FARM FOOD SAFETY TRAINING WITH GAPS

April 10-11, 2019

Where:
STEUBEN COUNTY CIVIL DEFENSE CENTER
7220 NY-54
BATH, NY 14810

Wednesday, April 10th
- 8:30 AM Registration
- 9:00 AM - 4:30 PM Training
  - Understanding GAPs
  - How GAPs impact produce safety?
  - Why become GAP certified?
  - Learn about Harmonized & Basic GAPs
  - How does this apply to my farm operation?

Thursday, April 11th
- 9:00 AM – 3:00 PM
  - Begin writing a food safety plan that compiles with a USDA GAP Audit for your farm with help from New York State Agriculture & Markets
  (BRING A LAPTOP COMPUTER)

For more information & to RSVP:
♦ Contact Ainsley Robbins ar935@cornell.edu or
  (607) 664-2874
♦ Cornell Cooperative Extension Steuben County

Open to all fresh produce farms!
$25/ Farm & $10/ Per Additional Person
“Lunch Provided”

Cornell Cooperative Extension
Steuben County

NEW YORK STATE
Agriculture & Markets

- This course is intended to improve your understanding of GAPs to guide assessment of risks and implementation of practices to reduce risks on fresh produce farms.
- Taking this course will not result in your farm being “GAPs Certified”. GAPs certification is done by a third party (e.g. USDA, Primus, Global GAP) and involves the successful completion of an on-farm audit.
How many of you remember the Classical Mythology unit in your high school English class? Do you remember a character named Pygmalion? How about Galatea? For those of you still scratching your heads here’s a quick recap: Disinterested in the immoral women of Cyprus in that day, Pygmalion carved his ideal woman out of ivory. The statue was so beautiful and realistic that he fell in love with his “ivory girl” (apologies to Procter & Gamble). One day he laid an offering at the altar of Aphrodite (goddess of love). Upon returning home he kissed the statue and the lips felt warm. He kissed her again and the statue came to life – Aphrodite had granted him his secret wish. She was later named Galatea.

So what’s this have to do with management? There are two complementary phenomena in human resource management called the Pygmalion and Galatea Effects. This might make more sense as: The Power of Manager’s Expectations and The Power of Self-expectations, respectively. Simply put, how you regard people and how they see themselves can make a huge difference in the success or failure of the employee AND your business.

These effects were first identified while measuring the impact of expectations on elementary students. “If a teacher believes a child is slow, the child will come to believe that, too, and will indeed learn slowly. The lucky child who strikes a teacher as bright also picks up on that expectation and will rise to fulfill it.”

Livingston uses a real-life case study to prove these effects. In the early 1960’s a large insurance firm reorganized its sales staff reporting to one of its district offices into high, average, and low producers, each group led by a high, average, and low performing manager, respectively.

“Shortly after this selection had been made, the people in the agency began referring to this select group as a ‘super-staff’ because of their high esprit de corps in operating so well as a unit. Their production efforts over the first 12 weeks far surpassed our most optimistic expectations. proving that groups of people of sound ability can be motivated beyond their apparently normal productive capacities when the problems created by the poor producers are eliminated from the operation.” (#Pareto Principle or 80/20 rule)

The average group, however, proved be a bit of a surprise. While they did not achieve the volume of business of the high group, their annual growth outpaced the high group. It was later determined that this was a result of the manager refusing to be classed as merely

simply talented group whose manger has a less positive regard for their staff.

Manager = Pygmalion

This phenomenon has been widely researched and documented. This Power of Manager's Expectation can be summarized as follows:

- "What managers expect of subordinates and the way they treat them largely determines their performance and career progress.
- A unique characteristic of superior managers is the ability to create high performance expectations that subordinates fulfill.
- Less effective managers fail to develop similar expectations, and as a consequence, the productivity of their subordinates suffers.
- Subordinates, more often than not, appear to do what they believe they are expected to do."

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“average” and communicating the same values to her sales staff. (See bullet points 1, 2, & 4) Moreover, it has been shown that a new employee’s first manager has the greatest influence — not only their tenure with the company but their career as a whole. In a large telecommunications firm, for example, new employees were tracked for the first year and then for the four following years. Those who worked under a good managers who helped them develop the necessary job skills performed better, had more opportunities for advancement and professional growth, and longer tenures with the company. Conversely, those newbies under managers unwilling to develop their job skills had poorer self-images, negative attitudes toward their jobs, and a higher attrition rate as they frequently left for “greener pastures” with more opportunities. I have seen this played out many times where an employee leaves a farm only to flourish at a neighboring farm or even a different enterprise within the same farm.

Granted, there may be many other factors that contribute to an employee’s success or failure, including the farm’s culture, their level of education, family life, and employee relationships. “However, positive supervision is one of the key factors that will keep good employees on the job.”

Employee = Galatea

Likewise, “Even more powerful than the Pygmalion effect, the Galatea effect is a compelling factor in employee performance. The manager who can assist employees to believe in themselves and in their efficacy has harnessed a powerful performance improvement tool.”

In practice you might recognize this as Self-fulfilling Prophecy. In other words, an individual’s opinion of their abilities and odds of success will determine their level of performance – if they believe they can do it, they most likely will. As Zig Ziglar once said, “Your attitude, not your aptitude, will determine your altitude.”

Next Month: I’ll give you some ideas for cultivating that Galatea effect.


Management and Mythology-Part II

By Timothy X. Terry

Harvest NY

Last 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.

1. 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 handwritten 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 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%).

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?

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.
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.

5. 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.”


Third and final Agritourism Panel Series Workshop- Exploring Agritourism Series Thursday, April 25th at Anthony Road Winery, 3:00pm

Are you an existing farm or business looking to expand in a new direction? If so, have you ever considered agritourism as an option? We would love to help you explore this further and invite you to join us for our final workshop listed below. The workshop will feature a panel of successful farms, businesses, and professionals from the region involved in agritourism. They will be answering a selection of questions on being visitor ready, liability, marketing, and facilitating one time annual events. So, come ready to learn from our guest speakers and ask any questions you may have in regards to agritourism. Details and registration information are listed below. Cost is free of charge, but pre-registration is requested.

Date: Thursday, April 25th
Time: 3:00pm to approximately 6:00pm
Location: Anthony Road Wine Company
1020 Anthony Rd, Penn Yan, NY 14527
Contact: Caroline Boutard-Hunt, CCE Yates
PH: 315-536-5123
Email: cb239@cornell.edu
Want to be better than average?
Use dairy farm nutrient mass balances to improve performance

By Mart Ros, Karl Czymmek and Quirine Ketterings

With so many challenges in the dairy industry today, farm managers realize they need to be “better than average” to be in business for the long-term. Running a whole-farm nutrient mass balance (NMB) can help achieve this. The NMB assessment software and interpretation of results developed by the Cornell University Nutrient Management Program can quickly evaluate a farm NMB. Tracking trends in NMBs for farms over the past 10 years in New York shows that farmers who calculate their whole-farm NMB each year tend to improve their balances over time. More farms meet the feasibility benchmarks now than in early years, illustrating that improvements can and are being made. Given the harsh reality in recent years with low milk and commodity prices, improving NMBs can provide profitable opportunities to improve operational efficiency.

By calculating their NMB using the Cornell University software (available at nmsp.cais.cornell.edu/NYOnFarmResearchPartnership/MassBalances.html), farm managers are able to assess nitrogen (N), phosphorus (P), and potassium (K) use in a way that measures farm production performance and also serves as a key whole-farm sustainability indicator. A farm’s year-on-year performance can be assessed to track progress and compare nutrient use efficiency to other farms. It is especially instructive when comparing with direct peers, such as farms with similar milk production levels or animal densities.

The NMB assessment tracks nutrient purchases through feed, fertilizer and other sources, as well as nutrient exports such as milk, feed and manure, and reports N, P, and K balances per acre and per hundredweight of milk produced. The software then calculates the whole-farm NMBs by subtracting the annual sum of nutrients exported from a farm from the nutrients imported onto the farm (Figure 1). The difference between these imports and exports is called the balance, and this is a measure of how many nutrients (in lbs) remain on the farm or are vulnerable to loss. The balance per tillable acre is a measure of the environmental impact of a farm (nutrient loss or accumulation per acre of cropland). The nutrient balance per cwt of milk sold is a measure for the amount of nutrients “used” to produce a unit of milk. This tells us something about the production efficiency at which the farm operates (in many cases equated to money left on the table).

The whole-farm NMB estimates a solid key performance indicator from a relatively small amount of data. To conduct a NMB assessment, participants fill out four sheets of paper with information on the size of the farm (number of acres and number of cows) and quantities of nutrient-containing imports and exports that entered or left the farm during a calendar year. These numbers are entered in the Cornell Nutrient Mass Balance software, which calculates the N, P, and K balances for the farm.

For imports, the NMB distinguishes between feed imports, fertilizer imports, purchased animals and bedding/manure. For exports, nutrients sold in milk, animals, crops and manure or other products are considered. Information on the quantity and the nutrient

Continued on back
content of these items is needed to calculate the total amount of N, P, and K that enters and exits the farm. Using farm-specific nutrient analyses is preferred, but for several crops or products, book values are included in the software, and can be used as a substitute.

In addition to the imports and exports listed above, information is gathered on the forage and grain crops grown for feed on the farm itself. Although homegrown feed is not an import or an export, and therefore does not contribute directly to the balance, it allows calculation of other crop and ration performance indicators that can tell us more about the efficiency of the farm and opportunities to improve over time.

There are three general types of nutrient balance: negative balances, slightly positive balances and largely positive balances. It is important to understand that in terms of balances, “positive” and “negative” have unexpected meanings. Negative balances have higher exports than imports, which means that there is a net outflow of nutrients from the farm. In the short-term this may be desirable, for example when P levels in the soil are really high. However, if negative balances are sustained over a long time, soil mining of nutrients (such as P and K) will occur and when soil fertility levels drop below optimal, crop yields will be impacted. Slightly positive balances are desirable, as biological processes always need inputs that are a little larger than the outputs. It is therefore expected that nutrient imports will be larger than the exports, and as long as the difference remains small enough, this is a sustainable practice. However, when the nutrient imports are a lot larger than the exports, risk of environmental losses is increased. Although the difference can be temporarily stored in feedstocks on the farm, some portion of the remainder is often lost (this is mainly the case for N) or stored in the soil and slowly lost over time (for P and to a lesser extent for K). The ideal level of a NMB is thus larger than zero, but not so large that the nutrients are used inefficiently, as this costs money and is potentially harmful to the environment.

Feasible (target) balances were established for N, P, and K in collaboration with farmers and farm advisors in New York and are shared in the companion article “Better than average: Feasible balances for dairy farms that produce most forage needs.”

Mart Ros (mr2249@cornell.edu) is with the Cornell Nutrient Management Spear Program.
Karl Czymmek (kjc12@cornell.edu) is with the Cornell Nutrient Management Spear Program and Cornell CALS PRO-DAIRY.
Quirine Ketterings (qmk2@cornell.edu) is with the Cornell Nutrient Management Program Spear Program. More information is available about the program and the NMB software at nmsp.cals.cornell.edu.
Aid For Farmers Impacted by Extreme Weather
The federal government declared 12 counties across the state as natural disaster areas

"As extreme weather becomes the new normal, we must protect our farmers who all too often bear the brunt of these weather events with damaged crops and land," Governor Cuomo said. "In the wake of the excessive rainfall experienced in these counties last year, the declarations will ensure farmers have access to emergency funds they need to help get them back on their feet and recover from these devastating losses.

ALBANY — Governor Andrew M. Cuomo today announced available assistance for farmers impacted by extreme rainfall and wet weather conditions last summer. Last week, the federal government declared 12 counties across the state as natural disaster areas. With these designations, farmers in the impacted areas may be eligible for assistance, including emergency loans, from the United States Department of Agriculture Farm Service Agency.

"As extreme weather becomes the new normal, we must protect our farmers who all too often bear the brunt of these weather events with damaged crops and land," Governor Cuomo said. "In the wake of the excessive rainfall experienced in these counties last year, the declarations will ensure farmers have access to emergency funds they need to help get them back on their feet and recover from these devastating losses.

"Communities across the state have been impacted by extreme weather events including significant rainfall," said Lieutenant Governor Kathy Hochul. "The designation of 12 counties as natural disaster areas will provide our farmers with the resources they need to build back better and ensure continued success."

March 2019 Declarations
In response to the extreme weather experienced in the summer of 2018, the federal government last week declared Allegany, Broome, Cattaraugus, Chautauqua, Columbia, Dutchess, Putnam, Rensselaer, Steuben, Suffolk, Tioga and Westchester counties as secondary disaster counties. The determination of a disaster declaration is based on reporting of on-farm production loss to the FSA.

Farmers in the eligible counties have eight months from the date of the disaster declaration to apply for emergency loans. FSA considers each emergency loan application based on the extent of production losses on the farm, as well as the security and repayment ability of the operator. Local FSA offices can provide affected farmers with further information. Contact information for the offices can be found here.

2018 Declarations
The Governor also reminded farmers about loan application deadlines approaching on April 1, 2019 for federal disaster declarations that were designated in Summer 2018.

In August 2018, Columbia, Dutchess Greene, Orange, Putnam, Rensselaer, and Ulster counties were designated as disaster counties due to damage from excessive and strong winds, hail, lightning and a tornado. Producers in these counties will have until April 1, 2019, to apply for emergency loans to help cover part of their actual losses. For more information, see FSA’s website here.

Additionally, in February 2019, Orange County farmers were also made eligible for federal assistance when the county was designated as a disaster county as a result of excessive rain, moisture and storm-force winds from Hurricane Florence that occurred between July 20 through September 27, 2018. The deadline to apply for an emergency loan under this designation is October 4, 2019. For more information, see FSA’s website here.

State Commissioner Richard A. Ball said, “As a farmer, I know all too well the havoc that extreme weather can wreak on our crops and a farm’s operation. We encourage farmers in these eligible counties to take advantage of
the resources being made available to recoup any losses from last summer and assist with this year’s growing season.”

Congressman Sean Patrick Maloney, a member of the House Committee on Agriculture, said, “Some farmers in the Hudson Valley lost nearly half of their crops because of the extreme rainfall that hit our area last year. That kind of loss can severely harm our family farms, which is why a federal declaration is so important here. Our local farmers can rest easier knowing they have access to federal support if they need it.”

Congressman Lee Zeldin said, “Disaster declarations can mean all the difference to those whose livelihoods have been devastated by a harmful weather event. Farmers rely on a good crop to get them through the year, and when heavy winds, rain, or extreme temperatures destroy everything they’ve worked so hard for, they must know that they have the support and resources necessary to recover.”

Congressman Anthony Brindisi said, “Communities in the Southern Tier saw up to 5 inches of rain a day last summer, which severely impacted farms who were already struggling with low prices for their products. I am glad this declaration will expand resources to farmers and help them recover. I remain committed to working with local, state and federal officials to ensure that we provide the necessary resources to support our communities in times of need.”

Senator Jen Metzger, Chair of the Senate Agriculture Committee, said, “The extreme weather we are experiencing as a result of climate change threatens the livelihoods of our farmers and our rural economy. As we continue to address the underlying causes of climate change, these emergency funds for farms located in designated natural disaster areas are crucial to helping farmers recover from the losses caused by last summer’s extreme rainfall.”

Assemblywoman Donna Lupardo, Chair of the Assembly Committee on Agriculture, said, “The effects of extreme weather are all too familiar for farmers. Last summer’s heavy rainfall decimated crops in these counties and dealt a huge blow to the small farm businesses there. As farms continue to rebound, this designation will help them access much needed resources.”

Western Bean Cutworm and Mycotoxins in Corn Silage
February 21, 2019 by Cornell Field Crops
Joe Lawrence, Gary Bergstrom, Jaime Cummings, Elson Shields, Ken Wise, Mike Hunter

Mold and mycotoxin development in corn ears and stalks, and the resulting corn silage continues to be a major concern for dairy producers. Mycotoxins can result in a range of problems for livestock throughout the year as they are ingested with the feed. The presence of mold does not always have a strong correlation to mycotoxin development but it does present the chance for incidence to occur. A number of factors influence the prevalence of molds from year to year. Conducive weather conditions for mold and mycotoxin development are outside the control of management options. But hybrid characteristics and physical damage to the ears can be managed through the selection of hybrids and pest resistance traits in the hybrids.

Western Bean Cutworm (WBC) is a pest of corn (as well as dry beans) and its territory has been expanding eastward over the last 10 to 15 years with pockets of high populations now found in New York and Ontario, Canada. The moth emerges near the time of corn tasseling and lays its eggs near the ear leaf of a pollinating corn plant. When the larvae hatch they enter the corn ear, often opening a wound in the husk, and feeding on kernels. Unlike other earworms, which are cannibalistic, you can find multiple WBC larvae feeding on one ear, increasing the chances for significant ear damage.
Where WBC populations are high, the corresponding ear damage from WBC feeding can leave wounded corn ears more susceptible to pathogen development, but a clear relationship between ear damage and mycotoxin development has not been documented. A number of mold species may develop on corn ears though relatively few of these produce mycotoxins. Principal concern in New York is with the mycotoxins deoxynivalenol (DON or vomitoxin) and zearalenone (ZON), both produced by the fungus *Fusarium graminearum*. Infection by this fungus also occurs in roots and stalks and leads to Gibberella stalk rot and the accumulation of DON and ZON in stalk tissues. Much of the toxin loading in 2018 corn silage in New York was contributed by contaminated stalks as well as ear tissues.

While WBC damage to corn ears can be significant and may have detrimental effects on corn grain yield and quality, the economic impact on corn silage is less understood. For corn silage growers, understanding whether or not this pest significantly impacts the yield or quality of the forage is critical to their decision making for managing this pest.

Since the Cry1F protein, which has most commonly been utilized for protection against numerous corn insect pests, has been found to be ineffective against WBC, producers are left with limited management options. Currently, the Vip3A trait in select corn hybrids in combination with a scout and spray program is the best option for WBC management in areas where the pest is prevalent.

With the increased population of WBC in NY, the Commercial Corn Silage Hybrid Evaluation program conducted by Cornell University in collaboration with the University of Vermont and the Northeast dairy industry offers a good opportunity to evaluate numerous hybrids for ear damage from WBC and mycotoxins. This was done in 2017 and 2018 with financial support from both the New York Corn Growers Association and the Northern New York Agricultural Development Program.

<table>
<thead>
<tr>
<th>Table 1: NY &amp; VT Corn Silage Hybrid Trial Locations</th>
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<td>Relative Maturity</td>
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<tr>
<td>80-95 Day</td>
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<tr>
<td>Willsboro, NY</td>
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<tr>
<td>Albion, NY</td>
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<td>Alburgh, VT</td>
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<td>96-110 Day</td>
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<td>Madrid, NY</td>
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<td>Aurora, NY</td>
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<td>Alburgh, VT</td>
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Each hybrid is planted (in triplicate) at two locations in NY and one location in Vermont (VT), with the locations each hybrid planted at based on hybrid relative maturity (Table 1).

Mycotoxin screening was limited to the NY locations based on funding available. In 2017, composite whole plant silage samples (3 replicates combined) were taken for each hybrid at two locations; Madrid in Northern NY and Aurora in Central NY. In 2018, a slightly different strategy was used with individual replicate samples taken on a subset of hybrids at each location.

Both seasons, each plot was scouted prior to harvest to assess WBC feeding damage to the ears. At harvest a whole plant silage sample was collected and submitted to the Dairy One forage laboratory for a mycotoxin screening package which included aflatoxins B1, B2, G1, G2, vomitoxin, 3-acetyl DON, 15-acetyl DON, zearalenone, and T2 toxin.

Through the New York State Integrated Pest Management (NYS IPM) WBC Pheromone Trapping Network, WBC populations were monitored at each location. Though it should be noted that as the traps only attract male moths, they help in understanding geographic differences in WBC population but may not be representative of the population of egg laying females.

The results of the WBC and mycotoxin screening project revealed large differences in the pheromone trap counts and the number of plots damaged by WBC (Tables 2a and 2b). There was also wide variation in the prevalence of samples testing positive for mycotoxins, particularly in 2018. However, there was a lack of correlation between WBC damage and incidence of mycotoxins in both years (Table 2a and 2b).
Additionally, despite the damage to corn kernels inflicted by WBC, in plots with up to 60% of ears showing some level of WBC damage, the WBC feeding did not correlate to any negative impact on silage yield or forage starch content in this study.

The most prevalent species of mycotoxin-producing mold found in the screening was *Fusarium graminearum*. This fungal pathogen can also infect corn ears through the silk channels at the time of pollination during favorable weather conditions and result in contamination of the grain and silage with the mycotoxins DON, 3-ADON, 15-ADON, or zearalenone. A review of the weather data from both years (despite very different overall weather patterns) showed wet conditions at silking conducive to this type of infection. As expected for New York, no aflatoxins were detected.

While there aren’t many in-field management options to reduce the chances of mycotoxin development (note that controlling plant diseases and mycotoxins are not the same thing), harvesting corn silage at the proper whole plant dry matter is helpful. Based on numerous field observations, and notable at the 2018 Aurora location in this study, a whole plant dry matter in the high 30’s or above appears to increase the risk of mycotoxin development.

While there are numerous ways in which molds can establish themselves in forages, this study reflects a common challenge researchers face while attempting to document the conditions where mycotoxin development is likely. These results, over two growing seasons, provide no evidence that WBC damage is an added risk factor for corn silage growers who are worried about deoxynivalenol and zearalenone in their silage. In areas of the country where other toxins are more prevalent the impact of WBC and other insect pest may differ. It is important to note that these results do not reflect what may occur in corn harvested for grain because the time between silage harvest and grain harvest offers additional opportunities for infection and growth.

Growers should continue to scout for this pest and weigh the cost of control with the potential for damage. However, it does not appear that controlling WBC should be viewed as a significant management consideration for reducing the risk of mycotoxin development in corn for silage.

Weathering Change: Cornell CALS Helps New York Farmers Adapt
By Krisy Gashler

![Climate change is forcing New York farmers to adapt to more extreme weather. Above, a New York corn field is flooded following a heavy rainfall. Photo provided.](image)

In the autumn of 2018, unusually heavy rainfall — almost 8 inches above the norm — interfered with harvests. The year before, a late spring frost killed off most of the strawberry crop. And the year before that, farmers experienced the worst drought New York has seen since the 1960s.
“I don’t want to complain a lot, because farmers have been dealing with this forever, but the frequency of these weather challenges has certainly gone up,” said Corey Mosher, owner of the 1,200-acre Mosher Farms, a diversified fruit and vegetable farm in Bouckville, New York. “I wouldn’t make a scientific observation, but I’d say you’re blind if you’re a farmer and you aren’t noticing these changes. I don’t know what a normal year is anymore.”

Sharp changes to the climate have forced farmers in New York and across the Northeast to adapt. Since the 1950s, the region has seen a 72 percent increase in heavy rainfall events that dump from 2 to 5 inches of rain in 24 hours. Sometimes that much rain falls in a single hour, threatening farmers’ fields and causing severe erosion of soil and the nutrients required to grow crops.

Climatic changes are disrupting the entire farm cycle, from forcing delays in planting to reducing yields when the crops do grow. Root damage, soil loss and increased contamination of waterways from agricultural run-off are among the consequences facing farmers as climate change accelerates.

“Farmers realize the climate is changing; they see it in the growing patterns and threats from pests and pathogens that they’ve never had to face before,” said Allison Chatrchyan, director of the Cornell Institute for Climate Smart Solutions in the College of Agriculture and Life Sciences. “We’re here to give them a better sense of what’s happening and what they can do about it.”

Shorter, warmer winters, combined with changes in soil moisture and drought have forced farmers to adapt to uncertain conditions. And more extreme heat and rainfall are expected. If greenhouse emissions continue to increase unabated, temperatures are expected to increase in the Northeast by 4.5 to 10 degrees by the 2080s, according to the National Climate Assessment. As farmers grapple with longer, more erratic growing seasons, they are vulnerable to enhanced risk of drought and intensified disease and pest pressure, said Chatrchyan.

Cornell’s Climate Smart Farming program (CSF) supports farmers in New York state and the Northeast to increase agricultural productivity and farming incomes sustainably. The program helps farmers reduce greenhouse gas emissions and boost resiliency to extreme weather and climate variability through use of advanced digital tools and best management practices. The team gathers stakeholder needs and input on their experiences with the climate, then develops resources and tools for farmers and extension specialists.

"Farmers here in New York are facing the unique challenges from both flooding and extended periods of drought. If we can help them identify impacts on their farm, and put in place new practices to increase their resiliency, then hopefully in ten years they will have avoided the most catastrophic consequences of climate change,” said Sarah Ficken, resource educator for Cornell Cooperative Extension of Madison County.

In the face of drought, many New York farmers have had their wells run dry, and have had to make extensive changes to their irrigation systems to create extra storage capacity and in some cases tapping into more reliable municipal water systems.

“We’re here to help. Our solutions come from listening to farmers and building on what they’re already doing by helping them figure out next steps, how to use more precise information to make informed decisions, and connecting them to specialists in different areas,” Ficken said.

CSF’s digital tools, accessible online, provide farmers with robust and actionable information as they make multiple decisions daily — from when to plant winter cover crops to how to assess freeze risks in the spring, and everything from specific crop hardiness to seasonal precipitation outlooks. With most of the CSF tools, any farmer from Maine to West Virginia can enter their address and field data to get outputs that are customized to their specific location.

For instance, in 2018, in the Finger Lakes region of New York, snow fell on the last day of April,
while the next day brought summer temperatures. The erratic weather forced farmers to delay planting summer annuals, shortening the time between planting and first cuttings. Unpredictable weather compounds the risk as farmers grapple with decisions of when and what to plant.

The CSF Extension Team provides farmers access to agricultural specialists as they work to manage the risks posed by increasing extreme weather, climate variability and long-term change. Working in partnership with Cornell Cooperative Extension and researchers at Cornell, the team draws on the latest science to answer growers’ questions about changes they can make to their management practices that will help increase resiliency and farm sustainability. During the summer of 2018, Sarah Ficken along with Tyler Brewer ’19, a CCE intern, visited more than 30 farms in Madison County, New York and held a twilight meeting at Mosher’s Farm to the CSF demonstrate tools and practices with other farmers.

The CSF tools are built on powerful climate data and modeling provided by Cornell’s Northeast Regional Climate Center (NRCC). For 36 years, the NRCC, housed in CALS, has been helping farmers and policymakers adapt to the weather. Led by director Art DeGaetano, professor in the Department of Earth and Atmospheric Sciences, the NRCC monitors climatic conditions and shares its information with the public.

“At Cornell, we have this phenomenal strength to be able to combine long-term climate data from the NRCC’s with agricultural models to create cutting-edge and practical tools that allow farmers to access information about changes growing degree day accumulation, water deficit, freeze risk, and timing of cover crops,” said Chatrchryan.

The growing degree day (GDD) tool is a heat index that is used to predict when a crop will reach maturity.

Adding to farmers’ concerns, many of the crops that currently dominate the Northeast agricultural industry, such some traditional apple varieties, cabbages, or potatoes may no longer be well suited for the warmer Northeast climate predicted for this century. However, the CSF program also recognizes that the changing climate also offers profitable opportunities to experiment with new crops or new crop varieties.

Mosher Farms has been operating for 100 years, and Mosher is hopeful that they’ll make it for the next 100, too. The farm grows a wide variety of fruits and vegetables for direct marketing, along with approximately 350 acres of green beans for Seneca foods, and corn, wheat, malting barley and hops for the malting industry. They are highly diversified both in products grown and in distribution chains, which helps soften the blow when freak weather takes out one crop.

“A lot of the strategies Cornell is talking about with climate-smart farming — the cover crops, renewable energy, soil management — the benefit isn’t just in how you’re using your resources, it can also generate money or help save on costs," he said. “I’m optimistic because we kind of have to be, as farmers. We have to be innovative, and that’s what makes it exciting.”

Krisy Gashler is a freelance writer for the College of Agriculture and Life Sciences. Jennifer Savran Kelly contributed to this report.

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Cheese: Barrel markets are showing real promise of late, as they vie to close the long-running gap with the CME block price. Northeast and Western cheese demand reports point to a general stability. Milk remains available, as reported spot milk was $2.50 under to $2 under Class. Cheese production is steady to increasing nationwide. Eastern contacts suggest their cheese stores are steady to growing, while Western cheesemakers say demand is stable enough to alleviate some of their concerns about long inventories. Cheesemakers are hopeful regarding spring. Holidays, basketball playoffs, more grilling and outdoor/community events are some of the demand-related benefits of the season.

Dry Products: Low and medium heat nonfat dry milk prices are steady to lower amid slow spot trading activity. High heat nonfat dry milk prices are mixed, being steady to lower in the Central/East region. Dry buttermilk prices held steady in the Central/East and the western mostly price series. The dry buttermilk market remains relatively stable.

Fluid Milk: Across much of the nation milk production is inching up along seasonal trends. Contacts in parts of the Northeast and Central regions say production is down a little from last year. And in parts of the southern tier of states, milk output is beginning to plateau. Manufacturers report having plenty of milk for processing. In parts of the country, farmers and milk handlers were contending with weather related issues: flooding across the Central region and a strong winter storm in the mountain states. Condensed skim loads are available in the Northeast and West. Cream is generally available, but industry contacts say ice cream production is picking up and cream is tightening.

Butter: Salted and unsalted butter production is fairly active throughout the country, while inventories are stable to growing, as plant managers continue adding to their mid-year supplies. Bulk requests and retail print orders are both reported as strong this week. In general cream supplies are still manageable for churning. However, needs of cream from Class II are constantly increasing, therefore, several manufacturers of butter are doing what is necessary to ensure cream availability for near future use.
Good news for improved milk prices is milk production continues to slow. For the last quarter of 2018 milk production was just 0.5% above a year earlier. The increase in milk per cow continues below trend being up 1.0% in 2018 and 1.1% in February. Of the 23 reporting states, 13 had fewer cows in February than a year ago, six had lower milk per cow and 8 had lower total milk production. New York had an increase in cow numbers by 2,000 and increased in milk production by 2.8%.

Domestic demand continues on the soft side. Fluid beverage milk sales declined another 2.0% last year with modest growth in butter and cheese sales. This type of pattern is expected to continue in 2019. Dairy exports were a record high in 2018 being equivalent to 15.8% of milk production on a total milk solids basis compared to 14.5% in 2017. Looking into 2019 there are some positive factors for exports. Milk production is expected to show only a modest increase in the EU, lower production in Australia and a possible drought in New Zealand could dampen their milk production. World dairy product prices are increasing. But, as long as retaliatory tariffs exist exports will be hindered. USDA forecasts 2019 exports on a milk-fat basis to be down 3.8% and on a skim-solids basis up just 1.0%.

Despite a slower growth in milk production ample cheese stocks, modest growth in domestic demand and reduced growth in dairy exports has kept milk prices from showing much improvement. It looks like March Class III will increase to about $14.95. Dairy futures continues to show very slow price recovery with Class III reaching the low $15’s in April and not reaching the $16’s until August and only topping out in the low $16’s in October. But, I look for the Class III price to do better than this. After four years of low milk prices and starting 2019 with low milk prices the growth in milk production is likely to stay below 1% for a while. The number of licensed dairy herds in 2018 declined 2,731 or 6.8%. Herd numbers continue to decline. Cow numbers will likely continue to decline through at least the first half of the year. Slaughter cow numbers continue to run above a year ago and the number of dairy replacements expected to enter the dairy herd during the year are down 1% from a year ago. And with some forage quality issues until a new crop and lower returns over feed cost the increase in milk per cow is likely to be dampened. So I see the possibility of much stronger Class III prices for the last six months and reaching the mid to high $16’s by fourth quarter.

In 2018 the average all milk price was $16.18 compared to $17.65 in 2017 and the lowest average since $12.85 back in 2009. So while milk prices will improve in 2019 over that of 2018 they will keep operating margins for dairy farmers rather tight until at least the last quarter of the year.
COMING EVENTS

April 10 & 11-Farm Food Safety Training With GAPS-10th-8:30am-4:30pm, 11th-9am-3pm-Steuben County Civil Defense Center, Bath, NY (see front page of this issue for more information)

April 24-Cornell Organic Symposium-1pm-5pm-G10 Biotech on the Cornell Ithaca Campus. Go to: https://organic.cals.cornell.edu/content/registration-2019-cornell-organic-symposium/ for more information and to register. Or call Jenn Thomas-Murphy at 607-255-2177, email: jnt3@cornell.edu

April 25-Agritourism Panel Series Workshop-3 pm-Anthony Road Winery, Penn Yan, NY (see ad in this issue for further information)

FOR LEASE/RENT

Available For Rent: Steuben County SWCD has an Esch 10’ No-Till Drill for rent. Rates are $12-$25/acre based on number of acres planted. Delivery/pickup available. Please call (607)776-7398 ext.3 for more information.

Seeking conservation minded individual with interests in permaculture to rent 3-4 acre, gentle grade, southern exposure field for agricultural production in Steuben County, NY. Acceptable practices include organic vegetable production, small scale poultry, and organic greenhouse or high tunnel production. Other considerations will be determined by owner. Improved, uncultivated ground will require proper preparation for success. Currently no housing available on the property, but can be discussed with owner in the future. Contact CCE Steuben at 607-664-2574 for further information.

Attention Cattle Farmers: I have pasture/farmland for rent, 40-50 acres, reasonable rate. Located in Steuben County on State Rt. 63. Contact Marian Crawford at 585-728-5303.