

Partners

Featuring Bruno Alesii

CHAMPION

of Conservation

Alternative Enterprise Series:
Wetlands Mitigation Banking



No-till Boom in
Pulaski County Georgia

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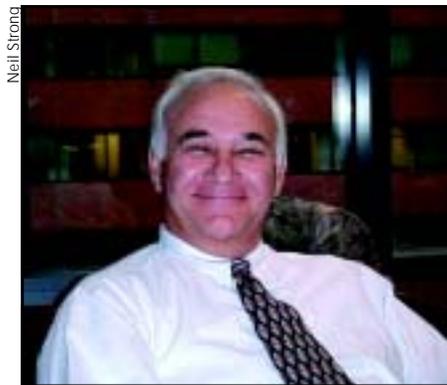
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ON THE COVER



Champion of Conservation

With passion for agricultural conservation, Bruno Alesii, former manager of technology development for Monsanto Co. and past chair of CTIC Board of Directors, made enormous strides in the U.S. no-till movement. Now retired, Alesii shares his insights with *Partners* readers.

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Step Up to the Plate

Someone once said, "You can't hit a home run unless you step up to the plate." I have used a portion of the phrase "step up to the plate" many times over the course of my career but never really explored its true meaning. Of course, we know it comes from the sport of baseball, but typically we don't use the phrase in a sports context. When we say, "step up to the plate," we are asking for individuals or groups to work extremely hard to realize a goal.

Twenty-two years ago the Conservation Technology Information Center (CTIC) was founded by a group of visionary agribusiness professionals who agreed that both the public and private sector would benefit by working together for the conservation of our natural resources. In essence, 19 individuals from the public and private sector stepped up to the plate to start a not-for-profit organization dedicated to making positive change for conservation and agriculture. The change CTIC set out to make centered around no-till conservation in cropland agriculture. We have been promoting the improved soil quality, reduction in erosion, saving of fuel, and increased profits for the ag community created by no-till conservation. Working at local, state, regional and federal levels, CTIC continually urges all of agriculture – from producers to national organizations – to step up for conservation.

For more than two decades, CTIC has been working to increase the awareness of the environmental and economic benefits of no-till. The time has come to do more. Nathaniel Branden said, "The first step toward change is awareness. The second step is acceptance."

It's time for agriculture to fully accept no-till as the new conventional way to farm. We must recognize soil quality as the key to many conservation successes. And acknowledge that environmental success in agriculture must be paired with economic success to see a lasting change.

To move beyond awareness and toward this kind of full acceptance of no-till, CTIC and our members and friends must step up to the plate. We must once again call upon the public and private partnership that is CTIC to lead us on the next stage of our journey. How can you help CTIC to make change? Become more active in CTIC by attending board meetings, serving on committees and sharing your expertise to make this organization a better, stronger, more powerful partnership. I also ask that you look at the financial support you provide to CTIC and consider additional contributions; your support will insure that CTIC continues to promote the message of sound conservation *and* economic benefits to the agricultural sector.

The wise person attributed with "stepping up to the plate" also said, "You can't catch fish unless you put your line in the water." And "You can't reach your goals if you don't try." This Director's Notes is CTIC's line in the water. With your help, we can continue to make change for agriculture and for conservation. On the back cover of this issue you will find a Support CTIC form. Please step up to the plate today.



John A. Hassell, CTIC executive director

CTIC



NRCS

2004 National Crop Residue Management Survey

The Conservation Technology Information Center (CTIC), in partnership with Natural Resources Conservation Service, has published the 2004 National Crop Residue Management Survey. The is a biennial survey of tillage systems used in the U.S. Using roadside transects and local conservation partnerships, the Survey documents types of tillage used by crop at the county, state, regional and national level.

Finding Power in Partnerships

Working Together Brings Financial and Conservation Success

By Angie Fletcher



Frank Wolf

Working together Dan, Ben and Frank Wolf and Marilyn Burg are better outfitted to implement conservation practices, such as direct seeding, into their farming operation. Direct seeding leaves the soil surface undisturbed allowing the residue to stay in place to protect the soil.

Two farming families in Washington State have found power in partnership. Working together Dan, Ben and Frank Wolf and Marilyn Burg, of Uniontown, Wash., (approximately 100 miles south of Spokane) are innovative, successful and resourceful entrepreneurs that find ways to exceed expectations – together. Individually, they owned land and equipment prior to the partnership, but today they share 2,800 acres of land, equipment, crops, goals and achievements. They also share successes and failures.

Burg returned to Uniontown in 1991 after moving away with her husband, who was forced to retire from farming for medical reasons. Burg and her son ran the farm until he decided to pursue another career.

She and her son ran the farm until he decided to pursue another career. When Burg decided she needed help, she looked to her neighbors. “There

were some things I just couldn’t do,” she says.

The Wolfs own adjacent land and have lived across the fence from the Burgs for three generations. Dan Wolf says, “It started with my son Ben doing side jobs for Marilyn.”

As the years passed, the two operations merged together. Today the two families have an informal partnership. “We keep everything together now,” says Ben Wolf, “work, finances, equipment, everything.” The Wolfs perform labor operations, but they make all decisions together with Burg.

Wolf and Burg had a goal of farming 100 percent direct seed, a no-till system successful in some parts of the Pacific Northwest. Each tried direct seed previously, but were unsuccessful.

“Frankly, I didn’t have the equipment knowledge that it takes,” says Burg. “I had the desire, but did not have the ability the Wolfs did. A partnership was a very logical thing to do.” That desire to direct seed was not what led to the partnership, but it was a bonus of it.

“We never had a written contract,” says Burg. “It’s always been on a handshake.” Burg offers this explanation, “A successful partnership is based on common goals, mutual trust and talents that compliment one another. My husband and his partner had that and the Wolfs and I also have built our partnership on that premise.”

Six years ago, the partnership converted to 100 percent direct seed and is happy with the results. “I tried direct seed for nearly 20 years, but working together we were able to make the necessary equipment changes to make it work,” says Dan Wolf.

One piece of equipment, the Cross Slot no-tillage drill, was instrumental in the Wolf and Burg change to direct seeding. “The Cross Slot no-tillage opener is a very low disturbance drill that opens the ground, drops seed on one side of the opener and fertilizer on other side, and has closing wheels that press the soil back in place,” says Wolf.

He admits, “Direct seeding frees up time, and gives us opportunity for other ventures; it helps us diversify our operation.”

The relationship between the Wolfs and Burg meets both families’ goals to remain profitable and conserve the natural resources for the next generation. The two families have a solid working relationship and a passion for what they are accomplishing. Burg likes to quote Dan Wolf, “The muddiest my boots get is from walking across the county roads to get to our fields.”

“I’m an environmentalist first and a farmer second,” says Burg. “To have it turn out that it is also economically feasible is such a big plus.”

For information about the partnership between the Wolf and Burg families, contact Frank Wolf, Tel: (509) 229-3273 or E-mail: fnwolf@genesee-id.com or Marilyn Burg, Tel: (509) 229-3811 or E-mail: mburg@inlandnet.com.

Cross Slot No-tillage Drill

With the extra time created by converting their operation to no-till, the Wolf family began another venture, selling a piece of conservation farm equipment called the Cross Slot no-tillage drill. “We have a product specialist agreement with Baker No-Tillage Ltd. (BNT), creator of the Cross Slot drill,” says Wolf.

The Cross Slot no-tillage opener is the only opener that creates horizontal slots in the soil, where seed and fertilizer are placed just inches apart from each other. “This opener works on all types of land, including rocky and high clay,” says Frank Wolf.

Each opener is equipped with parallel linkage and is hydraulically driven, which allows the press wheels to follow the contour of the ground and apply down pressure when necessary. It also has adjustable depth control wheels that ensure seed-to-soil contact.

John Aeschliman, president of Pacific Northwest Direct Seed Association, says the Cross Slot no-tillage opener is unique in that it “puts the seed and fertilizer right next to each other. It is the most low-disturbance drill I’ve seen. It can go through the heaviest of stubble, without leaving any signs except tire tracks.”

Converting the entire crop production to direct seed, or no-till, allowed the Wolf family to diversify. “It freed up time and resources,” says Dan.

According to Frank, the soil quality improvements as a result of direct seed are best seen on the eroded hilltops where the soil is looser and crumbly and the worm population has increased. “Those areas of the fields are returning cash revenue instead of being just something we have to maintain.”

For information about the Cross Slot no-tillage drill, contact Frank Wolf, Tel: (509) 229-3273 or E-mail: fnwolf@genesee-id.com or visit www.cross-slot.com/products.html.



Direct seeding with the Cross Slot No-tillage Drill is a true one-pass system that has freed up time and allowed the Wolfs to try other capital ventures.

Soil Testing Gets a New Tool

Measuring infiltration is a significant component to soil quality assessment because all land management practices can impact infiltration.

“Soil infiltration capacity is a very important soil health indicator that is reduced with soil degradation and compaction,” says Harold van Es, Cornell University professor of Soil and Water Management and creator of the Cornell Sprinkle Infiltrometer. “Infiltration affects an important soil function, partitioning of precipitation at the land surface. If the infiltrability is low, runoff, erosion and water quality degradation are more likely to occur.” Poor infiltration reduces soil water intake and plant availability.

The Cornell Sprinkle Infiltrometer combines the ponded ring infiltration and rainfall simulation methods for measuring infiltration rates. Contrary to other ponded infiltration measuring devices, the Cornell Sprinkle Infiltrometer disperses water at a more natural rate, reducing unnatural conditions of ponding, such as macropore flow and soil surface roughness.

“The sprinkler allows for gradual wetting of the soil and low levels of ponding, as opposed to the instantaneous ponding and high water heads of the conventional ring infiltrometers, which causes slaking and excessive influence of macropores,” says van Es.

The Cornell Sprinkle Infiltrometer is smaller, easily portable and much less expensive than other larger rainfall simulators, and gives similar results. “The Cornell Sprinkle Infiltrometer allows for meaningful infiltration measurements at moderate cost and effort,” says van Es. Additional perks include the ability to be used by an individual, easy calibration and that it doesn’t use much water.

The Infiltrometer also can be used to measure soil hydraulic conductivity and soil aggregate stability, which directly relates to runoff and erosion.

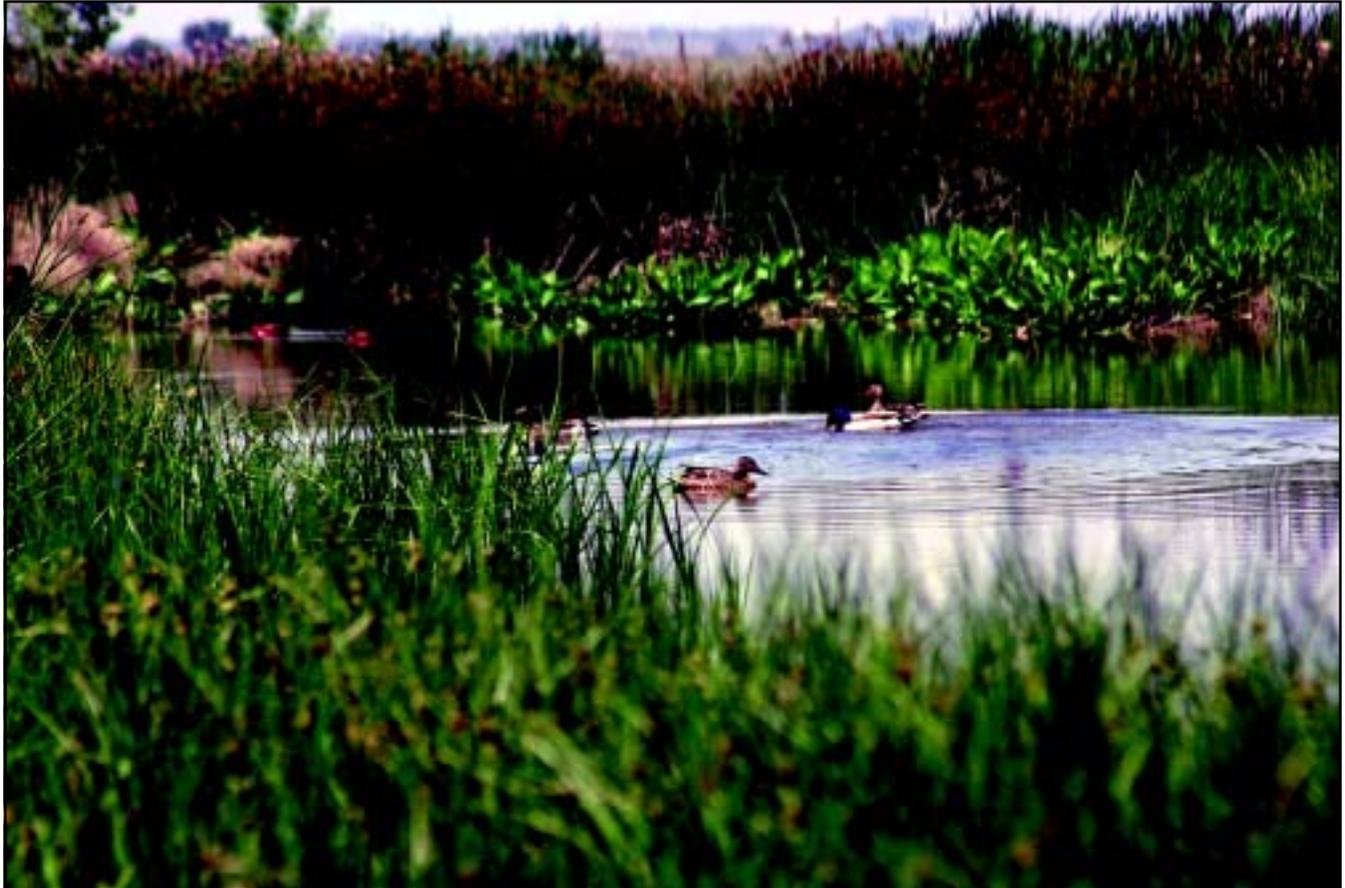
The Cornell Sprinkle Infiltrometer design is not patented, allowing for outside manufacturing. However, the process is detailed and expensive. According to van Es, it is less costly to purchase directly from the Cornell University lab for \$950, including all accessories. Discounts are available for the purchase of multiple units. Additional materials are available for the wet aggregate stability test.

For more information or to purchase the Cornell Sprinkle Infiltrometer, contact Bob Schindelbeck, Research Support Specialist at Cornell University, Tel: (607) 255-1706, or visit www.css.cornell.edu/research/precisionag/infiltrometer.htm.



The Cornell Sprinkle Infiltrometer accurately measures soil infiltration rate with minimal effort.

Wetlands in the Bank



David

Mitigation Banking Offers Income, Challenges

By Steve Werblow

Editor's Note

This year's series on Alternative Enterprises has explored a variety of ways that farmers have made conservation profitable beyond the traditional cost savings and soil health benefits. In this last installment, we explore a relatively young, promising, risky industry: building wetlands for profit. Wetlands mitigation banking could help farmers and ranchers provide valuable wetlands habitat while reaping substantial financial benefits. But the risks are substantial, starting with the challenge of navigating often-uncharted bureaucratic waters. And unlike familiar USDA programs, mitigation banking isn't a cost-sharing arrangement – bankers shoulder the risks.

In this article, we'll take an unvarnished look at the upsides and downsides. Then the reader can decide.

That troublesome, hard-to-drain low spot may be an unprofitable patch to farm, but it could be a profit center waiting to happen. The nation's emphasis on stopping or reversing the loss of wetlands to buildings and roads has created a new industry – wetland mitigation, building up or protecting an area's overall wetlands acreage to compensate for impacts from development.

For years, developers set aside little patches of their projects to create tiny mitigation sites. But those spots of cattails have not always been managed well, nor do they have the size and substance to replace the more significant wetlands that were drained or paved

over. Since the mid-'90s, a new tool has emerged which shows more promise for the environment and for farmers – wetland mitigation banks.

A mitigation bank is a parcel on which, depending on federal and state laws, a wetland is created, restored or preserved according to measurable goals set forth in an agreement with federal and state regulators. Once the wetland has met its objectives, the owner of the bank can sell credits to developers or departments of transportation that need to mitigate for wetland impacts elsewhere. “Wetland mitigation banks offer a very exciting alternative profit center for farmers and other landowners,” says Steve Apfelbaum, senior ecologist at Applied Ecological Services, Inc. in Brodhead, Wis., and owner of the company. Since helping John Ryan of Land and Water Resources in Rosemont, Ill., develop one of the nation’s first private mitigation banks in 1995, AES has worked with Land and Water Resources on about two dozen other banks around the country.

It’s an idea that’s catching on. Bob Brumbaugh of the U.S. Army Corps of Engineers estimates that there are now 200,000 to 300,000 acres in wetland mitigation banks, and that half or more are private, entrepreneurial ventures.

Free-Market Pricing

Credits are priced according to the wetland bank’s local market. Prices can range from \$6,000 to \$250,000 depending on a wide range of factors, including land values, the cost of adhering to wetland performance criteria, how strictly developers are monitored and what alternatives exist for mitigation.

That’s good money (especially for marginal ground), but it doesn’t come easy, emphasizes Apfelbaum. “Growing wetland plants and making a wetland is fraught with all the same foibles associated with planting corn or soybeans,” he warns. “If the weather’s suitable for wetland conditions, the wetland plants will succeed. If there’s a drought, you won’t have anything – any credits – to sell.”

And that’s just half of the challenge. Developing a wetland mitigation bank requires extensive site assessment, design and planning. A site may need costly engineering and earthmoving to hold water or function properly. Planting native vegetation, fighting invasive weeds, managing the plants

and monitoring the site represent years of cost and effort. And then there’s the challenge of working with a string of regulatory agencies from local to federal levels to work out every phase from permitting the project to releasing credits for sale.

“These are trickier things than trying to figure out how to convert from an old field to a wetland,” notes John Ryan, a former president of the National Wetland Mitigation Banking Association.

Ryan adds that most of the costs of mitigation banking occur up front, and profits only begin to accrue years later. “Most of the places I work, we have to put up financial assurances – completion bonds, letters of credit,” he says. “Then you spend all your money to buy the property, secure water rights, plant plants, move dirt. It ties up a lot of capital.”

Seek Help

Farmers interested in entering the mitigation banking business can choose to develop the project themselves or partner up with a wetlands development company like AES or Land and Water Resources, which often pay for the land and share a piece of the revenue (and risk) from the bank. Either way, it is vital to connect with someone who knows the mitigation banking ropes.

“The regulatory nuances of getting these projects permitted is incredible,” says Apfelbaum. “They’re surmountable, but only by people who know the business.” Good design is also vital – a wetland project that doesn’t meet its goals for vegetation and hydrology won’t be permitted to sell credits. And like any product, selling the credits is a lot easier for someone with connections in the development business, notes Ryan.

Colorado Case: Good News, Bad News

David Yardley’s experience developing the Middle South Platte River Wetlands Mitigation Bank near Longmont, Colo., with Apfelbaum and Ryan illustrates the good, the bad and the ugly of mitigation banking. Yardley’s small farm was ideal for a wetlands project: with the oldest operating water right in the state, nourishing wetland flora was assured.

High land and water values keep most crops from penciling out. And nutrient-rich effluent from the City of Boulder’s wastewater treatment plant just upstream from the farm’s ditch plays havoc with the quality of key local crops including sugar beets, malting barley and alfalfa, draining still more profit from farming.

Yardley committed about three-quarters of his land – 85 acres – to the bank, restoring 56 acres of wetlands and more than 26 acres of upland prairie to generate 63 saleable mitigation credits. The rest is still in hay.

After struggling through the bumps and delays that come from being the first bank in the seven-state Army Corps of Engineers district, the wetland grew beautifully. In 2002, just three growing seasons after the team broke ground on the project, the bank was certified and credits were released for sale.

Then the market slowed drastically. A Supreme Court decision rendered many small, isolated wetlands outside the jurisdiction of the Corps, so developers were off the hook on many projects. In Colorado, it’s relatively easy for developers to get signoff on their own mitigation projects, so they’re less likely to buy credits where mitigation is needed, Yardley notes. As a result, Yardley, Apfelbaum and Ryan are still sitting on about 80 percent of their credits.

“On the ground, it’s been phenomenally successful,” says Yardley. “As a matter of whether a farmer should quit cutting corn and open a wetland mitigation bank, I don’t know whether I’d recommend it.”

Still, he’s optimistic that the project will pay off eventually. And there are other payoffs in the meantime. “The timing is not what we expected, but it’s greatly ameliorated when you get on the ground and walk around out there,” says Yardley. “The giant bulrush was 12 to 14 feet tall this year. We have more than 85 species of birds in the wetland. It’s like the world ceases to exist around you except for the habitat. When you see the product and see the birds and all the native plants, it’s fabulous.”

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



Bruno Alesii has spent the past 22 years working in the agricultural conservation arena. He spent much of his time demonstrating the benefits of no-till, which can be shown using a chamber that measures the release of carbon dioxide from cropland with various tillage systems.

MROCS

It is unknown how many conservation acres Alesii indirectly is responsible for implementing. But he is widely known in the conservation arena as a Champion of Conservation. In early November, Alesii officially retired from Monsanto Co.

“He’s had a tremendous impact on conservation,” says Neil Strong, director of agricultural relations for Syngenta Crop Protection and Conservation Technology Information Center’s 1st Vice Chair. “Bruno has a real love for conservation and an understanding of what it can do for the immediate future for growers and long-term future for the environment.”

Through his work at Monsanto, Alesii was able to get in on the ground level of conservation. “When I started with Monsanto more than 22 years ago, the company had a vision that included researching, educating and promoting conservation,” says Alesii, “and because I have a background and passion for it, I was fortunate to be allowed to spearhead the movement.”

Making Conservation the Norm

According to Alesii, the first step in converting growers to conservation agriculture is educating them. “We spent a lot of time, effort and resources, getting growers to see the light,” says Alesii. He was instrumental in organizing many no-till and conservation conferences across the country that taught thousands of growers the ins and outs and benefits of a no-till system.

“One major barrier preventing producers’ conversion to conservation is the fear of risk,” says Alesii. “There are so many things they cannot control.” Through education, Alesii believes, producers begin to see how conservation works and their fears are alleviated.

“To do this, we need really good information, and knowledgeable people that will go out and talk about their results,” says Alesii. That is why alliances and local partnerships are crucial in bringing together the various resources and experts to work with farmers.

Another factor Alesii believes can help alleviate producers fear of risk is actually showing them results from comparisons of the different conservation practices. “Through the

Centers of Excellence (COEs), which are real-life farms with side-by-side comparisons of the different farming systems, producers are shown how no-till works, and that it is the best agronomic, economic and environmental system,” says Alesii.

John Hassell, CTIC executive director, believes it was Bruno’s vision of what the Centers of Excellence could do that has helped to continually increase the adoption of conservation tillage. “COEs provided information to growers that show how to farm in an environmentally sound way and still increase the bottom line,” says Hassell.

“No single entity can increase no-till adoption,” says Alesii. “CTIC is in the best position to make this happen.”

Champion of Conservation

By Angie Fletcher

Of you found a person who spent more than 20 years in dedicated service to increasing conservation tillage across the country, would you call that person a Champion?

Bruno Alesii, former manager of technology development for Monsanto Co., is that person, and CTIC recognizes his passion for conservation and bestows on him the title of Champion.

With their work in bringing people together from the different interest groups, they will be instrumental in developing a plan and vision to pool all the resources - people, money and ideas - to achieve the conservation goals."

Two additional key elements that Alesii believes are instrumental in getting conservation on the ground are new technology and biotechnology. "The equipment dealers like John Deere, CNH, Great Plains and others made equipment modifications that were needed to plant seed in the no-till environment," says Alesii. "And companies like Monsanto have products, such as Round-Up, that make it easier to control weeds."

As for biotechnology, Alesii says, "It's an endless possibility." He foresees developments geared toward drought tolerant seed, "which would have major impacts in irrigated agriculture." Alesii explains, "Improving how plants take up nutrients will lead to better nutrient application schemes: less nutrient use and more precise applications."

Alesii says there is work being done to increase the photosynthetic rate of plants, allowing plants to yield more than they are capable of in natural settings; to grow plants for specific nutritional value, such as Omega 3 fatty acids that would help control the increasing rate of heart disease; and improving the nutritional aspect of plants, such as the protein levels of oilseeds.

Leaving Behind a Legacy

For more than a decade, Alesii had a strong leadership role with CTIC. "His influence was profound in keeping people on board with the conservation movement," says Strong. Alesii was instrumental in recruiting members such as John Deere. "Alesii is a team player who has a vision for the future. He makes things happen," explains Strong.

Alesii says he hopes to leave behind the idea that "together we can make a difference. Conservation and no-till wasn't a big thing 20 years ago. Today it's becoming the norm."

Through his work with CTIC, Alesii is most proud of the alliances established on a local level, the contacts

established on Capital Hill and the overall growth of commitment to conservation. "These have made the name CTIC more prominent," says Alesii.

It was Bruno's vision of farmer-led conservation alliances that led to the creation of CTIC's alliance-building effort. "Bruno knew that there were ways other than government programs to get growers to become involved in conservation work," says Hassell. Thanks to his visionary leadership and dedication to the idea of locally driven conservation, CTIC today works with 20 strong alliances across the country, with the potential for a national growers alliance similar to those found in South America.

Hassell says, "With Bruno retiring from Monsanto, CTIC will lose not only a good friend but a strong advocate for conservation. Bruno's retirement will create a hole in the nation's conservation movement that will be difficult to fill. He has set the standard for all of us to follow when it comes to the conservation of our natural resources."

Looking to the Future

"I see a bright future for agriculture," says Alesii. "I see many more acres in no-till -- over 100 million acres. I see agriculture more environmentally aware -- especially farmers. I see better nutrient management techniques and better no-till in combination with buffers and filter strips. I see cost effective production where farmers optimize production costs and lower input costs, getting a greater return on investment."

The Conservation Security Program (CSP), according to Alesii, will help ensure a bright future for agriculture. "The CSP is more about rewarding the right behavior," says Alesii. "This program is the first step in changing the way farmers look at government programs. It's just the beginning."

Strong believes Alesii will once again be active in the conservation area. To Alesii he says, "Get your rest, and come back to work with us soon."

Leaving a Mark on Agricultural Conservation

Bruno Alesii, former manager of technology development for Monsanto Co., has served conservation in many capacities. His most recent activities include:

- Member of Industry Advisory Committee-Professional Program in Biotechnology, Texas A & M University
- Advisor on the National Association of Conservation Districts (NACD) Business Alliance Council
- Former Chair of the Board of the Conservation Technology Information Center (CTIC)
- Member of the NACD Farm Bill Implementation Committee
- Member of the Conservation Buffer Initiative and the Great Lakes Conservation Initiative
- Member in numerous conservation organizations, including CTIC and the Soil and Water Conservation Society
- Member of the steering committee for the U.S. National Assessment of the Potential Consequences of Climate Variability and Change
- Member of the Midwest Carbon Management Sequestration Advisory Board

No-till Success in Georgia County

Excitement Grows with Increased Conservation Tillage

By Angie Fletcher



Producers in Pulaski County, Ga., plant directly into last season's residue and discover the true benefits of a no-till system. Photos courtesy of Ronnie Barentine, University of Georgia.

Pulaski County, Georgia has seen exponential growth in conservation tillage since 1996. The question on everyone's mind - how did they do it? The answer is teamwork. Local farmers, Natural Resources Conservation Service (NRCS), the Mid State Conservation Tillage Alliance, the Georgia Conservation Tillage Alliance, Inc., U.S. Department of Agriculture-Agriculture Research Service, Georgia Cooperative Extension, agribusiness and others have contributed to the phenomenal increase in no-till adoption.

"The county's no-till acreage grew from 2,200 acres in 1994 to nearly 34,000 acres in 2004," says Ronnie Barentine, University of Georgia county extension agent. "Almost 75 percent of the cotton grown in our county is no-till," he adds.

Producers in the area, with assistance from NRCS and others, are moving toward growing all crops 100 percent no-till. "Over half the corn and three-fourth of the soybeans are planted no-till, and even the no-till peanuts are growing," explains Jimmy Dean, state conservation agronomist with NRCS.

Reducing Inputs to Stay Profitable

In 1996, Barentine learned of a successful producer who admitted to him that he could not continue farming in the same manner that he had in the past. "The producer didn't have the time or the money to continue farming traditionally, because the profit margin was so narrow," says Barentine. "I knew we were facing some major issues in production costs."

Producers in the area were distraught. "They were fighting drought year after year, compounded with low

commodity prices and seasonal flood incidents," says Barentine. "The farmers were losing the spark for crop production. I could see it on their faces."

Barentine worked with that producer to plant no-till cotton in one field the next year. "Our main concern was cutting down on inputs," says Barentine. The focus had to be minimizing production costs, and no-till was the only system that could provide that. The first year was successful: costs decreased and yields didn't.

Over the next several years, Barentine worked with a few other producers, NRCS, ARS, agribusiness and others to implement a no-till system. "It's been hard to get the farmers to change their thought process of having to break the land," says Barentine.

Jim Porterfield, American Farm Bureau Federation, is impressed with what the producers, Barentine and the conservation team have accomplished in Pulaski County and asked Barentine for assistance in spreading the word. "They are building organic matter in Georgia when everyone said it couldn't be done," says Porterfield. "I want others to hear about their success."

Awakening Moment

In 2001, Barentine attended a conservation tillage conference in Douglas, Ga., sponsored by the Georgia Conservation Tillage Alliance and others, and learned in-depth information about no-till principles and the benefits that are derived from it: increased earthworm populations, decreased erosion, increased organic matter, improved wildlife habitat and better moisture retention, which leads to decreased irrigation.

Barentine's excitement about no-till began to grow as he listened to extension specialists, agribusiness, NRCS and ARS personnel and practicing no-till farmers. Although all had a different perspective, each speaker reinforced what other speakers said and all understood

the many benefits of no-till. "I sat up in bed in the middle of night thinking about no-till," says Barentine. "It came to me all at once. The light bulb lit up, and I couldn't go back to sleep."

Getting it All to Click

A major part of implementing a no-till system involves equipment set-up. "It's extremely important with a high-residue cover crop," explains Barentine. "That was the one area we had to make work." And they did.

"We found a way to make it work with existing equipment, and it came down to be a very simple thing," says Barentine. "The adjustment includes moving the front coulter out in front of the ripper shank, where it can cut the residue before it goes through the ripper shank area. It was just about as simple as that." (Note that these sandy coastal plain soils naturally compact and a ripper is needed to allow the roots into the subsoil.)

Of course, each rig is built differently and modifications have to be made to fit each piece, but "it can be done on any piece of equipment used in our area," says Barentine.

Barentine believes the major barriers to getting no-till implemented in other areas are lack of education and low interest. "When you have county agents or other informa-

tion providers who don't have an interest in or don't believe no-till can work, farmers are going to struggle," says Barentine. "You have to believe no-till works, educate producers and work hard at it."

Educating others about the benefits of conservation is Barentine's current focus. Next year, he will chair the conference that helped him see the light four years ago. Georgia's 5th Annual Conservation Tillage School will be held in Perry, Ga., Feb. 15-17, 2005.

Barentine is involved in a task force to bring additional conservation tillage education and training opportunities to Georgia county agents. "What's exciting about this is that it's not just extension people doing the training. Our state is bringing all the players together to get the job done right," he explains. "Our goal is to get as much information out as possible. We're doing it right this time."

For more information about the efforts in Pulaski County, contact Jimmy Dean, state conservation agronomist with NRCS, Tel: (706) 546-2090 or E-mail: james.dean@ga.usda.gov; or Ronnie Barentine, Pulaski County extension agent, Tel: (478) 783-1171 or E-mail: barentine@uga.edu. For information about the Georgia Conservation Tillage Alliance visit www.gcta-ga.org. For information about Coffee Conservation Tillage Alliance visit www.cccta.net.



No-till cotton producers in Pulaski County, Ga., where almost 75 percent of cotton is grown using no-till, are realizing lower input costs, increased organic matter, decreased erosion and improved natural resources.

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

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Farmer Reaps Long-term Conservation Benefits

Still Realizing No-till Rewards After 16 Years

By Jason Johnson

When Randy Caviness of Greenfield, Iowa, began no-till farming in 1988, he had no idea of the positive impact it would have on his farming operation 16 years later.

Caviness began farming in 1977 as a conventional tillage farmer. It was the 1985 Farm Bill that influenced him to try no-till. "One of the compliance issues of the '85 Farm Bill was to implement a new practice every year," he says. "No-till was one of the few choices I had."

After trying no-till, Caviness went from owning 160 acres and farming 1,500 acres in 1988, to

owning 2,500 acres and farming 3,000 acres today. Caviness and his wife own and operate Senivac, Inc. They own and rent land in Adair and Cass Counties in Western Iowa.

Caviness no-tilled over half his crops in 1988 and went completely no-till in just four years. The time and money saved with no-till has allowed Caviness to expand his operation.

"Yields are similar or better than before and costs are much less with no-till," he says. "Reduced labor and machinery expenses, along with decreased time spent in the fields, have allowed us to save money and invest in more land."

Improving Soil Quality

Soil quality improvement is one of the ways no-till has

positively impacted Caviness' operation.

"Some people think the ground needs to be ripped every couple years," he said. "I believed that before I began no-till. But that just isn't the case," says Caviness. After 16 years of no-till, tests indicate the soil is in better shape with substantially increased organic matter levels. Soil analyses results on various sections of Caviness' farmland from 1995 to 1998 indicate organic matter levels increased anywhere from 10 percent to 39 percent.

Resource Soil Scientist Rick Bednarek from Natural Resources Conservation Service (NRCS) says it is important for farmers to be patient with no-till.

"Over a period of seven or eight years, the soil structure improves and organic matter levels build," says Bednarek.

NRCS



Last year's crop residue can be seen between this year's soybean crop rows on one of Randy Caviness' farms south of Greenfield, Iowa. No-till involves planting into last year's crop residue without tilling the soil.

“Organic matter is the storage bin for nutrients. You can no-till for 10 to 15 years, but if you till it once, you’re basically starting over.” According to Bednarek, tilling also reduces earthworm populations, creates a plow pan that restricts the downward movement of water and burns off the organic matter in the form of carbon dioxide.

Bednarek says no-till helps build good soil structure. “No-till helps build organic matter, increases fertility capacity, allows water to infiltrate more easily and builds good soil tilth,” he says.

Increased surface residue and soil organic matter from no-till stimulates earthworm populations, and earthworms are an important agent in improving water movement into and through the soil.

“Earthworms improve soil quality by increasing the availability of soil nutrients,” said Bednarek. “Earthworms improve the physical properties of the soil and enhance the beneficial microorganisms.” Bednarek added that earthworm holes help remove excess rainfall and snowmelt, which can lead to soil erosion.

Controlling Soil Erosion

Another overall benefit of no-till for Caviness is less soil erosion on his land.

“That’s one of the biggest advantages to no-till,” says Adair County District Conservationist Marvin Lundstedt. “You don’t see the rills on the slopes that indicate severe erosion.”

“Due to the residue on the soil surface, raindrops absorb better and don’t have the explosive impact on the soil. The subsurface of the soil is also protected by the dead roots that hold everything together,” said Caviness.

“Results of the infiltration test show Caviness’ fields could withstand four inches of steady rain per hour without severe erosion,” said Bednarek. “A conventionally tilled field will typically incur soil erosion with two inches of rain per hour

hitting the soil surface. Conventional till does not allow water to infiltrate because of the plow layer.”

For Caviness, less soil erosion over the years has resulted in longer lasting erosion control structures. He uses a combination of conservation practices in his fields, including contour buffer strips, filter strips, terraces and grassed waterways. “With a complete conservation system, I don’t have to be as concerned with soil erosion,” he says.

Increasing Profits

With the added machinery and labor expenses associated with conventional tilling, implementing a no-till system has allowed Caviness to sell equipment and expand his operation by buying more land and renting less.

“When I tilled, I owned a 32-foot disc, a 36-foot field cultivator with sprayer, a 250-horsepower International tractor and a 300-horsepower Steiger tractor,” says Caviness. “Now all I need is a good no-till planter, a timely and accurate sprayer, and Chaff Spreader on the combine to get the job done.”

According to Caviness, no-till is less labor-intensive. Caviness says he has gone from farming 1,500 acres to 3,000 acres, and it hasn’t meant more work for his family. “I can farm twice as much ground with the same labor, except during harvest when I hire three extra people to help get the crop out faster,” he says. “Recently, we have done our own spraying and stored our own grain, and for that I have one full-time employee.”

Many farmers avoid or quit no-till because of the risk of decreased yields. Caviness has not found that to be the case. “My yields remained steady in the beginning.

With newer technology, yields are going up,” he says.

Lundstedt says many farmers quit no-tilling after a couple of years, without giving it time to work. “It goes back to being patient. It just takes time to see results,” he says.

Like many farmers, Caviness is hesitant to say no-till is the best way or the only way to farm corn and beans. “Everyone has to run their operation the way they feel is best,” he said. “I feel no-till is a good idea. It works for me, but like anything, you have to be committed to make it work.”

For more information, contact Jason Johnson, public affairs specialist, NRCS, Tel: (515) 323-2701 or E-mail: Jason.r.johnson@ia.usda.gov.

Jason Johnson is a public affairs specialist with Iowa NRCS.



Resource Soil Scientist Rick Bednarek (left) shows Randy Caviness the results of a ribbon soil test performed on no-till soil, which revealed soil holding together tightly, indicating an abundance of clay in the soil.

National Survey Says More Farmers Choose Conservation

Today there is more conservation in agriculture than ever before. More American farmers are choosing environmentally responsible management, protecting the land and improving the efficiency of their operations while adding to their bottom line.

The 2004 National Crop Residue Management Survey (Survey), released this week, confirms that 41 percent of all cropland is under a conservation tillage system, meaning that farmers leave the stubble or residue from the previous crop to cover at least one-third of the cropland after planting. No-till, the most environmentally friendly production system, is used to the greatest extent, covering 62.4 million acres in 2004. By leaving the crop residue and reducing or eliminating tillage trips, farmers protect the soil from water and wind erosion, conserve moisture, reduce runoff, improve wildlife habitat, and limit output of labor, fuel and machinery.

The Survey, last completed in 2002 and coordinated by the Conservation Technology Information Center (CTIC) in partnership with USDA Natural Resources Conservation Service, is a biennial survey of tillage systems used in the U.S.

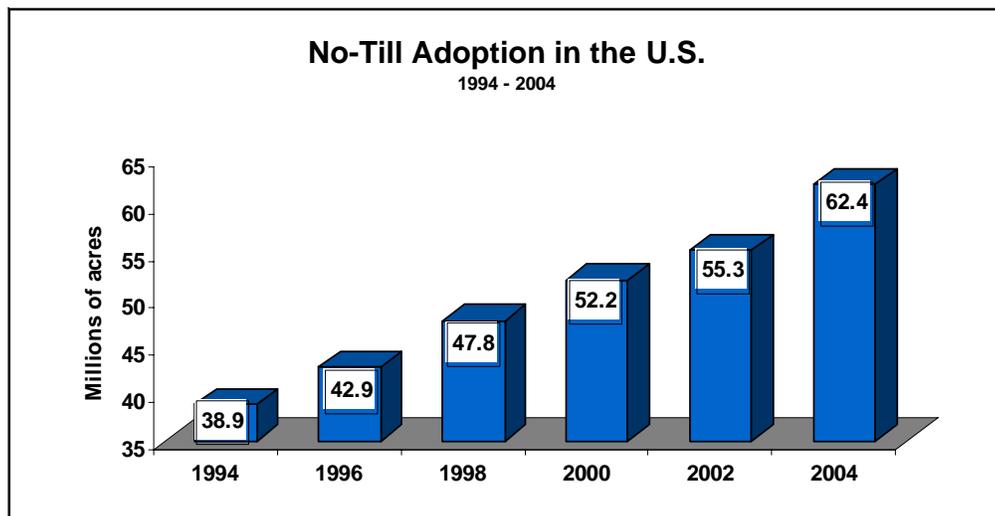
With a no-till system, most of the soil is undisturbed, and seeds are placed into the soil with minimal soil and residue disturbance. The Survey reports that no-till acres increased 7.1 million acres to 62.4 million, up from 55.3 million acres in 2002. That means no-till is used on almost 23 percent of all cropland in the country, up from 20 percent in 2002 and 17.5 percent in 2000.

Bob Rawlings has been using no-till on his Georgia farm for many years. For him, no-till is the only way to grow corn, cotton, peanuts and even watermelons while improving the soil biology.

“One needs to understand how important soil biology is in order to improve one’s dirt. And the soil biology can’t function properly when one plows,” Rawlings says. “God put a cover on every productive acre in the world, and we shouldn’t leave the soil naked.”

More No-till, More Benefits

Dan Towery, NRCS natural resources specialist who organizes data collection from each county in the U.S. says, “This Survey documents the fact that farmers are able to increase soil productivity, protect the environment and, at the same time, make a profit. With conservation tillage being used on 113 million acres, up nearly 10 million acres from



No-till adoption continues to steadily rise. This represents almost 25 percent of the nation’s cropland.

2002, we know that more farmers than ever before are reducing tillage trips and using conservation.”

The Survey not only provides a snapshot of tillage usage for a year, it also tracks trends in adoption of conservation tillage over time. Larry Clemens, Midwest agricultural team leader with The Nature Conservancy, is encouraged with the growing number of acres managed with conservation in mind. For example, a Nature Conservancy priority watershed in northern Indiana reported 80 percent no-till soybeans (18 percent higher than the state average) and 55 percent no-till corn (36 percent higher than the state average) in 2004. No-till, he says, is part of a system of farm management practices that improves the soil, which means better crops. It also enables the soil to better act like a sponge and reduce runoff from cropland.

“By using no-till, farmers are in effect creating a better sponge out of their soil. Over time the soil holds more water. So with less runoff from cropland, the nearby rivers and streams have better water quality and better habitat for aquatic species. Plus, increased soil organic matter improves nutrient and water-holding capacity for crops,” says Clemens.

The greatest increase in no-till acres occurred in South Dakota — over 2 million acres of no-till have been added since 2000. The reason, says Dwayne Beck of Dakota Lakes Research Farm, is economics. No-till systems with diverse crop rotations are economically superior to conventional farming in South Dakota. This is especially true in dry years because not tilling the ground saves valuable soil moisture.

“No-till has become the competitive edge here. Farmers have figured out the best crop rotation and pesticide program, and they are out-competing the conventional tillers for the land,” says Beck.

For more information about the 2004 National Crop Residue Management Survey, contact CTIC at (765) 494-9555 or go to www.ctic.purdue.edu.

Conservation Agriculture



USDA

Donn Waage (right), National Fish and Wildlife Foundation regional director, examines one of the alternative use site on the farm of Darrell and Deborah Odegaard near Egeland, N.D.

Conservation Agriculture's summer alliance activities focused on implementing on-farm demonstrations on four North Dakota farms. The demonstrations include cover crop evaluation, soybean resistance to white mold and liquid nitrogen application to wheat.

Conservation Agriculture continues to receive major support from the National Fish and Wildlife Foundation (NFWF), which it has received for the past two years. In August, Donn Waage, director for the Central Region of the NFWF made a site visit to the farm of Darrell and Deborah Odegaard near Egeland, N.D. Waage's evaluation of the demonstration project is, "Conservation Agriculture is ahead of its time in engaging farmers in whole farm planning."

For more information about Conservation Agriculture or about the demonstration project, contact Sharon Clancy, alliance coordinator, Tel: (701) 662-4088 ext. 123, E-mail: sharon.clancy@nd.usda.gov.

Sandusky River Watershed Coalition

The Sandusky (Ohio) River Watershed Coalition's (SRWC) Agriculture Committee is working with various local agricultural organizations, including local Soil and Water Conservation Districts, Farm Bureau and Farm Services Agency, to get input for a Farmer Recognition Program. Input from these organizations will be reviewed by an ad hoc advisory group of farmers and other representatives after harvest. Once the program is established, information and an application form will be available at www.sanduskyriver.org. For more information, contact Chris Riddle, watershed coordinator, Tel: (419) 334-5016 or E-mail: CMRiddle@wsos.org.

Ohio No-till Council

As the Ohio No-till Council continues work on its project, Aggregating and Trading Carbon Credits from Ohio Farm Fields, it has made progress toward its three established objectives:

1. Research Carbon Trading Mechanisms -- Initial contacts were made with groups and individuals involved in various aspects of carbon credit trading, including Iowa Farm Bureau, Pacific Northwest Direct Seed Association, Chicago Climate Exchange, The Ohio State University and the USDA Agricultural Research Service. This network will provide the Council a good source of information and experiences to draw upon.

2. Prepare Educational Materials on Carbon Trading --The Council has created a poster containing basic information about the Core 4 Conservation Alliance Grant and the subject of carbon credit trading. Plans are underway to develop general educational handouts and a presentation on the current state of carbon credit trading.

3. Present Educational Workshops on Carbon Trading -- On Sept. 21-23, the Council participated in the Farm Science Review in London, Ohio, where the poster was displayed in the booth of an Ohio-based manufacturer and distributor of strip-till equipment. Several farmers were intrigued by the poster and engaged in a conversation about carbon credit trading. Sponsored by The Ohio State University's College of Food, Agricultural, and Environmental Sciences and OSU Extension, the Farm Science Review drew more than 600 exhibitors and thousands of visitors, making it one of the nation's largest farm shows.

Plans are underway to conduct educational sessions on carbon credit trading at The Ohio No-till Conference in Plain City, Ohio, Dec. 7 and the Conservation Tillage Conference in Ada, Ohio, Feb. 25, 2005.

For more information about the Ohio No-till Council, contact Mark L. Wilson, president of Land Stewards, LLC, Tel: (614) 506-7846 or E-mail: landstewards@att.net.

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Did You Know?

277 million acres planted in 2004

113 million acres of conservation tillage

62 million acres of no-till

480 million gallons – amount of fuel saved by farmers NOT using conventional tillage

29.3 million acres of no-till soybeans (39% of all soybean acres)

15.8 million acres of no-till corn (20% of all corn acres)

2.4 million acres of no-till cotton (18% of all cotton acres)

Source: 2004 Crop Residue Management Survey
For more information, visit www.ctic.purdue.edu.

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THANK YOU

The results of the National Crop Residue Management Survey would not be possible without the assistance and cooperation of the NRCS and SWCD personnel in each field office and state office. Seventeen states conducted driving transects to ensure quality data. Many other states utilized the local conservation partnership to ascertain tillage system adoption by crop. These activities were undertaken by staff who are stretched thin implementing conservation provisions of the Farm Bill and other conservation programs. Many thanks to everyone who helped submit data to CTIC. The data is used by far more organizations and people than you realize.

Thanks again for all the help,
Dan Tower, NRCS natural resources specialist,
&
John A. Hassell, CTIC executive director