



New Brunswick Soil & Crop Newsletter



July to September 2015

Volume 2, Issue 2

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Getting the most and best forage per acre. Patrice Vincent, Belisle Nutrition

Quoted and edited from the presentation given May 5th by Patrice Vincent

A cow on pasture only eats leaves, no stems. Grasses have low lignin content and are denser than water, thus they sink in the rumen. Legumes have more lignin, high levels of sugars, starch and protein and float better in the rumen. The floating leads to longer digestion and more nutrient extraction. You need a mix of legume and grass for a healthy rumen.

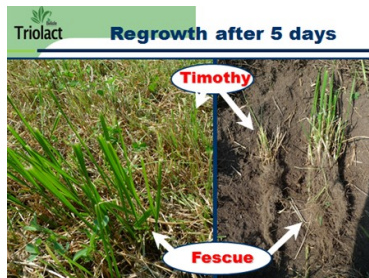
Grass Types

This photo shows a tall fescue



clump in the foreground and the rest of the field is spotty alfalfa & timothy. It is hard to make a good diet with the variable forage content. The rumen will have problems. You should have grasses for the whole growing season to go with the legumes.

Orchard grass and tall fescue can meet or exceed alfalfa dry matter yield. They grow from spring to fall unlike timothy & brome. Tall fescue tolerates some drought and some flood-



ing. For variable soil types in the same field – pick tall fescue. It also quickly regrows after cutting and has a large root mass to find water in dry times. Tall fescue is a good partner for alfalfa on a 3 cut system. Cut fescue regularly at early heading stage. Fescues regrow when timothy does not and will provide grass with your legume in 2nd cut.

In a study of grass root growth fescue, reed canary and orchard grass have by far the most vigorous root masses allowing them to out yield the other grasses. In the forage mix plant 2/3 of

alfalfa and 1/3 clover to go with the grasses. Once the orchard grass and fescue take over the legumes, you won't see dandelions anymore. Ever. Especially if the grasses have been properly fertilized. The weed control is done by those two main plants. Timothy and brome are best left on a 2 cut system. Timothy is a long-time favorite with better winter survival. It does not provide the resources to push milk production.

Seeding:

When seeding forages “the more the merrier” does not hold true: 16 kg/ha seed yielded more over 3 years than did 30 & 20 kg/ha of seed. Patrice does not recommend planting a nurse crop. Planting with barley may have a little more yield in the planting year, but the yield will be less over the lifetime of the field.

Plant forage as soon as the ground can support machinery. In the first fall the plants will still be fragile and squished by tankers. Apply manure in the second year.

Edited by Joan Parker

Upcoming Events

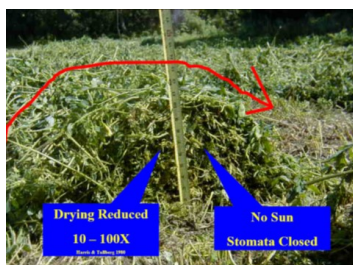
**Provincial
Field Day**
July 29

**Farm of the Year
Judging Tour**
July 29 to Aug 1

**Sussex
Pesticide Applicator Certification
Training**
26 June 2015 (8:30 – 3:30)
For more information contact:
Ken Browne
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Making Optimum Forage

Quoted and edited from the presentation given May 5th by Patrice Vincent



When making haylage, it is best if it isn't conditioned. Lay it wide. The sun needs to hit the plants so that the leaves can suck the moisture out. Heat is needed to dry haylage in a day. Until the day is 15 degrees Celsius the plant is not breathing hard enough to dry.

When conditioned into a narrow windrow the haylage is packed. See photo. Only the top 2 inches will dry. Everywhere else the moisture will build up because the plants are still breathing. The top is dry, the middle is kind of okay, and the bottom is soggy. On average the moisture will be what you want, but fermenting will never work perfectly. You will never get the most from the field. If it is kind of hot outside the temperature will go up 4 or 5 degrees in the middle and the first 4 or 5 inches of the

bottom of in the windrow. The plant are breathing still and use up more sugar. Therefore, there will be less sugar for fermentation and milk production. It's preferable to make a wide swath so that it dries evenly and fast to keep as much sugar as possible.

In the windrow, if the temperature doesn't go up, you will limit the loss of sugars. If the temperature is controlled, the loss of sugars and the degradation of protein will be controlled, that is why you are going to save the most or benefit the most from laying it wider.

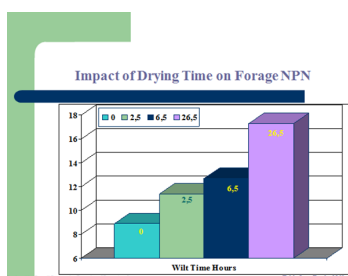
Sugars are lost overnight. On a night which reaches 10 degrees as a low, 10% of the dry matter is lost. Sugars are lost. A ton of cut feed, after sitting overnight, becomes 0.9 tons of harvested feed; 0.1 ton is lost

due to respiration.

On top of losing sugar, the protein quality is reduced. Not crude protein, but protein quality. See Graph. Here it is non protein nitrogen (NPN; basically ammonia). The plant standing will have about 9% ammonia in it based on the relationship of the crude protein. 2.5 hours of after cutting NPN goes from 9% to 11%. Then to 13% after 6.5 hours of drying and 17% after a full day of drying. So the ammonia level in the feed has doubled.

Ammonia is toxic to a cow; she will detoxify it by transforming it to urea. This ammonia was accumulated because forage sat in the field trying to dry. So to prevent losing sugars and retain protein quality try to dry forage as fast as possible.

Edited by Joan Parker



Provincial and agro-environmental club updates

NBSCIA Research Update

During the spring NBSCIA has been busy applying for project funding and implementing the projects. For this year NBSCIA will be involved in the following project/research work. NBSCIA is the applicant for work that is being done on using mustard as a soil biofumigant in strawberries being done by NBDAAF staff; rhodiola as a new crop with bioactive components being done by Valfor; reed canarygrass varieties for biomass production being done by Phytogene; and cereal and oilseed variety evaluation being done by

NBDAAF. All of these projects are funded by growing forward II.

NBSCIA is actively involved in the forage variety evaluation and the project to evaluate 2 forage mixtures on 30 farms. NBSCIA is in training to take over the forage evaluation work that the province has done in the past and is in discussion with the Department of Agriculture to determine how best to facilitate this. Currently NBSCIA owns some of the equipment used for this work and the province owns some of the other equipment.

There is also considerable work time on the project that is done by department staff. The fact that there is no provision in Growing Forward to purchase is also an issue as the plot equipment is old and will eventually need to be replaced. These projects are also funded by Growing Forward II and we thank the department for the support.

NBSCIA also has funding from ETF to do work on lime and have 5 4R demonstration sites looking at better fertilizer utilization on corn and soybeans.

Carleton County Agro-News

Three alfalfa and four red clover forage demonstration sites have been established with local NBSCIA members. It will be interesting to compare the performance of these mixtures with traditional species over the next few years.

A Field Day is planned for Thursday, July 29, 2015 at two locations. The day will start at 10:00 am at Graham Farms, Good Corner with a forage project site, no-till corn and soil compaction pits. The second stop will be 1:30 PM at the NBDAAF Spring cereal, oilseed and corn trial in Hartland. Watch for complete details in early July.

Wood ash from several sources, including a local mill in

Carleton County, is being actively promoted as a soil amendment and an alternative to lime. Regardless of the source the ash is free for the price of trucking. This leads to the ultimate question— what is the value of wood ash?

Based on the lime and fertilizer nutrient values provided by County Lime and Hartland Agromart following is a quick calculation based on one load of ash analyzed this spring. Assuming that two tonnes of wood ash are required to equal one tonne of lime per acre to accomplish same pH adjustment, the net value is calculated on a per acre bases. One tonne of Dolomitic lime would coat \$59 delivered to the field and provide 210 kg of

calcium and 115 kg of magnesium. The two tonnes of wood ash would provide 326 kg of calcium, but only 21 kg of magnesium, for a comparative Ca and Mg nutrient value of \$56.62, field side. However, in addition the two tonnes of wood ash provides 15 kg of P₂O₅ and 18 kg of K₂O for a combined value of approximately \$85.00. The value of B, Zn and other micronutrients might amount to \$10,00 per acre or breakfast at Grama's Restraunt. These values are dumped field side, you will have to calculate the spreading cost to suit yourself. County Lime will spread the lime for \$17.00 per acre. Give me a call if you want to discuss the details.



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Chignecto Agro-News

Marie is out on sick leave until the middle of August.

NBSCIA will continue to provide service through the other agrologists in the NBSCIA team.

Please direct your requests for service or information through the provincial office and the manager will see that service is provided.

*Marie-Josée Garand, P.Ag.
Currently off work*

Kings county Agro-News



Lemken Equipment Demo

With Nutrient Management season behind us and the snow finally gone, planting is well underway. Many producers in Kings County are participating in projects this year and much of my time has been spent involved in the many research projects we are working on. I'm very excited to have so much participation in the Kings County area. I have worked on some seeder calibrations so if you are wondering how accurate your settings are on your seeder, we can always calibrate to find out!



Seeder calibration during one of our forage project plantings

Following the project work, I will be continuing with field work. If you have not already contacted me with things you'd like done, such as GPSing and sampling, please contact me. Some club members have been using the portable scales to determine yields and bale weights as well as manure spreader calibrations.

On May 20th we had an In-

Field Equipment Demonstration at Prime Valley Holsteins. There was a great turnout and thank you to Lemken and John Deere for bringing the equipment and to Terry McCullum for hosting the event. If you missed the demo, this equipment will be in Sussex again for our fall Tillage Day in September. More information to follow.

Our 2015 Farm of the Year nominee is Matthew Clarke of Clarke Farms. Stay tuned for our Farm of the Year Dinner celebration later this year.

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Moncton Agro-News



Many interesting things will be happening this season and I will have my fair share of on-farm work! There are members who need their field maps updated. There will also be a need for diagnostic tests (compaction, nutrients, etc.). Furthermore, NBSCIA has undertaken multiple projects and many trials will be held in the Greater Moncton area. Forage project: There will be three forage plots in the Moncton area for the next three years. All plots have been planted in late May. By next year, the crop will have established and samples will be collected to determine the quality of the stands.

4R: NBSCIA is collaborating with the Canadian Fertilizer Institute to set up five 4R demonstration sites. There will be a soybean demonstration site in the Greater Moncton area. To observe potential differences in crop growth, there will eventually be a field day to view and compare the fields under typical practices and the 4R concept.

Lime: NBSCIA has recently received approval from the Environmental Trust Fund for a project proposal, where the goal will be to demonstrate the benefits of a lime application and provincial nutrient recommendations.

Moncton Soil & Crop will have

a field day this summer that may demonstrate our project trials and visit some new farms. Once an agenda is confirmed, field day notices will be sent.

Finally, Congratulations to Henry and Adrienne Helder of Creek Home Farm for being Moncton's Soil & Crop's Farm of the Year nominee. As some of our newest farmers to our local Soil & Crop, I am sure they will represent us well in the competition. Good Luck at next year's NBSCIA AGM!

*Josiane Goguen, A.Ag.
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Central Agro-News

Summer is finally upon us and field work has been happening. First, I would like to congratulate **Dunphy Holsteins, owned by Brent Dunphy and family** in Keswick NB, they have been nominated and chosen to be the **Central Soil and Crop Farm of The Year**. They will represent Central for the NBSCIA Farm of the Year competition at the annual meeting in February. Dunphy Holsteins certainly are a worthy nominee and will represent Central well.

In the Central Region, we have been busy getting some trials and demos set up and planted. We have six producers partici-

pating in the forage mixtures project, five Dairy and one Beef. Three sites have been planted now and three sites will be planted after first cut. This year, is the establishment year and then next year we will track the differences in the mixtures being planted.

Brian & Calvin Connor of Hawkins Corner are working with us on a 4R Nutrient Stewardship demonstration. This demo will show the 4R concept in a corn field which incorporates the Right fertilizer Source at the Right Rate, at the Right Time and in the Right Place.

Pat Toner has helped us set up a small trial to compare the use of Liquid Nitrogen with Round Up in a corn field for top dress, which will occur at Andre Brilman's in Maple Ridge.

Under the NB Agriculture EARI III new technology projects funding, two producers received funding towards new pieces of equipment. David and Jeremy Duplessis will be purchasing a Kinze 3600 no-till planter and John Schuttenbeld will be purchasing a Lemken Karat reduced tillage cultivator. A report will evaluate both of these projects.



Forage plot being planted in Central

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Northshore Agro-News

In spite of an incredibly slow snow melt pretty well everything is now in the ground.

We have had a great response of farms interested in inclusion with the province wide forage project. Locally four field plots are now planted with 3 more to follow as soon as field conditions allow.

John Schenkels has planted a small mount of the project mix in a field which is also planted with their usual forage mix and one recommended by Patrice Vincent. A field day will be planned for a visit.

The NBSCIA 4R Nutrient Stewardship demonstration

continues this year with soybeans at Mike Smith's. Observations will be made and submitted to the project.

On April 7th A meeting was held of producers interested in receiving the slag lime and the contractor. A brief presentation on the benefits of pH was given. This presentation is summarized on page 6. Since then a total of 21 farms have sent in their requested amounts of slag and their PIDs through Joan to the NBDELG. Conditions have finally permitted the movement of some material in early June.

On May 5th through video link courtesy of NBDAAF (Denis

Prince) a forage session was presented by Patrice Vincent of Belisle Nutrition. Topics covered include forage selection, planting, the impact of harvest timing and cow eating behavior. Many questions were asked. A very condensed selection of information is included in this newsletter.



Seeder calibration for forage plots.

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In brief

Value of Lime to Agricultural Fields

Soil test results contain two pH values for each field. Water pH is a measure of the H⁺ ions in the soil. Whereas the Buffer pH is used to determine how much lime is needed to raise the pH to the target level. Generally, plants take up nutrients only if they are dissolved in water. Soil pH influences the solubility of plant nutrients and other elements.

Soil pH	N Nitrogen Efficiency	P Phosphorus Efficiency	K Potash Efficiency	Overall Fertilizer Efficiency
pH 6.0	89%	52%	100%	80%
pH 5.5	77%	48%	77%	67%
pH 5.0	53%	34%	52%	46%

Source: Atlantic Canada's Field Crop Guide 1991
When the pH of soil is low it brings consequences. The organisms that decay organic matter and transform N, P and S may be at reduced levels

and activity. Nitrogen fixation by legumes is greatly reduced. Bacteria symbiotic with soybeans need 6.0 to 6.2. Bacteria symbiotic with alfalfa need 6.8 to 7.0 for best function.

At **pH 6.0** and fertilizer efficiency of **80%**, if you apply 300lbs/ac of 17-17-17 @ \$700/ton – **\$21** per acre of fertilizer was unavailable.

Average Relative yield % at pH Indicated

Crop	4.7	5.0	5.7	6.8	7.5
Alfalfa	2	9	42	100	100
Red Clover	12	21	53	98	100
Timothy	31	47	66	100	99
Barley	0	23	80	95	100
Corn	34	73	80	100	93
Oats	77	93	99	98	100

Source: Soil Chemistry 3rd ed From Ohio Agric. Expt Sta 1938

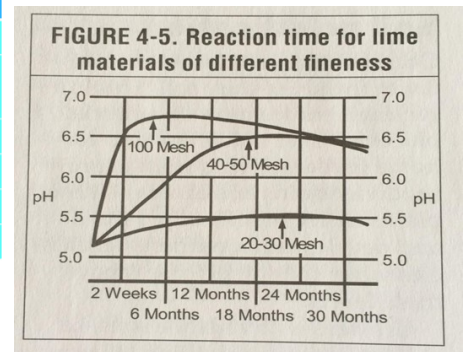
A crop of barley could be **1.2 tons/ac**. At pH 6.0 a **16% of** crop potential is lost resulting in a crop of about **1 ton/acre**. If barley is \$200/ton then \$32/ac of crop is lost.

Crop income loss \$32/ac + \$21 unused fertilizer = \$53/ac

There is more at stake than the crop loss for one year. The decline of pH will continue and contribute to greater losses in the future.

Example: Brookville lime has a minimum of 50% ability to pass through a 100 mesh sieve thus providing a multi-year pH benefit.

Cropping starts from the ground up.



Source Soil Fertility Handbook Publication 611 OMAFRA

Joan Parker P.Ag NorthShore ACC

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