North Country Ag Advisor

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Butterville Farms LLC
Photo Credit: T. Langworthy

Cornell Cooperative Extension

North Country Regional Ag Team

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North Country Ag Advisor

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"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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YouTube: https://www.youtube.com/@CCE_NCRAT

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."

Seedcorn Maggot Control in 2023 and Beyond

By Kitty O'Neil

Neonicotinoid insecticides ("neonics") have been in the news for quite a few years now, gaining a bad reputation for their implication in pollinator declines. To farmers, they have been a cheap and important tool for effective pest control in crop production throughout NYS and the US, even leading to higher yields. Neonicotinoids were considered 'perfect' pesticides because they are cheap, quick, precise, and more effective at lower doses than many of the more toxic chemicals they replaced; however, they've recently been found to be transported off fields into water, soil, and non-target plant, animal, insect, and microbial species. Current research has revealed that many of those non-target species are adversely affected by neonics, including humans.

Figure 1. Blue and yellow sticky card traps were installed along field edges to catch and monitor seedcorn maggot adults in Spring 2022 as part of a large statewide Cornell research project. Photo credit: Jeff Miller, CCE Oneida Co.

The neonicotinoid category of pesticides includes corn and soybean seed treatments Poncho® (clothianidin), Cruiser® (thiamethoxam), and Gaucho® (imidacloprid), as well as other active ingredients nitenpyram, acetamiprid, imidaclothiz, thiacloprid, flonicamid, and dinotefuran. Neonics can also be labeled as foliar treatments for some insect infestations in agricultural crops. In the US, neonics are mostly used on soybean, corn, cotton, grape, and orchard crops. In 2011, researchers estimated that more than 70% of corn seed and 30% of soybean seed planted in the US was treated with neonics. Neonics work by affecting insect nervous systems, causing paralysis and death. These seed treatments are primarily used to control soil pests that predate upon seeds and seedlings, like wireworm and seedcorn maggot, causing early season crop loss. These seed treatments have been incredibly effective, causing some corn and soybean growers to forget about the need to control these pests at all, until planting untreated seed and bad luck results in losses of many acres, replanting decisions, and a delayed crop.

As of January 1, 2023, the New York State Department of Environmental Conservation (DEC) reclassified most of these neonic pesticides as "restricted use," meaning they must only be used by a certified private or commercial applicator possessing a valid NYS-issued license. This restriction does not currently affect corn seed neonic treatment availability or on-farm applications by a licensed applicator, but there is some worry that further restrictions could be coming that would limit these uses as well.

With this potential loss of neonic seed treatments in mind, research on seedcorn maggot control strategies has been underway at Cornell and across NYS for a couple of years. The seedcorn maggot adult fly looks a lot like an ordinary housefly but is about half the size. These adults emerge from overwintering pupa in the soil when temperatures begin to increase in April and early May. Seedcorn maggot flies mate within 2-3 days after emergence and they look for a spot to lay eggs. They are attracted to recently plowed soil, and look for germinating seeds and partially decayed organic matter in or on the soil to lay their eggs. Manured fields planted to corn or soybeans are ideal. Eggs hatch in soil as cool as 50 °F, the developing maggots feed on seeds and emerging cotyledons for 7-10 days, and then pupate in the soil nearby . The pupal stage lasts for about 10 days, depending on ambient temperature, and then a new generation of adult flies emerges. Here in NYS, the seedcorn maggot can have 3 to 5 generations per year, but it's that first larval generation that causes devastating damage to corn and soybean seeds, seedlings and fields. Damage to field crops is hit-or-miss and impossible to scout for, furthering the challenge. Patches of missing plants is the first sign of a problem.

Control of this pest during early spring is essential, so several research projects are aimed at assessing population dynamics, risk and developing effective alternative seed treatments. The first year of a comparison of different seed treatments, chlorantraniliprole, Spinosad, and imidacloprid all controlled seedcorn maggot equally well, though insect pressure was extremely light. That comparison will be continued in 2023 in several locations, including the Willsboro Farm. Laboratory comparisons of neonicotinoid, diamide, and Spinosad seed treatments show good control for all 3 treatments compared with the control. These experiments continue and results will be compared in real field settings before important conclusions are drawn.

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Seedcorn maggot risk and population assessments are underway as well. The Network for Environment and Weather Applications (NEWA), through a partnership with NYS Ag & Markets and NYS Integrated Pest Management, is testing a predictive model for seedcorn maggot on their website. Dan Olmstead, NYS IPM Digital Outreach Coordinator, cautions that this model, developed in the Midwest US, is less accurate for NYS growing conditions and 2022 seedcorn maggot population data is being used to improve its accuracy. That additional data is being generated by a network of traps, implemented across more than 80 NYS farms beginning in 2022 by Dr. Katja Poveda's lab at Cornell, working with local Cooperative Extension field crops staff. Traps were monitored weekly throughout the spring season, from before field prep to a few weeks after planting. Results from Northern NY traps are listed in Table 1 below. One key point is that ALL traps caught seedcorn maggot flies – this pest appears to be present everywhere. Also, the 2 traps with the highest weekly count in the statewide study were located in NNY.

Table 1. Weekly seedcorn maggot fly catch using blue and yellow sticky card traps during spring 2022 in 8 locations across NNY.

		Weekly counts		
County	Town	Low	High	Average
Franklin	Bombay	1	86	45
St. Lawrence	Depeyster	9	164	63
St. Lawrence	Lawrence	6	409	133
St. Lawrence	Lisbon	4	249	121
St. Lawrence	Massena	3	293	91
St. Lawrence	Pierrepont	4	63	25
St. Lawrence	Potsdam	61	473	211
St. Lawrence	Wadding-ton	6	94	52

These risk assessment projects continue during spring 2023. Watch for additional summaries and research findings as data is analyzed and published. More detailed description of seedcorn maggot fly population data is expected over the next few months.

VARROA MITE:
THE HISTORY, BIOLOGY & MANAGEMENT

Date: May 16, 2023   Time: 6:00pm-8:00pm

Location: Lewis County Educational Center
Cornell Cooperative Ext. of Lewis County
7395 East Road Lowville, NY 13367

Speaker: **Dr. David T. Peck, Ph.D (Virtually)**

He is the Director of Research and Education at Betterbee in Greenwich, NY, where he assists in product development and research. He also teaches classes and develops scientifically sound educational materials. His doctoral work at Cornell University's Department of Neurobiology and Behavior was supervised by Professor Tom Seeley.

Dr. Peck will be speaking virtually, and this workshop will be interactive. Beekeepers will be able to ask questions during this educational and informative meeting.

Please register by calling 315-376-5270 or email Mellissa Spence at mms427@cornell.edu

Register by Friday, May 12, 2023 before 4:00pm.

Cornell Cooperative Extension
Lewis County

Burndown Herbicide Options in No-till Soybeans

By Michael Hunter

Glyphosate-resistant and multiple-resistant (Group 9 and Group2) marestail is spreading across New York State and may already be on your farm. If you don't have it on your farm today the chances are you will at some point in the future. The presence of herbicide-resistant marestail in Northern NY is changing the way we manage weeds. We need to use burndown herbicide programs with more than one effective site of action to delay the development of resistant weeds and provide the best control. The use of glyphosate alone should no longer be considered a viable burndown herbicide program.

In no-till, strip-till, and very minimum till (i.e. one pass with a vertical tillage tool) situations, burndown herbicides will be necessary to control emerged weeds prior to planting. Marestail can be either a summer annual or winter annual. The winter annual marestail rosettes are present right now and as it warms 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.

Since 2020, we have conducted on-farm herbicide trials to evaluate thirteen different herbicide programs for marestail management in soybeans. The Northern New York Agricultural Development Program provided support for the trials in 2021 and 2022. Our research shows that metribuzin tank mixed with Sharpen provided the most consistent control of marestail, achieving over 90% control in each of the years. The full research report can be found here https://bit.ly/3zQUdUH.

Xtend, Enlist, and Liberty Link traited soybeans are the choices that allow for effective postemergence control of multiple resistant marestail. In Roundup Ready or conventional soybean fields we have no effective herbicides for the postemergent control of multiple-resistant marestail.

Burndown herbicide programs for no-till soybeans will include either glyphosate, glufosinate, or paraquat tank mixed with 2,4-D and/or Sharpen (saflufenacil). The addition of metribuzin to the burndown program will provide additional residual control of marestail.

If dandelions are also a problem in the field, 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, apply 1 oz/acre for no preplant restrictions (except for coarse soils with 2% or less organic matter where the preplant restriction is 30 days).

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)
- 2,4-D ester (1 pint) + Sharpen (1 oz) + 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)

Always read and follow label directions prior to using any herbicide. If you have any questions or would like more information regarding burndown herbicide programs for soybeans, contact Mike Hunter at 315-788-8450 or meh27@cornell.edu.

Photo credit: CCE NCRAT.

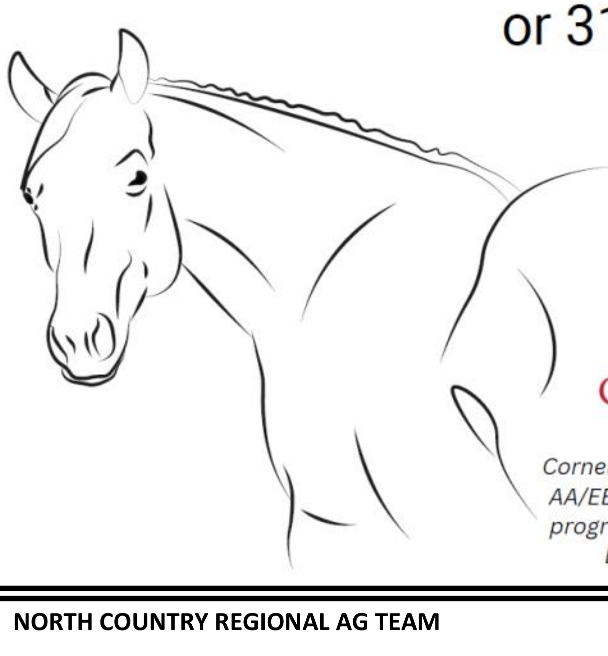
Equine First Aid 101

Saturday, May 6th
10-11:30AM
Maple Ridge Stables
17582 Ridge Road,
LaFargeville, NY 13656
***Open to ALL ages**

Registration cost: $5 at door

Join equine veterinarian, Dr. Kirsten Anderson for an equine first aid basics course. Learn basic care techniques to manage your horse's needs on your own, how to properly care for minor cuts or injuries, and when to call your vet. Register at: https://reg.cce.cornell.edu/EquineFirstAid_222

Questions? Contact Abbey Jantzi at aej48@cornell.edu or 315-788-8450



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Dairy

Considerations for Central Anaerobic Digestion of Manure from Multiple Dairy Farms

By Angela George, Jason Oliver, and Lauren Ray (Cornell PRO-DAIRY)

Cornell PRO-DAIRY
Dairy Environmental Systems
PD-2023-03-01

Anaerobic digestion (AD) of dairy manure to produce renewable natural gas (RNG) requires a large-scale to be economically viable. Centralized manure AD-to-RNG systems can enable dairy farms of all sizes to collectively participate, including those who may not have the capital or land resources to build and operate their own AD system. One possible arrangement is to feed a single AD system with manure from multiple farms and upgrade biogas to RNG at the AD site. There are several factors to consider when planning for a centralized AD system for multiple farms; many are discussed below.

New versus existing anaerobic digester

A centralized AD system requires specific attributes; the primary requirement being adequate digester volume for the planned farm participants. An existing digester will have been designed for a specific volume giving it a designed hydraulic retention time (HRT). Adding additional manure will increase the volume and lower the HRT. The existing AD system will need to be evaluated to be sure the desired digestion (biogas production) will occur, keeping in mind that 100 lactating cows (1,500 lbs. weight) produce at least 1,800 gallons of manure per day. The operation should have sufficient influent storage to take in deliveries of manure from the participating farms and store multiple days of manure deliveries in case the digester is offline for a period. The incoming manure will also need to be heated either within the digester or preheated in a balance tank. The digester heating system will need to be evaluated if utilizing an existing digester. If converting biogas to RNG, a combined heat and power (CHP) system may not be compatible, and a boiler system will need to be installed to provide heating.

Other important system requirements include suitable piping and biogas cleanup equipment to handle the volume of manure delivered and biogas produced. In addition, existing biogas upgrading equipment or sufficient space to construct a biogas upgrading skid, and a central location with easy accessibility for the participating parties is needed. If a new AD system is needed, it will commonly be financed and owned by the RNG developer that is selling the biogas. While this greatly minimizes the capital investment requirement for each farm, it also gives the RNG developer complete control and ownership of the AD system and carbon market benefits.

System siting

If a new AD system is needed, select a location central to the participating farms with enough space to construct the digester(s), associated biogas cleaning and upgrading skids, and manure and effluent storages. Confirming there can be an adequate electrical hookup at the site is critical. Siting the AD system away from large towns or cities is encouraged to maintain neighbor relations and positive public perception. The RNG developer should review local and state regulations to determine and meet permitting requirements.

The proximity of the nearest natural gas pipeline is also crucial when determining a site for a central AD-to-RNG system. Siting the AD system close to an existing natural gas pipeline is strongly preferred to reduce transportation of the RNG to the natural gas pipeline, which will increase costs and require additional permitting, especially if the piping needs to pass under roads or other public areas.

Farm and manure management

Each participating dairy farm's management practices will impact the AD performance and biogas production and should be considered when determining their suitability for the central AD project. RNG developers typically pay each dairy farm for the manure that they contribute to the digester

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on a volume and quality basis. Manure higher in volatile solids and with less inorganics such as sand is preferred and is likely to receive a higher payment from the RNG developer.

Participating farms should avoid using non-digestible bedding, or have adequate manure treatment (e.g., sand recovery), and keep their manure free of contaminants and foreign objects to maximize the value of their manure. In addition, the RNG developer will work with dairy farms using sand bedding but require advanced recovery systems as sand expedites wear and tear on the AD system and accumulates in the digester vessel, reducing the working capacity and resulting in the need for a costly cleanout. Farms utilizing pasture reduces the amount of manure available during the summer and will reduce the biogas production of the centralized system.

Biosecurity is an important consideration as potential pathogens, viruses, and parasites from the different participating dairy farms will be comingled in the manures. While the AD system can kill a large portion of these disease-causing agents, many can survive AD and remain infectious in the digestate. Some RNG developers require that any manure being combined in a centralized system be pasteurized before entering the AD to kill disease causing agents and minimize the chance of any pathogens being carried back to the farms. Pasteurization of the digested effluent (digestate) may also be considered as an alternate option. The centralized system may include a solid liquid separation option to be able to provide manure solids for bedding or export.

Trucking manure to the AD system and the digestate back to participating farms will have to be coordinated between the farms. Each farm may be responsible for organizing their own manure and digestate transportation, or one or more farms may have enough trucking capacity to truck manure for all the farms involved. Some developers will include trucking as part of their responsibility.

Effluent handling

Effluent handling is a key consideration due to the large volume and the importance of recycling the nutrients back to crop fields. A storage pit is necessary to store the digested effluent until the trucks delivering manure are emptied and able to truck the effluent back to the farms. Truck scales, metered trucks, or an alternate method should be used to ensure each farm is receiving the proper volume of effluent. Routine testing will need to be done to determine the nutrient content of the effluent and may be provided or paid for by the RNG developer.

Each farm will be responsible for storing the effluent once it is returned to the farm, likely in an existing long-term storage, and applying the effluent as needed to meet the needs of their respective comprehensive nutrient management plans.

Operations and management

A centralized manure AD-to-RNG system of this scale will likely require employees dedicated to the operations and management of the system. These employees would be responsible for preventive maintenance on the system, record keeping, and ensuring the AD-to-RNG system is always running at peak performance. Farms should also consider any additional labor that may be needed while participating in the central AD system, such as additional labor to haul manure and digested effluent.

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“Dairy Technology Tuesdays” Webinar Recording Links

By Lindsay Ferlito

Health Monitoring and Reproductive Management – Dr. Julio Giordano, Cornell University
https://youtu.be/ozflMEu205I

Technology for Housing and Managing Dairy Calves – Dr. Joao Costa, University of Kentucky
https://youtu.be/3aZtQowexIM

To Retrofit or Not to Retrofit – Timothy Terry, PRO-DAIRY, Cornell University
https://youtu.be/ogI0ETi0Z68

Utilizing Drones to Track Forage Inventory – Harrison Hobart, Alltech
https://youtu.be/sG-yRNV5vfI

Looking Ahead: Dairy Technologies of the Future – Dr. Jeffrey Bewley, Holstein USA
https://youtu.be/jf9tO2__H4E

From Robots to Low-Cost Parlors: How Do Ya Milk a Cow? – Dr. Larry Tranel, Iowa State University, and **Parlors, Rotaries, or Robots: What Technologies are for Me?** – Dr. Nancy Charlton, DeLaval
https://youtu.be/5-6FyLp_L-c

Integrated Barn Climate Systems – Mark Reynolds, ASAP Interiors
https://youtu.be/gMLQKmXCuF0

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PRO-DAIRY Education & Applied Research

Photo Credit: L. Ferlito.

Lameness and Economics Discussion Group Sparks On-Farm Change

By Lindsay Ferlito and Betsy Hicks (CCE South Central NY Dairy and Field Crops)

* Reprinted from Progressive Dairy (agproud.com), [April 3, 2023]
https://www.agproud.com/articles/57297-lameness-and-economics-discussion-group-sparks-on-farm-change

Lameness is a costly issue for dairy farms, with an average prevalence of 25% of dairy cows on US dairies experiencing lameness. Much of these costs are associated with milk loss and can add up to $200-$500 per case. In NY, we wanted to dig deeper into the economics of lameness by forming a discussion group looking at prevalence of lameness in addition to the costs associated with prevention and treatment. Dairy farmers we work with in Extension have repeatedly told us they like learning from their peers and enjoy hearing how other farms are working through different issues. This group utilized an initial on-farm lameness assessment, using a 3-point scale (1: sound, 2: mildly lame, 3: severely lame). Each of the nine participating farms also tracked three months of data related to lameness management and treatment, including treatment, labor, footbath, veterinary, and supply costs. Farm size ranged from 90 to 750 lactating cows from the North Country and Central NY regions. Each farm also received a second assessment at the end of the project, four months after the first. Farms were provided with an individual report on lameness prevalence and economic data in comparison to the other eight herds. A group meeting was held to go over data in detail and provided an opportunity for farmers to ask other members questions on farm practices.

The lameness data in this project were similar to previous studies in New York and across the US. For the initial assessment, the average overall lameness prevalence for the 9 farms was 21.8%, with 19.1% mild and 2.8% severe (Figure 1). Lameness prevalence on individual farms ranged from 15.1% to 28.0%, with severe ranging from 1.1% to 7.8%. Lameness during the reassessment averaged 22.4%, with 18.3% mild and 4.1% severe. Again, there was a wide range in lameness between farms, from 16.7% to 31.1% overall, and 1.8% to 10.7% severe. Overall, lameness increased slightly during the reassessment due to an increase in severe cases, but a few individual farms showed improvements during the course of the study.

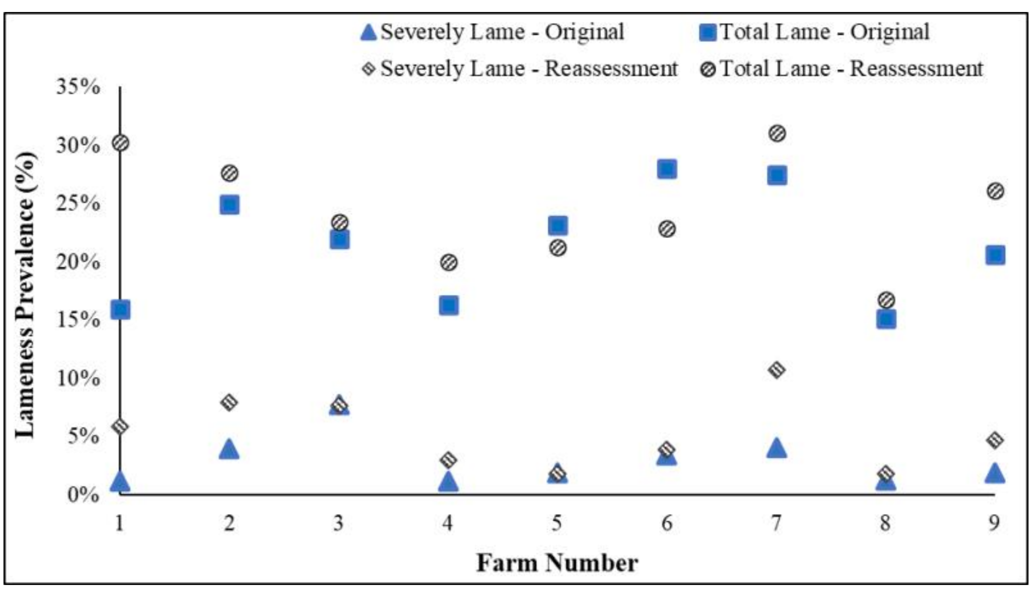

Figure 1. *Severe and total lameness prevalence (%) for the 9 farms for the original assessment (blue solid markers) and reassessment (dashed black makers).*

Economic data was broken down into per month costs, on both a per milking cow basis as well as a per hundredweight (cwt) basis. Our nine-herd benchmark averaged $6.30 per cow/month total lameness cost, and $0.27/cwt, ranging from $2.13 to $7.74 per cow/month and $0.11 to $0.32/cwt per month. Interestingly, six of the nine herds showed a monthly cost of $0.30 - $0.32/cwt, even with a large range of lameness on farm. The means in how this value was achieved, however, differed greatly. Some farms utilized in-house trimming versus hiring a trimmer making their hired costs look extremely low, but in the end, costs on a per hundredweight basis remained very similar to farms who hired trimming. Table 1 shows a breakdown of these costs by In-House Labor Costs (identifying lame cows, sorting cows for trimming, trimming in-house, running foot baths), In-House Supply Costs (footbath supplies, medicine, trimming supplies), and Hired Costs (hired trimmer).

When asked what they found most valuable about the project, participating farms said the locomotion scoring and having their cows scored multiple times to show where they are actually at. Additionally, they liked the economic comparison, the discussion between other farmers, and being able to compare to other farms and their lameness scores as well as associated facility and management factors.

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The data and discussion helped spark some change on farm, particularly with footbath protocols and management. Some farms mentioned they switched to a whole new product or just tweaked their existing schedule (when and how often) or the concentration and amount used. A few farms made other changes to management and facilities to improve lameness and cow comfort. One farm started more aggressively culling severely lame cows, reduced stall stocking density, and put in new rubber flooring in some areas. While improvements in lameness can take months to become apparent, this farm said they are already "pleasantly surprised" after focusing on addressing lameness and they feel it is working. Further changes include a farm installing new rubber in a drover lane and the holding area, and another addressing fly pressure to reduce summertime bunching and increase lying time.

Given the short time frame of the project, some farms had not yet implemented changes, but they indicated they were planning to. For example, one farm wanted to increase alley scraping frequency from 2/d to 3/d, make the stalls larger to increase use and reduce perching, and consider a new footbath product. Another farm wanted to focus on bedding to improve cow comfort, and another wanted to switch to a different footbath product and resurface some old laneways.

To address the issue of seasonality possibly impacting the reassessment data to a degree, some farms also asked for follow-up assessments to continue to monitor lameness prevalence throughout the year.

It is important to consider a few factors about this study. We utilized a small sample size, only nine farms, as well as only two assessments four months apart, with the second assessment occurring in early fall. Even though our lameness benchmark reassessment data was worse on average, it should be noted that the seasonality of lameness can be a real influence. In addition, our dataset was limited to three months of information, and we did not gather any milk loss or losses related to culling. Lameness is indeed a costly issue for dairies, and this study was intended to capture information on factors the dairy pays great attention to – footbaths, trimming, and supplies.

Utilizing a discussion group format is an effective way to gather information on a specific topic to elicit dialogue around a costly issue like lameness. Data compiled not only gives information on lameness prevalence but also on economic factors that are related to lameness; members in the discussion group were able to use these numbers to share ideas and offer suggestions for others to implement. The exciting thing with this study is that there was not just one strategy employed by every farm; each farm in the group utilized a different approach to managing lameness and often had a different focus. Some had adequate labor and wanted to keep trimming in-house to keep hired costs down. Others focused on improving lameness through preventative means such as improving flooring and adding rubber. With data in hand, conversations during a group meeting are effective at eliciting change – farmers love to hear real stories from other farmers.

	Lameness Prevalence		Total Lameness Cost (per month)		In-House Labor Costs (per month)		In-House Supply Costs (per month)		Hired Costs (per month)	
Farm	**Total lame (%)**	**Severely lame (%)**	**Cost/lact cow**	**Cost/cwt**	**Cost/lact cow**	**Cost/cwt**	**Cost/lact cow**	**Cost/cwt**	**Cost/lact cow**	**Cost/cwt**
Benchmark	***22.4%***	***4.1%***	***$6.30***	***$0.27***	***$0.82***	***$0.04***	***$2.51***	***$0.11***	***$2.97***	***$0.13***
Farm 1	30.2%	5.8%	$7.74	$0.32	$1.33	$0.06	$2.87	$0.12	$3.53	$0.15
Farm 2	27.6%	7.9%	$7.70	$0.31	$0.48	$0.02	$4.83	$0.19	$2.40	$0.10
Farm 3	23.4%	7.7%	$6.07	$0.30	$2.04	$0.10	$1.95	$0.10	$2.09	$0.10
Farm 4	20.0%	2.9%	$6.88	$0.31	$0.49	$0.02	$3.87	$0.17	$2.52	$0.11
Farm 5	21.2%	1.8%	$7.10	$0.32	$1.00	$0.04	$2.11	$0.09	$3.99	$0.18
Farm 6	22.9%	3.9%	$7.71	$0.31	$0.51	$0.02	$2.94	$0.12	$4.26	$0.17
Farm 7	31.1%	10.7%	$2.13	$0.11	$0.19	$0.01	$0.44	$0.02	$1.50	$0.08
Farm 8	16.7%	1.8%	$6.51	$0.26	$0.42	$0.02	$1.98	$0.08	$4.11	$0.16
Farm 9	26.1%	4.7%	$4.89	$0.23	$0.95	$0.04	$1.59	$0.07	$2.35	$0.11

Table 1. *Summary of the lameness prevalence from the reassessment, total monthly costs associated with lameness, in-house labor (time to identify cows, sort cows, trim in-house), in-house supplies (footbath, drugs), and hired costs (trimmer) for the 9 farms.*

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Watertown, New York 13601

What's Happening in the Ag Community

Check out the CCE NCRAT Website, Blog, and YouTube channel for up-to-date information and content.
Varroa Mite: The History, Biology, and Management, see page 5 for more information.
Equine First AID 101, see page 7 for more information.