Fall 2007

THINK GREEN! Newsletter

Ontario Forage Council

Forage Focus Conference

The Ontario Forage Council will host the sixth annual Forage Focus Conference on

Tuesday, December 4th
in Napanee
Wednesday, December 5th
in Shakespeare

Guest speaker for the conference series will be Dr. Dan Undersander, Extension & Research Forage Agronomist with the University of Wisconsin. Dan Undersander's research program has four major objectives that include: determining factors affecting alfalfa plant health and survival; best management for harvested forage—big bale wrapping, fermentation of silage; optimum management practices for intensively grazed pastures considering forage, yield, quality, and effect on wildlife; and developing equations for Near Infrared Reflectance spectroscopy for release to commercial forage testing laboratories.

You may well have read his articles in the Hoard's Dairyman. He is well respected across North America. Dan will be addressing topics on "How to reduce Winterkill", "How Hay Dries" and many practical aspects of forage production, harvest and storage. For more info go to www.ontarioforagecouncil.com

To Register: Call 1-877-892-8663
Deadline to Register: Nov 30th
Conference Cost: $35 (includes hot beef dinner)

Forage Focus Conference
"Equipping Yourself For Quality Forages"
hosted by the Ontario Forage Council
December 4th in Napanee and December 5th in Shakespeare
Keynote Speaker: Dan Undersander, **Extension Forage Agronomist, University of Wisconsin**

Opportunity is missed by most people because it is dressed in overalls and looks like work.
Thomas A. Edison

Update from the Ontario Forage Council

By John Adema
OFC President

Several initiatives have been undertaken by the Ontario Forage Council this past spring and summer..

The Profitable Pastures Conferences were extremely well attended. The material presented to the various producers, provided a wealth of information to consider for improving their respective grazing practices.

At present the final preparations are being completed for the upcoming Forage Focus Conferences scheduled to be held in November in Shakespeare and Napanee. The prime presenter will be Dr Dan Undersander from the University of Wisconsin. While he is a university professor, his many years of teaching allow him to be very practical on giving advice with respect to forages development, harvesting methods and equipment operations.

Currently several research projects, selected by the Ontario Forage Council, and funded under the

(Continued on page 2)

Canada Post Publications Agreement #40949041

Aphanomyces Root Rot In Alfalfa

Aphanomyces root rot is caused by the fungus-like pathogen *Aphanomyces euteiches.* Similar to phytophthora root rot (*Phytophthora medicaginis)*, it is considered a major cause of disease in alfalfa seedlings, particularly in wet soil conditions. Aphanomyces also attacks adult alfalfa plants and can have dramatically negative effects in established stands. Aphanomyces is confirmed in a widespread area in the mid-west and northeast United States, and is likely underestimated as an alfalfa pathogen in Ontario.

Seedlings

Aphanomyces is a water mould which requires saturated soil conditions for infection. The organism can survive in the soil for long periods. Infected seedlings are typically stunted but remain upright. Cotyledons are yellow or purplish, followed by chlorosis of other leaflets. Root systems will initially be tan coloured and then turn dark brown. Affected seedlings are frequently mixed with taller, healthy seedlings. Aphanomyces symptoms in new seedlings are usually not apparent when soils are dry after seeding.

Established Stands

Classic symptoms in established stands are stunted, yellow plants. Look for the absence of the fine, fibrous roots. Lateral roots are often rotted and even absent. Established stands that survive the initial infection are typically thin, yellow and weedy, and show reduced rhizobia nodulation. Symptoms appear similar to nitrogen deficiency. Regrowth is slow with poor vigour, and therefore yields are low. Because of the stunted root system, infected alfalfa stands do very poorly during seasons with extended dry weather.

More Chronic Than Phytophthora

Phytophthoria tends to kill seedlings more quickly and extensively than aphanomyces, by attacking the tap root. However, aphanomyces is considered more chronic. Aphanomyces is less likely to cause seedling death, but more likely to result in stunted, lower yielding alfalfa crops. Fungicides containing metalaxyl (ie Apron) are active against phytophthora, but not aphanomyces. If a grower has used Apron treated seed of an aphanomyces susceptible variety, but has a seedling problem, aphanomyces infection could be the cause.

How Extensive Is It?

There are many alfalfa fields in Ontario that show visual symptoms of aphanomyces, although this has not been confirmed by laboratory analysis. A limited 1992 survey in southwestern Ontario indicated infection in 6 (in 5 different counties.) of 83 alfalfa fields surveyed (7%). Soil tests for aphanomyces are available in the US, but not yet in Ontario. Based on the rapid spread of aphanomyces in neighbouring States in the past decade or so, it seems very possible that it is also a significant alfalfa disease in Ontario.

Resistant Varieties

Aphanomyces is managed by using resistant varieties, similar to what has been done with phytophthora root rot resistant alfalfa varieties. Race 1 and race 2 isolates of aphanomyces have been identified. Race 2 is more virulent. Many alfalfa varieties are resistant to race 1, but far fewer are resistant to race 2. Seed companies are working to make both race 1 and 2 resistant varieties commercially available in Ontario.

By Joel Bagg,

Forage Specialist, OMAFRA, Lindsay

OFC Update

(continued from Page 1)

Canadapt, CORD Program, are nearing completion. We look forward to the final reports and conclusions. Some of the projects are outlined in this newsletter.

With the ever increasing concerns and comments about the environment and the use of alternatives for fossil fuels, the current research work on ethanol from cellulose fibres (straw and switch grass) may hold great potential. Corn and soybeans are presently being used for the production of ethanol and bio-fuels but in the future, forages and other perennial crops may also be considered.

In addition the board has started a review of its priorities to set objectives for the coming years. This consultative process is not completed and will necessitate some additional reflection and discussion.

"Corn ethanol utilization results in a CO2 saving of about 20% in comparison with oil-based gasoline. With biodiesel the savings is approximately 80% and about 90% with cellulosic ethanol. Of renewable energy sources in general, biofuels are among the most cost-effective ways of abating greenhouse gas emissions. However, the cost depends on biofuel type and the feedstock. Assuming a crude-oil pric4 of $40 per barrel, the cost of abating 1 ton of CO2 via rapeseed diesel is ~$400, ~$500 via wheat ethanol and ~$50 via cellulosic ethanol."

Summary Proceedings The World Congress on Industrial Biotechnology and Bioprocessing Orlando Florida [*http://nabc.cals.cornell.edu/pubs/WCIBB2007_proc.pdf*](http://nabc.cals.cornell.edu/pubs/WCIBB2007_proc.pdf)

The final" ~$50 via cellulosic ethanol" is why we should be interested and keep up to date with this. Once ethanol is produced from cellulose then forages will play a major role by providing perennial feedstocks for energy production. We are now in the era of agriculture producing not only food but also fuel and fiber. Forages may provide the answer for production or for rotation to help other crops produce better and to help restore and maintain the quality of our land base. We have a role to play in the new economy!

Canada is wrestling with these new questions too. "Growing the Margins" is an Ontario conference held for the first time last spring and planned again for April 2008. Visit their web site at [*www.gtmconf.ca/welcome.htm*](www.gtmconf.ca/welcome.htm) .

FORAGES

Canada-Ontario Research & Development Program IV

"The forage market can be one of the most lucrative of all farming enterprises. It's important that all producers realize its full potential."

Ray Robertson, General Manager, Ontario Forage Council

Improving Fatty Acids and Saturated Fat Levels in Beef With Forage Feeding

Outside North America, where cattle are primarily pastured and fed forages, beef has a reduced saturated fatty acid profile comparable to poultry. However, here in North America, forage finishing of beef has not been popular due to perceptions of lower animal growth performance and poorer beef taste quality.

Recognizing consumer demand for healthier products, the Ontario Forage Council set out on a research program that is studying how the taste of beef and growth performance of cattle are affected by both the type of cattle breed and forage feed (alfalfa, timothy, ryegrass, etc.).

Progress in improving the taste of forage fed beef with low saturated fat levels would open an attractive niche market for health conscious consumers and a premium for delivery of beef with a healthier fat profile.

The Economic Impact of Ontario Forages

Forages are produced on most farms in Ontario and represent one of the largest farm commodity sectors.

With new bio-fuel opportunities opening up for the forage market, it is important to have accurate records of the value and quantities of forages produced and available for market in Ontario. This project will develop industry models for use by policy makers, investors and producers in order to predict the effects throughout the industry and rural society if forage cropland is displaced by bio-fuel crops.

Improving Dust Levels in Horse Quality Hay

The market for hay sold to the Ontario horse industry exceeds $100 million annually and dust in hay is the number one concern that horse owners have due to its potential to cause serious respiratory problems.

This project will investigate the biological components of hay dust, the affect of hay production practices on quality from a dust standpoint and how to objectively measure dust. The end goal will be development of a simple and reliable method of quantifying dust, mould and mould spores, which will be a great asset to hay producers when marketing into the domestic and international hay markets.

Comparison of the Performance of Steers Finished on Pasture or in a Feedlot

There is growing interest in finishing cattle on pasture due to higher costs for grain as well as the emergence of niche markets for beef from cattle raised under "natural" conditions. Few studies have compared modern type cattle finished simultaneously in the feedlot or on pasture. The research reported in this article was conducted in Nova Scotia and makes that comparison. The researchers also looked at supplementing the pasture with barley or whole roasted soybeans.

Trial design

British crossbred steers weighing 432 kg that had been in a feedlot on a ration of barley and grass silage were assigned to 1 of 4 groups in early June. The 4 groups were fed (1) pasture only, (2) pasture plus 4.5 kg barley per day, (3) pasture plus 1.8 kg roasted soybeans per day or (4) a TMR containing 60 % grass silage and 40 % barley in confinement. Cattle were slaughtered after 105 days on the trial and carcass measurements were taken.

The pasture was a mixture of grass and clover. Cattle were moved to new paddocks 3 times per week and each section was grazed 4 times over the summer. Dry matter consumption on the pastures was estimated by sampling a fixed area before and after grazing. The stocking rate was 37.5 steers per hectare.

Results

The composition of the pasture was determined before each grazing period. The results are shown in Table 1.

Table 1: Composition of pasture

Rotation	1	2	3	4	Average
DM available(t/hectare)	3.15	2.67	0.76	1.57	2.04
Crude Protein %	10.9	11.4	15.6	15.6	13.3
ADF%	26.7	33.5	32.8	30.3	30.8
NDF%	56.4	59.5	60.0	54.7	57.7
Lipid %	24.1	16.5	22.2	25	22

It may seem surprising that the protein content increased through the grazing season. This may be due at least partly to the decline of the grasses and the increase in the clover. The cattle did not consume all of the forage available in the first 2 rotations and the residue was removed for silage.

The performance of the cattle is described in Table 2. Note that CLA is a type of fatty acid proven to be beneficial to human health.

Table 2: Live performance and carcass values

Group	1	2	3	4
Dry matter intake(kg/day	22.4	28.9	25.6	26.4
Final Weight (kg)	533	547	551	569
Weight gain (kg)	0.9	1.17	1.08	1.41
Dressing %	55	55	54	54
Back Fat (mm)	4.3	6.9	6.0	7.0
Loin eye area (sq cm)	69.9	62.7	59.1	65.9
Extra days to reach weight of feedlot steers	60	21	32	
Total CLA content (mg/g fat)	5.7	4.6	5.8	3.6

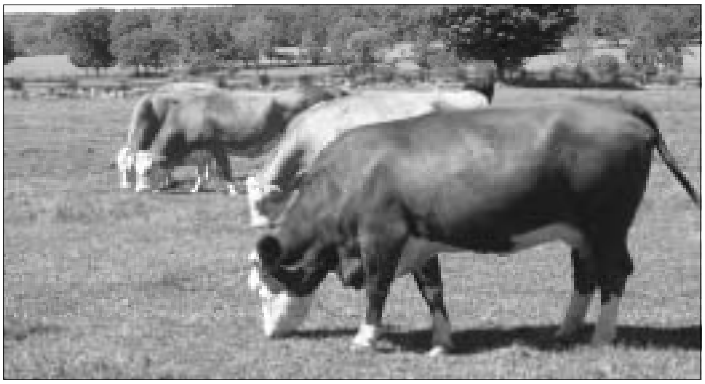
The pasture fed cattle gained more slowly but produced a carcass which was leaner and higher in CLA content. Supplementing with barley improved performance but reduced the beneficial effects on CLA content. There may be niche markets where the premium could be high enough to offset the reduced rate of gain of the pasture fed cattle.

This research was originally published in the Canadian Journal of Animal Science, December, 2006 (86:535). This summary appeared in the August/September issue of the Ontario Farmer *Beef* magazine.

Dr. Doug Yungblut, P.Ag. is an independent consultant to the livestock industry. He can be contacted at doug.yungblut@sympatico.ca or (905) 785-7765.

Fall Pasture Management Following a Dry Summer

The summer of 2007 has been one of the driest on record in many parts of Ontario and pastures are showing the impact! There are a number of steps to consider this fall and next spring to bring pastures back into top form.



Reduce Tramping

Allowing pasture re-growth this fall will result in a more vigorous stand next spring. Sacrifice a small pasture and feed in this area rather than letting the livestock roam across the entire pasture. Once moisture levels return, and the grass starts to re-grow, give pastures a chance to develop before allowing livestock to graze. The plants need time to grow new root and leaf material and re-build root reserves, to replace what was damaged during the dry weather.

If feeding green-chopped forage, be aware that nitrate levels may be high in drought-stressed corn or sorghum, that could be deadly to livestock. Refer to "*Drought Damaged* Corn Silage" on the OMAFRA Website at www.omafra.gov.on.ca/english/crops/facts/drought.htm.

Stubble Fields

Don't under-estimate the amount of forage available in a grain stubble field. As well as the stubble and chaff left behind, grain that went out the back of the combine, missed grain heads and grass weeds will all provide feed. There will be between a few days to a few weeks of feed in these cereal fields. Soybean stubble fields are another option. This emergency feed can be supplemented with hay or other feed to complete the ration.

Annual Forage

If sufficient growing season remains and soil moisture is adequate, consider an annual forage. Fall rye grows well into the fall, and greens up early in the spring. Depending on the length of growing season remaining, oats, rape or stubble turnips might be considered. These crops are best sown in early- to mid-August.

Fertilizer

Nitrogen fertilizer applied to a grass-based pasture during the early fall will encourage growth and help to rejuvenate the grass. 50 to 70 pounds of actual nitrogen should be applied. Expect 20 to 30 pounds of dry matter production from each pound of nitrogen applied. Fall application will increase the sugar levels in the grasses, and enable more vigor next spring.

To establish new legumes in a pasture, the best method may be to apply phosphorous and potash this fall, and then frost seed late in the winter or early next spring with trefoil or clover. The legume seedlings will need a reasonable level of fertility to get properly established, and the weakened grasses will be less competitive.

For more information, refer to "Looking for Extra Forage", "Conserving Pasture Production During Dry Conditions" and "Fall Pasture Fertility Management After A Drought" on the OMAFRA Forage Website at www.omafra.gov.on.ca/english/crops/field/forages.html.

by Jack Kyle,
Grazier Specialist, OMAFRA

Ontario Forage Master's Program is 20!

In celebration of the 20th Anniversary of the Ontario Forage Masters program, OSCIA and the sponsors are bringing back the Provincial competition to be held at the Royal Agricultural Fair on November 4, 2007. The 2007 Ontario Forage Master will be selected at this speaking competition and will go on to represent Ontario at the American Forage and Grasslands Council's Forage Spokesperson Competition to be held in Kentucky in January. Agri-Food Laboratories and Pickseed Canada are sponsors of this year's event in association with OSCIA.

Over the years this has been a very highly regarded competition which has served to highlight the benefits of forages in farming operations. Ontario Forage Masters and County Forage Masters have spoken at countless meetings telling others about how they manage forages and what forages mean to their operations and Ontario agriculture. We congratulate the winners and all those who have entered this competition over the past 20 years for the extra time and effort that they were willing to put into their presentations. Their pride and commitment to forages has been outstanding. Winners of the past years can be seen on the Ontario Soil and Crop Improvement Association's web site at www.ontariosoilcrop.org .

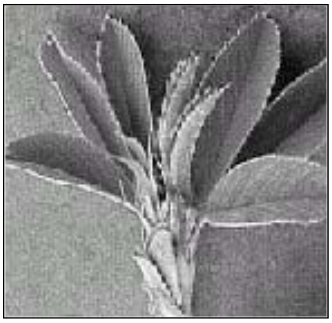
Risk of Alfalfa Winter Kill

. **Table 2.** Risk of Alfalfa Winter Injury

	Points	Your Farm
What is the age of your stand?		
Under 1 year	1	
2 – 3 years	2	
More than 3 years	4	
Total		_____
What is your variety disease resistance? **(R=resistance, HR=highly resistant)**		
R or HR to all diseases	2	
R or HR to both verticillium and bacterial wilt	3	
R or HR only to bacterial wilt	4	
Total		_____
What is your potassium soil test?		
High (above 150)	1	
Medium (80-150)	2	
Low (less than 80)	3	
Total		_____
What is your soil drainage?		
Excellent (eg. Sandy loam)	1	
Good	2	
Moderate	4	
Fair (clay loam - no tile)	6	
Total		_____
What is your cutting schedule? **The following applies to Western, Central and Eastern Ontario. For Southwestern Ontario add 1 cut**		
2 cuts, last cut prior to Critical Fall Harvest Period and for Northern Ontario subtract 1 cut.	1	
2 cuts, last cut during this Period	2	
3 cuts, last cut prior to this Period	2	
3 cuts, last cut after this Period	3	
3 cuts, last cut during this Period	4	
4 cuts, last cut 5-6 weeks after this Period	4	
4 cuts, last cut during this Period	5	
Total		_____
Total		==========

From OMAFRA Factsheet 91-072 To view the entire factsheet go to: www.omafra.gov,.on.ca/english/crops/facts/91-072.htm

The survival of alfalfa is conditional upon many controllable management factors and uncontrollable environmental factors. The uncontrollable factors include snow cover, temperature and temperature fluctuations, Controllable management factors include variety used, soil fertility (potassium level). soil and harvest timing. , Management will greatly offset the risk of alfalfa winter injury. Table 2 outlines a method to estimate your risk of alfalfa winter injury. Enter the scores for answers which describe your management and field situation to assess your . risk of winter injury to alfalfa.



Risk of Winter Injury	
Total Score	**Risk**
7 or less	low
8-12	medium
13-16	high
17 or more	very high

The Ontario Forage Council thanks the

Ontario Ministry of Agriculture, Food & Rural Affairs for its support

Ontario

Grazing Mentorship Program

The Sustainable Grazing Mentorship Program is a consulting/mentoring program being delivered through Ontario Cattlemen's Association and funded by Greencover Canada.

The Grazing Mentor program is open to beef producers in Ontario. The program helps connect experienced graziers (mentors) with novice producers to assist the less experienced in implementing Beneficial Management Practices in their grazing operation. A Grazing Mentor is a respected producer peer with extensive grazing management experience and knowledge. The Mentor can suggest grazing management options to help you improve your profits, your forage productivity and your land and water resources.

A Grazing Mentor from your area will come to your farm to discuss your grazing resources, opportunities and challenges. The Mentor can make suggestions about fencing, watering systems, grazing systems, plant growth, forage species, winter grazing options, or just about anything your have questions about!

The cost to the novice grazier is $100. The Mentor comes to the farm and assists the novice grazier with creating grazing plans, developing systems, and performing economic analysis of their enterprises. The mentor puts in approximately 16 hours (2 days) with the novice producer. To find out more, or to request a Mentor contact Paul Stiles, Ontario Cattlemen's Association 519-824-0334 or 1-866-370-2333.

By Jack Kyle

Grazier Specialist, OMAFRA

Managing Methane

Reducing your herd's methane greenhouse gas (GHG) emissions improves profitability. Dairy and beef producers are in a unique position; they can reduce their greenhouse gas emissions just by improving their productivity. In fact, pretty much anything you can do to improve your farm's production efficiency has the added benefit of reducing GHGs.

Cattle and other ruminants are the main agricultural sources of methane. They produce it as a natural byproduct of digestion. It has been estimated that a cow, on average, can produce enough methane every day to fill a 44 gallon drum. For producers that is a tremendous amount of wasted energy and that translates into lost profits.

"In my mind, good methane management is good economics," says Karin Wittenberg, associate dean of research at the University of Manitoba in Winnipeg. "Probably the best thing that cattlemen can do to reduce methane emissions is to focus more on forage quality. In western regions we have a lot of grass hay being produced that is very low in protein and very high in fibre. In eastern regions we have a lot of poor quality, high-moisture silage. If you are making poor quality hay or silage, then you are loosing the equivalent of one bale out of 10 as methane."

Improving pasture management will also increase productivity and gain-to-feed ratios. "To maximize animal performance, and reduce methane, make sure that pasture quality is always good," says Alan Iwaasa, with Agriculture and Agrifood Canada (AAFC) in Swift Current, Sask. "Feedlots always try to maximize yield and improve the efficiency of their animals by keeping track of feed on a daily basis. We sometimes lose track of that on a pasture but the principles are still there. If we make sure that the animal is maximizing its intake by giving it the ability to consume a good quality product, we get it back in improved weight gains. This not only reduces costs, it also reduces methane emissions."

Thank you to "The Furrow" for excerpts for this article

You Can Help Reduce Greenhouse Gas

When you grow perennial forages, you are also doing your part to reduce carbon, one of the components of greenhouse gas. The large root systems of perennial forages can store up to 2.7 times more carbon than annual crops, and place (sequester) it deeper into the ground for better longer-term storage. As well, the lack of annual tillage slows the breakdown and release of carbon from the plants' roots. For more information on greenhouse gas, and what else livestock producers can do to help reduce it, visit the following websites:

Canadian Cattleman's Association:

http://www.cattle.ca/

Greenhouse Gas Mitigation Program:

www.soilcc.ca/ggmp/index.html

Why Should You Consider Forages?

Forages can be a simple answer to soil erosion and decline in organic matter and fertility, a problem caused by modern cultivation and fallowing practices on much of the farmland in western Canada. Forages can also help you reduce nitrogen fertilizer costs and the energy costs associated with applying nutrients.

Many farmers are using forages for positive results on any land, but particularly, on marginal crop land. The numerous benefits in any situation include:

- increased soil fertility when legumes are used;
- increased soil quality;
- better water filtration and internal drainage;
- less disease in subsequent cereal crops;
- reduced weed populations;
- increased yields in subsequent crops;
- better economics in subsequent crops;
- greater and deeper carbon sequestering for greenhouse gas reduction.

- Approximate $800 million value of production
- This is roughly 10% of the $8 billion agricultural industry in Ontario
- Because it is fragmented into many sectors (dairy, beef, sheep, equine, hay producers, etc), and does not receive check-off, the importance of the forage industry in Ontario is often underestimated.

	Acres 2006 Census	Estimated Total $ Value
Total Farms	**13,310,216**	
Alfalfa	1,662,370	
Other Hay	900,267	
Total Hay	2,562,637	$516,455,363
Corn Silage	320,759	$134,132,880
Forage Seed	12,323	$1,363,200
Seeded Pasture	749,719	$101,541,563
Natural Pasture	1,112,668	$49,287,563
Total Pasture	1,862,387	$150,829,125
Total Forage	**4,758,106**	**$801,417,368**
For comparison		
Soybeans	2,155,884	
Grain Corn	1,577,862	
Winter Wheat	1,028,476	

Acreages based on 2006 Census of Agriculture

Forages require fewer cash inputs than most grain crops, and although you will need special harvesting equipment, there are now many more options for harvesting forage crops than in the past. These include sharing equipment with other producers or utilizing custom harvesters.

The full factsheet "The Benefits of Including Forages In Your Crop Rotation" is available at www.gov.mb.ca/agriculture/crops/forages/bjb00s43.html . While this is written for Manitoba the results are the same in Ontario. Benefits to the next crop, soil quality and fertility and to the environment are documented.

Gold Level Members

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Ontario Harness Horse Association

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