



Forage Focus Conference

As we prepare this newsletter, we are also preparing for our Forage Focus 2003 conferences on December 2nd in Shakespeare and December 4th in Trenton. Judging from our speaker line-up, topics, trade show participants and the registrations received, we are looking forward to a lively and informative couple of days for forage producers.



The Ontario Forage Council thanks its Forage Focus 2003 partners:



The Dairy Farmers of Ontario



The Dairy Farmers of Ontario and
GreenHouse Gas Mitigation Program

Conference Highlights:

- ◆ Feature speaker, Dr. Ron Schmidt, is well respected in the field of forage genetics research and currently manages the Oregon forage and turf grass breeding operations for Allied Seeds. He will address several practical forage production topics including Feed Value of Grasses, Hybrid Breeding Developments and Leafhopper Problems.
- ◆ The value of high quality forages and their efficient use will be demonstrated using summaries of production and financial records, developed by Bill Grexton from Dairy Herd Improvement.
- ◆ Joel Bagg and Mike Cowbrough from OMAF will speak on Ontario Forage production issues and the management of dandelion problems.
- ◆ Local farmer discussion panels.

Profitable Pastures Conference

Producers attending Profitable Pastures last year asked for more information programs like it, more producer panels and more time with practical speakers. They told us that they liked the speakers, the whole program and, oh yes, the hot beef lunch. Well, that's exactly what we are planning for Profitable Pastures 2004!

Monday, March 1, 2004 — Elmwood
Wednesday, March 3, 2004 — Cobden

Dr. Ben Bartlett, University of Michigan
*Effective Use of Annuals
in a Low Cost Grazing Operation
and*

*Water Systems & Grazing Systems —
Making Them Practical*

Birgit Martin, Manitoulin Island
Matching Grass Growth to Animal Needs

John Steele, Norwood Sheep Producer
Maximizing Profits with Pasture Management

Local Farmer Panel
Experiences in Pasture Management

Once you have heard Ben Bartlett of University of Michigan speak, you will seek out all opportunities to hear and talk with him again. Ben is trained as a veterinarian, teaches and researches at the U of Michigan and farms as well. When he talks about watering animals, rotationally grazing and species management, he has done it himself — but also has the backing of research to base his ideas upon. Don't miss this opportunity!

Birgit Martin is putting her Masters in Pasture Research to use at their farm and supply service on Manitoulin Island. She has the ability to put research to practical usage with answers to typical questions and problems.

John Steele is a sheep producer from the Norwood area who has about 1000 ewes on an accelerated lambing system. John makes very effective use of pasture in his operation and will discuss his pasture management practices.

A discussion panel with all the speakers and a local farmer from each area will cap the day.

Feeding New Corn Silage To Your Cattle

by Doug Yungblut, PhD., P.Ag.



By the time you read this you are probably going to be well into feeding your new crop corn silage. Did the new crop silage cause you problems this fall? To become a consistent quality feed, silage needs to ferment for at least two weeks and preferably five or six. Feeding corn silage while it is fermenting can cause anything from mild production swings to severe acidosis, displaced abomasums and even death of cows. I have heard of all of these in my six years as nutritionist at Pioneer Hi-Bred here in Canada.

First let me point out the extreme danger of working in and around a silo while the silage is fermenting. Silo gases are heavier than air and can accumulate in feed rooms as well as on top of silage below the doors. It is especially common when the plants were under drought stress before harvest. It can take up to three weeks for silo gas levels to decrease to where it is safe to work around the silo.

When you harvest corn silage at 65% moisture, there are two different components, the plant part and the grain part. In well-eared corn silage the grain should make up 50 % of the dry matter. The stalk part of the plant is at 75-80% moisture while the grain part will be at 40-50%. This is why you will frequently see grain going through the cows right after ensiling, but the amount decreases

over time. As the silage sits in the silo, the grain absorbs moisture from the plant part, making it more digestible. Effective processing of the silage (no visible undamaged kernels) helps to reduce this but does not eliminate it. Extended fermentation time is the best solution. Not only is seeing grain in the manure frustrating, it is a loss of potential energy to the cow and a frequent cause of lowered production and body condition on new silage.



The other major problem is that the chemical structure of the silage is changing daily, affecting both its taste



and smell and the way it acts in the rumen. Cows may find the fermenting silage very palatable for a few days and increase their consumption. In one case intake of the TMR went up by 10 %, and with no changes in the ration cows suffered from grain overload. The rumen bacteria do not have a chance to adapt to any one type of feed because it is changing daily.

Many producers have only one silo for corn silage, making it difficult to let the silage ferment properly. Silage bags have added a new flexibility to the silage operation. There are at least three ways they can be used in this context. One is to fill a bag at the same time as the main silo, then feed out of it next fall at silo filling time. Another is to fill a bag with fermented

silage from the main silo in the spring and feed that while the big silo ferments. Moving silage is best done in cooler weather. The third way is to plant a few acres of a very early hybrid that will be ready to harvest in early August. Use it to fill a bag that will be fermented by the time you start filling the main silo.

It will take a bit of effort to allow your silage to sit and ferment, but it will pay you big dividends. ✨

Visit our website at
www.ontarioforagecouncil.com
for a wealth of
technical and research
information on forages
as well as links to other

Did you know this about forages.....

- ◆ Forage crops are crucial to all who consume milk (84.2 litres/capita).
- ◆ Total fluid milk produced in Ontario in 2002 equaled 1,020,929,000 litres, which comprised 2.4 billion litres of fluid milk and milk products produced. (1 billion – fluid milk & 1.5 billion -cheese and butter) with an economic value of \$1.4 billion.
- ◆ Forages provide the base feed for the economical production of milk from all dairy cattle (367,000 dairy cows in production) as well as meat production from all beef cattle (2.2 million), sheep (227,000), goats (33,400), and deer representing millions of dollars annually.

Have you heard the latest price of hay! Whether your barn is full of it, you're trying to sell it, or are looking like mad for a source of it; hay and its price can be the hottest topic of conversation at any farm gathering. How we get the best use out of our forages should be the next best topic of conversation.



So in no particular order will you:

◆ **Inventory** what you do have? This includes the number of bales, and what

they weigh = # of lbs of hay, of what types (the good, the bad, and the gut fill).

- ◆ Test the major forage? This is not the year to feed based on "I think that it's pretty good hay." If a \$35 test lets you save 1 lb of hay/cow/day at \$.06/lb on 50 cows = \$3/day.
- ◆ Figure out what your inventory will carry? Cut to that number or figure out your alternatives NOW. Failing to plan now is how we get thin cows and humane society calls in February and March.
- ◆ Consider buying gates so you can split the cows into 2 feeding groups (the very needy and the not so needy) and feed accordingly?
 - ◇ If you can't or won't split the group, ship the thin cows, timid cows and young cows that won't compete for feed.
- ◆ Take a hard look at your feeders? Do they waste a lot of hay? Can they be modified? Do you have enough feeder space? When on a restricted diet, it's important that they all can feed at once.



◆ Consider what other forage feedstuffs are out there?. Cereal straw can be fed as PART of a ration. Limit to 12-14 lbs to avoid impaction of the rumen. Make sure protein levels are adequate and lots of water is available.

◆ Consider if there is a way to use corn stalks? As grazing? Hay? Or bedding?

◆ Consider Soy and Canola straw? They probably won't eat these unless they can be chopped and mixed with other forage, but use them for bedding, and they will pick at them.

◆ USE BEDDING? Lack of bedding increases energy needs by 10-15% (that's 1-2 lbs grain or 2-3 lbs good hay/cow/day). Consider anything that gets them off the cold ground or manure. Soy straw, canola straw, corn stalks, bark or sawdust.

◆ Use grain to replace SOME hay? It may be a \$\$ wise decision.

◇ You will need to price out the costs on a lb of nutrient base. 5-6 lbs of corn may replace 8-10 lbs of hay but it will need to be worked out for your set-up.

◇ Don't get carried away with grain however. Once you go over 10-12%

of the diet (2-3 lbs/1000 lb of body weight) you will depress forage digestibility.

◇ If considering grain ... will you buy from the mill, off the combine? Where and how will you feed it?

◆ Consider a protein supplement? If your hay has really tough fibers and is low in protein, it will help to drive the rumen and increase digestibility of your forage.

◆ Look at beef pellets? Many mills offer beef pellets. These can be good, but shop around for price and content. A pellet is not a pellet is not a pellet.

◆ Go for a FAT FALL? Try to fatten the cows up in the fall period to save on energy needs in the winter. A fat cow has 6% lower energy needs than a thinner lady. A cow in good shape can lose 10-15% of her body weight from fall to spring. But this requires constant monitoring.

Pray for an Easy Winter, and Early Spring! But get yourself prepared none the less. ✨

“What’s corn silage worth this year?” There are some unique circumstances this year that make it more difficult to determine. Supply and demand will ultimately determine the price.

Many farmers are considering changing their intended corn silage harvest to reflect changing livestock inventories due to the BSE situation. Some feedlot operators may decide to reduce cattle purchases, while cow-calf operators and backgrounders may decide to overwinter feeder cattle. In some parts of the province there is some late-planted corn. An early frost may result in grain corn that is immature and these fields could be salvaged as silage. With proper management, silage piles and bag silos can provide storage flexibility where tower and bunker silos are not available.

Corn silage yields and quality are quite variable. It is important that you make your own assumptions for your situation and calculate your own costs in order to determine what you feel is an acceptable price. Then negotiate the best you can.

Consider Yield & Feed Quality

Tremendous variation in yield and

quality can occur between fields depending on local weather conditions. Many fields will have good yield and quality potential. Higher yield reduces harvesting costs per tonne and increases the proportion of grain and therefore energy.

Immature Corn Silage Feed Quality

—Buyers need to consider the nutrient value of corn silage, particularly if you suspect it is of poorer quality. Slightly immature, frost damaged corn that has dented can make good silage. However, research shows that very immature corn at the “dough” stage averages 4 percentage points less in In Vitro Dry Matter Digestibility (IVDMD) and about 14 percentage points greater Neutral Detergent Fibre (NDF) than silage at the one-half milk line stage. Information on “Frost and Immature Corn Silage” is available on the OMAF website. Corn silage with less grain content has reduced energy levels. Quality may be inadequate for high producing dairy cows, and it is sometimes a good idea to harvest the better corn fields for silage. However, quality of immature corn silage will likely be adequate for livestock with

low to moderate energy requirements, such as beef cows and stockers. Additional grain can be more easily included in feedlot rations to increase the energy content.

Example Calculations—One method to determine the price of corn silage is to compare it to the value of grain corn as a minimum price. As an example, look at the two fields in Table 1. The first field has a corn crop with decent yield and quality. The second field yields only two-thirds of example 1 and is grade #4 corn. These calculated corn silage values are not necessarily the cost of production, or the feed nutrient values, but reflect the market value of the alternate harvesting options.

The expected grain value should be adjusted for custom combining, drying, and trucking charges to give a value of the crop in the field. The additional soil nutrient value (N-P-K) removed in the stover is about \$3.25 per tonne of corn silage. If the seller is going to fill the silo for the buyer, custom silo filling charges should also be added.

Other Considerations

The local supply and demand of corn silage and alternate forages will influence the price. The availability of silage storage and the economics of feeding are also considerations. Growers with poor quality corn and without crop insurance have few options. Sellers with Crop Insurance should contact Agricorp (1-888-247-4999) to determine how selling corn as silage will impact a claim. Good yield and quality estimates are important and should take into consideration actual weights and percent moisture. The removal of the stover organic matter could be considered as well.

This example is meant to be a general guide for farmers and should be used as a starting point in negotiations between the buyer and seller. Make your own assumptions and do the calculations specific to your situation.

Table 1 - Pricing Corn Silage Example Calculations -2003	Ex. #1	Ex. #2
Assumption	good	poor
grain yield per acre	3.0 mt	3.0 mt
grade	#2	#4
corn silage yield per acre (65% moisture)	15.25 mt	11.07 mt
grain price / mt	\$120	\$115
bushels grain / mt silage	7.7	6.4
Calculations		
gross grain value per acre (yield X price)	360.00	207.00
drying (25% moisture @ \$15/mt)	- 45.00	- 27.00
combining	- 33.00	- 33.00
trucking (@ \$7.50 / mt)	- 22.50	- 13.50
gross value per acre less grain harvesting costs	259.50	133.50
+ N-P-K value removed in stover (\$3.25/mt)	+39.81	+30.13
Value Standing		
per acre		
per metric tonne (mt) (65% moisture)	19.63	14.78
¢ / lb dry matter	2.54	1.92
+ silo filling (\$150 / hour, 2.5 acres / hour)	60.00	
+ silo filling (\$150 / hour, 3.0 acres / hour)		50.00
Value In Silo		
per acre	359.31	213.63
per metric tonne (mt) (65% moisture)	23.56	19.30

Are you a few bales short of a full load as you look at winter just around the corner? Was the weather too wet or too dry? Did you get too good a deal on the neighbor's cows, or for whatever reason, are you thinking you will run out of round bales before you run out of winter? Let's briefly review your options so you can winter your cows cheaply and still have as many healthy calves next spring as possible.

The first step is to always double check your inventory of feed. Most people don't have to pull out pencil and paper. You "know" it usually takes "x" number of bales to get through the winter and if you have less than "x" you are short. But, what other feed resources might be available? Don't worry about the details; just do some brainstorming on what else could be used to stretch your existing hay supply. What about the neighbor's corn stalks, the property across the road that an investor is just holding, or what about your own hay field re-growth? One of the easiest ways to make your hay last longer is to not start feeding so early. If your pasture runs out and you take out a bale of hay, the cows have got you trained to work for them instead of the cows working for you. It may take a little extra effort to put up some temporary fence but compare that against the cost to purchase 30 days worth of hay. The fence is an investment that will last but the hay (and your money) will quickly turn into "fertilizer."

It is getting late this year, but two other very useful things you could have done back in July/August to extend your pasture season would have been to do some strategic nitrogen fertilizing and/or plant some annual crops. A small grain like oats or rye, annual ryegrass, or even a brassica like turnips are options to consider. We have sheep

producers who have gone the entire winter feeding hardly any hay by using turnips, and beef producers in Ohio have used oats and almost completely eliminated their winter hay feeding. You will always need some hay on hand for storms, but it is amazing how little hay is needed with some planning.

Even when the snow is deep and extended grazing is not an option, there are still things you can do to make that hay go farther. Have you ever done the quick math to see how much hay you are "offering" each day? Offering and eating are not the same thing. If you have 1,000 pound bales and you feed 3 of them to 35 cows every 2 days you are "offering" each cow 43 pounds of hay per day. (3,000 pounds of hay divided by 2 days = 1,500 pounds divided by 35 cows = 43 pounds per cow per day). Not many beef cows are big enough, nor is most beef cow hay good enough that a cow can eat 43 pounds per day. It just becomes more fertilizer. In round bale feeder work done at Michigan State University, the most important round bale feeder design principal was to have the feeder larger than the bale. Then, the cow could reach in to eat and any dropped hay would be inside the feeder. The fancy feeders did work better but they are also very expensive and usually heavy and hard to move.

One way to decrease the hay lost is to chop the hay. We do not have many custom tub grinders and it is really hard to justify a grinder or chopper with our smaller herds even though we will increase utilization and decrease losses. One potential option is a round baler that will slice the hay as the bale is being made. The core and outside are long hay but the middle can be sliced into about 6 inch lengths. Too late for this year, but a consideration if you buy hay or when you buy your next baler.

When all else fails you just need to buy hay right? No. Buying hay is always just one of the options. It frequently is less expensive to start supplementing your existing supply of hay early in the year to stretch out the hay you do have. Running out of hay and then buying a ration of 100% hay is usually the most expensive way to go. If you start early, you can ration-out your hay by feeding straw, corn silage, corn grain, or a multitude of by-product feeds. Commercial feed supplements like molasses tubs are frequently one of the most expensive ways to extend your hay supply. The key to low cost supplementation is knowing the quality of your hay, the nutritional needs of your cows, and then finding a low cost supplement that will work in your feeding system. It will take some effort but sometimes what appears to be expensive, for example corn grain, can be utilized to make up the least cost ration.

One other consideration with non traditional rations or when you are trying to stretch out your hay supply is the feed delivery system. It doesn't get much easier than filling up round bale feeders once or twice a week with hay bales. If you want to limit feed your hay, you need to have enough feeders so that all cows can comfortably eat at one time. If you limit feed with too few feeders, the fat cows will get fatter and the thinner cows will get very skinny. An option is to unroll a bale of hay so all cows can eat at one time. Feed bunks will be needed for grain but grain can be fed every other day to cut down on winter chores.

A small hay pile is no reason to panic. The goal is a well fed cow fed as cheaply as possible. Sometimes a "problem" is just the opportunity we need to stimulate new thinking and new ways of doing things. ✨

Determining Corn Silage Digestibility *by Joel Bagg, Forage Specialist, OMAF*

Accurately predicting the digestible energy of corn silage for ration formulation and animal performance is important. This is particularly true during dry years or low CHU years when there can be tremendous variations in the proportions of grain and stover. Corn silage is often making up a higher portion of rations, particularly during years when forage inventories are lower than required. Fortunately, there is improved technology available to us that determines the digestible energy of corn silage and intake more accurately than the old Acid Detergent Fibre (ADF)/Neutral Detergent Fibre (NDF) approach.

Digestible Energy Differences Exist

Digestible energy differences in corn silage exist. We've just not been very good at measuring those differences in the past. Corn silage is unique in that it consists of a mixture of two very different components – high moisture grain corn and high fibre stover.

Digestible energy of corn silage is primarily determined by the amounts of starch and fibre and their digestibilities. In typical corn silage, about 45% of the digestible energy comes from the starch, 25% from the fibre, and 10% each from fat, protein and sugars plus organic acids.

Measuring Corn Silage Digestible Energy

Digestible energy cannot be directly measured by a single analysis. For many years the industry used ADF to predict Total Digestible Nutrients (TDN) and Net Energy (NE) of corn silage, and NDF to predict intake, but these measures alone do not always accurately estimate digestible energy.

The use of energy prediction equations (Net Carbohydrate Protein System) give us more accuracy by including estimates of the various

digestible energy values of **crude protein, fat, ash and non-structural carbohydrates (NSC)**, and by using **NDF and % lignin** to predict NDF digestibility.

Fibre Digestibility & Starch

Lower fibre (NDF) and increased fibre digestibility (NDFD) significantly improve dry matter intake as well as digestible energy. Improved starch digestibility minimizes kernels passed in the manure.

Recently a modified, more precise system (Schwab-Shaver, University of Wisconsin) has been introduced that also uses **in vitro NDF digestibility (NDFD)** to predict both digestible energy and intake. In vitro digestibility uses incubated live rumen fluid to measure the amount and rate of digestion under simulated rumen conditions. NDFD in corn silage can range from 48 to 71%. Hard, dry kernels resist starch digestibility, so the model also measures **starch** and adjusts **starch digestibility** to reflect percent moisture and kernel processing. These lab measures are more expensive but also more accurate. "Milk 2000" has been developed to predict forage impacts on animal performance by determining "Milk Per Ton" and "Milk Per Acre."

NIR technology is being improved to make this analysis cheaper, faster and easier. Research is also being done to develop a lab technique that more accurately estimates starch digestibilities while accounting for kernel texture, particle size and moisture.

Managing For Forage Quality

Corn silage quality deserves the same consideration as haylage quality. In the 1970's we analyzed for crude protein by measuring

nitrogen, so we learned how to cut alfalfa earlier and also made big improvements in digestibility. Now that we have better measuring tools, corn silage quality is receiving more consideration. These analysis also give us the tools to more accurately measure how management affects forage quality – percent moisture, maturity, hybrids, processed versus unprocessed, cutting height, etc.

Different Dairy & Beef Emphasis

Feedlot cattle are fed to achieve high daily gains. They are on a positive energy balance. A corn silage with a **high grain content and digestibility** is desired because less grain will be required in the ration. With feedlot rations, shortfalls in forage energy can more easily be compensated for by adding grain.

High producing dairy cows are on a negative energy balance. There is a limit to how much grain can be added to the ration while maintaining minimum effective fibre requirements for rumen function and health. Fresh cows are frequently "near the edge." High producing dairy cows not receiving adequate digestible energy not only produce less, but lose excessive body condition, have metabolic problems and problems getting in calf. Fibre digestibility is extremely important because it allows higher forage intake and more digestible energy, so more emphasis is placed on **NDF and NDFD**.

If you are producing feed for cattle with high nutritional requirements, such as high producing dairy cows, it may be a good idea to harvest your better corn fields for silage. Grain corn can more easily be replaced than high quality forage. It is difficult to balance rations and "get milk out of cows" with poor quality corn silage.

continued →

Report on the American Forage and Grasslands Conference

by John Kinghorn, OSCIA

I appreciated the opportunity to represent OSCIA recently at the American Forage and Grasslands Conference in Lafayette, Louisiana.



The conference included tours of the area on Sunday, followed by two intensive days of informative. Approximately 200 people from across United States and two from Canada attended the conference. I would estimate that over one third of the people in attendance were from universities/colleges and the U. S. Dept. of Agriculture. There is no doubt in my mind that agriculture is more "front row and center" in the United States!

The atmosphere was excellent for learning. People were most hospitable, eager to talk to you, share information and willingly answer your questions. Every session provided the opportunity for questions from the floor.

Determining Corn Digestibility...con'd

Conclusions

There can be large differences in digestible energy of corn silage. Laboratory analysis and how you go about determining the quality and energy value of your corn silage can have a tremendous effect on ration formulation and production. Talk to your feed lab and nutritionist about what approach to take. For more information on corn silage refer to the OMAF website at www.gov.on.ca/OMAF/english/crops/field/forages. ✂

The main focus of the conference was on improving forage production from our pastures. By improving the forage production in this area, we can reduce cost of production per pound of gain on the animal, reduce the period of forage consumption in a confined area (longer pasture seasons by managing our pastures better). The cheapest forage eaten by the livestock, comes from direct harvest by the animal, not going through a storage process.

Lessons learned:

- ◆ Rejuvenate those pastures! There was a common message from research across the U.S. on how to get more legumes into our pastures. The largest focus was on clovers and alfalfa and applied from growing Bermuda grass in Louisiana to Brome grass in Michigan.
- ◆ Producers need to learn how to stock pile pastures to reduce the period of livestock in confinement.
- ◆ Universities and colleges, agri-business, the Department of Agriculture and farm co-operators are all working together to make improvements to. The continuing support of our Grant Program is key to helping us here in Ontario.

A bit of information from our good hosts from the state of Louisiana:

- ◆ In Louisiana farmland is approximately 7.8 million acres compared to Ontario at 13.5 million acres. They are 29% pasture production versus Ontario at 15% of total acres.
- ◆ They grow a half a million acres of sugar cane/year. It provides 32,000 jobs and provides 1.7 billion to the states economy/year.
- ◆ They produce 500,000 acres of rice/year for a 100 plus million

gross farm value.

- ◆ The main forage crops are Bermuda and Rye grass with legumes added. It is difficult to make dry hay for storage when you average an inch of rain per week over the year!



It was interesting to note that the first and second place finishers in the National Forage Spokesperson Contest were dairy farmers from Pennsylvania and Virginia milking 150 plus cow herds on a rotational grazing system. Both operations were seasonal with all cows going on a dry period during the winter period.

I would be most happy to share any of the written material I have obtained from the conference with anyone who is interested. ✂

New forage & beef website

Canadian forage and beef producers will soon have a new source for the latest research information on forage and beef production. www.foragebeef.ca will be launched in early December and will focus on forage and beef cattle management for Canadian farmers and ranchers.

With four years in development and sponsorship from the cattle industry, federal and provincial governments, universities and the scientific societies, this site will highlight Canadian forage and beef research and present it to producers, university students, and agricultural extension workers in a user-friendly form. ✂

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Check out our website at
www.ontarioforagecouncil.com

- ◆ Technical information on forage production and management
- ◆ Research and Forage Variety Results
- ◆ Links to other forage info sites
- ◆ Information on upcoming conferences and events

Ontario Forage Council

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Agronomy Guide Now On Line

The *Agronomy Guide For Field Crops*, OMAF Publication 811 is now on-line at www.gov.on.ca/OMAF/english/crops/pub811/p811toc. This includes an extensive Forage section.

The OMAF Forage & Pastures Website has also been updated at www.gov.on.ca/OMAF/english/crops/field/forages