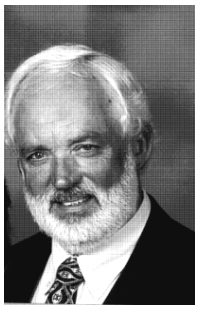
Spring 2009

THINK GREEN! Newsletter

Ontario Forage Council

Message From the President, John Adema



What a difference a year makes. While the statement is true or may border on being a cliché or a trite remark, the past year has seen dramatic changes, both politically and economically, not to mention the weather challenges.

Basic energy costs and commodity prices climbed substantially and have fallen dramatically. Current financial markets are in disarray and dependant on massive government interventions to regain some sense of stability. In addition, Canadians have been subjected to political brinkmanship, while our neighbours to the south have experienced not only a change in President but a whole adjustment in political administration.

One could list more events, however, against this backdrop the OFC has managed to maintain its presence and carried out some specific functions.

This past summer's launch of the Hay listing website at the Hay Expo has met with great success. While the making of quality hay may have been a challenge due to weather issues, the introduction of this hay listing service has been well received and utilized.

Strategic planning remains a work in progress and has contributed to implementing an executive committee consisting of past, present and vice presidents to assist in moving OFC forward. Currently an initiative is underway to coordinate and develop a national voice of the Canadian Forage Industry. This particular activity was started by the Canadian Forum on Forages and Rangelands. Its objective is to have the various components fitting together by 2010.

Conferences, namely Profitable Pasture, Forage Focus and Forage Expo, held this past year were well received and attended. OFC participated with trade show booths at the Outdoor Farm Show and the Can-AM horse events held in London.

Some research projects are currently in progress and of particular interest was the completion of the study done by Mr. Jim Fisher on the impact of forages to the Ontario economy. From an economic perspective, corn holds the lead at approximately $845 million dollars, while forages contributed approx. $700 million dollars. The recent introduction of Ontario's Green Energy Act may well provide a stimulus for the development of forages to fuel bio mass energy sector. Forage development and research will continue to be an area warranting the investment of financial resources.

In conclusion, thank you to the staff at Grey County Agricultural Services for administrative duties and printing of the THINK GREEN newsletter to ensure OFC maintains a presence. It has been a privilege to serve as president for another year.

Please note date change
Profitable Pastures Conference
"The Economics of Pasture Management"
hosted by the Ontario Forage Council
Wed April 1, Elmwood, Thurs April 2, Stirling & Fri April 3, Drumbo
Keynote Speaker: Steve Kenyon,

Forage Industry Number 2!

A survey and study conducted by Jim Fisher at Kemptville campus of the University of Guelph shows the forage industry defined as grasses and legumes as providing the second largest field crop value to the agricultural industry contributing $647.7 Million per year, second only to corn. Forages are valued at 2/3 the size of the corn industry and about 30% larger than the soybean industry. This includes values for forage sold and fed. The benefits to following crops from improved crop rotation and nitrogen release as well as soil cover and soil improvement were not included in these figures. Yields varied in the survey from 1.64 tonnes per acre to 4.65 tonnes per acre. There is a real reward to management with this crop. Don't forget to value the forages in your operation..

Great thoughts speak only to the thoughtful mind, but great actions speak to all mankind. **Theodore Roosevelt**

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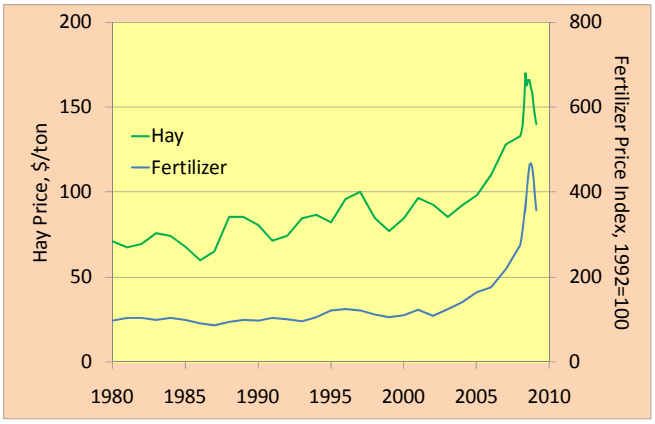
Forage Fertilizer Decisions in an Uncertain Market by Tom Bruulsema

High prices for fertilizers and crop commodities in 2008 focused a lot of attention on fertilizing cash crops. What about forages? What are the implications of global economic uncertainty on the way you fertilize your forage crops? One important principle of plant nutrition is that plants don't care about market conditions. This article will explain why economics is only one part of science-based management of crop nutrition. We still need to choose the right sources and apply them at the right rate, at the right time, and in the right place. Prices of both crops and fertilizers fluctuated widely in 2008, and price uncertainty continues. Figure 1 shows that prices in the USA for both hay and fertilizer have increased since 1980, and that the relative increase has been larger for fertilizer than for hay. The change in price ratio may reduce optimum rates, but the question is how much.

Figure 1. Average prices received for hay and paid for fertilizer by United States farmers, 1980-2008. (USDA-NASS).



Fertilizer price increases reduce profitability of fertilizer use more in the short term than in the long term. It is important to thoroughly consider the consequences of rate reductions.

Forages are particularly high consumers of K. Large amounts of K are removed by harvest, whether as hay or haylage. Thus when K prices increase, optimum annual rates can fall substantially. The short-term optimum may even fall well below removal rates—often 30 to 60 lb of K_2O per ton of hay harvested. If less is applied than removed, the resulting decline in soil test levels leads an eventual increase in K requirements. So the optimum rates for a longer time frame become substantially higher than those in the short term. A good example is a long-term study on timothy hay that was conducted near Fredericton in New Brunswick (Belanger et al., 1989). This study had four levels of each of N, P, and K fertilizer—a total of 64 plots. After the same rates had been applied annually for 25 years, yields measured in each plot for three more years were fit to a regression model that allowed computation of what the long-term yield would be for any combination of N, P and K applied annually, long-term. The factorial experimental design—all possible combinations of four levels of each of the three nutrients—allowed for the inclusion of interaction effects as well.

A comparison of two price scenarios, from 1989 and 2009, is shown in Table 1. The 2009 scenario has higher prices for both hay and fertilizer. Optimum rates of each of the three major nutrients declined, reducing hay yields by 14%. However, the net return to fertilizer use increased for N and P, and was still substantial for K. In fact each dollar invested in fertilizer would still return more than two dollars for each of the three nutrients. These data demonstrate that fertilizer use continues to be profitable. The response model developed from these data also confirms the "law of the minimum" in that responses to each of the three nutrients depend on adequate supply of the others.

If an old stand of timothy shows economic responses to even the currently high-priced K, the same would be expected in the long-term for forages produced from legumes and mixtures as well. Forages remove large amounts of K, and production is simply not sustainable without inputs to replace the removal.

Table 1. Yields and net economic return to fertilizer use for timothy hay production, from a long-term NPK factorial experiment in New Brunswick, with price scenarios from 1989 and 2009.

Price Assumptions		**Scenario**	
		1989	**2009**
Hay price, $/ton		$75	$140
Fertilizer price, $/lb			
	N	$0.32	$0.43
	P_2O_5	$0.36	$0.37
	K_2O	$0.12	$0.83
Results			
Optimum Annual Rate, lb/A			
	N	136	115
	P_2O_5	90	47
	K_2O	114	77
Net Return to Fertilizer Use, $/A			
	N	$45	$57
	P_2O_5	$54	$90
	K_2O	$87	$74
Hay Yield, ton/A		3.0	2.6

Changes in price ratios rarely call for large changes in application rates. When prices increase, first ensure the agronomy behind your management of plant nutrients is sound. Are you using every tool available to choose the right product, to predict the right rate, to apply it at the right time, and to place it where it's most effective?

Forage Fertilizer Decisions in an Uncertain Market by Tom Bruulsema

Continued from Page 2

Price ratio theory can help fine-tune rates, but only after sound agronomic principles have been applied. Here is a decision checklist for the fundamentals.

Right Source

- Balance NPK, secondary and micronutrients.
- Analyze for nutrients in manures and composts.
- Assess use of controlled-release N or inhibitors.
- Credit N from legumes.

Right Rate

- Assess soil nutrient supply using soil tests and forage analysis.
- Consider long-term as well as short-term.
- Calculate nutrient removal and balance.
- Maintain soil pH.

Right Timing

- Apply P and K after first cut and before critical fall harvest period.
- Build up soil fertility before establishing a stand.
- Split-apply N for each cut from grasses.
- Scout crops for deficiency symptoms.

Right Placement

- Map soil zones for site-specific management.
- Calibrate equipment for accurate spread.
- Near-seed placement for forage establishment.

References

Belanger, G., J.E. Richards, and R.B. Walton. 1989. Can. J. Plant Sci. 69: 501-512.

Tom Bruulsema is Director, Northeast Region, North America Program for the International Plant Nutrition Institute. He is located in Guelph, Ontario, Canada

Why Does the Nutritive Value of Forage Crops Decrease?

The nutritive value of any forage species diminishes over the plant's growth cycle. For example, the NDF content of timothy increases by approximately 0.5 percentage points per day from the start of the boot stage until full heading. Thus, a one-week delay in harvesting timothy can cause a 3.5 percentage point increase in NDF content. In alfalfa, the NDF content can increase from 44% at the bud stage to 50% at full flowering.

The nutritive value of forage plants is thus highest during the vegetative stage. During this stage, the forage is composed mainly of leaves, especially in the case of grasses. As the plant grows, the proportion of leaves decreases while the proportion of stems increases. For example, in timothy, the proportion of leaves declines from approximately 80% in the vegetative stage to approximately 35% at the start of heading. In alfalfa, the proportion of leaves decreases from approximately 50% at the start of the bud stage to 40% at the start of the flower stage.

There is also an accumulation of lignin and other less digestible fibrous compounds (hemicellulose and cellulose), especially in the stems. Since the stems are less digestible than the leaves, the increase in the proportion of stems causes a decrease in nutritive value. The loss of leaves (due to the aging process and plant pests) also causes nutritive value to decrease over the growth cycle.

The proportion of leaves is a key element in the nutritive value of forage crops at the time of harvesting. Once the crops are cut, it is therefore important to avoid losses of leaves, so as to ensure good nutritive value.

by GILLES BÉLANGER

is a research scientist at the Soils and Crops Research and Development Centre of Agriculture and Agri-Food Canada in Québec City.

Buying or Selling Hay?????????

Have you checked out our New Hay Listings Service at **www.ontariohaylistings.ca**? As of this morning, 166,117 people have! It's a new, free, efficient, easy, and effective method of selling or finding hay or straw. It is surprisingly quick to upload using dial-up Internet connections. The site was officially launched at the Forage Expo on July 22nd 2008. To date, we have 573 registered members and 205 ads posted (for sale and wanted). We couldn't be happier with the response!

We would like to thank our Hay Listings Sponsors, Quality Seeds and Elmira Farm Services. Their generous support will ensure the long-term sustainability of this site. Sponsorship opportunities will become available again in January 2010. A special thank you to James Wright, of Wright Net Designs who developed this amazing new site.

We would encourage you to go to the site. If you want to post ads or obtain contact information, you are required to register (right side of screen), with a user name and password. After receiving a confirmatory email, and clicking on the blue link, you will be able to browse the ads at your leisure! We have created an extensive Help section if you have any questions while manoeuvring on the site, or just give us a call, and we will be happy to help you! Please let us know what you think of this site.

And for a second opinion

Is it Worth Fertilizing Forages?

With the increased price of fertilizer this is a common question, and it is natural to try to save money where ever possible, but the evidence is pretty clear that applying fertilizer to fields with low levels of phosphorus (P) or potassium (K) will pay handsomely.

Dr. Bob Sheard at the University of Guelph conducted extensive forage response trials during the 1980s, along with Dr. B.J. Zebarth at Guelph and Dr. Bill Curnoe at Kemptville. Their results form the basis for our current forage fertilizer recommendations, but the summary of their trials were published in 1990 and I was able to go back to this data to review how much response we can expect to added fertilizer.

Figure 1 shows the amount of yield increase from applying the recommended amounts of phosphorus fertilizer to established forages (mixed legume/ grass). At very low soil test levels (<5 ppm), the additional yield from added fertilizer was over 5 tonnes/ha in some cases (2 tonnes per acre). As the soil test rose above 10 ppm, the yield response dwindled rapidly, so applying fertilizer to fields with higher soil tests is a matter of replacing the phosphorus removed with the harvested forage, or fertilizing to ensure adequate fertility in the parts of the field with less than average nutrient content.

Figure 1: Forage Yield Response to Recommended P Fertilizer Rates

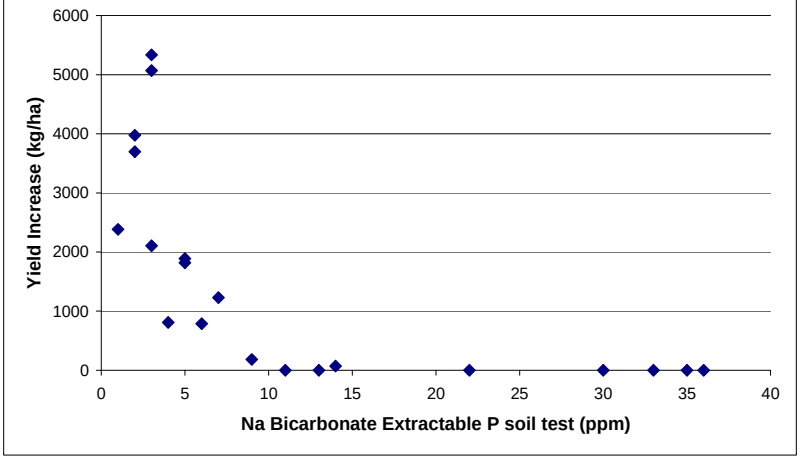
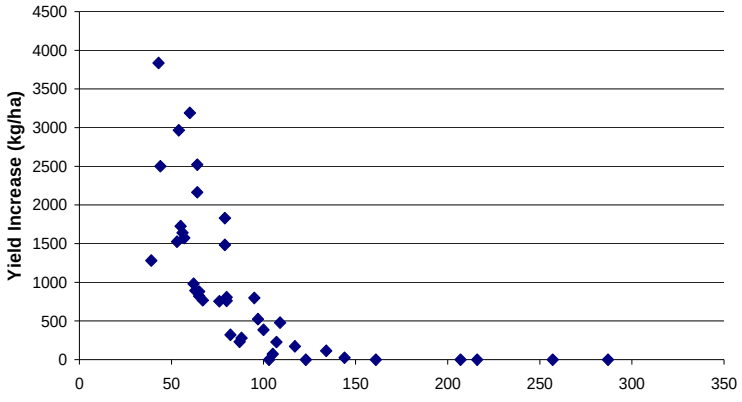


Figure 2: Forage Yield Response to Recommended K Fertilizer Rates



The pattern for potassium was very similar, as shown in Figure 2. While the maximum yield increase was not as large for K as for P, there were still very significant yield increases with soil tests below 100 ppm K, and no yield increase to fertilizer when the soil tests increased above 150 ppm.

For both P and K, the yield measurements were done on first or second production year stands of forages. What does not show up in this dataset is the impact of inadequate soil fertility on the longevity of the legumes in the stand. Low levels of P or K will result in greatly increased winterkill of the legumes, leading to greatly reduced yield and quality from the stand. Adequate fertilizer or manure applications will help to overcome this.

Keith Reid,

OMAFRA Soil Fertility Specialist

2009 Ontario Pasture Award Winner

February 24, 2009 (Toronto) - The sponsors of the Ontario Pasture Award - the Ontario Cattlemen's Association (OCA), MAPLESEED and the Ontario Forage Council (OFC) - are pleased to announce that Ken & Rosemary Mitchell of Mitchell Farms at RR 1 Annan, in Grey County, is the winner of the 2009 Pasture Award. The award was presented today at the OCA Annual General Meeting. For their environmental and pasture improvements and management, the Mitchell's will receive a cash award of $750 and a bag of forage seed.

Winner of the 2009 Ontario Pasture Competition, Ken Mitchell (centre) pictured with Gerrit Van Kuelen Sales Manager, MAPLESEED (right) and Ray Robertson,

Ken & Rosemary farm 700 acres in Grey County, about 10 miles NE of Owen Sound near Annan. Their operation consists of 7 farms of which 6 have some pasture land. They have about 120 cow/calf pairs and also breed an additional 40 – 50 of the heifers for sale or herd replacements. The steer calves are sold as stockers or finished depending on market conditions as well as custom feeding an additional 50 steers. 300 acres of cash crops are grown annually with the other 400 acres devoted to hay and pasture. Three of the farms are less than 1000 feet from Georgian Bay and have some of the highest heat units in grey County. Some of the fields on these farms have a very productive silt/clay loam and are prone to erosion, making frequent hay crops, permanent pasture and grass ways a must. Ken has participated in the EFP Program and has fenced the livestock out of the water ways, providing fresh water for the livestock either at suitable controlled access points, or portable water troughs in further out fields.

Almost all fencing is single strand electric and all fields are rotationally grazed. The permanent pastures are fields close to the barns, water sources or wet / stony fields. Some of the fields have not been broken in over 50 years and have evolved to a clover, bluegrass, orchard grass, trefoil mixture. Ken frost seeds 2 lb/ac trefoil seed every 2 or 3 years and remote pastures get P/K fertilizer every 4 or 5 years, while closer fields get manure periodically.

"I believe the intensive rotational pasture system, combined with clean water that is closely accessible at all times, has contributed greatly to improved herd health, improved weight gains and sustains more animals per acre", Ken comments".

Gerrit Van Kuelan, Sales Manager with MAPLESEED, thinks Ken's application is an excellent example of the benefits of an intensive rotational pasture system

Ray Robertson, Manager of the Ontario Forage Council, said "The Mitchells are very worthy recipients of the 2008 Pasture Award", because they have been practicing good stewardship methods that can be a great example for other farmers wanting to maximize their pasture yields per acre".

The deadline for applications for the 2010 Ontario Pasture Award is November 27/09.

For details, call the Ontario Forage Council at 1-877-892-8663 or visit either the Ontario Forage Council's Web site at www.ontarioforagecouncil.com or the Ontario Cattlemen's Association Web site at www.cattle.guelph.on.ca .

For further information contact:

Ken Mitchell, Mitchell Farms, 519-372-6506

Ray Robertson, Ontario Forage Council, 1-877-892-8663

Gerrit Van Kuelen, MAPLESEED, 1-800-461-7645

Forage Variety Trials – A New Look

The Forage Variety Trial Brochure is now available for the first time at its own web site www.goforages.ca This will take you directly to the brochure and to some forage information. If you are looking for further detail about forages please visit the site www.ontarioforagecouncil.com for links to technical information. The brochure will be distributed through the farm press but you can access the information anytime by this web site.

In the past alfalfa varieties have been reported as a per cent of the yield of Saranac. Starting this year, varieties will be compared to the average of the tests they were in to determine their yield index. This change has been made to give the best comparison of yields and to keep the tests as efficient as possible. The absolute index of a particular variety may be slightly different than last year but the rankings of varieties stayed the same in comparison to their contemporaries when computer analysis was done. This system is now similar to how other species are tested. It allows for future indexing without constantly referring to a fixed variety that is no longer available to the public or for testing.

BIOMASS FOR FUEL:
WHERE ARE THE OPPORTUNITIES?

At the 2009 Annual General Meeting of the OSCIA in Niagara Falls, two speakers addressed the issues around the opportunities that have developed for a "Biomass" industry. They were Chris Young of "Ontario Power Generation" (OPG) and Dean Tiessen of "Pyramid Farms Ltd.", based in Leamington.

Young pointed out that OPG currently has 7 coal fired generators operating in the Province, including two in north-western Ontario. Due to a change in government policy, all seven must find alternative sources of fuel by 2014, if they are to continue operation. A test program run at the Atikokan plant proved that wood biomass was an excellent replacement for coal at that facility. It is very compatible with the furnaces that were designed to burn the low quality form of coal known as "Lignite". This generator is now scheduled to run completely on Biomass, starting in 2012.

There are 6 reasons why the Province should switch from coal to Biomass. This product is renewable and available on demand. There is no "net" greenhouse gas emissions and it therefore contributes to a lower carbon future for the Province. It has a synergy with both the Forestry and Agriculture industries. Most importantly, it will make use of the existing coal fired generators that would otherwise be closed by 2014.

OPG does have a few policies that will apply to this new operation. First, they will not burn food crops - grain corn, for example. Second, wood fuel and agricultural products must be obtained by a sustainable harvest method. The Biomass must be obtained with a minimum negative impact on consumers.

In 2008, OPG had offered an initial "Request For Expression of Interest" for the purchase of a small biomass supply. Many more offerings will come in the future. OPG is expected to require 20% of the "current" world supply of fuel Biomass by 2014. Therefore, the opportunities are great for both the Agriculture and Forestry industries. However, OPG does not want to deal directly with individual suppliers. They would prefer to work with an aggregation of smaller producers, generally known in the farm community as "Co-ops".

The basic requirement is that the fuel must be delivered to the OPG facilities as "Pellets" or "Pucks". It can be either wood or agricultural products. It can not be material that can be used in the food chain, and it can not be officially designated as waste (such as manure or household garbage).

Time is of the essence. The supply contracts must be in place by 2011 to meet the OPG changeover timetable. Contracts will assure a reasonable return for all involved. The contract term could be 10 to 20 years. For more info, see the web at www.opg.com.

Dean Tiessen, a greenhouse tomato producer, has been using wood biomass to heat his facility since 2006. He has found that all biomass energy sources have both advantages and disadvantages. Most agricultural biomass species are "unimproved" and undergo basic harvesting at any moisture level. Perennial grasses are high yielders, even with low inputs. They can be harvested in the fall in a relatively dry state and easily held over the winter. There is a great difference in yield between specific varieties of plants, ranging from 4 to 40 dry tonne per hectare. Remember that a high carbon content is essential for a high BTU value for any specie. Conversely, a high nutrient content (as in many agricultural products) is considered to be a negative as it leads to more ash and even corrosion of the burners.

There are a number of "improved" plant species that may be major players as a biomass fuel crop sometime in the future. One example is "Amouri", that is said to be highly productive. A species called "Miscanthus", (currently being tested at Ridgetown) has the same energy content as wood, but grows faster under specific conditions. It must be planted by "plug" with specific equipment already developed in Europe. Note that Monsanto has bought all the seed rights to this species and is now upgrading the seed quality and fuel output of this plant.

As for any crop, economic production depends on climate, soils, and the species grown. The crops must be sustainable and have a positive energy balance. Can it be done? YES! The industry exists and the scalability has been proven in Europe over more than two decades. The Ontario hurdles include government policy, infrastructure development, marketing, and a guaranteed return on investment.

By Graham Gambles

Regional Communications Coordinator, OSCIA

Unlike Us, Ruminants Can Digest Fibre – So Why Not Make the Most of That?

Cattle, sheep, and goats belong to the group of mammals known as ruminants. Ruminants are herbivores that are capable of regurgitating feed in order to chew it again – in other words, ruminating. Ruminants also have a special digestive system with four stomachs: the rumen, the reticulum, the omasum, and the abomasum (true stomach). The combination of this digestive system and rumination enables ruminants to use forages as their main source of nutrients.

Step 1: rumination

The feed that ruminants ingest initially travels through the mouth and esophagus to the first stomach, the rumen, which is a large stomach reservoir with a capacity of up to 200 L. Ruminants ingest large quantities of forage without chewing it very much. They then begin ruminating: they regurgitate the feed bolus or cud, which is the partially digested feed mass that is impregnated with liquid, from the rumen to the mouth, where it is chewed again for a long time before it is swallowed once more.

Cows can chew 50 to 70 times a minute for 10 to 12 hours a day. This process reduces the size of the forage particles, thereby increasing the amount of their surface exposed to microbial digestion. During rumination, cows secrete 1 L of saliva every three to four minutes and can therefore produce up to 200 L a day. Saliva plays a very important role, because it provides buffers and components used by the rumen bacteria.

The rumen: one big fermentation tank

The rumen is full of feed and liquid. It contains a considerable microbial population consisting of a number of species of bacteria (10^9 to 10^{10} bacteria per mL) and protozoa (10^5 to 10^6 individuals per mL) that carry out a large portion of feed digestion. The rumen is in fact a big "tank" in which the feed ferments. Feed remains in the rumen for 24 to 48 hours.

The conditions that promote good feed fermentation in the rumen include: 1) a water-rich (85% to 90%) and oxygen-free environment; 2) a regular supply of nutrients from both the ingestion of feed and rumination; 3) an environment that is buffered (pH 6.4 to 7.0) by the saliva; 4) a constant temperature of 39 to 40°C; 5) continuous elimination of the end products of microbial digestion; and 6) permanent exchanges across the rumen wall.

Under those conditions, the rumen microbes are able to break down hemicellulose and cellulose, the main components of forage. The rumen microbes can also break down other feed components, such as proteins and starch.

The end products of feed fermentation in the rumen are: 1) volatile fatty acids (acetic, propionic, and butyric acids), which are absorbed into the blood through the rumen wall and make up the main source of energy for the host animal; 2) carbon dioxide (CO_2) and methane (CH_4), which are gases that must be evacuated through eructation (belching); 3) ammonia (NH_3), which is used by the microbes or eliminated by the animal; and 4) the microbes themselves, which contain certain vitamins, amino acids, and proteins that end up nourishing the animal.

The ruminant's other stomachs

After a certain period of time in the rumen, the rumen contents travel to the next stomach, the reticulum. The reticulum is the smallest of the four stomachs and continues the work of the rumen by allowing small feed particles to move on and sending the largest particles back through the rumination system.

The small feed particles then travel to the third stomach, the omasum. The main "job" of the omasum is to retain and absorb the water in the food mass.

The feed then travels to the abomasum, which corresponds to the stomach of non-ruminants. In the acidic environment of this stomach, the feed mass is broken down by the digestive enzymes secreted by the animal. Upon leaving this last stomach, the feed enters the intestines, where digestion is completed and the resulting nutrients are absorbed through the intestinal wall.

Using ruminants to make the most of our forage

Unlike monogastrics (animals with only one stomach), ruminants can, by means of rumination and microbial fermentation in the rumen, effectively digest forage fibre and transform simple nitrogen compounds such as urea into microbial proteins of high nutritive value. It is up to us to make effective use of the advantages that ruminants provide.

By Gaëtan Tremblay

is a research scientist with Agriculture and Agri-Food Canada in Québec City.

Cover Crops Still Shine for Erosion Control

The original reason for many growers to use cover crops is erosion control. In recent years there has been a lot of interest in using cover crops for other reasons like nitrogen production. At a recent meeting of the Midwest Cover Crop Council in Windsor, Dr. Tom Kaspar of the USDA National Tilth Lab in Ames Iowa summarized research work on cover crops and their ability to prevent or at least minimize erosion.

As Tom says, the real challenge with field crops is the brown gap. The brown gap is that period of time between harvest and the next planting season. The soil is bare and open to water and wind erosion with no living cover. You might assume that no-till and reduced till have solved that. While there is a lot more residue on the field with these tillage systems and the residue does help to intercept the force of raindrops and slow water movement across the field, research has shown that cover crops in addition to residue can make a real difference even when the residue cover is more than 75%. The overall cover may not have changed that much with the addition of cover crops but the quality of the cover has changed. For one, with cover crops the plant is anchored unlike much of the post harvest residue so it is more likely to stay in place. Also the cover crops help to keep the residues in place.

There are a number of beneficial things that cover crops do that can help to reduce erosion, from improving water infiltration to creating more stable soil aggregates that are less likely to fall apart under moving water. There is a real value to the erosion protection. Tom reported on some of his own research from Iowa and the same principles hold true in Ontario. He planted a rye cover crop into no-tilled soybeans in late summer and reduced rill and inter rill erosion by 54 to 90%. When he tried oats, the protection was decreased a bit to 26 to 65%.

So is it worth it to overseed soybeans with a cover crop like oats or rye? On flat, small fields with little fall, perhaps not. However for fields with slopes and the potential for erosion, it can pay to add cover crops to the tillage program to reduce soil loss or soil movement. If you need to be able to put a dollar figure to it, USDA research suggests that the nutrients in eroded soil are worth $40 and that calculation was done well before the recent increases in fertilizer prices. What about organic matter? At an average erosion rate of slightly less than 5 tons per acre per year, organic matter would make up about 0.6 tons per acre of that eroded soil. Doesn't sound like much but it would take more than 3 tons per acre of residue extra to replace it. The real problem is that erosion usually doesn't happen evenly across a field, it tends to make an uneven field even more so.

The older reasons for cover cropping like erosion protection still hold true. The opportunity to plant cover crops whenever possible – your soil will thank you for it!.

By Anne Verhallen
Soil Management Specialist (Hort.)OMAFRA

Our Thanks to Gencor

The Ontario Forage Council would like to recognize Gencor who have supported them over the last number of years with provision of the board room for Directors and Annual meetings We thank them sincerely for their continued support of the Ontario Forage Council.

Gold Level Members

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Ontario Harness Horse Association

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The Ontario Forage Council thanks the Ontario Ministry of Agriculture, Food & Rural Affairs for its support

Ontario

For technical information on forage production visit our web site at www.ontarioforagecouncil.com