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## Crops

### Hemp -- Ontario's new 'wonder crop'

*Though Ontario's hemp acreage is still small compared to Manitoba's, the experts believe it has a rosy long-term future -- as long as it remains illegal to grow in the United States*

by TREENA HEIN

Hemp is considered by many to be a wonder crop, with fibre suitable for producing items such as paper, animal bedding, garden mulch, insulation and composite construction materials.

What's more, the seed is becoming increasingly well-known as a nutritional powerhouse. It contains high levels of the recommended 3:1 ratio of essential Omega 6 and Omega 3 fatty acids, which have been shown to reduce the risk of cardiovascular disease, stroke, osteoporosis, diabetes and many other conditions. Hemp seeds are also protein-rich and an excellent source of rare Gamma-Linoleic Acid, important for growth and development as well as providing protection against degenerative conditions like arthritis.

With important properties like these, it is no surprise that more Ontario farmers are growing hemp, particularly now that a solid oilseed market and Ontario-adapted varieties exist, says Gordon Scheifele, president of the Ontario Hemp Alliance (OHA), a non-profit promotional organization based in Tavistock.

While Manitoba remains the hemp hotbed of Canada, producing most of the 35,000-40,000 acres grown nationwide this year (up 10,000 acres from 2005), Ontario farmers grew 800 acres in 2006, doubling 2005's amount. Many of the hemp farmers in Manitoba grow varieties bred for fibre, which is processed into insulation and other products at a brand-new, government-funded facility near Dauphin.

Marc Bercier planted his first oilseed hemp crop (ESTA-1 variety) this spring on 55 acres at St. Isidore near Ottawa. Bercier plans to grow an ever-expanding acreage of hemp each year, and has already taken the plunge to become an oil processor. "I have invested in over \$100,000 of equipment," he says, confident that the health properties of the oil will ensure a booming market. Bercier has easily found food industry buyers interested in using domestic hemp oil rather than imported olive oil or other healthy oils in their products.

Scheifele says hemp should be planted as early as possible, at the end of April or early May, using a grain drill at a row width of about 18 centimetres and a depth of about 0.5 centimetres in a well-worked firm seed bed. Diecious varieties need 35 pounds of seed per acre and monoecious 15-20 pounds per acre. Scheifele notes that the placement of hemp in a crop rotation is flexible. "The absolute preferred time is not yet established," he says. "It can follow grain, corn or soybean. It depends on herbicide use in the previous crop, to which it is sensitive."

Scheifele says hemp is suited to a wide range of corn heat units. "It is being grown in Thunder Bay and Rainy River, for example, and 300 kilometres north of Winnipeg in Dauphin." The variety should be selected on the basis of growing season and the end-use required by the contract buyer, and OHA will provide guidance on this.

Dr. Ernie Small, a scientist at Agriculture and Agri-Food Canada in Ottawa who has studied hemp, says the amount of profit a hemp farmer like Bercier makes depends on yield, which is directly related to expertise and crop genetics. "People with experience have a 'leg-up' and deservedly," he notes, "but it's really not difficult to grow."

A great deal of progress has been made in breeding Ontario-adapted, high-yield hemp varieties, Small says. "Butoil seed is such a new crop. Its potential has not been realized, unlike fibre hemp, which has been bred extensively already. Small inputs in terms of breeding and management give high rewards in terms of output."

Small believes the hemp oilseed market offers excellent opportunities over the long term. But, he says, "the problem to date is that people have gotten into hemp because it's new. That flooded the market with poor quality and the industry was set back for several years."

Dr. Arthur McElroy is the research coordinator at Ottawa-based PhytoGene Resources Inc., the developer of the oilseed variety known as ESTA-1. McElroy notes that, although hemp seed and oil is approved for human consumption, it is not yet approved as an animal feed ingredient, which he considers "a large market."

Small stresses that "the opening of the American market has been key." The United States is now allowing processed hemp products across the border, but farmers to the south are not legally allowed to grow hemp. While California recently passed a law allowing hemp farming, the federal government has quashed it. "We don't see federal legislation changing for at least a generation," says OHA's Scheifele. This protected market is something new farmer-processors like Bercier are building a future on.

Nevertheless, Bercier is very quick to acknowledge the challenges in growing hemp. For starters, "there is a lot of paperwork." Farmers must register with Health Canada by February each year and complete a criminal record check. A minimum of 10 acres is legally required.

Bercier had just completed his crop's drug test paperwork in late September (to establish that his plants do not contain more than trace amounts of THC, the active ingredient in marijuana) when another large challenge struck. A bad windstorm devastated his crop. "There were seeds all over the ground," he says. "I estimate the loss at about 50 per cent."

Despite the setback, Bercier will push ahead with marketing this winter, in addition to processing oil from the remains of his crop, adding seed from other Ontario and Quebec growers and, if needed, from Western Canada.

The actual harvest itself is also tricky. Scheifele says that hemp is similar to canola in that it has uneven seed maturation. Additionally, he notes "hemp threshes easily, but it's moving straw through the combine and out before it gets a chance to wrap around the cylinders and get worked into bearings that's the problem."

He says that until the genetic changes are achieved to make it easier to handle, costly combine modifications are necessary. They may include cylinder modifications, protecting the underside of the combine from straw wrapping, protecting the intake chain and upper shaft on John Deere models, and modifying the intake throat. This may cost more than \$3,000.

Scheifele adds that good, sharp sickle bar blades are also needed. "The rest is driver skill and management," he says. "The combine must be cleaned after harvest and there is extra wear and tear, depending on the number of acres. You must also drive more slowly. OHA can provide all the required information."

In July, a combine clinic was held in Dauphin by the resident Parkland Industrial Hemp Growers Co-operative (fibre varieties only) where modification kits were presented for the John Deere 9500/9600 (\$2,500) and the Case International Rotary 2188 (\$3,500).

John and Raye-Anne Briscoe, who farm near Renfrew in the upper Ottawa valley, have found that the yield on their 10 acres of oilseed (ESTA-1) hemp is fantastic, but they encountered combine challenges. This was their first season growing contracted organic hemp for the Cool Hemp Company (see sidebar). "I could not believe the number of seeds," said John in late September. "It was a whopper of a yield."

After attempting to harvest with his small pull combine and having it completely immobilized, his neighbour agreed to lend him a bigger combine. That, however, was planned to take place after the neighbour's soybean crop was in and required a few dry days first.

"It's been a terrible year for weather," says John. He was not sure in September, whether there would be a sufficient break from the almost constant rain in eastern Ontario this fall, to get his crop in. "I never planned to hang my hat on it," he says of his 10 acres, "but I like to try new things and I've learned a lot."

For example, he's learned that ESTA-1 is an effective variety, but he's also found out that regulations currently do not allow farmers to keep seed for next year's planting and that the cost of shipping de-hulled seed can be high due to the weight.

Farmers interested in growing hemp in 2007 should contact the OHA for its wealth of resources.

Because there is no clear system yet in place for prospective growers to find buyers, the best way to set up a contract is through OHA.

Over the winter, future hemp producers should educate themselves, complete combine modifications and hope for a good growing season ahead. **BF**

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