



North Country Ag Advisor

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Cornell Cooperative Extension
North Country Regional Ag Team

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North Country Ag Advisor

Published by the CCE North Country
Regional Ag Team collaborating with Harvest NY

Layout/Design: Tatum Langworthy

"The North Country Regional Ag Team is a Cornell Cooperative Extension partnership between Cornell University and the CCE Associations in Jefferson, Lewis, St. Lawrence, Franklin, Clinton, and Essex counties."

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Our Mission

"The North Country Regional Ag Team aims to improve the productivity and viability of agricultural industries, people and communities in Jefferson, Lewis, St. Lawrence, Franklin, Clinton, and Essex Counties by promoting productive, safe, economically, and environmentally sustainable management practices, and by providing assistance to industry, government, and other agencies in evaluating the impact of public policies affecting the industry."

Field Crops and Soils

Burndown Herbicide Options in No Till Soybeans

By Mike Hunter

Glyphosate (and possible multiple resistant) marestail is spreading across NNY and may already be on your farm. If it is not on your farm already, it is likely on its way. Now that herbicide resistant marestail, tall waterhemp, and palmer amaranth are in NY, we need to start to manage like we already have them on the farm. In no till, strip till, and very minimum till (i.e. one pass with a vertical tillage tool), burndown herbicides will be necessary to control weeds prior to planting.

If any marestail is present, it must be controlled before planting. Marestail can be either a summer annual, or winter annual. The winter annual marestail rosettes are present right now and as soon as it begins to warm up these will begin to bolt and grow tall quickly. Once resistant marestail gets any taller than 6 inches, it becomes very difficult to control. If we are dealing with multiple resistant marestail (resistant to Group 9 and Group 2 herbicides), Liberty Link, Xtend, and Enlist soybeans are the choices that allow for effective postemergence options.

The most effective burndown programs for resistant marestail in soybeans will have *more than one effective site of action*. If dandelions are a problem, consider using one of the listed programs that include 2,4-D ester. Don't substitute 2,4-D amine formulations for the ester formulation. Apply 1 pint per acre of 2,4-D ester (4 lb gal formulations) to keep the preplant interval to 7 days—rates higher than that will lengthen the planting interval.

If using a burndown option that includes Sharpen (saflufenacil), apply 1 oz/acre with no preplant restrictions. If Sharpen (used at 1 oz/ac) is included in the burndown program and tank mixed with a flumioxazin product, the preplant restrictions will be a minimum of 14 days in no till (expect for coarse soils with 2% or less organic matter where the preplant restriction is 30 days) and 30 days in conventional till regardless of the soil texture and organic matter.

Here are choices that include *more than one* effective site of action for the control of resistant marestail in soybeans:

- Sharpen (1 oz) + glyphosate + metribuzin
- 2,4-D ester (1 pint) + glyphosate + metribuzin (7 days prior to planting)
 - ⇒ Can include a flumioxazin product (Valor SX,

Valor XLT, Envive, Surveil)

⇒ Or a premix containing metribuzin + flumioxazin (Trivence WDG or Panther Pro)

- 2,4-D ester (1 pint) + Sharpen + glyphosate + metribuzin (7 days prior to planting)
- Sharpen (1 oz) + glufosinate (Liberty)
- Sharpen (1 oz) + glufosinate + metribuzin
- 2,4-D ester (1 pint) + Sharpen (1 oz) + glufosinate + metribuzin (7 days prior to planting)
- paraquat (Gramoxone) + metribuzin
- 2,4-D ester (1 pint) + paraquat (Gramoxone) + metribuzin (7 days prior to planting)
- Sharpen (1 oz) + glyphosate + dicamba (must use one of these: XtendiMax, Engenia, FeXapan, Tavium (dicamba + s-metolachlor)). *In Roundup Ready 2 Xtend (dicamba tolerant) soybeans only.*
- Sharpen (1oz) + Enlist One + glyphosate (or Enlist Duo (2,4-D choline + glyphosate)). *In Enlist soybeans only.*

Here are choices that include *only one* effective site of action for the control of resistant marestail in soybean:

- 2,4-D ester (1 pint) + glyphosate (7 days prior to planting)
- Sharpen (1 oz) + glyphosate
- Glyphosate + dicamba (must use one of these: XtendiMax, Engenia, FeXapan, Tavium (dicamba + s-metolachlor)). *In Roundup Ready 2 Xtend (dicamba tolerant) soybeans only.*
- Enlist One + glyphosate or Enlist Duo. *In Enlist soybeans only.*

If resistant tall waterhemp is present, the herbicide program will be slightly different. It will be highly unlikely that a one pass, preemergence herbicide application will provide adequate control of resistant tall waterhemp. It will require a two pass (Pre and Post) herbicide program to achieve good enough control levels that minimize the spread seed. If Roundup Ready or conventional soybeans are planted, apply a Group 15 herbicide (Dual II Magnum, Warrant, Outlook) + metribuzin or a flumioxazin + metribuzin containing product, or tank mix preemergence. The postemergence application must contain Reflex, Flexstar, Prefix, or Warrant Ultra. If necessary, a late postemergence rescue treatment of Cobra can be used.

If Xtend, Enlist, or Liberty Link soybeans are planted, apply a

Continued on Page 4...

Group 15 herbicide (Dual II Magnum, Warrant, Outlook) + metribuzin or a flumioxazin + metribuzin containing product or tank mix preemergence. In Roundup Ready 2 Xtend (dicamba tolerant) soybeans, apply a postemergence application of XtendiMax, Engenia, FeXapan, Tavium (dicamba + S-metolachlor). If Enlist soybeans are planted, apply Enlist or Enlist Duo. If Liberty Link soybeans are planted apply Liberty postemergence.

If you have any questions regarding soybean herbicide programs contact Mike Hunter 315-778-8602 or meh27@cornell.edu.

Press Release: Young Farm Entrepreneur Applying NNYADP Biocontrol Research Results

Press Release: April 15, 2020

Contact: Mary DeBeer, 518-812-8565

Young Farm Entrepreneur Applying NNYADP Biocontrol Research Results

Moir, NY. Agricultural entrepreneur Mary DeBeer is ready to expand the capacity of her biocontrol nematode-rearing laboratory on the family farm in Moira, NY. The expansion of the business DeBeer started in 2016 following research and training through the Northern New York Agricultural Development Program is based on the latest research results from the farmer-driven program.

A series of NNYADP projects conducted by Cornell University entomologist Elson Shields, Ph.D., developed the science and application protocol for using a combination of two native NY-adapted insect-attacking nematodes for management of significant pests in alfalfa, berries, and corn.

Field trials funded by the NNYADP in 2018-2019 and conducted by Cornell Cooperative Extension Field Crops Specialist Michael Hunter on six farms in northern New York successfully tested and demonstrated application of the biocontrol nematodes in liquid manure.

Applying through manure application protects the U/V-sensitive biocontrol nematodes, allowing for application at any time of day and as part of another field operation to save time and labor.

The application method to date for applying the biocontrol nematodes has been in a water-based spray in cooler evening hours. DeBeer has used water-based spraying to apply the biocontrol nematodes to more than 7,000 acres in Franklin, Clinton, and St. Lawrence counties.

“The continuing Northern New York Agricultural Development Program biocontrol research success has now created a new method for applying the biocontrol nematodes to help more farmers adopt this crop protection practice. I am looking forward to raising increasing numbers of the biocontrol nematodes for anyone who wishes to apply this biocontrol, through water-based spraying or by liquid manure application, to protect crops from alfalfa snout beetle and corn rootworm,” DeBeer said.

DeBeer Seed and Spraying, owned by her father, Ronald DeBeer, will continue to offer water-based application of the biocontrol nematodes and is looking to expand that service into other NNY counties.

DeBeer can be reached at 518-812-8565.

News from the Northern New York Agriculture Development Program

By Kara Dunn, Northern New York Agriculture Development Program

Press Release: April 15, 2020



NNYADP: New Way to Apply Biocontrol Nematodes



CCE Field Crops Specialist Michael Hunter loads biocontrol nematodes into liquid manure application field trial. Photo: CCE Jefferson County.

Northern NY. Farmers now have a new way to apply biocontrol nematodes to protect crops critical to dairy and livestock agriculture, thanks to research funded by the Northern New York Agricultural Development Program.

“Dairy farmers and crop growers have been interested in biocontrol nematodes since we proved their effectiveness at reducing populations of the alfalfa snout beetle, the most destructive pest of alfalfa, and now see potential to do likewise with corn rootworm, a significant threat to field corn production,” said Elson Shields, Ph.D., Cornell University, Ithaca, N.Y.

Shields pioneered the use of a combination of two native NY-adapted nematodes for pest management in field crops, berries, and other crops. The application of biocontrol nematodes is now being tested in multiple crops across the U.S.

In 2018 and 2019, Cornell Cooperative Extension Field Crops Specialist, Michael Hunter, developed a project to test application of the biocontrol nematodes via liquid manure. The current protocol applies the biocontrol nematodes in a water solution in the evening hours due to the nematodes’ sensitivity to U/V rays.

Hunter conducted field trials on six farms in Northern New York. He explains the hypothesis behind his trials.

“If biocontrol nematodes could be successfully established through liquid manure application that would accomplish significant benefits: combining two field operations into one to save time and labor, protecting the nematodes from damaging U/V light so application can be made at any time of day versus only evening hours, protecting crops using a biological means, and providing farmers with an additional method for application to encourage use of this biocontrol,” Hunter explained.

Soil sampling in 2018 confirmed establishment of the biocontrol nematodes applied in liquid manure in all trial fields on the six participating farms. In 2019, Hunter achieved successful establishment at a lower rate of nematodes per acre.

“The 2019 field data shows the lower rate of application is just as effective for establishing the biocontrol nematodes and lowers the cost to encourage farmers to adopt the use of this biocontrol,” Hunter said.

The complete “Evaluation of Alternative Application Methods of Biocontrol Nematodes in Alfalfa and Corn” report is posted at www.nnyagdev.org.

Funding for the Northern New York Agricultural Development Program is supported by the New York State Legislature and administered by the New York State Department of Agriculture and Markets. For more information, see www.nnyagdev.org.

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Potential Pitfalls of Growing Soybean after Soybean

By Mike Stanyard, CCE Northwest New York Dairy, Livestock, and Field Crops Team

I am getting quite a few questions about growing soybeans for a second year in a row. Most of this is due to the USDA forecast for a record U.S. corn planting in 2020 and \$3.00 corn at harvest. While second and third year soybean fields are planted every year, it is not a recommended practice. University research shows a range of yield loss from 0-10% for second year soybeans compared to a corn-soybean rotation. We know that weather plays a huge factor here and this potential loss can be even greater if the conditions are right. Those of you who have ever had a severe white mold infestation know what I am talking about!

If you intend to grow soybean after soybean, try to remember what issues you might have had last year. Think about nodulation, fertility, emergence, diseases, weed control, and insects. These problems could be amplified in year two if you do not make the appropriate adjustments. Here are some considerations to think about to protect your potential soybean yield.

A fungicide seed treatment will be crucial. We have seen the benefits of planting soybeans earlier if the conditions are right. However, wet weather at emergence means that damping off diseases such as Pythium, Fusarium, Rhizoctonia, and Phytophthora can be more prevalent and reduce plant populations. Make sure that you have chosen an appropriate variety with adequate resistance to these early diseases.

Are your phosphorus and potassium levels adequate? You may have already spread your potash this fall if you originally intended to plant corn. If not, you really should take a soil test to see how much you need to add. In a corn-soy rotation, we usually rely on soybeans to be able to scavenge leftover nutrients from the previous corn crop. Make sure there are no deficiencies!

Growers have not had to deal with soybean cyst nematode (SCN) as a pest in New York. However, last year I took a soil sample from five fields and two came back positive (Monroe and Wayne Counties), but at very low levels. Crop rotations help keep SCN numbers reduced. Two years of soybeans would provide an opportunity for SCN populations to increase.

Additional Note: Sixteen soybean fields in Jefferson, St. Lawrence, and Lewis Counties were sampled in 2019 and very low levels of SCN were detected in two fields in Jefferson County - Mike Hunter.

How was your weed control last year? Did you have any escapes of lambsquarters, ragweed, or even resistant tall waterhemp? All of those weed seeds will be waiting there and would have probably been controlled with your corn herbicide program. Make sure you have a pre-emergence residual herbicide program in place and be prepared to come back with an effective post program if necessary. Just a reminder, if you used Prefix, Warrant Ultra, Reflex, or Flexstar on your soybeans last year, you can't use them again this year. The maximum use rate for these products may be applied in ALTERNATE years for our region.

Soil borne diseases like white mold, brown stem rot and sudden death syndrome can cause significant yield reductions even in corn-soybean rotations. Make sure you have adequate resistances/tolerances in your seed variety. Lowering your planting population, widening rows, and utilizing foliar fungicides when needed can help reduce white mold infection.

Mike Staton, from Michigan State, has a more detailed article on changes to make to your weed and disease programs to maximize yields in a soybean following soybean rotation.

https://www.canr.msu.edu/news/recommendations_for_planting_soybeans_after_soybeans



Fusarium wilt in soybean. Photo credit: Mike Stanyard.

Determining if an Animal is Fit to Transport

By Lindsay Ferlito

Given the current COVID-19 crisis and the impact on dairy markets and demand, you may consider (or need to) get rid of some cows. Making the decision to cull and transport a cow off the farm is rarely an easy one, with both economics and emotions playing a large role. The decision needs to be based on what is best for both the farm and the cow, and the question should always be asked, is the animal fit to transport? According to the AABP (American Association of Bovine Practitioners), “fitness for transport refers to the animal’s ability to withstand transportation without compromising their welfare”. As part of the National Dairy FARM Program Version 4.0, each dairy farm needs a fitness for transport protocol and those involved in this decision need annual continuing education in this area. The objective of the fitness for transport protocol and training is “to ensure suitability for an animal to be culled and transported to market”.

As part of your protocol, you should be able to answer the following questions:

- How are employees trained to identify if animals are fit to transport?
- Who makes the final decision in which animals get culled?
- How are the animals transported off the farm?
- Do you record culling reasons and how?

Another major consideration when determining if an animal is fit to transport is whether she has been recently treated. To ensure proper antibiotic stewardship, the following additional questions should be answered:

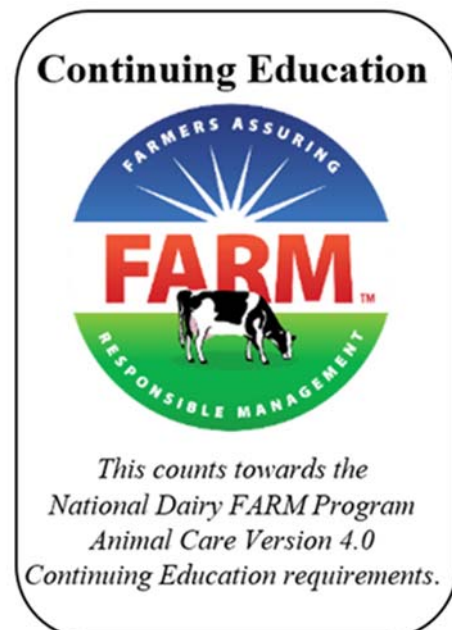
- Which employees are trained to ensure withdrawal times have been met (or exceeded) before an animal can leave the farm?
- Are treatments records written down, and where? Including treatment date, animal ID, dosage, route of administration, milk and meat withdrawal periods, who gave the drug, drug name, and the duration of treatment.
- How are animals that are currently in their withhold period identified to prevent an error?

A recent study out of Canada (published in the Journal of Dairy Science) found that ~30% of the cows sold at cattle markets had poor fitness for transport, which led to reduced animal welfare and lower market prices for those animals.

Further, a similar study found it could take an average of 82 ± 46 hours from when the cows left the farm until they were slaughtered (and this was without a crisis and unprecedented supply chain/processing disruptions). With this in mind, before any animal is transported, they should be rested, well-fed, and hydrated. Calves leaving the farm should all have received colostrum and milk (including bull calves), and water and starter (for calves ≥ 3 days old). Lactating cows should be milked just prior to transport to reduce discomfort. Further, never transport an animal that will be rejected by the pre-slaughter inspection at the processing plant. The AABP lists some conditions that would cause an animal to be rejected: an animal with cancer eye, a fever over 103F, drug residues, peritonitis, severe lameness or a fracture, unreduced prolapses, and a cow that is or has a high chance of calving on her way there.

If an animal must leave the farm and she is not fit to transport, euthanasia is the only option. On-farm euthanasia practices must adhere to AABP/AVMA guidelines, and should include consultation from your herd veterinarian, and follow your euthanasia protocol (as required by the National Dairy FARM Program) (look for an article on euthanasia in the coming months).

For more detailed information on fitness for transport recommendations, please visit the AABP site at: https://www.aabp.org/Resources/AABP_Guidelines/



Core Principals of Pre-Weaned Calf Care: Colostrum and Calories

By Casey Havekes

Addressing pre-weaned calf needs can be an overwhelming and daunting area for dairy producers. There are so many factors that contribute to the success of calf rearing programs, and if any one of those factors fall out of place the calf's future performance can be negatively impacted. Some of the most important components in calf rearing include: colostrum management, calories, bedding, air quality, vaccination, sanitation, behavior, water, and pain management. Over the course of the next several months I'll pick a couple of components to discuss in detail in each of these FARM Program 4.0 Pre-Weaned Calf Care Continuing Education articles. We'll kick the series off with colostrum management and calorie considerations.

It shouldn't come as a surprise that colostrum is always a hot topic when it comes to newborn calf care, and that's because it provides the building blocks for the calf to be successful. Despite decades of research, there is still much more that we can do as researchers, veterinarians, calf feeders/managers, and educators to improve colostrum protocols. It's been well documented that colostrum volume plays a role in future calf performance. For example, when fed 2L vs 4L of colostrum (~0.5 vs ~1.0 gallon), calves fed 4L (~1.0 gallon) had higher average daily gain, greater chances of survival through her 2nd lactation, and higher milk yield through her second lactation (Faber et al., 2005). A common response I receive when recommending 4L of colostrum is "the calf just doesn't want to drink it". While I'm not disputing that fact, I do believe there are solutions if that issue arises.

Firstly, recent research concludes that calves absorb the same level of immunoglobulins regardless of whether they were tube fed or bottle fed (Desjardins-Morrisette et al., 2018). If time and/or staff is a challenge on your farm, don't hesitate to tube feed the colostrum if that's how you can get it into the calf the fastest. Secondly, if you are able to manage colostrum well, you could alternatively feed two separate, smaller colostrum feedings within a 12-hour window. Research concluded that total serum protein levels did not differ between calves that were fed 4L all at once, or spread out over two 2L feedings (the first at birth, and the second 12 hours later; Jaster et al., 2005). If you do opt for the second strategy, please note that the research presented above used high quality colostrum for both feedings (not from the second milking). Additionally, the timing of colostrum delivery is crucial. Colostrum delivered within the

first hour of birth resulted in significantly higher levels of blood IgG compared to 6 hour and 12 hour delayed feeding (Fisher et al., 2018). Now, I recognize that cows tend to calve in the dead of the night and it's not always practical to get colostrum to the calf as soon as she hits the ground, but just something to keep in mind if you prefer to go about all your other morning chores before feeding the newborn calf.

Lastly, very recent research has demonstrated the benefit of feeding transition milk to calves. Transition milk (milk from the 2nd to 4th milking) has a lot of nutrients that are still extremely beneficial to the calf. If you have a system in place that allows for you to collect this transition milk, I highly recommend feeding it for the first three feedings following the initial colostrum feeding (or after the first 2 colostrum feedings if you use that strategy). If you don't have a system in place that allows for you to readily collect transition milk, an alternate strategy is to mix colostrum with milk or milk replacer to try to take advantage of some of these benefits. One of the benefits is greater intestinal development, which was reported in recent research where calves fed a mixture of colostrum and milk starting at 12 hours after birth had greater intestinal development compared to calves fed just milk or milk replacer (Pyo et al., 2020).

Calories. This is another area of importance that I can't stress enough – calves need calories for maintenance AND for growth! The calories that you provide will first go to maintenance and then any additional calories will go towards growth. Achieving average daily gains (ADG) of 900g (~2 lbs) should be a realistic goal on every farm, and the only way to achieve those gains is to provide sufficient energy and protein to the calf. Determining feeding amounts is dependent on how frequently you are able to feed calves, and what type of milk you are feeding. I often get asked "Is it better to feed whole



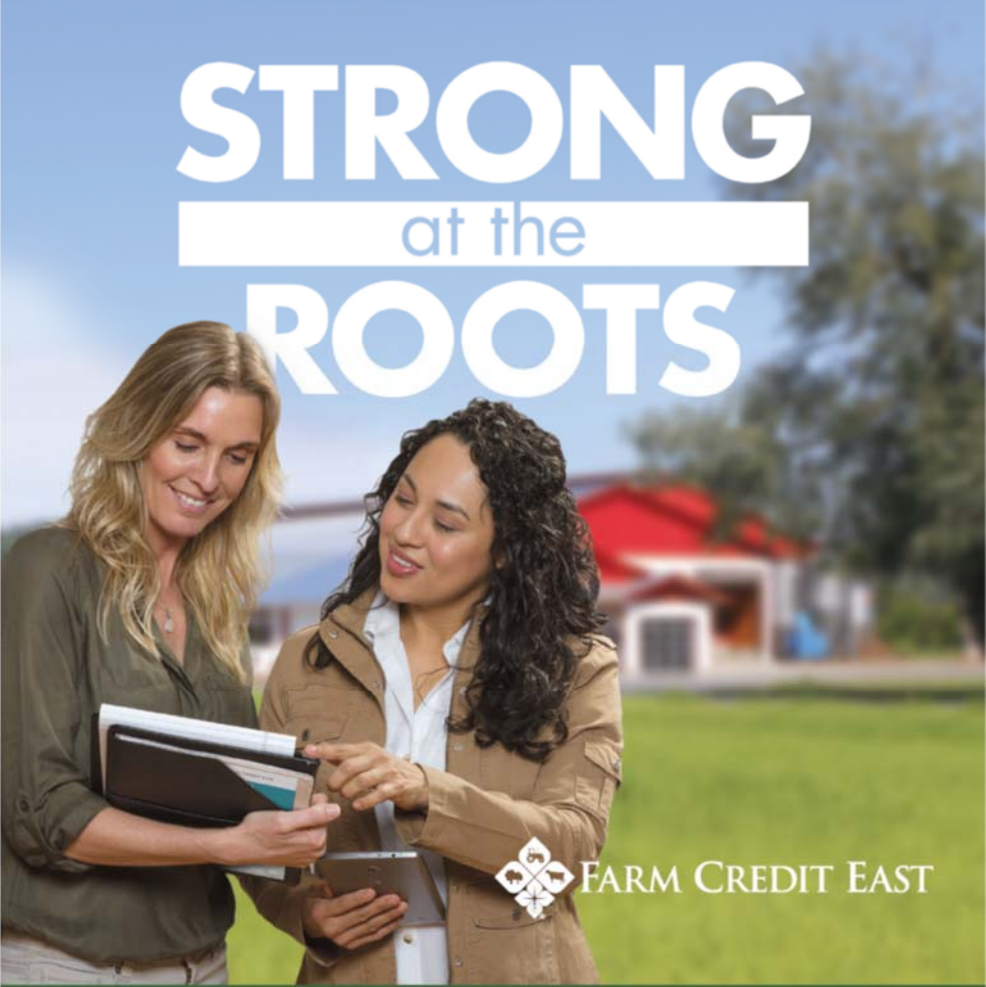
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milk or milk replacer?" I wish I had a straight forward answer, but the reality is there are so many components that weigh into this that there really isn't a definite winner in terms of which is better. However, I will say, milk replacer is much more consistent than whole milk and that should be considered if you are feeding whole milk. Day-to-day variation in fat and protein levels is inevitable which will impact the overall solids content. On the other hand, there are differences in milk replacer formulation between companies. I highly encourage you to take a good, hard look at the quality of the milk replacer you are purchasing (and not just the dollar sign associated with it). Different protein sources and different concentrations can have a profound impact on digestibility. I also recommend using a scale to measure milk replacer powder to promote consistency.


In regards to how much milk you should feed, it's not always safe to assume you can just feed what it says on the label. Feeding rates can differ depending on feeding frequency, meal size, and goals for growth. Please reach out to me, or your nutritionist, if you need help calculating feeding rates. It's also important to note that despite common belief, calves CAN handle larger meals. In the first few weeks of life, don't hesitate to feed up to 1 gallon per feeding. In their natural environment, calves would nurse more frequently throughout the day and consume smaller meals, but if you are only able to feed twice a day providing 4 L won't hurt them – trust me! Lots of research on calf feeding behavior has been done with automated milk feeding systems and, in some cases, older calves prefer to consume 5L per meal, with some calves even consuming up to 9L per meal!

Lastly, if you've read previous articles in this newsletter you've already seen my spiel on the importance of extra energy in the winter months, but if you haven't already, PLEASE increase energy supply to calves in the winter. Their maintenance requirements increase in cold weather, so very simply put, they need more energy or all the calories they consume will go towards keeping them warm rather than growing. There are so many other factors to consider when it comes to pre-weaned calf nutrition. Should you feed hay? Pelleted calf starter or mash?

When should you start weaning? How should you wean? These are all topics I'm happy to consult with you on if you have a need! The last thing I will add to this calorie topic is water. While water isn't providing calories to the calf per say, it is a VERY important component of your nutrition program. Water is now required for all calves starting at 3 d of age as per the new FARM 4.0 requirements. Not only should you provide water at this young age because it is now required, but water consumption will drive calves to consume solid feed which will positively impact your ADG and weaning age. Lastly, if you are feeding higher levels of milk replacer in the winter or if you are feeding a high plane of nutrition in general, calves will naturally want to drink more water so making sure they have access to it is very important.



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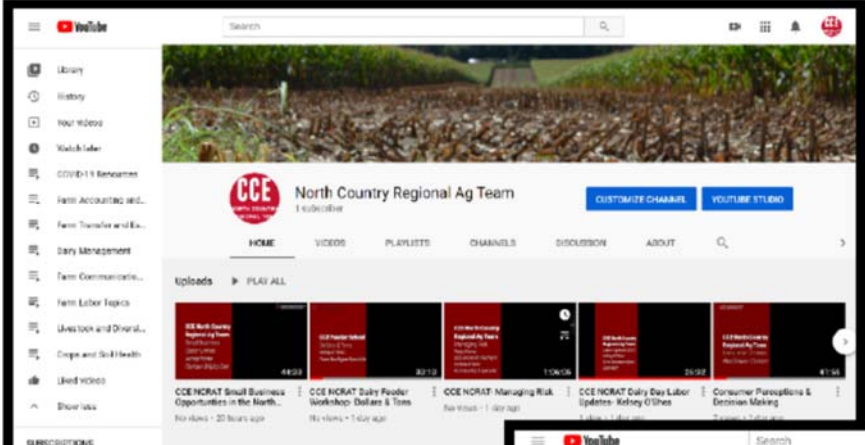
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Vitamin and Mineral Focus: Potassium


By Casey Havekes

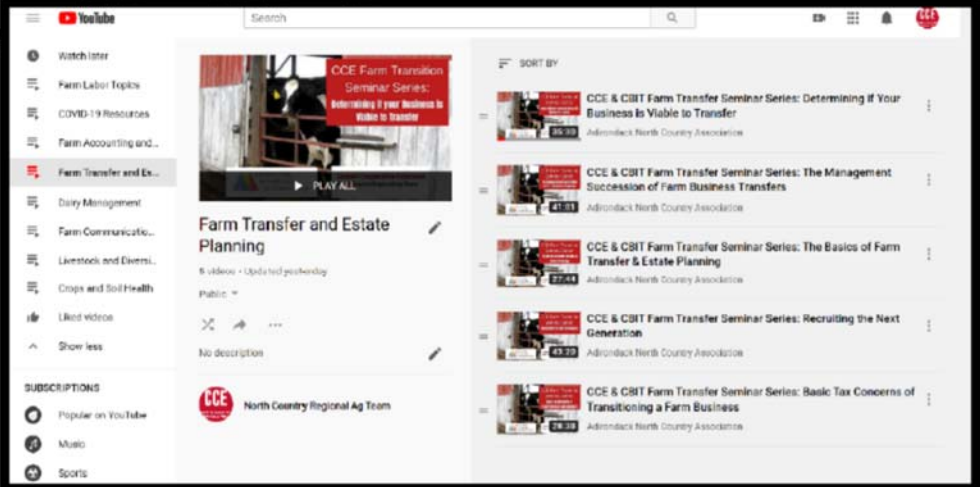
Potassium is the third most abundant mineral in the bovine body and has the highest requirement of all mineral element cations. Potassium is involved in a wide array of physiological processes including: osmotic pressure and acid-base regulation, water balance, nerve impulse transmission, muscle contraction, as an activator or co-factor in many enzymatic reactions, carbohydrate metabolism, and many more (NRC, 2001). One important thing to consider is that cows don't have large potassium stores, so potassium must come from the diet on a daily basis. According to the NRC, the requirement for potassium in the lactating diet is 1.2% (DM basis), but several researchers have recommended that early lactation cows should be receiving at minimum 1.7% (DM basis). This is because early lactation cows typically have lower intake, and because cows rely on intake to meet their potassium needs, they may run the risk of falling short if they aren't consuming sufficient amounts of feed. On the other hand, it is particularly important that potassium levels don't get too high in the dry cow diet. The role of potassium in the dry cow diet is most commonly discussed in terms of dietary cation anion difference (DCAD). The role of DCAD in dry cow diets is widely discussed and encompasses how sodium, potassium, chloride, and sulfur interact with one another and how metabolic alkalosis is affected based on varying levels of those cations and anions in the diet. Simply put, potassium is a positive cation that raises the DCAD level. Typically, we want DCAD levels to be positive for lactation diets (i.e. more positive cations are favorable), and we want DCAD levels to be negative for dry cow diets (i.e. fewer positive cations). It is widely accepted that high potassium dry cow diets increase the cow's risk of experiencing milk fever, and this is because of the role potassium plays with magnesium and calcium. As discussed in last month's issue, magnesium is involved in regulating parathyroid hormone function which is directly involved in calcium homeostasis. Potassium can interfere with magnesium absorption which ultimately results in impaired calcium homeostasis and increased milk fever incidence rates. One of the best things you can do to reduce the risk of milk fever is to feed low potassium dry cow diets so that magnesium absorption is not interfered with. If you are experiencing high milk fever rates it may be worth while to discuss potassium levels with your nutritionist.



Just search:

“North Country Regional Ag Team”





Considerations When **DUMPING MILK**

1. Plan Where to Dump

Understand the best way to dispose of milk on your farm whether it's dumping it down the drain, adding it to a digester, or applying it to fields with manure.



2. Follow All Regulations

Follow all regulations that apply including your nutrient management plan and CAFO guidelines as well as local and state "waste" laws.

3. Record It

Record and report dumped milk weights to the USDA to possibly be considered within your dairy risk management program.



farmdocDAILY



Department of Agricultural and Consumer Economics, University of Illinois Urbana-Champaign

Vendor Finance in the Northeast Dairy Industry

Chad Fiechter and Jennifer Ifft

Charles H. Dyson School of Applied Economics and Management
Cornell University

April 1, 2020

farmdoc daily (10): 60

Recommended citation format: Fiechter, C. and J. Ifft. "Vendor Finance in the Northeast Dairy Industry." *farmdoc daily* (10): 60, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, April 1, 2020.

Permalink: <https://farmdocdaily.illinois.edu/2020/04/vendor-finance-in-the-northeast-dairy-industry.html>

The previous articles in this series (*farmdoc daily*, [March 18, 2020](#); [March 25, 2020](#)) have highlighted the [current landscape](#) of nontraditional lenders in agricultural credit markets and provided estimates of the magnitude of credit held in the category. Nontraditional lenders serve a wide swath of agricultural borrowers; however, the volume of credit held in vendor financing and by collateral-based lenders is likely influenced by financial stress. Many of these nontraditional lenders are closely held private companies that are not subject to public financial disclosures, adding complexity to understanding their role. In this study, we present results of a novel survey of northeastern feed manufacturers that demonstrates how financial stress can be a key driver of vendor financing.

Trade Credit Background

One type of nontraditional finance is vendor financing, or trade credit, which is credit offered to customers by suppliers of inputs, equipment, and so on. Traditionally, it involves only the supplier offering credit terms and the customer who chooses to utilize the terms. Unlike the relatively new services, including background vendor financing provided by [John Deere Financial](#) and [Rabo AgriFinance](#), trade credit is a historic norm in the agricultural industry. We have assessed the use of trade credit in the Northeast dairy industry from 2014 to 2018 using both feed manufacturer data and farm survey data. This period coincides with the milk price boom of 2014 and the historically lengthy milk price depression of 2015–2018.

Feed Manufacturer Survey

We were assisted by a regional trade group, the [Northeast Agribusiness and Feed Alliance](#), in the design of our survey. They advised on the best way to collect the information while using common accounting practices within the feed manufacturing industry. We identified 29 feed manufacturing firms and contacted them via phone and email from March to November 2018. Twelve firms joined our survey and provided the following information:

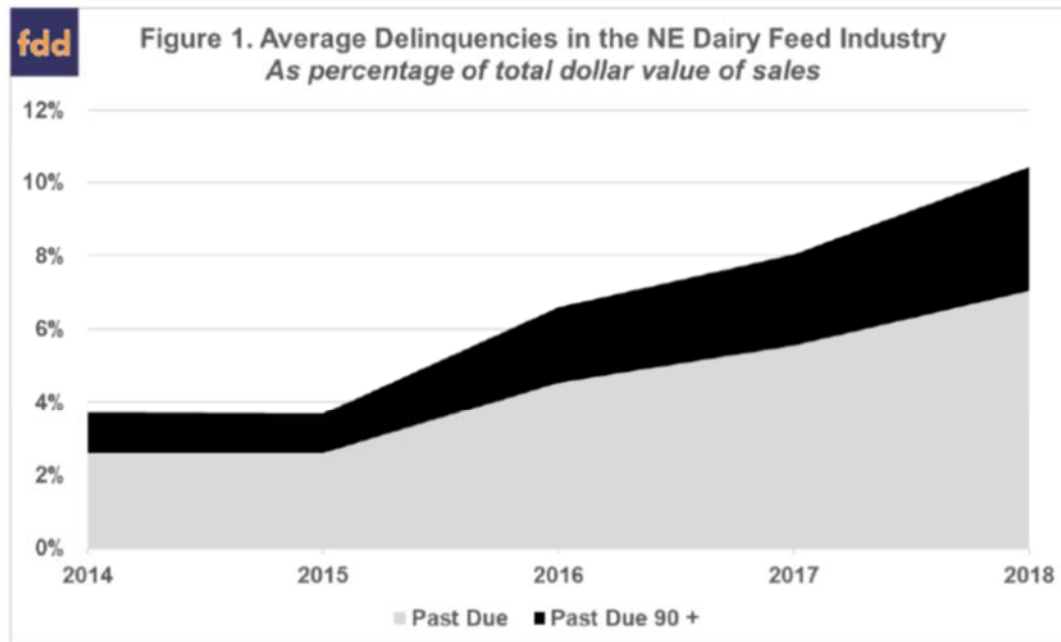
- Trade credit terms offered to customers
- Annual sales
- Annual tons of feed sold

Continued on Page 13...

- Sales past due
- Sales past due 90 days or more

The participating firms jointly represent more than 70 percent of the total annual sales volume of dairy feed grain and dairy feed concentrates in the Northeast.¹

Delinquency is the total volume of past due invoices, including those invoices that are considered uncollectable. Trade credit becomes “effective credit” when an invoice persists into delinquency and implies the farm has forgone the discount period and the feed industry has become a creditor with an uncertain time horizon. Figure 1 shows the magnitude of effective credit supplied by the feed industry to the dairy industry.



A back-of-the-envelope calculation suggests the overall magnitude of effective credit provided by the feed industry was nearly \$100 million in 2018.² We consider this a conservative estimate because some firms were not able to participate due to financial reorganization during the period and we cannot reflect firms that are no longer in business. To provide some context for the magnitude of \$100 million of effective credit, a [regional commercial bank](#) with a significant ag lending portfolio in New York maintained a balance of \$54 million of “loans to finance agricultural production and other loans to farmers” during 2018. The feed manufacturing industry is an important creditor to the Northeast dairy industry.

Farm-Level Analysis

We analyzed dairy farm survey data from New York to gain insight into the relationship between farm stress and the increasing balances of trade credit held by the feed industry. The Cornell Dairy Farm Business Summary (DFBS) is an annual farm-level survey of key financial and production metrics. We measure stress as the annual difference between the average All Milk³ price and the mean operating

¹ Defined as the volume of feed sales in US dollars reported in the 2017 USDA agricultural census for CT, MA, ME, NH, NJ, NY, RI and VT.

² Calculated as 10 percent of approximately \$940 million of feed sales from the 2017 USDA Agricultural Census in CT, MA, ME, NH, NJ, NY, RI and VT.

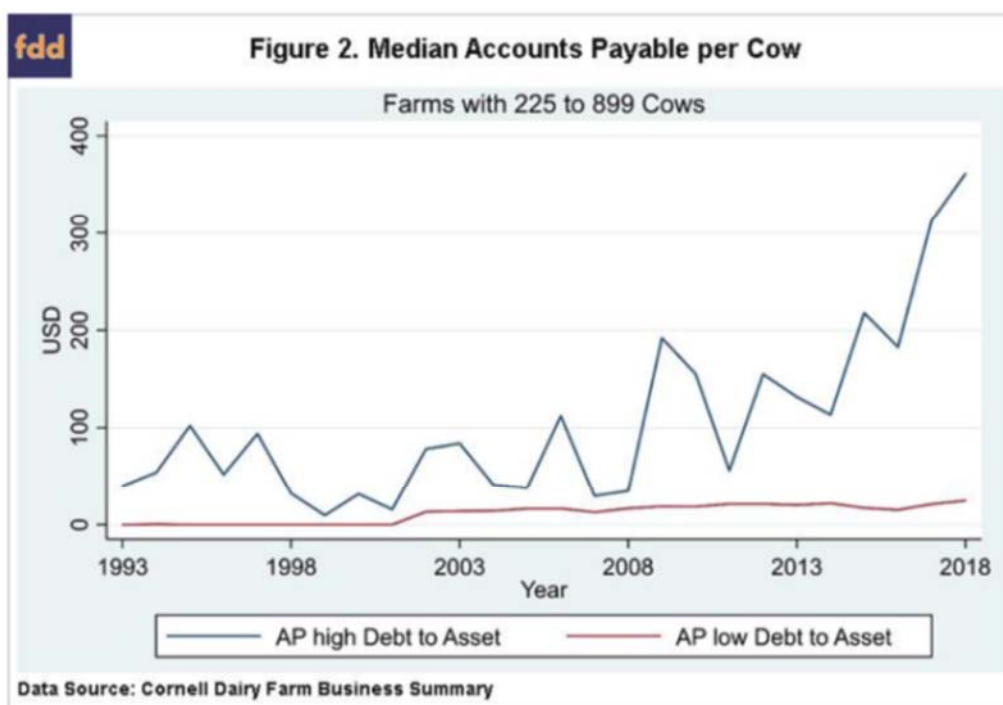
³ A calculated annual average of “All Milk” price reported by “Livestock, Dairy, and Poultry Outlook” Economic Research Service: U.S. Department of Agriculture (2014–2018).

expense per hundredweight calculated from the DFBS. The mean farm operating margin per hundredweight is detailed in Table 1 below.

Table 1. Cornell Dairy Farm Business Summary				
Mean Farm Operating Margin per Cwt.				
2014	2015	2016	2017	2018
\$ 3.06	\$ (2.30)	\$ (1.13)	\$ (0.19)	\$ (1.67)

Dairy farm stress is clearly related to the volume of trade credit being supplied by input suppliers. This is consistent with the historic literature showing that trade credit acts countercyclically to the business cycle for publicly traded companies Nilsen, (2002) and nonfarm small businesses Petersen and Rajan, (1997). We further look for evidence of farms that utilize trade credit at a disproportionate rate.

While we are unable to draw a direct link between supplier delinquencies and the dairy farm customer responsible, we can observe the use of the accounting category, accounts payable, within the DFBS to evaluate trade credit Meltzer, (1960). Maintaining a balance of current accounts payable can be expected and is optimal for strategic liquidity management; however, persistent large balances would reflect some level of delinquency. The DFBS does not delineate the portion of accounts payable, which is delinquent, therefore we make use of persistent balances to suggest delinquency. We find that more indebted¹ dairy farms maintain higher balances of accounts payable. Figure 2 below shows farms with 225 to 899 cows subdivided into two debt-to-asset ratio classes and the corresponding median balance of accounts payable. We find that more indebted farms are using accounts payable at a much higher rate, suggesting financial stress is a key driver of vendor finance in this context.



Conclusion

Northeastern dairy feed manufacturers are a meaningful creditor of the dairy industry during times of farm stress. Dairy farms utilizing this mode of credit have relatively higher debt-to-asset ratios, suggesting this

¹ Above 0.40 debt-to-asset ratio

credit may be riskier than previously thought. In contrast, Ifft, Kuethe, and Patrick, (2017) find no difference in financial indicators of financial stress associated with using implement dealer financing, albeit during a period of relatively low farm financial stress. Our analysis would not have been possible without substantial investment of time and resources into both the well-established [Cornell Dairy Farm Business Summary](#) and our survey of feed manufacturers. Creative use of existing information as well as novel data collection are necessary to assess the role nontraditional lenders are playing in the agricultural credit market and the riskiness of debt that cannot be observed by financial regulators and policymakers.

We welcome feedback and questions sent to jifft@cornell.edu. This research was supported in part by the USDA National Institute of Food and Agriculture, NC-1177 Multistate project, number 1016791. We are grateful for the collaboration of NEAFA and the Cornell DFBS team (Jason Karszes and Wayne Knoblauch).

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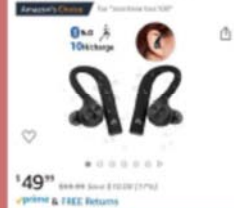
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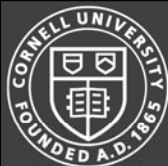
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HOW TO MANAGE COVID 19 RISK ON DAIRY FARMS

Step 1

Make a Plan



Outline steps for prevention & an emergency plan-what if your workforce is quarantined? What if an owner/manager becomes ill?

Step 2

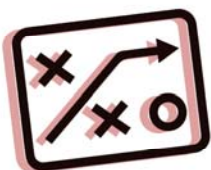
Communicate the Plan



Meet with employees to explain the plan & how updates will be communicated. (Keep meetings small in open areas)

Step 3

Implement Prevention Plan



- Clean common areas
- Promote hand washing
- Encourage all who feel ill not to come in
- Adjust work hours for more vulnerable employees
- Limit outside consultants from coming on farm
- Implement web meetings for non essential business
- Connect with partner businesses to clarify procedures & expectations for working together through this

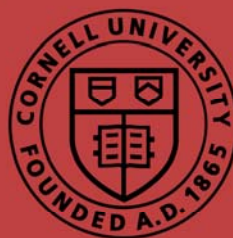


Step 4

Reevaluate as Needed



Check in with managers & employees regularly on status and changes.



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<https://smallfarms.cornell.edu/resources/farm-resilience/>

Food Production, Processing, and Safety Questions:

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Financial & Mental Health Resources for Farmers:

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Our Mission

"The North Country Regional Ag Team aims to improve the productivity and viability of agricultural industries, people and communities in Jefferson, Lewis, St. Lawrence, Franklin, Clinton, and Essex Counties by promoting productive, safe, economically and environmentally sustainable management practices and by providing assistance to industry, government, and other agencies in evaluating the impact of public policies affecting the industry."

CCE North Country Regional Ag Team
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Due to COVID-19 social distance restrictions, all in-person CCE programs have been postponed until further notice. Check out our CCE NCRAT Blog and YouTube channel for up to date information and content.

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