Cornell Cooperative Extension



South Central NY Dairy and Field Crops Program

Dairy Digest June/July 2019

Seems Like a Good Year to Give Wide-Swathing a Try

Janice Degni, Area Extension Field Crops Specialist

W ith the very few rain free days we are experiencing this spring, it seems like the principle of "Hay in a Day" - the catchy description of wide swathing - would allow harvest of some high quality haycrop even if on limited acreage. It works well when you match the acreage of what you can mow, ted, regather and chop or bale in a 24-36 hour time frame, allowing you to make harvest progress between rain events. Since dry down time is reduced with wide swathing, fermentation and digestible energy are improved. Plant sugars are conserved by reducing respiration losses.

Dale Dewing, Extension Field Crops Specialist in Delaware county reported in their May 24 Scissor's Cut Report, "As is often the case, we had a one day weather window this week, and several farms were able to take advantage and get a field or two done. The key is mowing in a wide swath (80% + of mower width if possible), even tedding after a couple hours of drying. Rapid dry down preserves more sugar in the forage aiding in better fermentation and more digestible nutrients. More days available for harvest and more nutrients per pound of forage are a winning combination. A timely first cut is the essential first step to an adequate inventory of high quality feed."

Reasons that I have heard to discount wide swathing include the time and effort expended to regather the swath for harvest. Rakes can introduce stones to the windrow that can wreak havoc on the chopper but shouldn't bother a baler. The damage to haycrop quality either standing in the

field continuing to laydown fiber and reduce digestibility or laying in a windrow, consuming precious sugars while it rains for a day or more on it will need to be turned over anyway to help drydown. It seems like it worth experimenting with to see if you can work out the system because we are in a lose-lose situation.

Wide Swath Tips for Success:

Dan Undersander, Forage Specialist from the University of Wisconsin presented the keynote address, Advances in Haymaking at a Michigan Forage Council Conference. His main points are summarized below:

1. Take first cutting by plant height. Producers should measure the height at the top of the plant stem, not the tip of the leaflet. Consider harvesting at 28-29 inches in height to get the best compromise between yield and quality of the crop. Research findings show a **daily** change of -0.25 percent in crude protein, +0.36 percent in acid detergent fiber and +0.43 percent in neutral detergent fiber as the alfalfa matures.

2. Use the widest swath possible (more than 70 percent of cut area) when cutting for faster drying and higher forage quality. The wide swath provides the best opportunity for alfalfa plants to lose the first 15 percent water as fast as possible. Conditioning is necessary for hay but not haylage. Alfalfa and alfalfa/grass mixtures for hay should be conditioned with a roller conditioner, not a flail conditioner.

3. Reduce the amount of leaf loss in alfalfa. Retaining the most leaves possible has been a long standing recommendation by forage experts. Alfalfa leaves are 15-20 percent neutral detergent fiber whereas the stems are 55-75 percent neutral detergent fiber. Make sure machines are adjusted correctly and the operating speed have the largest effect on reducing leaf loss at harvest.

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The **South Central New York Dairy and Field Crops Program** is a Cornell Cooperative Extension partnership between Cornell University and the CCE Associations in 6 Counties.

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We are pleased to provide you with this information as part of the Cooperative Extension Dairy and Field Crops Program serving Broome, Cortland, Chemung, Onondaga, Tioga and Tompkins Counties. **Anytime we may be of assistance to you, please do not hesitate to call or visit our office.** Visit our website: <u>http://scnydfc.cce.cornell.edu</u> and like us on Facebook: <u>https://www.facebook.com/SCNYDairyandFieldCropsTeam</u>.

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We put knowledge to work in pursuit of economic vitality, ecological sustainability, and social well-being. We bring local experience and research-based solutions together, helping our families and our community thrive in a rapidly changing world.

Building Strong and Vibrant New York Communities

"Cornell Cooperative Extension is an employer and educator recognized for valuing AA/EEO, Protected Veterans, and Individuals with Disabilities and provides equal program and employment opportunities"

Preventing Sexual Harassment on Farms: Tools for Employers

Updates and Resources for the NYS Sexual Harassment Regulations

Speakers located across the state will connect via Zoom. Each location will project the Zoom meeting and provide a light lunch. Farmers will be able to ask real time questions and engage with other farmers.

To Register: https://forms.gle/duASeZ35oqP1e28M9

July 29, 10am - 1pm

- Farm Credit East, One Technology Place, Homer
- CCE Chemung, 425 Pennsylvania Ave, Elmira

July 30, 10am - 1pm

- Dryden Fire Hall, 26 North St, Dryden
- CCE Tioga, 56 Main St, Owego

A \$10 registration fee covers the cost of lunch. Register online, pay at the door.



Cornell University CALS Department of Animal Science

Dairy Cattle Summer Research Update July 17, 2019 7-9 pm

Vet Teaching Dairy, Tulip Tree Drive, Ithaca, NY Come hear about two research trials conducted

by Julio Giordano's lab

TOPICS:

- Strategies for improving dairy cattle reproductive performance and economics
- Using automated sensors for improving daily cattle health monitoring and management

REGISTRATION:

No cost to attend, but registration is required! Register: Shannon Myers at srm242@cornell.edu or (607) 391-2662 Questions: Betsy Hicks at bjh246@cornell.edu or (607) 391-2376

Management and Mythology-Part II

By Timothy X. Terry, Harvest NY

ast month I introduced the concept of Pygmalion and Galatea Effects – better known as the Power of Manager's Expectations and the Power of Self-expectation,

respectively. I also promised to give you some ideas for cultivating the Galatea Effect.

Encouragement

Here are some of the ways you can encourage and cultivate the Galatea Effect.

Check yourself. Managers are more

effective at communicating low expectations to subordinates than they are high expectations. Actions speak louder than words, and so does silence. In fact, silence can say to the employee, "It doesn't matter" or "I don't really care". Remember that insurance company with the high, average, and low producers? They tried to repeat the experiment at another office, unfortunately, it failed. In the follow-up analysis, they discovered that the manager did not believe that he had anything but mediocre or poor performers. He adamantly denied that he ever vocalized that belief. Nevertheless, the staff picked up on it, consciously or not, and behaved accordingly. So the Take Home Message is: believe that your staff is capable of doing quality work and they will. If you know someone is struggling spend a little extra time coaching them or reassign them to a more appropriate task or team.

2. Provide increasingly challenging job / project assignments, but make sure they succeed at each level before moving to the next level. ALWAYS acknowledge the win as they "move up the ladder". This doesn't have to be elaborate. It can be as simple as genuine praise in front of their coworkers or a hand written note in their pay envelope. This will also help you out with item #1 because it is an action that reinforces their perception of your confidence in them.

3. Allow them to participate in potentially successful projects that will bring improvement to the immediate enterprise and/or the operation as a whole. The key word here is "potentially". If it is too easy it won't encourage them to stretch their abilities toward self-improvement. If it is too hard or impossible to complete they will settle for a significantly lesser goal. In one manufacturing company, for example, they found if they set the monthly production quotas too high (unattainable) the actual output was only

Galatea Effect is a compelling factor in employee performance because an individual's opinion of their abilities and odds of success will determine their level of performance

about 80% of that quota. However, if they backed it off a bit to what was reasonable but challenging they met quota almost every time (~90%).¹

Caveat to items 2 & 3- As managers we are so happy when we have an employee who is interested and willing to gain new skills or fine-tune existing ones that we often forget that they are still only human with mental and physical limitations. It is very easy to assign them one more job or a new responsibility because we want the project or operation to succeed. However, at

some point in time we have to refrain from additional assignments and/or remove some existing responsibilities from their plate. Failure to do so will burn them out and you'll likely lose the valuable employee.

4. Provide one-on-one coaching. This should be not only for their weaknesses, but even more so for their strengths, remember you're trying to take them to the next level. If your operation is such that you cannot personally provide the coaching then you should assign a successful senior employee as a mentor. I know this flies in the face of what really happens out there - the new employee is just thrown in with the rest of the crew to be trained by the crew. But do you remember the child's game of telephone? Player 1 whispers something to Player 2 who whispers it to Player 3 and so on down the line. The last player then repeats out loud what he was told. The response is usually hilarious and little if anything like the initial phrase. So it goes with procedures that may have been handed down three to four times, or more – they may look little or nothing like what was originally put in place. Therefore, mentoring is a good use of your senior talent. Often they are excited to share their knowledge, and you get single source consistency. In the case study insurance company new hires were always placed in the high performance group to be trained and mentored by them. Who better to train them than the best of the best?

5. Keep the messages the employee receives consistent up and down the chain-of-command. You can't build them up to their face and then trash talk them behind their back. This goes, too, for any middle managers even if they don't have a direct supervisory relationship. Feedback should be positive and developmental even if it's correctional in origin.

6. Provide developmental opportunities that satisfy the interests of the individual as well as what the business needs from the employee. Understand, these may be mutually exclusive. The trick is to find the right balance of opportunities that provide for the business and honor the employee needs and desires.

I realize this may sound rather clinical and/or "pie-in-the-sky, but with some thought and creativity they can be implemented in any agricultural enterprise. Labor is usually the second largest expense on a farm, so why not make the most of that investment? "Harness the power of the employee's self-expectations to ensure powerful, productive, improving, and successful work performance. You'll be happy and feel rewarded when the employees exceed your expectations—and theirs."²~

¹J. Sterling Livingston, "Pygmalion in Management", *Harvard Business Review (January 2003)*, <u>https://hbr.org/2003/01/</u>pygmalion-in-management

²Susan M. Heathfield, "The 2 Most important Management Secrets: Pygmalion and Galatea Effects", *The BalanceCareers* (July 2018), <u>https://www.thebalancecareers.com/pygmalionand-galatea-effects-1918677</u>

"Your attitude, not your aptitude, will determine your altitude" – Zig Ziglar

Tie Stall Cow Comfort Meeting & Tour

RSVP Shannon Myers (607) 391-2662 or srm242@cornell.edu Lawton's Jersey Farm 581 Bridge St., Newark Valley, NY **Thursday, July 18, 1-3 pm**

Questions Betsy Hicks (607) 391-2673 or bjh246@cornell.edu

Results from the NY Farm Viability Institute's grant funded project will be discussed, as well as discussion and tour of Lawton's facility and key points to consider for tie stall facilities.



Five Simple Steps to Improve Biosecurity around Livestock

Mary Kate Wheeler, Farm Business Management Specialist

Now that we're on the verge of summer, some farms may start to see an increase in foot traffic. Dairy farms receive regular visits from feed dealers, nutritionists, veterinarians, and other agricultural service providers, not to mention the milk truck. Livestock producers may open their doors to the public for farm tours and other events. Direct market farms often see an increase in visitor traffic at farm

stands and agritourism attractions during the summer season.

When traveling from one farm to another, it is important for livestock producers and farm visitors alike to think about the health and safety of farm animals. Bacteria and viruses that cause infectious diseases in livestock can easily hitch a ride on your boots, equipment, car tires, or even on your hands. Some of these pathogens may make

people sick too. Taking basic biosecurity precautions is important, not only for livestock, but also for people interacting with farm animals.

The primary goal of any biosecurity measure is to reduce the risk of spreading disease. When I hear the word "biosecurity," it makes me think of high-tech scientific procedures, sanitized laboratories, and HAZMAT suits. But this is not what biosecurity has to look like on our farms. In fact, there are a number of simple yet highly effective steps that farmers and their visitors can take to dramatically reduce the spread of disease from one farm to another.

1. Clean up before visiting the farm.

If you are touring another dairy, come in clean clothes and boots. Visitors should wear clean, laundered clothing onto a farm. This step is especially important if you have your own livestock! Leave your dirty muck boots and chore clothes at home. Keep a separate pair of boots exclusively for visiting other farms, and don't wear them on your home farm. Consider wearing protective clothing, which may include disposable gloves, booties, or coveralls, depending on what parts of the farm you will visit. This is especially important if you will be around sick animals or in areas with lots of manure.

2. Avoid unnecessary exposure to germs.

Visitors can avoid unnecessary exposure to pathogens by



staying in lower-risk areas on the farm.

Upon arrival, park your car close to the road or in a designated visitor parking area, rather than driving all over the farm. When touring a farm, avoid areas with lots of manure if you can. If you're just there to talk with the farmer, do you really need to walk through the barn? If you need to walk through the barn, can you stay in a cleaner area, rather than walking through the pens? Don't go near sick animals unless you absolutely must!

3. Take extra precautions around vulnerable animals. *Be aware of which animals are most vulnerable to disease, and take care to visit animals with lowered immunity first.*

> Vulnerable groups may include newborns, young stock, new moms, and pregnant animals. If you must spend time around sick animals, make sure to visit them last before leaving the farm. This will reduce the risk of spreading pathogens from sick animals to healthy animals on the same farm.

On a dairy, for example, always visit the feed area first, so you don't transport any pathogens

from walking through manure into the feed. Next, visit the newborns, if necessary, followed by the older calves. Then visit dry cows and maternity pens before visiting the milking herd. Always visit sick animals last.

Do not go near newborn calves if you have already been around the milking herd, or any sick animals. If you must enter the newborn facility after visiting other areas on the farm, make sure to change your clothes, and wash and disinfect your boots and hands. Take every precaution to avoid exposing calves to manure from older livestock.

4. Wash your hands. A lot.

What is the most important thing you can do to prevent the spread of contagious disease? This was a quiz question that I got wrong while training to become an Emergency First Responder. I said "wear gloves while treating patients," but the correct answer, to paraphrase, was "wash your hands, a lot."

This rule also applies in a farm setting. Your hands get exposed to all sorts of bacteria and viruses on the farm. Fortunately, your skin is great at keeping those pathogens out of your body. But if you take those dirty hands and rub your eyes, blow your nose, get a cut, or eat something, then the pathogens have a way in. Properly washing your hands is the best thing you can do to avoid contracting a contagious disease, and it will also reduce the risk of spreading disease to other people and animals.

Wash your hands regularly while working with livestock, and always wash your hands after handling livestock and before eating. Make hand washing stations available in convenient locations around the farm to encourage this practice.

5. Leave germs behind when you leave the farm.

Leave manure and the germs it contains on the farm that it came from. Throw away any disposable protective clothing before leaving the farm. If you have walked through manure, thoroughly wash and disinfect your boots before you leave. This is also a good time to wash and disinfect your hands.

You cannot disinfect manure, so in order to leave germs behind you need to start with a clean surface. Scrubbing your boots with soap and water is highly effective at removing manure, dirt and other debris. In fact, thoroughly washing dirty boots with soap and water can eliminate 95% to 99% of germs. You can use a high-pressure hose, a stationary boot



TWILIGHT MEETING July 30th, 6-8pm

Preble Hill Dairy, 6993 West Bennett Hollow Road, Preble

JOHNE'S DISEASE: What to Look for, Management Points for Control, and Info on Testing

NYSCHAP coordinator Dr Melanie Hemenway will be leading discussion around control of Johne's for dairy farms. Owner Dr Mike Griep will discuss the dairy's program for control, and lead a tour of the facilities. The farm will also be showcasing their new rotary parlor, which will be starting night milking as the twilight meeting comes to a close.

No cost to attend, but RSVPs are required. Light refreshments will be offered.



wash, or even a bucket of soapy water and a brush. Be sure not to contaminate your soapy water! Pour water over your boots and your brush, rather than dipping dirty boots and brushes into the bucket.

After cleaning your boots, use a disinfectant to remove any remaining pathogens. Virkon is a multi-purpose disinfectant with a broad spectrum of activity against viruses and bacteria that infect farm animals. If Virkon is not available, bleach or Lysol may be used as a disinfectant. Avoid contaminating your disinfectant solution by pouring or spraying it onto your boots. Do not dip dirty boots or equipment into the disinfectant.

If you can't wash up on the farm, consider changing your boots and any other clothing that came into contact with animals or manure before you leave. Put dirty footwear and clothing into a container to be washed and disinfected when you get home.~

AGVOCATING FOR DAIRY FARMERS: "How To", Neighbor Relations, and Resources

August 1st, 10-3, Whittaker Dairy Farm, Whitney Point (up at the barn)

Topics & Speakers:

AM – Eileen Jensen & Erin Hull, NYAAC Agvocating: The "Why and How", will include interactive discussion and presentation

PM – Panel of Dairy Producers involved in Agvocating Social Media, Farm Tours, and More

Preparing for Third Party FARM Audits and Resources Available

Come for the entire day or AM/PM sessions and lunch!

NO COST, BUT RSVP REQUIRED by JULY 25

RSVP: Shannon Myers (607) 391-2662 or srm242@cornell.edu

QUESTIONS: Betsy Hicks (607) 391-2673 or bjh246@cornell.edu





Cornell Cooperative Extension

South Central NY Dairy and Field Crops Program

Organic Dairy Profit Discussion Group

Dairy Profit Discussion Groups are small groups of dairy producers that meet to discuss their actual business performance, and the management practices and decisions generating that performance. These groups offer an unparalleled peer-to-peer learning opportunity, based on mutual trust, respect and confidentiality. A new group is forming in 2019, making this program available to dairy producers following organic standards.

Benefits to Group Members

- Discuss and exchange ideas with other dairy producers in a professionally facilitated setting.
- Draw on the knowledge base of your peers.
- Learn from the substantial real world experience of other participants.
- Interact with industry professionals and guests.
- Build professional relationships and network with other producers.
- Work with facilitators to prepare and understand data used within meetings.

Expectations of Group Members

- Attend and participate in group events.
- Participate in the discussion and share knowledge for the benefit of the group.
- Respect confidentiality and agree not to share or discuss information outside of the group.
- Provide information in a timely manner for report preparation before meetings.
- Take leadership in determining meeting locations, times, topics, invited speakers, etc.

Format of Discussion Group Events

This group's first meeting will take place in July 2019, with a second meeting between January and March 2020. The meeting will focus on benchmark data from producers, with all farms providing data for this purpose. Members will discuss the impacts of management practices and changes on business performance measures. Future meetings formats, locations, data needs, reports, and other logistics will be determined by the group.

Report Format

Benchmark reports are generated utilizing data from the farms participating in the group, with all participants utilizing the same approach to standardize data for comparison. The following tools are generally used, and other tools or approaches can be utilized if so chosen by the group:

- Dairy Farm Business Summary focusing on annual business performance
- Dairy Profit Monitor focusing on current trends in key performance and financial measures

For a newly formed group, each farm gets a report comparing their performance against the average and the range. Participants do not see any individual data from other farms. The level of disclosure generally increases over time as trust grows within the group. Reports for subsequent meetings may have each benchmark sorted independently so that the producer can easily see the range of data from individual farms in the room.

Associated Costs

Meeting costs vary depending on the location and activities determined by the group. Members are responsible for their own lodging and travel expenses. Single-day meetings may range from \$40-\$60 per person to cover meals, handouts and other incidentals. Overnight meetings typically range from \$300-\$600, but will fluctuate depending on the agenda. There is a \$300 annual membership fee to participate in the Dairy Profit Monitor.

For more information, or to sign up, contact:

Mary Kate Wheeler 509-294-6073 mkw87@cornell.edu

Group Housing of Calves & Strategies to Implement on your Dairy, **Even in Hutches!**



Betsy Hicks, Area Extension Dairy Management Specialist

ast week, I attended the Dairy Cattle Welfare \square Symposium, which aims to bring together "dairy farmers, veterinarians, consultants, universities, and the dairy community to discuss best recommended practices with focus on animal well-being, management, husbandry, animal-people interaction, health, and productivity."

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One of the main topics for the symposium was Group Housing of Dairy Calves, with Dr. Emily Miller-Cushon from the University of Florida and Dr. Joao Costa from the University of Kentucky presenting their research in this area. Following their presentation, a panel of producers from different areas in the US talked about their transition to group housing calves – and not all of them utilized barns!

Miller-Cushon and Costa presented background data from NAHMS to start: a survey of producers showed that the overwhelmingly majority (85.3%) raise calves in individual housing until weaning. While this is the norm in many occasions, what does research say about the implications on animal welfare of group-housed calves?

The presenters discussed how calf housing affects two different categories of calf welfare:

Basic health and functioning Natural behavior and affective state

Basic health and functioning can be easily monitored by measuring growth rates, feed intake and health. But how can natural behaviors be monitored? Answering this question was a motivation for the researchers to study group housed calves in comparison to individually housed calves. Surprisingly, differences in both categories of health and natural behavior were seen in these comparisons.

In every study Miller-Cushon and Joao covered, group housing or pair housing showed a benefit or no difference in measurement for average daily gain, solid feed intake and final body weight. In fact, most calves that were paired up in housing early in life had greater solid feed intake when compared to individually housed calves, or calves paired up later in life, both in total pounds of intake as well as a percent of body weight.

Research clearly shows that increased social contact positively affects feeding behavior. Calves experience social learning and will increase feed intake prior to weaning because of this social facilitation.

In health categories, eight studies were discussed that compared group housed calves versus individually housed Researchers compared total disease incidence, calves. mortality and number of treatments. When looking at group housing, studies were split between an increase and no effect on total disease incidence and mortality. In other words, management, rather than facility, more greatly dictates risk of disease. Researchers noted that management factors that reduce disease risk, especially in group housing situations, include: all-in-all-out systems, maintenance and cleaning of auto-feeders, dry bedding, reducing group size, and increasing space allowance.

The effects of social housing on behavior have been studied across many species, and it is known that early social isolation is detrimental on social development as well as These can include learning cognitive development. difficulties, abnormal repetitive and social behavior and a higher fear response.

In terms of dairy calves, we observe with individually housed calves that they have a lower ranking in the herd, reduced faced with competition, success when increased aggressiveness and less ability to interact with animals they don't know, and reduced amount of play behaviors. With group-housed calves, calves seek out to touch other calves and actually prefer to feed next to another calf, as well as showing less fear to novel situations when raised in a grouphoused situation.

Studies evaluated calf fear responses to a test of a new situation. Calves that were individually housed showed more fear – more vocalizations, defecation, and increased heart rate - than those calves that were group housed from birth. In other words, those calves that were group housed were better equipped to cope with stressful situations, whether it be a new calf, a new pen or new feed. Calves individually housed from birth showed a greater aversion to try new feeds presented to them, and ate a lesser amount of that new feed than their group-housed comparison.

In terms of cognition and learning and relearning new things, again group-housed calves had an advantage. A study in 2015 utilized a screen that calves would push with their nose to receive milk. Once they were taught to push the screen, a white screen would mean "push and receive milk". A red screen would mean "push and receive no milk – aka don't push". Calves that were group housed learned this set of rules fairly quickly; calves individually housed struggled. After this portion of the study, the screen were reversed – red for milk, white for no reward. Group housed calves again were able to figure out the change and received milk. Individually housed calves struggled even harder with this, with the majority of calves never figuring out how to consistently receive milk after the switch.

So why does this matter? Is cognitive ability and behavioral flexibility even important? In the first two years of life, think of how many changes we throw at our heifers. Think of how stressful these events can be – changes in pen mates, diet changes, the transition to becoming a lactating cow, being milked for the first time, finding water, and avoiding boss cows. All of these instances are opportunities for her to learn and adjust. If we equip her as a calf to learn novel ways of approaching a situation and reduce the amount of fear she has, her stress level comes down and her growth and production can increase

"But," you say, "I raise my calves in hutches for a reason! I don't like sick calves!" Even pair housing calves in hutches has benefits over individual housing, and may decrease incidence of disease because of the benefits that social learning brings. And by pair housing, I don't mean putting two calves in one hutch with one wire frame.

During the panel talk, three different producers discussed their ways of group or pair housing. One of these panelists, Gerardo Gonzalez Castaneda of Aurora Organic Dairy, showed pictures and dimensions of how he utilizes a pair of hutches for two calves, initially with 24 square feet of play area utilizing the wire mesh panels, and later expanding to 112 square feet of "play-ground" outside each hutch pair, as Castaneda describes it.

Benefits he listed for pair raising calves included better socialization (less time vocalizing when moved to a new pen), better transition from liquid to dry feed, increased rate of daily gain, more playing and calmer calves at weaning. He also noted that about 95% of the time, calves slept in the same hutch!

The pair housing strategy also utilizes divisions for individual spots for drinking to avoid competition if one calf drinks more slowly. Challenges they encountered included sucking on

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each other, which was overcome by feeding more milk and the competition during feeding, overcome by the divisions. If by chance, one calf in the pair gets sick, they still keep the calves together and code the healthy one as BOS (Buddy of Sick).

Another panelist, Pam Selz-Pralle of Selz-Pralle Dairy in Wisonsin describes their mob-feeding group pen strategy. Pen sizing on this dairy also increased from 35 to 45 square feet per calf, with each pen holding four heifers. The sizing of these pens is also preferred to be deeper rather than wider, and utilizes a mesh barrier for sides rather than open bars. A headlock is included in each pen for one-on-one care if needed. Ventilation is achieved through positive pressure, and the barn has full air exchange every six minutes. After group housing, calf mortality dropped to a half percent, treatment rate is less than 1%, and average daily gain is 2 lb/d through weaning. After weaning, gains reach 2.5 lb/d to three months of age. The cost per pound of average daily gain also decreased from \$2.14 to \$1.16, with less bedding per animal required and more efficient labor.

Group housing, when managed correctly, can yield some huge cost savings as well as improve social and cognitive abilities in those calves; the benefits can last through her whole lifetime. Implementing some sort of group or pair housing strategy as early as possible in a calf's life should be looked at to see where or how it makes the most sense. Every farm is different – calling in your extension educator, veterinarian or nutritionist to help decide how to develop and implement a strategy is a great first step. ~

Aurora Organic Dairy pair housed calves



Cropping Notes

By Janice Degni, Area Extension Field Crops Specialist

 $^{f v}$ hree glorious rain free days the first weekend in June allowed many to harvest haycrop and/or plant corn. This has been one of the more challenging springs to make progress with getting crops in the ground. Many new seedings were put on the back burner so that manure could be spread and corn planted. There is still time this season since there is an early August window for seeding alfalfa, and grasses can be seeded into early September. Air flowed new seedings sat still for at least 3 weeks in early May because of cool temperatures. It wasn't until the end of May when such fields greened up and I saw the first rowable corn. Corn needs between 90-120 growing degree days of accumulated heat units to emerge. Temperatures were on the cooler side in May with the average temperate for the month at 55°F. The highest temperature was 86°F on 5/20 at and the coolest 34°F on May 22. From mid-May through June 17 we are trending lower than the 30 year normal for accumulated heat units. Visit the Climate Smart Farming Growing Degree Calculator to seed the data for your fields. http:// climatesmartfarming.org/tools/csf-growing-degree-daycalculator/

The data below is representative of the general area wide trend but since it is taken from only one weather station located in Freeville, NY it may not exactly match your neighborhood's conditions.

Growing Degree Days

The overabundance of rain severely limited days that allowed planting of anything from seedings and oats to corn and soybean, which has caused much frustration for spring's work. Now, in mid-June, I estimate that we are over 75% planted. Compared to other areas of the state I think we are

	Accumulated Growing Degree Days
May 1 – June 10, 2019	302
15 yr average	388
30 yr normal	342
Period of record	188-506

faring relatively well. We may end up with slightly lower yields on our corn silage and plenty of heifer and dry cow feed, but we will have a crop. On that front, Joe Lawrence, PRODAIRY Forage Specialist, reminded us recently to not fill up your storage with late cut, poor quality feeds so that you are locked into feeding it. Try to separate so you have control over when and which groups you feed it to, leaving you room for quality 2nd and later harvests.

Since seed for alternative forages like the summer annualssorghum sudangrass, sudangrass, millet, and teff- are in short supply or are already sold out, there are few alternatives besides corn for generating tonnage. At the very least, late planted corn will produce fodder. Without a fully developed ear, energy will be lower but it will make feed. I would avoid July planted corn if you can. Under the best of conditions it's a messy crop to harvest.



Rainfall Summary to Date							
Month	Monthly total	Monthly Normal	Maximum (year)	Minimum (year)			
April	3.21	3.08					
May	4.87	3.54	7.19 in 2004	.92 in 1980			
June 1-10	.91 (7 out of 10 rainfree days)	1.37	Source: http://climod2.nrcc.cornell.edu/				

The good news is that late planted corn can compensate for lost time to some extent, as Bob Nielsen, agronomist at Purdue University explains, "How fast a corn plant develops (i.e., moves through growth stages) is very dependent on temperature (warm = fast, cool = slow). Interestingly, it appears that hybrids mature in fewer GDDs than predicted when planted 'late'. Based on research we conducted some years ago (Nielsen et al., 2002), hybrids planted later than about May 1 mature approximately 6.8 fewer GDDs for every day of delay beyond May 1, through at least the 2nd week of June (the latest planting dates we evaluated in the research). For example, a hybrid rated at 2700 GDDs from planting to physiological maturity (kernel black layer) and planted on May 31 reaches physiological maturity in less than 2500 GDDs after planting (e.g., 2700 - (30 days x 6.8))." A warm summer will help us reach maturity before the killing frost.

By the time this newsletter reaches you the earlier planted corn fields will be nearing knee high with 6-8 leaves. This is when the plant begins to determine yield potential through ear size, which continues until about 2 weeks before silk emergence. Stresses during this period of growth will impact ear development. Compromises to the plants ability to photosynthesize will impact yield; examples include severe drought, insect feeding or hail damage. Professor Nielsen explains, "Row number is determined strongly by plant genetics and less so by environment. This means that row number for any given hybrid will be quite similar from year to year, regardless of growing conditions. Some exceptions to this include the effects of injury from the post-emergence application of certain sulfonylurea herbicides or nearly complete defoliation by hail damage prior to growth stage V8.

The potential number of kernels per row is complete by at least V15 and maybe as early as V12 (Strachan, 2004). Kernel number (ear length) is strongly affected by environmental stresses. This means that potential ear length will vary

dramatically from year to year as growing conditions vary. Severe stress can greatly reduce potential kernel number per row. Conversely, excellent growing conditions can encourage unusually high potential kernel number."

Watch the Corn Crop for Supplemental Nitrogen Needs It is hard to predict how much



nitrogen from our manure applications has been lost this spring. Because corn is small and temperatures have been cooler the crop's color is a little off right now. As we get into the 4-6 leaf stage we can use color as a general indicator of nitrogen status. Remember that the PSNT (pre-sidedress nitrogen test) was developed precisely to estimate the presence and availability of nitrogen from organic sources. This would be a good year to test some fields as a way to quantify the soil nitrate status. The PSNT was not calibrated for fields that received pre-plant nitrogen so the results in that situation are not reliable. An agronomy factsheet reviewing the details of the testing procedure and interpretation of results can be found here: <u>http:// nmsp.cals.cornell.edu/publications/factsheets/</u>

<u>factsheet3.pdf</u>. Dairy One's soil lab, AgroOne charges \$6 per sample. Contact them for more information.~

References:

Nielsen, R.L. 2019. Hybrid Maturity Decisions for Delayed Planting

URL: <u>http://www.kingcorn.org/news/timeless/</u> <u>HybridMaturityDelayedPlant.html</u> Nielsen, R.L. 2007. Ear Size Determination in Corn. URL: <u>http://</u> <u>www.kingcorn.org/news/timeless/EarSize.html</u>



Corn and Soybean Weed Control in a Wet Year

By: Mike Hunter, Field Crop Specialist, CCE-NCRAT

The cool, wet month of May and start of June has created some challenging weed management situations for both corn and soybean. Unfortunately, delayed planting seasons force growers to focus so much on getting the corn and soybean planted they may not have had the opportunity to make a timely planned preemergence (PRE) herbicide application.

Here is a common situation that we are already encountering this season. We have a field with corn or soybeans planted and cool conditions have delayed crop emergence but the weeds have already emerged before the PRE herbicide treatment was made. Do we stick to our original plan and apply a PRE herbicide to this field or do we need to make adjustments to the herbicide program?

If your planned PRE herbicide application has been delayed it is very important to carefully consider your herbicide choices and make necessary adjustments if any weeds are emerged at the time of application. With adequate rainfall, PRE herbicides can provide excellent weed control; however, once the weeds are emerged they will generally need some additional product in the tank mix. The additional product could be another herbicide to add to the tank mix or just an adjuvant such as non-ionic surfactant (NIS), crop oil concentrate (COC) or methylated seed oil (MSO). There will be many more options in corn than soybeans.

Corn fields not treated with a herbicide prior to crop emergence need to be looked at carefully. If very small weeds are emerged at the time of the PRE application the answer may be as simple as adding adjuvant to the PRE herbicide. Consult the herbicide label and follow the adjuvant recommendations based on the products in the tank mix.

If the corn has emerged and the annual grasses are over 1 inch tall and the broadleaf weeds are 2 to 3 inches tall it may be necessary to add another herbicide to the PRE herbicide. If the corn is glyphosate tolerant, you may only need to add glyphosate to the preemergence herbicide program. Using this same scenario and it is conventional corn, you will likely need to include a postemergence (POST) herbicide to the PRE herbicide. Examples of POST tank mix herbicides to consider for control of both emerged annual grasses and broadleaf weeds include: Revulin Q, Realm Q, Resolve Q, Capreno, Laudis, Armezon. The effectiveness of these POST herbicides varies with the control of different annual grasses making proper weed identification critical. Again, check the

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herbicide label prior to making any herbicide applications.

If you are using a PRE soybean herbicide it will likely be an Herbicide Group 2 (Pursuit, Python, FirstRate), 3 (Prowl, Treflan, Sonalan), 5 (TriCor, Dimetric, metribuzin), 7 (Lorox, Linex), 14 (Valor, Sharpen) or 15 (Dual, Warrant, Outlook). Soon after soybeans are planted, there is a narrow window to make certain PRE herbicide applications. Valor (flumioxazin), Sharpen (saflufenacil), metribuzin and any premixes containing these active ingredients must be applied prior to crop emergence. Lorox (linuron) is another PRE soybean herbicide that must also be applied prior to crop emergence. Prowl, Treflan and Sonalan are applied prior to planting soybeans.

Soybean fields not treated with a PRE herbicide after crop emergence and very small weeds have emerged can be more difficult to deal with, especially if a population herbicide resistant tall waterhemp is present. Recently, Dr. Bryan Brown, NYS Integrated Pest Management Program, conducted tall waterhemp herbicide resistance screening trials at Cornell University. Using tall waterhemp seeds collected from three different fields in New York, preliminary results indicate that two populations were resistant to glyphosate (i.e. Roundup, Group 9), three populations resistant to atrazine (i.e. Aatrex, Group 5) and two populations resistant to imazethapyr (i.e. Pursuit, Group 2).



Fortunately, none of the tall waterhemp screened were found to be resistant to lactofen (i.e. Cobra, Group 14).

If a population of multiple resistant tall waterhemp is present, our effective herbicide options are limited. The PRE herbicides that will provide control of multiple resistant (Group 2, 5, 9) tall waterhemp include Dual, Warrant, Outlook (S-metolachlor, acetolchlor, dimethenamid-P), Prowl, Treflan, Sonalan (pendimethalin, trifluralin, ethafluranlin) Valor SX (flumioxazin) and Lorox, Linex (linuron). If both the soybeans and multiple resistant tall waterhemp have emerged, our effective herbicide options are very limited. Dual, Warrant and Outlook are the only PRE herbicides listed that can be applied POST; however, these products will not control emerged weeds. In this situation it would be necessary to include either Reflex or

Cobra (Group 14) to the tank mix to provide control of the emerged tall waterhemp.

Soybeans with the herbicide resistant technologies such as Liberty Link (glufosinate tolerant i.e. Liberty), Xtend (dicamba tolerant i.e.Xtendimax, Engenia, FeXapan) and Enlist E3 (2,4-D i.e. Enlist, glufosinate and glyphosate tolerant) provide additional options for POST control of resistant tall waterhemp.

This spring has provided very limited opportunities to plant corn and soybeans due to frequent rainfall and wet field conditions. This challenging spring has also made it difficult to apply planned PRE herbicides in a timely manner. It is important to carefully scout your fields before making any herbicide application to make sure the right products are included in the tank mix.~

Wide-Swathing, continued from cover

4. Bale at the proper moisture levels to prevent mold

growth and heating in storage. For square bales, the general recommendations are: small squares 19 percent moisture or less, medium square bales (3 feet x 3 feet) less than 16 percent, and for large square bales (4 feet x 4 feet) less than 14 percent moisture. For round bales, the general recommendations are: small rounds (4 feet wide x 5 feet high) less than 18 percent moisture, medium rounds (5 feet wide x 5 feet high) less than 16 percent moisture, and large (5 feet wide x 6 feet high) less than 15 percent moisture.

5. Remove hay/haylage from the field as rapidly as possible to minimize wheel traffic damage. Research

shows there is a 6 percent per day reduction in yield of the next cutting for every day the field is driven over after cutting. Wheel tracks will damage the crown buds that produce the next cutting's growth. Producers that tend to leave bales in the field for several days following baling will sacrifice yield unless they pick up bales immediately.~

For more details from our NYS Extension Forage Specialist, Dr. Jerry Cherney, visit <u>http://www.nnyagdev.org/press-</u> <u>releases/press-05-03-07.htm</u> to read *Research Shows Wide Swath Haymaking Can Produce Faster, Higher Quality, Less Costly Forage*, a study supported by the Northern NY cultural Development Program.



Advantages of Wide Swath Harvest Management

- Complete 1st cut sooner
- Shorten drying time
- Achieve drier baleage
- Lower protein solubility
- Improve fermentation



Reasons to Use Wide Swath Management

- More days useful for harvest
- Finish harvest in fewer days, Lower fiber (NDF)
- Save plant sugars; more energy, and better fermentation
- Higher dry matter in haylage; lower soluble protein, better fermentation

Key Points for Wide Swath Management

- Mow only as much as you can chop or bale that day.
- Lay hay out in as wide a swath as possible.
- Ted if needed.
- Watch drying rate.
- Rake when hay is within 1 or 2 points of desired moisture content, it will not dry much after raking.
- Wide rakes making large windrows will reduce harvest time.

Planting Green 101: Penn State Research Summary (First Installment)

This article explains the "why" and "how" of planting green with corn and soybeans, including practical management recommendations based on results from 3 years of research across 5 locations in Pennsylvania.



Integrating no-till and cover crops requires informed management

The benefits of no-till have been well established, including reduced fuel consumption, reduced soil erosion, improved soil physical properties and soil quality, and improved water quality. We also know that some benefits of no-till are enhanced by planting cover crops, which provide additional benefits associated with living cover and roots such as weed suppression; beneficial arthropod habitat; increased soil organic matter, biological activity and structure; and nitrogen provision (legumes) or sequestration (non-legumes). However, integrating no-till + cover crops can complicate management, especially in the mid-Atlantic and northern Corn Belt. Both practices cool soil (this effect is even stronger when no-till and cover crops are used together), shortening the growing season for summer annual crops, as farmers wait longer in the spring for soil to warm up and dry out. Problems with stand establishment can then result from cooler, wetter soils, and interference from cover crop residue. Slugs, molluscan pests that eat crop seeds and defoliate young plants, are another common challenge associated with no-till and cover crops. Because they prefer moist and cool habitats, they thrive in systems without tillage that can bury eggs and warm-up and dry out soil. Recent research has also demonstrated that insecticide use can exacerbate slug populations. Neonicotinoid seed treatments are ubiquitous on corn and soybean and are used to control some secondary, early season insect pests. However, these

insecticides provide no protection from slugs, but can injure or kill predatory insects when they feed on slugs exposed to the insecticide. Other pre-emptive insecticide applications, like pyrethroid sprays close to planting, can also reduce predatory insect activity. As a result, these pre-emptive insecticides practices can indirectly increase slug damage to crops because they limit the activity of predators of slugs.

What is planting green, and why do people do it?

Planting green refers to planting cash crops into living cover crops instead of the more common practice of planting into desiccated cover crops killed with an herbicide a week or more beforehand (Figure 1). Some farmers in Pennsylvania report that they "plant green" (or "grow green") to extend the soil conservation and soil health benefits of cover crops while mitigating the challenges of wet soil and slug damage associated with pairing cover crops with no-till. Planting green had not been extensively studied nor these claims quantified. So, at Penn State University we conducted a three -year study at five different locations in central and southeastern Pennsylvania to evaluate the effects on corn and soybean performance of "planting green" compared to preplant cover crop termination. In summary, over 14 siteyears we measured no yield difference between soybeans planted green compared to soybeans planted into preplantkilled rye or triticale. In contrast, for more than half of our 12 site-years, grain yield of corn planted green was significantly lower or trended lower than corn planted into preplant-killed cover crops.

Cover crops for planting green

Cereal rye (Secale cereale L.) is the most commonly used cover crop in the mid-Atlantic region, because of its ability to germinate and grow when planted late in autumn, overwinter, grow quickly in spring, sequester nitrogen, provide mulch for weed management, and ensile or be grazed for forage. We found that in central and southeastern Pennsylvania, rye biomass increased an average of 137% with an average of 15 days between preplant-kill and planting green. In addition to cereal rye, we evaluated no-till corn planted green into crimson clover (Trifolium incarnatum L.). Although our results varied, in the 6 site-years with crimson clover, the clover cover crop tended to dry out soil more than rye, and had tough stems and roots, making it more challenging for no-till corn establishment. Our research measured an 8% average decrease in corn population when it was no-till planted into crimson clover, regardless of termination timing in half the site-years compared to rye. In

one site-year, planting into crimson clover compared to rye also increased insect damage (mostly from stink bugs) by 82%, regardless of termination timing. Because of these issues, across half the site years corn grain yield was on average 11% lower when planted green into crimson clover compared to preplant-killed clover, rye, or rye + clover mix. In addition, in central Pennsylvania, crimson clover winter survival is not consistent; it should be seeded no later than early September to ensure successful overwintering, making it less suitable for a summer annual crop rotation. In the mid -Atlantic region, additional research is still needed to help develop successful corn-crimson clover cover crop no-till management guidelines.

Some farmers have shown interest in using wheat instead of rye because seed can be less expensive, it matures more slowly in the spring, and is a shorter-statured plant than rye. Triticale's development in the spring is intermediate to wheat and rye and has worked well for 2 of our 3 cooperating farmers. Further research is required to determine the feasibility and usefulness of other cover crop species and mixtures for planting green.

Establishing the cover crop

Appropriate establishment dates for cover crops will depend on the species used (see the Penn State Agronomy Guide), crop rotation, and whether manure is applied in the fall. Cover crops can be drill-seeded, broadcast, or planted at various row spacings, depending on available equipment and grower preference. We evaluated drill-seeded cereal rye in 7.5 inch rows at 30, 60, and 120 lb/A preceding soybeans. When planted green, we found that in 5 of 6 site-years seeding rate did not significantly influence spring biomass when living rye remained until soybean planting. This was likely influenced by increased tillering at lower seeding rates (not measured in study) as well as rye planting date and N fertility. In one site year, we top-dressed the two low seeding rates with twice as much nitrogen (60 lb N/A) but the cereal rye produced biomass similar to the high seeding rates that used half as much N (30 lb N/A). Also, that siteyear we established rye late (late October instead of late September), demonstrating that more spring nitrogen applied to rye can compensate for lower seeding rates and fall planting dates. However, too much N on small grain cover crops can result in excess biomass production, and in some cases lodging prior to termination, both of which interfere with the establishment of the subsequent cash crop. Therefore, if planting in September, we recommend reducing rye seeding rates to around 30 lb/A and either increasing the rye seeding rate or applying more fertility if planting is delayed into late October.~

[To be continued in the next newsletter issue]



Figure 1. Cereal rye cover crop that was killed with glyphosate 3 weeks prior (left) and that will be killed after soybean planting (right) at Rock Springs.

Summer, 2019 Hemp Events

- Willsboro Farm Field Day July 10
- Aurora Farm Field Crops Field Day July 11
- Freeville Organic Farm Field Day July 31
- Hemp Workshop Empire Farm Days Aug 6-8
- Cornell Hemp Field Day Geneva Aug. 13
- Cornell CBD Hemp Field Day Bluegrass Lane, Ithaca Sept. 10?

More information will be posted as soon as details become

available. For updates visit: <u>https://hemp.cals.cornell.edu/</u>



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Change Service Requested

July 2 Topics: Bre Varieties, P	2019 Cornell Seed Growers Field DayDNYSIP Foundation Seed Barn, 791 Dryden Rd, Rt 366, IthacFor more information, see: https://events.cornell.edu/event eding Small Grains, Small Grain, Forage, and Hemp Disease Iest Management, and Breeding, Glyphosate Transport from R	EC/CCA Credits Requested a /2019 seed growers field day Management, Certified and Foundation Seed V unoff-prone fields	8:30am-12pm Jpdate, Forage
July 9	Pasture Walk: Custom Heifer Grazing, Virgil Farms, 833 View and discuss all aspects of a 40-heifer grazing operation	5 Virgil Rd, Fabius, NY . No cost. Please RSVP to srm242@cornell.ee	11:30am - 2pm ^{lu}
July 17	Dairy Cattle Summer Research Update Vet Teaching Dai See page 2 for more information and registration details. No	ry, Tulip Drive, Ithaca, NY fee, but registration is required.	7-9 pm
July 18	Tie Stall Cow Comfort Meeting & Tour, Lawton's Jersey No cost for attendance, but RSVP is required for refreshmen	Farm, 581 Bridge St., Newark Valley ts. See page 4 for registration information.	1-3pm
July 21	Tioga County Sundaes on the Farm, Stronghaven Farm, 2 For details see: <u>https://www.facebook.com/events/3045836</u>	2601 State Rte 17C, Barton, 13734 5 <mark>03584567/</mark>	12-3pm
July 24	Organic Dairy Profit Discussion Group, Location to be de Advance registration is required. See Page 7 for more details	etermined	10am-3pm
July 29/30	Sexual Harassment Prevention Training Tools for Emplo Updates and Resources to Fulfill the New NYS Sexual Ha Multiple days & times, see page 2 for details. Lunch provide	yers: rassment Regulations d. \$10 registration fee.	10am –1pm
July 30	Twilight Meeting, Johne's Disease-What to look for, man Preble Hill Dairy, 6993 West Bennett Hollow Road, Preble, No cost for attendance, but RSVPs are required. Light refresh	agement for control and info on testing 13141 iments will be offered.	6 pm-8pm
Aug 1	Agvocating for Dairy Farmers: "How To", Neighbor Rela Whittaker Farms, 4585 NY-26, Whitney Point, 13862 Detai RSVP REQUIRED by July 25.	ations, and Resources Ils on webpage calendar. No Fee.	10am - 3pm

CALENDAR OF EVENTS