BIOSOLIDS DIGEST
FIELD GREEN The wiser fertilizer™
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Biosolids helpful for new crops

New crops are popping up in this region, where grass hay has dominated for decades.

Here and there, local farmers are raising soybeans, canola, wheat and grain corn.

Otherwise known as cash crops, these new crops are part of an experiment.

Some farmers are trying these cash crops because land is available and affordable, and that makes the risk a bit more palatable. Some do it because of the allure of getting paid every fall instead of waiting to sell cattle after feeding their forage.

And some do it because they're looking for a different lifestyle. Tending livestock through the winter just doesn't appeal to them anymore.

Benefits, and challenges

Troy Salzer of the Carlton County Extension office estimates that about 10 percent of the area's farmers are growing cash crops and perhaps 10 percent more are experimenting.

"More people are saying 'I'm tired of dealing with winter,'" he said.

Scott Peterson, a farmer near Floodwood, has been planting a variety of crops for several years. The practice harkens back to his youth in farm country in central Minnesota.

"You can have a cash crop and make money off of it," he said.

Although it's attractive to harvest in the fall and not have to fight winter weather to keep a cattle herd going,

Canola is an oilseed crop developed in Canada and may be a good fit for our northern climate.

there are challenges for farmers looking into growing annual cash crops up in this region.

Weather is one challenge. Cold, wet spring and fall weather can shorten the growing season and make it hard to plant and harvest crops.

Selling the harvest can be time consuming and expensive because local companies aren't geared up to handle the volume. There just aren't many elevators in this region, and they're not designed to handle large volumes. It's common for farmers to truck their crops to St. Paul or central Wisconsin in order to get a better price.

Lake Superior has an affect on crop choice, too. Farm land farther from the lake tends to be warmer and have a longer growing season, making it easier to grow longer-season annual crops.

Flexibility, good soil needed

Those challenges make it a necessity to plan, be flexible and be ready to adjust.

One crop, however, is bred for cooler weather. Canola, an oilseed plant, was developed in Canada to provide a cool-climate option for farmers there.

Peterson recommends testing your soil before making a decision. He said one of his challenges is that grass hay has been harvested on some fields for decades without fertilizing or returning nutrients to the soil. He has spent a lot of time and work getting soil in fields he rents back up to productive levels.

Getting soils tested is the first step. "Make sure you know what you need," he said.

Salzer also recommends flexibility. Farmers can plant corn to produce grain, but if the season turns out to be short, chop it for silage instead.

Inside

Interseeding, a no-till planting solution

By Troy Salzer
Carlton County Extension

Historically, interseeding, a form of no-till planting, has been a way to add legumes to existing pastures and thicken alfalfa stands in decline.

Replanting a field also is a good use for an interseeder.

Many local farmers have successfully used no-till seeding with nearly all types of crops.

Some have used interseeders for no-till cultivation of annual crops such as corn, oats, barley and canola. Benefits include lower costs, less erosion and water loss, as well as firmer ground when spraying and harvesting.

Perennial crops have been established with interseeders, too.

Farmers who have worked their fields and made them smoother (including getting all rocks picked), have researched and successfully used no-till seeding to re-establish perennials with small seeds. Such perennials include alfalfa, red clover, orchard grass and timothy.

Before utilizing an interseeder, take time to plan. This is a big investment and has short- and long-term impacts. Farmers succeed when they use good techniques.

Field Green® biosolids can help crops get established after interseeding. Call Paul Wilken at (218) 740-4764 for more information.

An interseeder, shown here, plants seeds through existing crops and eliminates the need for discing or plowing. The Carlton County Extension has an interseeder available for local farmers.
Photo courtesy of Carlton County Extension

Tips for successful interseeding

Fertilize and spread lime. Test your soil and add needed nutrients before seeding. If necessary, an annual crop that produces forage can give you time to get soil in shape.

Control competition. Weeds aren't the only competition to work on. Perennial grasses and legumes currently growing in the field can cause problems. Two successful approaches to control competition are:

- *Fields with little or no sod* – spray with glyphosate to kill all competition and reseed 10 to 14 days after application.
- *Fields with old sod* – spray and plant forage-producing annuals such as oats, barley, millet, corn or sorghum. This allows sod to break down. With less sod, the soil warms faster and sunlight helps to germinate small seed more uniformly.

Plant seeds at proper depth. Ideal depth for small perennial seed in clay type soils is 1/4 - 3/8 inches; in sand, 3/8 – 5/8 inches.

Ensure good soil-to-seed contact. Generally this is not as critical with no-till seeding as the soils have not been loosened by tillage. Make sure the press wheels properly firm up the seed bed after the openers create the channel to drop the seed.

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Extension research key to program

Minnesota Extension has conducted valuable research for the Field Green® program in the past. New research will help local farmers use biosolids to improve existing crops and develop new ones.

The partnership between WLSSD's Field Green® biosolids program and Minnesota Extension is continuing to produce results valuable to farmers and WLSSD.

In fact, long-term field trials are under way to figure out how to use biosolids effectively to grow canola and lengthen alfalfa stands.

Biosolids have been proven effective for increasing yields and quality of grass hay but local farmers who want to diversify their production are looking for ways to do that effectively.

Agricultural extension services nationwide have been leaders in providing practical research to farmers.

Since the Field Green® program began in the 1990s, the University of Minnesota Extension Service has been the go-to agency for biosolids research and practical application.

Better yields for canola

Currently, the Carlton County Extension is conducting field trials to determine the correct amount of nitrogen canola needs in this region. Canola is bred to produce in the colder climates of Canada, and may prove to be a good cash crop locally.

Previous guidance in Minnesota on nitrogen application rates came from other states and Canadian provinces, and wasn't based on extensive research in the upper Midwest.

Troy Salzer of the Carlton Extension service has been working with a farmer in Cedar Valley Township on test plots to determine the appropriate nitrogen (and biosolids) application rate.

Balancing alfalfa nutrients

Salzer also is conducting trials to determine the best way to use biosolids for alfalfa production. Currently, biosolids nitrogen application rates are high enough that alfalfa stand life may be shortened with biosolids use.

Alfalfa is a legume that can produce its own nitrogen, although it can be more productive with added nitrogen. But recommended rates for biosolids mean that other species that need extra nitrogen, such as grass, can sometimes slowly outcompete alfalfa.

Still, biosolids provide phosphorus, which alfalfa needs. Salzer's trials test different biosolids application rates and combinations of nutrients, such as potassium, from other sources.

Here are a few of the biosolids research projects the Minnesota Extension has conducted or provided key assistance to:

- Beneficial uses for mineland tailings basin, such as productive farmland.
- The quality of grass hay produced with biosolids.
- Correct rate of biosolids application to maximize canola yields.
- Testing the use of biosolids and other nutrients to produce better-quality and longer-lived alfalfa stands.

Steady, sure improvement

Agriculture doesn't change as fast as some industries, such as cell phones. But farmers are always looking for ways to make a better living, too.

These field trials take time – sometimes four or five years. The Field Green® program is designed to provide a sustainable solution for local farmers.

Working with partners like the Extension Service that also have sustainability as a goal helps WLSSD continue to make the local agricultural community more profitable over the long run.

For more information on research, help with interseeding or other farm topics, contact Troy Salzer at the Carlton County Extension, (218) 384-3511.

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Clear Answers for Clean Water™

Farmer profile: Bill Anderson

Bill Anderson was the first customer to receive biosolids in Douglas County, Wisconsin, when Field Green® expanded there in 2010.

How big is your operation?

Anderson farms about 200 acres of hay land and has 50 head of cows for a cow-calf herd.

How have biosolids benefitted you?

Yield on the hay has been "unbelievable," Anderson says. He is able to sell hay to support his operation after getting into the Field Green® program. Much of the hay goes to a repeat customer who wants high-quality hay. (Field Green® has been shown to produce higher-quality hay with more protein and better digestibility.)

What advice do you have for using biosolids?

Make sure you have good equipment. The hay was much thicker than before, and some of Anderson's windrows were almost 20 inches deep.

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