



Cornell Cooperative Extension

South Central NY Dairy and Field Crops Program

Dairy Digest
Aug/Sept 2019

Preparing for Corn Silage Harvest

Janice Degni, Area Extension Field Crops Specialist

This season's corn crop maturity is variable within field and between fields. Silking and tasseling is not uniform across most fields. You can see corn from knee-high to early ear development in the first week of August. Targeting harvest will require planning. It will help to look at where we stand with growing degree days compared to the corn plant's requirement for maturation.

Table 1. Summarizes the growing degree accumulation for the season to date for Freeville, New York.

Month	Monthly Total	Season Cumulative Total	Average Daily Accumulation by month
May	194		6.0
June	375	569	12.5
July	642	1211	21
August 1-15	250	1277	17

Table 2. Approximate GDD Accumulation for Stage of Corn Development in NY

Growth Stage	80 day Hybrid	110 day Hybrid
Emergence	110	110
Silk Stage	1,100	1,400
½ Milk Line	1,800	2,400
Maturity (black layer)	1,900	2,500

How many more growing degree days are we likely to accumulate before a killing frost?

Using the data from the Freeville site, if our killing frost is October 15, historical records show a low of 2170 GDD for the 30 year average accumulation to 2193 GDD for the 15 year average accumulation. So let's compare some dates for

the killing frost in Table 3. To estimate whether your corn will mature before the killing frost, compare the required GDDs for ½ milk line or black layer to long-term records of season-long accumulation.

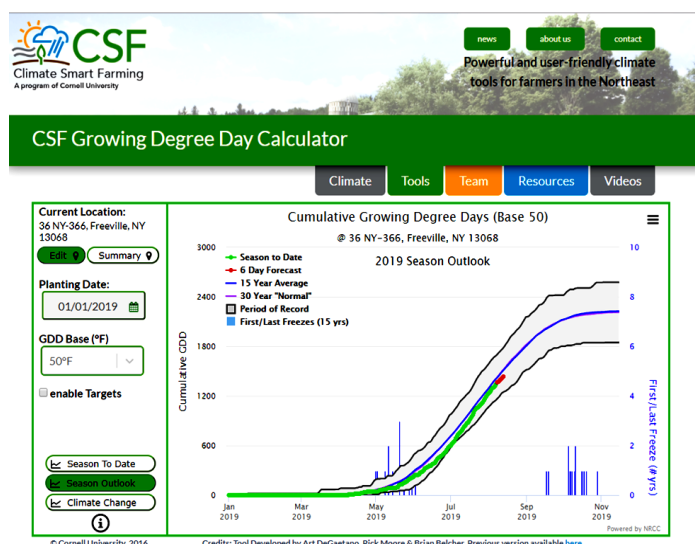
Table 3. A comparison of GDDs for a series of first frost dates[¥]

Date of First Frost 32°F	30 yr ave. GDD accumulation n	15 yr ave. GDD accumulation n	Cumulative GDD Lowest Year on Record	Cumulative GDD Highest Year on Record
Sept. 17*	2024	2014	1718	2387
Sept. 30	2117	2123	1802	2421
Oct. 5	2142	2148	1814	2477
Oct. 10	2163	2176	1824	2500
Oct. 15	2177	2193	1832	2507
Oct. 29***	2200	2215	1846	2573

*earliest killing frost on record for the Freeville site

***latest killing frost on record for the Freeville site

¥ This data was put together using the Cornell Climate Smart Farming Site and the Growing Degree Day Calculator. <http://climatesmartfarming.org/tools/csf-growing-degree-day-calculator/>



The CSF Growing Degree Day Calculator can be a useful tool for predicting whether a late planted corn crop has a chance of maturing or not. If it is unlikely to mature you can make an alternative plan to harvest and preserve your corn crop as fodder.

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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.



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: <http://scnydfc.cce.cornell.edu> and like us on Facebook: <https://www.facebook.com/SCNYDairyandFieldCropsTeam>.

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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"

Best wishes to Abbie Teeter as she grows in her career with a new job with the Organic Valley Coop

As most of you know, I have been working with Fay Benson on his many projects of the Organic/Small Dairy Support Program for almost three years. And, as some of you know, my time in this position is nearing the end. I have accepted a new position with Organic Valley, and will transition in mid-August. I am very excited to begin this next step on my journey, however leaving my work with the team is bittersweet. I am so fortunate to have been able to begin my career with the South Central New York Dairy and Field Crops Team. I have learned so much in this position, and I am thankful for the opportunities I received working with the team. It's said that time flies when you're having fun, and I'm confident these years have flown by because every day at work was a fun day. I am so grateful for the relationships with all of you – the farmers and community members in our counties – I have built along the way. I know this new position will allow me to continue to work with Organic Valley farmers in the region, and I hope I continue to

bump into all of you in my new position. Thank you for supporting me, and allowing me to grow working with the South Central New York Dairy and Field Crops Team.



Onboarding Dairy Farm Employees: Safe, Productive, and Engaged from Day One

Cornell Agricultural Workforce Development

Have you noticed that some farms have had the same employees for years, while others struggle to keep employees? Employee retention can be a challenge in agriculture. Recent research on large dairy farms indicates annual employee turnover rates range from 20 to 80 percent. The first days and weeks on the job set the course for a new farm employee. Given the tight labor market, a successful onboarding program can be an essential tool to help reduce employee turnover, increase employee safety and productivity, and contribute to a farm's success.

New employee onboarding is a management process to bring new employees into the farm business, complete necessary paperwork, equip them with safety and performance knowledge and skills, and make them feel connected to a worthwhile team. Onboarding should focus on the new employee as a person, not just as a worker, and not just on the business.

If an employee has a positive onboarding experience, their likelihood of staying at the place of employment for more than three years is about 69 percent, according to the Society for Human Resources Management. In addition to less turnover, employees are approximately 50 percent more productive and 54 percent more engaged.

Conversely, if an employee is poorly onboarded, this sets employees up for failure. The first impression can be the make or break of whether that employee returns tomorrow or leaves as soon as they can find another job. The onboarding process can help eliminate that experience and serve as a positive experience for the new hire. From the employer perspective, much is gained.

"A successful onboarding process begins with a well-planned orientation, training and compliance, and leads to improvements that benefit both the manager and employees throughout the relationship," said Dr. Richard Stup, Cornell Agricultural Workforce Specialist.

Identified as a priority by New York's Ag Workforce Development Council, Cornell Ag Workforce Development is developing a new onboarding project that was funded in 2019 by the New York Farm Viability Institute. The project "Safe, Productive and Engaged from Day One" focuses on developing tools, trainings and templates to help navigate employment requirements and improve human resource management practices.

Agriculture Workforce Development's "Onboarding Template" helps you quickly develop a complete onboarding program with orientation and training that:

- Ensures compliance with basic regulations and policies.
- Provides clarification on work procedures and expectations, and offers safety training.
- Establishes a workplace culture based on values, philosophies and traditions.
- Creates connected relationships at work that allow employees to engage and thrive.

An effective onboarding program will:

1. Establish a farm culture that is safe, productive and engaging.
2. Set clear, upfront job expectations that employees can fully understand.
3. Provide immediate safety training to avoid injuries.
4. Promote compliance with all employment regulations.
5. Communicate important farm policies and procedures, especially those that may differ from previous employers.
6. Overcome language barriers so that everyone can understand each other.
7. Increase employee commitment and reduce turnover.
8. Provide accessible and realistic support for farm onboarding, even when labor and time are in short supply.

Over the next year, the Cornell Ag Workforce Team will partner with 25 farms to develop onboarding materials, trainings and methods. If your farm is looking for a way to improve employee retention and increase overall productivity of employees, we are looking for local farms to participate in this project over the next year, with more added in 2020. Please contact Mary Kate Wheeler (509-294-6073; mkw87@cornell.edu) for more information and a flyer about this exciting program.

Cornell Ag Workforce Development's mission is to help farms and agribusinesses build committed and effective teams who will carry out the important work of feeding the world. We believe that agricultural work can, and should be, engaging and rewarding for everyone involved. Managers can build committed teams by applying the best human resource management practices for the agricultural setting.~

Planned Onboarding Phases



Preventing Sexual Harassment on Farms: 5 New Rules for Employers in New York State

Mary Kate Wheeler, Farm Business Management Specialist
South Central NY Dairy and Field Crops Team

Most people engaged in agriculture will agree that there is no place for harassment, sexual or otherwise, on farms. It is easy to make this case from an ethical standpoint (remember the golden rule), from a business standpoint (happy employees are productive employees), and from a liability standpoint (employees who experience harassment at work might sue their employer). Nevertheless, many of us who work in agricultural jobs have witnessed, experienced, or heard stories about inappropriate workplace behavior.

Recent changes to NY's sexual harassment laws have brought this issue to the attention of employers across the state, including agricultural employers. Now, farm businesses in NY must take action to protect their employees from sexual harassment in the workplace, not only for ethical, economic, and risk management reasons, but also because it is the law.

This article covers the five new rules that affect private sector employers in NYS, and what they mean for agricultural businesses in particular.

1. Employers must enact a sexual harassment prevention policy, provide the policy in writing to their employees, and train employees at hiring and annually.

October 9, 2018 was the deadline for all NY employers to adopt a sexual harassment prevention policy. The New York State Department of Labor (NYSDOL) makes it easy for employers to comply with this rule by providing a [model policy](#) that you can adopt and customize for your business. You can find translations of the model policy in [8 different languages](#) on the state's website.

NY employers are required to provide sexual harassment prevention training to all employees at hiring and annually. You need to complete your first employee training by October 9, 2019 to be in compliance. The training must be interactive and meet the minimum requirements set out by the state.

NYSDOL provides a set of training materials on its [Combating Sexual Harassment in the Workplace](#) website. With these resources, you as the employer, or your human resource manager, can deliver an approved employee training.

A team of Cornell Cooperative Extension (CCE) educators is adapting the state's resources to create a set of "farm-focused" training materials, intended to make the information more relatable to farm workers. These materials will be available in English and Spanish from [Cornell Agricultural Workforce Development](#), starting in mid-August.

The resources provided by NYS and CCE are intended to make it easier for employers to offer the training in house. However, if no one in your company is comfortable delivering a sexual harassment prevention training, consider hiring an outside consultant to train your employees.

2. New York State contractors must have a sexual harassment policy, and they must provide sexual harassment prevention training to employees.

In order to submit a bid, all contractors that provide services

to NYS must affirm that they have adopted a sexual harassment policy, and that they provide annual sexual harassment prevention training to all of their employees. This provision only applies to contractors bidding on state jobs, so it may not directly affect your farm business.

3. The scope of Human Rights Law is expanded to protect non-employees from sexual harassment in the workplace.

NYS has expanded legal protections, previously limited to employees, to protect additional types of workers. This means that NY employers are now required to protect contractors, subcontractors, vendors, and consultants from sexual harassment in the workplace.

Many farm businesses contract with a variety of professional service providers. Machine operators, veterinarians, nutritionists, crop consultants and bookkeepers all visit farms to serve their clients. In most cases, these individuals are not direct employees of the farm. However, when they come onto your farm they are entitled to a harassment-free workplace.

As a farm business, you are not required to provide a sexual harassment policy or training to these non-employees. However, you are responsible for ensuring that these individuals do not experience sexual harassment, or any form of discrimination due to protected status, when they visit your farm to fulfill the duties of their job.

4. New York employers cannot force employees to submit sexual harassment claims to mandatory arbitration.

Mandatory arbitration is a process that requires conflicting parties to settle their disputes before an arbitrator instead of going to court. NY's new legislation prohibits any clause in an employment contract that forces employees to submit sexual harassment claims to mandatory arbitration. In other words, this rule protects an employee's right to sue their employer over a sexual harassment claim.

Mandatory arbitration has become a common condition of employment contracts in the U.S. This may be less common in agricultural businesses, simply because many farms do not use written employment contracts. If your farm does use employment contracts, have your attorney review the contract language to ensure it complies with the new labor regulations.

Occasionally employee handbooks include a paragraph indicating that mandatory arbitration will be used to settle any employment disputes. The new law means that this requirement does not apply for sexual harassment claims. Employers should review their handbooks to determine if they have a mandatory arbitration clause, and seek competent advice about whether they should retain it or not.

5. New York employers cannot force employees to sign a nondisclosure agreement as a condition of settling a sexual harassment claim.

A nondisclosure agreement is a legal contract in which the parties agree to maintain the secrecy of certain information. For instance, when a legal dispute is settled, the parties may sign a nondisclosure agreement to protect the confidentiality of their settlement terms.

(Sexual Harassment, continued on bottom right p. 5)

Reenergize

Bob Milligan

Research shows that those whose lives are in balance are healthier, and healthy individuals are more productive in their businesses. Time for regeneration (refueling your energy level) is important to your health. Vacations, of course, are a vital way to refuel, reduce stress, and energize family unity. So, however, is how we live each day.

Each of us finds balance in different ways. It may mean developing a hobby, getting more exercise, involving yourself in school activities of your children, finding time alone as a couple, socializing with family or friends, or taking a vacation. Mini-Breaks are often the key to day-to-day life balance. We all need to develop habits that relieve the stress of work and create quality time away from work and with your family and friends. Try the following:

- Schedule time during the day when all family members are together. Talk about the day. Ask each person to share one or two positives from their day - a new friend, an accomplishment, something learned, an exciting experience with an old friend.
- Go for a walk. Don't look for weeds in the corn or problems with the beans. Listen to a bird sing, watch a

butterfly flit by, marvel at a beautiful flower or the quiet of the countryside.

You probably can think of a hundred reasons why you shouldn't take a vacation. Here are some reasons you should:

- Spend time with your family
- Gain a clearer perspective on the business
- Create memories with your family that last a lifetime
- Develop confidence that this can be done again (you may be surprised at who steps up while you are gone)
- Reduce stress by focusing your energies elsewhere
- Discover how other people live (you might even gain valuable insights about your farm business)

Vacations don't always have to cost a lot. A day away or an overnight to visit friends or family can often suffice. Even lunch or coffee away from the farm can relieve stress and reenergize you.

Research indicates that individuals who take time away from work are better family members and better businesspeople. Reflect and plan now to create alternatives that allow that to happen. But, most of all, make it become a reality in the near future.

Remember no one on their deathbed says "I wish I had spent more time working."

Oats - An Excellent Fall Forage in 6-8 Weeks

Bruce Anderson - Extension Forage Specialist, University of Nebraska, Lincoln

Oats may be one of our most under-used fall forages. It grows fast, thrives under cool fall conditions, has excellent feed value, and can produce over 2 tons of hay or pasture yet this year. Plus, it dies out over winter, so it protects soil without causing planting problems next spring.

To plant oats, drill about 3 bushels per acre in early August for maximum yield potential. Plantings after Labor Day may not succeed well due to a short growing season. A fully prepared seedbed usually is best, but you can plant oats directly into wheat stubble or other crop residues if weeds are killed ahead of planting. Even flying oats onto corn or bean fields severely damaged by weather or to be chopped early for silage can work, although rye tends to work better for flown-on seed. Avoid fields with herbicide carryover, and topdress 40 lbs of nitrogen per acre unless the previous crop was heavily fertilized.

With good moisture, oats will be ready to graze about 6 to 8 weeks after emergence. Calves and yearlings can gain over two pounds per day. Be careful to avoid grass tetany on lush oat pasture; ask your veterinarian if you should supplement with magnesium. Also, don't suddenly turn livestock out on oat pasture if they have been grazing short or dry pastures. Sudden respiratory problems can occur.

For hay, cut oats soon after plants begin to dry out following a killing freeze, or cut earlier if plants reach a desirable growth stage. Oats can accumulate nitrates, so test hay before feeding.~

Sexual Harassment, continued from p. 4

In the case of a conflict between an employee and their employer, the employer may force the employee to sign a nondisclosure agreement as part of the settlement. As a defendant in a legal case, an employer may use this strategy to protect its reputation from potentially damaging information known to the plaintiff.

As of July 2018, NYS no longer allows employers to make employees sign nondisclosure agreements when settling a sexual harassment claim. Confidentiality agreements are permitted only when explicitly requested by the victim.

As an employer in NY, you have a big responsibility to provide a workplace that is safe and free from harassment. Your leadership is important! If you do not treat preventing sexual harassment as a serious matter, why should your employees take it seriously? Avoid lagging behind the rest of your industry with respect to these new rules. There are plenty of free resources to help you comply. Be proactive and take steps now to protect your business and your employees.~

Resources

Combating Sexual Harassment in the Workplace - Employer Page
<https://www.ny.gov/combating-sexual-harassment-workplace/employers>

Combat Harassment Translations
<https://www.ny.gov/combating-sexual-harassment-workplace/combat-harassment-translations>

Cornell Agricultural Workforce Development - Sexual Harassment Prevention
<http://agworkforce.cals.cornell.edu/regulations/sexual-harassment-prevention/>

Priming the Pump:

Setting-up the Transition Cow for Success

Timothy X. Terry, Harvest NY

We all know that if you can get a cow or heifer through the three weeks pre-calving, calving, and then the three weeks post-calving without incident then it's very likely she will successfully complete the lactation. It's pretty safe to say that the transition is a very critical period in a dairy cow's life. Let's face it, you're basically trying to turn a couch potato into an Olympic-class athlete almost overnight.

When the system works it really works. However, when the 60-day cull rate begins to spike where is the first place we look to lay the blame? The nutritionist, right? Not quite, Univ. of Wisc. – Madison (UW-M) studies have shown that unless the diet is way off on protein, fiber, DCAD, etc. it doesn't even make the list. Fortunately, there are five other factors that exert a greater influence and all can be controlled with good management.



Photo: R.J. Anderson

Fabulous Five

1. Adequate Bunk Space – This is the most important factor affecting animal performance. It's likely this is why we tend to think it is a nutritional rather than facilities problem – either way the animals are not getting the diet they require.

Ideally, you want all animals in both the prefresh and post fresh groups to be eating simultaneously (within group) to maximize the 90-minute period following fresh feed delivery and milking. If a more timid animal is excluded from eating at this time by more aggressive pen mates they generally will not eat as much when, or if, they return later on.

Figure on a minimum of 30" of bunk space per cow. Bunk length must be calculated on this spacing per cow not on the number of headlocks at the bunk. Standard headlocks are on 24" centers, and this is fine for the remainder of the herd. However, for these two groups the headlocks or vertical dividers must be 30" on center. Some sort of indexing barrier is preferable to a simple feed rail because when feeding at a rail a boss cow will often stand at an angle to the bunk thereby occupying two or three spaces (60"-90"). Headlocks or vertical bars encourages them to stand perpendicular to the bunk thus freeing up the other one or two spaces.

To avoid overstocking and reducing bunk space during calving surges multiply the average number of calvings for the period by 140% and calculate bunk length and pen size based on

that number of animals. Yes, this may seem overbuilt, but how much production is lost and money expended to treat early lactation maladies such as retained placentas, metritis, ketosis, milk fever, etc.?

2. Appropriately Sized Stalls - Late gestation cows, especially large framed breeds like Holsteins and Brown Swiss, require extra space when negotiating freestalls. On average cows are not getting smaller so the old freestall standard of 45" - 48" x 66" (brisket board) has been upgraded to 50" - 54" x 70" - 72". This is just for the prefresh and post fresh groups – the previous dimensions still work for the rest of the herd. However, a 45" x 63" freestall will accommodate smaller breeds like Jerseys.

Is it worth it? Dr. Ken Nordlund, faculty researcher at UW-M (emeritus), relates the story of a herd he worked with on some transition cow issues. Prior to upgrading the stalls to the new dimensions there was a disparity in ME corrected milk between the first calf heifers and the mature cows. The first calf heifers did well, but the mature cows showed a 2,000 lb. deficit. After retrofitting the stalls, the deficit disappeared.

3. Soft Stall Surfaces – We know that deep bedded sand is the gold standard in the milking barn, and it's no different here. Time budgets, hock lesions, locomotion scores, etc. are all improved on sand. However, when sand is not an option because of your manure handling system or other difficulty, deep bedded sawdust or chopped straw/hay works almost just as well. Unfortunately, according to UW-M studies mattresses didn't fare as well. In fact, they noted that animals housed on stalls with mattresses spent more time standing or perched in the stalls, less time eating, and produced as much as 8 lbs. less milk per day. However, mattresses with >2" of bedding fared almost as well as deep bedded sand and may be a reasonable substitute where sand is not an option. Concrete, however, even with bedding or mattresses, is never an option for transition cows.

For bedded packs and composted packs figure on a minimum of 3" of bedding – sand, sawdust, straw – over a compacted, well drained subgrade.

4. Minimize social stress. No, that doesn't mean you take away their Facebook, Twitter, and SnapChat privileges. It does, however, mean you need to limit the addition of new animals to only once per week. Any time animals are added to an existing group social turmoil ensues for the next 24-48 hours while the new additions are initiated and pecking orders are re-established. Often these interactions are quite physical and can result in terminal injuries. As you can imagine daily or even 2X-3X per week additions keeps the group in a constant boil. This may seem innocuous, but think of it this way: if the animals are running around and butting heads they are neither eating nor resting. As a result stress hormones increase, dry matter intakes decrease, and body fat is mobilized, which leads to an increased likelihood of fresh cow diseases such as ketosis and DA's. Moreover, if animals are moved into the prefresh pen 3 to 10 days prior to calving the likelihood further increases.

In a perfect world, each week you would assemble a group of late gestation cows and heifers whose expected calving dates are within a ~7-day window and at least three weeks out. You could adjust that range based on the number of animals or if there are any large breaks in the expected calving dates. The last thing you want to do is move only one animal (if it's

at all avoidable) or overload the prefresh group (see #1 & #2).

In larger herds an all-in strategy could be implemented and the animals managed as a specific group. As animals freshen and the group is depopulated the pen should be cleaned and sanitized prior to the new group coming in. Obviously, this means there would have to be at least three, preferably four, smaller pens in order to rotate the groups in and out.

For smaller herds the far-off dry cow and prefresh pens could be located adjacent to one another with only a bar gate between them. From a social standpoint this is really just one large pen so moves of animals from one group to the next may go unnoticed. (Of course, there's always the potential for one boss cow to exhibit anti-social behavior.)

Just-in-time calving, where cows and heifers are moved just as the feet or head of the calf is showing, is gaining popularity on some larger dairies. Unfortunately, while it can be successful, this can also be a very labor intensive strategy. It requires 24-hour surveillance with someone walking past the pen every 30-60 minutes to pick up on cows in labor. The workers must be knowledgeable and observant enough to move the cow at just the right time – when calf parts are visible, not just mucous showing. Moving the cow too early increases the likelihood of stillbirth by 250%.

Time in these calving pens should only be hours not days. Cows tend to shed the most *Mycoplasma* and *Salmonella* right at freshening. So the pen should be cleaned and rebbed after each animal.

5. Effective Fresh Cow Protocols. As with the calving pens, so too, you need heads-up herdsmen and effective protocols in place to detect and treat early signs and symptoms of fresh cow maladies.



Photo: R.J. Anderson

Research has shown some protocols common to successful fresh cow programs:

- ✓ Following cows to and from the parlor to observe behavior, gait, etc.
- ✓ Palpating udders in the parlor to check for fullness
- ✓ Time at feedbunk upon return to the pen – evaluating attitude and appetite
- ✓ Daily rectal temperatures
- ✓ Checking rumen motility with a stethoscope

So there you have it. Five manageable factors for promoting the success of the transition cow. ~

Harvest Management of Sorghum Sudangrass

A major key to attaining high quality BMR SxS is rapidly drying the crop in the field. As height increases, energy holds at modest levels and protein drops, but moisture removal becomes much more of a challenge. Wet silage will result in lower energy feed, improper fermentation, decreased dry matter intake, and less potential milk production. To avoid this, consider the following:

1. Set the mower height at 5-6 inches so as not to stunt re-growth.
2. Harvest at stand height of 36-48 inches to keep moisture removal manageable.
3. Mow into a FULL WIDTH SWATH (like hay) to rapidly remove moisture.
4. Windrow with a merger or properly adjusted rotary rake (to avoid stones).

Most of the plant water is in the stem. Intermeshing conditioning rolls fully crush the stems for rapid drying. Flail conditioners are difficult to set to break open the stems without shredding the crop. BMR SxS needs to be watched closely, as the crop can dry deceptively fast in good conditions. Set the chopper length at $\frac{3}{4}$ -1 inch for bunk silos and tumble mixers. Up-rights, baggers, and auger mixers need a slightly longer cut to maintain effective fiber. BMR SxS can be successfully made into round bale silage (baleage). BMR SxS can also be grazed (subject to the grazing restrictions discussed earlier). Strip grazing using portable fencing works well. BMR SxS will be more completely grazed when less than 48 inches tall. It will often take roughly 40 days of re-growth for the next harvest. Weather conditions can greatly influence the rate of re-growth, so monitoring harvest height is critical to managing the water in this high yielding crop.~

Source: Agronomy Fact Sheet Series. #14. Brown Midrib Sorghum Sudangrass. Part 1. Cornell Nutrient Management SPEAR Program. <http://nmsp.cals.cornell.edu/publications/factsheets/factsheet14.pdf>

American Farmland Trust FARMER MICROGRANTS

American Farmland Trust is offering *Farmer Microgrants* to support farmers in hiring professional advisor services to secure access to farmland, develop or implement farmland transfer plans or conserve farms for agricultural use.

Grants are available for up to \$2,500 per project. A project may involve an individual farmer, a farm family or a group of farmers with a cooperative business.

Grants can only be used by farmers to hire professional advisor services relating to their farmland access, transfer or conservation needs. Eligible activities may include:

- ⇒ Hiring an attorney to develop a farm lease
- ⇒ Hiring a financial or estate planner to assist with a farm transfer plan
- ⇒ Paying transaction costs associated with purchasing a farm or developing an agricultural conservation easement

Applications will be accepted on a rolling basis until available funds are expended. All services supported by the grant must be completed by December 31, 2019. Contact Tim Biello at (518) 581-0078 x 305 or tbiello@farmland.org with questions or to request an application.

The 2019 Market Facilitation Program

Gary Schnitkey, Nick Paulson, Krista Swanson, Jonathan Coppess
Department of Agricultural and Consumer Economics,
University of Illinois.
Carl Zulauf, Department of Agricultural, Environmental and
Development Economics, Ohio State University

The U.S. Department of Agriculture has released payment rates and additional details for the 2019 Market Facilitation Program (MFP). Compared to 2018, the 2019 MFP will pay on more crops and have higher payment rates per acre. Payment limits are higher in 2019. The MFP is designed to aid producers dealing with the price impacts of trade disputes. It is not targeted at providing relief from wet spring weather, delayed planting, and prevent planting. Without MFP payments, incomes on grain farms would be much lower in 2019.

2019 MFP Per Acre Payment Rates for Non-Specialty Crops

Two types of MFP payments will be made in 2019 on non-specialty crops:

1. Planted acres in MFP-eligible crops (corn, soybeans, wheat, alfalfa hay, barley, canola, crambe, dry peas, extra-long staple cotton, flaxseed, lentils, long grain and medium grain rice, mustard seed, dried beans, oats, peanuts, rapeseed, rye, safflower, sesame seed, small and large chickpeas, sorghum, sunflower seed, triticale, temperate japonica rice, and upland cotton).
2. prevent plant acres if MFP-eligible cover crops have been planted by August 1st.

MFP Payments on Planted Acres: Within a county, all acres planted to MFP-eligible crops will receive the same per acre rate. As an example, take two farmers in one county. The first farmer plants 75 acres of corn and 25 acres of soybeans for a total of 100 acres in MFP-eligible crops. A second farmer plants 50 acres of corn and 50 acres of soybeans for a total of 100 acres in MFP-eligible crops. Both farmers will receive the same total payments because both farmers planted 100 acres in MFP-eligible crops.

For our region in NYS the range of payment is expected to fall between \$16-\$33 per acre.

MFP Payments on Prevent Plant Acres: A \$15 per acre payment will be made to prevent plant acres planted to MFP-eligible cover crops. To be eligible for the \$15 per acre MFP payment, a cover crop must be planted by August 1. The cover crop must meet crop insurance requirements.

Other Facts about the 2019 MFP Program

Written regulations have been released by FSA. The following facts have been obtained from press reports and the [MFP website](#) maintained by the FSA:

- Sign-up begins July 29. Farmers can now sign up for MFP payments at the FSA office. Signup will end December 6, 2019. Signing up any time before the middle of August likely will result in the same timing of the first payment (see next point).
- MFP payments will be received in three tranches, with only the first guaranteed. The first will occur beginning in middle August, the second later in 2019, and the third will be in 2020.
- The first payment will be the higher of 50% of the per acre rate or \$15 per acre. For an \$80 per acre payment

rate, the first payment will be \$40 per acre.

- For a Farm Service Agency (FSA) farm, payment acres in 2019 cannot exceed plantings of MFP-eligible crops in 2018. As we interpret the regulation, farmers who are farming more FSA farms in 2019 as compared to 2018 will receive payments on all farm acres as long as eligibility and payment limits are met.
- Besides non-specialty crops, payments will be received for:
 - Milk for dairy producers in business on June 1, 2019 (\$.20 per cwt based on production history),
 - Hogs (\$11 per head based on hogs owned on a day selected by the producer between April 1 and May 15), Nuts (\$146 per acre),
- To be eligible, a person's adjusted gross income must 1) average less than \$900,000 for tax years 2015, 2016, and 2017 or 2) derive 75% or more of adjusted gross income from farming or ranching. Individuals must have a farm number with FSA and be in compliance with "Highly Erodible land and Wetland Conservation" regulations.
- Payment limits are:
 - \$250,000 per person/entity for non-specialty crops (those crops listed in "2019 Per Acre Payment Rates section of this paper),
 - \$250,000 per person/entity for milk and hogs,
 - Total payments across non-specialty crops, milk and hogs, and specialty crops cannot exceed \$500,000 per person/entity.

Projected corn and soybean returns for 2019 for Northern Illinois are much lower than any in recent years (see Figure 3). The 2019 return for corn of -\$112 per acre is \$57 lower than the -\$56 per acre return for 2018. Since 2000, the lowest corn return occurred in 2017 when returns were -\$61 per acre. Even with MFP payments of \$65 per acre, the 2019 projected corn return is \$51 per acre lower than any return since 2000. The 2019 projected return for soybeans of -\$68 per acre is \$175 per acre lower than the \$106 return in 2018. Since 2000, the lowest soybean return was -\$8 per acre, occurring in 2002. Projected 2019 soybean returns are \$60 per acre lower than any other return since 2000.

Commentary

MFP payments will provide much needed cash flow for farms suffering from low prices as a result of trade disputes. While 2019 MFP payments likely will be higher than 2018 payments, returns in 2019 likely will be lower in 2018, particularly in areas heavily impacted by wet weather, delayed planting, and prevent planting. The MFP program is not targeted for those areas, rather focused on mitigating the impact of price declines from trade disruptions.~

Source

Schnitkey, G., N. Paulson, K. Swanson, J. Coppess and C. Zulauf. "The 2019 Market Facilitation Program." *farmdoc daily* (9):139, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, July 30, 2019. [Permalink](#)

2019 Corn Silage – One Opportunity to Make a Good Impression on Your Customers – *Your Cows*

Corn silage is the primary source of high quality forage energy on most dairy farms. The key factor in attaining high milk production and herd health is a consistent supply of quality corn silage. The dry matter and maturity of the crop at harvest is what determines the quality of the silage you feed to your cows. There is always the need for planning your corn silage harvest and many right now are just happy the corn is in the ground and growing. Low forage yields with unknown or unfamiliar qualities add to the planning headaches. Ron Kuck, Extension Dairy Educator in Cayuga County pulled these corn silage resources together to help with decision making.

Please contact Betsy or Janice if you need any assistance with planning, harvesting and storing your corn silage. We can help gauge harvest by testing whole plant dry matter by chipping up stalks and drying in the koster tester.

Inventory Forage

Knowing what you have currently in feed inventory is critical to plan for how to best manage feeding 2019's forages to get through the coming year. It will affect decisions such as:

- Do I have enough feed for the milking herd and young stock?
- Do I need to look at fillers for the ration to stretch forage

inventories?

- Should I cull unproductive animals?
- Do I have more replacements than I need?
- Why am I constantly running short of forage inventory?

First, you can calculate just how much forage you are feeding each day, and how many days you will need to feed prior to finishing up this year's harvest.

Calculate current inventory. Corn Silage weighs 45# per cubic foot as fed. (Based on 32% DM 14#/cubic foot dry matter density). Haylage weighs 35# - 40# (based on 35%-40% DM at 14# cubic foot of DM density) The dry matter (DM) content of forage can have a large impact on just how much feed is there and how long it will last. For upright silos see Table 1-pg 10.

References and additional silage storage tools can be found at:
Team Forage / University of Wisconsin Extension
<https://fyi.extension.wisc.edu/forage/harvest/#storage>

What is standing corn worth?

Many will have the opportunity to buy or sell standing corn in the field for silage. The problem is determining a fair value. Differing maturities make estimating its value challenging. The old rule of thumb is that there are 8 bushels of corn in one ton of corn silage. Multiply the \$ per bushel * 8 and you can get an estimate of standing corn. Adjusting the price for the harvesting and transport costs also need to be considered along with field and storage losses.

	Ratio of Stover : Corn											
	100 : 0	90 : 10	80 : 20	70 : 30	60 : 40	50 : 50	40 : 60	30 : 70	20 : 80	10 : 90	0 : 100	
Nutrient	Dry Matter Basis											Nutrient
DM	26.0	28.0	30.2	33.9	36.0	40.0	44.7	50.8	58.8	69.9	85.6	DM
Protein	9.0	8.9	8.9	8.8	8.8	8.7	8.6	8.6	8.5	8.5	8.4	Protein
NEL 3X	60.0	63.5	67.0	70.5	74.0	77.5	80.9	84.4	87.9	91.4	94.9	NEL 3X
ADF	32.0	39.1	26.2	23.3	20.4	17.5	14.6	11.7	8.8	5.9	3.0	ADF
NDF	52.0	47.7	43.2	39.0	34.7	30.4	26.1	1.8	17.4	13.1	8.8	NDF
Starch	15.0	20.8	26.5	32.3	38.0	43.8	49.5	55.3	61.0	66.8	72.5	Starch
NFC	30.0	35.1	39.8	44.6	49.3	54.1	58.6	63.6	68.3	73.1	75.0	NFC
	Poor Silage										Sh. Corn	
	Average Silage					Hi-Moisture Shell Corn						
	Excellent Silage					Snaplage						
Per Ton:												
AF Value	\$35.37	\$35.62	\$43.62	\$50.00	\$54.33	\$61.85	\$70.49	\$82.28	\$97.04	\$117.77	\$146.77	
DM Value	\$ 136.03	\$ 127.21	\$ 144.42	\$ 147.48	\$ 150.93	\$ 154.63	\$ 157.69	\$ 161.97	\$ 165.03	\$ 168.48	\$ 171.46	
The feed values displayed are what the corn silage is worth relative to the other ingredients in the TMR and the market cost of replacing it.												
	Based on	\$ / bushel \$ / ton		Dec. 20								
		Shell Corn	\$ 4.17									
		Soy 48%	\$328									
*FEEDVAL: Comparative Values Calculated from Crude Protein, TDN, Ca and P												
Referee Feeds Used To Calculate Value Of Nutrients												
W.T. Howard and Randy D. Shaver, University of Wisconsin-Madison												
November 1997												

Immature corn silage also will have different nutritional values than mature corn silage such as higher protein and lower energy and starch values. We have worked up a spreadsheet that takes into account these factors based on corn to stover ratios. The feed values displayed are what corn silage is worth relative to other ingredients in the TMR/Ration and the market cost of replacing it. We used spreadsheet FEEDVAL from U. of Wisconsin-Madison. Corn and soybean meal prices are from Dec. 20 CBOT futures.

Silage Management Practices

Many of you will have to consider harvesting your corn silage before it has matured. Immature corn silage is low in dry matter content (>70% moisture) and harvesting the plant at high moisture levels will alter silage fermentation, increase silage runoff and potentially decrease feed intake. It is always a difficult decision on what to do with this type of forage.

Keep in mind that this work on GDD's needed from silking to silage harvest was based on the corn plant getting to 32% DM so this should be used as an early indicator for harvest since we would really like to see whole plant DM at harvest closer to 35%.

Nobody has any idea how quick immature corn will dry down. The leaves will dry fast but the stalk will still have lots of moisture in it. While the rate of dry down obviously varies with weather conditions, a rule of thumb is 0.5 to 0.75% per day but some days the rate can be zero. Anyway, we could expect the crop to reach 35% DM 4 to 6 days after we hit the GDD benchmarks listed previously.

Regardless of stage of maturity the standard management practices for ensiling corn still apply.

- Send all employees home to their families safe everyday
- Proper siting, construction and maintenance of storage facilities
- Harvest at correct moisture
- Fill silo quickly
- Cover immediately after filling
- Use proper feed out management

Compared to alfalfa, corn silage in general is a forgiving crop to ensile. Alfalfa ensiled below 28-30% DM is prone to clostridia fermentations. However, harvesting immature (very wet) corn silage seldom leads to a clostridia fermentation. The major concerns with wet corn silage will be seepage losses and highly acid silage that might cause some depressions in DM intake.

Because immature corn silage will more than likely have a low concentration of starch but high concentration of fermentable sugars, fermentation will be extensive and maybe more prone to have a lower ratio of lactic: acetic acids.

Table 1. Approximate dry matter capacity of upright silos.

Inside diameter of silo (ft)								
Depth of	10	12	14	16	18	20	22	24
Settled Silage (ft)					Tons			
2	0	1	1	1	2	2	2	2
4	1	2	2	3	4	5	5	6
6	2	2	3	4	5	7	8	10
8	3	4	5	7	9	11	13	16
10	4	5	7	9	11	14	17	20
12	5	7	9	11	14	18	22	26
14	5	8	11	14	17	22	26	31
16	6	9	12	17	21	26	32	37
18	7	11	14	19	24	29	35	42
20	8	12	16	21	27	33	40	47
22	9	14	19+	24	30	38	48	54
24	11	15	21	27	34	43	52	61
26	12	17	23	30	38	48	58	68
28	13	19	26	35	44	53	64	76
30	15	21	29	38	47	59	71	84
32	16	23	32	41	52	65	78	93
34	18	25	34	45	57	70	85	101
36	19	28	37	48	62	76	92	109
38	21	30	41	53	67	82	100	118
40	22	32	44	57	72	89	107	127
42	24	34	47	61	77	95	115	137
44	26	37	50	65	82	102	123	146
46	27	39	53	69	88	108	131	155
48	29	42	56	74	93	115	140	166
50	31	44	60	78	99	122	148	175
52	32	47	64	83	105	129	157	186
54	34	49	67	88	111	137	165	197
56	36	51	71	93	117	144	174	207
58	38	54	74	98	123	151	183	218
60	40	56	78	102	129	159	192	228
62	To find the tons remaining in a silo after part of the silage is removed:						201	239
64							210	250
66	(1) find the tons of silage when the silo was filled,						219	260
68	(2) find the tons in a silo filled to the height equal to the depth of silage removed,						228	271
70	(3) subtract the number of tons in Step 2 from the number of tons in Step 1.						237	282
72								293
74								305
76								316
78								328
80	Example: A 20-foot silo is filled to a settled depth of 60 feet and 22 feet were removed (1) 20 x 60 equals 159 tons, (2) 20 x 22 equals 38 tons, (3) 159 minus 38 equals 121 tons remaining.							339

Source: Adapted from Silo Dry Matter Capacity Tables by The National Silo Assoc.

Extremely immature and wet corn forage should probably not be processed. However, this forage will ensile quickly (as do most corn silages) and the quick drop in pH and acidity will prevent most clostridia growth.

Wet corn silage packs well and because of the low starch content, aerobic stability is not usually an issue later at feed out. In some instances there may be a significant soil contamination in lodged corn that might bring in more clostridia.

The addition of a classical microbial inoculant based on homolactic bacteria (research based lactobacillus inoculants) should be used.

Frost will not adversely affect the quality of corn silage. Slightly immature, frost damaged corn that has dented can still make good quality corn silage

Work with your nutritionist to help develop the most useful rations with immature corn silage. Forage testing is crucial. Usually corn silage is the most consistent forage we feed but with this year's crop being harvested at differing stages of maturity and moisture a large variation of nutrients can be expected. This year wet chemistry analysis maybe preferable over NIR. If you are going to feed a significant amount of this type of silage to lactating cows, it may be worthwhile to obtain a fermentation analysis that includes silage pH, ammonia, lactic, acetic, propionic, butyric and isobutyric acids.

Evaluate the silage including temperature, smell, and the appearance of the silage. Silage temperatures should

generally be within 15 to 20°F of the ambient temperature when ensiled. Higher temperatures (>100°F) indicate that oxygen is penetrating into the silage and resulting in aerobic decomposition. The silage should also not have a rancid odor, associated with clostridia fermentation in wet silages. A vinegar odor can also be associated with wet silages that have high levels of acetic acid. An alcohol odor is associated with fermentation by yeast, which results from slow feed out rates and air penetration in the silage face. There should also not be any visible mold in the silage, which is often an indication of poor packing and sealing practices.~

Sources: L.E. Chase, T.R. Overton, W.C. Stone. Dept. of Animal Science, Cornell University. L.Kung, Dept. of Animal and Food Science, U. of Delaware

Table 3 - Ag Bag Capacity Table

Bag Size	Alfalfa or CS (b)	Ear Corn (b)	Shelled Corn (b)
	----- tons as fed per bag -----		
8 x 100	80-90	70	80
8 x 150	120-140	120	130
8 x 200	170-190	164	180
9 x 135	140-160	134	150
9 x 150	160-180	162	175
9 x 200	200-225	205	230
10 x 150	200-220	180	202
10 x 200	270-300	247	278
(b) Assumes 35% DM		(c) Assumes 68 - 70% DM	

Table 2 - Approximate Dry Matter Capacities of Bunker Silos (Appendix C—Pitt 1990)

Haycrop Silage

DM density is assumed to be 11.8 lb DM/ft³ (Rotz, 1989) Capacity,
 $T\ DM = (Length, ft) \times (Width, ft) \times (Average\ height, ft) \times 11.8$
 2000

Corn Silage

DM density is assumed to be 17.7 lb DM/ft³ (Holter, 1983)
 Capacity, $T\ DM = (Length, ft) \times (Width, ft) \times (Average\ height, ft) \times 17.7$
 2000

Determining Removal Rate from Bunker Silos, Haycrops
 $Removal\ rate = (Haycrop\ silage\ DM\ intake\ per\ cow, lb/day) \times (\#\ of\ cows)$
 inches/day (silo width, ft) X (silage vertical depth, ft)

Determining Removal Rate from Bunker Silos, Corns silage
 $Removal\ rate = (Corn\ silage\ DM\ intake\ per\ cow, lb/day) \times (\#\ of\ cows)$
 inches/day (silo width, ft) X (silage vertical depth, ft) X 1.47

Source: Pitt. 1990. Silage and Hay Preservation. NRAES-5

Table 4 - Hay Densities in Horizontal Silos

	Lb/ft ³
Alfalfa	6-10
Non-Legunes	6-8
Straw	4-5

Table 5—Load Capacity of Wagons

Wagon Depth	Tons of Dry Matter			
	Length in Feet of Wagon			
	14	16	18	20
3	1.2	1.35	1.5	1.65
4	1.65	1.8	2.1	2.25
5	1.95	2.25	2.55	2.85
6	2.4	2.7	3.0	3.45
7	2.7	3.15	3.6	3.9

Cropping Notes

Janice Degni, Area Extension Field Crops Specialist

The big concern right now is preparing for corn silage harvest which is covered in other articles in this newsletter. I do want to cover a few reminders about potential pests.

Potato Leafhopper (PLH)

Populations of PLH have gone over threshold in some fields. New seedlings are the more vulnerable target. It is worth keeping an eye out for this tiny insect. The best way to evaluate numbers is with a sweep net. If you walk into a field and kick foliage a lot of bugs will fly around or be noticeable but not all



are harmful and many are beneficial. Although aphids can be plentiful an economic threshold has never been set. By planting resistant varieties you will rarely have to worry about damage from this insect after the seeding year.

Typical hopperburn caused by potato leafhopper feeding. Photo by Purdue Extension.



Corn Diseases – Is Treatment Warranted?

I have heard reports of Northern Corn Leaf Blight (NCLB) and Grey Leaf Spot infections in the areas where there are commonly infections, along river valleys or areas where fog settles. I recommend checking the crop in vulnerable environments and BMR varieties. Protecting late planted corn could be especially important if it is infected prior to tassel. When disease is present fungicide applications will help protect yield potential and help maintain healthy tissue that can photosynthesize to produce sugars to drive ear development and maturity.



Oblong lesions develop on leaf tissue after infection by the NCLB fungus. www.btny.purdue.edu

Unfortunately there are no set thresholds for infection levels. If your corn has lesions and has a lot of growth and development to go there will be a benefit from protecting the plants with a fungicide application. When the disease infects after the ear is developing the need for protection is diminished. The crop may look ugly at harvest but the crop is basically made. Since there is a lot of late planted corn this year it is worth checking and applying fungicide protectants if necessary.



Grey Leaf Spot

Soybeans

Beans are showing good pod development. There are several pests to keep an eye out for as you are visiting your fields.

I have seen downy mildew symptoms. The general consensus from land grant institutions is that treatment does not pay for itself. There are little yellow spots on the leaves but there is still plenty of healthy leaf tissue to photosynthesize so impact on yield is not significant.



Cropprotectionnetwork.org

The University of Minnesota Extension (UMN) states “Downy mildew is a widespread disease that occurs during periods of high humidity and moderate temperatures. The disease is typically superficial and causes no yield loss, but can cause defoliation of plants and reduced yields under rare conditions.”



Heavy soybean aphid infestation

Check for soybean aphids and signs of white mold. I have not seen a heavy infestation of aphids like what is shown in this picture for several years. When the population is

significant look for beneficial insects in the field, like ladybugs and syrphid fly larvae. If the population of aphids is low or moderate the beneficial insects might be able to keep the population in check.

I would like to hear if your beans get infected with white mold and whether you treated with a fungicide. Earlier in the summer I was using the sporecaster app to assess risk of white mold development and it gave me a risk of 24%, when the beans were in the v3 stage. Threshold for treatment was greater than 40%.~



White mold in soybean

Corn Silage Harvest, continued from cover

To get to the tool go to <http://climatesmartfarming.org/> and select the Growing Degree Day Calculator. There are video tutorials, or you can jump right in with the edit button and type in an address for a field location. Save the location or pointer. Move the pointer arrow to different dates along the x axis and a table will show potential GDD accumulation. You will also see last spring frost and first fall frost dates. Please contact Janice if you would like assistance using the Calculator.~

Pasture Soil Compaction: Prevention and Remediation

Taken from resources developed for SARE Grant titled
Identification and Remediation of Compaction on Northeast Pasture Soils



Fay Benson & Abbie Teeter

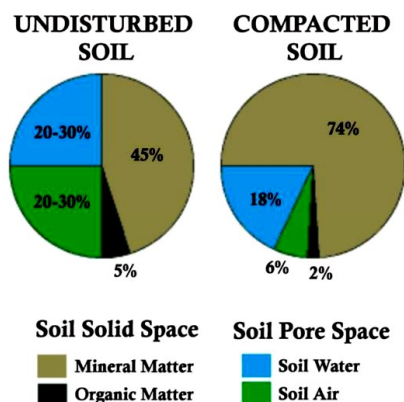
Cornell Cooperative Extension of Cortland County
60 Central Avenue, Room 140
Cortland, NY 13045

Nancy Glazier

Northwest New York Dairy, Livestock & Field Crops Team
420 East Main St.
Batavia, NY 14020

Understanding Soil Compaction

Healthy Soil is generally described to include the chemical, biological, and physical natures of the soil. The chemical nature has often been the focus of many farmer's interest, since it has an immediate impact on pasture productivity. Only recently have farmers become more aware of the other two natures of soil health, biological and physical. The most dominant physical issue in pasture soils is compaction.



A simple test to determine if soil compaction in your pastures is evident is to take a fiberglass post and push it in the pasture soil, and then walk over to a fence line (ideally that has been in place for 5 or more years) and compare the resistance to pushing the post into that soil.

If there is a noticeable difference, then your soils are probably compacted.

When a soil is compacted, air space is squeezed out of the soil which can be seen in the figure to the right. Root growth takes place in the air spaces around soil particles, therefore soil compaction contributes mechanical resistance to root penetration, which limits the nutrient and water uptake. It also inhibits the emergence of seedlings and spreading of rhizomes. Clay textured soils are the most easily compacted, while sandy soils are the least. Alluvial soils in bottom lands and fine textured silt loams are also easily compacted. With compacted soils, organic matter is reduced as well as overall soil health.

Levels of organic matter are a key indicator of a healthy soil. Here in the Northeast, 5% to 6% organic matter is attainable, and should be the goal of graziers.

Intensive livestock use of a pasture can eventually reduce the lands productivity as the ground becomes compacted. When

Importance of Organic Matter in Pasture Soil

- Higher amounts of organic matter help resist compaction
- Each 1% of Organic Matter provides:
 - ◊ 20-30 lbs. of Nitrogen
 - ◊ 5-7 lbs. Phosphorous
 - ◊ The ability to hold an additional 20,000 gallons of water
 - ◊ Numerous macro and micro nutrients, which are essential for healthy plant life.

desired grasses start to diminish due to compaction, weeds take over. Weeds are aggressive, and efficient at getting

established. Many of the worst problem weeds are broadleaves, exhibiting a taproot system rather than the fibrous roots common to pasture grasses. Weeds can survive in compacted conditions better than grasses because taproots can penetrate compacted soils. Once the weeds overtake grasses, the tendency is to apply herbicides for control. This results in costs that could have been avoided, and the addition of unneeded pesticides into the environment.

Compaction also affects the biological properties of soil. Healthy soils are a thriving ecosystem, with

bacteria, earthworms, fungi, and other organisms that help break down organic materials and recycle

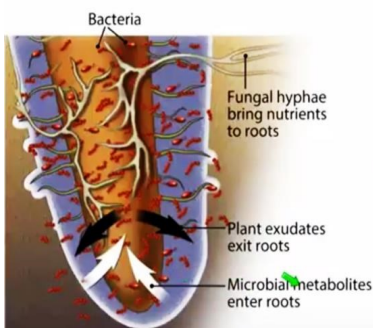
nutrients. These organisms exist in the pore spaces within healthy soils, so soil compaction directly impacts their ability to function. The exchange of nutrients from microbes to plants and plants to microbes is the cornerstone of healthy soils creating healthy plants, which create healthy animals and eventually healthy food.

Preventing Compaction in Pastures

The best way to deal with compaction is to implement practices that prevent it from ever becoming a serious issue. The keys to preventing compaction are to maintain a healthy and vigorous plant root system and prevent constant or consistent livestock/equipment traffic. These management techniques will not only help prevent compaction, but will

also provide other production benefits.

1. Maintaining a healthy and vigorous root system is directly related to the amount of time between grazing or cutting of grasses. Whenever grass is cut or grazed, the plants take energy out of the root system to regrow the foliage above-ground. If pastures are continuously grazed, or hayfields are cut too short or too often, grasses will be overstressed and have very short root systems that cannot work down into the soil profile to add organic matter and contribute to healthy soil structure.



2. Monitoring soil fertility is very important. Soil sampling and fertility testing will help you determine if forages are receiving what they need to be productive.

3. Reducing livestock traffic and equipment movement will help prevent compaction issues. Over time, livestock can exert as much force on soils as heavy equipment. Reducing foot traffic relates back to grazing management. When cows

are pulled off and moved to another paddock rather than continuously on one pasture, soils are allowed time to preserve some of their structure and maintain pore space.

4. Knowing how soil conditions are related to weather. Soils are more easily compacted in wet conditions, so keeping cows or equipment off bottom lands or areas that would be wet will help mitigate damage.

Remediating Compacted Soils

The Rhizosphere is where roots and microbes exchange nutrients.

If your soils are compacted, aeration is often seen as the solution. However, in forage and hayfield applications, research has shown that aeration is, at best, a temporary solution. Studies comparing fields with aerated vs. non-aerated areas tend to only show a difference in performance for 1-2 years. Short-term benefits or improvements are usually more a result in tillage or disturbance that releases nutrients from organic matter. Results from studies in the past have shown that aeration and deep tillage could alleviate compaction in severe cases, but studies have also shown that these methods do not help, or can even make things worse. With this variability in benefits, the costs of aeration are unlikely to be a worthy investment.

The most effective methods of remediation include:

1. Rolling out the hay if you “balegraze” animals, so livestock doesn’t stand in one place for an extended period of time.
2. Allowing compacted pastures to be harvested for hay. By allowing the plants to become taller their roots grow longer and can work at loosening the soil through root action.

3. Tiling wet areas. This will help improve areas that are prone to wet soils, which are easily compacted.

4. Adding organic matter to the soil to improve the biological functions of the soil.



Compaction is a real and serious concern for forage and livestock producers. Soil types can play some part in this, with heavier, clay soils more likely to suffer from compaction than sandier soils.

Utilizing a farm’s better soils for pasture will return benefits. Using wet areas that aren’t suitable for crops and are easily compacted will only lead to environmental degradation and erosion. Management plays a large role in preventing compaction from becoming a serious concern. Promoting practices that increase soil health and soil organic matter is the best way to prevent compaction from reducing your farm’s performance.

Development of the “Pasture Compaction Ratio” (PCR)

Part of the Northeast SARE grant *Identification and Remediation of Compaction on Northeast Pasture Soils* is to test the usefulness of a technique to measure compaction in pastures that is independent of the moisture level of the soil.

A penetrometer will read different resistance readings in the same area at different times depending on the moisture of the soil. During this project, we plan to use penetrometer readings from under an established fence line and from a nearby pasture. The resistance measurement from under the

fence line will be called “optimum resistance” because no livestock or machinery can impact that area. Similarly, the measurement from 10-20 feet away in the pasture will be called the “working resistance” as that area can be impacted over time. The ratio of these two readings will be calculated and will be called the Pasture



Compaction Ratio. Our hypothesis is that the ratio will stay the same even as the moisture level of the soil changes, with the goal of finding a reliable measurement for farmer to use to monitor the compaction changes on their land.

Testing this hypothesis will require taking hundreds of penetrometer readings throughout the 3 years of the project. If you would like to learn more or participate please contact Fay Benson at afb3@cornell.edu. ~



Looking for land? Looking for someone to farm your land?

Cornell Cooperative Extensions of Broome, Erie, Essex, Madison & Oneida Counties, the SWNY Dairy, Field Crops & Livestock & Capital Area Ag & Hort teams can help!

Join us for some engaging and informative training sessions this fall and winter! These will be available in-person with guest speakers, facilitated discussions and time for networking.

Farmland for a New Generation — Ask the Experts

Join us as we “ask the experts” a question related to finding/listing farmland, marketing that land, creating a lease and setting values for agricultural land!

Tuesday October 15th, 6:30-8pm —How to Market My Farmland, Guest Speaker: Jennifer Fimbel, CCE Dutchess County — so you have some land, but aren’t using it. Or maybe you want someone to farm it but don’t know where to start. During this workshop we will learn different methods for reaching out to both the agricultural and realtor communities to find someone interested in utilizing your land.

Tuesday October 29th, 6:30-8pm —Where do I find farmland & can I afford it? Guest Speakers: Michael Parker (National Young Farmer Coalition) & Alex Morency (American Farmland Trust-NY) We’ll learn about the Finding Farmland Calculator designed by the National Young Farmer Coalition & the NYFarmlandFinder designed by American Farmland Trust-NY, learn how to use them together to find farmland and gain the information necessary when approaching a lender.

Tuesday November 12th, 6:30-8pm — Understanding Appropriate Agricultural Land Uses and Setting Realistic Land Values, Guest Speaker: Nicole Tommell (CNY Dairy, Field Crops & Livestock team) — whether you are a landowner, or looking for farmland, understanding the best/most appropriate land uses, as well as it’s value are paramount to getting started on the right food. Join us as we learn how to set realistic land values and understand how to evaluate land for appropriate farm uses.

Tuesday November 26th, 6:30-8pm — Leasing, Guest Speaker: Jerry Cosgrove, Of Counsel at Scolaro Fetter Grizanti & McGough, P.C. — Whether you are pursuing an agricultural assessment, or are looking to formalize an agreement for agricultural land use, leases are one potential tool. They do not need to be complicated, but should include several key features which outline roles, expectations, and terms, just to name a few. Join us as we learn how to properly put together a farmland lease that protects both parties.

The cost to attend is just \$10/farm or household per session and includes 2 registrations. If you would like to attend all 4, the package cost is \$30. These will take place at the CCE Broome County Agricultural Development Center. To register click [here](#).

For more information or questions, please contact:

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**Cornell Cooperative Extension
Broome County**



Cornell Cooperative Extension

South Central NY Dairy and Field Crops Program

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CALENDAR OF EVENTS

- Sept 13-
Nov 8** **Calf & Heifer Management Online Course**—This course is designed for dairy business on-farm personnel (owner or employee) seeking to increase their knowledge of calf and heifer management. This is a seven week course offered online through Moodle, an easy-to-use online interface viewed on your personal computer's web browser. Presentations for each topic are prerecorded and are accessible whenever is convenient to the participant. you should expect to spend approximately 2 hours per week on the lessons and assignments. For more details and to register: <https://prodairy.cals.cornell.edu/online-courses/calf-heifer-management/>
- Sept 21** **Onondaga County OnFarm Fest— Eleven Local Farms Open for Tours!** **10 am-3 pm**
Enjoy a free day of family-friendly fun as local farms open for tours. Learn about life on the farm and discover the latest advances in agriculture. Many farms will have local products and food for sale, live music, and interactive exhibits.
- Oct 1** **Bankruptcy for Farmers CLE**— Location: Most likely at thINCubator in Utica, NY. A Bankruptcy Law Judge, along with a Chapter 12 trustee and debtor's attorney will do a simulation of a hypothetical Chapter 12 case from start to finish. The program is designed for struggling farmers looking to reorganize their debts so they can continue their businesses and to help train interested lawyers in this area of bankruptcy law so they can better serve their farm clients. For more information, contact Taier Perlman, with the Rural Law Initiative at Albany Law School: tperl@albanylaw.edu / (518) 445-3263