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Hello, Coshocton County! I was very relieved yesterday when I saw the dark clouds rolling in. I know many of us were praying for rain to help our crops (especially soybeans); so it was great to get a nice shot of rain. And it looks like more rain is in the forecast for the remainder of the week.

We had a great response to last night's pasture walk at Todd Endsley's farm. We appreciate Todd for his family's hospitality. Christine Gelley from OSU Extension in Noble County did a great job discussing warm season grass management. If you missed the walk, I have included a nice article Christine wrote for us on this subject. We appreciate Christine for all her expertise. I would also like to thank Ryan and Zach from the Coshocton Soil & Water Conservation District for leading the charge on the annual pasture walks.

It won't be long until the silage choppers are rolling followed by combines. I hope you are able to take time to catch your breath before harvest season arrives. It seems that 2020 has been a year chalked full of "Monday Mornings."

Take care and stay well!

Sincerely,

David Marrison

Coshocton County OSU Extension ANR Educator

THE OHIO STATE UNIVERSITY
COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

Pasture Walk a Success

Thanks to everyone who attended the **Summer Pasture Walk** held yesterday August 25 at the Todd Endsley Farm. During the walk, the 25 attendees toured the Endlsey cattle operation and learned more about the management of warm season grasses. Christine Gelley, OSU Extension from Noble County, was the featured speaker for the event.

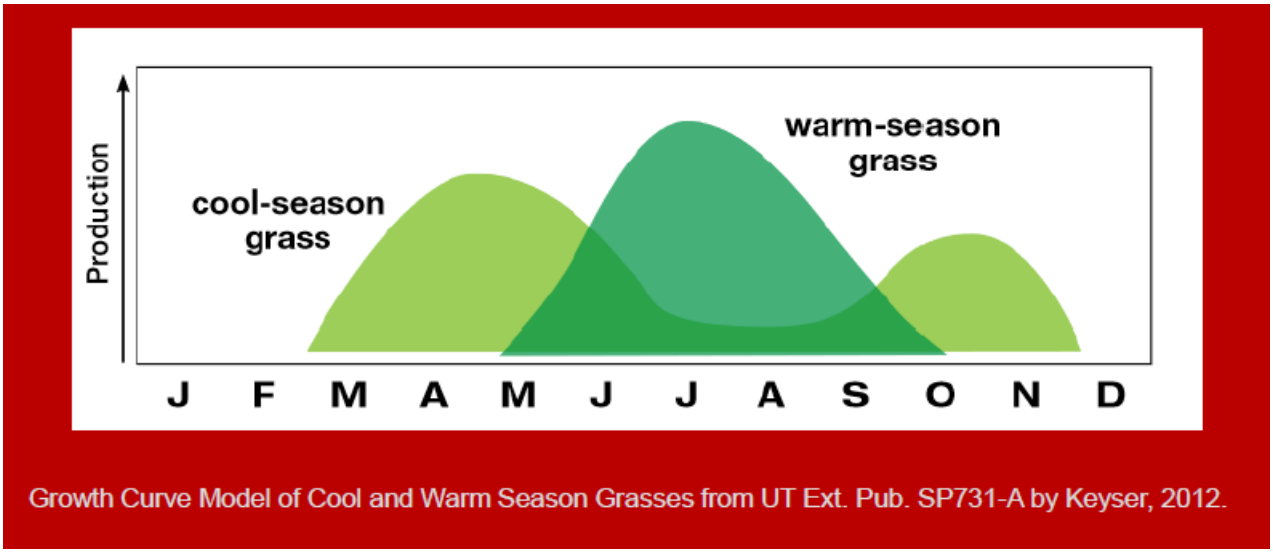
A special thank you is extended to the Endlsey and Schumaker families for hosting this year's pasture walks. The pasture walks are hosted by Coshocton Soil & Water Conservation District, Natural Resource Conservation Service and OSU Extension. Thanks to Ryan Medley and Zach Wallace at the SWCD for all their hard work in organizing the annual pasture walks.

Management Considerations for Warm Season Perennials

by Christine Gelley, Extension Educator – Noble County

During my graduate program at The University of Tennessee there was a defined interest in utilizing warm-season perennial grasses as grazing pasture for beef cattle. One of the greatest influences for this interest is persistence during high heat and drought tolerance. The same could be applied for Ohio.

Although our number of growing degree days are fewer than producers have in the South, we are still capable of incorporating warm-season perennials into our grazing systems. We also experience periods of high heat and drought. Our typical sources of grazing pastures are cool-season grasses (ex: tall fescu e, orchardgrass, ryegrass, timothy) and legumes (ex: white clover, red clover, alfalfa), which are much less hardy than the grasses discussed here. Part of the reason is the way the plants photosynthesize (a.k.a. turn light into food), how they utilize water in the process, and differences in structural growth. Warm-season grasses are more efficient photosynthesizers, however the forage they produce in the process is of lesser nutritive value than cool-season grasses.



Growth Curve Model of Cool and Warm Season Grasses from UT Ext. Pub. SP731-A by Keyser, 2012.

The tradeoff can be worthwhile in times of stress, on marginal sites, remediation, and for wildlife enthusiasts. Forage of less than ideal nutritive value that is available is more valuable to grazing livestock than no forage at all. The greatest advantages of including warm-season perennials in a grazing system are the ability to combat "summer-slump"-the time in mid-summer when our cool-season plants tend to go dormant

until cooler, wetter weather returns, drought tolerance when water is scarce, and the ability to extend the grazing season, which in turn means feeding less hay.

In addition, warm-season perennial grasses produce large amounts of dry matter for animals to consume with little inputs. Fertilizer needs are low, water needs are low, there are few pests or pathogens that are threats, and they can withstand vast changes in weather.

Some of the limitations of establishing these grasses are lack of available improved varieties for specific regions, slow establishment rates, they mature quickly, and they cannot tolerate close grazing.

Although animal intake is typically lower for these grasses than we see with our traditional options, animal intake and weight gain can still be sufficient for achieving production goals when managed for both the plant and animals' success.

Not all species and varieties of warm-season perennial grasses are created equal. Research available varieties suited for your conditions, buy high quality seed, and start with good seedbed preparation. One of the greatest struggles of managing these grasses is weed control. Start clean of weeds and stay clean to hasten establishment. Here are some of the details of the four most common warm-season perennial grasses:

Animal Intake

2010 Animal Performance

	Early Season		Full Season	
Grass	ADG (lbs)	Beef/Acre (lbs)	ADG (lbs)	Beef/Acre (lbs)
BB/IG	2.65	196	2.21	299
SG	2.21	189	1.65	289
EG	1.70	162	1.12	249

Waller, John C. "Nutritional Considerations & Herd Management with Native Warm-Season Grasses." Department of Animal Sciences- The University of Tennessee. http://www.uky.edu/Ag/Forage/Waller%20Nutritional%20Considerations%20KY%202012.pdf

Big Bluestem- *Andropogon gerardii*

http://www.wbseedco.com/bigbluestem.htm

Height: 3-9 ft.
Drought Tolerance: Excellent
Seeds per Pound: 150,000
Seeding Rate: 5-10 lb/ac
Seeding Depth: ¼- ½ in.
Begin Grazing: 15-20 in.
Stop Grazing: 10-12 in.
Rest Period: 30-45 days
Animal Intake: Good
Quality: Good
Some Rhizomes

Eastern Gamagrass- *Tripsacum dactyloides*

Height: 3-8 ft.
Drought Tolerance: Excellent
Seeds per Pound: 7,200
Seeding Rate: 8-10 lb/ac
Seeding Depth: ½- 1 in.
Begin Grazing: 18-22 in.
Stop Grazing: 10-12 in.
Rest Period: 30-45 days
Animal Intake: Poor
Quality: Good
Rhizomatous

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Indiangrass- *Sorghastrum nutans*

http://extension.missouri.edu/p/MP903-27

Height: 3-7 ft.
Drought Tolerance: Excellent
Seeds per Pound: 180,000
Seeding Rate: 5-10 lb/ac
Seeding Depth: ¼- ½ in.
Begin Grazing: 12-16 in.
Stop Grazing: 6-10 in.
Rest Period: 30-40 days
Animal Intake: Good
Quality: Good

Switchgrass- *Panicum virgatum*

Height: 3-10 ft.
Drought Tolerance: Excellent
Seeds per Pound: 280,000
Seeding Rate: 5-8 lb/ac
Seeding Depth: ¼- ½ in.
Begin Grazing: 18-22 in.
Stop Grazing: 8-12 in.
Rest Period: 30-45 days
Animal Intake: Poor
Quality: Good
Rhizomatous
Also used for ethanol

https://www.prairiemoon.com/seeds/grasses-sedges-rushes/panicum-virgatum-switch-grass.html

Are you interested in learning more about how to plant, manage, and identify warm-season perennial grasses? Investigate these resources from the Center for Native Grasslands Management. Most are oriented to site conditions in Tennessee; however the concepts are the same for Ohio. The calendar dates may need adjusted slightly for your location. Check the Ohio Agronomy Guide for recommendations or contact Christine Gelley to converse about your site.

- Establishing Warm-Season Perennials: http://nativegrasses.utk.edu/publications/PB-1873-Native-Grass-Forages.pdf
- Weed Competition Control (Herbicide Recommendations): http://nativegrasses.utk.edu/publications/SP731-F.pdf
- Seedling I.D.: http://nativegrasses.utk.edu/publications/SeedlingIDGuideforNativeGrassesSoutheast.pdf
- Grazing Management: http://nativegrasses.utk.edu/publications/SP731-C.pdf
- Hay Management: http://nativegrasses.utk.edu/publications/SP731-D.pdf
- Adjusting Cutting Height: http://nativegrasses.utk.edu/publications/SP731-I.pdf

Fall Overgrazing Can Be Double Trouble

By: Mike Rankin, Hay and Forage Grower managing editor
(Previously published in Hay & Forage Grower: August 25, 2020)
Source: https://u.osu.edu/sheep/2020/08/25/fall-overgrazing-can-be-double-trouble/

There are a couple of things we know about the term “overgrazing.” First, it’s the most common mistake made regardless of grazing system. Second, it’s all about time.

Time comes in two forms when discussing grazing systems. There is the amount of time animals are left on a single area of pasture, and there’s the amount of time animals are kept away from that paddock after a grazing event. Both of these factors are important.
I have been on grazing operations where paddocks are purposely grazed short, but then animals are not returned to that paddock for at least seven weeks. These are usually beef operations where land base isn’t limiting. The key in such a system is allowing ample recovery time for the paddock because it will be slower to regrow as a result of most of plants’ leaf tissue being removed.

The more accepted and common way of managing pastures is to ensure enough leaf tissue remains for photosynthetic activity to quickly help generate new growth. This is the so-called “take half-leave half” approach and it allows for a much faster return to the paddock.

Essentially, overgrazing is function of both time on the pasture and time away from the pasture. What is known for sure is that overgrazing is detrimental to pasture productivity and, ultimately, livestock performance.

Here’s why:

1. Removing too much of the photosynthetic factory (leaves) severely limits the plant’s ability to recover and regrow. As such, it also sets the stage for another round of overgrazing the next time through the rotation if animals return too soon.
2. The plant’s ability to grow new tillers is compromised when plants are routinely grazed too short. Some species keep their carbohydrate reserves in structures below ground, others keep them in the lower one-third of the canopy. Removing these storage structures limits the plant’s capacity to generate new tillers and persist long term.
3. Weeds proliferate when overgrazing occurs. Slowed plant growth and more exposed soil can easily lead to higher populations of undesirable weed species.
4. Plant root growth is severely impacted. Research studies show that overgrazed pastures result in plants that have less root mass, which are also much shallower. This limits the plant’s ability to take up both water and nutrients, especially during periods of dry weather. Not leaving enough forage biomass can cause drought-like conditions even where adequate amounts of rainfall are received.

5. Overgrazing exposes more of the soil surface allowing for a higher degree of runoff, less water infiltration, more soil erosion, and elevated levels of evaporation. Adequate forage cover intercepts raindrops, which slows impact at the soil interface and enhances water infiltration.
6. Animal performance suffers as forage intake declines when pastures are overgrazed. Milk production or gain can be impacted both short and long term if pastures are not given an adequate recovery period after being overgrazed.

Fall is unique:

Throughout most of the grazing season, a single event where a pasture is grazed shorter than 3 to 4 inches can normally be rectified with a longer recovery period. In the fall, that may not be possible.

Although it’s true that cool-season grass growth often benefits from the cooler temperatures and moisture that fall brings, plants are also preparing to overwinter. This means that carbohydrates are being stored in lower stems and, in some cases, roots. These storage structures need to be protected for overwintering capacity and early spring regrowth. For this reason, many experts recommend that 4 to 5 inches of residual growth be left going into winter.

Overgrazing during the fall also inhibits the regeneration of new roots and tillers that will be critical for the next season’s growth. In fact, fall is a great time to apply fertilizer nutrients that will enhance additional root and shoot growth. However, fertilizer needs to be applied before plant growth shuts down for the winter.
In specific situations, overgrazing certain pastures in the fall can be used as a management tool. One such case is when you purposely want to stagger spring regrowth. Grazing certain pastures shorter in the fall will delay green up in the spring and these paddocks can set aside for the back end of the grazing rotation next year.

Another case where overgrazing in the fall might be beneficial is for paddocks that will be frost seeded next spring. Overgrazing in the fall will expose more bare soil for improved seed-to-soil contact and also reduce early-season competition with the new seedlings from existing plants.

Making Corn Silage in Dry Conditions

By: Bill Weiss, OSU
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/2020-28/making-corn-silage-dry-conditions

The primary goal of making corn silage is to preserve as many nutrients in the corn plant as possible, to produce a feed that is acceptable to cows, and to minimize any risks associated with feeding the silage. The following are important considerations for making corn silage when growing conditions have been dry.

Chop at the correct dry matter concentration (Editor's note: see accompanying article "Corn Silage Harvest Timing"). Drought-stressed corn plants are often much wetter than they appear, even if the lower plant leaves are brown and dried up. Before starting chopping, sample some plants (cut at the same height as they will be with the harvester) and either analyze DM using a Koster tester or microwave or send to a commercial lab (turn-around time may be a few days if you send it to a lab). If the plants are too wet, delay chopping until the desired plant DM is reached. The plant may continue to accumulate DM (increase yield), and you will not suffer increased fermentation losses caused by ensiling corn that is too wet.

Use a proven inoculant. When silage is worth upwards of $80/ton (35% DM) reducing shrink by 2 percentage units has a value of about $2/ton. Homolactic inoculants (these are the 'standard silage inoculants') produce lactic acid which reduces fermentation losses but sometimes can increase spoilage during feedout. The buchneri inoculants increase acetic acid which slightly increases fermentation losses but greatly reduce spoilage during feedout. Severely drought-stressed corn can have a high concentration of sugars because the plant is not depositing starch into the kernels. High sugar concentrations can increase spoilage at feed out because it is food source for yeasts and molds. Use of a good (from a reputable company with research showing efficacy) buchneri inoculant may be especially cost-effective with drought-stressed corn.

Check for nitrates. Drought-stressed corn plants can accumulate nitrates which are toxic (as in fatal) to ruminants. Silage from drought-stressed fields should be tested before it is fed. Ideally, corn plants should be sampled and assayed for nitrates prior to chopping (most labs offer very rapid turn-around times for a nitrate assay). If values are high, raising the cutting height will reduce nitrate concentrations in the silage because the bottom of the stalk usually has the highest nitrate concentrations. Because forage likely will be very limited this coming year, do not raise the cutting height unless necessary to reduce nitrate concentrations. Nitrate concentrations are often reduced during silage fermentation so that high nitrates in fresh corn plants may end up as acceptable concentrations in the fermented corn silage. Silage with more than 1.5% nitrate (0.35% nitrate-N) has a high risk of causing nitrate toxicity in cattle. See the following University of Wisconsin-Extension fact sheet for more details on nitrate toxicity: https://fyi.extension.wisc.edu/forage/nitrate-poisoning-in-cattle-sheep-and-goats/

Chop at correct particle length. Do not chop too finely so that the effective fiber concentration of corn silage is reduced. If the corn plants have limited ear development, fine chopping is not needed for good starch digestibility. Generally, a theoretical length of cut (TLC) of about ½ inch is acceptable (longer with kernel processing and BMR silage) but this varies greatly between choppers and crop moisture concentration. If using a Penn State particle size sieve, aim for 5 to 10% on the top screen.

Use a kernel processor. Kernel processed corn silage tends to pack more densely than unprocessed corn silage which may help increase aerobic stability. Kernel processing will also increase starch digestibility by breaking the kernel. Poor starch digestibility is a major problem with dry, mature corn silage.

Reduce Shrink. Fill quickly, pack adequately, cover, and seal the silo as soon as you are done filling. Practicing good silage-making techniques can reduce shrink by more than 5 percentage units, which can be worth more than $4/ton of corn silage (35% DM).

Corn Silage Harvest Timing

By: Bill Weiss, Peter Thomison,
Source: https://agcrops.osu.edu/newsletter/corn-newsletter/2020-28/corn-silage-harvest-timing

Silage harvest has begun in some parts of Ohio. Proper harvest timing is critical because it ensures the proper dry matter (DM) concentration required for high quality preservation, which in turn results in good animal performance and lower feed costs. The proper DM concentration is the same whether it is a beautiful, record breaking corn crop or a severely drought stressed field with short plants containing no ears.

The recommended ranges for silage DM are:

- Bunker: 30 to 35%
- Upright: 32 to 38%
- Sealed upright 35 to 40%
- Bag: 32 to 40%

Chopping corn silage at the wrong DM concentration will increase fermentation losses and reduce the nutrient value of the silage. Harvesting corn too wet (low DM concentration) results in souring, seepage, and storage losses of the silage with reduced animal intake. Harvesting too dry (high DM concentration) promotes mold because the silage cannot be adequately packed to exclude oxygen. Harvesting too dry also results in lower energy concentrations and reduced protein digestibility.

Corn silage that is too dry is almost always worse than corn silage that is slightly too wet. So if you are uncertain about the DM content, it is usually better to err on chopping a little early rather than a little late. Follow the guidelines below to be more confident in your moisture assessment.

Kernel stage not a reliable guide for timing silage harvest

Dry matter content of whole plant corn varies with maturity. Research has shown that the position of the kernel milk-line is NOT a reliable indicator alone for determining harvest timing. Geographic location, planting date, hybrid selection, and weather conditions affect the relationship between kernel milk-line position and whole plant DM content. In a Wisconsin study, 82% of the hybrids tested exhibited a poor relationship between kernel milk-line stage and whole-plant % DM. In Ohio we have seen considerable variation in plant DM content within a given kernel milk-line stage.

Appearance of the kernels should only be used as a guide of when to begin sampling for DM content, see section below When to Begin Field Sampling.

Determining silage moisture

The only reliable method of determining the optimal time to harvest corn silage is to sample and directly measure the % DM of whole plants. This information combined with average whole plant dry-down rates can be used to roughly predict the proper time to chop corn silage.

How to sample fields

Collect about 5 representative plants from the entire field, from areas with representative plant population and not from edge rows. Collect separate samples from areas that may have different dry down rates, such as swales, knolls. The moisture concentrations of plants can vary within a field (plants will be wetter in low lying area and drier on knolls) and this should be considered when collecting your sample plants.

As soon as the plants are collected, chop them uniformly (using a cleaver, machete, chipper shredder, or silage chopper) and mix thoroughly to obtain a sample with representative grain to stover ratios for DM determination. Put representative sample in a plastic bag and keep it cool (refrigerate if possible) until determining the DM concentration. Some farmers prefer sampling only 2 or 3 plants without any additional sub-sampling to reduce the chances of a non-representative grain to stover ratio that can affect the results. In this case, choosing representative plants is even more critical.

Determine the DM by drying the plant material using a Koster oven tester, microwave, convection oven, a vortex dryer (https://extension.psu.edu/a-vortex-forage-and-biomass-sample-dryer), or taking to a lab. From our work, on-farm measurement of DM is probably only accurate to +/- 2 units. So if you measure a DM of 30% it could easily be 28-32%. Keep this in mind as you plan harvest timing.

When to begin field sampling

We know that kernel milk stage is NOT reliable for determining the actual harvest date, but its appearance is a useful indicator of when to begin sampling fields to measure plant DM content.

Corn in Ohio should be first sampled to measure DM at full dent stage (100% milk, no kernel milk-line) for conventional tower or bunker silos. Full dent stage happens about 40 days after silk in Ohio. For sealed (oxygen-limited) tower silos begin sampling when the milk-line is one-fourth down the kernel (75% milk remaining). It is important to begin sampling early as a precaution against variation in dry down.

The milk-line of on these ears is about one-fourth to one-third down the kernel. This stage might be about right for oxygen limited silos but could be too late for conventional tower or bunker silos.

Predicting the harvest date

Once whole-plant % DM is determined, use an average dry down rate of 0.5% unit per day to estimate days until the optimal harvest moisture is reached. For example, if a given field measures 30% DM at the first sampling date, and the target DM is 35% for harvest, then the field must gain an additional 5% units of DM, thus requiring an estimated 10 days (5% units divided by 0.5 unit change per day).

This procedure provides only a rough estimate for the harvest date. Many factors affect dry down rate, such as hybrid, planting date, general health of the crop, landscape position, soil type, and weather conditions. Early planted fields and hot and dry conditions can accelerate dry down rates to 0.8 to 1.0 % unit per day. Fields should be monitored closely and more frequently under those conditions. As mentioned above, corn silage that is slightly too dry is usually worse than corn silage that is slightly too wet. Harvesting a little early is usually better than waiting too long.

Adapt & Change

By David Marrison, Extension Educator
Originally written for The Beacon Newspaper (published August 26)

Hello Coshocton County! A few weeks ago, I ran across an article written by Dr. Les Anderson who is an Extension Beef Specialist for the University of Kentucky. Quite typically Dr. Anderson shares beef management advice but in this particular article, he discussed the ability of farmers to adapt and change. His article sparked my interest. So, if we may, let's talk about change.

As many of you know, I grew up on a dairy farm. If it is one thing you learn about cows is that they don't like change. Most dairy cows are the happiest when there is consistency. They want the same food each day. They prefer to be milked at the same time and even lie in the same stall each and every day. They will follow the same path in the pasture and will get startled when something is in their path that wasn't there the day before.

I, like the cows I grew up with, struggle at times with change. I stated a few months ago that the only certainty which exists right now is uncertainty. The coronavirus has made us change many of our daily habits and routines. If I was a cow, I would be completely flustered by now. But one of the blessings of the pandemic is that it has caused most of us to pause and reflect a bit. In some respect, it has brought us back to simpler times or allowed us to regain our focus on what truly is important.

For me, life since March has taken me back to my childhood. Growing up on a dairy farm meant that social distancing was just our way of life. We didn't go out to eat as there were only 2 fast food restaurants in the entire county. We went to the grocery store maybe twice per month and went shopping for clothes right before school started each year. We stayed home and worked. We were tele-working before it was cool.

We raised our own meat and grew most of our vegetables in a huge family garden. We grew and canned every vegetable you can imagine. We had a yellow transparent apple tree which supplied

enough applesauce for every family for miles around. My parents never had to worry about us being distracted by technology as we had a “party line” phone and our neighbor Marion was always on it. Our one television got only three stations and the highlights of our TV time was watching the daily news, Little House on the Prairie, and 60 Minutes. Our one social event for the week was going to church every Sunday morning.

Farmers have always been good at social distancing; however even the most seasoned introvert might admit they are missing social interaction. I know I am missing the ability to hold in-person meetings and farm visits without restrictions. And many of our great local events like First Farm Friday and the Fall Foliage & Farm Tour are taking a pause this year. And while the Coshocton County Fair will go on, it won’t look the same.

Our methods of interactions have also changed. I was raised to give a firm handshake and now that has changed. Masks, six foot separation, no big crowds, no handshakes, and no hugs have changed us all. Whether we want to admit it or not, some of these changes will be around for a while.

The COVID pandemic has also created issues in agriculture. Instead of our usual market cycles, we saw prices move up and down in ways we could never imagine. Some commodities such as dairy are still recovering from a 40% price drop this past spring.

The coronavirus pandemic has also showed the weakness of our processing sector. A relatively small number of plants process much of the beef, chicken, and pork in the United States. Our recent meat shortage was not due to a lack of livestock but a lack of processing. Now, customers are clamoring for more locally produced meat. Problem is that we don’t have enough small, local meat processors to handle the sharp increases in demand. COVID-19 has showed how fragile a consolidated meat processing sector can be. So how can we make systemic change to encourage more small processors?

There are many other ways that our agriculture industry has had to change and adapt due to coronavirus. The big question is which of the changes and adaptations need to become part of our new normal of conducting business? This pandemic will end (the sooner, the better). However, it would be foolish to think that another situation like the current one will never occur again.

My question to each reader is how will you adapt and change? It is easy to stay in our comfort zone, just like our dairy cows prefer. I would encourage each of you to think about how you will need to continue to change and adapt. COVID-19 is providing a great opportunity for individuals, families and business alike to re-evaluate ourselves. This is a chance to jump off of the hamster wheel of life and to think. Now is the time to evaluate, reinvent, experiment, or double down on a new business strategy. In short, make sure you don’t waste a good pandemic.

In closing, I would like to share a quote from Albert Einstein who stated “in the midst of every crisis, lies great opportunity.” Have a good and safe day.