

Cornell Cooperative Extension North Country Regional Ag Team

2020 Annual Report







"We are All in This Together"

Cornell Cooperative Extension

North Country Regional Ag Team

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."

Website: http://ncrat.cce.cornell.edu/

Facebook: https://www.facebook.com/ NorthCountryRegionalAgTeam/

Blog: https://blogs.cornell.edu/ northcountryregionalagteam

YouTube: https://www.youtube.com/ channel/UCxb3fv12XdCA3GjuDsfkM3Q

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2020 in Review

2020 has probably surpassed all previous years for challenges and curveballs thrown at North Country farms and agribusinesses, yet our CCE Regional Ag Team continues our mission - to improve the productivity and viability of agricultural industries, people, and communities in Jefferson, Lewis, St. Lawrence, Franklin, Clinton, and Essex Counties. Despite the curveballs and challenges, our farms need to seize every advantage to adapt to changing markets, to become more efficient, and to keep costs down and productivity up. Our daily work is providing technical support for productive, safe, economically, and environmentally sustainable ag management practices, and we assist industry, government, and agribusinesses to do the same. Our team of Ag Specialists works closely with county Extension associations and ag professionals, with Cornell faculty, and with Extension Specialists all across NYS to



From L to R: Kitty O'Neil, Kelsey O'Shea, Mike Hunter, Tatum Langworthy, Lindsay Ferlito, and Casey Havekes.

provide accurate and relevant education, research, and consultation on the important current issues for NNY farms. This year, we adapted to "NYS on PAUSE" and "NY FORWARD" mandates, beginning in March, as we simultaneously worked to help large and small farms of all types to do the same. We developed extensive programming and outreach plans in response to each state and federal mandate and as opportunities to access markets and loans were announced. We continued to help farms and agribusinesses optimize business decisions, advised dairy farms on strategies to enhance animal management and accommodate new regulations, responded to field crop drought and pest problems, and even had our research results shared with broad audiences, but often with new remote communication methods and while also addressing responses to COVID.

Adapting to remote and distanced working methods during "NYS on PAUSE" was seamless for us. The team met this new challenge by first relying on electronic communications in new ways.

- We made creating a team YouTube page and blog a top priority. Our new NCRAT YouTube channel was
 initially populated with videos from recent educational programs, and then by generating new relevant
 content. By September 30, the CCE North Country Regional Ag Team channel listed 35 edited and titled
 original videos and podcasts that had been viewed over 1500 times. Our video titled "How to Access CCE
 NY Forward Business Safety Plan Resources" has been viewed almost 400 times.
- By April 1, our NCRAT blog was fully implemented, linked to the 6-county email list, and hosted 15 posts on a range of topics. By September 30, 85 posts have been published and the subscriber list stands at close to 1200 readers. Email announcements are sent weekly to all subscribers, summarizing the week's blog activity.

With these new electronic communication methods in place, the team turned to improving its reach among the portions of its ag constituency that do not use electronic communications, beginning with the many Amish and Mennonite communities across NNY. In early June, a multi-pronged strategy was implemented to connect with and identify leaders and central communicators in each community to share NYS Business Safety templates and to connect them with mask, sanitizer, and food distributions led by county CCE offices.

Though COVID-19 precautions hastened each of the communication efforts listed, they have brought a new robustness to the team's regional impact that will persist going forward. Please read about some of our accomplishments and impacts over the past year inside this report and contact any of our Specialists for more information on our program.



Transition to Digital Creates Easier Access for a Growingly Diverse Farmer Base

When COVID-19 first hit in early March, the prevailing school of thought was that the changes would be temporary or short lived. However, by May/June it became clear that the changes were going to be more permanent than previously anticipated. With this in mind, the CCE North Country Regional Team took the time to strategize on how to get more resources into the hands of farmers in both the short and long term. One way of doing this was taking a bulk stock of existing media including recordings of programs, talks, and shorter educational videos, cleaning them up, and hosting them on a centralized easy to search platform. It was decided that YouTube was the home for these resources as farmers could access them from any device at any time without downloading an additional application or software.

The Regional Team came together to edit previous programs, as well as record and edit every new program that was offered over the summer months in order to ultimately compile a library of over 35 original videos or talks that are just a click away for farmers in the region whenever it is convenient for them to watch the information. The subject areas are divided into playlists, so if a farmers so chooses, they can just start a playlist while working in the tractor or on another area of the farm and it will continue to play through the list of resources. These areas include: Dairy Management, Farm Business and Accounting, Crops and Soil Health, FARM/Safety, COVID-19 Topics, as well as other playlists from collaborators such as Harvest NY, PRO-DAIRY, and other CCE Regional Teams. This model of making programs available in perpetuity after their original delivery not only allows us to reach a higher number of farmers in the region, but also accommodates those farmers and employees on farms that do not have as much schedule freedom to leave the farm for an inperson program.

Since May 1, 2020, the educational resources on the NCRAT YouTube channel have been viewed 1,100 times with a total hours watched of 69.9 and 44 subscribers gained. The thumbnails or links/previews of the YouTube video resources have been seen by 9,000 individuals over that time; that is almost 8 times the number of individuals on our newsletter list. The two most popular resource videos were on the topics of "NY Forward Safety Plans" and "Feed Efficiency" with those two original videos alone racking up over 500 unique views. The primary way people are reaching these videos are from "external links" with the most popular external sources being "cornell.edu pages", Facebook posts, LinkedIn posts, and Google searches.

Looking ahead, the team recognizes the power that this platform has to increase reach and spread of important information related to agriculture production, management, and regulations. However, they also recognize the need to create value for farmers and others to attend programs (digitally) live. This is why the goal moving forward is to have programs made available on YouTube 1-2 months after the actual date of the program, to provide some incentive to tune in live and interact with speakers and peers, but also not deprive any farmers of the much needed information during these times. Although COVID-19 has disrupted farmers and those who serve agriculture, it has simultaneously provided the much needed push to develop organized and centralized online resources to increase the accessibility and reach of the hard work that the CCE Regional



Teams put in to provide programing. This is especially helpful in a large, spread out region such as the North Country, where it can be challenging to host multiple sites or to travel to certain locations.



Helping Producers Navigate Critical Calf Health and Management Issues

Many producers have expressed that they experience challenges with preweaned calf care and management. Colostrum management, cleanliness of calving area, plane of nutrition, and ventilation, to name a few, are some of the areas that play a critical role in the calf's successful rearing. In some lucky circumstances where producers are faced with calf challenges it can be simple to identify the problem and relatively simple to implement a solution. However, in most cases, there are a variety of factors contributing to poor performance of preweaned calves and because they are such a finicky group, it can be difficult, frustrating, and time consuming to identify the problem and find a solution. This was the case for one Northern New York dairy producer who approached the CCE NCRAT Regional Dairy Specialists in September of 2019 looking to troubleshoot a serious calf health issue.

For the weeks following the initial conversation, the Dairy Specialists worked very closely with the farm owner to identify potential causes of the issue. The Dairy Specialists were on the farm once a week for several months in attempt to identify any trends in the sick calves, and to identify any potential issues in the feeding regime. Due to the severity of the issue, the Dairy Specialists reached out to Dr. Rob Lynch on the PRO-DAIRY team for further guidance. Dr. Lynch has many years of experience as a veterinarian and is a trusted resource for the Dairy Specialists. In December 2019, Dr. Lynch, Rodrigo Molano Torres (a PhD student studying calf nutrition), and the team spent several hours at the farm measuring passive transfer levels, reviewing protocols, and discussing strategies to improve



Photo credit: C. Havekes.

calf health. Following the meeting in December, the farm carried out many of the changes that were discussed and recommended by Dr. Lynch, Rodrigo, and the Dairy Specialists. Despite making these changes, unfortunately the severity of the issue persisted. Dr. Lynch returned to the farm in early February 2020, and again virtually via Zoom in April 2020.

After several months of discussions, testing, and consultations, the calf health issue has successfully been resolved. The team of Dairy Specialists, Dr. Lynch, and Rodrigo identified colostrum management resulting in poor passive transfer and the calf housing facility as major contributing sources to the calf health issue. The Dairy Specialists are still working closely with the farm and check in periodically to ensure calves are still doing well. In fact, this herd has signed up to participate in an intensive calf management discussion group where they can continue to improve their calf rearing program. In early September of this year, the Dairy Specialists followed up with the farm and were pleased to see many positive changes being made. For example, the farm implemented a new colostrum warming system to ensure that frozen colostrum was being thawed correctly. Additionally, the farm has sent in fecal and colostrum samples through a separate research project led by the NCRAT Dairy Specialists. The results from these samples will be used to assess the current management strategies and troubleshoot any issues as needed.

In response to these efforts the farmer has said the following: "With the help of Casey, Lindsay, and Dr. Lynch we were able to pinpoint our major areas for improvement and work with them to fix our problems. They were very diligent and stuck with us through our struggles. With their help, our calf health problems have been resolved yet they still continue to check in and help us as needed!" This situation is a great representation of the collaboration that exists between the NCRAT Dairy Specialists and PRO-DAIRY. Through combining ideas and experiences, this Extension Team was able to provide the farm with concrete, scientific-based recommendations that positively impacted this farm's calf rearing success.



Dairy Programming Successfully Offered Digitally

Despite the new stressors of COVID-19 challenges and regulations, in addition to the existing high demands of field and farm work, North Country dairy farmers continue to reach out to the CCE NCRAT Specialists for dairy management resources and programming opportunities. At a time when in-person meetings have all but been eliminated, the NCRAT Dairy Specialists were creative in coming up with multiple ways to continue offering dairy programming across the region, but now in a digital format.

Over the last 6 months, the Dairy Specialists have created 15 videos housed on the NCRAT YouTube channel. These videos include recordings from past in-person program presentations and webinars, in addition to new content featuring interviews with researchers and industry experts on hot topics ranging from feed efficiency to calf care and reproduction. One important benefit of this type of programming is that these videos will continue to be available online for producers to access whenever and however often they would like to revisit the content. In a sense, the reach with this type of programming can be even greater than a one-off in person program. For instance, one of the more popular interviews has been viewed over 200 times in just 4 months.

Additionally, the Dairy Specialists have teamed up with other Regional Specialists across the state and PRO-DAIRY to generate two unique podcast series. The first one, titled "Dialing into Your Best Dairy", has 8 episodes on optimizing management from birth through lactation in order to reach a herd's genetic potential. Combined, the episodes have been listened to almost 2000 times, with the most popular being viewed over 460 times. The second series was a timely 4-part podcast on "Corn Silage Harvest Considerations". This podcast featured expert advice on corn silage harvest and the first episode focused specifically on additional considerations given this year's drought challenges. In under one month, episodes in this series have also been listened to hundreds of times. The statewide group and PRO-DAIRY are currently working on another podcast series that will focus on troubleshooting common on-farm herd health challenge areas, and the NCRAT Specialists are looking forward to launching this podcast later in Fall 2020.

Adapting to these new circumstances through creativity and collaboration highlights the strength of the North Country Dairy Specialists to increase the value of educational resources available to North Country dairy farmers. The Regional Dairy Specialists are excited to continue offering North Country dairy producers with a wide selection of valuable learning opportunities including more podcasts and webinars, and interactive virtual programs throughout the upcoming Fall and Winter programming season.





Transition Cow Diet Recommendation Leads to On-farm Success

The transition period (the 3 weeks before and 3 weeks after calving) is one of the most challenging times for dairy cows, and therefore one topic area that regularly generates questions from producers. In Fall 2019, one of the CCE NCRAT Regional Dairy Specialists was approached by a farm with the concern of high milk fever incidence rates. When the Dairy Specialist followed up with more detailed questions, she also learned that the farmer wasn't happy with fresh cow performance.

Given the Dairy Specialist's nutrition background, the first thing that she evaluated was the current dry cow diet. She quickly identified that dry cows were over consuming energy relative to their requirements as demonstrated by over conditioned dry cows. It has been well documented in research that over conditioned

dry cows are more susceptible to developing metabolic disease (including milk fever) post-calving, so she recommended making a change to the dry cow ration and suggested implementing a "controlled energy" dry cow diet. This type of diet contains a large amount of straw (which has very low nutritive value) in an attempt to reduce the energy density so that cows can consume as much feed as they would like without running the risk of overconsuming energy. In this particular situation, the farm did not have a straw supply but rather an abundant supply of finely chopped hay. Hay can work well in these diets, provided the potassium levels aren't too high. Through several follow up discussions the Dairy Specialist recommended that the farmer reach out to his nutritionist to get the hay tested for nutrient content. Following this, the farmer worked with his nutritionist to get a diet formulated specific for the dry cows which mainly included dry hay, some corn silage, and dry cow mineral.

Since implementing this new dry cow diet, several cows have calved and the milk fever issue has gone away. When the Dairy Specialist followed up with the farm to discuss cow



Photo credit: C. Havekes.

performance following the diet change the farmer responded: "with the new dry cow diet, cows are maintaining good body condition. There have been no metabolic issues following freshening. The biggest thing I've noticed following the diet change is the improved transition – cows take off on the lactating ration right away, which is an improvement from what they were doing before. I've also noticed udder swelling is decreased following the diet change!"

The transition period is a very vulnerable time for the dairy cow and success can be impacted by nutrition, management, and cow comfort factors. This is a good example of how the Regional Dairy Specialists are working with producers across the North Country one-on-one to improve performance on their herd.



NY Forward Safety Plan Resources - A Collaboration with Ag Workforce Development and CCE Regional Teams

After re-opening from the COVID-19 Pause, it was made clear that farms (even those that were deemed essential and had not closed) would have to complete the Reopening Safety Plan laid out by NYS. While it was recognized this was for everyone's safety, this requirement came at a difficult time for farmers right in the thick of spring planting and first hay crop harvest. This is when Cornell Ag Workforce Development and various members from CCE Regional teams that focus on employees or food/public safety came together to quickly and judiciously create resources that would be helpful to farmers in completing their plans. The NCRAT Farm Business Management Specialist was asked to be a part of this team. The group focused on first creating examples and considerations for each industry area, with Dairy, Greenhouses, Fruit Tree/Vegetable, Other Crops/ Livestock, and Vineyards all being identified as industries to be addressed. However, upon working through the plans and the guidance, it was clear that there was so much overlap that one consolidated commercial agriculture document should be used as the situations addressed were concerning employees that all had at least somewhat similar experiences on farms. This is when the larger group consolidated down to a team of 5-6 individuals who focused on combining all of the industry guidance documents into two primary resources: Examples and Considerations for Commercial Agricultural Businesses and for Retail Agricultural Businesses that should be added onto a farm's primary plan should they interact with the public directly.

This group transferred the Safety Plan Templates into easy to use fillable PDF and Word documents, while also making the Examples and Considerations Resource documents to follow the format of the template. This made it easy for farmers to get access to example protocols, signage, and various linked resources as they completed the plan section by section. The group recognized though, that while having these resources available was the first step, the next step was education and dissemination of this information. As a participant on this important workgroup, the NCRAT Farm Business Management Specialist volunteered to present and help organize a series of webinars that addressed the new rules, as well as how to use the resources and industry specific considerations. The group first decided to host an in-service webinar for those in the Cornell system so that educators could help further spread the work on the new rules and resources. This webinar had 72 attendees who can now further engage with farmers, and help promote the industry specific webinar series. Each industry used the resources created and had the following attendances during their respective live webinars: Dairy/Livestock/Crop = 150 participants; Fruit/Vegetable = 253 participants; Retail = 99; Greenhouse/Landscaping/Ornamental = 49; and Equine = 60. This means that over 600 farm businesses were directly engaged with the live webinars and the recordings of these webinars already have over 100 views.

Finally, the Farm Business Management Specialist also focused on creating a promotional video that explains the basic requirements and resources, as well as CCE's commitment to helping farms through these difficult times. This video was used on various social media platforms and has been viewed over 100 times. The group recognized that farmers sometimes struggle with utilizing this type of technology, so the Specialist put together an instructional video for how to use Box (sharing drive), how to download and save PDF and Word documents, and how to use the hyperlinks included in the CCE resources. That video has been viewed at least 380 times. The NCRAT Specialist is now following up by creating a fully printable binder for the Plain Community that will be distributed to the churches in the six North Country counties so hard copies can be made as needed of safety plans, signage, or other resources.

This project highlights the strong relationship the NCRAT Farm Business Management Specialist has with other Specialists and groups across the state, and how this work has a large impact on helping farmers meet new guidelines and regulations while keeping their businesses operational in both the North Country and across NY.
<u>Resources Developed</u>: https://agworkforce.cals.cornell.edu/ny-forward-business-safety-plan/
<u>Instructional Video</u>: https://www.youtube.com/watch?v=V2PH3wCgdhc

Promotional Video: https://www.facebook.com/watch/?v=286286982511746



Farm Business Management Office Hours: Providing Farms with the One-on-One Attention They Need Most Right Now

This will be the second full year that the CCE NCRAT Farm Business Management Specialist has instituted and maintained regular office hours in each of the six counties across Northern New York. In January through March alone, she met with 15 individual farms businesses across the six counties. These included mature businesses she has met with before, existing businesses looking for new assistance, and three new farm businesses es. The premise of office hours is a time and/or space that farmers can come and get their business questions answered without having to have an appointment. Most farms in the January through March time frame are looking for assistance and guidance in making sure their financial records from the previous year are accurate and complete, to then begin the budgeting and planning process for the next year. These meetings usually involve taking it one step further by setting a new management or performance goal that will be evaluated and monitored throughout the year.

In working with existing businesses, the Farm Business Management Specialist met with seven businesses that she has worked with now over the course of two years. The primary topics over the last 12 months were labor management and overall evaluation of profitability. With those businesses, there are usually at least two meetings to cover the desired topic, if not more on-going meetings. The unique part of working with these businesses for the second year, was the ability to compare those farms' data against the previous year's data which is one of the most useful ways to continue to improve. For those farm industries that there is a readily available benchmark, the Farm Business Management Specialist also employs that as a tool to evaluate overall performance. The farm businesses worked with in the first part of 2020 range across four primary industries or products and also range from very small to relatively large farm operations.

One growing industry met with this spring were those newer farm businesses that are selling retail products with the marketing angle of 'farm to table'. With those businesses, the focus was primarily on diversified outlets for products in addition to strong marketing campaigns or plans. This includes evaluating more diversified outlets for sales given the lack of farmers markets due to COVID-19. Another primary focus with these younger businesses is ensuring that their record keeping systems are thorough and correct from the very beginning giving them a huge advantage when scaling and evaluating their business after the first year of operation.

Towards the middle of March, with the onset of COVID-19 and mandatory social distancing, office hours moved to a digital format. Although there were concerns that this would decrease attendance or participation, it has had the opposite effect. With the NCRAT Farm Business Management Specialist able to serve a higher number or farms in one day with reduced travel time, more farms reached out to make specific appointments using Zoom or other technologies. It is helpful and crucial at times like this to touch as many farm businesses one-on-one to assist them. In addition, from the original meetings during office hours, four to five farms are now meeting weekly with the Specialist to keep on track during these uncertain times and to continue to brainstorm new ideas. Although there are many uncertain times ahead, the CCE North Country Regional Ag Team will continue to offer altered versions of offices hours throughout the rest of the year using technology to make sure businesses can get the one-on-one attention they need.



Cutting Edge Research Leads to New, Farmer-Friendly Application Method of Biocontrol Nematodes

Research funded by the Northern New York Agricultural Development Program has shown that biological control with entomopathogenic (insect-attacking) nematodes (EPN) is effective in reducing snout beetle populations to sub-economic levels in alfalfa fields where the native NY-adapted nematodes have been established. Ongoing research in Northern New York and New York State has indicated these same biocontrol nematodes have the potential to control corn rootworm, a significant pest of field corn in NY.

The current recommended application method of biocontrol nematodes is to rinse the biocontrol nematodes with high volumes of water through fine mesh screens into a holding tank. The biocontrol nematode solution is then placed into a field sprayer equipped with streamer nozzles or drop tubes and applied using high volumes of water per acre. This is a vast improvement over earlier-tested application methods, yet it is still a very time-consuming process. This water-based application technique has been utilized to inoculate 25,000 acres in NNY to date.

In response to farmers asking for a simpler and more farmer-friendly method to apply biocontrol nematodes to their fields, one of the CCE NCRAT Regional Crop Specialists established a replicated, small plot field trial on a farm in Jefferson County using liquid manure as the "carrier" of biocontrol nematodes in 2016. Soil samples were taken several weeks after the manure/nematode treatments to determine if biocontrol nematode establishment was successful. While the establishment results were not as good as with a water/nematode application, this initial trial certainly showed that application via liquid manure may be a viable method of biocontrol nematode application.



CCE NCRAT Field Crops Specialist loads biocontrol nematodes into manure tanker for field application. Photo credit: Elson Shields, Cornell University.

In 2018 and 2019, the NCRAT Crop Specialist expanded on the earlier small plot research trying to determine if large scale field applications of biocontrol nematodes applied with liquid manure was a viable option. Research conducted on 12 farms in NNY proved that biocontrol nematodes can be effectively applied to fields via liquid manure as the carrier and delivery method using EPN rates similar to the currently recommended application rates.

The success of this multi-year research project provides farmers with a simpler, more cost-effective method of applying biocontrol nematodes. It will foster greater adoption of this integrated pest management approach that will ultimately protect crops from certain insect pests of economic importance.



Soil Health Testing Research Yields New Sampling Guidance

In collaboration with CCE County Association staff and Soil and Water Conservation District offices, the North Country Regional Ag Team recently completed an important soil health research project. Soil health is a concern for farmers and has been an area of focus for CCE research and outreach efforts across NYS. Farmers and crop consultants recognize that properly functioning soil is critical for long term farm viability and have begun making management changes to both improve and protect it. Farms have started using reduced- and no-till methods for planting and incorporating cover crops to protect soil between main crops. After implementing these sorts of changes, many farms want to evaluate their impact. They often wonder: what is the overall effect of these management changes on soil health? Slow and steady improvement is expected, but which practices are making the largest or quickest impact?



Sampling a St. Lawrence County field in October 2018 with Jevonnah Foster, St. Lawrence County Soil and Water Conservation District office. Photo credit: K. O'Neil.



A 2018-2019 research project, funded by the Northern New York Ag Development Program and finalized in early 2020, is helping farms answer these questions. The project made use of the Cornell Soil Health Assessment to assist farmers with monitoring soil health improvements on their farms. The Cornell Soil Health assessment is a very useful tool for assessing soil health and monitoring its improvement. This assessment is an integrated set of chemical, physical, and biological measurements and interpretations available to farmers of any scale for monitoring soil health. The project focused on the sampling procedures needed for reliable commercial farm-scale results. Appropriate sampling protocols for farm-scale fields must permit detection of small and slow changes in soil health parameters over a few years, despite potential for large variability of some of these indicators within each field. To have confidence comparing soil heath test results on a field before and after a few years of management changes, this variability within a field must be overcome with

Sampling a Jefferson County field in May 2018. Photo credit: K. O'Neil.

sufficient subsampling to detect a small change. To figure out how variable NNY farm fields are, 9 fields were intensively sampled across 5 NNY counties. Fields ranged in size from 6 to 80 acres, and were sampled 6 to 36 times. A total of 171 samples were submitted to the Cornell Soil Health Lab for analysis.

As hypothesized, the results showed tremendous variation within and among fields. Each component of the soil health analytical package had its own variable nature with some components being relatively consistent across a field, while others varied tremendously. Subsample numbers required for a farm to be able to detect a subtle 10% change in an average field for each parameter ranged from just 9 to more than 1200. Based on these results, it is now recommended that small- and medium-sized fields be subsampled at least once per acre while larger fields should be subsampled up to 40-50 locations per field. This recommendation will be shared by the CCE NCRAT Crop Specialists with farms, crop consultants, and Soil and Water District offices going forward. Using this approach, farms will be able to feel confident that any differences measured between soil health analyses on their fields over time are most likely to reflect real changes rather than inherent sampling variation.



North Country Research Projects Provide Roadmaps to Progress

Cornell research has a long and strong history of helping further agricultural production and sustainability across NYS and beyond. The North Country Regional Ag Team has continued this important tradition by partnering with Cornell faculty and staff, with local government and non-governmental agencies, and agribusinesses to bring applied and timely research results to North Country farms. Recent NCRAT research topics have ranged from soil health and field crop pests, to dairy replacements and transition cow nutrition, and even to a survey of labor practices on NNY dairy farms.



Soybean plots to test herbicide efficacy in Jefferson County in 2020. Photo credit: M. Hunter.

Our recent field crops and soils projects have contributed to important understandings. The Crop Specialists monitor Western Bean Cutworm (WBC) moth trap counts across the North Country each summer. In the North Country, populations of this harmful corn pest are much higher and more problematic than for the rest of NYS. This year, several seasons of the WBC trap data contributed to a prediction model of WBC flight completion by the Network for Environment and Weather Applications and NYS Integrated Pest Management. The Crop Specialists also monitor 43 traps for 7 other insect pests that threaten NNY corn and soybean crops across 6 counties. A 2020 trial, funded by the Northern New York Agriculture Development Program, brought spring and winter malting barley variety comparisons to NNY for the first time. The trial was a collaborative effort between the NCRAT Crops Specialists, Willsboro Research Farm, and Dr. Mark Sorrells (Cornell plant breeder), and will yield useful results to any farm wishing to enter the young malting barley market in NYS. Additionally, Glyphosate-resistant horseweed (or marestail) popped up as a new problem on several farms in NNY in 2019. In response, an on-farm herbicide trial was designed, funded, and conducted in 2020 to seek additional information on the control of resistant horseweed and other important annual weeds in soybeans. Seven additional on-farm herbicide trials in NNY in 2020 focused on corn and soybean weed management and interactions between herbicides and cover crop establishment.

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The NCRAT Dairy Specialists have been busy generating applicable on-farm data from several projects designed to further dairy animal health, welfare and productivity. A collaborative project with the CCE South Central NY Dairy Team collected data to develop a benchmark of cow comfort and lying behavior on 22 tie-stall dairies in NY. Each farm was provided with feedback on their herd, facilities, and management practices relative to this benchmark to inform future management and facility changes to improve cow comfort. After receiving an on-farm evaluation and individual farm report showing their data and how they compare to the benchmark, several farms made changes to their facilities or management including utilizing more bedding, adding more sprinklers to reduce heat stress, or retrofitting stalls to make them larger and increase cow comfort. The approach to data collection and benchmarking, to identify subsequent routes to improvement on individual farms, is also being applied to calf and transition cow management in a second project – a collaboration with CCE SCNY and NWNY Team Dairy Specialists. A large effort was also focused on a forage variability project being led by Professor Kristan Reed. This project aimed to capture variability from load-to-load and field-to-field during harvest and feed-out on dairy farms—a perennial challenge for nutritionists on dairies of all sizes. One of the farms involved in this project was a large NNY dairy, and one of the Dairy

Specialists was in charge of facilitating data collection for this particular farm. Additional dairy research projects have focused on calf health and management. Calf health and weight gain data and diarrhea pathogen samples are currently being collected on several NNY farms, in addition to colostrum management evaluations. Outcomes of this work will promote successful rearing of dairy replacement heifers. Finally, through another research project, the Dairy Specialists focused on Salmonella Dublin given it's potential to significantly negatively impact the North Country dairy industry. The project enrolled 27 dairy herds across the North Country and tested the bulk tank four times, over a six month period. This project was successful as it raised awareness locally with dairy farmers about a challenging and potentially economically devastating disease, it strengthened the relationship with individual farmers, and brought value to specific farmers that received follow-up assistance.

CCE NCRAT research findings are communicated broadly, via written articles and in-person presentations at meetings within NNY, across the state, and sometimes across the country. Written articles are published in the North Country Regional Ag Team's "Ag Advisor" newsletter and have been picked up by local and regional



CCE NCRAT Dairy Specialist attaching a lying behavior transponder to a cow's leg. Photo credit: A. Bond.

newspapers, and industry publications. The NCRAT Specialists also present findings at national scientific professional meetings, and as part of industry webinars. The collaborations with other CCE Regional Teams, the W.H. Miner Agricultural Research Institute, and with other agencies and ag professionals across the region are critical to the NCRAT team's success. The team would like to recognize the funding agencies for making this work possible – Northern New York Agriculture Development Program, New York Farm Viability Institute, Northeast Sustainable Agriculture Research and Education, the New York Corn and Soybean Growers Association, and others.



Building Strong and Vibrant New York Communities

Cornell Cooperative Extension provides equal program and employment opportunities. NYS College of Agriculture and Life Sciences, NYS College of Human Ecology, and NYS College of Veterinary Medicine at Cornell University, Cooperative Extension associates, county governing bodies, and U.S.D.A. cooperating.