



North Country Ag Advisor

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Cornell Cooperative Extension
North Country Regional Ag Team

CCE North Country Regional Ag Team

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North Country Ag Advisor

Published by the CCE North Country
Regional Ag Team

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."

Table Of Contents

<i>Herbicide Resistant Weed Management Strategies</i>	3
<i>New Climate Adaptation Fellowship Available to NYS Dairy Farmers – Applications are Being Accepted Now</i>	6
<i>Social Housing for Calves is Worth Considering</i>	8
<i>Upcoming Events and Programs</i>	Back cover

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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

Herbicide Resistant Weed Management Strategies

By Michael Hunter

** This article was previously published in the PRO-DAIRY The Manager, Progressive Dairy, March 2023 ([Herbicide-resistant weed management strategies \(cornell.edu\)](https://www.pro-dairy.com/articles/herbicide-resistant-weed-management-strategies)).*

According to the International Survey of Herbicide Resistant Weeds, as of January 10, 2023, there were 515 unique cases (site of action x species) of herbicide resistant weeds globally. This organization also has reported that weeds have evolved resistance to 21 of the 31 known herbicide sites of action and 165 different herbicides.

One or more herbicide resistant weed species can be found in every state in the Northeast and are present in major crop production areas across the country. Herbicide resistant weeds are not new. In 1977, a population of triazine resistant common lambsquarter found in a New York corn field was the first confirmed herbicide resistant weed in the Northeast. The list of herbicide resistant weed cases throughout the Northeast continues to grow. Populations of horseweed (maretail) with resistance to both glyphosate and acetolactate synthase (ALS) herbicides are rapidly expanding. Herbicide resistant Palmer amaranth and tall waterhemp are found in the Northeast with reported cases of populations resistant to glyphosate, atrazine, and ALS herbicides.

This situation has prompted refinements to control recommendations for these multiple resistant annual broadleaf weeds in field corn, soybeans, and wheat. Triazine, glyphosate and ALS herbicides have played, and will continue to play, an important role in field corn weed control programs; however, effective control programs for these resistant strains will involve the use of crop rotation and cultivation along with herbicide rotation and/or use of herbicide combinations that include herbicides with different sites of action (SOA). The SOA is the location in the plant where the herbicide acts or has its effect on the plant. These practices will also delay development of weed populations resistant to these and other herbicide groups.

The first line of defense for herbicide resistant weed management is knowing what weeds are present - proper identification and frequent monitoring of weed populations for early detection of any potential resistant weeds present. If resistant weed populations are identified early, it provides

growers an opportunity to contain and minimize the spread to additional acres across the farm operation.

Start clean, stay clean, and control emerged weeds prior to planting the crop. This can be achieved by using either tillage or a preplant burndown herbicide. This will reduce the risk of not controlling the weeds after the crop has emerged. Once the crop has emerged, many of our effective preplant burndown herbicides are no longer an option to use. Utilizing practices that maintain weed free fields, such as the use of soil residual herbicides or inter-row crop cultivation, reduces the chances for additional weed seed production.

Minimizing herbicide selection pressure on the weed populations is an effective strategy to delay the development of resistance. Rotating herbicides with different sites of action and the use of tank mixes or sequential applications that involve herbicides with different sites of action are key elements in herbicide resistance management plans. Emphasis should be placed on using herbicides with different sites of action in the tank mix. For this strategy to work, there must be products with at least two different sites of action that are effective on the targeted weed.

To do this most effectively, everyone involved in decisions about weed management must have site of action classification for the herbicides readily available. The Weed Science Society of America (WSSA) has approved a numbering system to classify herbicides by their site of action (*Mallory-Smith, C.A. and Retzinger, E.J. 2003. Revised classification of herbicides by site of action for weed resistance management strategies. Weed Technol. 17:605-619*). In this system, a group number is given to all herbicides with the same site of action. [It has been said many times before that there is an app for just about everything. This is true about an app used to look up the specific SOA\(s\) for herbicides. Take Action has a very handy herbicide lookup tool app that can be downloaded on Android and Apple mobile devices or tablets. It can be found at <https://iwilltakeaction.com/app>.](https://iwilltakeaction.com/app)

Crop rotation can be another effective herbicide resistant weed management tool. Planting different crops allows for the rotation of herbicides with different sites of action, reducing

Continued on Page 4...

the weed's exposure to the same chemistry in consecutive years. Diversity of crops in the rotation that have different planting dates, uses, and harvest schedules can disrupt the weed life cycle and competitiveness. For example, perennial forages crops such as [alfalfa](#) and grasses suppress many of the annual weeds. Multiple harvests of these forage crops during the growing season prevents many of these annual weeds from producing any seeds. Planting a winter cereal crop or other fall planted cover crop has proven to be an effective strategy to suppress the growth of horseweed. It works best if the crop is planted early enough to provide the necessary biomass to suppress the emerging horseweed.

Prevention is the most overlooked weed management strategy. The easiest way to control weeds is to not let them get established on your farm or in your field. Cleaning equipment to prevent the spread of weed seeds is an important weed control strategy. When harvesting a field with patches of resistant weeds, try to begin in the cleanest area of the field before harvesting the areas where the resistant weeds are present. If there are fields on the farm without resistant weeds, harvest those first and save the most infested fields for last.

Purchasing used farm equipment from other states or areas with known herbicide resistant weeds such as tall waterhemp and Palmer amaranth has been a documented way to import new weeds to the farm. To demonstrate how weed seeds can be moved via combines, Cornell Cooperative Extension North Country Regional Ag Team Field Crop Specialists worked with a grower that had recently purchased a used combine from Illinois. It has been previously documented that combines can contain approximately 150 pounds of biomaterial (chaff, grain, weed seed). Prior to its use on the farm, they did a

thorough cleaning of the combine that the grower had purchased from out of state. After cleaning the combine, the biomaterial was screened multiple times and weed seeds were sorted out individually by hand. Approximately 97 percent of the weed seeds collected from the combine were tall waterhemp, a weed currently not found on this grower's farm.

Using diverse weed management techniques to prevent or slow the spread of herbicide resistant weeds is extremely important. Once herbicide resistant weeds become established on a farm it requires changes in management practices and weed control costs will be increased.

References:

2023 Cornell Guide to Integrated Field Crop Management. Online. Accessed Wednesday, January 11, 2023. <https://cropandpestguides.cce.cornell.edu/Guidelines/2023/FieldCrops/>

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Wallace, J. 2020. Cover Crops: An Effective Herbicide Resistance Management Tool. Online. Accessed Tuesday, January 10, 2023. <https://extension.psu.edu/cover-crops-an-effective-herbicide-resistance-management-tool>



Photo credit: M. Hunter.

New York Labor Roadshow VII: December 2023

Offered by New York's Ag Workforce Development Council

New York's Ag Workforce Development Council (AWDC) is please to announce Labor Roadshow VII, offered in four regional locations, including one online option on December 19!

NORTHERN NY | December 13:

Gathering Barn, Old McDonald's Farm
14369 County Rd 145, Sacket's Harbor

EASTERN NY | December 15:

Greenwich Elks Lodge
130 Bulson Rd., Greenwich

CENTRAL NY | December 19:

116 Jordan Hall, Cornell Agritech

**There is a virtual option for this day only – [see on the registration page](#).*

630 W North St., Geneva

WESTERN NY | December 20:

T-102, Conable Technology Building
Genesee Community College
One College Road, Batavia



Labor continues to be the primary challenge for many farm businesses and this event aims to tackle those challenges head-on with these topics:

- Experienced labor attorneys to address managing in a union environment, complying with equal employment laws, and managing regulatory audits.
- How the new NYS Marijuana Law affects the workplace.
- State and federal employment law compliance.
- Overtime: the new 2024 NYS tax reimbursements for overtime, payroll systems, and compliance.
- Farm Safety and OSHA compliance.
- Workforce development: finding your future staff.
- Updating your payroll system to stay in compliance.

Featuring:

- Attorney Joshua Viau, Fisher Phillips Law Firm
- Nick Donofrio, New York Regional Office US Department of Labor / OSHA
- Farm HR Managers Panel
- NYS Department of Ag and Markets
- NYS Department of Taxation

Ag Workforce Development Council member organizations include: Agri-Mark, Allenwaite Farms, Amos Zittel & Sons, Inc., Blue Hill Farm, Breezyhill Dairy, Cargill, Cayuga Marketing, Cornell University, CCE, DFA, EZ Acres, EL-VI Farms, Farm Credit East, Hemdale Farms and Greenhouses, Lamb Farms, Legislative Commission on Rural Resources, NEDPA, NY Animal Ag Coalition, NY Farm Bureau, NYS Horticultural Society, NYSVGA, NY Wine Growers, NY Wine Policy Institute, Reeves Farm, NYSVGA, Stauffer Farms, SUNY Morrisville, and Upstate Niagara.

[Register for Labor Roadshow VII now.](#)

Questions? Email cu-agworkforce@cornell.edu

New Climate Adaptation Fellowship Available to NYS Dairy Farmers – Applications are Being Accepted Now

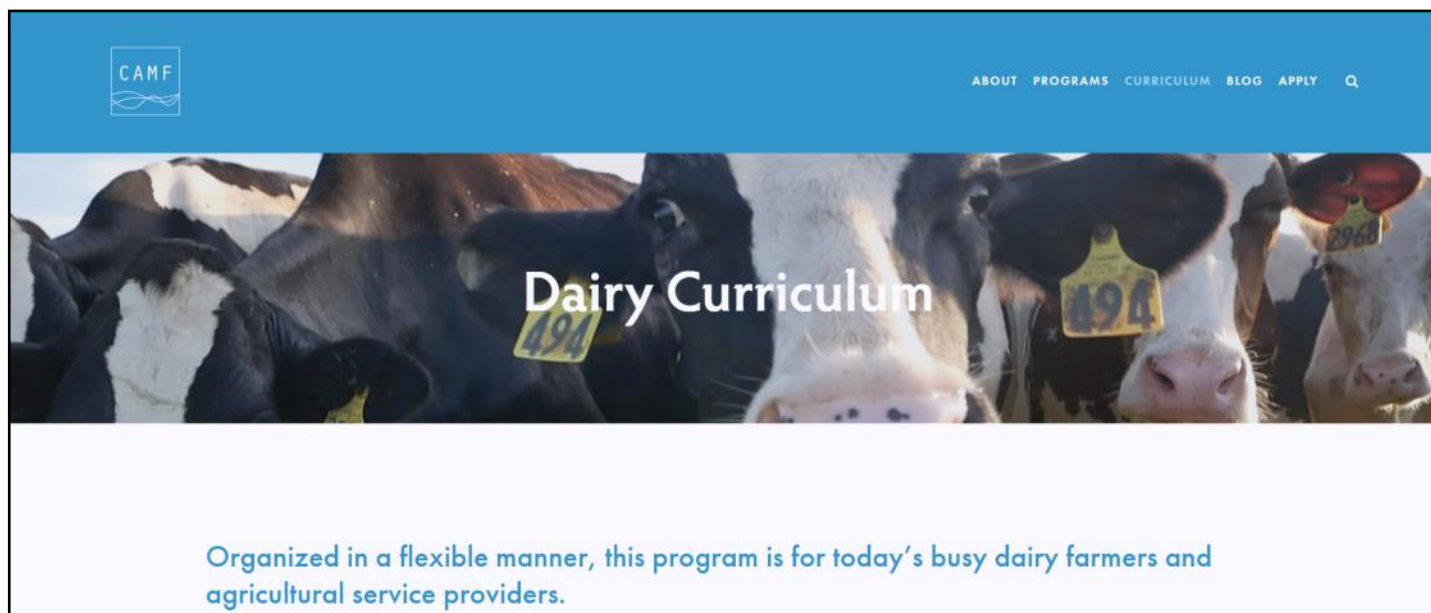
By Kitty O'Neil

Our CCE North Country Regional Ag Team has worked with Cornell and the Northeast Climate Hub to bring a new and timely training program to dairy farmers and their technical advisors who are interested in improving their farm's climate resilience. The Dairy Climate Adaptation Fellows program is the most recent iteration in a series of climate resilience focused trainings offered by the Northeast Climate Hub. The pilot program in 2021-2022 was designed for vegetable and small fruit farmers and their advisors and included a cohort of 37 across 12 Northeast states and Washington DC. In addition to the NE Dairy Adaptation Fellowship, the USDA Climate Hubs are presently offering 4 other climate adaptation programs for agroforestry, row crop, and female producers in the Northeast and Midwest.

The Dairy Climate Adaptation Fellowship, beginning in January 2024, is open to dairy farmers and their agricultural and technical advisors in Maine, Vermont, and New York. All interested farms and/or their advisors are encouraged to apply. Farmers will have the opportunity to think and learn about climate impacts and will learn strategies for climate adaptation and/or mitigation on their own operations. Technical service providers will strengthen skills for providing similar climate resilience support. Farmers and advisors may

apply as a 2-person team or farmers and advisors may apply individually and program staff will suggest pairings after acceptance. Each team of 2 will begin the program in January 2024 with online learning sessions and development of a farm adaptation/mitigation plan. Education programs and curriculum for this program is designed explicitly for Northeast dairies and is centered around operationally and geographically relevant climate risks. Additionally, it is understood that farmers don't always have a lot of time for regular classroom sessions, so this program mixes in independent review of course materials and activities, demonstrations, and opportunity to connect with project staff outside classes during 'office hours'. The program will span 2 years and will result in farms having a climate risk assessment and a plan to reduce their own climate risk.

Visit the Northeast Climate Hub's Dairy Climate Adaptation and Mitigation Fellowship website (<https://www.adaptationfellows.net/dairy-program>) or contact Kitty O'Neil or Lindsay Ferlito, with CCE NCRAT and part of the program development team, for more information.



Visit <https://www.adaptationfellows.net> for more detailed information on the Dairy Climate Adaptation and Mitigation Fellowship and to submit an application. Applications are due by midnight December 10, 2023, and learning sessions begin January 2024.

FARM EQUIPMENT MAINTENANCE, OPERATION AND SAFETY WORKSHOP

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JOIN US IN THIS INTERACTIVE WORKSHOP
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- HYDRAULIC SAFETY
- ROADWAY SAFETY
- COMMON FARM ACCIDENTS
AND MORE!



 **NOVEMBER 16TH**
11AM- 3PM

- MAPLEVIEW DAIRY,
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 **NOVEMBER 17TH**
11AM- 3PM

- BELLER FARMS, 100300
NY-126 CASTORLAND, NY

REGISTER NOW

\$35 PER PERSON (INCLUDES LUNCH)



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Social Housing for Calves is Worth Considering

By Lindsay Ferlito

While the dairy industry understands the rationale behind why calves have been housed individually, it is harder to explain to consumers. The idea of having to house calves with a partner or in a group is daunting to many farmers and in some cases it may require a large change in facilities or current management. However, with increased consumer pressure on the topic, and a growing body of research indicating social housing is beneficial to the calf, it is something that farms should at least consider.

Currently in the US, there are no requirements for social housing of dairy calves. The National FARM Animal Care Program standards for pre-weaned calves cover calf transportation from the maternity pen, feeding colostrum and milk, providing access to water and starter from day 3, and disbudding by 8 weeks of age with pain management (<https://nationaldairyfarm.com/dairy-farm-standards/animal-care/farm-animal-care-version-4/>). However, Canada has recently decided to require social calf housing. In April 2024, the updated Canadian Code of Practice for the Care and Handling of Dairy Cattle will come into effect, and states that “calves must not be tethered as part of normal indoor housing. Producers raising calves individually must develop a plan to transition to pair/group housing methods, in consultation with a veterinarian or other qualified advisor. Effective April 1, 2031, calves that are healthy, thriving, and compatible must be housed in pairs or groups by 4 weeks of age” (<https://www.nfacc.ca/codes-of-practice/dairy-cattle>).

Looking at the research done over the last decade or so, several benefits to social housing have been identified (most of these benefits are seen when comparing pair housing to individual).

Animal Welfare

- Improved affective state (more optimistic) (Bučková et al., 2019)
- Improved consumer perception (Perttu et al., 2020)

Social

- More social and prefer their pen mate (Lindner et al., 2022)
- More likely to approach an unknown calf (De Paula Vieira, et al., 2012)
- More likely to try a new food offered (Costa et al., 2014)

Feeding and Nutrition

- Increased average daily gain (Knauer et al., 2021)

- Increased concentrate consumption (Miller-Cushion and DeVries, 2016)
- Reduced weaning stress (De Paula Vieira et al., 2010; 2012; 2012)

Cognition

- Improved learning of a new task or a change in a task (Meagher et al., 2015)

There are obvious challenges to social housing calves, including managing disease transmission, cross suckling, managing an individual in a group, and potentially changing a system that is already in place on the farm. Pairs and small stable groups (<6-8 calves) tend to work best, and may be easier to implement (ie: switching from individual hutches to paired hutches as seen in the picture below). Other considerations are that animals still need enough bedded space (>35 sq ft/calf); ample clean, dry, deep bedding (especially in winter); adequate nutrition from milk/milk replacer (feeding closer to 20% of body weight – not 10%!) and starter or hay; access to water; and good ventilation.

The idea of completely changing how you raise calves might seem overwhelming, but several local farms are succeeding with social housing, and with the various potential benefits, it could just work on your farm. If you have questions, or need help assessing your current calf raising facilities and protocols, please reach out to the CCE NCRAT Dairy Specialists, Lindsay Ferlito (lc636@cornell.edu) and Daniela Gonzalez (dg647@cornell.edu).



Photo Credit: L. Ferlito



Photo credit: Dairy farmer in New Mexico, shared with CCE NCRAT at Dairy Cattle Welfare Symposium.

Cornell Cooperative Extension

Cornell Dairy Convos New Podcast Series

**Offered by PRO-DAIRY and Cornell Cooperative Extension
beginning October 19, 2023.**

This monthly podcast series led by PRO-DAIRY and CCE Dairy Specialists features current, new, and emerging topics of interest to the dairy industry right now. New episodes are released on the last Thursday of the month. Our first few episodes include discussions on preventative healthcare for cows, the trend of beef on dairy, what to look forward to in the new year for dairy, and socially grouping or pair-housing calves. This series also features specially selected interviews with dairy farmers and industry experts and invites suggestions from our listeners for future topics.

Check out the podcast on the [PRO-DAIRY website](#) where each episode, additional resources, and speaker contact information will be posted. You can also listen to this and prior podcasts via SoundCloud on the *CCE Dairy Educators* channel. For more information, contact PRO-DAIRY's Kathy Barrett (kfb3@cornell.edu) or your CCE Regional Dairy Specialist.

[Submit a topic suggestion here](#)



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What's Happening in the Ag Community

Labor Roadshow, December 13, see page 5 for more information.

Dairy Climate Adaptation Fellowship, see page 6 for more information.

Farm Equipment Maintenance, Operation and Safety Workshop, see page 7 for more information.

Cornell Dairy Convos, Podcast Series beginning October 18th, see page 9 for more information.

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