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Real Producers, Real Stories

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Climate-Smart Ag
For Indiana Producers

Learn about all the ways Indiana NRCS offers technical and financial assistance

Producer-Focused Solutions For Every Operation

USDA-NRCS is proud of its service to our landowners. As a non-regulatory agency focused on conservation, we always have the best interest of farmers and non-industrial private forestland owners and their most prized asset—their land—at the center of everything we do. Here's how:

- We're a free service: Imagine having a soil scientist, wildlife biologist, water specialist and energy consultant on staff with no cost. Turns out you do!
- We're completely voluntary: Even after you work with our team to develop an improvement plan for your property, it's your choice to implement the recommendations.
- We provide full-service support: If you decide to move forward with aspects of your conservation plan, we'll help you every step of the way, from paperwork to technical guidance on implementation.

This farmer-focused approach allows us to customize plans and priorities based on the needs of each individual operation. No two farms are the same, and no two producers are the same either, but we have the inside track on how to meet the needs of every producer.

This publication highlights how NRCS embraces climate-smart agriculture to help producers of all sizes and operation types address natural resource concerns on their land while helping to combat climate change. It is the goal of USDA-NRCS Indiana to assist farmers and landowners in adapting to climate variability by building resilient systems for your land and operations of all types and sizes, to ensure continued productivity and profitability, in spite of new and evolving challenges. We hope you'll join their ranks by taking the first step and contacting your local service center.

Sincerely,

Jerry Raynor
Indiana State Conservationist

Soil Health Practices Drive Yields And Help Weatherproof Indiana Farm

Corn and soybean operation with cover crops and no-till outperforms his conventional yields in year two, challenging the popular belief of 'five-year drag'

Greg Woll has found what he believes is a better way to farm and he has no intention of going back.

On a rainy July day in Whitley County, Indiana, mud and water are sloughing off a neighbor's field into a mini river of sludge covering half of a country road. It is a scene Woll is familiar with and one that once plagued his own fields, until three years ago when he overhauled his farming practices with an eye toward soil health and saving his most precious commodity from water erosion.

Woll, along with his brother Jeff and son Daniel, farm 2,000 acres near Columbia City, Indiana. Like any farmer, soil is the lifeblood of their operation, and with a plan already in place for Daniel to eventually take over Woll Family Farms, Greg Woll cannot afford for his soil to be sitting in the road instead of on his field.

They lease the majority of the 2,000 acres they farm with the land split almost 50-50 between corn and soybeans each year. The bean acres have been no-tilled since the mid-'90s, but up until two years ago only portions of the annual corn crop were planted without conventional tillage.

Their uncle was ahead of the curve and had adopted no-till farming and cover crops long before it was widespread. Woll can even remember long days in the field helping his uncle terminate cover crops with a homemade roller crimper made out of a 6-foot railroad tie they dragged across 100 acres of farmland prior to planting.

Four decades later, the technology has changed drastically, but the general principles haven't—keep living cover on your fields year-round and disturb the soil as little as possible. It wasn't until the spring of 2019, though, that Woll decided it was time to make the change for good and now, into his second growing season of 100% no-till farming, he says he is never going back.

"This is my second year of 100% [no-till] on corn and **my yields will stand right up** to my neighbor who's doing conventional tillage."

His big revelation began in 2019, when a rainy spring stretched into May and pushed his planting window to June. But that wasn't his only problem: The rain prevented him from terminating his cereal rye cover on some of his acres, and he was out of time. After consulting with his NRCS District Conservationist, Jeremy Palmer, he decided to plant green directly into the living cover crop, and then terminate the rye after the seeds were in the ground.

Despite the late start to planting, Woll's corn harvest produced yields equal to, and in some cases exceeding, the averages for his field. The experience made a full believer out of him, and he began working with the NRCS to convert his remaining acres to a 100% no-till operation with cover crops planted after soybeans in preparation for the corn to be planted a few months later.

Woll originally enrolled 305 of his acres in

HOW CLIMATE-SMART AG BENEFITS WORKING FARMS

Producers and land managers are experiencing firsthand the impact of severe weather. From drought to deluge to extremes in longer duration, farmers and landowners have more to manage on their lands. But many practices can make your land more resilient to weather extremes and create healthier crops and livestock.

While NRCS offers a broad suite of voluntary conservation practices and enhancements, the agency identifies a sub-set as critical to climate change mitigation. When applied appropriately, these practices may deliver quantifiable reductions in greenhouse gas emissions and/or increases in carbon sequestration. Many offer co-benefits and ancillary benefits that help operations build climate-change resilience while addressing other natural resource concerns such as soil health, water quality, pollinator and wildlife habitat and air quality. Some of the practices include:

- **Soil Health:** Conservation cover, conservation crop rotation, no-till and reduced tillage, residue management, contour buffer strips, cover crops, field borders, filter strips, grassed waterways, mulching, and other practices and safeguard your soils from wind and water erosion.
- **Nutrient Management**: Fertilizer applications based on soil sampling, precision application and reduced rates can reduce inputs while keeping your crops healthy and keep excess fertilizers from polluting watersheds.
- **Livestock Waste Management:** NRCS works with livestock producers to reduce methane emissions and support climate change mitigation related to livestock waste management, including anaerobic digesters and waste separation facilities.
- **Grazing Land Management:** Pasture and hay planting, prescribed grazing, and range planting, can create healthier soils for forage, improve water quality and ultimately producer healthier animals and increase stocking rates.
- **Agroforestry, Forestry and Upland Wildlife Habitat:** There are myriad financial incentives available for forested landowners for alley cropping, multi-story cropping, windbreak and shelterbelt creation and renovation, silvopasture, riparian herbaceous cover and buffers, hedgerow planting, tree and shrub establishment, and upland wildlife habitat management.
- **Restoration of Disturbed Lands:** Land reclamation to prevent landslides and to reclaim habitat in abandoned mine areas can create wildlife habitat, improve carbon sequestration, reduce erosion and improve water quality.

Producers interested in applying new climate-smart practices across their operations may be eligible for financial support through the NRCS conservation programs, including the Environmental Quality Incentives Program (EQIP) and the Conservation Stewardship Program (CSP).

You can learn more about how individual practices on your operation mitigate GHG emissions with the USDA's COMET Planner tool, which provides estimates of GHG impacts of conservation practices.

cover crops through an Environmental Quality Incentives Program (EQIP) contract in 2017, which covered about half of his corn acres each year. After the 2019 growing season, he enrolled in an additional EQIP contract to plant cover crops on all 600-plus acres where corn would be planted after soybeans. A third EQIP contract also helped him make the transition from partial no-till to 100% no-till on all 2,000 acres.

The switch from conventional tillage to no-till farming is expensive because it required him to switch over his planter and also apply nutrients differently, which he said would not have been possible without the assistance from NRCS.

To further help his farm, Woll enrolled in the Conservation Stewardship Program (CSP), which helps farmers to enhance conservation practices already in place on their land. CSP helped Woll implement precision farming techniques on his operation, reducing the risk of nutrient losses and pesticides impacting nearby surface water.

Under CSP, Woll has also agreed to not apply fertilizer to his land more than 30 days prior to his typical planting date. This ensures there are plants ready to absorb the nutrients soon after the fertilizer is applied instead of it sitting on the ground all winter and potentially running off with rain or snow melt.

CONSERVATION CROPPING SYSTEMS

Stepping into a Conservation Cropping System takes time and patience. Early changes, adaptations and transitions build through a systematic approach. Over time, these transitions will lead to a more functioning soil, resulting in a Soil Health Management System and the journey to Regenerative Agriculture. Focus on how the following pieces work together through incremental seasonal and yearly changes to improve your cropping system:

- **Prescriptive Cover Crops**
- **Quality No-till / Strip-till**
- **Adaptive Nutrient Management**
- **Integrated Pest and Weed Management**
- **Diverse Conservation Crop Rotations**
- **Prescriptive Conservation Buffers**
- **Precision Farming Technologies**
- **Economics and Profitability**

A holistic agronomic approach to soil health will make your land more resilient to weather and your crops more resilient to abiotic stressors, can improve yields, reduce inputs, mitigate soils erosion from water and wind, and ultimately drive better efficiency and profitability in your operation. Many practices, such as forgoing fall tillage, can create more free time, too.

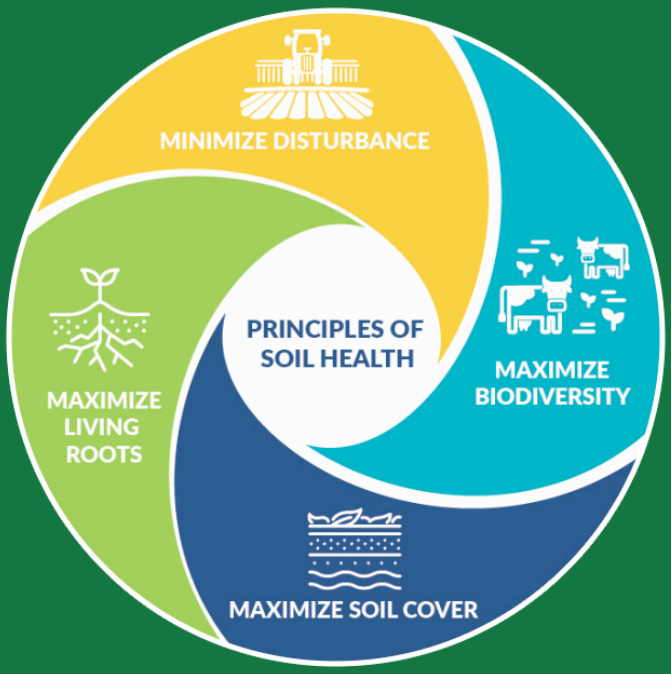
The four principles of soil health (diagram right) provide a platform for you to evaluate new and existing management practices. Every step toward better soil health provides compounded benefits for years to come.

GET MORE SOIL HEALTH AND CONSERVATION CROPPING SYSTEM INFORMATION AND RESOURCES, INCLUDING CONTACT DETAILS FOR INDIANA'S STATE RESOURCE CONSERVATIONIST.

> "We are finding that the soil on **this farm is actually responding better to a no-till system.** We are getting much better crop emergence and stands, and our yields have continued to go up."

Into his second planting season using full no-till and cover crops prior to corn rotation, Woll has already seen yield increases, putting to bed the idea that transitioning from conventional tillage to conservation farming can cause a drag on yields. Woll's farm is also more resilient to changing weather patterns. The cover crops and switching to no-till farming reduce the harmful impacts of higher temperatures or unpredictable rain because the entire soil health system is stronger. He is also keeping carbon sequestered in his land instead of releasing it into the atmosphere as a harmful greenhouse gas while simultaneously reducing the inputs he has to add.

"The rule of thumb is there's a five-year drag on yield for guys who switched from conventional to no-till," Woll said. "It takes five years for your ground to get adapted to the change. So, enough organic matter, no compaction issues and to build up your soil. I'm not finding that in my yield. This is my second year of 100% [no-till] on corn and my yields will stand right up to my neighbor who's doing conventional tillage."



CSP AT A GLANCE

The Conservation Stewardship Program represents a genuine commitment to conservation and compensates farmers for their existing conservation practices as well as new ones. In that way, NRCS helps you build on your conservation while building more resiliency into your operation. Programs are customized to achieve your land management goals, including mitigating soil erosion, improving the cover, food, and water available for domestic and wildlife species, or promoting energy efficiencies for on-farm activities. Thousands of people voluntarily enroll in the program because it helps them enhance natural resources and improve their business operation.

Contracts are for five years with the opportunity to compete for a renewal upon successful completion of the initial contract. Payment types include:

- **Existing activity payment:** Get financial assistance for what you're already doing! Based on your land uses and an NRCS assessment at the time of enrollment, CSP provides assistance for the cost of maintaining existing conservation practices.
- **Additional activity payment:** The CSP contract requires that you meet or exceed at least one additional resource concern in each land use by the end of the contract. The second portion of the annual CSP payment will be based on the financial assistance payment rate for the individual enhancements, practices, or bundles implemented to help you achieve this objective.
- **Supplemental payment:** In addition to the existing and additional activity payments, producers who choose to adopt or improve a resource-conserving crop rotation as part of their CSP contract will receive a supplemental payment for these activities.

SEE THE NRCS SERVICE CENTER LOCATOR TO TAKE THE FIRST STEP!

Rotational Grazing Unlocks Soil Health Principles That Help Rancher Thrive

'Change is hard for people. Change is hard for me. But we felt it was necessary for us to do.'

Life is all about change. And if there is one family that knows this all too well, it's the Kruer family.

Originally from Floyd County, Tom Kruer and his wife, Libby, acquired a 42-acre intensively tilled, row-crop farm in western Washington County in 1973. At the time, only 15 acres of the land was in permanent pasture. Several years later, the Kruers purchased an additional 18 acres of land that included more row crop, hay and woodlands. During his first 15 years on the land, Tom farmed the only way he was taught–just like his father. This meant buying used equipment, using chemicals and working the ground a little too hard.

After a tragic farm accident took his father's life in 1989, Tom had a change of heart in how he managed his operation. He knew there was something different out there to make his farming methods better for the earth.

"I knew how we fed our cows and how we took care of our land. For me, to be able to see that and to know there had to be a better way was eye-opening," Kruer said. "Change is hard for people. Change is hard for me. But we felt it was necessary for us to do."

Over time Kruer read a lot about pasture management and one particular concept stuck in his mind.

"There are four things in nature that are all connected—the soil, the plants that are in the soil, the animals that eat the plants and the people that eat the animals," he said. "How we treat the soil ultimately affects how we treat ourselves."

Tom started changing his operation by introducing a rotational grazing system for his 30 head. He divided his land into 70 paddocks, putting his livestock in a smaller space for a short period of time then moving them to another area to allow the pasture to

rest and recover.

When getting water to his animals became an issue, he worked with the United States Department of Agriculture's Natural Resources Conservation Service (NRCS) staff to develop a conservation plan that included a watering system and exterior fencing. Tom moves his cows at least once a day and sometimes up to three times per day if the grass is growing quickly. Any critical areas that may be affected by erosion are quickly addressed and seeded.

"My goal for 2016 is to give the paddocks a minimum of 30 days to recover before my cattle are reintroduced to the area," said Kruer.

By utilizing these smaller paddocks, Tom was also able to change the way he fertilized his land. Concentrating animals into smaller paddocks resulted in manure piles closer together and more evenly distributed. Because manure serves as natural fertilizer that helps feed the soil, improves fertility and adds to the microbial community found in the pasture and in the soil, Tom has completely eliminated the use of commercial fertilizer from his pastures while increasing his forage production and managing the manure more efficiently.

Rotational grazing allowed his forages to grow taller and rest longer, producing deeper roots, which in turn, provides more drought resistance, more efficient use of soil nutrients, and better feeding of soil biology. The longer rest periods keep the ground covered more days and allow a deeper mulch to build on the soil surface which keeps the soil cooler in the summer and warmer in the winter and prevents weeds from germinating and taking over the pasture.

When asked what his ultimate goal for his farm was Kruer responded "My goal is to make this farm better than when it was when I got it. Right now, I think we've done that."

NRCS Financial Assistance Programs

Financial and technical assistance programs are voluntary mechanisms that enable USDA-NRCS to incentivize conservation. Every operation is different, and the best way to understand the programs that are right for you is through a consultation with your local USDA-NRCS Service Center. Historically underserved farmers and ranchers, socially disadvantaged, beginning, limited-resource producers, military veterans and tribal producers all receive priority consideration and, in many cases, additional financial support through these programs.

LEARN MORE

The Environmental Quality Incentives Program (EQIP) provides financial and technical assistance to agricultural producers to address natural resource concerns and deliver environmental benefits. EQIP supports climate-smart conservation practices that enable agricultural producers and land managers to sequester carbon and reduce greenhouse gas emissions such as cover crops, transitioning to no-till farming and implementing nutrient management plans.

LEARN MORE

The Conservation Stewardship Program (CSP) helps agricultural producers maintain and improve their existing conservation systems and adopt additional conservation activities to address priority resources concerns and mitigate the harmful impacts of climate change. Participants earn CSP payments for conservation performance—the higher the performance, the higher the payment.

LEARN MORE

Agricultural Conservation Easement Program (ACEP) provides financial assistance to help conserve agricultural lands and wetlands. NRCS helps native American tribes, state and local governments and NGOs protect working agricultural lands and limit non-agricultural use of the land. Easements can be leveraged to keep agricultural land in production, thereby maintaining carbon sequestration benefits over time. Easements may also be used to restore and enhance wetlands, which sequester carbon and contribute to climate resiliency.

LEARN MORE

The Conservation Technical Assistance (CTA) program provides voluntary conservation technical assistance to landowners, communities, tribes, units of state and local government, and other Federal agencies in planning and implementing conservation systems. It helps people voluntarily conserve, improve and sustain natural resources.

LEARN MORE

The Conservation Reserve Program (CRP) encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as grass waterways, native grasses, wildlife plantings, trees, filter strips and riparian buffers. While helping to address producers' natural resources concerns many of these practices have the added benefit of increasing carbon sequestration, helping to build resilient farming systems and combatting the harmful effect of climate change. Farmers receive an annual rental payment for the term of the contract. Cost sharing is provided to establish the vegetative cover practices.

Ask the **Expert**

Did you know that NRCS advises thousands of producers each year, and specialized staff is on standby to consult on specific areas, including small and urban farms, invasive species, soil health, energy, pollinators, cover crops and more. Have a question about a particular resource concern or practice?
Ask Indiana's experts.

Indiana **Producer Success** Stories

See what's possible from working farmers and ranchers who have embraced the technical and financial assistance of NRCS programs to improve their lands, livestock, forests and working lands. You can search by natural resource concern, program and location to get ideas that are most relevant for your unique operation. Producers are the key to Indiana's conservation.

AMERICA'S **CONSERVATION AG MOVEMENT**

America's Conservation Ag Movement convenes farmers, agriculture businesses and the conservation community together around the future of farming by bringing profitable, climate-smart farming and ranching into the mainstream. We give producers a platform to share their journey, meet other farmers and mobilize resources they need to undertake change.

USDA Natural Resources Conservation Service
U.S. DEPARTMENT OF AGRICULTURE

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Organized by Trust In Food™ and Farm Journal Foundation with technical and financial support from USDA's Natural Resources Conservation Service, this public-private partnership empowers collaborators to leverage Farm Journal's nearly 150 years of market trust and farmer-to-farmer networks to accelerate adoption of climate-smart practices, products and technologies.