North Country Ag Advisor

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Cornell Cooperative Extension

North Country Regional Ag Team

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CCE North Country Regional Ag Team

Kitty O'Neil, PhD
Field Crops & Soils
315-854-1218
kao32@cornell.edu

Michael Hunter
Field Crops & Soils
315-788-8450
meh27@cornell.edu

Lindsay Ferlito
Dairy Management
607-592-0290
lc636@cornell.edu

Tatum Langworthy
Sr. Admin Assistant
315-788-8450
tlm92@cornell.edu

CCE Harvest NY

Lindsey Pashow
Ag Business and Marketing
518-569-3073
lep67@cornell.edu

CCE County Ag Educators

Betsy Hodge (St. Lawrence)
315-379-9192
bmf9@cornell.edu

Carly Summers (Essex)
518-962-4810
cfs82@cornell.edu

Mellissa Spence (Lewis)
315-376-5270
mms427@cornell.edu

Justin Tucker (Franklin)
518-483-7403
jwt93@cornell.edu

Abigail Jantzi (Jefferson)
315-788-8450
aej48@cornell.edu

Kolby Sample (Clinton)
518-561-7450
krs272@cornell.edu

Robin Wendell-Zabielowicz (Lewis)
315-376-5270
rw583@cornell.edu

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"The North Country Regional Ag Team is a Cornell Cooperative Extension partnership between Cornell University and the CCE Associations in Jefferson, Lewis, St. Lawrence, Franklin, Clinton, and Essex counties."

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Facebook: https://www.facebook.com/NorthCountryRegionalAgTeam/
Blog: https://blogs.cornell.edu/northcountryregionalagteam
YouTube: https://www.youtube.com/channel/UCxb3fv12XdCA3GjuDsfkM3Q

Our Mission

"The North Country Regional Ag Team aims to improve the productivity and viability of agricultural industries, people and communities in Jefferson, Lewis, St. Lawrence, Franklin, Clinton, and Essex Counties by promoting productive, safe, economically, and environmentally sustainable management practices, and by providing assistance to industry, government, and other agencies in evaluating the impact of public policies affecting the industry."

Field Crops and Soils

NNY Weather Summary for April 1 through July 31, 2022

By Kitty O'Neil

The table below summarizes rain and GDD so far for the 2022 growing season here in the North Country – April 1st through the end of July. The variable weather conditions continue across the North Country. About 75% of the North Country locations listed in the table below got off to a very wet start, but the rest started quite dry. Of those that started wet, many have become too dry – but some have also remained wet. There is not one description that suits all of the NNY region this year.

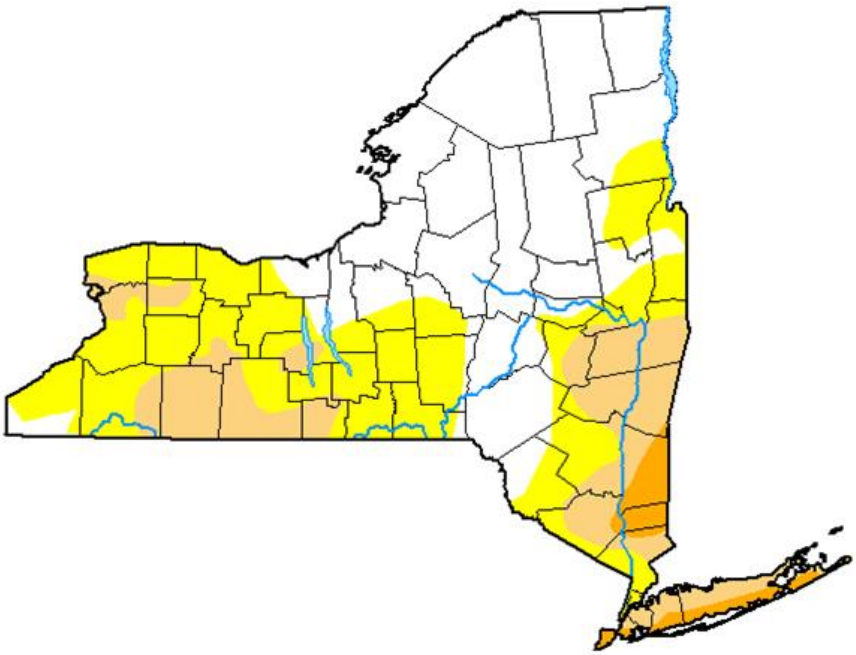
Essex county continues to be dry and its SE quarter has been classified as D0, Abnormally Dry beginning in early August. Essex joins the lower Hudson Valley where a drought has been spreading and worsening since mid-June. The August 16th Drought Monitor map is below. Western and Central NY continue their dry conditions and drought as well, that began as early as mid-May.

		- - - - - - - Accumulation from April 1 thru July 31, 2022 - - - - - - -					
		- - - Precipitation, in - - -			- GDD Base 50F -		GDD Base 40F
County	**Town/Village**	**Total**	**DFN**	**Days**	**Total**	**DFN**	**Total**
Clinton	Champlain	20.93	4.57	57	1385	17	2401
	Ellenburg Depot	21.23	5.52	63	1246	12	2208
	Beekmantown	17.48	3.00	53	1389	0	2405
	Peru	15.92	2.45	51	1393	7	2408
Essex	Whallonsburg	14.45	-1.67	48	1445	43	2463
	Ticonderoga	**10.31**	**-5.55**	**44**	**1505**	39	**2535**
Franklin	Bombay	16.90	0.24	56	1377	32	2403
	Malone	21.78	5.99	61	1347	**83**	2355
	Chateaugay	**23.89**	**7.40**	**66**	1307	42	2302
Jefferson	Rodman	18.79	3.77	55	1311	-3	2327
	Cape Vincent	12.46	-1.03	47	1276	72	2301
	Evans Mills	14.43	-0.88	48	1432	12	2469
	Redwood	15.36	-1.37	45	1357	15	2382
	Antwerp	17.55	2.47	53	1317	32	2347
Lewis	Talcottville	15.85	0.13	55	**1109**	-18	**2080**
	Martinsburg	15.76	1.49	56	1280	13	2304
	Carthage	16.09	1.29	57	1314	27	2339
St. Lawrence	Gouverneur	17.55	1.25	54	1257	30	2287
	Hammond	16.70	0.63	51	1277	31	2308
	Ogdensburg	17.56	1.92	51	1365	39	2395
	Canton	21.87	5.28	59	1247	**-86**	2255
	Madrid	18.87	3.20	55	1251	-59	2261
	North Lawrence	19.62	3.35	64	1339	-13	2361
	Louisville	17.78	1.14	57	1289	-21	2295
Average		**17.46**	**1.86**	**54**	**1326**	**14**	**2341**

** Precipitation in inches, temperature in Fahrenheit, DFN = difference from 15-year average, Days = days with precipitation. Calculated from ACIS NRCC 2.5-mile gridded datasets. High and low values within each column are highlighted.*

Continued on Page 4...

U.S. Drought Monitor
New York



August 16, 2022
(Released Thursday, Aug. 18, 2022)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	45.28	54.72	20.74	3.24	0.00	0.00
Last Week 08-09-2022	45.69	54.31	13.79	1.32	0.00	0.00
3 Months Ago 05-17-2022	91.32	8.68	0.00	0.00	0.00	0.00
Start of Calendar Year 01-04-2022	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 09-28-2021	95.19	4.81	0.00	0.00	0.00	0.00
One Year Ago 08-17-2021	93.91	6.09	1.13	0.00	0.00	0.00

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

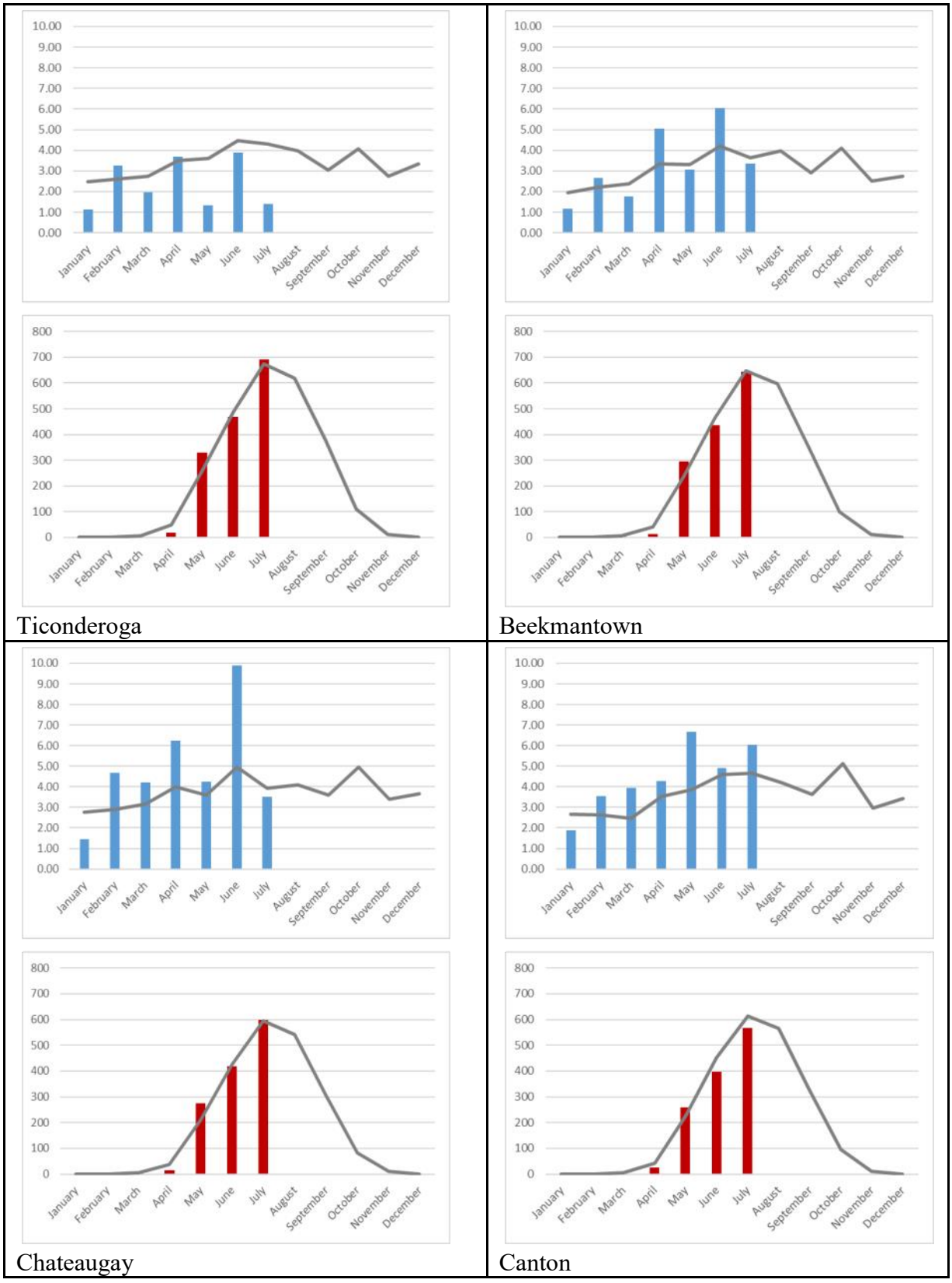
droughtmonitor.unl.edu

Only 5 of the 24 North Country locations listed above are below average April-through-July precipitation, but that is not the full story. For some locations, precipitation dropped off in July and August and dry conditions subsequently developed. Ticonderoga has been dry all season and is about 2-3 days warmer than average, a stressful combination. Beekmantown is exactly at average GDD_{50} totals and was wet earlier in the season but has had a very dry July and August. Only the Ellenburg area has been drier, seeing just 1" of rain from about July 15 to August 15. The last 2 locations depicted in the graphs, Chateaugay and Canton, have both been wet all season. They have had differing heat accumulations, however. Chateaugay is about 3 days ahead of normal and Canton is 3-4 days behind normal.

Most of the 24 locations listed in the table have been near the normal pace of GDD_{50} accumulations, with just 6 locations receiving below normal heat this so far this season. Malone has been the most uncharacteristically warm location on the list and is 4-5 days ahead of schedule, heat-wise. Canton has been the coolest (compared with normal temps) and is 4-5 days behind the 15-year norm. The average GDD_{50} accumulation across the North Country is about 1 day ahead of normal.

Continued on Page 5...

Monthly precipitation (blue) and GDD_{50} (red) totals for four North Country locations (Ticonderoga, Beekmantown, Cheateaugay, and Canton) for January - July 2022. The 15-year average precipitation and GDD_{50} for each location are shown in gray.



Additional resources:
Cornell Cooperative Extension's North Country Regional Ag Team Web Resources; New York Integrated Pest Management (NYSIPM) Web Resources; National Oceanic and Atmospheric Administration (NOAA) Climate Prediction Center; US Drought Monitor; Northeast Regional Climate Center; NYS Mesonet

Fall Burndown Weed Control Options

By Mike Hunter

Fall is an ideal time to control many of our troublesome weeds such as dandelion, chickweed, mustard, marestail, henbit and purple deadnettle (Photo 1.), present in fields after harvest. It is easier to control many of these weeds in the fall rather than waiting until spring. A fall burndown application will not always eliminate the need for a spring burndown application prior to planting but provides a broader spring burndown application window.

For the control of most of our commonly found winter annuals and dandelion, consider an application of 22 oz. Roundup PowerMax (or equivalent glyphosate product) plus 1 pint (3.8 lb./gal.) 2,4-D LVE. The addition of crop oil contrate may enhance dandelion control. If dandelions are the primary weed present an alternative option without using glyphosate is applying .38 to .5 oz. Express plus 1 pint (3.8 lb./gal.) 2,4-D LVE and adding crop oil concentrate according to the label. If grasses are not present at time of application, it is not always necessary to use glyphosate. Most broadleaf weeds present in the fall can be effectively controlled with 1 pint (3.8 lb./gal.) 2,4-D LVE + 1 pint dicamba.

Marestail is a winter or summer annual weed that reproduces by seeds. Seeds can germinate in the spring, late summer or fall (Photo 2). Those seeds that germinate in late summer will overwinter as a small rosette of leaves and grow a flowering stem in the early spring. To successfully manage marestail in no till cropping systems it is important to implement control tactics in both the fall and spring.

Management options for multiple resistant marestail in the fall include the use of cover crops and/or burndown herbicides.

- Planting a winter cereal cover crop such as rye has proven to be an effective strategy to suppress the growth of marestail. It works best if the cover crops are seeded early enough so that it can provide the necessary biomass to suppress the emerging annual weeds.
- No till growers that are not using fall planted cover crops should consider applying a fall burndown herbicide to control emerged marestail. Glyphosate alone will not control resistant marestail. Glyphosate can still be used to control other weeds but will require the use of either 2,4-D ester or dicamba. The addition of 1 oz Sharpen plus 1% v/v Methylated Seed Oil (1 gal/100 gal water) will provide additional burndown of marestail. For best results with Sharpen, do not substitute crop oil contrate for the methylated seed oil.

It will soon be time for our fall burndown herbicide applications. As it gets later in the fall, pay close attention to the air temperature at time of application. A few consecutive days of daytime temperatures over 55°F and nighttime temperatures over 40°F will improve control. Scout your fields to determine what weed species are present and plan accordingly. If you have any additional questions about fall weed control options, contact Mike Hunter (315)788-8450 or Kitty O'Neil (315)854-1218.

Photo 1. Purple deadnettle on left, Henbit on right.
Photo credit: M. Stanyard, CCE NWNY.

Photo 2. Marestail in winter wheat stubble.
Photo: credit M. Hunter.

Harvesting and Pricing Variable Maturity Corn Silage in 2022

By Kitty O'Neil

Most corn silage is going to be of extra variable yield and quality this year, which will make harvest management and pricing the standing crop more difficult. 2022 has been a challenging year to grow corn in the North Country; generally, it's been too wet in the west and too dry in the east. Extremely wet weather for the western part of the region delayed or prevented field fitting and corn planting in May and June. Saturated soil conditions continued into June and early July, further delaying late corn planting, limiting young plant development, and drowning portions of fields. Despite this poor start, some corn fields look remarkably good, almost normal. But many of these western fields are well behind and may be sporting some version of the 'rollercoaster' look – with bare spots, acres of plants at variable heights, and maturities and even some replanted areas. Some fields, or parts of fields, will probably not reach full maturity while the best parts may. In those 'rollercoaster' fields, some corn plants will have normal ears, while some plants may have unusually small ears or poor grain fill, or even no ears at all, at harvest time.

Many fields on the southern and eastern portions of the North Country have been very dry this year, receiving well under normal precipitation. Droughty weather early in the season, before silking, reduces overall corn plant size, number of kernel rows on the ear, and silage yield, but improves fiber digestibility. Drought stress just before silking or at pollination may reduce the number of kernels per row, resulting in partially empty ears and reduced grain yields. Droughty weather after silking reduces ear development and grain fill, grain yield, overall silage energy content, and digestibility. Wet weeks during grain maturation and whole plant dry down usually slow the maturation process.

Several key points about managing the 2022 corn silage harvest, including how to value standing corn, are discussed here.

Silking dates are a key management tool and should be recorded for all fields, every year, to help estimate subsequent harvest timing. Dr. Bill Cox at Cornell determined that corn requires 750 to 800 $GDD_{86/50}$ from silking, to reach 32% DM, nearly harvesting stage. Monitoring $GDD_{86/50}$ accumulations from silking date will help prioritize and order fields for chopping. Variable development and maturity this year will present some additional challenges, and importance, for this tool. It's difficult to evaluate maturity of a variable field but give it a good effort. Scout thoroughly to gauge the dominant maturity level in the field. Note areas of significant departure from that dominant condition in case portions may be left, combined with other fields, ensiled separately, etc.

Table 1 below lists approximate calendar dates when 750 to 800 $GDD_{86/50}$ typically accumulate, after 4 different silking dates, for 11 different North Country locations. For example, if a field near Westport has a silking date of about July 27, then it would be expected to reach 32% DM between Aug 31 and Sep 2 in a normal year. Maturity dates that fall in the normal range of first frost dates are shown in blue. In many of these locations, fields silking after August 3 or so may not reach silage maturity before the first frost. If fall weather turns cooler than normal, many more fields may not reach silage DM.

Continued on Page 8...

Table 1. Approximate date range to reach 32% DM corn silage for 11 North Country locations given silking dates of July 20, 27, August 3 or 10th. Date ranges when 750 to 800 $GDD_{86/50}$ typically accumulate from silking are listed for each location. Maturity dates in or after the range of normal first frost date (32 °F) are listed in blue.

	Silking Date							
	July 20		July 27		August 3		August 10	
Location	+750	+800	+750	+800	+750	+800	+750	+800
Westport	Aug 23	Aug 25	Aug 31	Sep 2	Sep 8	Sep 12	Sep 23	Sep 27
Peru	Aug 24	Aug 26	Sep 2	Sep 4	Sep 11	Sep 15	Sep 25	Sep 29
Chrubusco	Aug 29	Sep 1	Sep 10	Sep 14	Sep 23	Sep 28	Oct 13	Oct 30
Moira	Aug 25	Aug 28	Sep 4	Sep 7	Sep 14	Sep 19	Sep 27	Oct 4
Madrid	Aug 26	Aug 29	Sep 5	Sep 8	Sep 15	Sep 19	Sep 28	Oct 5
Edwards	Aug 28	Aug 30	Sep 6	Sep 10	Sep 16	Sep 21	Oct 1	Oct 8
Hammond	Aug 25	Aug 28	Sep 3	Sep 6	Sep 13	Sep 17	Sep 26	Oct 2
Philadelph.	Aug 25	Aug 28	Sep 3	Sep 6	Sep 13	Sep 17	Sep 26	Oct 2
Denmark	Aug 27	Aug 29	Sep 5	Sep 9	Sep 16	Sep 20	Oct 1	Oct 9
Ellisburg	Aug 25	Aug 28	Sep 3	Sep 6	Sep 13	Sep 17	Sep 27	Oct 3
Talcottville	Aug 31	Sep 3	Sep 10	Sep 15	Sep 22	Sep 27	Oct 13	Oct 28

Now, accurately estimating yield and quality of this year's variable crop will require more intensive sampling than normal. Our fields don't look like they normally do, so visual estimates may be extra inaccurate. Dr. Larry Chase, retired from Cornell University, emphasized some key points to keep in mind during corn silage harvest in this sort of wet, variable and immature corn year. It's worth repeating his main points here.

Estimating corn silage yield is extra challenging when fields are immature and/or variable. Count, weigh, and sample corn plants in 1/1000th of an acre. For fields planted on a normal 30" spacing, a 17'5" row length provides this sample. Twenty-inch rows require a 26'2" sample and 15" row spacing requires 34'10" sample. A highly variable field will require more of these samples than a consistent field, to get a good estimate. If 3-5 samples are adequate in a typical year, use 6-10 samples in a variable or odd field this year. Average across samples within a field.

Estimating value for corn silage when it is so variable - is tough. The sale price of variable maturity or immature corn silage will depend on yield, dry matter content, and nutrient composition. Dr. Bill Weiss at Ohio State indicates that immature corn silage is worth about 85% of the economic value of normal corn silage – *if it is the same dry matter content*. Mike Hunter calculated pricing over several years and concluded that our standing 35% DM corn silage price per ton is, on average, 8.34 times the per bushel corn grain price. This fall, the market corn grain price is about $6.50 per bushel, so standing corn silage should be worth about $54 per ton, 35% DM. Add to that the costs of chopping, trucking, inoculation, ensiling, and 10% shrink and the cost of stored corn silage might be about $71 per ton, 35% DM.

If the value of "normal' standing corn silage = $54/ton (@ 35% DM), then the value of immature corn silage = $54 * 0.85 = $46 (@ 35% DM). If the actual dry matter of the standing immature corn silage is only 27%, then the adjusted price = 27/35 *$46 = $35.50/ton.

How many tons per acre are standing in your field? When using any of these calculations to value standing corn silage, consider that estimating yield of the standing crop may be the most uncertain component in your calculations – especially this year. Therefore, it may be best to measure yield, with a calibrated yield monitor or by counting and weighing trucks or wagons rather than estimate yield, even with intense sampling described here. Yields are lower for drought-stressed, wet-stressed, late-planted immature fields, therefore harvesting costs, on a per ton basis, are increased.

Nutritional value of an immature and/or variable crop will present another challenge. In addition to variable moisture content, nutrient composition of the corn silage will also vary with maturity and with weather patterns, so periodically collect samples of the chopped forage during harvest to provide information on the nutrient content of the silage for use in ration balancing. Proper moisture content for good fermentation is always key. Less mature corn is likely to be higher in crude protein, higher in fiber, higher in sugar and lower in starch than normal corn silage. Because the fiber in immature corn is more digestible, the energy value of immature silage may be 85-95% of normal, despite the significantly lower starch content. Drought-stressed corn will ferment fine if the DM is right, but DM may vary across a field. Drought-stressed corn may also be high in nitrates, so ferment well and test for nitrates prior to feeding. A wet chemistry nutritional analysis may be more accurate than NIR analysis of immature corn since NIR calibrations for corn silage are based on mature silage composition.

If possible, store different maturities of silage separately, so you can feed them accurately, and work with your nutritionist to determine the best use for your variable maturity or immature corn silage.

Additional resources:

- Using the Number of Growing Degree Days from the Tassel/Silking Date to Predict Corn Silage Harvest Date. Cox, W. 2006. What's Cropping Up 16(4):1. http://climatesmartfarming.org/wp-content/uploads/2017/01/GDD-for-silking-to-silage-Cox-Cornell-2006.pdf
- Pricing Drought-Stressed and Immature Corn for Silage. Weiss B. et al., Ohio State Buckeye Dairy News 13(4) https://dairy.osu.edu/newsletter/buckeye-dairy-news/volume-13-issue-4/pricing-drought-stressed-and-immature-corn-silage
- Working with Immature Corn Silage. August 2013. Dr. L. E. Chase, Cornell University. https://nydairyadmin.cce.cornell.edu/pdf/newsletter/pdf48_pdf.pdf
- Pricing Standing Corn Spreadsheet. Beck et al., Penn State Cooperative Extension. https://nydairyadmin.cce.cornell.edu/uploads/doc_379.xls

Dairy

Is Your Footbath Working for You?

By Betsy Hicks, CCE South Central NY Dairy and Field Crops Team

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?

Take 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.

Footbath Best Practices

Also shared in the Dairyland Initiative website at https://thedairylandinitiative.vetmed.wisc.edu/home/lifestep-lameness-module/infectious-hoof-disease/dd-footbath/ are footbath best practices, as shared below:

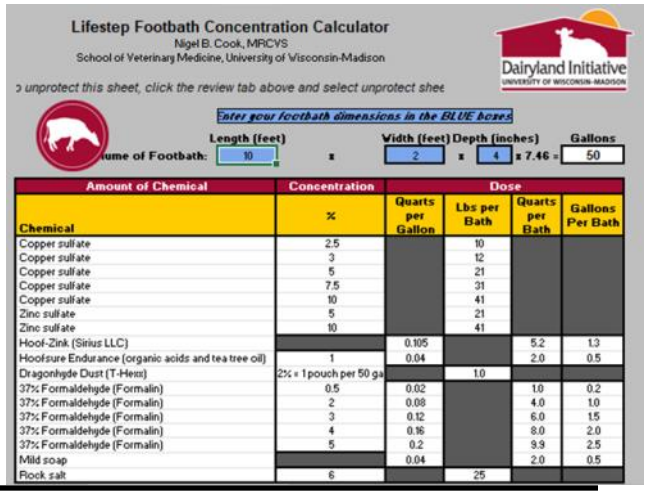
- Use bath as infrequently as possible to reduce transitions from chronic to acute DD (Digital Dermatitis or hairy heel wart) lesions
- Use a well designed footbath to optimize transfer of product to feet
- Locate a mixing station adjacent to the footbath for safe handling of chemicals
- Start a regime once a day for 4 days per week and adapt based on outcome
- Use an product with proven efficacy that DOES NOT DAMAGE THE SKIN DEFENCE – pH>3.0
- Use the bath as long as it's 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 or videoing cows passing through the bath is a good way to assess if a problem 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 from 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 concentration of 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, etc.) to be added. To make it easier for those filling the bath, you can draw lines on buckets, cut off plastic bottles to a 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 location and set up and make a change.



Lifestep Footbath Concentration Calculator

Nigel B. Cook, MRCVS

School of Veterinary Medicine, University of Wisconsin-Madison

Dairyland Initiative

UNIVERSITY OF WISCONSIN-MADISON

To unprotect this sheet, click the review tab above and select unprotect shee

Enter your footbath dimensions in the BLUE boxes

	Length (feet)		Width (feet)		Depth (inches)		Gallons
ume of Footbath:	10	x	2	x	4	x 7.46 =	50

Amount of Chemical	Concentration	Dose			
Chemical	%	Quarts per Gallon	Lbs per Bath	Quarts per Bath	Gallons Per Bath
Copper sulfate	2.5		10		
Copper sulfate	3		12		
Copper sulfate	5		21		
Copper sulfate	7.5		31		
Copper sulfate	10		41		
Zinc sulfate	5		21		
Zinc sulfate	10		41		
Hoof-Zink (Sirius LLC)		0.105		5.2	1.3
Hoofsure Endurance (organic acids and tea tree oil)	1	0.04		2.0	0.5
Dragonhyde Dust (T-Hexx)	2% = 1 pouch per 50 ga		1.0		
37% Formaldehyde (Formalin)	0.5	0.02		1.0	0.2
37% Formaldehyde (Formalin)	2	0.08		4.0	1.0
37% Formaldehyde (Formalin)	3	0.12		6.0	1.5
37% Formaldehyde (Formalin)	4	0.16		8.0	2.0
37% Formaldehyde (Formalin)	5	0.2		9.9	2.5
Mild soap		0.04		2.0	0.5
Flock salt	6		25		

FARM Program Continuing Education Articles in Spanish

By Lindsay Ferlito

Version 4.0 of the National Dairy FARM Program is in effect January 1, 2020, to June 30, 2024. One of the changes to this version is the requirement of training and continuing education for employees as well as family member employees and owners. Version 4.0 requires annual continuing education in animal care and handling for anybody with animal care responsibilities, and job-specific training for the following topics if they apply:

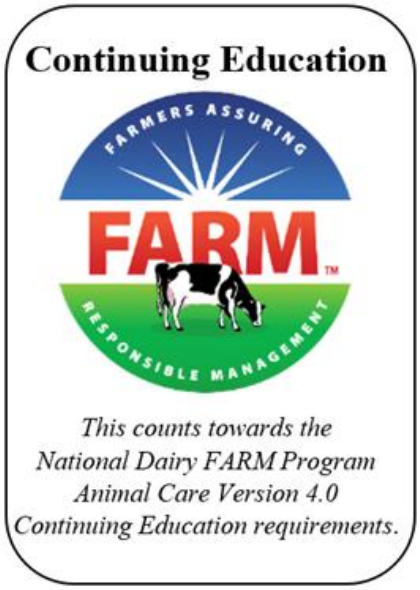
1. Stockmanship
2. Pre-weaned calf care
3. Non-ambulatory animals
4. Euthanasia
5. Determining if animals are fit to transport

In 2020, the CCE NCRAT Dairy Specialists wrote an article covering each of these five topic (https://ncrat.cce.cornell.edu/topic.php?id=1&list=yes).

Recently, Dr. Kaitlyn Lutz, the Bilingual Dairy Management Specialist on the CCE NWNY Dairy, Livestock, and Field Crops Team, translated these articles to Spanish.

1. Capacitación en el Manejo del Ganado con Curt Pate: Todo es Acerca de la Presión https://ncrat.cce.cornell.edu/submission.php?id=1652&crumb=dairy|1
2. Principios Básicos del Cuidado de Becerros en el Predestete: Calostro y Calorías https://ncrat.cce.cornell.edu/submission.php?id=1653&crumb=dairy|1
3. Manejo Apropiado de Animales No Ambulatorios https://ncrat.cce.cornell.edu/submission.php?id=1656&crumb=dairy|1
4. Prácticas Adecuadas para la Eutanasia https://ncrat.cce.cornell.edu/submission.php?id=1654&crumb=dairy|1
5. Determinación de Aptitud para el Transporte Animal https://ncrat.cce.cornell.edu/submission.php?id=1655&crumb=dairy|1

For more information on the FARM Animal Care Program, or for help preparing for an on-farm evaluation, please contact Lindsay Ferlito (607-592-0290).



To Retrofit or Not to Retrofit, That is the Question!

By Tim Terry, Cornell PRO-DAIRY

Dairy farming is a constantly changing business. Farming for the long-term will require a facility that can change as well. Expansion, new technology, and new enterprises may all be in every sustainable farm's future. Planning for a new facility, or remodeling and retrofitting an existing one, is best done carefully and thoughtfully. We have all seen farms laid out in a chaotic array of buildings, and driveways that are inefficient now and make future improvements difficult or even impossible.

Why retrofit?
The short answer to this question is often, "Efficiency." For the sake of production efficiency, the farm is trying to incorporate a new technology, for the sake of investment efficiency they are trying to do so in an existing structure. Most of the time this a sound business strategy. Unfortunately, if all aspects are not carefully and dispassionately considered, this could lead to a false economy.

Regarding new versus retrofitting an existing facility, consider first the condition of the facility. If it is not meeting expected standards in terms of animal comfort and ventilation or lacking in any manner of internal environment then that's a deal breaker. The only job of many of these new technologies (robotic milkers, calf feeders) is to perform rote tasks and collect data. So, then the question becomes: Do we remodel/renovate or build new?

A helpful guideline is: If the retrofit/remodel is 50% or more of a new facility, go for the new facility.

Figure 1. Robotic milking units retrofitted into an existing holding area. Photo credit: T. Terry.

The 50% is not a hard line and there can be a certain amount of discretion included in that, however, there are three reasons that support this:

1. We tend to overestimate the value of the existing structure. There is almost always the sentimentality factor, and it can be very hard to walk away from, let alone raze, the building Great Grandpa constructed with his own two hands from the raw materials he found on site. However, we need to see this as sunk capital. Just as if it were sitting on the bottom of the ocean, it is gone, the investment is unrecoverable, and throwing more good money after it is not a wise use of resources.

2. We tend to underestimate the cost of remodeling and/or upgrading the facility to accept the new technology. Quite often we can't appreciate the full scope of the project until we start peeling back the layers and exposing the hidden structure. We may not even be able to install the new system without compromising the structural integrity of the facility. Many may feel they can reduce expenditures by doing it themselves but fail to consider the disparity in skill levels between themselves and the professionals, the amount of tinkering required to retrofit 21st century technology into a 19th century building, the availability of the necessary tools and materials, and lastly, how they're going to fit it in with daily chores, planting, harvesting, etc.

3. We fail to properly value the cost of long-term inefficiencies that remain with the old facility. Even if it takes only five minutes per day that's over a half hour per week and 30 hours per year. However, it's rarely just five minutes or only one person. Add to this the potential reduction in animal performance.

Other Considerations
Space – Is there enough available space to install the new technology, allow it to work effectively, and be able to maintain it efficiently? Will there be room for upgrades and/or expansion? It is very short-sighted to shoehorn a system into an old facility with no room for future improvements. Moreover, local codes may specify space requirements and/or minimum separation distances.

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Layout and number of units – Can we install the correct number of units required to service the current number of animals? Will the layout be logical and efficient? Many systems will use a common controller for multiple units, but they must be within a certain distance. For robotic milking systems will the units be in reasonable proximity to the collection point (milkhouse)? Will the units be able to clean and sanitize the system to meet health code regulations

Ingress and egress – Livestock, especially large livestock, require certain minimum dimensions for passageways, turning radius, and head-to-head intersections. They also don't like apparent dead ends, mazes, dark areas, or shadows on the floor. Travel lanes should never require an animal to step up or down and change direction all in the same movement (i.e. – entering/existing a foot bath). Whenever possible, entry and exit should be straightforward. It should also allow for them to fully pass through a one-way gate before changing direction.

Ventilation – Whether the facility is naturally or mechanically ventilated, you will most likely have to provide some supplemental ventilation in and around the particular units. Circulation fans can boost air flow over a control room in tunnel and cross vented barns. Having a dedicated fan over a milking or feeding stall will keep fresh air moving in the confined space as well as deterring biting flies in the summer.

Ancillary Items

Footbaths – Footbaths should be placed where they are easy to access and easy to exclude. They also need to be narrow (24"- 32") and 10' to 12' long. This will keep animals moving *while also forcing multiple submersions of all feet.* At least one side should be able to open out should an animal go down and not be able to get back on their feet. Emptying, cleaning, and recharging must be easy to complete, or it may not be done in a timely manner. Drain plugs and frostless hydrants need to be included in the design. Some farms elevate a tote of premixed solution over the footbath so that it may be quickly refilled.

Segregation pens – Many may see this as wasted space since it is so infrequently occupied. However, when coupled with a robotic milking system (RMS) it allows for full use of the herdsman abilities of the RMS. Any cow requiring special attention can be redirected to this pen following milking. Then the herdsman, vet, breeder, etc. can find the animal without having to search the entire group pen. In the meantime, the animal still has access to feed, water, a stall in which to rest, with full access to the robot.

Figure 2 - Elevated totes of premixed footbath solution. Photo credit: T. Terry.

Treatment Stall – Even in the healthiest of herds, at some point all animals will need to be vaccinated, hoof trimmed, dry treated, etc. These activities cannot and should not be completed in the milking stall. The treatment stall is usually located in or near the segregation pen for easy access. Gating should be set up such that one person can move an animal quickly, quietly, and safely with little effort. Ideally, there should be a minimum of 6' of open space around the perimeter of the stall. This provides ease of access to the animal as well as an escape zone should an animal become unruly.

Dairy Reproduction and A.I. Training Course

Attend this 2-day training course to become trained in dairy reproduction and artificial breeding techniques. There will be classroom sessions in the morning, followed by hands-on practice on farm in the afternoon. After this class you will be trained to artificially inseminate dairy cattle.

September 8 and 9, 2022

9:30am - 3:00pm

CCE Clinton, 6064 NY22, Plattsburgh (morning)

Adirondack Farms (afternoon)

(either the Peru or Plattsburgh, NY location)

Topics Covered:

- Bovine anatomy and reproductive physiology
- Heat detection
- Artificial insemination technique
- Proper thawing of semen
- Loading A.I. guns
- Practice breeding cows (hands-on)

Speaker:

Javier Cheang, Genex

Registration is required:

https://tinyurl.com/aitrainingcourse

$150 per person

- Includes materials and lunch both days.
- Class capped at 10 participants.
- Must attend both days.

Any current state, local, and Cornell University COVID-19 guidelines will need to be followed.

Cornell Cooperative Extension

North Country Regional Ag Team

Genex Cooperative, Inc.

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Final Dairy Farm Business Summary and Analysis Program Progress Report 2021

By Lauren Augello, PRO-DAIRY

As farm businesses across New York analyze their financial performance by utilizing the Dairy Farm Business Summary and Analysis Program that is supported by Cornell University, Cornell Cooperative Extension, and PRO-DAIRY, the changes that occurred from 2020 to 2021 can be reviewed. An important purpose of management is to compare how your farm changed from one year to the next, how this compares to your business goals, and how this compares to the industry. Understanding what changes occurred and determining why they changed can help in preparation for making business improvements in 2022.

The report consists of five sections:

- Average of all farms (136 farms)
- Less than 500 cows (34 farms)
- 500 to 999 cows (32 farms)
- 1,000 to 1,499 cows (37 farms)
- 1,500 cows and greater (33 farms)

Highlights from the progress report:

- Labor efficiency improved in 2021, with a 2.3 percent increase in cows per worker and a 4.9 percent increase in pounds of milk sold per worker. Hired labor costs per worker equivalent also increased 5.1 percent.
- Gross milk price per cwt increased 7 percent from $18.56 in 2020 to $19.77 in 2021.
- Hay dry matter tons per acre and corn silage tons per acres increased 19 percent and 5 percent respectively. This contributed to the increase of accrual crop receipts of 203 percent from 2020.

Click here to read the full report: https://cals.cornell.edu/news/2022/06/final-dairy-farm-business-summary-and-analysis-program-progress-report-2021

CCE North Country Regional Ag Team
203 North Hamilton Street
Watertown, New York 13601

What's Happening in the Ag Community

Check out the CCE NCRAT Website, Blog, and YouTube channel for up-to-date information and content.

Dairy Production and AI Training Course, see page 13 for more information.

FOR SALE: Border collie puppies, the puppies are 4 weeks old and will be ready to go in October. Our phone number is 315-771-4857. Thank you.