

CONSERVATION *Showcase*



Cover Crops Work with Various Crop Production Systems

Jason Johnson, Public Affairs Specialist, March 2010

According to a panel of Iowa farmers, agronomists and soil conservationists, cover crops such as rye, wheat and clover are environmentally beneficial and with proper management won't inhibit yields on various crop production systems, including no-till and organic farming.

At a recent Cover Crops Workshop in Jefferson, dozens gathered to discuss and learn more about the many benefits and varieties of cover crops, and ways to successfully plant and manage them.

Research by the USDA's Agricultural Research Service National Laboratory for Agriculture and the Environment (NLAE) shows cover crops planted in the fall between harvest and planting of spring crops help reduce soil erosion, limit nitrogen leaching, suppress weeds, increase soil organic matter, and improve overall soil quality. Small grain cover crops increase surface cover, anchor corn and soybean residues, and increase water infiltration. Several cover crops, like turnips and radishes, are also suitable for grazing by livestock and wildlife. Aerial seeding of cover crops in August or after harvest is also an option.

Cover Crop Success with Organic Farming
Workshop panel member Earl Hafner of Panora says a mix of cover crops serve a vital purpose for his organic row crop and livestock operation. He plants winter hardy grains (cereal rye), winter hardy legumes



This is a late October picture of cereal rye growing into corn residue at a USDA research plot west of Ames. (Photo by Jeremy Singer)

(red clover and hairy vetch), and forage covers (radishes). Hafner says many different types of root systems improve soil quality and its holding capacity. "A mix of cover crops allows water soluble nutrients to be captured and available for the next year's crop," he said.

Hafner grows corn, soybeans, hay and small grains on about 1,500 acres, and runs a 250-cow/calf herd on another 500 acres. Hafner practices tillage, but only the top four inches of soil. He says cover crops help keep fall-applied manure from washing away. "When you turn cover crops over that are 6, 8 or ten inches tall, it helps keep the phosphorus on the farm reducing leaching," he said. "[As an organic farmer] I need those nutrients."

Since Hafner practices some tillage, his soils have less crop residue cover to benefit earthworms. "Cover crops help develop soil structure. They serve as the biology that earthworms can feed on," he said.



This is a late June picture of soybeans growing into cereal rye which was sprayed a few months earlier. (Photo by Laura Greiner)

Cover Crop Success with No-till Farming

Cover crops have been an important part of Steve Berger's no-till farming operation in Washington County longer than 10 years. Berger grows corn and soybeans on about 2,500 acres, where he has no-tilled for more than 30 years. He says a rye cover crop combined with no-till helps control erosion, promotes root growth, and even improves row crop production. "Over the long-term the organic matter buildup has helped increase my yields," says Berger.

He plants cereal rye as soon as possible after harvest at a rate of 50 lbs./acre, and knives in hog manure or spreads turkey manure before the winter freeze. He sprays the rye in early April, before planting corn. Berger allows rye to grow for a longer period before planting soybeans. Rye typically grows to 4-6 inches before Berger plants corn, and 8-10 inches before planting soybeans. He says timing of the manure application is the key to producing high yielding cash crops. "I hear farmers say you can't produce high yielding corn while integrating cover crops, but I disagree with that," he said. "Cover crops build

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soil quality, and if you fertilize timely it can increase yields."

Jeremy Singer, a research agronomist with NLAE, promotes winter hardy cereal cover crops, like rye, winter wheat and triticale (cereal rye and winter wheat cross) because they are easy to establish, relatively inexpensive, and provide erosion control in the fall and spring.

Singer agrees with Berger that, over the long-term, cover crops will not hurt cash crop yields. "I feel pretty confident with our current recommendations that you won't see yield reduction from planting cover crops," he says. "In fact, cover crops can suppress weed emergence and growth."

Cover Crop Financial Assistance

The USDA's Natural Resources Conservation Service (NRCS) is offering three years of financial assistance to eligible producers through the Environmental Quality Incentives Plan (EQIP) to help offset the cost of introducing cover crops. To plant winter hardy species, such as cereal rye and winter wheat, NRCS will pay \$60.03 per acre/year; for planting non-winter hardy species, such as oats and spring wheat, NRCS will pay \$41.25 per acre/year; and for living mulch, NRCS will pay \$56.18 per acre/year.

Limited Resource Producers, Beginning Farmers, Tribal Farmers and Socially Disadvantaged Producers are eligible for a higher payment rate. For example, these farmers would receive \$108.19 per acre/year through EQIP to introduce winter hardy cereals to their operation.

For more information about establishing, managing, and overall benefits of cover crops, visit your local NRCS office, or find "Cover Crops: A guide for Iowa Producers" online at www.ia.nrcs.usda.gov/news/brochures/publications.html.