



*Live simply
Love generously
Care deeply
Speak kindly
Leave the rest to God.*

2007 Volume 7 Issue 3



On Farm Barley Variety Trial

Winston Jones, a Riverview dairy producer, planted 2 varieties of two-row barley and 3 varieties of six-row barley in one field this spring. The different varieties were planted in strips within the field. All varieties were grown under the same management.

Winston reported that this was a very interesting exercise. During mid August, the Moncton Agri-Environmental Club had a chance at viewing this demonstration Barley Trail. It was a great opportunity to view the success and differing growth stages between the varieties.

The varieties Winston planted were; AC Maple, Encore, Sterling, Island, and Synasolis. From this Barley trial, we saw great success within the crops. Winston noted that the yields were higher in the six-row than in the two-row but DON (toxin) levels were also higher in the six-row varieties. The DON level in the six-row varieties may limit its use as a feedstock for certain animals. Since straw is becoming more valuable as the availability of sawdust diminishes, it may be important to note that Encore have the highest straw yields. Seed for this trial was obtained from Terio Seeds and South Eastern Farmers Co-op.

Jim Wheaton is conducting a similar trial with a number of soybean varieties.



Intercropping

Cameron Smith

A farming practice that results in better soil, more earthworms, much higher capture of carbon dioxide, less nitrogen runoff, more birds and insects, and double the crop yield in drought years - it sounds too good to be true.

Yet this is exactly what experiments at Guelph University are suggesting

The most astonishing conclusion is that if farmers adopted the practice throughout the 455,000 square kilometres of marginal or degraded land currently being farmed, Canada could come within a hair's breadth of meeting its Kyoto commitment with an 18.6 per cent reduction in the nation's CO2 emissions.

The practice is called intercropping - planting crops between rows of trees. At Guelph, the rows of trees are 12.5 metres to 15 metres apart, and this year the crop is soybeans.

The experiments have been going on for several years, using different crops and the results have been compared to identical crops grown in open fields.

Andrew Gordon, professor of forest ecology and agroforestry, has been supervising the experiments, assisted by Naresh Thevathasan, manager of agroforestry research and development at the Ontario Agricultural College in Guelph.

Thevathasan explains that the trees take up about 10 per cent of the intercropped area. Yet in drought years, the yield has been double that in the open area, because the trees helped

retain moisture in the ground. In normal and wet years, the yield in the actual growing areas has been identical, but because of the space taken by trees, the yield for the total area, trees included, has been about 10 per cent lower.

Accompanied by two graduate students, Thevathasan gave me a tour. The soybean plants were ripening to a buttery yellow and a row of poplars stretched as far as I could see over a gentle rise. The trunks were a good 40 centimetres across at hip height and the trees were roughly 13 metres high.

Fast-growing poplars can reach this size in 12 years, Thevathasan says. A couple of years ago, some were sold for \$100 to \$150 a tree.

In this experiment, he adds, there are 111 trees per hectare. They can be used to make plywood, low-quality lumber, chipboard, pulpwood, even pellets for heating.

They also produce a lot of leaves each year, which are shed where the crops are planted, making the soil richer in organic matter.

Earthworms in the leaf litter number 125 to a square metre, compared with two worms per square metre in the open field. Ten different kinds of birds foraged in the intercropped area, Thevathasan says, compared to four in the open area.

In addition, there were a lot more parasitic insects in the intercropped area, which might be good news for pest management.

Nitrogen added to the soil through decomposing leaves reduced significantly the amount of fertilizer required for crops.

And, says Thevathasan, leaching of nitrates from the soil, which causes nutrient overloading in waterways, was reduced by 50 per cent in intercropped areas, because tree roots take up nitrogen.

It was Rachele Clinch, one of the graduate students, who put her finger firmly on the issue raised by the experiments.

"We haven't changed our thinking about agriculture since North America was colonized,"

she said. "It's always been focused on clearing land to grow crops, with no place for trees.

"If only we would learn to use trees to help farming, instead of seeing them as a hindrance, we'd see many, many benefits."

In the struggle to control global warming, there's a simple, three-word memo government ministers of the environment and agriculture should be issuing to their staff.

"Check this out," it should read.



New Process Makes Diesel Fuel and Industrial Chemicals from Simple Sugar

Source GreenBiz.com

MADISON, Wis., July 7, 2006 - Soaring oil and natural gas prices have fueled a race to find new sources for chemical intermediates -- compounds that are the raw material for many modern plastics, drugs, and fuels. But there's a better way to make a chemical intermediate called HMF (hydroxymethylfurfural) from fructose, according to James Dumesic, a University of Wisconsin-Madison chemical and biological engineering professor. Dumesic reports in the June 30 issue of the journal *Science* that HMF can be converted into plastics, diesel-fuel additive, or even diesel fuel.

The new process goes beyond making fuel from plants to make industrial chemicals from plants. "Trying to understand how to use catalytic processes to make chemicals and fuel from biomass is a growing area," says Dumesic, who directed the HMF research. "Instead of using the ancient solar energy locked up in fossil fuels, we are trying to take advantage of the carbon dioxide and modern solar energy that crop plants pick up."

The new, patent-pending method for making HMF is a balancing act of chemistry, pressure, temperature and reactor design. After a catalyst converts fructose into HMF, the HMF moves to a solvent that carries it to a separate location, where the HMF is extracted. Although other researchers had previously converted fructose into HMF, Dumesic's research group made a series of improvements that raised the HMF output, and also made the HMF easier to extract.

Once made, HMF is fairly easy to convert into plastics or diesel fuel. Although the biodiesel that has made headlines lately is made from a fat (even used cooking oil), not a sugar, both processes have similar environmental and economic benefits, Dumesic says. Instead of buying petroleum from abroad, the raw material would come from domestic agriculture. Expanding the source of raw material should also depress the price of petroleum.

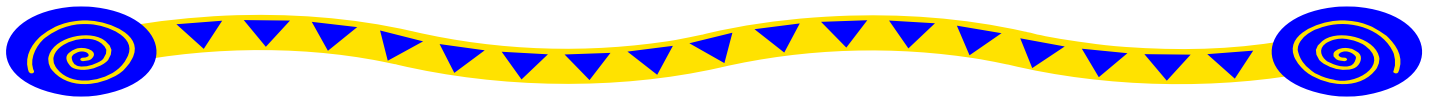
Using biomass-waste products of agriculture and forestry-can also cut global warming caused by carbon dioxide emissions from fossil fuels, says graduate student Yuriy Roman-Leshkov, first author on

the Science paper. "The nice thing about using biomass as a replacement for all these petroleum products is that it is greenhouse-neutral," he says. While burning and otherwise using fossil fuels moves an enormous amount of carbon from the Earth into the atmosphere, the carbon released when a biofuel burns is eventually taken up by growing plants. "This process is really important," Roman-Leshkov says, "because it does not introduce additional carbon dioxide into the atmosphere."

Juben N. Chheda, a second graduate student working on the HMF project, sees the work as part of an explosion of interest in finding alternative sources for petroleum-based chemicals. "We need to develop new process technologies, and HMF is a building block that can replace products like PET, a plastic used for soda bottles," he notes. "This is a first step for a range of chemical products that can be obtained from biomass resources, replacing those that come from petroleum sources."

Dumesic is also exploring methods to convert other sugars and even more complex carbohydrates into HMF and other chemical intermediates. "Solar energy and biology created the stored hydrocarbons in the fossil fuels we have used for so long. Our interest in biomass is driven by the belief that if we learn to use solar energy and biology in a different way, we can address problems related to price, supply, and the environmental impact of industrial activity."

Dumesic's research on environmentally friendly sources of common chemicals is supported by the U.S. Department of Agriculture and the National Science Foundation.



Beth and Arnd Barczyk – Chignecto Soil & Crop Farm of the Year

The Barczyk farm was started in 1998, after Beth and Arnd sold their business, Jacob's Larder. This was a well-known health food store and commercial bakery that they had owned in Sackville, NB. They built their home and farm on 660 acres of land located in Center Village.

The farm is run by Beth with the help of a hired hand. They own 340 ewes, along with fourteen purebred rams. They raise their lambs solely for the meat market. The sheep are fed silage and grain. This year, along with the thirty acres of grass for silage that they are growing, they have planted 15.6 acres of corn for corn silage. The corn silage will be used to replace some of the feed fed in hopes of finding a more efficient method of feeding the sheep. The Barczyk's also manage 90 acres of blueberries.

Their Environmental Farm Plan has been approved. They are members of the Chignecto Soil and Crop Improvement Association. Beth



has a Livestock Operation License. She is the president of the New Brunswick Sheep Breeders Association, and she currently sits on the national board of the Canadian Sheep Federation. Arnd works as a swine specialist for Clarence Farm Services located in Truro, NS.

The latest addition to the farm has been a 30'x120' coverall barn. They hope to add a Ducks Unlimited pond to their farmstead, as well as expand their flock in the future.

The Chignecto Soil and Crop Improvement Association is proud to present Beth and Arnd Barczyk as the 2007 Farmer of the Year Candidate.

Enhanced Grazing Management for Enhanced Profit

The Kings Co. Agri-Conservation Club will be hosting a grazing and pasture management workshop. It will be of interest to both intensive graziers and those who want to use their pastures as more than just an exercise yard.

Cedric MacLeod of MacLeod Agronomics will lead us through concepts such as:

- Basic grass and legume species agronomy
- Interactions between forage productivity and soil health
- Pasture renovation techniques, high and low disturbance techniques
- Pasture fertility and pH management
- Fencing technique basics
- Rotational grazing systems design concepts
- Planning pasture production and extending the grazing season
- Livestock water delivery systems to complement rotational grazing

When: October 10, 2007

Where: 9am Sussex Department of Agriculture office
After lunch we will be going to visit 2 local farms (dairy & beef) to put our new found knowledge to the test

Cost: \$10.00 for Kings Co. Agri-Conservation Club Members

\$20.00 for non-members

*****Vans will be available for group travel to farms*****

Cedric MacLeod has developed significant grazing management expertise through on the ground training with the Alberta Research and Extension Council of Alberta (ARECA) Grazing Mentor Training Curriculum, additional study and management of a cow-calf operation in Carleton County, NB. MacLeod Agronomics has provided grazing management consulting services to NB cattle producers for a number of years, and has been fine-tuning a rotational grazing system near Centreville, NB for 11-years.

To register please contact Tanya Dykens at 432-1133 or by email at tdykens@nb.sympatico.ca

Coming Events

Coming Events		
October		
4	BMPs Implemented at the Farm 10:30 am – 2:30 pm	MacLeod's – Tower Hill
10	Enhanced Grazing Management 9:00	NBDAA Sussex
11	Agri-environmental Club Committee Meeting	Colonial Inn, Moncton
25	Central Soil & Crop Field Day	Brent Dunphy's
November		
2-11	Royal Agricultural Winter Fair www.royalfair.org	The Direct Energy Centre, Exhibition Place, Toronto
8	Pesticide Application Technology for Farmers	NSAC
13-16	NMP Course	NSAC
December		
25	Merry Christmas !!	
January		
30 – Feb 1	Managing Excellence in Agriculture Conference Canadian Farm Business Management Council	Westin Nova Scotian Hotel, Halifax
February		
21	Integrated Pest Management Update for Farmers	NSAC
28- March 1	NBSCIA AGM	Memramcook Institute, Memramcook

Please send submissions to Susannah. NBSCIA 16 Gilks Road, Maugerville, NB E3A 8N4, phone: 454-1736, fax: 472-4718, email:nbscia@nbnet.nb.ca. Deadline for the next edition will be Dec 7, 2007.

Funny Signs

Automatic washing machine: Please remove all your clothes when the light goes out.

For anyone who has children and doesn't know it, there is a day care on the first floor.

Due to increasing problems with letter louts and vandals we must ask anyone with relatives buried in the graveyard to do their best to keep them in order.