

Summer 2016



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WELCOME TO OUR SUMMER NEWSLETTER

MURRAY'S MUSINGS..... will return next Newsletter. Murray is on hiatus, resting and recovering from back surgery in May. Please keep Murray and family in your thoughts and prayers. Thank you.



CUSTOM FORAGE EDITION

IMPROVING THE QUALITY OF YOUR HAY OR FORAGE

Decisions are being made now that directly impacts the quality of your hay or forage. Feeds of poor quality can have many adverse health effects. This article will address some of the factors that influence the quality of forages, specifically reviewing the stage of maturity at harvest, moisture levels and the use of additives.

STAGE OF HARVEST

Deciding what stage to harvest is more than just having the weather cooperating—the farm operator has to determine the optimum stage of the plant's life to harvest it. Determining that stage is quite simple—***the plant is ready when it enters the mature reproduction stage.***

Cont'd on pg 2...

YOU'RE INVITED TO...
CUSTOMER APPRECIATION DAY
 ON WEDNESDAY
JULY 13th

2016 CUSTOMER APPRECIATION DAY IS ON WEDNESDAY, JULY 13TH

COME OUT AND ENJOY THE FUN FROM 11:00 - 3:00!

- ◆ ORGANIC BEEF ON A BUN, DELICIOUS MAPLETON ICE CREAM
- ◆ FUN INCLUDING DOOR PRIZES AND KIDS CORNER

Lunch will be served from 11:30 - 2:30

For Customers with current Retail accounts: 5% discount on cash or cheque purchases 2% discount on debit or VISA/MasterCard purchases. Discounts are only available on July 13th. Clients must be in attendance to receive discount. Delivery within 30 days. Custom premix and general order deadline for pick-up at Customer Appreciation Day is **Wednesday, July 6th.**



Improving the quality... *continued from page 1*

It used to be farmers waited far too long to harvest hay. Around the late 1960's, the trend changed to one of cutting earlier and earlier, trying to maximize the number of cuts. However, this decision also causes problems. **When the grass is cut prematurely, it is still in a growth stage, and has high levels of estrogen—levels far too high for healthy forage later. Elevated levels of the hormone estrogen can be responsible for interference with the reproductive cycle, meaning your animals may have difficulty conceiving.** Again, the estrogen levels are very high in premature legumes, due to it still being in the growth stage and the plant having yet to switch into the reproductive mode that lowers the estrogen levels.

The second reason to consider waiting longer to cut is that during the growth stage, the plant is still working towards reaching the optimum level of mineral elements. By measuring the sugar levels of the plant, you can monitor the quantity of minerals in the plant. As a general rule of thumb, as the sugars go up in the plant so do the minerals because of the symbiotic relationship between the two. The higher the levels, the more physiologically mature the plant is found to be.

The last reason to wait a little longer is that those feeds cut too early, before the sugar levels are high enough in the cells of the plant, tend to improperly ferment in storage. Proper fermentation is a key to animal acceptance, palatability and nutritional quality of the feed later. Bad fermentation means that the amount of lactic acid will be quite significantly lower than the amount of acetic acid, butyric, isobutyric or propionic acids. High acetic acid levels imply a slow or prolonged fermentation and a corresponding excessive loss of energy. High levels of butyric, isobutyric or propionic acids will reduce the dry matter intake and animal performance when fed.

Animals forced to eat bad forages can have serious problems with how their body digests, absorbs, and assimilates feed. This can result in all kinds of problems especially in the dairy, sheep and goat industries.

To test the sugar levels in your legumes or forages, you can do a sugar or Brix reading using an instrument called a "**refractometer**" (available through Lee ValleyTools). To test for proper fermentation, you can check the fermentation pathway using a **Volatile Fatty Acid Test**. This test will show farmers the levels of dry matter, moisture, pH, Ammonia, Acetic, Butyric, Isobutyric, Lactic, and Propionic Acids. Contact Bio-Ag's Head Office for current testing information.

MOISTURE LEVELS

*The second influencing factor in your feed's quality is proper moisture levels. Too high a moisture content may lead to excessive protein breakdown and too high of an acid level. Too low a moisture level may lead to unstable forage mass, leading to yeast and mold problems. Molds in feeds can cause quite serious problems in ruminant animals —problems from abortions to infertility, and even feminization of males or lowering of sperm counts. Monogastric animals such as hogs and horses are so sensitive that it could kill them! If you have problems with molds in your feeds, Bio-Ag can help by providing a mold inhibitor for your feed such as our **Dried Seaweed Meal**. Ask your dealer about other products.*

USE OF ADDITIVES

Good forage/feed depends upon good fermentation. This means your management practices in terms of silo, and especially bunk storage, go a long way towards meeting this goal of proper fermentation. Good management as well helps in the control of mold and toxins that can occur in your silo and in your hay harvest. Part of your management should include a forage additive for your dry hay, balage, haylage or silage. Many farmers, and custom operators, have had excellent success using straight **Bio-Lac, or Bio-Ag's PCAI Bio-Lac/Seaweed/Sugar** forage mix as a custom feed additive when harvesting. For more options on products, and application for your specific needs, please contact your dealer or Head Office.



Product Spotlight on...

Bio-Lac

DAIRY—BEEF—GOATS—SHEEP—POULTRY—SWINE



What can a healthy digestive system do for your livestock?

- ✓ ***Create a proper balance of 'good' bacteria***
- ✓ ***Increase feed conversion rates***
- ✓ ***Improve utilization of protein***
- ✓ ***Improve overall health, appearance and vigor of your animals***

What Is Bio-Lac?

Bio-Lac is a feed supplement made from a proprietary blend of plant extracts, lactobacillus fermentation products and prebiotics. Bio-Ag manufactures both a liquid and dry form. Bio-Lac's unique combination of plant extracts works at the cellular level to assist in the Krebs cycle and increase the absorption and assimilation of nutrients.

Bio-Lac's prebiotics and enzymes improve the development of a desirable microbial population in the gut; thus dominating the undesirable organisms in the gastrointestinal epithelial surface. This offers competitive inhibition of bacterial adhesion sites.

The lactic acid bacteria present in Bio-Lac also produce a variety of substances that are inhibitory to both gram-positive and gram-negative bacteria and their toxins.

Try Bio-Lac on your farm and experience the results for yourself!

Liquid Bio-Lac

Size

1L
4L
20L

Dry Bio-Lac

Size

1 kg
4.5 kg
25 kg

Dates to Remember



July 01 - Bio-Ag closed Canada Day

July 06 - Order deadline for products to be picked up on C.A. Day

July 13 - Customer Appreciation Day - 11:00-3:00;
Lunch served -11:30-2:30

Aug 01 - Bio-Ag closed Civic Holiday

Sep 05 - Bio-Ag closed Labour Day

Sep 13-15 - Visit Bio-Ag at *Canada's Outdoor Farmshow, Woodstock. 8th Lane NMW*

Oct 10 - Bio-Ag closed Thanksgiving Day

BIO-AG CUSTOM FORAGE PRODUCTS May 2016

PRODUCT	MOISTURE	APPLICATION RATE / METRIC TONNE (MT)	PRICE PER MT TREATED FORAGE
DRY HAY If hay is over 25% moisture, bales should be wrapped.			
FO66E PCAI Bio-Lac Dry 25 kg	17% and under	200 grams (1 kg/5MT -2lb/5ton)	1 \$2.88
			2-3 \$2.80
			4-9 \$2.72
			10+ \$2.64
FO66E PCAI Bio-Lac Dry 25 kg	17% to 23%	250 grams (1kg/4MT-2lb/4ton)	1 \$3.60
			2-3 \$3.50
			4-9 \$3.40
			10+ \$3.30
F66E Conv Bio-Lac Dry 25 kg	17% and under	200 grams (1 kg/5MT- 2 lb/5ton)	1 \$2.68
			2-3 \$2.60
			4-9 \$2.52
			10+ \$2.44
F66E Conv Bio-Lac Dry 25 kg	17% to 23%	250 grams (1kg/4MT-2lb/4ton)	1 \$3.35
			2-3 \$3.25
			4-9 \$3.15
			10+ \$3.05

BALEAGE			
FO77 PCAI Bio-Lac/ Seaweed/ Sugar 22.7kg	25% to 50%	kg (2 lb/ton) <i>Note: 1 bag treats ~23MT</i>	\$4.43
			10-32 \$4.30
			33+ \$4.21
FO66E PCAI Bio-Lac Dry 25 kg	25% to 50%	125 grams (1kg/8MT- 2lb/8ton)	1 \$1.80
			2-3 \$1.75
			4-9 \$1.70
			10+ \$1.65
F66E Conv Bio-Lac Dry 25 kg	25% to 50%	125 grams (1kg/8MT- 2lb/8ton)	1 \$1.68
			2-3 \$1.63
			4-9 \$1.58
			10+ \$1.53

HI MOISTURE CORN			
FO66E PCAI Bio-Lac Dry 25 kg	25% to 35%	200 gm (1 kg/5 MT- 2 lb/5 ton)	1 \$2.88
			2-3 \$2.80
			4-9 \$2.72
			10+ \$2.64
FO67E5 PCAI Bio-Lac Liquid 20 L	25% to 35%	80 ml (20 L/250 MT)	\$2.39
F66E Conv Bio-Lac Dry 25 kg	25% to 35%	200 gm (1 kg/5 MT- 2 lb/5 ton)	1 \$2.68
			2-3 \$2.60
			4-9 \$2.52
			10+ \$2.44
F67E5 Conv Bio-Lac Liquid 20 L	25% to 35%	80 ml (20 L/250 MT)	\$2.33

HAYLAGE & CORN SILAGE				
FO77 PCAI Bio-Lac/ Seaweed/Sugar 22.7 kg	Haylage 25% to 50% Corn Silage 65%	kg (2 lb/ton)	\$4.43 10-32 \$4.30	
FO66E PCAI Bio-Lac Dry 25 kg	65%	100 gm (500 gm/5MT- 1 lb/5 ton)	1 \$1.44 2-3 \$1.40 4-9 \$1.36 10+ \$1.32	
FO67E5 PCAI Bio-Lac Liquid 20 L	65%	40 ml (20 L/500MT)	\$1.20	
F66E Conv Bio-Lac Dry 25 kg	65%	100 gm (500 gm/5MT- 1 lb/5 ton)	1 \$1.34 2-3 \$1.30 4-9 \$1.26 10+ \$1.22	
F67E5 Conv Bio-Lac Liquid 20 L	65%	40 ml (20 L/500 MT)	\$1.17	

How to achieve optimum forage quality

For many years, Bio-Ag has recommended Bio-Lac as an excellent, economical option in managing the fermentation and curing of feeds.

Available in liquid or dry forms, Bio-Lac fits into most application options.

A number of years ago, we introduced a few other custom forage products which included Kelp and/or Sugar as ingredients mixed with Bio-Lac. We have been monitoring product usage as well as ingredient costs and availability over the past two seasons. Based on these findings, we have made the decision to feature one custom forage product.

PCAI Bio-Lac/Seaweed/Sugar will be our standard custom forage product.

2016 Bio-Ag Forage Options:

Conventional or PCAI Bio-Lac (Dry/ Liquid) or Custom PCAI Bio-Lac/ Seaweed/ Sugar:

Bio-Lac is Bio-Ag's most economical option. The lactic acid bacteria facilitated by Bio-Lac helps to support the growth of larger numbers of lactic acid-producing bacteria which outgrow the undesirable bacteria. Bio-Lac aids lactic acid fermentation in ensiled feeds.

Dried Seaweed Meal may reduce mold growth [mycotoxins] in ensiled feed with good management.

Organic Sugar increases the amount of fermentable substrate, which helps the lactic acid bacteria in Bio-Lac to grow faster and reduce the pH quickly. This leads to better lactic acid fermentation.

Selection of the product [dry or liquid] depends on the applicator and personal preference. For liquid applicators, ensure the nozzle size is large enough

*Note: While we're confident straight Bio-Lac will be effective, clients can purchase Bio-Lac & Dried Seaweed Meal [DSM] separately if desired.

The ratio is 1 part Bio-Lac to 4 parts DSM.

Application rate is dependent on moisture:

17% & under = 1 kg to 1.5 kg/Metric Tonne

17% to 23% = 1.5 kg- 2 kg/Metric Tonne

23% to 29% = 2 kg to 4 kg/Metric Tonne **[wrapping is recommended]**

REFRACTIVE INDEX OF CROP JUICES **CALIBRATED IN ° BRIX**

FRUIT	POOR	EXCELLENT	VEGETABLES	POOR	EXCELLENT
Apples	6	18	Asparagus	2	8
Avocados	4	10	Beets	2	12
Bananas	8	14	Bell Peppers	4	12
Cantaloupe	8	16	Broccoli	6	12
Cherries, sweet	6	26	Cabbage	6	12
Cherries, tart	6	18	Carrots	4	18
Coconut	8	14	Cauliflower	4	10
Grapes	8	24	Celery	4	12
Grapefruit	6	18	Corn, Sweet	6	24
Honeydew	8	14	Green Beans	4	10
Lemons	4	12	Hot Peppers	4	10
Limes	4	12	Kohlrabi	6	12
Mangos	4	14	Lettuce	4	10
Oranges	6	20	Onions	4	10
Papayas	6	22	Parsley	4	10
Peaches	6	18	Peas	4	10
Pears	6	14	Peanuts	4	10
Pineapple	12	22	Potatoes	3	7
Raisins	60	80	Potatoes, Sweet	6	14
Raspberries	6	14	Romaine	4	10
Strawberries	6	16	Rutabagas	4	12
Tomatoes	4	12	Squash	6	14
Watermelon	8	16	Turnips	4	10

GRASSES	POOR	EXCELLENT	GRASSES	POOR	EXCELLENT
Alfalfa	4	22	Corn Stalks	4	20
Cotton	4	22	Field Corn	6	18
Grains	6	18	Field Peas	4	12
Rice	4	16	Soybeans	4	16
Sorghum	6	30			

Within a given species of plant, the crop with the higher refractive index will have a higher sugar content, higher mineral content, higher protein content and a greater specific gravity or density. This adds up to a sweeter tasting, more minerally nutritious food with a lower nitrate and water content and better storage characteristics. It will produce more alcohol from fermented sugars and be more resistant to insects, thus resulting in decreased insecticide usage. Crops with a higher sugar content will have a lower freezing point and therefore be less prone to frost damage. Soil fertility needs may also be ascertained from this reading.

BIO-AG CONSULTANTS & DISTRIBUTORS INC, 1400 GREENWOOD HILL RD
PO BOX 189, WELLESLEY ON 1-800-363-5278

PRESIDENTIAL PERSPECTIVE

As you have read earlier in this newsletter, Murray is currently recovering from back surgery. He's doing well and progressing as expected, as he slowly works through the rehabilitation process.

In past newsletters I've alluded to the need to invest in the future of your farm. This theme continues as we head into the summer cropping season. Investing the time to put up your hay, baleage, silage, etc. properly will pay you dividends now through to next season. The lead article in this newsletter "Improving the Quality of Your Hay or Forage," originally drafted by Murray years ago, reviews some of the key details to pay attention to during harvest. He also touches on the investment of time in relation to ensuring quality (i.e. avoiding moldy feed and the potential consequences of moldy feed).

When Mother Nature decides to make this process a little more difficult, or simply to ensure your success, providing the right ingredients to nudge the natural fermentation processes in the preferred direction is an important addition to your investment in producing top quality feeds.

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I'd also like to welcome Eric Williams to our Bio-Ag team. Eric is with us for a short-term contract to cover for Dan Ziegler as Purchaser/Receiver. Eric is a currently a Co-op student with the University of Guelph, in the Bachelor of Commerce program. He's a native of New Hamburg, so grew up familiar with the local agricultural landscape. Welcome Eric!



*Parry Bast
President*

MONTHLY SPECIALS 5% OFF

JULY SPECIAL - PERMA-GUARD™

Diatomaceous Earth
22.7 kg



AUGUST SPECIAL - CUSTOM FORAGE PRODUCT

* PCAI Bio-Lac / Seaweed / Sugar Mix 22.7 KG

SEPTEMBER SPECIAL:

Black Earth 25 kg





RECIPE CORNER

Granola

Submitted by Rosemary Erb

Ingredients

- ◆ 4 cups rolled oats (preferably not quick oats)
- ◆ 1 1/2 - 2 cups raw nuts and/or seeds (I like almonds & pepitas)
- ◆ 1 tsp salt
- ◆ 1/2 tsp cinnamon
- ◆ 1/2 cup melted coconut oil
- ◆ 1/2 cup maple syrup
- ◆ 1 tsp real vanilla extract
- ◆ Dried fruit (apples, cranberries, raisins), coconut flakes & chocolate chips

Directions: Preheat oven to 325° & line a couple of baking sheets with parchment paper.

In a large mixing bowl, mix together the rolled oats, nuts & seeds, salt & cinnamon. Mix well.

Pour in the coconut oil, maple syrup & vanilla. Mix well, until everything is coated. Pour this onto the pans & spread in an even layer. Bake until golden, about 25 minutes, stirring halfway (if you remember). Take granola out of the oven before it's too golden as it still crisps up as it's cooling. (If you're adding coconut flakes & you want them toasted, you can add them to the mix about 1/2 way into the baking time - personally I buy already toasted flakes and add them after the granola is out of the oven.

Let granola cool completely, undisturbed, before adding the fruit, coconut & chocolate chips. Enjoy!! (I like mine with yogurt & frozen blueberries)



Do you have something you'd like to share in our newsletter - an event or a classified advertisement? You can email your submission to rosemary@bio-ag.com or kate@bio-ag.com. Or you can mail them to us at Bio-Ag Consultants, P.O. Box 189, Wellesley, ON, N0B 2T0. Thank you! Bio-Ag reserves the right to edit based on length & content

**Keep in touch with Bio-Ag,
and let Bio-Ag keep in
touch with you!**



Bio-ag is proud to be part of the electronic / social media age.

We have some very informative and exciting videos on our [You Tube channel](#). Please watch them when you can and feel free to subscribe to our channel.

We also have a Facebook page for both [Bio-Ag Consultants](#) and [Norman's Naturals](#), as well as Twitter accounts ([Bio-Ag](#) and [Norman's Naturals](#)).

We post product specials and information, as well as sharing many interesting articles we think you'll enjoy reading. Please "like" and follow us so we can grow and share together.

**VISIT US AT CANADA'S OUTDOOR
FARM SHOW! SEE YOU THERE!!**



Visit us at
Canada's
Outdoor Farm Show,
Woodstock, ON
Sept. 13 - 15
8th Lane NMW