Staging Corn Maturity for Harvest

By Janice Degni, Regional Field Crop Specialist

When will your corn be ready? There were early plantings and late planting this year and maturity in the field is following suit. **Sixty days,** that’s the length of time, on average, that it takes for corn silage to mature from silking (pollination) to black layer (physiological maturity). We use ½ milk line as the indicator to start checking whole plant moisture. Typically in a dry year whole plant moisture run dryer than milk line alone would indicate. At 1/4 milk line, we expect DM to be about 35%. Seventy percent moisture is the long-term accepted target for beginning harvest for bunks, but consideration needs to be given to your farm storage. Nutritionists are encouraging targeting higher dry matters to increase starch levels. It’s a balancing act to strike the DM where you can pack well and preserve maximum nutrients. Bunk silos pack better at the top of the range, while uprights may have excessive seepage above 68% moisture (See Table 1). Whole plant dry matter samples will run 2-3 points above actual field conditions (that is the corn will be wetter). Knowing the maturity of your crop and how many days or weeks it takes to harvest allows you to target the moisture for when to start harvest. (See Table 2) Moisture will decrease by .5-1 point/day, which is weather dependent.

<table>
<thead>
<tr>
<th>Table 1. Target Crop DM Levels for Vertical Silage Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oxygen limiting structure</strong></td>
</tr>
<tr>
<td>Corn silage: 40-65% DM [35-60% moisture]</td>
</tr>
<tr>
<td><strong>Conventional Concrete &amp; Stave Structure</strong></td>
</tr>
<tr>
<td>Corn Silage:</td>
</tr>
<tr>
<td>Under 60 feet: 32-36% DM [64-68% moisture]</td>
</tr>
<tr>
<td>Over 60 feet: Increase 2% DM per 10 ft vertical height</td>
</tr>
</tbody>
</table>

Where are we at this season with Growing Degree Days (GDD)?

I ran GDD totals from May 1-Aug 14 for four representative sites across the region: Auburn, Freeville, Waverly, and Whitney Point. The data is summarized from official weather stations.

Unfortunately, the Waverly station had missing data for 11 days in July and 4 days in August. I used the average daily accumulation for the missing days for each of the two months to calculate the monthly totals.

(Continued on page 3)
Dear Onondaga County Producers,

It has been an honor for us, the members of the CCE South Central NY Dairy and Field Crops Regional Team, to serve farmers and agricultural service providers in Onondaga County for the past 6 years. We are disappointed to share that Executive Director David Skeval and the CCE Onondaga County Board of Directors have decided to leave the Regional Dairy Team effective September 30, 2022. After that date, our team will no longer be able to serve the agricultural community in Onondaga County.

What does that mean for you? As an Onondaga County producer, you will no longer have direct access to our educational programs, technical assistance, and applied research projects related to dairy management, field crop and nutrient management, and farm business management. You will lose access to our newsletter and email notices. We will not be able to coordinate workshops or other events in the county. We will no longer collect alfalfa heights from Onondaga fields to inform the dates for first cutting. We will not be available to visit farms, facilitate grants and profit teams, support the Dairy Farm Business Summary, or provide other individualized consultations in Onondaga County.

You can contact David Skeval or Jenny True Smith at CCE Onondaga if you have any questions about this transition or how it will affect your access to educational programs and resources.

Sincerely,

Your Regional Dairy Team

Janice Degni,
Team Leader & Field Crop Specialist
Betsy Hicks, Dairy Specialist
Mary Kate MacKenzie, Farm Business Management Specialist
Fay Benson, Small Dairy Technologies Specialist
Using the Climate Smart Farming Growing Degree Day Calculator, we can estimate how the season will progress. As a general placemark I’m using 2000 GDD as the target for reaching harvest. Your harvest timing will need to be adjusted for your maturity groups. You can use this calculator for the fields on your farm. You select them on map and the program provides the graph predicting season GDD accumulations.

The following graphics show the predicted dates to reach 2000 GDD’s across the four selected locations.

**Auburn:**

**Waverly:**

**Freeville:**

**Whitney Point:**
7 Business Planning Considerations for On-Farm Dairy Processing by Katelyn Walley-Stoll, Business Management Specialist, Southwest New York Dairy, Livestock and Field Crops Program

Financial Management Questions to Ask When Diversifying Your Dairy; June 3, 2022

With the current volatile dairy market, rising input costs, and continued challenges in commercial dairy production, dairy farm owners are looking for new ways to improve their profitability. If you’re a dairy farmer interested in diversifying or vertically integrating your business, one option could be on-farm processing of raw milk into value-added goods and bottled fluid milk for sale. While this might seem like a fun, lucrative, and sustainable new venture at first glance, it’s important to consider how you’ll need to adjust and address your farm’s business plan to accommodate for this change.

1. Management Team Support. It’s no secret that there are many hands involved when it comes to dairy production. The owner, their family and friends, and employees seem the most direct, but there are also folks outside of the immediate farm that provide insight and support. People like bankers, lenders, accountants, financial advisors, crop advisors, veterinarians, nutritionists, milk cooperative leaders, and more. When diversifying into value-added production, that circle of support will grow even larger. Direct customers and wholesalers, product suppliers, inspectors, and more. Thinking about the people around you, your trusted advisors and helping hands, consider how your farm diversification will affect them and your relationship with them. Hopefully, this is a positive move for all involved. But, you may work with some who are hesitant, or have (oftentimes, very valid) concerns for this business venture. Without everyone on board and in the loop, there could be potentially disastrous consequences later on down the road. Bringing in third-party advisors, like Cornell Cooperative Extension Specialists or NY FarmNet Consultants, to moderate a management team discussion can be a helpful preventative step.

2. Business Life Cycle. Over time, businesses tend to follow a general lifecycle, pictured here. Farms are no exception and travel through a launch and start-up phase (as a new farm entirely or under new management/ownership through succession), to a period of growth, then a peak production of business maturity, and, finally, a decline to an exit phase (or transition to new ownership/management). Depending on where you, or your successors, are in the business cycle will affect any decisions you might make when diversifying your dairy. For example, if you’re just getting started, do you want to add something new to your plate? If you’re thinking about exiting the business, how will this new venture affect your retirement goals or transition to new ownership? Understanding where your business is, and what your future goals are for production, is an important consideration when considering a new venture.

3. Financial Position and Borrowing Capacity. You know the old adage "You Can't Manage What You Can't Measure"? This applies here as well, and having an accurate understanding of your farm's financial position is a key business planning consideration. You can work with your lender, financial advisor, or local Farm Business Management Specialist to perform a Financial Analysis of your farm business. While it might seem tedious, it'll give you a whole farm picture of your financial health by analyzing your balance sheet and income statement items. Do you know if your farm is profitable right now? If your farm is currently profitable, or has the potential to be, what would be the motivation to start a new venture? If you’re not profitable right now, what would change if you added a new venture? While it won't come as a surprise to you, creating a milk processing facility on your farm requires a lot of cash. Consider your options for financing such a venture and the current borrowing capacity of the farm.

4. Cash Flow Budgeting and Profit Potential. For dairy producers, cash flow tends to be straightforward. Your milk is picked up regularly and you receive a check regularly throughout the entire year. However, a value added business will have an entirely different cash flow, depending on your market. If you’re working with wholesale buyers, you might be fronting product that you won’t receive a paycheck for right away. If you’re going to be marketing directly to consumers, how will you handle the times of the year where customers might not be buying? Additionally, start-up costs associated with this new venture will impact the liquidity of your overall farm business, and limit your responsiveness to change. It’s also important to have an idea of how long it will take for you to make a profit with

(Continued on page 5)
this new venture as you balance start up highs and lows and customer recruitment to plan for cash availability.

5. Calculating Your Cost of Production. Do you know how much it will cost you to make and sell a gallon of milk? Tub of ice cream? Block of cheese? Calculating your cost of production by unit of sale can be a daunting process, but will be important to know what your breakeven price is and influence your business planning. An example - let’s say you have an idea to make the most delicious, pint sized chocolate milks around. So, you listened to your friendly, neighborhood Farm Business Management Specialist and calculated what it would cost for you to make each of these pints of milk. This included the actual cost of producing the milk, the processing equipment and utilities, flavor ingredients, packaging, marketing, and more! You add all of those budgeted costs up, divide them by your anticipated production, and get to a cost of $12.30/pint of delicious chocolate milk as your cost of production. In this scenario, how long do you think it would take to be profitable at $12.30/pint? Or, would you ever be profitable, depending on your target consumer? Knowing your cost of production, or anticipating based on your enterprise budgets, will help you make decisions about how to move forward.

6. Opportunity Cost. Now, this consideration is one of the ones that gets me the most eye rolls, but from a “let’s operate our farm as a business” perspective, makes a lot of sense. Opportunity cost is “the loss of potential gain from other alternatives when one alternative is chosen”. Consider how much time and money and management effort will be involved in starting up a new value-added venture. What would your return on investment be if you used that money someplace else? This could look like improving your current farming operation, diversifying into a different venture, or even investing it via traditional routes. One example where I see this occur is, especially, with time. If the time you’re spending growing and developing your plan was spent on, for example, improving your herd health - what would happen? Another consideration is how your current farming operation will change if you’re spending time and effort on a new project - do you have a plan in place to keep things running smoothly if you’re elsewhere? If you consider alternatives, and Value-Added Dairy still has the biggest returns, great. If it doesn’t, how will this play into your business planning?

7. Wellbeing. One final Business Planning consideration I would urge you to evaluate is how this new venture will affect the wellbeing of your farm, your family, and yourself. This will change over time and vary by situation, but, in general, any new venture will cause a lot of stress and could negatively impact your wellbeing. Having a support system in place and a "plan" for how to handle things when the going gets tough can make all of the difference during those low times. Additionally, knowing how value-added production will bring you closer to your overall goals, your “why”, will help motivate and safeguard your wellbeing which should be of upmost importance.

On-Farm Dairy Processing can provide a much needed lifeline for navigating volatile milk price swings, working through cooperative buying restraints, and providing new profitability streams to expand on-farm management and bring in new family members. However, this isn’t a venture that should be entered into lightly and will have long-lasting impacts on your farm business plan.

This article was prepared by Katelyn Walley-Stoll, Farm Business Management Specialist with Cornell Cooperative Extension’s Southwest New York Dairy, Livestock, and Field Crops Program as part of a “Diversifying Your Dairy” educational series. Katelyn can be reached by calling 716-640-0522 or emailing kaw249@cornell.edu. This material is based upon work supported by USDA/NIFA under Award Number 2021-70027-34693.

Late Season Options for Additional Forage — Janice Degni

By mid-August the options for boosting forage inventory are limited. A winter small grain (rye, triticale or wheat) can be planted immediately after corn silage harvest for early spring forage harvest. A second option is to plant oats asap for fall harvest or grazing.

According to the Wisconsin Team Forage Fact Sheet –Fall Grown Oat Forages, to maximize fall forage production they recommend a heavy seeding rate of 3 bu/ac fertilized with 40 pounds of nitrogen. In general, forage oats will mature more slowly than a grain oat extending the fall growth window as long as the weather cooperates. When planting after the first week of August, it is recommended that an “earlier-maturing, grain-type cultivar will provide greater forage yield than ForagePlus or other forage type cultivars. The forage oats are the recommended type for planting from mid-July through the first week of August. The authors explain, “This occurs because the time interval between planting and the onset of winter weather is relatively short, and the slower maturation characteristics of forage-type cultivars become an increasing liability relative to faster-maturing, grain-type cultivars.”

Is your footbath working for you?
By Betsy Hicks, CCE Dairy Management Specialist

As I was working with a set of farms on a lameness project this summer, the question of footbath protocols was included in the set of intake questions. Very few of the farms included in the project could definitively say what concentration they were aiming for, or what the volume of the bath was that they were using. This brings the question, is your farm making your footbath work for you? Or are you just guessing?

**Taking the Guesswork Out of the Equation**
With setting up a footbath, none of the steps should be guesswork. Fortunately, the University of Wisconsin Dairyland Initiative has put together an excellent resource to do exactly this. Simply put, the only measurements needed to calculate the volume of a footbath are length, width, and depth to fill height. The spreadsheet calculates different concentrations of varying products to remove all guesswork. The spreadsheet can be found at: [https://thedairylandinitiative.vetmed.wisc.edu/wp-content/uploads/2017/09/Footbath-Dose-Calculator_090617.xlsx](https://thedairylandinitiative.vetmed.wisc.edu/wp-content/uploads/2017/09/Footbath-Dose-Calculator_090617.xlsx).

**Footbath Best Practices**
Also shared on the Dairyland Initiative website at [https://thedairylandinitiative.vetmed.wisc.edu/home/lifestep-lameness-module/infectious-hoof-disease/dd-footbath/](https://thedairylandinitiative.vetmed.wisc.edu/home/lifestep-lameness-module/infectious-hoof-disease/dd-footbath/) are footbath best practices, as shared below:

⇒ Bath as infrequently as possible to reduce transitions from chronic to acute DD (Digital Dermatitis or hairy heel wart) lesions
⇒ Use a well-designed footbath to optimize transfer of antibacterial to feet
⇒ Locate a mixing station adjacent to the footbath for safe handling of chemicals
⇒ Start a regime once a day for 4 days per week and adapt based on the outcome
⇒ Use an antibacterial with proven efficacy that DOES NOT DAMAGE THE SKIN DEFENSE – maintain pH>3.0
⇒ Use the bath as long as it is effective ~ 100-300 cow passes

Don’t forget the dry cows and heifers!

**Issues Found During the Project**
When using a footbath, the goal is to achieve a minimum of two dunks per foot through the footbath. On many farms, the design of the footbath rarely allows for this, and only one dunk is achieved. Often, the cow passing through the bath is able to bypass the bath with at least one foot, and that foot is often the foot with an issue. Watching cows pass through the bath or videoing cow passes is a good way to assess if this is happening on your farm or not. I have a time-lapse camera that can be set up to record if this is a concern on your dairy.

Another problem I encountered was one I didn’t anticipate. One farm, knowing that the bottom of their bath had hard rubber nubs that cows didn’t like to step on, put rubber mats in the bottom of the bath. This is a great workaround for the comfort of the cow passing through the bath. However, the rubber mats sometimes would get flipped up and be above the footbath level, causing a trip or balk hazard for the cow. It also takes away some of the volume of the bath, so unless the farm measured the gallons using a known amount, the concentration of the bath was a complete guess.

A third issue was making the concentration of the bath “too hot”. As stated by the Dairyland Initiative, the bath should be efficacious WITHOUT damaging the skin. In other words, we want control of heel warts, but not at the expense of skin integrity. Most farms did not check the pH of their bath, and the concentration of the product was a guess.

**Key Points for an Ideal Footbath**
⇒ Know the bath volume! If there are mats included in the bottom, be sure they are accounted for to get a true amount of water in the bath!
⇒ Measure the amount of product (Copper, Formalin or other) to be added! To make it easier for those filling the bath, you can draw lines on buckets, cut off plastic bottles to the desired level, or any other way to get the right amount of product included. Just don’t guess!
⇒ Watch cows pass through the bath to make sure you’re getting two dunks per foot. If not, it may be time to take a good look at the location and set up and make a change.

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![Footer Image](https://example.com/footer_image.png)
The Northeast Dairy Business Innovation Center (NE-DBIC) announces the availability of funds through the On-Farm Milk Storage & Handling Grant program, which will provide grants for dairy farmers to access funds that support the purchase of equipment and other related costs that will improve milk storage, handling, and energy efficiencies. The focus of this grant is on the purchase of specialized equipment. Applicants may select from a pre-approved list of eligible equipment. Projects funded by this grant will streamline milk pick up, create efficiencies around milk storage, and improve handling for both farmers and their processors. Successful applications will show reduced costs to the farmer and will improve efficiencies around the movement of milk, reduce frequency of milk pick up, and/or otherwise meet processors’ needs for improved storage and handling.

Grants are available to applicants in all 11 Northeast states: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. Find the full Request for Proposals (RFP) here: https://agriculture.vermont.gov/sites/agriculture/files/doc_library/On-Farm%20Milk%20Storage%20Capacity%20%26%20Handling%20Grant%20RFA_0.pdf

**KEY DATES**

RFA Release Date: August 9, 2022

Application Opens: August 25, 2022

Application Deadline: October 6, 2022 at 2:00 PM ET

For more information about this and other grant opportunities available through the Northeast Dairy Business Innovation Center, visit: https://agriculture.vermont.gov/dbic/grants

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### On-Farm Milk Storage & Handling Grant: 2022 Request for Applications

**NORTHEAST**

**DAIRY BUSINESS INNOVATION CENTER**

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### South Central NY Dairy & Field Crops Digest

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### NY Pro Farmer Corn Yield Results

**Janice Degni, Field Crop Specialist**

In conjunction with the NYS Corn and Soybean Growers Association Summer Tour on August 11, Mike Stanyard, my counterpart on the CCE NWNY Dairy, Livestock and Field Crops Team, organized yield checks for corn across 9 counties following the methodology of the Pro Farmer Crop Tour in the Midwest. I participated in the team that assessed fields in Cayuga County. Teams were led by members of the NYS Corn and Soybean Grower’s Association and included agri-service and extension personnel.

We covered a north to south transect of 10 farms in Cayuga County. Once inside the field, we counted the plant population of two side by side rows 30 feet long. We collected the 5th, 8th and 11th ear from each row. We measured each ear to the point of pollination. Since conditions have been dry almost all ears had aborted kernels at tip of the ear. We counted rows of kernels around the cob. To calculate the yield we take the average population X average kernels around X average length of ear in inches and divide by the row width in inches. The table below summarizes the findings for the 10 counties on the NY Tour.

### Pro-Farmer Corn Tour—County Average Yields

<table>
<thead>
<tr>
<th>County</th>
<th>Fields Sampled</th>
<th>Range in Yield</th>
<th>Average Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niagara</td>
<td>10</td>
<td>164 - 227</td>
<td>197.7</td>
</tr>
<tr>
<td>Orleans</td>
<td>17</td>
<td>150 - 269</td>
<td>189.7</td>
</tr>
<tr>
<td>Genesee</td>
<td>10</td>
<td>153 - 255</td>
<td>198.6</td>
</tr>
<tr>
<td>Wyoming</td>
<td>11</td>
<td>143 - 249</td>
<td>197.5</td>
</tr>
<tr>
<td>Livingston</td>
<td>11</td>
<td>156 - 228</td>
<td>187.3</td>
</tr>
<tr>
<td>Monroe</td>
<td>10</td>
<td>177 - 241</td>
<td>201.8</td>
</tr>
<tr>
<td>Ontario</td>
<td>10</td>
<td>153 - 244</td>
<td>207.5</td>
</tr>
<tr>
<td>Wayne</td>
<td>10</td>
<td>216 - 253</td>
<td>235.0</td>
</tr>
<tr>
<td>Seneca</td>
<td>10</td>
<td>120 - 203</td>
<td>163.2</td>
</tr>
<tr>
<td>Cayuga</td>
<td>10</td>
<td>165 - 223</td>
<td>195.2</td>
</tr>
<tr>
<td>Region</td>
<td>109</td>
<td>120 - 269</td>
<td>197.4</td>
</tr>
</tbody>
</table>

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### Farmers don’t just work ‘til the sun goes down. They work ‘til the job is done.

-Unknown
Cropping Notes
By Janice Degni, Regional Field Crops Specialist

After the false starts for an early crop season, once May arrived, planting progressed at a steady pace. Several weeks of almost perfect planting and growing conditions followed until rainfall became sparse. Reports for first cutting yields were about average. By 2nd cutting dry conditions started to negatively impact yields. Conditions became dry and plants started to show stress, the typical curling of leaves in corn and greyish or overturned leaves in soybeans. It seems like the soybeans are handling the dry conditions better than corn. Both crops will need moisture to mature the grain. In the Cortland area we’ve had some critical rain events over the last 3 weeks to keep the crop growing and maturing. The showers delivered from .5 inch to an inch or more in each event. On August 4th when conditions were getting dire again, I measured 1.75” at my house. Unfortunately, there have been areas in our region where the precipitation has been much lower and both hay crop and pasture are dormant and corn is severely stressed.

The last week of July, corn tassels were out on most of the early planted corn fields. Tassel emergence began the week before. Where there has been adequate rain to relieve the stress from dry conditions the ears are in the blister to milk stage and show fairly good pollination. Expect to find some level of barren tips. Beans look generally well podded. We need regular moisture to fill the pods and our corn kernels.

Diseases of Concern
Up until mid-August there is very little evidence of disease in our corn and beans. Diseases like Northern Corn Leaf Blight and others can still blow in and infect corn late-season. That’s the best scenario after no pressure at all because the corn crop is basically made. It can make the fields look ugly though.

We are concerned about the possible arrival of Tar spot to new areas of NY. It appeared late last season in Erie County. That area has been scouted recently with no signs of the disease. It has not been reported in the state this year but we want to remain vigilant. “Tar spot likes cooler conditions (50-70°F), humid conditions (85% relative humidity) and a long period of leaf wetness (>7 hours).” (source: agpurdue.botany). We want to keep an eye out for it. It may arrive late in the season. If you do spot it or want a 2nd opinion please let me know.

Conditions have been mixed for white mold in beans. White mold does not typically thrive in dry conditions. Interestingly enough fungicide treatments were recommended by the Sporecaster app when the plants started to flower in early July and the leaf canopy was nearly closed. Again I would like to hear about cases.

Typical and Atypical Mid-Summer Pests
Potato leaf hopper in alfalfa is around and some fields have been treated for high populations. It’s worth keeping an eye on new seedlings since they don’t have as much reserve to withstand their feeding damage. I don’t understand why leaf hopper resistant varieties are planted more widely so this pest that damages our alfalfa every 3 years or so is less of a concern.

PLH resistance was bred into alfalfa using traditional genetic crosses.

There are also reports of high populations of soybean aphid around. I have not encountered a high population on the beans I have checked but with continued dry conditions I suggest keeping eyes open. Quick checks in the field are warranted. You can’t see the pest from the truck seat. Check the youngest growth. If the populations are high you will see shed skins on the leaves and plants will be sticky from aphid excrement. Treatment threshold is 250 aphids/plant with 80% of the field infested.

Haycrop chomping grasshoppers are being reported as a pest this year. This is the 2nd dry year that their populations have been damaging to haycrop, particularly older grass stands. They feed kind of like the unexpected armyworm. You get to the field to harvest and discover you crop is gone. The good news is that there is only 1 generation per year. The bad news is they eat until they expire. If you find immature grasshoppers, which do not have wings in numbers to damage the yield in your hay fields you can treat with lambda-cyhalothrin, commercially knows as Warrior II or its generic versions. The recommended rate is higher than what is recommended for potato leaf hopper in alfalfa. A rate of 2.5 oz falls in the middle of the recommended range from 1.28-1.92 oz. If you arrive at the field to mow and discover many flying adults they will likely leave after harvest and a treatment will just be “revenge”. The damage has already been done and so why add additional expense to your lost crop?

(Continued on page 9)
*Biostimulants or Biological N Fixation*

Biostimulants or biologicals are a new class of fertility enhancers. These products or bio stimulants that are in the market. The biological fertility enhancers fall into a couple of categories. Some contain bacteria which are applied to the plant roots or foliage and fix atmospheric N for the plant. Others stimulate plant hormone production to enhance growth or vitality. What’s exciting about these products is their promise to introduce a new way to manage nitrogen for our row crops. The bacteria in the products are said to fix nitrogen for the plant somewhat like the relationship of rhizobia bacteria and legumes.

Locally, Pivot Bio PROVEN™ has made a big splash. Many farms have used the product this spring. PB Proven 40 promises to deliver 40 lbs of fixed nitrogen from the atmosphere delivered through the roots of the plant. From talking to farmers I have learned that it has been applied to a variety of situations such as with and without manure. It will be interesting to hear the feedback on performance at the end of the season.

*Corteva Agriscience™ is marketing Nutrisha™N*, their biological fertilizer. Their literature explains that when applied to v4-v8 corn the product stays in the leaves and the bacterial population grows with the plant “fixing nitrogen from the atmosphere and converting it to ammonium. This in turn naturally improves plant vitality and vigor for a healthy harvest.”

There is much to be learned about these new biological products.


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**Lean Management**

*Mary Kate MacKenzie, Farm Business Management Specialist*

As farm managers strive to utilize labor and other inputs more efficiently, Lean Management offers a framework to design production processes that minimize waste and disruptions without sacrificing safety or quality. Over time, managers who adopt Lean systems can shift the entire culture of their organization to enhance employee engagement and productivity.

**What is Lean?**

Lean Management is a systematic approach to analyze and continuously improve the flow of information, materials, and work in a manufacturing environment. Lean systems maximize production efficiency by removing the root causes of waste and disruptions. Lean principles and practices emerged from the Japanese auto manufacturing industry in the 1950s. Managers have since applied them across many other industries, including agriculture.

When trying to understand what Lean is, it can be helpful to think about what Lean is not. Disorganized procedures that waste time and materials, frustrate employees, or cause disruptions in production activities are definitely not Lean. How much time do managers on your farm spend responding to crises and putting out fires versus setting up systems that eliminate the cause of those problems? How often does a ten-minute task take twenty minutes or more because the right tools and materials are not immediately available? How often does a failure to communicate critical information cause a quality defect or production delay? Lean Management invites farm operators to shift away from a reactive problem-solving mindset toward proactive process design grounded in continuous improvement.

**Learn more about Lean on the PRO-DAIRY website**

Cornell CALS PRO-DAIRY has developed a website with Lean Management resources. This website offers an overview of Lean Management for an agricultural audience and provides examples and guidance to implement Lean principles and practices within your own farming operation. Find the link on the “Business” page under “Our Expertise” at cals.cornell.edu/pro-dairy or access the direct link at cals.cornell.edu/pro-dairy/our-expertise/business/lean-management.
Protecting Pastures From Drought
by Fay Benson – Cornell Cooperative Extension of Cortland County

I’ve had plenty of opportunity in my work to watch other graziers, as well as graze my own animals. One conclusion I’ve come up with is that anyone can graze in a wet year; it takes a good grazer to graze in a dry year. Drought disrupts grazing operations more than confinement operations, since confinement operations plan to have stored feed for their animals. When drought weather hits, confinement operations have time to react and make alternative plans. It doesn’t affect their livestock. As pasture soil dries, grass growth slows, graziers try to keep their rotation going hoping for rain. When it doesn’t come, they must change to stored feed, which can have a negative effect on livestock production.

An Ounce of Prevention

Some of the management practices that can help prevent drought disruption are:

1. **Graze Half and Leave Half** – This refers to managing your residency of animals in the paddock. You should have an estimate of the dry matter before your animals enter a paddock, then remove the animals when half the dry matter is grazed. This practice is depicted in the drawing below with (A) being the sward when animals enter, (B) when animals should be removed, and (C) if overgrazing is allowed. The practice increases productivity in normal weather, but protects from future droughts in the following ways:

   - Leaving more residue sward above ground leaves longer roots below ground so they can reach more water.
   - The increased residuals also shade the soil so that evaporation is reduced.
   - More leaves increase solar collection to get the plants off to a quicker start.

2. **Soil Organic Matter and Droughts** – When I first started grazing in the 1980’s, we were told to follow the New Zealand style of grazing ryegrass, which was to put animals in when grass was ten inches and remove them at three inches. This provided very high protein and low fiber forage for the grazing animal. Since then, our graziers have evolved to a Northeastern style of grazing, which is closer to putting the animals in around fifteen inches or more and remove when half is consumed. This fits our climate and native grasses better since the New Zealand style was found to reduce the amount of soil organic matter (SOM). The lower fiber in the plants decreased the carbon content of the residue, as well as in the manure from animals eating it. Forty percent of SOM is carbon. The shorter residue will also be more prone to droughts. Graziers should monitor their organic matter in their soil for the following reasons:

   - For every one percent increase in SOM, an acre of pasture will hold 16,000 gallons of water per acre. If you can raise SOM by two percent, it will hold more than an inch of rain than it did previously.
   - For every one percent increase of SOM, the soil will have 20 -30 lbs. more nitrogen, 4-5 lbs. of phosphorous and one lb. of sulfur.

Can Irrigation be a Tool for Drought Relief?

Over the years, I have heard many experiences and have read a few studies about using irrigation on pastures. The experiences and studies both show that more often than not, irrigation doesn’t work well. These are the questions a grazer needs to answer to see if irrigation can work for them:

1. Do you have access to the volume of water you need? Optimum pasture sward can be produced with one inch of water (27,000 gallons per acre) every week. Obviously, it gets by with much less. For my example lets irrigate a half of an inch a week (13,750 gallons). With a forty-acre pasture system, this would require 540,000 gallons per week.

2. Do you need legal permission to use this much water? As I understand DEC rules, they allow taking up to 100,000 gallons per day from surface water.

3. Do you have the infrastructure to move the water around your pastures? This is where the math gets complicated. It involves what type of sprinkler system you’ll be using. For example, the K-Line system (photo 1) handles low volume for smaller areas, like 8 acres in seven days. It requires a flow rate of 40 GPM at 50 PSI at the pump discharge: Sizing a pump to this depends on size of your water lines, how many sprinklers, and the amount of head or elevation the water needs to travel up or down.

4. If you move up to the water reel system (photo 2) for larger pastures these requirements go up to: 75-150 GPM at 70-120 PSI.
Five Facts About the United States Drought Monitor

USDA New York FSA August Newsletter

This is likely no surprise to you, but drought persists across the western U.S. and is intensifying in some areas. No geographic area is immune to the potential of drought at any given time. The U.S. Drought Monitor provides a weekly drought assessment, and it plays an important role in USDA programs that help farmers and ranchers recover from drought.

Fact #1 - Numerous agencies use the Drought Monitor to inform drought-related decisions.
The map identifies areas of drought and labels them by intensity on a weekly basis. It categorizes the entire country as being in one of six levels of drought. The first two, None and Abnormally Dry (D0), are not considered to be drought. The next four describe increasing levels of drought: Moderate (D1), Severe (D2), Extreme (D3) and Exceptional (D4).

While many entities consult the Drought Monitor for drought information, drought declarations are made by federal, state and local agencies that may or may not use the Drought Monitor to inform their decisions. Some of the ways USDA uses it to determine a producer’s eligibility for certain drought assistance programs, like the Livestock Forage Disaster Program and Emergency Haying or Grazing on Conservation Reserve Program acres and to “fast-track” Secretarial drought disaster designations.

Fact #2 - U.S. Drought Monitor is made with more than precipitation data.
When you think about drought, you probably think about water, or the lack of it. Precipitation plays a major role in the creation of the Drought Monitor, but the map’s author considers numerous indicators, including drought impacts and local insight from over 450 expert observers around the country. Authors use several dozen indicators to assess drought, including precipitation, streamflow, reservoir levels, temperature and evaporative demand, soil moisture and vegetation health. Because the drought monitor depicts both short and long-term drought conditions, the authors must look at data for multiple timeframes. The final map produced each week represents a summary of the story being told by all the pieces of data. To help tell that story, authors don’t just look at data. They converse over the course of the map-making week with experts across the country and draw information about drought impacts from media reports and private citizens.

Fact #3 - A real person, using real data, updates the map.
Each week’s map author, not a computer, processes and analyzes data to update the drought monitor. The map authors are trained climatologists or meteorologists from the National Drought Mitigation Center at the University of Nebraska-Lincoln (the academic partner and website host of the Drought Monitor), the National Oceanic and Atmospheric Administration and USDA. The author’s job is to do what a computer can’t – use their expertise to reconcile the sometimes-conflicting stories told by each stream of data into a single assessment.

Fact #4 - The Drought Monitor provides a current snapshot, not a forecast.
The Drought Monitor is a “snapshot” of conditions observed during the most recent week and builds off the previous week’s map. The map is released on Thursdays and depicts conditions based on data for the week that ended the preceding Tuesday. Rain that falls on the Wednesday just before the USDM’s release won’t be reflected until the next map is published. This provides a consistent, week-to-week product and gives the author a window to assess the data and come up with a final map.

Fact #5 – Your input can be part of the drought-monitoring process.
State climatologists and other trained observers in the drought monitoring network relay on-the-ground information from numerous sources to the US Drought monitor author each week. That can include information that you contribute.

The Drought Monitor serves as a trigger for multiple forms of federal disaster relief for agricultural producers, and sometimes producers contact the author to suggest that drought conditions in their area are worse than what the latest drought monitor shows. When the author gets a call like that, it prompts them to look closely at all available data for that area, to see whether measurements of precipitation, temperature, soil moisture and other indicators corroborate producer-submitted reports. This is the process that authors follow whether they receive one report or one hundred reports, although reports from more points may help state officials and others know where to look for impacts.

There are multiple ways to contribute your observations:

Talk to your state climatologist - Find the current list at the American Association of State Climatologists website.
Email - Emails sent to droughtmonitor@unl.edu inform the USDM authors.

Become a CoCoRaHS observer - Submit drought reports along with daily precipitation observations to the Community Collaborative Rain, Hail & Snow Network.
Submit Condition Monitoring Observer Reports (CMOR) - go.unl.edu/CMOR.

For more information, read our Ask the Expert blog with a NDMC climatologist or visit farmers.gov/protection-recovery.
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Upcoming Events Calendar

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<th>Event Details</th>
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<tr>
<td>August 24-September 5</td>
<td><a href="http://www.nysfair.ny.gov">www.nysfair.ny.gov</a></td>
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<tr>
<td>September 15-16</td>
<td>South Central NY Graziers Pasture Walk: Silvopasture Tour Multi locations; Contact Brett Chedzoy <a href="mailto:bjc226@cornell.edu">bjc226@cornell.edu</a> FMI: <a href="http://www.silvopasture.ning.com">www.silvopasture.ning.com</a></td>
</tr>
<tr>
<td>October TBD</td>
<td>South Central NY Graziers Pasture Walk:; Stockpiling Forages for Winter Sheep Grazing Contact Barb Neal, <a href="mailto:ban1@cornell.edu">ban1@cornell.edu</a></td>
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<tr>
<td>November TBD</td>
<td>Feeder School FMI: Betsy Hicks <a href="mailto:bjh246@cornell.edu">bjh246@cornell.edu</a> / 607-391-2673</td>
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Check Out Our Online Platforms

- **YouTube**
  - Search for South Central Dairy & Field Crops
  - [https://www.youtube.com/channel/UCwU5Z5w07tELvbv4iy5x2Tg](https://www.youtube.com/channel/UCwU5Z5w07tELvbv4iy5x2Tg)

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