

Winter  
2018/2019



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Welcome to our winter 2018 newsletter.

In this issue, I would like to talk a bit about soil and give a few thoughts and ideas based on recent soil tests we have conducted with the help of our industry partner, A & L Labs in London Ontario.

One of the first results you'll notice on your soil analysis is organic matter. Organic matter is more than just leaves and stocks, it is all decomposed matter; this is why compost works so well for soil. Organic matter is very crucial because it is used to calculate the cation-exchange capacity. This is important in measuring the soil's ability to hold on to essential nutrients, such as nitrogen. Knowing your organic matter is also important because it allows you to determine how much nitrogen, or other essential nutrients, your soil may be missing.

Nitrogen is a vital component in chlorophyll which is necessary for crop growth, and an essential component in the building block of protein. While it can be very costly to dump nitrogen on your soil, it has become common practice in the industry.

Farmers have found various cost-effective methods of getting nitrogen to their crops. One of the most common

Cont'd on page 2...

January 16th!  
Save the Date

## Annual Bio-Ag Educational Seminar

*Two Important Topics - Two Significant Speakers!*

**Luke Serbina**, Senior Sales Representative of Black Earth Humic LP will showcase the benefits of using Black Earth in your soil.

**Glyphosate - The good, the bad & the ugly!** Come & meet large animal veterinarian **Dr. Ted Dupmeier**. He has studied Glyphosate toxicity in depth & will lead an engaging discussion on its history, its current uses and, among other things, the host of adverse effects it has on our livestock!



**See insert for speaker profiles!**

## ***Murray's Musings... continued from page 1***

methods of getting nitrogen into the soil is through crop plow-downs. Clovers and radishes are a great crop to use in your plow-down; there are many new seed varieties in the marketplace.

Nitrogen-generating plants can also offer protection from weeds. These plants include, but are not limited to, red clover and soybeans. Farmers also choose to control weeds better by plowing down or working in rye. The best time to work in rye is late fall or early spring. Rye, however, if exposed to the root of your crop, may kill it. This is why rye works so effectively against quackgrass.

While the periodic table has many elements, our recommended only tests for approximately 15. The ones that we test for are the most required and needed in your soil.

In the next newsletter, I would like to talk about the other tests our lab partner does including phosphorous, bicarb, bray testing and other minerals. For the time being, you may want to pull out some of your old soil samples and follow along as we go through this in the next several newsletters. If you have any other questions about your soil, Thevika, our nutritionist, and I are happy to discuss your soil sample with you.

In recent news, there are a lot of moulds being found in our corn this year. Farmers should be on the lookout for products that will help mitigate the effects of vomitoxin and toxicity in the corn. We need to be careful when feeding contaminated product to our animals. Your Bio-Ag dealer can help answer any questions or concerns and determine the best course of action to keep your animals in good health. If you have any doubts about your crops, Bio-Ag is happy to send your feed samples away for analysis.

For now, we wish you all the best. We hope you had a great fall and a great harvest. Hopefully, we will see you in January at the annual Bio-Ag Educational Seminar. This year we will have Dr. Ted Dupmeier from Saskatchewan who will be talking about his findings on glyphosate in livestock feed and its effects. As well, we will have Luke Serbina from Black Earth who will be talking about the benefits of using Black Earth Humates in your soil for better crop yield.

Wishing you a blessed Christmas and a happy New Year...

~Murray Bast



# Bio-Ag Educational Seminar, January 16th, 2019

black  earth

10am-12pm

**Luke Serbina**, Senior Sales Representative of Black Earth Humic LP will showcase the benefits of using Black Earth in your soil. You will be amazed at how it can help!

*Enhance nutrient availability Better crop growth Improve soil productivity*

1pm-3pm

## **Glyphosate - The good, the bad & the ugly!**

Come & meet large animal veterinarian **Dr. Ted Dupmeier**. He has studied Glyphosate toxicity in depth & will lead an engaging discussion on its history, its current uses and, among other things, the host of adverse effects it has on our livestock!

Seminar Time: 10:00am to 3:00pm ~ Registration starts at 9am

Location: Perth East Recreational Complex, 40 Temperance Street, Milverton, ON



- ✓ Hot GMO-Free Lunch Included
- ✓ Door prizes
- ✓ Presentation Notes Provided
- ✓ Cost is \$50+HST/person (pre-paid by Jan 2nd)

### **Early-Bird Discount Deadline is December 28th, 2018**

(You will receive a \$15 credit on your account for future purchases!)

**Registration Deadline is January 2, 2018**  
**After January 2nd, registration cost is \$55 + HST per person (if space available)**

Youth Rate is Available;

Limited space.

Please call for details.

Bio-Ag will be closed January 16th

To register or for more information call:

**1-800-363-5278 or 519-656-2460**



## Kathrine's Corner



This year, as most of us have heard, is a very bad year for fungal infections (mould) in corn and subsequently mycotoxins in our corn crops. The toxin of the most interest is produced by fusarium mould and it is called deoxynivalenol (DON) also known as Vomitoxin. OMAFRA reports that a shocking 25% of corn has DON levels of 5ppm or higher. This is compared to only 6% in 2017 and 8% in 2016. Another 42% of samples fall in the range of 0.5-2ppm. The weather played a big role in the development of this issue but I believe the degree of severity we are seeing this year is also a direct visual into how our soil's health is still very much deteriorating. Killing off the soil microbes with chemical agriculture, we are allowing moulds to grow rampant. I will not say bad things about vertical till...there are very many good aspects to vertical till BUT if you are vertical tilling (or no tilling) corn stalks and they don't decompose (because the soil microbes are dead) then that decaying material is the perfect substrate for the moulds to grow on and then infect the new plants growing up through them. The soil microbes are also the immune system of the plant, similar to how our gut bacteria keep us healthy. If the microbes are not there the plant is more prone to diseases. Glyphosate (Roundup) is being used more and more at higher and higher rates. Glyphosate being an antibiotic...kills bacteria. What do humans get when they take too many oral antibiotics? ...Candida (fungus) overgrowth.

As a generalization, dry years increase the risk for aspergillus moulds that yield aflatoxins whereas wet years increase the risk for fusarium moulds that yield DON, T2 and Zearalenone. This year started out dry but got very wet as the corn began to come into tassel and proceeded to remain a wet year.

Mycotoxins are not moulds themselves; they are the metabolites of fungi (moulds). When moulds are stressed they produce mycotoxins. Stress for a mould means moisture and heat and in the case of silage, air. Therefore, not only can you get mycotoxin production pre-harvest, there is also a risk for mycotoxin production post-harvest (in storage), if feed is not put away properly and kept dry. Cleaning mouldy grains help reduce level of mycotoxins, as the fines usually have the highest amounts.

Poor storage and inadequate bunk feed-out are two controllable variables in the reduction of mycotoxins for silages. Farmers must make sure as little air as possible gets into the bunks when scraping off feed and must keep moisture out. A defacer can pay for itself in no time. A temperature gun/reader might be a tool that you can be utilized to test open bunks to see if there are hot areas indicating too much air is getting into the stored silage.

Visual inspection of feed will not tell you if mycotoxins are present or not. Also, do not stick your nose into the feed...some mycotoxins can be absorbed right through the linings of your nose and mouth! There are 1000+ Mycotoxins out there. There have been tests developed for 38 and Bio-Ag tests for 4. When testing for 38 mycotoxins, there is always more than one mycotoxin present in one given sample with the average being 4. Mycotoxins almost never occur in isolation. If you have one mycotoxin chances are you will have many more accompanying it.

Acceptable Levels of DON (in full ration)

- Cattle and poultry - 5ppm
- Swine - 1ppm
- Young animals and lactating animals - 1ppm

However, I believe there are toxic effects at even lower levels of DON because the mycotoxin is just a red flag for the feed's quality and also because mycotoxins never occur in isolation. Some symptoms may also go unnoticed for a long period of time and present themselves when there is another stressor. A poor-doing fresh dairy cow is an example of this.

General symptoms of mycotoxicosis in dairy cattle:

- Reduced feed intake
- Reduced milk yield and milk components
- Rough hair coat and lethargy
- Intermittent diarrhea (sometimes with blood or dark manure)
- Increase in incidence of infections and metabolic diseases
- Cows don't respond to veterinarian treatment
- Poor reproductive performance



• Abortions

One way in which DON affects a cow: DON is usually neutralized by the fibre fermenting bacteria in the rumen, as long as levels are not too high. But if pH is low in rumen (high percentage of concentrate/grains fed) there are less of these bacteria around...DON gets to liver where it is toxic. If another mycotoxin product is present (fusaric acid) it kills the fibre fermenting bacteria and toxic DON and fusaric acid make their way to liver and other organs.

General symptoms of mycotoxicosis in swine:

- Reduced feed intake
- Immune suppression (increase in disease incidence)
- Vomiting
- Infertility, Anestrous, pseudo-pregnancy, rectal prolapse (Zearalenone)

General symptoms of mycotoxicosis in poultry:

- Diarrhea
- Paralysis or incoordination
- Reduced feed efficiency
- Reduced weight gain or egg production/hatchability.
- Increased condemnations.
- Pale shanks, combs, bone marrows.

Fibre fermenting bacteria in the rumen can neutralize DON. This is why ruminants are least susceptible to the effects of the toxin. However...there will still be negative affects no matter what the level. I suggest testing your corn and corn silage this year. There can be severe and long term implications if the toxin exposure is not mitigated.

When faced with high mycotoxin levels or even if there is just a perceived risk of toxins I like to take a three pronged approach. First, reduce the amount of offending feed in the diet as much as you can. Second, add a binder to try and catch the toxins before they are absorbed in the gut. And third, give the animal's immune and detoxification systems some support.

I would advise to not feed any feeds that test over 5ppm DON, even if it gets diluted in the ration. I would even go as low as 2ppm for a cut off...but I understand this is not always feasible.

Aluminosilicates have been shown to bind mycotoxins in the gut very effectively. Bentonites will also bind toxins but more readily bind nutrients as well.

Seaweed meal gives the immune system support it needs. Homeopathics and herbs can be used to give the liver and kidneys support in detoxification.

Bio-Ag is ready to help you with any testing and mycotoxin mitigation strategies you are looking for. Please feel free to contact us for further guidance!

**Vomitoxin**

**Advisory levels for vomitoxin (DON) in livestock feed**

<b>Class of Animal</b>	<b>Feed Ingredients &amp; Portion of Diet</b>	<b>DON Levels in Grains &amp; Grain By-products and (Finished Feed)</b>
<b>Ruminating beef and feedlot cattle older than 4 months</b>	Grain and grain by-products not to exceed 50% of the diet	10 ppm (5 ppm)
<b>Chickens</b>	Grain and grain by-products not to exceed 50% of the diet	10 ppm (5 ppm)
<b>Swine</b>	Grain and grain by-products not to exceed 20% of the diet	5 ppm(1 ppm)
<b>All other animals</b>	Grain and grain by-products not to exceed 40% of the diet	5 ppm (2 ppm)

Source: Mycotoxins in Feeds: CVM's Perspective, presentation to Risk Management Agency (August 23, 2006 by Michael H. Henry, Ph.D., FDA, CVM)

# **From the President**

## **Farmers Deserve Better**



A month or two ago Murray and I were having a conversation. For whatever reason, I asked him "**why** did you start Bio-Ag?" Having been involved with Bio-Ag for a large part of my life, it wasn't something that I had really wondered. Sure, I had my own ideas. I could see the things that Murray worked on and things that he did. I had been doing some reading and was preparing to spend some time working out some business planning. It was a good time to ask.

Murray's immediate response was "I started Bio-Ag because I thought farmers deserved better than what they were getting." I don't think that statement could be any more accurate today than it was 36 years ago. Sure, a lot has changed. Look at any farming sector: the methods have changed, the scope has changed, and the knowledge has changed; A lot has changed for the better. Yet we're often left with the feeling that somehow we deserve just a little bit better than what we're getting.

Bio-Ag has also changed a lot. It's not just Murray and Florence looking after things. We now have distribution points and customers throughout Canada, the U.S., Ireland and the Caribbean. We receive tractor trailer loads of product on a weekly basis. We're delivering to points all over Ontario on a daily basis. We have employees now who are specialized in different roles. Even with all of this going on, we still need to keep in mind that farmers – you – deserve better. Better products, better service and, better results.

This is why we have specialists – to capture the key knowledge and experiences that drove Murray in the early years – to focus on nutrition; to focus on animal health; and to focus on getting you something better.

This "Why" is what drives us to continually strive to improve products, source newer and higher value products and, continue to provide the highest value premixes that we can. A high value premix is the cornerstone to your animal's health. Don't settle for anything less than what you deserve. Don't settle for cheap. You deserve the best.

Wishing you the best for the holiday season.

~Parry



☆ **Get Your New 2019 Bio-Ag Calendar!!!!** ☆

Let us know if you would like one added to your next order!

# Dates to Remember



**December 10**  
Pre-Christmas delivery order deadline for Custom Premixes

**December 24**  
Bio-Ag Closes at 12pm

**December 25**  
Bio-Ag Closed for Christmas Day

**December 26**  
Bio-Ag Closed for Boxing Day

**December 29**  
**Early-bird Seminar registration deadline**  
[receive \$15 account credit post-seminar]

**December 31**  
Bio-Ag Closes at 12pm

**January 01 2019**  
Bio-Ag Closed for New Years Day

**January 2 2019**  
Deadline for Seminar Registration; pre-paid only

**January 16 2019**  
Bio-Ag Seminar  
Office Closed

**February 18 2019**  
Bio-Ag Closed for Family Day

**April 19 2019**  
Bio-Ag Closed for Good Friday

**April 22 2019**  
Bio-Ag **Open** Easter Monday

**May 20 2019**  
Bio-Ag Closed for Victoria Day

# MONTHLY SPECIALS - 5% OFF

**JANUARY**

11.36kg



**FEBRUARY**

3kg pail & 13.6kg Bag

946ml & 3.78L

12kg pail

**OCEAN EQUINE**



**MARCH**

25kg





## RECIPE CORNER

### Anti-Inflammatory Coconut and Sweet Potato Muffins

Submitted by Mary Lou Shantz find recipe at [www.healthy-holistic-living.com](http://www.healthy-holistic-living.com)

#### Ingredients:

1 small organic sweet potato, roasted (should be about 1 cup, packed)  
 3 tbsp. Ground flaxseed in ½ cup of water (let the flaxseed sit in water for 10 minutes; this substitutes your egg)  
 ¾ cup organic coconut milk  
 2 tbsp. organic olive oil  
 ½ cup pure maple syrup or unpasteurized honey  
 1 cup organic brown rice flour  
 ¼ cup organic coconut flour  
 1 tbsp. Aluminum-free baking powder  
 ½ tsp. Redmond Real Salt  
 1 tbsp. Ground cinnamon  
 1 tsp ground ginger  
 1 tsp ground turmeric  
 ⅛ tsp ground cloves  
 ⅛ tsp ground nutmeg

#### Instructions:

Preheat oven to 400F.  
 Use a skewer to make a dozen or more holes in your sweet potato skin, then cook it on a baking tray for an hour, or until soft.

Allow potato to cool, and then cut it in half and scoop out the insides into a large bowl. Add the flaxseed, coconut milk, olive oil, and maple syrup. Combine until smooth.

In a separate bowl, mix all of the dry ingredients, then add these to the potato mixture and stir until properly combined.

Oil your muffin tray thoroughly with coconut oil, then pour the batter evenly into the muffin tray so that each one is approximately 2/3 full.

Cook for 30-35 minutes.  
 Enjoy!

**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.



Do you have something you'd like to share in our newsletter - an event or a classified advertisement?

You can email your submission to [nicole.kuyten@bio-ag.com](mailto:nicole.kuyten@bio-ag.com). Or mail them to us at P.O. Box 189, Wellesley, ON, N0B 2T0.

Thank you!

Bio-Ag reserves the right to edit based on length & content