North Country Ag Advisor

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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

Casey Havekes
Dairy Management
315-955-2059
cdh238@cornell.edu

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

Kelsey O'Shea
Ag Business Management
315-955-2795
kio3@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

Billy Bullock (St. Lawrence)
315-379-9192
wrb93@cornell.edu

Gabby Wormuth (Jefferson)
315-788-8450
grw67@cornell.edu

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

Grace Ott (Clinton)
518-561-7450
gco26@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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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

Weed Control in Grass Hayfields

By Michael Hunter, and Joe Lawrence, Cornell University, PRO-DAIRY

Over time, grass hayfields that are not cut multiple times in a growing season will begin to fill in with undesirable plants such as chicory, milkweed, dandelions, and other perennial broadleaf weeds. Weed control in grass hayfields can be achieved by using cultural, mechanical, and chemical methods. The most effective weed control strategy includes the use of more than one control method.

Cultural control of weeds can be accomplished by maintaining proper soil pH and using fertilizer or manure to replenish nutrients removed from harvest and help maintain a healthy dense stand of desirable forage grasses that will outcompete the weeds.

Cutting and harvest management timing will also serve as a form of weed control. Harvesting the grass hayfields earlier in the season and multiple times will reduce the chances that perennial broadleaf weeds will become established. Cutting height is also important; cutting too short (less than 4 inches) will reduce the competitiveness of the grass and favor the weeds.

In some cases it may be necessary to take more substantial actions such as plowing and reseeding, or chemical weed control. While these options can represent the best course of action for some fields, it is important to remember that without correcting soil fertility and cutting management challenges weeds will likely re-establish.

Herbicides can effectively control perennial broadleaf weeds in grass hayfields. Proper weed identification, herbicide selection, and appropriate application timing is necessary. Typically, herbicides are used as a last resort to control weeds because clovers and other desirable legumes will be killed.

Mid to late summer is an ideal time of year to control perennial broadleaf weeds in grass hayfields. After the field has been harvested it is necessary to allow for sufficient regrowth of the perennial broadleaf weeds before making any herbicide application. The herbicides used need sufficient leaf area for the chemical to be taken into the plant. If there is little or no regrowth due to dry weather conditions the herbicide application will not be as effective. Be patient and wait for the plants to recover and grow. There is a relatively wide window for application of the herbicide (mid-August through mid to late September in most areas).

According to the 2020 Cornell Guide for Integrated Field Crop Management, simple perennial broadleaf weeds such as chicory, tall buttercup, dandelions, and curly dock are best controlled with a tank mix of 3 to 4 pints of 2,4-D (based on a 3.8 lb/gallon formulation) plus ½ to 1 pint of Banvel (dicamba) per acre. Creeping perennial weeds such as milkweed, Canada thistle, and horsenettle are best controlled with a tank mix of 4 pints of 2,4-D plus 2 pints of Banvel per acre. As with most herbicides, there are several grazing and hay harvest restrictions when used[a & b].

Smooth bedstraw is another common perennial weed that is very difficult to control without the use of herbicides. Each plant has an intensive underground root system made up of roots and rhizomes that store large energy reserves for plant growth. Mowing may help some, but the total number of plants will not be reduced. Mowing bedstraw before it goes to seed can slow the spread of this troublesome weed. Tillage is probably the most effective, non-chemical way to manage smooth bedstraw. If tillage is used, it is best to grow a row crop for a couple of years before reseeding grasses and clovers or alfalfa.

Chemical control is the most effective way to control smooth bedstraw. Based on weed control research trials conducted by Dr. Russ Hahn, Cornell University, fall applications of Crossbow herbicide (a premix of 2,4-D ester + triclopyr) provided the greatest amount of control. Late summer or early fall applications of Crossbow[c] should be applied at 1.5 to 2.0 quarts per acre.

Proper fertilization, harvest management, and good crop rotation practices lead to healthy, high producing stands of grass and can serve as the best method of weed control. When necessary, herbicides can be used to control the weeds. Always read and follow pesticide label directions before each use.

[a] *Do not harvest hay for lactating animals for 37 days after application of up to 1 pint of Banvel and 30 days for any application of 2,4-D.*

[b] *Do not harvest hay for lactating animals for 51 days after application of up to 2 pints of Banvel and 30 days for any application of 2,4-D.*

[c] *Except for lactating dairy animals, there are no grazing restrictions following application of Crossbow herbicide. Do not allow lactating dairy animals to graze treated areas until the next growing season. Do not harvest hay for 14 days after application of Crossbow.*

DIGITAL DAIRY PROSPECTS

A Virtual Discussion Group

- Free 9-week program for high school students in Jefferson, Lewis, St. Lawrence, or Franklin counties.
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Casey Havekes (315-955-2059; cdh238@cornell.edu)
Kelsey O'Shea (315-955-2795; kio3@cornell.edu)

Cornell Cooperative Extension

Dairy

Farm Advisory Teams Have a Positive Impact on Dairies

By Lindsay Ferlito

Almost every year, I attend the annual American Dairy Science Association conference. This conference draws thousands of participants (researchers, vets, farmers, students, extension associates, etc…) from all over the world, and highlights the latest breaking research in everything related to dairy science. This year, like many other things, the meeting was moved to a virtual setting, but I was still able to participate online, and came across one study in particular that could bring benefit to North Country farmers.

Dr. Lisa Holden, Associate Professor and member of the Dairy Extension Team at Penn State University, looked at the impact farm advisory teams have on measures of dairy farm profitability. Over 4 years, her group followed about 100 farms and their advisory teams, and about 70% of the farms and 50% of the advisors participated in a survey about the impact of these teams.

Farms identified areas they wanted to improve during that year of the project, and some of the common targeted areas were:

- decreased somatic cell count
- business planning
- increased milk production
- improved cash flow
- improved nutrition or feed costs
- improved record keeping and use

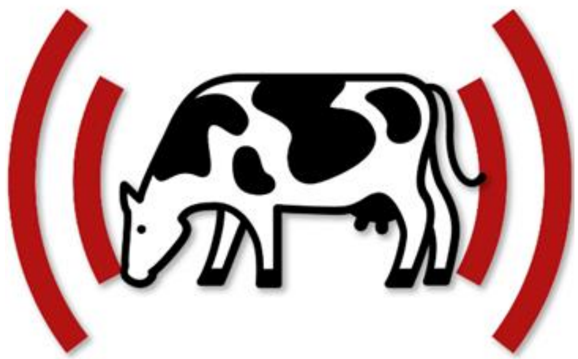
By the end of the year, 81% of farms that wanted to improve record keeping and use had done so, while 68% had increased milk production, and 66% had improved feed/nutrition costs. However, of the farms that wanted to improve cash flow, only 9.7% actually did by the end of the year, which isn't too surprising given that this can take longer than 1 year to see a significant impact.

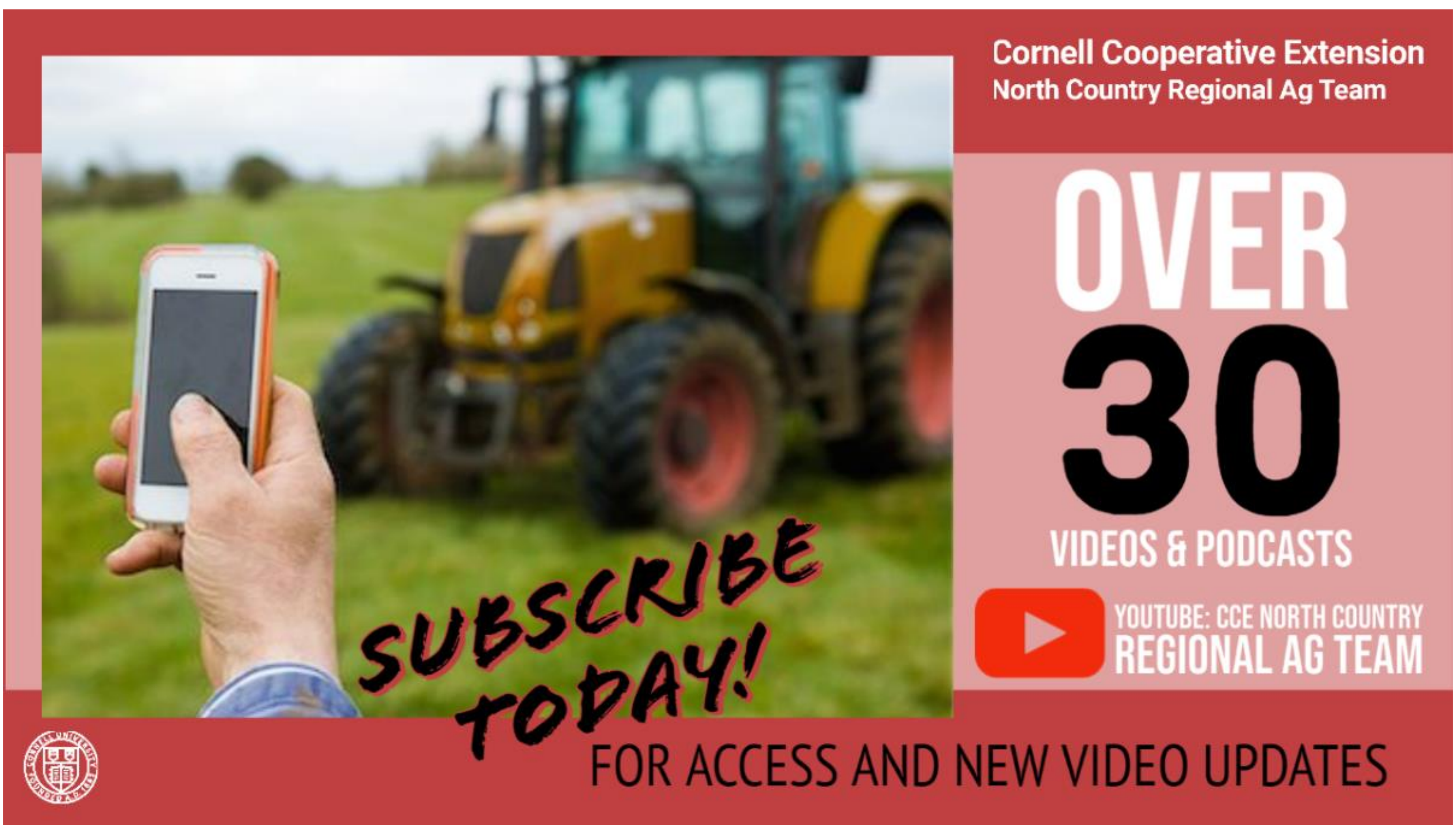
Both before and after the year, producers were asked about their satisfaction with certain areas on the farm, such as milk production and milk quality. Overall, producer satisfaction increased in these two areas as a result of participating in an advisory team, and the percent that were unsatisfied was either reduced to 0% (for milk production), or cut in half from 22% to 9% (for milk quality). Further, the number of both farmers and advisors that indicated that regular communication was important greatly increased (more than 3.5 fold) as a result of being part of a team.

Overall, while participating in farm advisory teams requires commitment, time, and sometimes investment, farmers and advisors in this study felt it was well worth it, and they saw improvements on the farm. If you are interested in starting a farm advisory team on your dairy, or you have questions or are curious about possible funding for a team (through Cornell's Dairy Advancement Program), please reach out to your Regional Dairy Specialist (Lindsay Ferlito: 607-592-0290, lc636@cornell.edu; Casey Havekes: 315-955-2059, cdh238@cornell.edu).

New Podcast from CCE Dairy Educators and PRO-DAIRY, "Dialing into Your Best Dairy"

This podcast is a series about management practices and tips to reaching your herd's full genetic potential. It features PRO-DAIRY and CCE Dairy Specialists who over the course of 8 episodes will discuss the different life stages of the dairy cow, including episodes focusing on raising calves through the milk phase and weaning; managing weaned heifers up to freshening; making decisions about which replacements to keep including talking about inventory, disease prevention, and culling decisions; feeding and nutrition management during lactation; facilities, time management, and ventilation considerations throughout lactation; and management factors around reproduction, gestation, and the dry period. This series also features interviews with Cornell's Dr. Mike Van Amburgh, Lindsey Worden (Holstein USA), the owners of Selz-Pralle Dairy in Wisconsin, and Paul Fouts, a NY dairy producer. Check out the podcast on the PRO-DAIRY website (https://prodairy.cals.cornell.edu/events/podcasts/) where you can find each episode along with additional resources and speaker contact information. You can also listen via SoundCloud on the CCE Dairy Educators channel (https://soundcloud.com/user-301921459-118136586), or on the CCE NCRAT YouTube page (https://www.youtube.com/playlist?list=PLcUCF1v3nnnnTiUyopmBTaGdZlit3YYbO). For more information, contact PRO-DAIRY's Kathy Barrett (kfb3@cornell.edu) or your CCE Regional Dairy Specialist (Lindsay Ferlito, lc636@cornell.edu; Casey Havekes, cdh238@cornell.edu).





Perfecting the Dry Cow Diet: Part 2 *By Casey Havekes and Dr. Trevor DeVries*

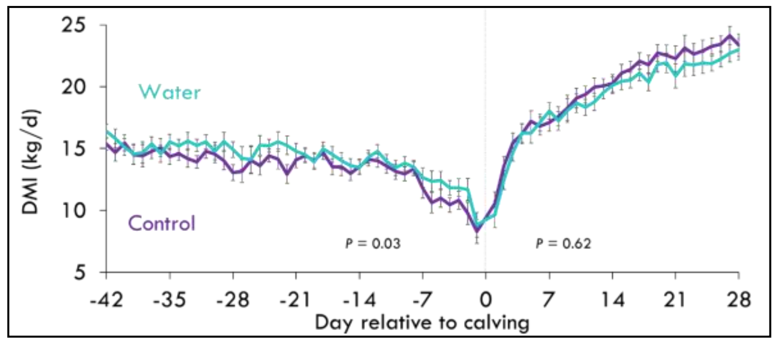
Several months ago, I reviewed one portion of my grad studies research that was conducted at the University of Guelph under the supervision of Dr. Trevor DeVries. That particular research project investigated the chop length of wheat straw in controlled energy dry cow diets (click here to read the previous article). As a recap, the research found that the shorter chopped straw (chopped with a 1-inch screen vs a 4-inch screen) resulted in higher intakes pre-calving, reduced sorting, reduced BHB levels three weeks after calving, and improved rumen pH 1 week after calving.

One of the most interesting results though, was the reduced drop in intake in the week leading up to calving for cows fed the short chopped straw. A reduction in intake as cows approach calving is a natural occurrence that manifests through a combination of hormonal shifts and inflammation; however, we know that intake pre-calving can directly influence post-calving metabolic health and we know that cows with higher intakes have better health after calving. Reducing the drop in intake pre-calving, therefore, becomes critical to the success of the transition period.

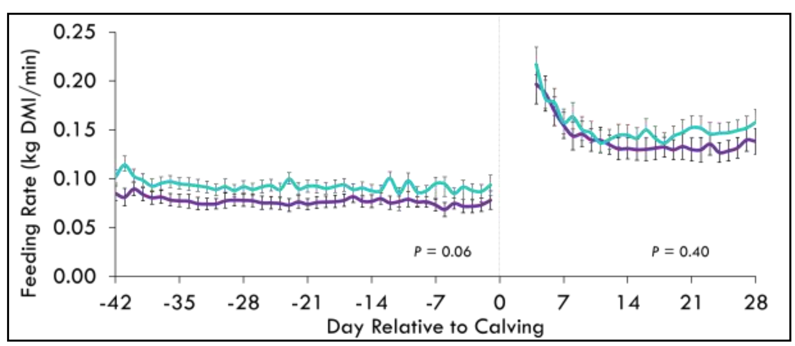
One of the biggest issues with feeding these diets, however, is that the they are typically bulky, high in dry forages, and low in moisture content, whereas the lactating ration that the cows are used to consuming is typically denser, lower in forage content, and higher in moisture content. Past research has investigated the impact of moisture content on intake, feed sorting behavior, and various measures of metabolic health and have found varying results. When water was added to a lactating diet some researchers found that cows had increased intake and decreased sorting, while other researchers found cows actually sorted more and had decreased DMI. The inconsistency in results is likely related to the TMR composition and the original DM content of the diets. For example, one study used primary ensiled forages and another study used solely dry forages. Up until the point of my research, we weren't aware of any research looking at water addition to a controlled energy dry cow diet and how it impacts intake, sorting, metabolic health, and performance across the transition period.

Similar to my particle size research, we were able to collect daily feed intakes, various measures of feeding behavior (including feed sorting), rumen pH, blood metabolites, BW and BCS, rumination time, and milk components and yield. Cows were on enrolled on the study ~45 days prior to calving and were fed the same dry cow diet (36% wheat straw, 41% corn silage, 23% pellet, on a dry matter (DM) basis, formulated for 11.6% crude protein, 1.35 Mcal/kg net energy for lactation) with the only difference being the addition of water to one group in order to reduce the DM by approximately 10% (control diet DM was on average 53.4%, water diet DM was on average 45.4%). After calving, all cows were fed the same lactating diet and followed for 28 days to identify any potential carry over effects of the dry period treatment diets. Some of the key take away points for cows fed the diet with added water are as follows:

- Higher DMI across the dry period and more consistent intake in the week leading up to calving (see figure below)



- Faster feeding rate in the dry period but NOT during lactation (see figure below). This is an important finding because 'slug feeding' is not desirable when the risk of acidosis is high (i.e. lactation) but the risk of acidosis is low during the dry period so a faster feeding rate could translate to higher intakes. The fact that there was no difference after calving demonstrates that cows **did not** carry over a feeding behavior from the dry period into lactation.



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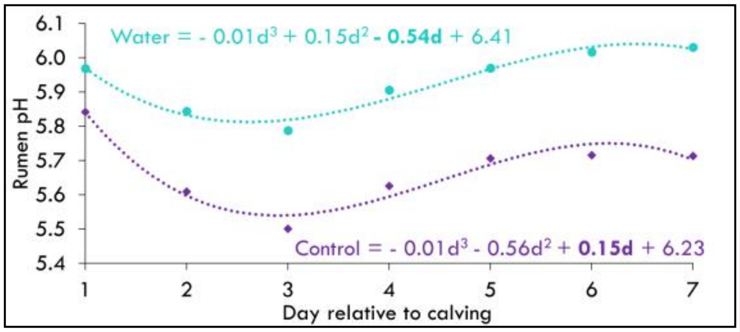
- Less sorting against the long forage particles, and less sorting in favor of the medium forage particles during the dry period. No differences in sorting after calving.
- Higher rumen pH during the first three weeks after calving (see figure below for the difference in rumen pH during week 1 post-calving)

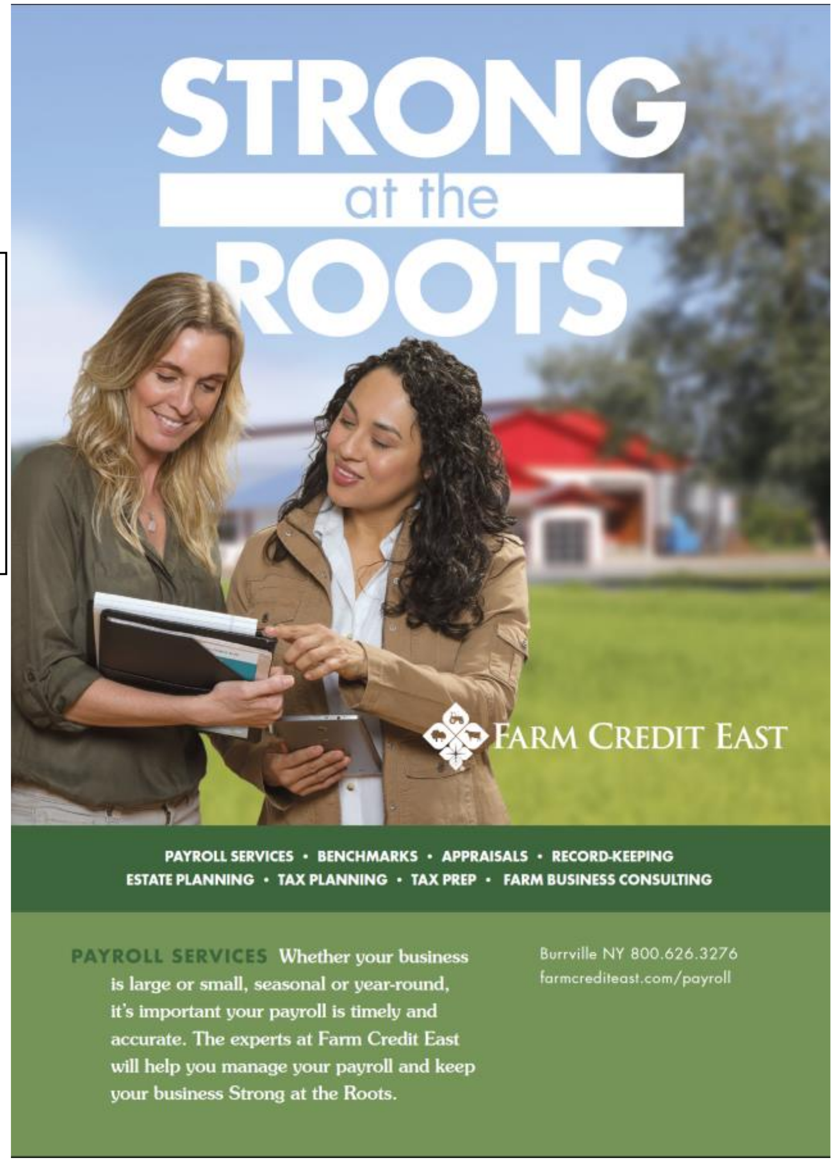


* *Bolded coefficients differ at P ≤ 0.05*

In summary, water addition to a high straw dry cow diet helped promote intake during the dry period and reduced sorting behaviors. Post-calving rumen health was improved for cows fed the diet with increased moisture content, which is likely a result of cows maintaining more stable intake in the week leading up to calving. When possible, adding water to a high dry forage dry cow diet would be a beneficial strategy. Careful consideration should be taken when adding water to diets in the summer months when the risk of heating and spoilage are high, and when adding water to a diet containing primary ensiled forages. Consult with your nutritionist and reach out to me if you have any further questions regarding maximizing success of feeding controlled energy dry cow diets.

For more information on this research project, please contact myself (cdh238@cornell.edu, refer to the Journal of Dairy Science article listed here, or the following YouTube video: Transition Cow Nutrition: Part 2.

This project was financially supported by a Natural Sciences and Engineering Research Council of Canada (NSERC; Ottawa, ON, Canada) Collaborative Research and Development Grant with Trouw Nutrition (Guelph, ON, Canada), as well as from the Ontario Agri-Food Innovation Alliance Research Program of the University of Guelph and the Ontario Ministry of Agriculture, Food, and Rural Affairs (Guelph, ON, Canada).



Taking Back Control of Your Business: Pandemic Edition

By Kelsey O'Shea

During times of low commodity prices, bad weather, and (insert GLOBAL PANDEMIC here) it can feel like everything is out of your control. That feeling invades every aspect of your life; it creeps and lingers into your farm's day-to-day operations and can be toxic to making progress. It's just as daunting though to try to make changes when your environment won't seem to cooperate long enough to give you time to think about and implement those changes. I'm suggesting a simple 3 step process to help focus energies and efforts at a time when it can be difficult to even get each day's tasks completed.

Step 1 - Set a Goal. This is a deceiving step. There are always goals for your farm business, and you know that you have them, but do you ever write them down? This may seem tedious, but the impact is huge. This can be in any form: from a notebook scribbled in at 11:00 at night, to a typed list that is printed and posted in the barn. The important part is that you set a goal higher than your current performance, and that the goal follows the SMART goals mantra (S=specific, M=measurable, A=achievable, R=relevant, and T=time bound). Those are all relatively self-explanatory, but it's important to think about each of those aspects when laying out goals. Some example goals could be: to reduce debt to a certain level for a major purchase, or increase product quality to obtain certain premiums.

Pro Tip: *Share the goal setting love; delegate department heads, key employees, or others on the farm to set goals that they can then take ownership of. Just make sure to follow up with them and maintain good communication on progress.*

Step 2 - Monitor Current Information. This is where you collect the current information about your business, but in the time of COVID 19 this task gets a bit bigger. Not only are you looking at how did you perform last year over this year, but you are also monitoring federal, state, and local regulations that directly impact protocols and processes on your farm. This additional area of monitoring needs to be built into your systems just like other areas with one or two people dedicated to collecting, processing, and implementing change. The focus still needs to be: what were the protocols in place that caused that result? What are the current protocols in place? Once you have collected the information you will be able to evaluate what parameters are affecting the goal you would like to meet. From this monitoring, you can decide which parameters to change to reach your goal.

Pro Tip: *To keep up with colleting and evaluating information, plan a portion of one day per week and dedicate it to this task. Set it aside in your calendar and then make plans to revisit for a period of time over which you think you can collect an adequate amount of information to make a decision.*

Step 3 - Take Corrective Action. After collecting and evaluating your information it is time to make a decision. That decision needs to be implemented and monitored in the weeks following to ensure that it is achieving the desired results. It is important to stay committed to the change; the phrase "Rome wasn't built in a day" definitely applies to farms. Be patient and persistent with your changes; it will take time to see results. This becomes really challenging when a pandemic is creating so many changes outside of the control of your business that can directly affect the corrective actions you take. It's important then to commit to understanding the forces at play as well as being flexible enough to make changes to corrective actions should outside forces demand it.

The final step is to re-evaluate after giving your action enough time to take effect. If the desired results are achieved you can continue, if not it is time to go back to Step 2 and find a new plan of action.

Pro Tip: *Find someone to be accountable to or even just to confide in. Meet regularly (monthly, quarterly, or as often as you feel is effective).*

The best way to keep yourself accountable to these changes is to share your goals (written) and your progress to a third party on a regular basis. That could be monthly or quarterly shared with a vet, loan officer, nutritionist, CCE Regional Specialist, or profit team. This will help keep you on track and keep up with them to make sure that you don't get buried in the day to day task of putting out fires.

Information Letter Series

Making Sense of Your Milk Price in the Pandemic Economy: Negative PPDs, De-pooling, and Reblending

By Mark Stephenson, U of WI-Madison, and Andrew M. Novakovic, Cornell*

Information Letter IL 20-03
June 26, 2020

Background

Milk and dairy product prices have been highly volatile since about the mid1990s. The spread from highs to lows dampened from 2015 to 2018, when average prices got stuck in a low range, but even during this recent period the spread was as much as $4 per cwt. The Pandemic Economy seems to have brought a new period of extreme volatility.

Eye-catching as the swings in 2020 have been, we've seen larger swings from the low to high prices in previous cycles. The biggest swing remains the up-down-up that took the all milk price:

- Up $10.10 from the low of $11.70 in July 2006 to the high of $21.80 in September 2007
- Down $10.50 from September 2007 to the low of $11.30 in June 2009
- Up $10.80 from June 2009 to $22.10 in August 2011

This unprecedented period of price turbulence spanned 5 years, covering two price cycles. What we've seen in 2020 isn't as large but it's happening a lot faster. In the 6 months from November 2019 to April 2020, the national average All Milk Price dropped $6.60. Although we won't have an official June price reported until the end of July, current futures prices suggest that the price will swing back up by at least as much. Certainly, the down and up of the Class III price has been breath-taking.

The question that we try to address here is how several fresh elements of pricing in the Pandemic Economy are impacting your price. We will take a look at three:

- The Federal Order Producer Price Differential (PPD) and de-pooling of Class III milk
- The spread between Class III and IV prices and what that means for the Class I price
- Reblending of market returns by cooperatives after the Federal Order minimums have been applied.

Each of these elements have been around for a long time, but what makes them stand out now is how large they have become under the unprecedented stresses of the Pandemic Economy.

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* *Mark Stephenson is the Director of Dairy Policy Analysis at the University of Wisconsin-Madison, and Andrew Novakovic is the E.V. Baker Professor of Agricultural Economics Emeritus, in the Charles H. Dyson School of Applied Economics and Management at Cornell University.*

Federal Order Statistical Uniform Prices and the PPD

The Federal Milk Marketing Order (FMMO) system provides structure for milk price discovery and equitable distribution of proceeds to dairy farmers. These functions are often called "pricing and pooling" and they are done monthly. Pricing is basically about the way that money is collected from dairy plants and pooling is the method of paying those funds out to dairy producers.

Milk pricing establishes a minimum price that must be paid for milk depending on what products are made from it. It is a floor price and premiums are often paid above those levels. Currently there are four milk classes:

- Class I are milk components used in fluid milk products
- Class II are components used in so-called "soft products" like creams, yogurt, ice cream, sour cream, etc.
- Class III are components used to make hard cheeses like cheddar, mozzarella, etc. and whey products
- Class IV are components used in butter and milk powders

Price Discovery and Class Prices

Federal Orders determine and enforce minimum class prices every month. Since Federal Orders were "reformed" in January 2020, the method used is called product formula pricing. Plants producing cheddar cheese, whey, butter, and nonfat dry milk are required by USDA to report the volume and price received from their products each week[1]. These product prices are used to calculate the value of the milk used in the manufacturing process for each class.

Class III and IV prices are calculated most directly using the product price values that correspond directly to the definition of the class. Federal Order price formulas require a butter price to determine a milkfat value, and, therefore, survey prices and calculations are made and enforced with a one-month delay. For example, on July 1, 2020, we are able to calculate the June monthly values for the product prices and these can then be used to calculate Class III and IV values that will be applied to milk sold in June. Because of this delay, cheese-whey and butter-powder plants don't actually know what their milk cost will be until they have already processed their product. But, they do know that their minimum price will be aligned with the market price for the basic cheese, whey, butter, and milk powder commodities.

Class I and II milk is priced somewhat differently. Rather than somehow collecting wholesale prices for beverage milk, yogurt and so on, Class I and II prices are derived from the same factors that determine Class III and IV prices, with two additions. A "premium" or add-on, typically called a "differential" are added to the base prices that undergird the Class I and II prices. Because this approach provides no assurance that retroactive milk prices would align with wholesale prices for their products, Class I and II processors are told what their minimum milk prices will be in advance. The two-week advance notice makes it feasible for sellers and buyers in these markets to negotiate wholesale prices that are better aligned with the announced minimums. So, fluid plants knew what their June minimum milk prices were going to be on May 20, 2020 based on the product prices for the first two weeks of May.

The typical expectation has been that the highest minimum prices are for Class I milk and milk values decline through Class IV. However, we have learned that anything, literally, is possible. Since, the introduction of the current Federal Order pricing formulae in 2000, the Class IV price has exceeded the Class III price 40% of the time. In the Northeast Order, a relatively high Class I price market, there have been 3 months when the Class III price exceeded the Class I price for the middle of the milkshed (only once for the city center price or base zone). In a lower Class I price area, the Upper Midwest, the number of months when this has occurred is 12.

The Class II price is, in concept, equal to the Class IV price plus 70¢, but in practice this relationship becomes more complicated because the Class II price uses component prices based on only the first two weeks of a month for the skim milk portion and the full month prices for butterfat. Because of this seemingly innocent quirk, there have been 19 months when the Class II price was lower than the Class IV price (7.8% of the time since January 2020). Each of these seemingly minor or innocent quirks can result in a milk check that doesn't look quite like one might have expected.

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[1] *National Dairy Products Sales Report. https://usda.library.cornell.edu/concern/publications/zs25x847n*

Milk Checks and the PPD

In 7 of the 11 Federal Orders, farms are paid on the basis of the Class III component values for protein, butterfat, and other solids (mostly lactose). When Class prices behave according to the usual expectations - Class I price is the highest value - there is money left over in the pool after withdrawing the Class III component values and that remainder is distributed to producers based on the volume of milk sold. Expressed in dollars per cwt., that remaining value is called the Producer Price Differential, or PPD.

The PPD can be thought of as an accounting exercise, but there is a purpose to this approach as well. For the seven orders in which this system is used, there is a notable volume of cheese production, and it was believed to be a good idea to reward farmers for producing higher protein milk, which is not one-for-one the same as higher skim solids milk. Once it was decided to pay out to producers on the basis of the same components that are used in Class III, and only in Class III, then it made mathematical sense to begin the blend price calculation with the Class III price and add (or subtract) whatever moneys remained in the pool.

It is essential to remember that buyers of milk have a cost of milk that is defined primarily by the minimum class price pertaining to their business. A cheesemaker will pay the blend price to her farmers, but her cost of milk is the Class III price. The difference between the Class III price and the blend price is paid from the pool to the cheesemaker, a value called the equalization payment or "pool draw".

Why We Get Negative PPDs

As sensible as this system seemed, we did not anticipate the possibility of a Class III price, calculated after the advance Class I price was already announced, rising so much in the span of a few weeks so as to result in a Class III price that was higher than the total average amount of money paid into the pool. Thus, we can have a month where the Class III price is higher than the blend price, and in this instance, the PPD calculation will be negative. All that means is that we paid out more money to producers in Class III component values than we collected from plants across all classes of milk. For farmers, it is really just a curiosity in the accounting method. For cheesemakers, it is a different issue that can lead to de-pooling, but more on that shortly.

The June 2020 Class I price was announced on May 20 and based on product prices for the first two weeks in May when cheese averaged about $1.18 per pound. The Class III price for June is based on the June product prices for the full month, when cheese averages more than double the values used in Class I price calculations.

In April 2004, the Northeast Order Class I price was $16.89, and the Class III price was $19.66. The PPD for that month came out as -$2.38. This extremely unusual result was driven by a 2-week average cheese price in March of $1.46 that ballooned to a 4-week April average of $2.05. The price difference between May and June 2020 is twice as large.

This is going to result in large negative PPD values in all of the seven orders in which that system is used. Of course, in July, the much higher product prices in early June will drive a higher Class I price in July and the July cheese price, and associated Class III price, will likely moderate. In most circumstances, we would expect the July PPDs to be larger than normal.

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[2]. The Appalachian, Southeast, Florida, and Arizona Orders use the same Class III and IV prices as all other orders, but the class and blend prices are calculated on the basis of skim milk and milkfat values. This means that protein test or content is not a factor in determining either a processor's cost of milk or a farmer's price, other than for the fact that it is one part of skim solids. An extra pound of skim solids in these orders has the same value whether it is protein or other solids (carbohydrates). In this system, it is possible for the Class I price to be less than the Class III price for the same reason as occurs everywhere else: a large increase in the Class III price in a one-month period. The difference is that there is no accounting need to have a PPD in these pricing systems. Hence, the impact on the producer milk check is much less obvious.

3. Of course, the opposite reason led us to charge other classes of milk for skim solids as one thing. The value or yield on beverage milk is not driven by protein vs. carbohydrate content.

Average Manufacturing Value vs. The Higher Of

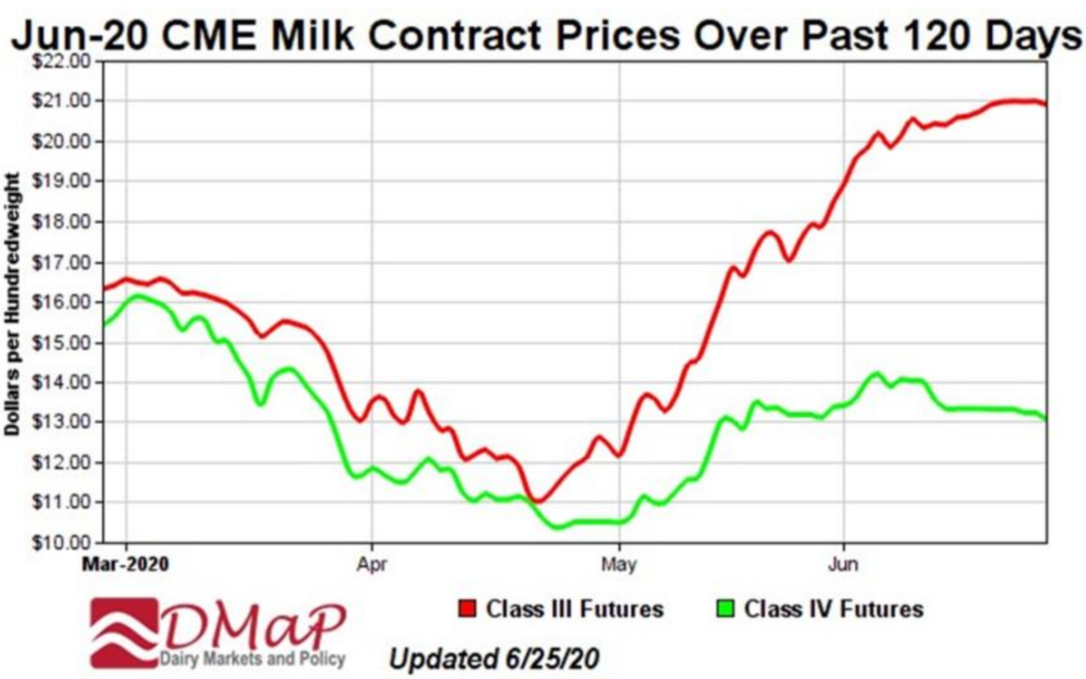
A new wrinkle that was introduced in May 2019 was the change in how the Class I price is built on top of the Class III and/or IV prices. For decades, the general concept was to set Class I price equal to a "basic formula price" plus a differential. For most orders, that basic formula price was the lowest class price. When Federal Orders were dramatically standardized and amended, effective January 2000, the introduction of a four-class system that basically had two manufacturing class categories required a decision about which one to use in setting the Class I price.

As noted earlier, the general design of the Class II price builds up from the Class IV values. This was logically consistent with the idea that most Class II products do not have yields associated with milk protein content. The same could be said for Class I products, but in the case of Class I it was decided to simply begin the calculation with whichever of the Class III or IV prices was higher. This was a decision driven by a desire to create a favorable farm price. It remains the case that Class I processors pay for milk based on its milkfat and skim solids composition.

In 2019, organizations representing both processors and cooperatives agreed to a new system and successfully advocated for legislation to require a change to the pricing regulation. Now, the "driver" on the Class I price is the simple average of the Class III and IV values for each month. Because the simple average will always be less than the "higher of" would have been, 74¢ is added to the average to reflect the difference between the new method and the old method using historical prices. But, when the difference between the two class prices is large enough, the average of the two prices might be more than 74¢ lower than the higher class price. This is when we could get another negative PPD calculation.

As noted above, the Class IV price has exceeded the Class III price about 40% of the time since the new system took effect. More to the point is the price spread between the two, regardless of which one is higher. The 74¢ adjuster was based on the average differences between the two over a period of time. This amount reflects a difference between the two of $1.48. For example, if the Class IV price is $16 and the Class III price is $17.48, then the simple average of the two prices is $16.74. Add 74¢ and the Class I price mover is $17.48, exactly the same as the "higher of". Of course, when the two prices are narrower, the 74¢ adjuster results in a higher Class I price, just as it results in a lower Class I price when the spread is greater that $1.48. If the difference between the two prices stays in a fairly narrow range, then the price arithmetic arguably comes out in the wash.

Since January 2000, the difference between the two prices has exceeded $1.48 38% of the time. It's exceeded $2 about 22% of the time and $3 over 8% of the time. It exceeded $5 twice. In June it looks to exceed $8. What this means is that the Class I price will be pushed up by the dramatically high Class III price, but it will be equally held back by a dramatically low Class IV.



A spread this large between Class III and Class IV impacts the blend price regardless of which Class is higher, by comparison to the former system, but when the Class III price is so much higher than Class IV that means both the Class I and Class II prices will be very low in comparison to Class III. In the 7 markets that pay producers on protein content, this means a double whammy on the PPD.

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De-pooling

So far, we have focused on the impact of current prices and our pricing system on farmers. There is also an important implication for processors, or cheese makers in particular.

Right now, we are experiencing both a very rapidly rising price and a very large spread between Classes III and IV, and this will cause the largest negative PPD that we have ever seen under Federal Orders. The magnitude of difference between the blend price and the Class III price will be different in each order due to Class I price differentials and the relative utilization of milk in each class. This will also be true in the 4 orders that use skim milk pricing, but Class III utilization is low in those orders to begin with. Under this condition, the June milk prices will be such that Class III plants will contribute money to the pool that Class I plants will use to pay their producers in all of the Orders… or will they?

Recall, that under Federal Order rules participation for Class I plants is mandatory, but manufacturing class plants don't have to be regulated. Indeed, processors who have no Class I milk are required to demonstrate some connection to or service to the Class I market to gain access to pool prices and the expected pool draw by which Class I processors subsidize milk purchased by other processors. This is called pool qualification.

In some Marketing Orders, typically those with high Class I utilization, such as the Northeast or Southeast, pool qualification criteria are rather stringent. It is harder for a cheesemaker to get in, and out. In the Upper Midwest and California orders, jumping in and out of the pool is easier for a cheese plant. Whenever the Class III price is going to be higher than the blend, i.e., when there is a negative PPD, it is logical for cheesemakers to want to opt out of the pool. They can pay their suppliers the blend price but escape subsidizing the other processors in the marketplace by avoiding the unusual situation of having to pay into the pool instead of drawing out of the pool.

If the cheese plants de-pool their milk, what do they <u>have</u> to pay? The simple answer is whatever it takes to get milk into the door of the plant. If they choose to pay the Class III minimum, then their producers benefit by receiving a higher milk price than they would have received if they had stayed pooled. However, cheese plants might realize that they can pay their producers the lower pool price they would have gotten if the cheese plant had stayed pooled and contributed money to other class plants. The cheese plant saves money and their producers are no worse off. But, by not making a payment into the pool, there is a lowering impact on the blend price.

While this arithmetic is appealing to the cheesemaker, it disadvantages the rest of the market. Because the higher valued Class III milk is withdrawn from the pool, it pulls down the total and average value of the pool. The (new) blend price is lower than it would have been had Class III milk stayed. Indeed, it is easy to see a scenario where the new average milk price paid by processors is driven below what would have otherwise been the case. The pool value and blend price are diminished either way but perhaps cheese makers will follow it down when they determine their pay prices.

With the gigantic difference in June prices, this could have a very dramatic impact on what producers are expecting vs. what they will actually get.

What Can We Expect?

Most Federal Orders have different requirements for plants to pool their milk. Under most circumstances manufacturing plants benefit from being pooled because they receive a pool draw. Many Orders require them to demonstrate "performance" by "touching base" occasionally. The general concept is that the manufacturing plant has to demonstrate performance or the ability to perform by giving up milk to a Class I plant when milk is tight. Touching base refers to a manufacturing plant showing that they are willing to give up a load of milk to a fluid plant. They do that by sending a tanker of milk periodically to the fluid plant, which may or may not be accepted by the plant, but the manufacturing plant has at least demonstrated their willingness to give up milk if it was needed. In many Orders, there is also a qualification period for manufacturing plants. This tends to be the case for Orders in which Class I utilization is high. If a plant de-pools they may not be able to requalify their plant to participate in the Order for several months. So, the calculation to de-pool can be complicated by answering the questions about what is gained with what may be lost in the way of revenues.

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By our estimates, Class III plant contributions to the pool in the eleven Federal Orders could range from just less than $5 to more than $8. This is a very strong incentive to de-pool milk. Moreover, in many Orders it won't be just June milk that has that incentive to de-pool; it is likely to also be July, August, and possibly September milk as well, at least based on current CME futures price opinions. The June contribution comes from a combination of rapidly rising milk prices as well as a very large spread in the Class III and IV price. The other months are not from rapidly rising milk prices but rather the expected continuation of the spread between Class III and IV.

Reblending and Base/Excess Pricing

As cooperatives faced added pressure to find a home for stranded milk during the first phase of the Pandemic Economy, some milk was dumped and a lot more was sold below the market price. Of course, no cooperative wants to do that, but if the choice is between dumping and discounting, discounting is less bad.

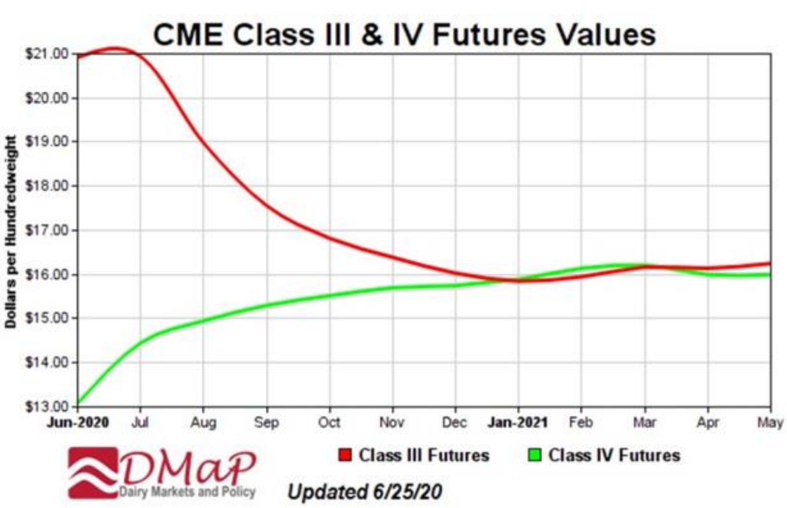
For cooperatives that experienced these losses on milk sales, the costs are often shared back to farmer members in a process referred to as reblending. When times are good, reblending means adding back in premiums paid by buyers or profits from operations to give farmers higher prices. In bad times, it means a deduction. Deductions have been substantial during the Pandemic Economy. The flip side of the run up in cheese prices is that buyers are screaming for more milk. This will not create new sales for all cooperatives in all parts of the U.S. but in the main all boats should rise to some degree on this tide. It has also been the case that many cooperatives either initiated a Base/Excess type pricing plan or doubled down on one they had in place. Under these plans, farmer members are typically assigned some kind of a base milk production for which they will receive the normal price, but farmers who market in excess of that base are assigned all of the losses from distressed milk sales, dumping, and unprofitable operations. Farmers have seen huge differences in their base and excess (or overbase) milk prices in the last few months. The impact of current markets will also put this situation in reverse, but this impact will be much more personal and larger for farmers who have taken a big hit because of their over-base marketings.

It is likely that June will also show much smaller reblending deductions or overbase penalties, if indeed there are any such reductions in price. This will contribute to an even greater swing in the mailbox price, beyond the changes in minimum blend prices we've already discussed. However, this swing up will only apply to farms that had previously endured a bigger price penalty for their "excess" milk.

The Bottom Line…

The CME futures prices expect Class III and IV prices to converge by the end of the year and to return to a more normal relationship. In other words, buyers and sellers think there will be a return to normalcy. That is actually a common expectation for futures markets 9 or more months out. Having normal times, however, is hardly guaranteed.

For the next few months, producers will very likely be frustrated by seeing that Class III prices have rebounded dramatically from the pandemic induced lows but that their milk check doesn't reflect all of the optimism from dairy headlines.



Since we have had multiple component pricing, we have occasionally experienced negative PPDs—most often associated with rapidly rising prices. With the change in Class I price calculations from the "higher of" to the average of Class III and IV plus 74¢, we have a new mechanism which can cause a negative PPD. Under more ordinary price relationships and movements, negative PPDs and de-pooling are not as common an occurrence. But a pandemic is anything but common. The addition of cooperative pricing plans to discriminate prices for farms that are increasing production more rapidly is yet another factor that is causing turbulence in month-to-month milk prices, as well as substantial differences from one farm to the next.

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Appendix – Estimates of De-pooling Incentive Across 11 Federal Orders

The following table includes simplified calculations to approximate the Statistical Uniform Price in a federal milk marketing order (only the Northeast Order 1 is shown). The approximate utilization for all four classes are entered if all milk is pooled. The Class I differential is also entered for each.

The class prices can be entered if known or they are approximated from CME futures for class III & IV settlement prices. If not entered directly, Class I base prices are estimated as the average of the current and previous months Class III & IV prices plus 74¢. Class II prices are estimated as the average of the current and previous Class IV price + 70¢. There are always some differences in an order because the weighted average Class I differential differs from weighted average zoned differential for milk delivered to all plants. The "Misc Adjustment" provides a place to "fine tune" an FMMO's uniform price announcement based on historic adjustments unique to each order.

In the column labeled "Uniform Price", the weighted average blend is calculated if all milk is pooled. For any month in which a manufacturing milk price is greater than the Uniform Price, there is an incentive for that class of plant to de-pool. Those values will be shown in red for the different classes. The column labeled "Uniform with Depooling", the weighted average blend price is again calculated but with 100 percent of the milk de-pooled for those classes with the perceived disincentive to pool.

The "Uniform Price" and the "Uniform with De-pooling" prices represent the boundaries of blend prices likely to be seen. For a variety of reasons, plants with a depooling incentive may not choose to take their milk off of the pool.

Northeast Order 1											
		Utilization:	31%	24%	27%	18%		100%			
	Class I Base	Class I Differential	Class I	Class II	Class III	Class IV	Misc Adjust	Uniform Price	PPD	Uniform with De-pooling	PPD with De-pooling
Oct-19	$17.84	$3.25	$21.09	$16.68	$18.72	$16.39	$0.20	$18.75	$0.03	$18.75	$0.03
Nov-19	$18.14	$3.25	$21.39	$16.85	$20.45	$16.60	$0.20	$19.38	-$1.07	$18.99	-$1.46
Dec-19	$19.33	$3.25	$22.58	$16.81	$19.37	$16.70	$0.20	$19.47	$0.10	$19.47	$0.10
Jan-20	$19.01	$3.25	$22.26	$17.05	$17.05	$16.65	$0.20	$18.79	$1.74	$18.79	$1.74
Feb-20	$17.55	$3.25	$20.80	$16.84	$17.00	$16.20	$0.20	$18.20	$1.20	$18.20	$1.20
Mar-20	$17.46	$3.25	$20.71	$16.75	$16.25	$14.87	$0.20	$17.70	$1.45	$17.70	$1.45
Apr-20	$16.64	$3.25	$19.89	$13.87	$13.07	$11.40	$0.20	$15.28	$2.21	$15.28	$2.21
May-20	$12.95	$3.25	$16.20	$12.30	$12.14	$10.67	$0.20	$13.37	$1.23	$13.37	$1.23
Jun-20	$11.42	$3.25	$14.67	$12.66	$21.01	$13.25	$0.20	$15.84	-$5.17	$13.93	-$7.08
Jul-20	$16.56	$3.25	$19.81	$14.70	$21.56	$14.75	$0.20	$18.35	-$3.21	$17.16	-$4.40
Aug-20	$18.52	$3.25	$21.77	$15.70	$19.55	$15.25	$0.20	$18.74	-$0.81	$18.44	-$1.11
Sep-20	$17.87	$3.25	$21.12	$16.20	$17.96	$15.74	$0.20	$18.32	$0.36	$18.32	$0.36
Oct-20	$17.32	$3.25	$20.57	$16.53	$16.68	$15.92	$0.20	$17.91	$1.23	$17.91	$1.23
Nov-20	$17.02	$3.25	$20.27	$16.67	$16.49	$16.01	$0.20	$17.82	$1.33	$17.82	$1.33
Dec-20	$16.89	$3.25	$20.14	$16.71	$16.10	$16.01	$0.20	$17.68	$1.58	$17.68	$1.58

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

What's Happening in the Ag Community

Due to COVID-19 social distance restrictions, all in-person CCE programs have been postponed until further notice. Check out our CCE NCRAT Blog and YouTube channel for up to date information and content.
Managing Forages Through a Season of Drought: A 2-Part Webinar Series, July 30th and August 4th, 7--8pm. Register online at: https://ncrat.cce.cornell.edu/event.php?id=1244
Virtual Dairy Prospects Program, 9-Week Online Course starting Sept 30th. Register online at: https://drive.google.com/drive/folders/1C3pqXAvMOJh8PM1CBxlJ4ybNYEDiGtNk?usp=sharing