

HIGH-YIELD CONSERVATION

Volume 1, Number 1

**Mark Anson
Moves Toward
Cover Crops**


**HARVESTING
THE POTENTIAL**

FARMING TO FEED THE WORLD

Determined To Get Covered

Mark Anson wants to make cover crops work on his farm. Anson, a third-generation family farmer, thinks that cover crops are the right choice both economically and agronomically for his operation. His farm, based in Monroe City, Ind., encompasses 22,000 acres and supports him, his three brothers and six nephews.

“I definitely think that cover crops are the direction we need to be headed in, so I’m determined to learn everything I can,” he says.

For Anson, whose large operation is spread over seven counties in both Illinois and Indiana, sustainability is a word that means more than being able to turn a profit. It’s about making choices that are good for the bottom line and right for the future of his family’s farming operation. “I think cover crops are where we need to go,” says Anson. “We’re just in the process of figuring out how to make it work effectively.”

Anson says that many of his acres are not what most

people would consider high-producing ground, and some he termed marginal. More than 5,000 acres are river bottom and nearly 3,000 acres are on hills that are planted continuously to food-grade corn.

With numerous acres to cover, planting season means taking his four 36-row planters, along with two 30” planters for corn, two 20” planters for soybeans and a 40’ drill for small fields, and then going as fast as he can, with three sprayers placing burndown chemicals and herbicide on the ground. To apply nitrogen, he uses two 60’ anhydrous toolbars, two liquid applicators and a dry fertilizer spread buggy. In addition, he hires custom operators to help him get through the planting window. Harvesttime sets off a similar scramble, with four combines operating full time to harvest the soybeans and the food-grade and commercial corn acres.

“We don’t have time for tillage,” says Anson. “We are already doing very minimal tillage, using a rotary harrow to help level and dry out the soil in the spring. We would love to go to using an inline ripper every three years or so. We want to be very minimal tillage, but we’re not sure how to get from point A to point B to point F, and we’re trying whatever we can to get there.” Anson uses a 45’ Phillips rotary harrow.

Anson’s interest in cover crops began with lots of research and listening to other farmers and experts who say that it works. In his 34 years of farming, Anson, who is 55, says that previous generations might have had a better handle on some aspects of soil health. He wants to get back to some of the ideals of early farming, while keeping the productivity of crops today.

“Back when I first started farming, we used to have a rotation of corn and wheat and then clover,” says Anson. “We had very healthy soil then. Now we just farm dirt; we used to farm soil.”

Anson’s research revealed that cover crops could not only improve the tilth of his soil, but the added organic matter could improve his soil health and add needed nutrients into the soil, which might reduce the amount of fertilizer he needs to apply. To give it a try, he seeded about 1,200 acres of cereal rye on corn ground this past fall. Unfortunately there was very little moisture available after seeding, and Anson

Anson Farms

Tillage Type: Minimum till

Acres: 22,000

Soil Types: Mainly clay and clay loam with some sand. Cation Exchange Capacity (CEC) ranges from 6 to 24

Crops: Soybeans, commercial corn, food-grade corn

Manpower: 4 brothers, 6 nephews, 10+ seasonal employees

High-Yield Goal: Establish cover crops to improve soil health and yield

says that most of it didn't establish. While he's frustrated that he may not see much value come out of the \$10,000 worth of cereal rye he seeded, he's determined to find a way to make cover crops work.

"I just think that if I can figure out how to make cover crops work we'll end up with healthier soils, and we'll be able to minimize our tillage," he says. "But there is definitely a learning curve."

Anson is one of three farmers participating in the High-Yield Conservation (HYC) project. HYC is part of the Harvesting the Potential: Farming to Feed the World initiative aimed at increasing awareness of global hunger issues and increasing high-yielding conservation practices among U.S. farmers. Harvesting the Potential is supported by the Howard G. Buffett Foundation.

Anson is excited to unlock the answers to increasing his yield and taking his conservation efforts to the next level. The idea behind High-Yield Conservation is just what it says: to work with real farmers to create solutions on their farms that implement high-yielding practices that are also the best current practices available in conservation.

As part of a mammoth farming operation that supports multiple generations of his family, Anson



Mark Anson

says that sustainability is about what will keep his family on the farm for years to come. That means any sustainability initiative has to be as much about yield and profitability as it has to do with conservation and preserving the land, he says.

We'll be following Anson and two other farmers over the next three years as they look to find solutions that are sustainable for their farm over the long term both in profitability and conservation. Our team of experts will help give their initiatives a jump start. We will show you the details of what transpires as they labor to better their yields and their conservation efforts simultaneously.

Meet Our Expert Team

Four experts will lend their expertise to High-Yield Conservation: Dan Towery, Mike Plumer, Steve Groff and Dwayne Beck.

Dan Towery founded Ag Conservation Solutions, a consulting firm, in 2005 in Lafayette, Ind. Prior to founding ACS, Towery worked for 25 years with USDA National Resource Conservation Service. He provides national expertise and knowledge in no-till, cover crops, soil quality, biotechnology, precision farming and conservation practices.

Mike Plumer retired this past year after 35 years as a national resources management educator with the University of Illinois Extension. Plumer specializes in soil conservation practices, conservation tillage and no-till systems, cover crops and water-quality issues.

Steve Groff is a family farmer and cover crops expert based near Holtwood, Pa. On Cedar Meadow Farm, his home farm, he pioneered what he calls the "permanent cover cropping system," which includes no-tillage, cover

crops and effective cropping rotations as a way to increase profits, save soil and reduce pesticides.

Dwayne Beck is a manager of the Dakota Lakes Field Station and a professor at South Dakota State University. Beck's research focus is on developing management practices for efficient production while minimizing negative ecosystem impacts. He specializes in the use of diverse cropping patterns, low-disturbance no-till and the use of natural cycles to manage insects, weeds and diseases.

Treating Our Soil Like Dirt



Dan Towery

Our soil is, for the most part, treated like dirt. Yet with proper management it will do a lot more than just allow the roots to hold the plant up. Soil is a living factory of macroscopic and microscopic critters that need food to eat and a place to live. Tillage, fertilizer, manure, and other things done to “manage” the soil can either improve or damage our soil resources.

Emphasis has been placed on understanding the physical and chemical properties while the soil’s biological properties have largely been ignored. The interrelationship between its physical, chemical and biological properties can change the way the soil functions.

Key principles:

1. Minimize soil disturbance and keep the soil covered
2. Keep something growing every day possible
3. Diversify crop rotation and/or utilize cover crops

Tillage is very disruptive to soil microbes and oxidizes organic matter. Leaving the soil undisturbed increases mycorrhizal fungi populations. These organisms feed off of “sugars” leaked from the plant roots, and in return, the hyphae act as root extensions and increase the uptake of otherwise unavailable water and nutrients. These fungi release a substance called glomalin, which acts as a “glue” to hold soil particles together. This improves soil structure, which, in turn, improves infiltration, increases pore space, and enhances nutrient cycling. This results in additional moisture availability for crops.

Old-school logic is that the soil needs to rest (fallow). This is totally wrong. In a corn-soybean crop rotation,

there are six to seven months of the year where nothing is growing, leaving a “wasted” growing opportunity in the fall and spring. This is also a chance to increase plant biodiversity, which increases soil biological diversity. A cover crop or a cover crop “cocktail” can dramatically improve soil biological diversity and limit disease, weed and other pest pressure.

Instead of simply reducing soil erosion, improving the soil is the goal. Soil erosion can be stopped, organic matter and cation exchange capacity (CEC) will increase, less nitrogen and phosphorus inputs will be needed, and less runoff will enter ditches and streams. CEC is a measure of fertility and nutrient retention. The improved soil will be better able to cope with extreme weather events. This will be even more important as improvements in crop breeding and biotechnology continue to improve.

The world’s population is projected to increase from 7 billion people currently to 9 billion people by 2050. Most of the increased food production that will be needed to feed those 2 billion additional people must come from increased yields. However, society also wants yield increases to be done in a sustainable manner that doesn’t further degrade the environment.

Our current production practices can be better. We have the technology. It took time to degrade our soils (especially the biological component), and it takes time to improve them. Learning something new is not without challenges. There is a learning curve. But for those who are willing to take the journey, the reward for yourself and future generations will be very rewarding.

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About the Howard G. Buffett Foundation

Established in 1999, the Howard G. Buffett Foundation’s primary mission is to improve the standard of living and quality of life for the world’s most impoverished and marginalized populations. The Foundation’s focus is on international programs that operate in challenging environments, including conflict and post-conflict countries. The Foundation has supported over 100 agricultural projects in 34 countries and 22 nutrition projects in 20 countries. The Foundation believes global food security efforts must include all countries – both rich and poor – therefore, the United States must consider its domestic agricultural practices and policies if we are to be successful in addressing hunger, malnutrition and global food security.