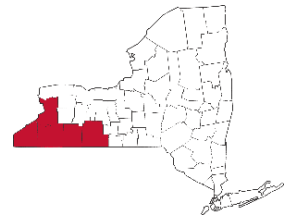




COWS CROPS & CRITTERS



A partnership between Cornell University & the
CCE Associations of Allegany, Cattaraugus,
Chautauqua, Erie & Steuben Counties.

Cornell Cooperative Extension | Southwest New York Dairy, Livestock & Field Crops Program



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Photo by: Kelly Torrey

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To simplify information, brand names of products may be used in this publication. No endorsement is intended, nor is criticism implied of similar products not named. Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Changes occur constantly and human errors are still possible. These recommendations are not a substitute for pesticide labeling. Please read the label before applying pesticides.

By law and purpose, Cooperative Extension is dedicated to serving the people on a non-discriminatory basis. Newsletter layout and design by Kelly Torrey.

For accommodations or accessibility concerns, please contact our specialists at least one week prior to the scheduled event. If you need information provided in a different format, call 585-268-7644 ext. 10.

Individual articles may be used for educational purposes with the permission of the author and proper credit given to the author and our publication.

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Saying goodbye from our Farm Business Management Specialist

It's bittersweet to announce that I'll be moving on from my role as Farm Business Management Specialist with the Southwest New York Dairy, Livestock & Field Crops Program.

Working with producers and partners across the southwest New York region has been rewarding. Thanks for welcoming me into your meetings, barns, fields events, and inboxes and for your time and trust in working together. I came in hoping to contribute a little and ended up learning a lot more.

This past year, I've visited farms in every kind of weather, had conversations that ranged from technical to deeply personal, and gained appreciation for the resilience, creativity, and humor that keep the agriculture industry moving forward.

I'll be starting a new position with the NYS Department of Agriculture and Markets in the division of Agricultural Development. I look forward to supporting New York agriculture in a new role and carrying all that I've learned in extension with me.

- Kate

Our team will still be covering Farm business Management consultations through this transition. Reach out to Amy Barkley 716-640-0844 or amb544@cornell.edu to get started.

SO, YOU WANT TO START A FARM STAND? KEY QUESTIONS BEFORE YOU GET STARTED

By Kate McDonald Polakiewicz, Dairy Management Specialist, SWNYDLFC Team

Farm stands continue to be a popular way for farms to connect directly with consumers while creating an additional source of income. Whether you are hoping to diversify your operation, build stronger relationships with your community, reduce food waste, or meet growing demand for local food, a farm stand can offer an accessible entry point into direct marketing.

At first glance, opening a farm stand may seem simple, but taking time to plan before getting started can help avoid challenges later. This article is the first in a series of forthcoming articles that will delve into the “how-to’s” of starting your own farm stand.

One of the most important questions to ask is: **Why do I want to start a farm stand?**

For many farms, a stand creates an opportunity to sell directly to customers and retain more of the food dollar. It can also strengthen relationships with local residents by creating a personal connection between consumers and the people growing their food. Farm stands may help improve profitability, showcase farm products, and increase access to fresh, locally produced food within the community.

Once you have identified your goals, the next step is evaluating whether your farm and location are a good fit.

Start by asking practical questions:

- Am I located in an agricultural district?
- What local zoning laws or town restrictions apply?
- Do I have a safe and accessible location?
- How far is the stand from my production area?
- Who are my potential customers and competitors?
- What products would I offer?
- What would encourage someone to stop?
- Can I provide a combination of quality, service, and value?
- Do my target customers actually exist in my local area?
- Should I speak with my insurance provider before opening?

Thinking through these questions early can help shape decisions about location, layout, and long-term goals.

Location deserves particular attention. A successful farm stand should be easy to access and safe for customers to use. Consider whether vehicles can enter and exit safely, whether parking is available, and whether there are hazards that should be addressed such as uneven ground, standing water, hoses, or obstacles in customer areas.

Farmers should also understand how local laws interact with agriculture.

In New York, agricultural districts were created to help protect farmland and support agricultural production. These districts provide important protections for farms, but they do not remove local government authority. Towns, villages, and cities still create and enforce local laws related to land use and community planning. The key distinction is that local regulations generally should not unreasonably restrict normal farm operations within agricultural districts.

This balance is often described as allowing communities to govern while helping ensure farms can remain viable. Local governments may still regulate issues related to public health and safety and may apply zoning and planning tools where appropriate. Because of this, farmers considering a farm stand should check with their local municipality early in the planning process.

Local zoning and planning decisions can affect siting, structures, setbacks, and how agricultural uses fit into long-term community plans. Planning ahead and understanding local requirements can save time and help reduce conflict later.

Starting a farm stand can be an exciting opportunity—but asking the right questions before getting started can help create a stronger foundation for long-term success.

A FARM STAND CAN STRENGTHEN
PROFITABILITY AND BUILD CONNECTIONS
WITH YOUR LOCAL COMMUNITY.



BEFORE OPENING A FARM STAND,
UNDERSTAND YOUR LOCATION, LOCAL
REGULATIONS, AND LONG-TERM GOALS.

SOYBEAN REPLANT CONSIDERATIONS FOR UPSTATE NY GROWERS

By John Pirrung, Field Technician, SWNYDLFC Team

Poor soybean emergence is one of the more frustrating situations a grower can face in early summer, and it raises an immediate question: do I replant, or do I make the best of what I've got? The answer is rarely straightforward, but understanding a few key decision-making factors can help you make a more confident and financially-sound decision.

HOW MANY PLANTS DO YOU ACTUALLY NEED?

The most important thing to identify first is your plant population. Research from 2025 shows that a healthy stand of about 70,000 to 75,000 plants per acre can still achieve about 95% of the yield potential of a full stand at 100,000 plants per acre. This is to say, if you've lost about 25% of your plants, but conditions are otherwise favorable going forward, you can likely still reach a yield within 5% of what you'd get if you didn't experience any stand loss. In some cases, growers have lost almost 50% of plants and still produced within 95% of maximum yield, though this requires absolutely ideal conditions. If your stand is below 70,000 plants per acre, *and* you're facing additional unfavorable conditions, then you might want to start considering a replant.

Also, consider how the stand loss is distributed. If the losses are spread out evenly and uniformly across the whole field, then it has a better chance of bouncing back. If you're seeing inconsistent patches, with spots of 6-10 square feet or greater with no plants at all, then consider trying to replant those areas specifically.

While a thinner stand has the potential to still reach high yields, be aware that it might also become more susceptible to different management risks, especially pests. Although soybean plants can compensate for low plant population, they may not be able to completely fill in gaps if plants are spaced more than a foot from their neighbors. In this case, weed pressure will almost certainly increase, as a delayed or incomplete canopy closure means more sunlight reaching the soil and more weed competition throughout the season. If you move forward with a thin stand, you might want to budget for additional scouting and potentially another herbicide pass, in order to prevent yield reduction.

HOW LONG SHOULD I WAIT TO MAKE A DECISION?

Unless your field has experienced a complete washout or some other event that truly wiped everything out, it's best to wait 7-10 days before making any replant decisions. This wait gives more time to ensure that any seeds that can emerge, will emerge, and to see which growing points were able to recover, allowing you to get a more accurate stand count. With that being said, if you've

already planted late, then waiting another 10 days could start to risk future yield loss towards the end of the season. If your first planting is in early-to-mid-June and losses make you consider a replant, then you'll have to weight the risks of losing even more from an even later planting date (June 15th should be considered a cutoff point where maturity can be threatened by an early frost). Generally, the earlier you've planted, the more time you're afforded to wait and get an accurate stand count before making a replant decision.

DO I NEED A FULL REPLANT, OR JUST SOME REPAIR PLANTING?

Not every replant scenario is all-or-nothing. You might be better off doing only a partial replanting:

- **Repair Planting (fill-in/spot planting):** You plant right into the existing stand, either throughout the whole field but at a reduced seeding rate, or at a full rate but only in specific areas. If done within the right window of time, most existing plants can survive while the new plants fill in the rows. These new plants will likely take longer to mature, which may push back harvest time a little bit, but otherwise they should fit in fine.

- **Full Replant:** You terminate whatever remains of the existing crop and the field is started over entirely. This is going to be the best option when stand counts are extremely low (<50,000 plants per acre) and will probably be the best course of action after significant flooding events.

Remember, it might be worth to use both strategies if your fields have uneven damage. If you have a field where one half was completely washed out and the other half was just thinned a bit, you can always do a full replant on the first half and then a very low-rate fill-in planting on the other half. Also, if your damage is uneven but also very localized, be aware of the limitations of your machinery, and plan your passes accordingly, so you don't end up adding seeds to parts of the field that don't need it.

ONE MORE NOTE:

If you do end up replanting a field, in part or in whole, consider leaving behind a few untouched rows to leave as comparisons. At harvest time, you can see how these rows compare to the rest of the field. Check how yield and pest pressures differed and record that information so you can use it to inform any future replant decisions.

Replanting is expensive, time-consuming, and not always necessary. In the end, your goal is to grow a profitable, successful crop. While picture-perfect fields are ideal, use numbers and the calendar to guide your replant decisions, not aesthetics.

This article is largely based on the following research paper from March 2025:

<https://acsess.onlinelibrary.wiley.com/doi/10.1002/cft2.70032>

THIN FIELDS CAN STILL GIVE GREAT YIELDS, BUT WATCH OUT FOR INCREASED WEED PRESSURE.



UNLESS YOU'RE ALREADY PLANTING LATE, IT'S BEST TO WAIT A WEEK BEFORE MAKING A REPLANT DECISION.

Fecal Egg Count Mobile Workshops

For sheep, goat, and camelid producers

Internal parasites are one of the most challenging and economically impactful concerns for sheep, goat, llama, and alpaca owners. This workshop will explain how and why regularly testing fecal egg counts can help you with understanding your animals' parasite loads and dewormer resistance. Attendees have the opportunity to prepare and evaluate fresh fecal samples under the microscope and practice interpretations.

 National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE

Tuesday, June 23, 2026, 6pm - 8pm

Cornell Lake Erie Research and Extension Laboratory
6592 W. Main St, Portland NY 14769

Wednesday, June 24, 2026, 6pm - 8pm

Cornell Cooperative Extension Allegany County
5435 Co Rd 48, Belmont, NY 14813

Thursday, June 25, 2026, 6pm - 8pm

Cornell Cooperative Extension Steuben County
20 E. Morris St., Bath, NY 14810

Tuesday, June 30, 2026, 6pm - 8pm

Cornell Cooperative Extension of Erie County Pavilion
5600 Burton Road, Orchard Park, NY 14127

Wednesday, July 1, 2026, 7pm - 9pm

Cornell Cooperative Extension Cattaraugus County
28 Parkside Drive, Ellicottville, NY 14731

To register online:

- 1.) Access the QR Code or visit the link below
- 2.) Log in or create an account with CCE
- 3.) Find the event in the community calendar
- 4.) Register for the lab session you'd like!



<https://apps.ideal-logic.com/cornellcoop>

To register over the phone/email:

Reach out to Amy Barkley at
716-640-0844 or
amb544@cornell.edu

These workshops are free of charge and registration is required.



You are invited to bring up to 5 fresh fecal samples from your livestock to evaluate during the lab.



This work is supported by the Northeast Extension Risk Management project award no. 2024-70027-42540, from the U.S. Department of Agriculture's National Institute of Food and Agriculture.



Cornell is an equal opportunity employer. For more information visit hr.cornell.edu/eeee.
For accommodations, please reach out to Amy Barkley at amb544@cornell.edu or (716) 640-0844.

STUDENTS ARE ENCOURAGED TO BRING FECES FROM THEIR OWN ANIMALS TO EVALUATE.



THIS SERIES OF WORKSHOPS IS FREE DUE TO THE GENEROUS SUPPORT OF USDA-NIFA AND NERME

Cattle Management

PL-2026-04-XX

What Adds Value to a Beef Calf?

Adam Murray, Ph.D., Beef Cattle Extension Specialist, Cornell PRO-Livestock
Amy Barkley, Livestock & Beginning Farm Specialist, Cornell Cooperative Extension

Introduction

With input costs steadily rising, farms that raise beef calves need to take steps to increase their return on investment when selling feeder cattle. The transition from a pasture-oriented home to a feedlot setting is filled with stressors that can derail cattle productivity. Therefore, the goal as successful cattle managers should be to reduce or eliminate illness, depressions in rate of gain, and death as much as possible.

This can be achieved through pre-conditioning, a set of practices that emphasizes mitigating stress post-weaning and boosting the immune system in order to give yearlings the best chance of success once they enter a feedlot setting. In addition to increasing welfare standards by pre-conditioning, most market channels will pay premiums for these calves because buyers want problem free cattle and understand the value these practices add to yearling calves. Many sale barns even have specific pre-conditioned feeder cattle sales that draw more buyers and higher sale prices compared to their regular weekly sales.

Pre-conditioning practices can vary depending on resources and goals at each farm, but the basic practices outlined here should result in successfully preparing calves for post-weaning success.

Weaning

A feedlot environment is not just a change in setting for yearlings, it represents a new social circle, which previously included their mother, and a new diet, which used to be primarily milk. Feedlot buyers expect cattle to arrive ready to eat from a feed bunk instead of pacing and bawling for their mother. Calves that have had time to recover from the stress of weaning are better prepared to make this transition and have less chance of getting sick when they reach their new home. This means weaning calves 45-60 days before intended sale and ideally introducing them to similar feedstuffs that will be provided in a finishing diet.

Physically separating calves from cows so they cannot nurse, but still providing contact through fence-line weaning is a great strategy to minimize stress for both

the calf and cow. Nose rings and flaps designed to prevent nursing can also be put on calves so they can remain in the same field as they are weaned off milk, but calves will return to nursing if these products fall off or are removed too quickly, and the process must be restarted.

Castration

Castration is the #1 way to add value to weaned calves, so bull calves destined for beef production should be castrated as soon as possible. While some producers will claim that castrating bull calves early will result in decreased calf growth compared to delaying castration, countless studies have shown this is not true. In reality bulls do not start puberty until 9-10 months of age on average, so before that time there is not a surge in testosterone to fuel increased growth. For situations where there is no need to develop bulls for breeding purposes it is recommended to castrate bull calves within the first 2 months of age, or as soon as testicles drop and you can “count to two.” Castrating as early as possible results in a smaller wound to heal since the scrotum and testicles are less developed and therefore minimizes stress and the chance for secondary infections.

Steers are more desirable to feedlots because they finish faster and produce more valuable carcasses. While mature bulls are more muscular compared to steers, beef from bulls tends to be tougher and less marbled to lower carcass quality grades. Bull meat is also generally darker in color, which is less desirable to consumers that expect typical bright, cherry red beef. Additionally, steers are less aggressive than bulls which lowers the chance of both cattle and human injuries. Lastly, in smaller feedlots where heifers may not be sorted into separate pens, mixing bulls could result in pregnancies that drastically decrease heifer carcass value. All of these reasons explain why late cut steers, or “stags,” showing secondary sex characteristics (crest, larger head, etc.) are discounted at sale barns because cattle feeders are wary of the detrimental effects of retained testicles.

WHILE THE HIGH PRICES OF CATTLE
MAY MAKE IT TEMPTING TO SKIP
VALUE-ADDED STEPS...



...DEVELOPING THE FRAMEWORK FOR
GOOD MANAGEMENT RESULTS IN
HIGHER QUALITY CATTLE AND REPEAT
BUYERS.

Whether you are cutting or banding bull calves for castration, it is important to use clean equipment and fly control around the flank to minimize the chance of infection. Tetanus shots should be given at least 2 weeks prior to banding to ensure adequate time for an immune response and sufficient antibody production.

Vaccinations

Weaning, transport off the farm to a sale barn or feedlot and transitioning to a grain-based diet are all stressful for cattle, especially if they are regrouped with unfamiliar cattle to fill out a pen or truckload. Additional stress taxes the immune system to decrease feed intake, growth, and therefore profitability, and increases the chance and severity of illness. Respiratory diseases alone cost the U.S. beef industry over one billion dollars of lost profit annually. To prevent profit-robbing disease and death, producers should work with veterinarians to provide a robust vaccination program that will promote healthy cattle.

At a minimum cattle producers should vaccinate calves against respiratory and clostridial diseases. This can be accomplished through a 7- or 8-way blackleg vaccine and a respiratory disease complex vaccine. There are multiple modified live and killed vaccines available to producers, so it is always important to read product labels to ensure proper product storage and administration. Some vaccines require refrigeration while others need to be stored at room temperature, and sunlight is detrimental to all biological products. Because of this, storage and handling during use can be an issue if a producer is working a large number of cattle that will take hours. In these situations, it's recommended to store vaccines in coolers until they are ready to be used and only mix enough modified live product at one time that you know will be used within the next hour.

Some vaccines also require boosters that are usually given 2-4 weeks after the initial product administration, so this can affect when producers plan on weaning and administering vaccines. It is recommended to give all vaccines at least 2 weeks prior to weaning so the immune response has time to kick in and protect against the stresses during the weaning process. If vaccines are given at the same time as weaning there is not adequate time to produce antibodies through an immune response. Plus, vaccine success rate decreases significantly if they are administered during times of prolonged elevated stress like separation from the cow.

Don't have a vaccination protocol yet? The New York State Cattle Health Assurance Program (NYSCHAP) provides veterinary advisors that will work with you and your herd veterinarian to create a robust disease prevention program. This program is provided free of charge and helps to cover one visit from your herd veterinarian annually.

Deworming

On pasture cattle are naturally exposed to internal parasites through grazing and soil contact. Although cattle should not be picking up additional parasites in a feedlot, their residual parasite load coming from pasture can depress rate of gain and feed conversion. With that, strategic deworming should be a part of any weaning and pre-conditioning program to ensure nutrients are not being robbed from the digestive tract of calves.

There are 2 different classes of dewormers that work through different biological mechanisms: clear dewormers (pour-on and injectable) and white dewormers (drench and fed). In addition to rotating the brand of dewormer you use every couple of years to prevent parasite resistance, changing the class of dewormer is also very important to maintain product effectiveness. Both classes of dewormers have their pros and cons, and depending on your goals and the results of a fecal egg count test producers should talk with their herd veterinarian to determine what deworming protocol is right for them.

While the strategies described above are common best management practices for selling pre-conditioned calves at most auctions, some buyers and sale barns may have slightly different requirements for their pre-conditioning designation. If possible, make sure to communicate with your buyer(s) in advance to ensure that you are meeting their expectations to receive premium prices for your cattle. The money received for cattle managed through quality pre-weaning protocols should exceed the effort and expenses you invest in the process. Also, remember to provide documentation of your pre-conditioning protocol to auctioneers and sale barns so they can communicate the value to buyers prior to selling your lot. This includes weaning dates, products administered, the times these products were administered, and sometimes even the product lot and ID number.



EVIDENCE SHOWS A LOWER INCIDENCE OF SEVERE ILLNESS IN FEEDERS THAT ARE WEANED FOR 45-60 DAYS VS WEANED AT THE TIME OF SALE.



COUNT TO TWO WHEN CASTRATING! MAKE SURE THAT BOTH TESTICLES ARE BELOW THE BAND.

Our team is excited to announce that we have partnered with the Quality Milk Production Services (QMPS) Western Laboratory and two of our local county extension offices (Cattaraugus and Chautauqua) for milk testing made easy!

Producers can now drop off milk samples for culturing or bacterial quantification during regular CCE office hours. Following this pilot program in the two counties, we hope to potentially expand this service throughout the rest of our region.

To obtain accurate results from these tests and avoid wasting money on contaminated or unreadable samples, it is important to know how to collect a clean sample properly.

I have attached a Standard Operating Procedure that I adapted from the Laboratory Handbook on Bovine Mastitis, Third Edition. I used this SOP during my master's research.

All samples should be stored in the refrigerator until drop-off, or in the freezer if more than 24 hours will pass before they are dropped off.

Samples are typically processed the same day they are received, and final results are generally available within 48 hours.

Happy Sampling!



Aseptic Quarter-Level Sampling SOP

1. **Label** tubes with cow ID, quarter, and date.
 - a. LF= left front teat LH= left hind teat RF= right front teat RH= right hind teat
 - b. You can get a sample tube kit from CCE Office or QMPS Lab
2. Put on clean **gloves**.
 - a. Replace gloves at any point during sampling if they become contaminated or ripped.
3. **Dry-wipe** teats with paper towel.
 - a. Very dirty teats/udders should be washed thoroughly before proceeding.
4. **Clean** teat barrels
 - a. Begin with the far side teats of the udder.
 - b. Use alcohol-soaked gauze to clean the entire teat barrel until a fresh piece of gauze comes away clean. Use as much gauze as necessary.
5. **Strip** the teats.
 - a. Discard at least 10 streams of milk.
 - b. Take care not to touch the clean teat end with your gloves.
6. **Clean** teat ends.
 - a. Use fresh gauze to scrub teat ends for at least 15 seconds each, turning the end toward you to see when dirt is cleaned away.
 - b. Always wipe in one direction, never back and forth.
 - c. If gloves or the cow's tail, legs, etc. touch the teat end, begin the cleaning process again.
7. **Collect** samples.
 - a. Begin with the near teats and finish with the far teats, the reverse order from cleaning.
 - b. Open the sample tube, taking care not to touch the inside of the lid. Hold the tube at a 45-degree angle with the lid blocking debris from falling into the tube. Maintain the tube several inches away from the teat end so the lip of the tube does not touch the teat end.
 - c. Strip the first stream of milk outside the tube, then collect subsequent streams of milk until the tube is filled to or just under the fill line. Do not overfill. Be sure milk does not touch fingers or hands before entering the tube.
 - d. Close the tube immediately. Wipe the outside of the tube clean before storing on ice.
8. **Fill** out QMPS General Submission Form
 - a. You can find this form online or by scanning the QR code on the milk testing flyer on page 9.

Consumable Supplies:

- Gloves
- Sample tubes
- Paper towels
- Alcohol-soaked wipes
- QMPS submission form

QMPS CAN HELP YOU DEVELOP A SAMPLING AND CULTURE PLAN SPECIFIC TO YOUR OPERATION.



CLEAN SAMPLES LEAD TO MORE ACCURATE TEST RESULTS.

NOW OFFERING:

MILK TESTING DROP-OFF SERVICE



**Cornell Cooperative Extension
Cattaraugus County**

28 Parkside Drive
Ellicottville, NY 14731
Phone : 716-699-2377

**Cornell Cooperative Extension
Chautauqua County**

525 Falconer St
Jamestown, NY 14702
Phone : 716-664-9502

Sample Drop Off Only Available During CCE Office Hours

QMPS SERVICES

CULTURES

- Standard Aerobic Culture - \$6.50/sample
- Mycoplasma Culture - \$6.50/sample

BACTERIAL QUANTIFICATION

- Milk/Milk Replacer/Colostrum - \$24/ sample
- Bedding - \$35.50/sample
- Water - contact lab to arrange

MONITORING PROGRAM

- Bulk Tank Monitoring - \$300/year

IMPORTANT REMINDERS

- \$2.50 Accession Fee applies for each batch of samples submitted
- You must have an established account with QMPS
- Follow aseptic milk sample collection instructions
- All submissions must be accompanied by a completed submission form (SEE QR CODE)



Cornell Cooperative Extension

Southwest NY Dairy, Livestock and Field Crops Program



DAIRY GRAZING PASTURE WALK

July 1st
1-4PM

Heaven Scent Dairy
4735 Turnpike Road
Bath, NY 14810

TOPICS COVERED:

- Developing Water Systems
- Importance of Water
- Grazing Plans
- Weed ID Control
- Pesticide Risk Zones in Pasture

0.75 DEC
CREDITS
AVAILABLE!



Cornell Cooperative Extension
Stauben County

Cornell Cooperative Extension

Southwest NY Dairy, Livestock and Field Crops Program



Registration
tinyurl.com/dgawalk
Call or Text 607-422-6788

Funding Thanks to:



This material is based upon work supported by USDA/NIFA under Award Number 2024-70027-42540, from the U.S. Department of Agriculture's National Institute of Food and Agriculture.

SAVE THE DATE...

Strategies to Protect Corn & Soybean Seed in New York State

-REGISTRATION COMING SOON-

Thursday, July 23rd

10am-1pm

Zittel's Family Farm

7226 Taylor Road, Hamburg, NY 14075

- Pollinator Discussion
- Drone Demonstration
- NEWA Weather Stations
- Research Trials

Cornell IPM

New York State Integrated
Pest Management

Cornell Cooperative Extension

Southwest NY Dairy, Livestock and Field Crops Program



Field Day

Soil Health

Nichols Farm | Farmersville, NY

JUNE 30

10:00 AM - 1:00 PM

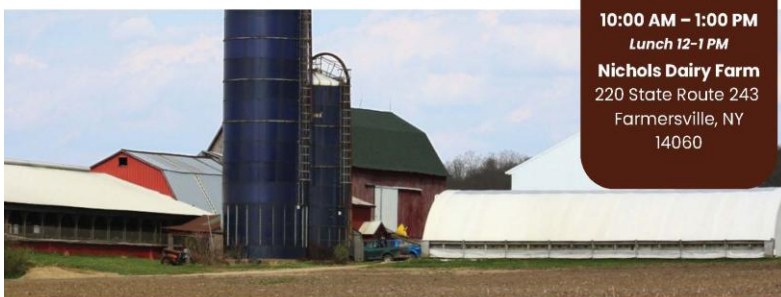
Lunch 12-1 PM

Nichols Dairy Farm

220 State Route 243

Farmersville, NY

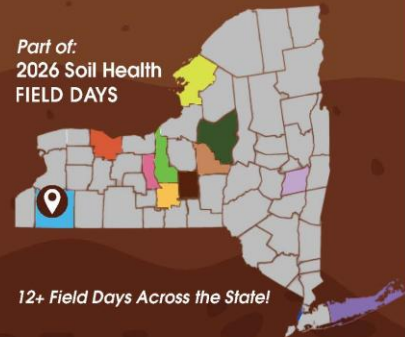
14060



Topics & Activities:

- Nichols Farm Background
- Soil Health Trailer demonstrations
- Benefits & Uses of Cover Crops
- Cover Crop Plots
- Farmer Panel with Q&A
- Followed by Lunch

Part of:
2026 Soil Health
FIELD DAYS



12+ Field Days Across the State!

Register online NewYorkSoilHealth.org/events
or call: 716-699-2377 (ext. 106) to RSVP



Cornell Cooperative Extension
Cattaraugus County

Cornell Cooperative Extension
Allegany County

Cornell Cooperative Extension
Southwest NY Dairy, Livestock and Field Crops Program



THE RISE OF HERBICIDE-RESISTANT WEEDS

By Katelyn Miller, Field Crop and Forage Specialist, SWNYDLFC Team

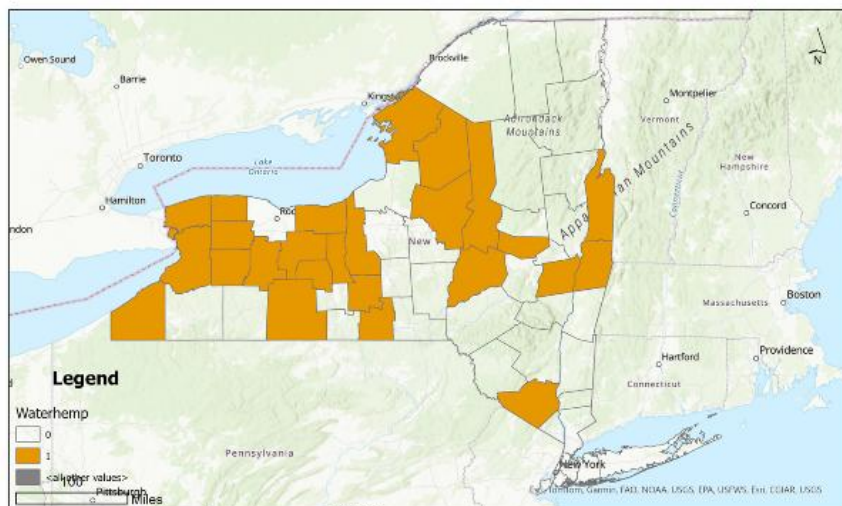
According to the International Herbicide-Resistant Weed Database, there are 548 unique cases (site of action x species) of herbicide-resistant weeds globally. Weeds have evolved resistance to 21 of the 31 known modes of actions and 168 different herbicides. In the United States, over 160 weed populations have been confirmed to have herbicide resistance. This is a growing problem in the Northeast, but it's not a new phenomenon to NYS. The first confirmed herbicide-resistant weed population in the state was lambsquarter identified in 1977 to triazine.

Herbicides are a key management strategy to controlling weeds, with 96% of U.S. corn and soybean acreage receiving herbicide applications annually. The introduction of resistant crop traits (ie Roundup Ready) helped revolutionize modern agriculture but has caused a large reliance on a single, or relatively few modes of actions. This has developed selection pressure on weed populations, leading to a substantial increase in herbicide-resistant weeds. In NYS, there are 7 weed species that have populations confirmed to have developed herbicide resistance to at least one mode of action, which include:

- Common lambsquarter
- Common ragweed
- Common groundsel
- Maretail/Horseweed
- Tall waterhemp
- Annual ryegrass
- Palmer amaranth

Tall waterhemp was first identified in NY in 2014 and has since been confirmed in 25 counties. Referred to often as a 'superweed', this is one of two pigweed species with confirmed populations that have evolved resistance to glyphosate. One population screened in Chautauqua County showed resistance to three products: glyphosate & synchrony (group 9) and atrazine (group 5). A survey conducted by the Weed Science of America has classified as one of the most troublesome weeds in agronomic crops, having evolved resistance to 7 different modes of action nationwide (2, 4, 5, 9, 14, 15 and 27). The second pigweed species is Palmer amaranth, with populations confirmed to be glyphosate resistant, with select populations showing multiple resistance to atrazine, mesotrione (ie Callisto), and chlorimuron-ethyl + thifensulfuron-methyl (ie Synchrony). Palmer is one of the fastest growing weeds, with small plants able to double in size every 2-3 days. Both species are prolific seed producers and can grow anywhere from 3.5 – 8 feet tall. They are an incredibly competitive species with a long season of germination, making a strong weed management program crucial to preventing these weeds from taking over the crop canopy.

Known Agricultural Tall Waterhemp Locations



Cornell CALS
College of Agriculture and Life Sciences

Current as of 10/01/2025

This work is supported by the USDA National Institute of Food and Agriculture Smith Lever project 2021-22-183.



Tall waterhemp in a soybean field.

Photo credit: Katelyn Miller

IF YOU HAVE CONCERNS ABOUT HERBICIDE-RESISTANCE ON YOUR FARM, CONTACT KATELYN MILLER AT 716-640-2047.



HERBICIDE-RESISTANT WEEDS AREN'T NEW TO NYS, WITH THE FIRST BEING IDENTIFIED IN 1977.

Glyphosate resistant Marestalk was first identified in SWNY in 2020. With additional screening efforts, some populations have also evolved two-way resistance of both glyphosate and ALS inhibitors (ie Pursuit, Classic). This species is pretty unique as it operates as both a winter and summer annual, so it can germinate in the fall or spring. Marestalk is a prolific seed producer as well, and with feather light seeds that can spread vast distances. In addition to managing this weed in your fields, field edges and roadsides can reinfest areas, so managing these will help reduce the development and spread of seed.

Newer to the conversation is Annual ryegrass, a common cover crop species. As is, mature plants can be difficult to kill with glyphosate when applied under suboptimal conditions, but glyphosate resistant populations are starting to pop up in WNY. Additional screening efforts are being conducted to better understand the mechanism behind this developed resistance and the status of other modes of actions.

The increase of herbicide-resistant weed populations highlights how critical a diverse approach to weed management is needed. A multitude of strategies should be employed to manage and reduce the spread of these concerning weed species. Management strategies include:



Scouting:

Your first line of defense is understanding what weed species are present. This is what guides your management decisions, including your herbicide decisions. Ideally, you are killing weeds before/up to 4 inches tall for best efficacy of your product. Additionally, monitoring for escapes throughout the season will allow you to catch potential resistant weeds early on. This gives you the opportunity to contain and minimize the spread.

Rotation:

Repeated use of a single mode of action increases selection pressure for resistance to develop. In your spray program, utilize different MOA's in your tank, or at least rotate between which single one you're using. Crop rotation plays a key role here as well, allowing you to use different MOA's based on the crop. Also, general crop rotation can help break up weed cycles. For example, Palmer amaranth has a short-lived seed (~3 years), so rotating into a perennial sod crop could help greatly reduce populations.

Prevention:

The easiest way to control weeds is to not let them get established on your farm in the first place. When purchasing equipment, especially something such as a combine with many places for seed to hide, perform a cleanout. While you should do this with all equipment, it especially needs to be done when equipment is coming from areas with known herbicide-resistance. It has been documented that a combine can hold 150 pounds of biomaterial internally. Additionally, if you know you have resistant weed populations on your farm you want to slow down the spread. Save infested fields for last in the harvest rotation. If pressure is specific to one spot of the field, save it for last to stop it spreading further.

Herbicide-resistant weeds are more problematic than ever, making it crucial to employ a variety of management strategies to prevent and/or slow down the spread of these problematic weeds.

Have you checked out **Field Crop Finds**, our team's mini emailed weekly update on field crops and forages in the region? New this year, you'll find:

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- Pest trap findings
- Field observations

To get on the mailing list, reach out to Kelly Torrey at 585-268-7644 ext 10 or email klb288@cornell.edu



Resources:

- <https://www.weedscience.org/Home.aspx>
- <https://www.northeastipm.org/about-us/publications/ipm-insights/herbicide-resistant-weeds-in-the-northeast-an-urgent-call-for-integrated-weed-management/>
- Herbicide-resistant weed management strategies – Mike Hunter
- <https://cals.cornell.edu/weed-science/herbicides/managing-glyphosate-resistant-waterhemp-ny-corn-and-soybean>
- <https://cals.cornell.edu/weed-science/weed-profiles/palmer-amaranth>

THERE ARE 7 WEED SPECIES IN NYS WITH CONFIRMED POPULATIONS THAT HAVE EVOLVED HERBICIDE RESISTANCE.



EMPLOYING A VARIETY OF MANAGEMENT STRATEGIES WILL BE IMPORTANT TO SLOW DOWN THE SPREAD OF THESE PROBLEMATIC WEEDS.



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