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

Late Postemergence Herbicide Applications in Field Corn: How Tall is Too Tall?

By Mike Hunter

It’s early July, how clean are your corn fields? The dry weather conditions in May and June resulted in less than perfect weed control from many of the preemergence herbicides programs. We are now at a point in the growing season when this is your last chance to get the weeds controlled in your corn fields.

Before a field of taller corn is sprayed you need to ask the question: “How tall can the corn be when you spray?” Postemergence corn herbicides have restrictions on the maximum height of the corn at the time of application. Once corn reaches 12 inches tall, atrazine and atrazine containing premixes are not an option. There is even a 30” corn height restriction for glyphosate applied to glyphosate tolerant (Roundup Ready) corn and a 24” corn height restriction for glufosinate applied to glufosinate tolerant (Liberty Link) corn.

Late postemergence herbicide choices for conventional corn are somewhat limited once the corn exceeds 20 inches in height. Most, if not all, late total postemergence conventional corn herbicide programs will require more than one product in the tank mix. Correctly identifying the weeds present and actually measuring the heights of both the corn and weeds will be critical. The heights of the weeds will often times dictate the rates of many of these herbicides. Pay close attention to the herbicide labels and the adjuvants necessary to add to the spray tank.

Here is a list of many postemergence herbicides and the over the top maximum corn heights as listed on the label for taller corn:

- Accent Q- 20” or V6
- Acuron Flexi- 30’ or V8
- Acuron GT- 30’ or V8
- Aim- V8
- Armezon Pro- 30”or V8
- Dicamba/Clarity- 36”
- Buctril- Before tassel
- Callisto- 30” or V8
- Callisto GT- 30” or V8
- Capreno- V6
- Diflexx- V10 or 36” which ever comes first
- Diflexx DUO- 36” or V7 (7th leaf collar)
- Halex GT- 30” or V8
- Harmony SG- 16” or 5 collars
- Impact/Armezon-up to 45 days before harvest
- Impact CORE- 11”
- Harness MAX- 11”
- Hornet WDG- 20” or V6
- Laudis- V8
- Peak- 30”
- Permit- Layby (about 36” tall corn)
- Permit Plus- 6 leaf corn (5 collars)
- Realm Q- 20” or V7
- Resolve Q- 20” or before V7
- Resource- V10
- Revulin Q- 30” or V8
- Shieldex 400SC- 20” or V6 whichever comes first
- Status- 36” or V10
- Steadfast Q- 20” but before V7
- Stinger- 24”
- Yukon- 36”

It is not an ideal situation when we are dealing with taller corn and weedy fields. It is difficult to control taller weeds and yield losses can be expected due to the early season competition with the corn. It is important to read and follow all label directions prior to the application of any herbicide. If you have any questions about field corn weed control, or would like to schedule a field visit contact Mike Hunter at 315-788-8450 or Kitty O’Neil at 315-854-1218.
The 2021 growing season in the North Country has been dominated by a continuation of the 2020 drought and dry soil conditions. A summary of precipitation and growing degree days (see table below) shows that all 24 listed NNY locations are below normal rainfall, with deficits ranging from -2.31” to -6.21”. Exacerbating this moisture shortage is our slightly warmer than normal temperatures, resulting in an average of 105 more than the 15-year average GDD\textsubscript{50}.

<table>
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<th>County</th>
<th>Town/Village</th>
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* Precipitation in inches, temperature in Fahrenheit, DFN = difference from 15-year average, Days = days with precipitation. Calculated from ACIS NRCC 2.5-mile gridded datasets. High and low values within each column are highlighted.
Though rain has fallen on portion of the North Country over the past 14 days, areas of abnormally dry (D0), and moderate drought (D1) were expanded by the USDA Drought Monitor. See map below.

July temperatures are expected to remain above normal, while July precipitation has equal chances of above and below normal. See the NOAA 30-day forecast maps below. The Climate Prediction Center also expects drought conditions to be resolved yet this season.

Additional resources:
- Cornell Cooperative Extension’s North Country Regional Ag Team Web Resources
- New York Integrated Pest Management (NYSIPM) Web Resources
- National Oceanic and Atmospheric Administration (NOAA) Climate Prediction Center
- Northeast Regional Climate Center
- NYS Mesonet
Managing manure is one of the many full-time jobs that dairy farmers integrate into day-to-day operations. Many of the multi-generation farms or multiple partner farms we interviewed divided manure management and milk production responsibilities between people, easing strain, and allowing specialization. We were interested in manure management from the context of reducing the spread of antibiotic resistance: questions included why farmers choose to manage manure the way they do, and what barriers exist in changing those manure systems. No farmers we interviewed identified reduction of antibiotic residues or resistant bacteria as drivers of their manure management decisions, and many were unaware that antibiotic residues and resistant bacteria can be transported with solid and liquid manures.

Nutrient management considerations

Farms across categories of management practice, size, farmer age, and farmer generation identified nutrient management as one of the key drivers of their manure management decisions. Medium to larger farms tended to emphasize the usefulness of their storage facilities, allowing them “not to daily spread and... conserve as many nutrients in... timing with our corn planting”. A small farm explained their focus on nutrient management from an environmental perspective, that “the biggest thing [is nutrient management]. I was just at a meeting here a couple weeks ago about the effects that nitrogen, phosphorus, and sediment is having in the [watershed].”

Large farms also discussed nutrient management in the context of the regulations they must comply with as drivers of specific manure management decisions. Some farmers mentioned working with agencies, such as Soil and Water Conservation districts, to establish management plans within regulatory guidelines - “we work with Soil and Water, use the standards and regulations, and they help us come up with protocols in place so then we can spread whatever we can spread, how much we can spread”. Smaller farms that are not inspected for state or federal regulation compliance did not mention regulations as a driver of their manure management strategies.

Funding as barrier to change

Funding was the primary barrier to modification of manure management systems. The high investment barrier deterred older and younger farmers alike from changing their systems. One Baby Boomer farmer stated “we just haven’t made the investment in a storage facility. Unless they require me, I’m going to get through to retirement without it. We’ll see. At times it would be nice to have it. But it’s a major investment. And obviously there’s nobody interested in taking the farm over. You know, I don’t see the point in making that investment.” Younger farmers similarly cited capital costs as a major barrier to changing manure systems.

Many farmers cited using existing manure systems with no additional capital costs as the primary drivers of their manure management, across the range of daily spreading to storage systems. One farmer stated, “It’s the system we have...to be totally truthful, that’s the [driver]. That’s the biggest one. That’s what we have, so it’s what we use.” Large to medium farms often expressed interest in new systems if financial barriers were overcome, especially through incorporation of new technology. Smaller farms tended to discuss desire to shift from daily spreading to other means of handling manure, such as composting systems.

Manure systems to reduce spread of AMR

Though reduction of antibiotic resistant bacteria and residue transport were not drivers in manure management strategies during our interviews, there has been research investigating manure management systems already in place on farms that...
achieve this goal. These methods have been shown to reduce the spread of antibiotic resistance by killing resistant bacteria or denaturing antibiotic residues.

Systems shown to reduce spread of antibiotic resistance involve high temperatures to kill bacteria or denature antibiotic active ingredients. High temperature manure management systems that have shown positive results include high temperature aerobic composting and anaerobic digesters operated at higher temperatures. However, it is important to note that due to the chemical diversity of antibiotic residues, not all antibiotics will degrade at the same rates. Solid/liquid separation may concentrate some antibiotics in one stream over the other, but again, the chemical nature of the antibiotic in question will determine which stream it is more likely to enter. Long term storage, such as lagoons, have shown both increased and decreased residue degradation and resistant bacteria growth, and should not currently be interpreted as a method to positively combat the spread of antibiotic resistance. Studies have shown that presence of antibiotic residues has reduced microbial activity and degradation rates of manure stocks across manure management systems, so antibiotic residues may influence nutrient release and availability for crops.

Antibiotic residues, as well as antibiotic resistant bacterial genes, have been found in many places - soils where manure was spread, surface waters, vegetables fertilized with manure, and even in drinking water. They interact with us all, regardless of our own usage. Though the usage of antibiotics in animal agriculture is not the only source of environmental antibiotic contamination, it is increasingly important for each source to continue to work and make changes to reduce the impact of their usage.
When it comes to troubleshooting calf health challenges, one of the first areas we focus on is ventilation. Ensuring that calves have clean, fresh air is critical for their success. Over the past several decades there have been various calf barn ventilation strategies that have been explored and implemented in attempt to maximize air exchanges and improve air quality for calves. Even with some of these fancy new technologies and systems, it’s important to understand the basics of each ventilation system and to understand it’s not a “one size fits all” concept. Each calf barn is structurally unique (especially those that are retrofitted!) and each barn warrants individual consideration when it comes to ventilation. In this article we will breakdown the most common ventilation systems, discuss pros and cons of each, and the importance of adequate ventilation.

The goal of a calf barn ventilation system is to provide adequate fresh air and remove odors, dust, pathogens, and excess moisture from the barn. This is done by having 4 air exchanges an hour (the entire volume of air in the barn is exchanged with fresh air from outside) in the winter, and 40 to 60 air exchanges in the summer. Fresh air should be delivered consistently throughout the barn at calf level without creating a draft (in the summer, slightly higher air speeds near the calf are okay). Good barn ventilation can be achieved in a few different ways, discussed below.

**Hutches**

While hutches aren’t actually a “barn”, they are one of the more common ways to house calves. In this system, calves are usually either tethered to one hutch or have a small penned area in front of their hutch. The ventilation in hutches is the simplest and most natural system of all as there are no mechanics involved. Natural ventilation is discussed in more detail below. Some pros for calf hutches are that they are relatively cheap, it’s easy to add or remove hutches, and you don’t need to build a barn or structure. However, it can be hard to see and access calves when they are inside the hutch, airflow can be poor in the summer, and employees may not like feeding calves outside during winter in the North Country.

**Natural Ventilation**

Naturally ventilated barns usually have side curtains that open and close with the weather, and they don’t have an additional ventilation system (fans) to help move air. While these types of barns provide a lot of natural light, are more affordable and there is less to maintain, they do not provide constant and consistent air flow (you are relying on the wind/breeze) and they work best with narrow barns.

**Mechanical Ventilation**

Mechanical ventilation is when you use fans to push or pull air in and out of the barn to achieve the desired ventilation rates. Mechanical ventilation can be either cross ventilated (air inlet on one side of barn and fans on the other side pull air across the width of the barn), tunnel ventilated (opening at one end of barn and fans at the other pulling air down the length of the barn), or neutral pressure (fans on one side of barn pushing air into barn, and holes and fans on the other end pulling air out of barn). These systems can achieve a good amount of airflow and can be all automated; however, they sometimes don’t have a lot of natural light, they can be expensive, they have more moving parts to maintain (more fans), and it is hard to troubleshoot the more complex systems.
Positive Pressure Tube Ventilation

Positive pressure tube ventilation (PPTV) is when a tube is hung from the ceiling of the barn, with a fan blowing air through holes along the tube to deliver fresh air throughout the barn. Tubes can be added to a naturally or mechanically ventilated barn to help increase air exchanges, and can work well when retrofitting a barn. Tubes can provide good air flow at calf level, they are somewhat easy to design, and can be relatively affordable. However, not every barn is a good candidate for tubes (ie: low ceilings), and it can take multiple tubes to get the desired air exchanges (so the cost can add up and there becomes more to maintain). Also, not all tubes are created equal, so make sure it’s designed properly for your barn and goals (space, number of animals, desired air exchanges and air flow, type of material used, etc...).

Other factors to consider when designing a ventilation system are the amount of space per calf (recommendation: >35 sq ft/calf), as well as the feeding protocols and the age of the calves in the barn (calves fed more milk or weaned calves that are still in the barn will produce a bit more waste requiring more ventilation). Also, regardless of what system you have, there will be some regular maintenance involved. Dirt build up can significantly reduce fan efficiency and therefore provide fewer air exchanges than the system was designed for. If your answer to the question “when was the last time your fans were cleaned and inspected?” is similar to “well we installed the barn 5 years ago, so... 5 years ago” or “hmm I don’t remember”, then it’s probably time to clean those fans (recommendation: at least 1/year and ideally more like 2-3 times depending on how dirty they get).

Adequate ventilation becomes increasingly important when we consider that one quarter of pre-weaned heifer deaths were due to respiratory health issues (USDA NAHMS, 2014). Further, according to USDA NAHMS 2014 data, the main cause of death for weaned heifers was respiratory issues. A system that does not provide adequate fresh air can evidently have a negative impact on calf performance and health, with poor ventilation being linked to increased pneumonia and respiratory disease. Recently, research has demonstrated that respiratory issues during the early stages of life can actually lower productivity and reproductive performance later in life (Abuelo et al., 2021). Combined, these facts confirm that proper ventilation for calves should be a top priority for dairy producers.

If you are interested in learning more or seeing a hands-on demonstration of fogging a calf barn to troubleshoot ventilation issues, make sure to attend our upcoming free Calf Barn Ventilation Program on July 27 (Stauffers, North Lawrence, NY) and July 28 (Bellers, Carthage, NY). Click here to register: https://ncrat.cce.cornell.edu/event_preregistration_new.php?id=1597.

For help troubleshooting calf barn ventilation at your farm, contact a CCE NCRAT Dairy Specialist, Casey Havekes (cdh238@cornell.edu; 315-955-2059) or Lindsay Ferlito (lc636@cornell.edu; 607-592-0290).
Calf Barn Ventilation Program

Join us for a free on-farm demonstration (including fogging the barn) and discussion about the importance of adequate calf barn ventilation and the impacts ventilation has on calf health and performance. This program is applicable to any sized dairy farm, and any type of calf barn ventilation system.

Presenters Include:
- Tim Terry, Cornell PRO-DAIRY
- Lindsay Ferlito and Casey Havekes, CCE NCRAT

* NON-VACCINATED ATTENDEES MUST WEAR A MASK AND SocialLY DISTANCE *

Pizza and beverages will be provided thanks to our generous sponsors!

Registration: FREE
https://ncrat.cce.cornell.edu/event_preregistration_new.php?id=1597

Cornell Cooperative Extension
North Country Regional Ag Team

"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."

Cornell Cooperative Extension is an employer and educator recognized for valuing AA/EO, Protected Veterans, and individuals with Disabilities and provides equal program and employment opportunities.

Contact Info:
Lindsay Ferlito
Lc636@cornell.edu
607-592-0290

July 27, 2021
12:30pm - 2:30pm
Stauffer Calf Barn
Ferris Road
North Lawrence, NY
(just around the corner from main farm on Co Rd 54)

Sponsored by:
Zoetis

July 28, 2021
12:30pm - 2:30pm
Beller Calf Barn
State Route 126
Carthage, NY
(3 miles NW up the road from the main farm)

Sponsored by:
Merck

COVID-19 Disclaimer:
This program will adhere to NYS and Cornell University COVID-19 safety guidelines including social distancing and mask wearing for all non-vaccinated attendees. If guidelines change and limit in-person gatherings, this program will be postponed until it is safe.
New York farm employees have the right to organize in unions and collectively bargain under the state’s 2019 farm labor law that took effect January 1, 2020. Farm employers need to understand that in an environment where employees may try to organize there are some special rules about what farm owners, managers and supervisors can and cannot say or do about unions. State and federal laws identify these activities as “unfair labor practices” and they may apply to employers and managers, unions, or to employees.

The law permitting farm employee unions is a state law and will be administered by the NY Public Employee Relations Board (PERB). The law has a clause in it that says: “It shall be an unfair labor practice for an agricultural employer to discourage union organization or to discourage an employee from participating in a union organizing drive, engaging in protected concerted activity, or otherwise exercising the rights guaranteed under this article.” It remains to be seen how strictly the state will interpret and enforce this clause.

Most unions are governed by a federal law called the National Labor Relations Act (NLRA). We won’t know with certainty exactly how the state will administer the new state law until its been in place for a few years, but we can take some general guidance from how the federal law is administered. As always, this is general guidance for educational purposes, not specific legal advice. You should seek competent legal counsel if you have specific questions about union organizing activities and your management response to it.

Two acronyms, TIPS and FOE give employers general guidance about what they can and cannot say or do during a union organizing effort. Again, these are based on federal labor law.

I is for Interrogate. Employers are not allowed to ask employees questions about the organizing effort, what they think about it, or the names of employees who support the union or attend meetings.

P is for Promise. Employers cannot promise pay increases, greater benefits, promotions or other valuable items in exchange for keeping the union out.

S is for Surveillance. Using spies (whether employees or not), video cameras, or taking photos of people attending a union meeting are all banned as surveillance.

Of course, farm employers have free speech rights under the First Amendment to the U.S. Constitution. F-O-E outlines the things that employers can say during a union organizing effort.

F is for Facts. Employers can share factual information about the union organizing process and potential collective bargaining process, and other matters such as union dues. They can talk about real, verifiable facts about the financial condition of the business and the industry and implications for employee compensation and benefits. They can also talk about how relationships between management and employees will change if a business becomes a union environment.

O is for Opinions. Employers can make clear their own personal opinions about a union, whether supportive or against. If an employer expresses an opposing opinion, it is important that it not be delivered as a threat. If an employer says to employees during the organizing process: “I’m not in favor of a union and I do not think it is the best thing for our business,” this may or may not be an unfair labor practice, depending on the context and whether it could be received as a threat. If the employer adds to this statement, “but I will respect the law,” then it would most likely not be an unfair labor practice.

Continued on Page 12...
E is for Examples. Employers are allowed to share specific examples such as actual union contracts that have been negotiated, news reports of other union activities, or examples of current results from managers and employees working together directly.

It is important to note that the NY state farm labor law specifically identified a few other unfair labor practices:

- Farm employees or unions are not allowed to strike or otherwise slow down farm work.
- Farm employers are not allowed to “lockout” or prevent employees from working as a result of a contract dispute.

The chair of New York’s PERB, shared an important summary of the farm labor laws pertaining to unions, this is worthy of a careful reading by employers. Access it here: Employee Relations in Ag, Wirenius, PERB.

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Due to COVID-19, there are some restrictions for in-person work and programming. Check out our CCE NCRAT Blog and YouTube channel for up to date information and content.

Calf Ventilation Program, see page 10 for more information.