, pasture and range may apply for CSP, regardless of size, type of operation or crops produced. That's good news for all of agriculture – not just a few types or sizes of agricultural operations.

Catalyst for Conservation

Through CSP, it will be possible to

reward the very best conservationists – stewards who have been diligent for so long – and to pave a path that others can follow.

In short, CSP will act to "pull" producers to conservation by providing incentives. "CSP will provide incentives that will help NRCS position conservation as something producers are 'pulled toward,' and thus seek out," Chief Knight said recently. This contrasts with having them 'pushed towards' solutions that are perceived as more imposed and less chosen.

"CSP is a great addition to USDA's portfolio of conservation

programs," he said. "It will reward producers who are already excellent stewards of the environment and motivate others to greater effort."

Some of USDA's traditional conservation programs help producers fix resource problems. Some protect resources by taking agricultural land out of production. Others maintain rural landscapes by preventing development.

USDA's other conservation programs and services, as well as state and local programs, area available to help producers reach their environmental goals. Specifics of the CSP, such as what suite of conservation practices and enhancements will be needed to enhance resource conditions, have not yet been identified.

Chief Knight, along with many other agricultural conservationists, and environmental advocates throughout the country, believe that when CSP realizes its potential, it could very well become the premier program and partner for environmental stewardship into the future.

José Acevedo is Deputy Chief for Programs for USDA Natural Resources Conservation Service.

Making a Difference

2003 Environmental Steward Award Winners

It's their innovations, technologies and management practices that make these pork producers Environmental Stewards. This program, sponsored by the Pork Checkoff and *National Hog Farmer* magazine, recognizes producers from across the country for their care in environment and conservation.

For more information about the Environmental Stewards Awards Program, go online to www.porkboard.org.

Murphy Farms Midwest Sow Farm 202

Murphy Farms Midwest overlooks a 45-acre human-made lake, a picturesque setting and a home for numerous types of wildlife. The 2,500-sow unit, located near Mt. Erie, Ill., is managed by Paul Burriss, an employee of Hostetter Management Company.



"A lot of our employees enjoy hunting and fishing, so they aspire to maintain their quality of life," said Burriss, who serves as the area production manager. "Murphy Farms has been proactive protecting the natural settings in this area, as the lake was expanded to serve as a supplemental water source."

"Environmental stewardship is preserving what we have, now and for the future," said Burriss.

Quail Run Farms, Vic Little and Family

Vic Little, a fifth-generation farmer in the Ditch Valley area, took advantage of an opportunity to return to his family's 100-year operation. Together with his wife, Melva, and son, Kirby, he operates a 3,400-head nursery outside of Rosston, Okla.



Water comes at a premium in Ditch Valley. Little has performed some field trials with his nursery and the shallow-pit/evaporative lagoon to reduce ammonia. He uses a variety of pit additives to find the most economical and effective product, thus allowing him to use recycled water.

"There are four generations before me that have given me the responsibility of caring for this land," said Little. "Hopefully I can pass it on to generations in the future."

Sarem Farms, Inc., Bundy Lane

Bundy Lane is an eighth-generation farmer from Gates, N.C., who manages the 4,800-sow farrow-to-wean site as part of his family's operation that includes crops such as corn, peanuts, cotton, soybeans, wheat, fescue and bermuda pasture, as well as Angus cattle and a farm supply business.



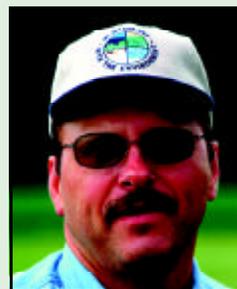
Lane takes the management aspect of his farm very seriously and takes a lot of pride in what he has. Sarem Farms was one of the first farms in the country to implement an Environmental Management System (EMS), a program developed in part by the U.S. Environmental Protection Agency to address environmental issues in a structured system.

"It's allowed me to set up standard operation procedures, and take an approach of continual improvement on our farm," said Lane.

Nicolai Pork Producers, Inc.



Dick Nicolai, owner, and Sam Watkins, owner-manager, operate a 1,500-sow site near Hector, Minn. The partnership, which also includes Donn Cunningham and Gary Lamka, has taken a concentrated approach to manure management and odor abatement.



The farm has used a biofilter to treat odor from the barn and deep pits since 1996, and has been living nearly odor free ever since. The science behind the biofilter is simple and effective. The exhaust air from the barn passes through a biofilter, which is a mixture of woodchips and compost. Microorganisms in the mixture oxidize the hydrogen sulfide and ammonia from the exhaust air and then release the

filtered air.

"We were really encouraged by the first results of our biofilter," said Nicolai. "We looked into what type of medium, what type of configuration and how much air flow was needed to achieve odor reduction."

Showcasing Good Works

California ranch welcomes guests as well as wildlife



Photo courtesy George and Elaine

By Steve Werblow

This issue's feature on alternative enterprises fueled by on-farm conservation efforts brings us to the Work Ranch in the hills of California's Central Coast. George, Elaine, Ben and Kelly Work have parlayed their interest in conservation and wildlife into a ranch venture as diverse as the species of plants and animals that share their 12,000 acres.

Starting with creative approaches to enhancing habitat and slowing erosion, boosted by cost-share programs and sparked by inspiration, the Works illustrate the outstanding potential for doing well financially on the ranch while doing good for the environment.

Decades of interest in conservation opened doors for George and Elaine Work on their 12,000-acre ranch in the dry hills of San Miguel, along California's Central Coast. In turn, the Works opened their doors to hunters, horseback riders and overnight guests drawn by the striking beauty and

abundant wildlife of the Work Ranch – both enhanced by the family's commitment to conservation.

A long-time member of the Upper Salinas Resource Conservation District board, George Work began exploring conservation tillage on the ranch's dryland grain fields in the 1960s, reducing erosion that scars the region's steep hillsides and conserving the scarce 12 inches of annual moisture. The Works have been committed partners in a variety of federal and state conservation programs, too, from the Conservation Reserve Program (CRP) to the Environmental Quality Incentives Program (EQIP) to the Wildlife Habitat

Enhancement Program (WHIP). Today, they have 1,000 acres in CRP, 1,000 acres in grain production, another 1,000 rotating between forage and cereal grains. About 250 head of mother cows share the balance of the land with about 20 horses and roaming herds of Tule elk, Coastal blacktail deer, wild pigs, turkeys, quail and a host of other wildlife.

Hosting visitors, whether for the day or for the weekend, launched the Works out of the traditional commodity ranching business. "A visit to a ranch, by its very nature, is a branded product and by its very nature is sold at retail," notes George Work. Instead of being wholesale price-takers, he explains, farm hosts create a unique experience that becomes their "brand" – and they capture its full retail value.

Animals At Work

An avid ecologist in an ecosystem ravaged by invasive annual grasses, Work doesn't have many nice things to say about exotic species on his ranch. But he's taken a shine to the wild pigs that roam the hills, descendants of Russian boars introduced to the Central
Partners

Coast by a local landowner in the 1920s. To his surprise, it turns out that the aggressive rooting and wallowing of the wild pigs has been a boon to native oaks and grasses. The pigs clear out the carpet of annual grass, allowing native perennials – including oaks – to repopulate. “You’ll find 16 species of native grass under one tree,” Work marvels. Through careful grazing management, the Works keep cattle in areas that are ready and able to support them, then move the animals off to let the range rest.

Work puts his cattle to work reshaping the landscape, too. To clear brush without controlled burning, he tosses alfalfa hay into a thicket of brush. The food-frenzied cattle stomp the unwanted vegetation into the ground and stir up native seed in the soil. Unlike a burn, there is plenty of groundcover left on the surface, providing good erosion control for several years, as well as a source of organic matter.

Hooves also help smooth out gullies and ditches. Work likes to put a salt block at the top of a ditch and let the cattle nose it down the slope for a day or two, smoothing the shoulders of the cut and grinding in erosion-stopping straw to stabilize the soil.

Mouths to Feed

The Works’ conservation efforts have made their ranch a haven for wildlife. Their animal neighbors are free to take their share of range grasses, hay and standing grain around the ranch. Work says the growing local elk herd has taken a particular liking to CRP ground on his ranch and those of his neighbors. Meanwhile, new grass that grows after controlled burning of brush provides a source of nutritious food for deer. And creatures from quail to turkeys to ground squirrels benefit from barley fields and watering troughs scattered around the property. The wildlife is a source of pride and pleasure for the Works, and has become a significant focus of their conservation ventures.

The Works’ efforts to nurture wildlife led them to develop innovative watering trough systems designed to serve more than just cattle. Using leftover concrete from a local concrete plant, donated rebar and funds from the local Cattlemen’s Beef Association and the National Audubon Society, Work built a set of concrete ramps that are 6

feet long, 12 inches wide and 2 inches thick, with extended lengths of rebar that hook onto the rims of cattle troughs. One ramp leads wildlife – from baby quail to wild boars – up the outside and the other eases them down to the water.

An even more intricate design is the ground-level trough. The 12-foot-long troughs are built of concrete poured into an underground form. The water surface is just six inches wide, discouraging unauthorized swimming; the sides are slanted sharply to discourage small animals from standing in the water. Because the water is at ground level, all creatures have the same access to a drink that livestock enjoy.

Fueled by interest in enhancing game species habitat, EQIP and the California Department of Fish and Game paid for watering systems. “On our ranch, game species pay for this type of improvement,” quips Work, “but they’re only one of hundreds of species that use them.”

Outdoor Adventures

Beef may be what’s for dinner on most ranches, but the Works have found that guided hunts put food on the family’s table. Guided by experienced local hunter Bert Claassen and his staff, guests on the Work Ranch pay \$125 for a day of dove or quail hunting, \$550 for the chance for a meat or trophy pig, and up to \$15,000 for a rare opportunity to bag a trophy bull elk. Work is quick to point out that the elk fees are split with the guide and the owners of four other ranches – but there’s no mistaking that there can be more money in elk or wild pig than in beef, especially when cattle prices are low.

Horses are a big part of the landscape on Work Ranch, too. Trail rides and a horseback riding weekend camp for girls keep nearly a dozen horses busy. Some riders bring their own mounts; others lease horses from the Works. Special overnight outings bring riders up a canyon in the far reaches of the ranch for a night under the stars.

Photo courtesy George and Elaine Work



An innovative trough with water at ground level allows wildlife to access a drink as easily as livestock.

Indoor Accommodations, Too

Hunters paved the Works’ path into the agritourism business, but less active travelers benefited from the ranch too. The family opened its home and a nearby cabin to overnight guests after helping change California’s hospitality laws to allow farm stays. For \$150 per night, a visiting couple enjoys a home-cooked dinner, a cozy room and a farm

breakfast – as well as an extensive tour of the ranch and maybe even a chance to lend a hand with whatever chores need to get done.

The appeal of a taste of ranch life has drawn guests from the San Francisco Bay area and Los Angeles, each about 200 miles away. Many of the farm stay guests are far from the traditional hunting client base that has sustained the Works for years, but they are impressed with the Works’ commitment to wildlife and provide vital links with the non-farm community.

“We have a chance to hear the concerns that they have,” notes Work. “We in agriculture talk about the need to educate non-farm people, but we also need to hear about their concerns. That’s been probably as valuable to us as the monetary part of the visits.”

Work adds that city folk often come away from a visit to Work Ranch with a far better appreciation for the connection between ranchers and nature. “If we have Audubon people on the ranch and they see the bird-friendly troughs, then their relationship with us becomes entirely different,” he says. “At this stage in our industry, that’s probably much more important than whether a bird gets a drink at that place or not.”

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

Champions of Conservation



Innovation, experimentation and an eagerness to share what they've learned with fellow farmers and regulators make David and Cathy Mosman Champions of Conservation.

By Steve Werblow

Perched on a ridge between two deep canyons near Craigmont, Idaho, Dave and Cathy Mosman have brought Northwest conservation farming to new heights. Moving beyond the region's traditional winter and spring cereal grain markets, they put conservation to what may be the ultimate test. Using a no-till/direct seed system that skeptics warned would choke them with weeds, the Mosmans have found success growing an array of direct-seeded, certified seed crops. Spring wheat, barley and native grasses are challenging crops under ordinary circumstances, and even more challenging when seed company standards demand that the crops be nearly weed-free.

From their early explorations of direct seeding (a Northwest term for no-till), through their current efforts to tackle Kentucky bluegrass seed production without burning crop residue, the Mosmans have also been extremely active in sharing their knowledge and experience, according to Dick Wittman, a Culdesac, Idaho, farmer and president of the Pacific Northwest Direct Seed Association.

"They are not only outstanding farmers, but also leaders in the community and the agricultural industry," says Wittman. "They epitomize what conservation and stewardship are all about." That's why Wittman nominated the Mosmans for recognition as Champions of Conservation.

Systems Approach

"Dave approaches farming from a true systems standpoint," Wittman notes, "where he places appropriate balance between crop rotations, environmental stewardship, family values and financial management."

Managing the ridgetop farm has always required careful balance. With 25 inches of annual precipitation and rich prairie soil, the farm sounds promising on the surface. But the good soils are only six to 12 inches deep. Beneath that is far less forgiving clay.

Back when his father and uncle ran the operation, Mosman was intrigued by the outstanding quality of the soil left undis-

turbed under stands of Kentucky bluegrass for a decade or more. The first year or two after a Kentucky bluegrass rotation yielded exceptional crop yields, he recalls. But after a few years of conventional farming, the friable soil structure began to deteriorate – and so did the yield advantages.

While exploring ways to maintain a healthy soil, Mosman was attracted by the cost savings that direct seeding represented. By the mid-1980s, he was direct seeding fall crops. In 1996, Dave and Cathy went to full-time direct seeding – they bought a 15-foot John Deere 750 drill and sold their conventional equipment.

Big Departure

In the mid-'80s, direct seeding was a big departure from traditional farming, even from the camp of ardent soil conservationists, Mosman notes. Soil conservation efforts then were primarily focused on capturing sediment before it left the farm, he says. He preferred to find a way to keep the soil in the field where it belonged.

"We can't afford any washing – we've got to save what we have," agrees Cathy.

Preserving their thin icing of topsoil also helps the rivers thousands of feet below. Though it takes a half-hour to negotiate winding roads to reach the Clearwater River from the Mosman ranch, Cathy notes, it's really just two miles away as the crow flies. Any soil that washes off of their ridge is sure to promptly end up in the river.

C Before T

Preventing soil erosion is important to the Mosmans, but so is soil quality. "We're really focused on improving soil quality any way we can," says Dave. "Probably the best way we can improve soil quality is to add organic matter and all the microbes, the flora and fauna, that go

with that.” He notes that his soils used to consistently test below 4 percent organic matter; after just a decade of direct seeding, they consistently test above 4 percent.

Cathy says the change is evident even without a soil test. “It’s just amazing the change in soil health you see out there” after a few years, she notes. “Between the earthworms and the organic matter, it’s almost springy. And we’re not losing what little moisture we have during a dry spring like this one.”

They’re also not committing lots of capital to equipment and other overhead expenses. Using their single drill and their own labor, they were able to nearly double the size of their operation. With 200 rented acres now in CRP, the couple has leveled off at a comfortable 1,600 acres of cropland.

Rotation Rotation Rotation

As he explored direct seeding, Mosman traveled to Pierre, South Dakota, to visit Dwayne Beck at the Dakota Lakes Research Farm and learn about Beck’s use of crop rotations to take optimum advantage of the moisture savings provided by no-till, better manage weeds and improve soil quality.

Mosman adapted the concept to fit his short season. Warm-season grasses such as corn fare poorly in the Camas Prairie climate, but peas, lentils, canola and flax provide broadleaf rotation options that help him and Cathy keep cereals and grass seed crops free of weed and disease pressure. Though winter wheat is a mainstay of local agriculture, the Mosmans have focused on seed crops, using spring cereals as clean-up rotations to prepare seed fields. To manage weeds in their spring grain, they delay seeding, spray weeds when they emerge, then drill.

No-Burn Turn

Kentucky bluegrass is a major crop for the Mosmans and many of their neighbors. Though Idaho farmers can still burn Kentucky bluegrass fields to help manage residue, disease, insects, slugs and rodents, a peek over the border into Oregon and Washington provides a look at the future of grass seed production, which could include severe restrictions on field burning.

The Mosmans are working with University of Idaho weed scientist Donn Thill on no-burn bluegrass production, trying to find alternatives to burning that don’t involve the unprofitable practice of baling and hauling straw. Mowing and harrowing the straw after harvest, then giving it a fallow year to decompose while the field gathers moisture, looks pretty promising. Fine-tuning the system, however, will still require significant effort, says Cathy.

Sharing Perspective

In addition to hosting Thill and his research team, the Mosmans have hosted a parade of curious growers, Natural Resources Conservation Service conservationists and U.S. Environmental Protection Agency officials on their no-burn plots. That’s typical, notes Wittman – Dave and his family have always been willing to share their knowledge with their colleagues.

“His efforts helped provide a model for neighboring farmers to begin transitioning to direct seeding with the confidence that it can be done with both improved environmental results as well as better economic viability,” Wittman says. Active in leadership roles on his local soil conservation district board, the Nezperce Prairie Grass Growers Association, the Idaho Crop Improvement Association and the Pacific Northwest Direct Seed Association, Dave also joined the Clearwater Direct Seeders, a group of farmers from Idaho and Washington who meet monthly for breakfast and every summer for field tours, sharing hard-won no-till knowledge with each other.

After years of cramming their calendars with meetings and field days, the Mosmans have backed off from the frenetic schedule they used to maintain, allowing them to focus more on the farm and their children, Maria, Sarah, Ray and Katie, ages 6 to 13.

Taking more time to focus on family and farm dovetails with Dave’s drive to perfect his direct seeding systems. “I look at the next generation – that’s a big motivator for me,” he says. “Because of what we now know, this is probably the first time in history that we’re in the position of improving the soil while making a living on it.”

For more information on direct seeding, contact the Pacific Northwest Direct Seed Association at Tel: (208) 883-3645, E-mail: pnds@directseed.org or Web: www.directseed.org.

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

Champions of Conservation

- Implement a comprehensive system of conservation practices that focus on improving soil quality (continuous no-till, crop rotation which may include cover crops, nutrient management, pest management, conservation buffers, areas for wildlife, proper grazing land management, etc.),
- Follow a philosophy of “managing for C (carbon),” rather than “managing for T (tolerable soil loss),” and perform soil tests to monitor the results,
- Address resource concerns in his/her area, such as water quality, wetlands degradation, wildlife habitat management, air quality, etc.,
- Manage the operation for both environmental and economic benefits (raise value-added crops, employ marketing scheme, etc.), and
- Are innovative and share knowledge - both the hard-earned 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.



The Nature Conservancy looks at endangered mussels, indicators of good water quality, at the lower end of Fish Creek in the Upper St. Joseph River watershed.

Soil for Water

A Fluid Exchange

By Jill M. Reinhart

Managing agricultural land has changed over time, from the historical use-it-then-leave-it philosophy to more modern methods that reflect the soil's value as a renewable resource and focus on maintaining soil productivity. Today another change is underway that moves agricultural management priorities beyond just minimizing soil erosion. Instead a more comprehensive approach that focuses on improving soil quality will bring additional benefits to water and air quality as well as wildlife habitat.

Managing for soil quality is a systems approach with a focus on organic matter, or carbon, that allows producers to both enhance productivity and realize increased environmental benefits. Increasing the soil's organic

matter increases the soil's ability to hold water and nutrients while improving the soil's structure. In addition, managing for soil quality can reduce the impacts of drought, flooding and disease.

The Nature Conservancy has been taking the soil quality approach in the Upper St. Joseph River watershed, located in south central Michigan, northwest Ohio and northeast Indiana. Land use is primarily agriculture, with 64 percent of the watershed in cropland, and 15 percent in pasture or hayland. The watershed's diverse biological system is threatened by sedimentation, altered hydrology, nutrient inputs and habitat fragmentation. While The Nature Conservancy is promoting a suite of conservation options in the watershed, it is focusing on no-till and buffers for working lands in order to improve soil health and ultimately improve water quality.

Protection Increases No-Till Adoption

For the past 12 years, The Nature Conservancy and local project partners have been working to protect and maintain water quality by increasing adoption of no-till through assistance with equipment purchases and a risk

assurance program. They have been successful by identifying and addressing three main obstacles: educating farmers about new technologies to produce corn in a high-residue environment; teaching a systems approach; and protecting against perceived economic loss during the conversion to no-till. "When we talk with farmers about no-till, we always tell them we are trying to improve soil quality and treat the watershed as a sponge," says Larry Clemens, Midwest agricultural team leader with The Nature Conservancy.

Treating the watershed as a sponge means improving the soil's infiltration so that it can absorb and filter nitrogen, phosphorus and pesticides, helping to keep them in place. By improving soil organic matter on agricultural land, soil is more stable on working lands, as well as on land in buffers and waterways. Healthy soil is also able to deliver nutrients and water to plants as they need them.

Focusing on soil function, in addition to erosion control, results in increased production and environmental benefits. "Managing for soil organic matter improves both the soil's ability to regulate water and its role as a natural filter," explains Lee Norfleet, soil scientist with the Natural Resources Conservation Service's Soil Quality Institute, "These environmental benefits come with production benefits as well since it will also be better able to hold water and nutrients."

No-Till Enables Working More Acres

Matt Ridenour, a local producer in the watershed, is realizing both the production and environmental benefits of managing for soil quality. After trying no-till on an experimental basis, The Nature Conservancy helped him purchase a no-till drill and planter, \$3,000 worth of equipment. He eventually moved to a continuous no-till corn/soybean rotation on his entire operation. "As long as we can get our corn stand, we're not seeing a yield drop - and maybe even an increase," explains Ridenour. He sees, "a huge labor savings. We're covering three times the acres with half the equipment." Ridenour also sees the environmental benefits of continuous no-till, noticing less runoff into streams on his land. To complete the system, he uses at least 60-foot wide buffers on all open streams and pipe inlets to help filter pollutants.



The Nature Conservancy

The Nature Conservancy hosts a field day focusing on soil quality at a long-term no-till field in the Upper St. Joseph River watershed.

Partners

The risk protection program in the St. Joseph River watershed helped The Nature Conservancy learn more about the importance of soil structure and soil health, moving the national organization to focus on managing for soil quality. Producers enter the program by implementing a no-till system on a portion of their farmed acres. The Nature Conservancy covers any yield loss on those acres, believing that through this risk protection program, the farmer will demonstrate the profitability of continuous no-till on both corn and soybeans. The experience and education producers gain on the "test" acres is then applied on their remaining acres. A crop consultant provides producers with technical and social support. The program boasts that nearly two-thirds of the corn and soybeans within the Fish Creek subwatershed are grown using no-till techniques, monitored each spring with a tillage transect.

Measuring Up

The project's environmental impacts are being monitored by measuring the diversity and health of macroinvertebrate and fish communities. The nearly 10 years of data doesn't show any significant trends up or down, confirming that the system is remaining at a good to excellent rating, according to Ohio Environmental Protection Agency's Index of Biological Integrity, which The Nature Conservancy considers one of the best tools to measure habitat quality.

"The soil is a valuable component of the ecosystem that naturally buffers our freshwater resources," says Clemens. "The Nature Conservancy sees a direct tie with soil quality and water quality, and will continue to promote no-till as a means to manage soil quality for environmental benefits." The lessons learned about soil quality are now being transferred to other projects in Indiana, Michigan and even Brazil.

Jill M. Reinhart is CTIC/NRCS Water Quality Specialist

For more information. . .

. . .on managing for soil quality, visit the Natural Resources Conservation Service's Soil Quality Institute at <http://soils.usda.gov/sqi/>.

. . .on the Upper St. Joseph River Watershed project, contact The Nature Conservancy's Upper St. Joseph River Watershed project office at Tel: (260) 665-9141, or visit its web site at <http://nature.org/wherewework/northamerica/states/indiana/work/>.

. . .on managing soil quality for conservation purposes, see "Soil and Water Quality: An Agenda for Agriculture" produced by the National Research Council, available at <http://www.nap.edu/catalog/2132.html>.

CTIC Magic at Commodity Classic

The CTIC booth at the 2004 Commodity Classic in Las Vegas was magic. Along with John Hassell, executive director, and Dan Towery, CTIC/NRCS natural resources specialist, magician Mark Brandyberry drew crowds to the CTIC booth.

Using slight of hand and cards that seemed to disappear, Brandyberry captured the attention of corn and soybean farmers from around the country. He kept their attention by telling them about CTIC and about why they should join in our efforts to promote soil quality.

Captivating small groups of the more than 4,000 Classic attendees, the magician went on to explain how using no-till and improving soil quality can keep profits and topsoil from vanishing.

"Mark had folks standing seven deep around the booth," says John A. Hassell, executive director. "Having their attention and interest, we were able to share with people what the Center is all about and how we can help them help themselves through improved soil quality."

Towery told booth visitors that it was a safe bet to go with a continuous no-till system to improve soil quality and build organic matter. "We're not pulling a rabbit out of a hat," says Towery. "Continuous no-till just works."



Magician Mark Brandyberry attracts Commodity Classic participants to the CTIC booth at the 2004 event in Las Vegas. CTIC told visitors about the magic of soil quality and encouraged new members to join the Center.

Web Site Helps Save Farmland

Landowners, agricultural professionals and citizens concerned about the loss of agricultural land now have easier access to assistance, thanks to an expanded Farmland Information Center (FIC) web site. The FIC, a partnership between American Farmland Trust and the Natural Resources Conservation Service, is available online at www.farmlandinfo.org and by calling Tel: (800) 370-4879.

Launched in 1994, the FIC maintains an ever-growing collection of state laws, reports and other literature relating to farm and ranch land protection. It also offers an "answer service" to provide direct technical assistance via phone, e-mail and fax. In addition, the FIC staff monitor and report on farmland protection activities around the country, and identify, acquire and develop new materials.

CTIC Summer 2004 Board Meeting and Tour Set for Pacific Northwest

The Summer 2004 CTIC Board of Directors meeting will be June 8 - 10. Hosted by the Pacific Northwest Direct Seed Association (PNDSA), the meeting will be held in Lewiston, Idaho, and will include a tour of the area. All CTIC members and partners are invited to participate in the tour and attend the board meeting.

Attendees should plan to arrive in Spokane, Wash., the evening of June 8. A block of rooms has been reserved at the Holiday Inn Airport, 1616 South Windsor Drive, Spokane, Tel: (509) 838-1170. When you call to reserve a room, mention that you are with the CTIC group. The corporate rate is \$72, and the government rate, with identification, is \$63.

On the morning of June 9, PNDSA will have vans available to take us on the first part of the tour. In the early afternoon, we will arrive in Lewiston, Idaho, where we will have the board meeting and continue discussions with PNDSA. A block of rooms has been reserved at the Red Lion Hotel, 621 21st Street, Lewiston, Tel: (208) 799-1000. Again, be sure to mention that you are with the CTIC group when you call to make your reservation. The corporate rate is \$72, and the government rate is \$55.

On Thursday, June 10, any board issues that need addressing will be finished, and then the rest of the tour will continue. We will arrive in Spokane in the late afternoon of June 10. For any questions, please contact CTIC at Tel: (765) 494-9555 or ctic@ctic.purdue.edu.



Know Your Watershed

Survey shows program has positive impact

CTIC's Know Your Watershed (KYW) program, created in 1992 in cooperation with the U.S. Environmental Protection Agency and the Natural Resources Conservation Service, promotes understanding of watersheds and encourages formation of local, voluntary watershed partnerships. Through KYW, watershed groups access the National Watershed Network, a tool for sharing ideas and finding lessons learned. Other support provided through the program includes: an electronic newsletter called *eLeader*, watershed guides, training opportunities and conferences, watershed quizzes, a conference calendar, and other resources, such as information related to total maximum daily loads.



After more than 10 years of a successful KYW program, CTIC conducted a national survey to evaluate the watershed guides and explore ways to update the program. Completed at the end of 2003, the survey assessed the impacts of six watershed guides: *Getting to Know Your Watershed*, *Building Local Partnerships*, *Putting Together a Watershed Plan*, *Ground and Surface Water*, *Managing Conflict* and *Leading and Communicating*. The results of this study show that the publications have a broad impact on its users. For example, 96 percent of the respondents said the *Getting to Know Your Watershed* publication was useful; 39 percent find it very useful. Each of the six watershed guides were positively received by a majority of respondents.

CTIC plans to use the results of the survey to refine and update the watershed guides, making them even more useful for watershed coordinators and others working with watershed issues. Please let us know if you have any feedback or suggestions related to the watershed guides or any other part of the KYW program.

To access the KYW resources, including the watershed guides, please visit www.ctic.purdue.edu/KYW/, or contact Jill M. Reinhart, CTIC/NRCS Water Quality Specialist, at reinhart@ctic.purdue.edu or Tel: (765) 496-3011.



September 26-30, 2004

Princess Royale Oceanfront
Hotel & Conference Center
Ocean City, Maryland

This workshop will bring together land managers and water quality specialists to share information on the effectiveness of best management practices in improving water quality, effective monitoring techniques and statistical analysis of watershed data. The workshop will focus on the successes of Section 319 National Monitoring Program projects and other innovative projects from throughout the United States. The agenda will include three days of sessions, poster presentations and a field trip. Plus, two half-day workshops will focus on project evaluation and nonpoint source modeling.

For more information, go to
[www.ctic.purdue.edu/
NPSWorkshop/NPSWorkshop.html](http://www.ctic.purdue.edu/NPSWorkshop/NPSWorkshop.html)

Partners Survey

Partners Magazine just keeps getting better. Partners is now available in two forms: printed or electronic.

Which do you prefer? Printed Electronic (print current e-mail address) _____

In order to continue to provide useful information **to** you, we request information **about** you.

1. What is your name and organization? _____
2. What is your primary job function? _____
3. Have you visited the CTIC website (www.ctic.purdue.edu)? _____
4. Which topics covered in Partners interest you most? _____
5. What topics would you like to see addressed in the future? _____
6. Is the information you read useful? _____
7. Do you share Partners with other people? If so, how many? who? _____
8. Do you know someone who should be a member of CTIC? Please tell us how to contact them. _____

Submit the completed questionnaire to Karen Scanlon, communications director, Fax: (765) 494-5969; or E-mail: scanlon@ctic.purdue.edu or visit www.ctic.purdue.edu/survey to complete the survey.

Alliance Grant Reports

Five alliances from across the country received last year a Core 4 Conservation Grant to help them advance the concepts of *Better Soil, Cleaner Water, Greater Profits* and a *Brighter Future* in their communities. Reports from three of these alliances are included here to share with CTIC members and partners summaries of their grant-related Core 4 Conservation activities. Future issues of *Partners* will include more alliance grant reports.

TRI-STATE STRIP-TILL ALLIANCE

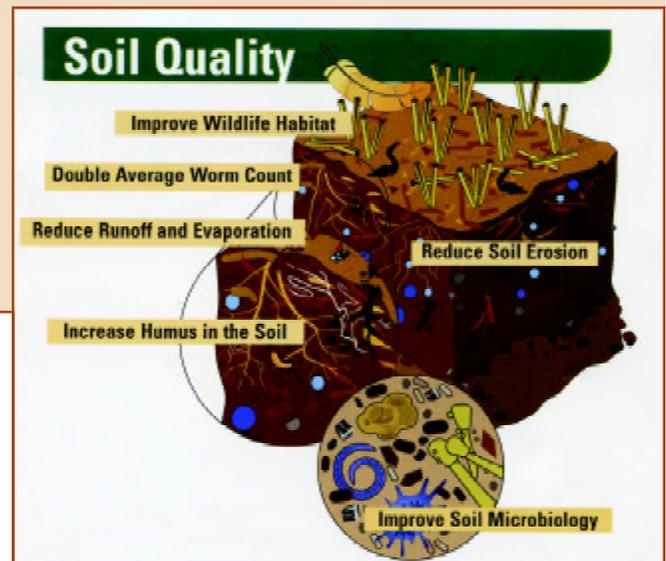
Members of the Tri-State Strip-Till Alliance spent the last year attending meetings, conferences and trade shows; speaking at training sessions, grower meetings and before the state legislature; and promoting Core 4 Conservation through the media, personal appearances and networking. More than 2,340 people learned about Core 4 Conservation in one year because of this Alliance. And, thanks in large part to Alliance efforts, strip-till acres have increased by up to 80,000 acres, mainly on irrigated farm land, in the five High Plains states of Oklahoma, Texas, Kansas, Colorado and Nebraska. This success is backed by strip-till equipment sales in the region and testimonials from farmers who have switched to a strip-till system. Mike Petersen, NRCS area soil scientist, says that in 2003 one southwest Kansas farmer bought 6,000 fewer gallons of fuel than in 2002. Ongoing demonstrations at the Irrigation Research Foundation help to prove the point about strip-till. Research there shows that the profit margin under strip-till was \$65 more than the with conventional tillage. And, strip-till corn yielded 233 bushel per acre while the conventional corn was 204 bushel per acre.

For more information about the success of strip-till and the Tri-State Strip-till Alliance, contact Mike Petersen, NRCS, at Tel: (970) 330-0380 or E-mail: Michael.Petersen@co.usda.gov.

COFFEE COUNTY CONSERVATION TILLAGE ALLIANCE

The Coffee County Conservation Tillage Alliance used grant funds to support the 2004 Sustainable Agriculture and Conservation Tillage conference. Combining field and classroom activities, the conference provided an interactive introduction to conservation tillage systems. Farmers, researchers and agricultural agency personnel presented no-till as a system of many parts, including cover crops, nutrient management, pest management, subsoiling, crop management, etc. The many benefits of such a system, like soil, fuel, equipment and time savings, were also discussed.

The conference's no-till systems training uses a team approach. Farmers team with local NRCS and county agents to work together throughout the training. As in years past,



PACIFIC NORTHWEST DIRECT SEED ASSOCIATION

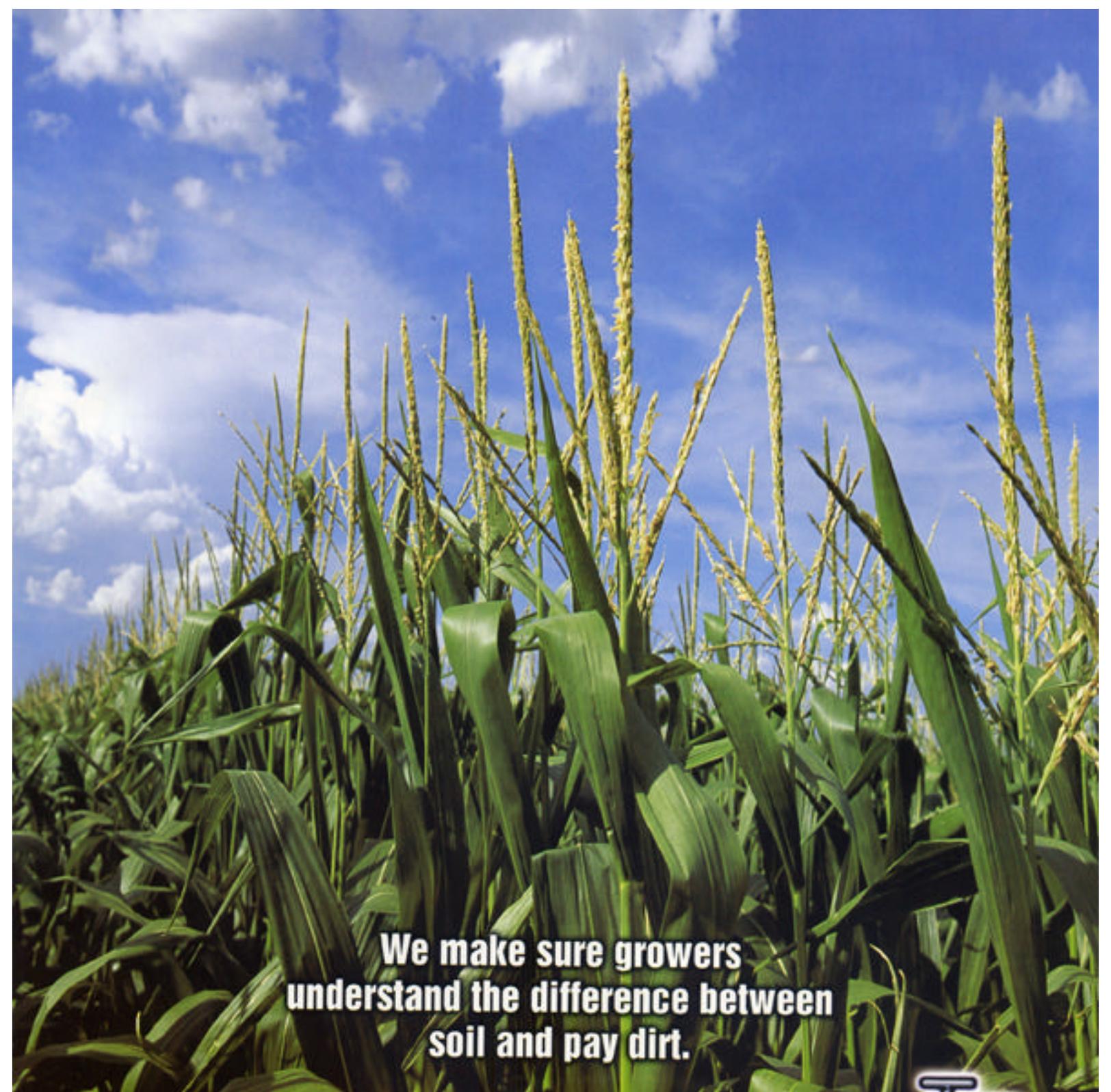
The Core 4 Conservation Alliance Grant was used to develop, design and print a four-color brochure titled *Improving the Quality of Life in the Pacific Northwest*. The brochure not only helps to promote direct seeding in the three-state region of Oregon, Idaho and Washington, it also is the basis for all outreach efforts of the Pacific Northwest Direct Sees Association (PNDSA). Direct seeding, or no-till, improves soil health, prevents soil erosion, provides better economic returns and builds a brighter future – all goals of Core 4 Conservation.

The brochure explains the many benefits of direct seeding, including improvements in air quality, energy conservation, soil quality (see image above), water quality, wildlife habitat and economic and social impacts. In addition to introducing the association, the brochure also addresses the challenges that growers may face when making the transition to a direct seed system. PNDSA uses the brochures to inform the public about direct seeding and encourage producers to begin direct seeding.

To obtain copies of the brochure or get more information about PNDSA, call Tel: (208) 883-3645 or E-mail pndsa@directseed.org.

one of this year's local teams may evolve to form a local conservation tillage alliance.

For more information about the conference or about the Coffee County Conservation Tillage Alliance, contact Seven Rivers Resource Conservation and Development Council at Tel: (912) 367-7679.



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DID YOU KNOW?

- In 1900, the world's population was estimated at 1.5 billion people
- The 2004 estimated world population is 6.4 billion
- The world's population increases at a rate of approximately 85 million people annually
- The U.S. population in 1900 was 80 million people
- The U.S. population in 2004 is estimated to be 293 million
- The U.S. population grows at a rate of 3.2 million people annually
- The U.S. has the fastest growth rate (births and immigration) of any industrialized country

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Information from U.S. Census

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