Extension
UNIVERSITY OF WISCONSIN–MADISON

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EXTENSION CENTRAL NEWS

In this issue

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Managing transition cows on the smaller farm

Written by Lyssa Seefeldt

This article was originally published in the **Wisconsin Agriculturist**

Why is it that dairy farms in my area are averaging under the Wisconsin average of 24,884 pounds of milk per cow? This question got me asking questions to some farmers and agri-service providers. One piece of the puzzle that emerged is that we may need to be paying closer attention to transition cows in our smaller herds. Care of the transition cow is not a new concept, but management strategies for the smaller farm may be overlooked when recommendations are shared.

Research shows that in the management of transition cows, dry matter intakes (DMI) are the key to a successful lactation. Appropriate DMI immediately prior to calving is critical as intake is naturally decreased due to fetal growth and hormone changes in late pregnancy. The goal is to prevent DMI from dropping, as long as possible, since the energy is critical for the health and production of the cow. Working with a nutritionist to define the energy in the diet is essential in this period as increased energy density could negatively affect DMI and/or digestion processes, but adequate energy is necessary to prevent the disruption of metabolic processes. The key lies in keeping the rumen filled with the correct diet that helps transition the rumen microbes to the diet the cow will be eating in lactation.

For smaller herds that might not have the facilities/space to make a transition group in the barn, you might have to get creative in making sure that cows in the transition period get the appropriate diet. For a tie-stall barn, this might mean grouping the handful of transition cows that you have at any given time next to each other to help with feeding the correct diet. You may need to prevent these cows from stealing the "normal" lactation diet being fed to the cow next to them by placing a board in the manger area as a divider between the two different diets. Alternatively, if there doesn't seem to be space in the barn for the transition cows, pasture or dry-lot space with a shelter may provide another management strategy to get the correct diet to these cows.

Research also shows that environmental stressors, including social stress, can affect cow access to bunk space and feed, which can lower DMI. For herds that have a penning system, and pen space to dedicate to transition cows, there are

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Managing transition cows on the smaller farm—*Continued from pg 1*

a couple of grouping strategies to keep in mind with transition cows. One strategy is to group cows within a set anticipated calving date together with no new animals entering the pen until all cows have calved (all-in, all-out). An alternative strategy is to move cows in pairs if you must make changes in pens as it takes about four days for the social order to be stabilized after grouping changes are made.

References available upon request

Soil Fertility in Grazing Systems: Manage Potassium to Manage Nitrogen

Jason Cavadini
Grazing Outreach Specialist
UW Division of Extension

Soil seems to be the hot button topic of nearly every farmer-focused event and agricultural publication these days. While it's ironic that this resource, which predates modern agriculture itself, has become the rising star of modern agriculture, it's appropriate because soil is the foundation of everything we do. Few would argue that the health and long-term productivity of our soil is the most critical factor for the future of agriculture and society. It is that logic that has driven the regenerative agriculture movement, along with the emphasis on the soil health principles:

1. Minimize soil disturbance
2. Keep the soil covered
3. Maintain living roots in the soil
4. Maximize plant diversity
5. Integrate livestock

Soil Health is increasingly being researched, demonstrated, promoted, and embraced across the land. Great gains are being made because of this work, but care should be taken to not overlook other critical components of an agricultural system. One of the critical aspects sometimes taken for granted in grazing systems is soil fertility. It could be easy to master all five soil health principles and the many benefits they offer and make the mistake of thinking that the system will automatically have optimal soil fertility. However, soil fertility must be actively managed, even when soil health best management practices are in place. Pastures provide the perfect opportunity to see the importance of managing soil fertility and soil health together.

Soil Fertility is Not Straightforward in Grazing Systems

Not all pastures are the same, largely because not all grazing is created equal. A well-managed grazing system meets all five soil health principles. Such a system is likely built on a diverse, perennial forage base and can be further characterized by proper residual left behind after grazing (4-6" recommended), long rest periods before re-grazing (30 days or more), and frequent moving of livestock from paddock to paddock. This is not only a highly functional soil health system, but also a high-recycling nutrient environment resulting in a significant amount of fertility being returned to the soil. Approximately 80% of nutrients are returned to the soil in a managed-grazing system. The high rate of nutrient return has huge implications when managing soil fertility for economic optimization. It also means that soil fertility in pastures is not as straightforward as in other cropping systems.

All livestock agriculture removes nutrients from the soil. This often occurs through harvesting feed. In grazing scenarios, this may include feed for winter months.

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The UW-Madison Division of Extension's Ag Institute and the UW-Madison Nutrient and Pest Management Program will be hosting the fourth annual Badger Crop Connect webinar series for the 2023 growing season. The purpose of this series is to provide agronomists, crop consultants, and farmers with timely crop updates for Wisconsin. These free webinars will be offered, on the 2nd and 4th Wednesday of the month at 12:30 PM, with the spring webinars beginning in April. Registration is required. You must register for each webinar separately. For more information and registration links scan the QR code or visit:

https://cropsandsoils.extension.wisc.edu/programs/badger-crop-connect/

Soil Fertility in Grazing Systems—*Continued from page 1*

Nutrient removal also occurs every time a cow is milked, a steer is slaughtered, or an animal is sold at market – meat, milk, and livestock all carry nutrients derived from the soil. A system that includes both grazing and harvesting forages is adding and removing nutrients from the soil at different rates. Balancing nutrients in this system must begin by taking inventory of the total nutrient input and corresponding outputs.

Start With Soil Sampling

A routine soil sample (taken every 3-4 years) will indicate levels of phosphorus (P), potassium (K), acidity (pH), and organic matter (OM) that currently exist in the soil. Managing pH is the first order of business because it influences the availability of all other nutrients. A grass/ legume pasture should have a pH somewhere around 6.3. While P and K are the only nutrients indicated by the routine analysis because they are often the most limiting nutrients, there are 15 other nutrients essential to plant growth. Nitrogen (N) receives the most attention because of its influence on grass yield, but it is not indicated by routine soil tests because it is dynamic and difficult to measure. Like other cropping systems, pasture soil fertility usually comes down to managing N, P, and K (assuming that pH and micronutrients are in balance). Of those, P often ranks third in importance as many grazing systems occur where there's been a history of livestock resulting in high levels of P already in the system. Soil fertility in pastures often comes down to managing for N and K.

Managing Nitrogen

Nitrogen is very mobile and short-lived in the soil. Thus, applications of N fertilizer must be viewed as only benefitting the next harvest or grazing event. The University of Wisconsin guidelines (Extension Publications A2809 and A4034) suggest a seasonal requirement of approximately 130 lbs N/acre for grass pastures, split into two or three applications. However, the average pasture consists of grass mixed with legumes – which have the ability to fix nitrogen. Applications of N are generally not recommended for grass/legume mixes because it causes grass to outcompete legumes, to the detriment of legume persistence. While a low application (40 lbs N/acre) of fertilizer at spring green-up or before late-summer stockpiling can be economical, the best management strategy for N in pastures is to maintain legumes. This is achieved through the combination of good grazing management and other nitrogen building measures, such as interseeding or frost seeding legumes.

Managing Potassium

Potassium, in contrast to N, is not very mobile. It is attached to soil particles, and, if the soil is protected, K is stable. However, K is removed from the soil in large quantities through forage – grazed or harvested. It cannot be emphasized enough that K is critical to legume persistence. The seasonal requirement for a grass/legume pasture is approximately 180 lbs K/acre. A pasture that is only grazed and not harvested, with 80% of nutrients being returned to the soil in the form of manure, plant residue, and biological activity, will still be 40-60 lbs K/acre short of the seasonal requirement. That deficit may vary from season to season but left unaddressed can compound and ultimately lead to K-deficiency. While it may be a slow decline when only grazing is occurring, harvesting hastens the mining process. A modest forage yield of 3 ton/acre (dry matter) will remove approximately 150 lbs K/acre. This is why one season of harvesting can have a drastic effect on the forage composition of a pasture. The first sign of K-deficiency in a pasture is often the departure of legumes. Conversely, the first response from applications of K is often the reappearance of legumes.

Manage Potassium to Manage Nitrogen

As stated, soil fertility in many pastures often comes down to managing nitrogen and potassium. It is important to understand how these two are linked. Even a well-managed grazing system is not likely to maintain sufficient levels of N and K long-term. A helpful rule of thumb is potassium feeds legumes, legumes provide nitrogen, nitrogen feeds grass. Under that logic, here is a good strategy for cost-effectively managing soil fertility in grazing systems:

1. Soil test – every 3-4 years.
2. Nitrogen – manage for legumes.
3. Phosphorus – only fertilize if the soil test indicates below optimum.
4. Potassium – fertilize at removal rate: frequently if making hay, occasionally if grazing only.
5. Legumes – allow to flower once per season, frost seed occasionally, maintain potassium.
6. Consider cost-effective nutrient sources such as applied manure or outwintering on pasture.
7. Forage test – occasionally, a hay analysis can be used to estimate nutrient removal rate.

References

Laboksi, C.A.M., and J.B. Peters. Nutrient Application Guidelines for Field, Vegetable, and Fruit Crops in Wisconsin (A2809).
Laboski, C.A.M., and K.B. Shelley. Soil Fertility Guidelines for Pastures in Wisconsin (A4034).

Single Gene Traits in Dairy Cattle

Matt Lippert,
Wood and Clark Dairy Agent

Early in April, the Council for Dairy Cattle Breeding (CDCB) released one of the three times a year updates to sire summaries. It can be a lot like looking through seed catalogs to find what bulls to select for the future of your herd. The rankings of bulls keep on getting better, and fast! The genetics staff have so many animals to choose from and such outstanding tools such as genomic data that bulls that would have been breed leaders just a few years ago, don't even make the cut to be offered to dairy producers today.

One trait that I have noticed is Beta-Casein, the type of milk that we now see marketed in stores as A2A2. Research has been inconclusive about if A2 milk really helps with digestion of milk; many consumers have had difficulty digesting dairy products. Some people that have lactose intolerance will say that A2 has helped them. A2 milk is not lower in lactose than milk not labeled as A2. However since many people feel they are lactose intolerant without a clinical diagnosis, it could be that the A2 is doing something else for them other than just a placebo effect.

Just a few years back the A1 gene was the most common in Holstein cattle. There was a mix of animals homozygous for A1 (A1A1), heterozygous (A1A2) and a small group of animals that were A2A2. The A2 gene was more common in other breeds.

Today most sires in US AI programs are A2A2. A quick survey of five AI studs websites for Holsteins found over 800 bulls that were A2A2, by far the most common combination of beta-casein traits offered in AI today.

A few take home messages from this. You probably don't need to be concerned about A2 beta-casein, in part because somebody else is already looking out for you. We are not sure that it is really a superior milk protein, but it is clear from the number of bulls now offered that the Holstein breed is quickly moving to be an A2A2 only breed. Some people will promote the superiority of milk from other breeds, because they had a higher level of A2 in the population than Holstein before the interest in A2 milk started. Genetics shift quickly and it is no longer a major advantage in any breed as far as having more A2.

Most traits that we select for such as protein yield of fertility are determined by many (hundreds or thousands) of genes. In addition to A2, polled (hornless) is a trait determined by a single gene. The interest in polled is increasing as the Farmers Assuring Responsible Management Program (FARM) criteria become more particular about dehorning programs. Polled may have a bigger impact on your farm than A2, but it is harder to select for than A2. In most AI programs under 20% of bulls are polled, maybe about 5% are homozygous polled. This is much lower proportion than A2 but the current level is up considerably from in the past, we may soon be over the tipping point in polled as well. Polled is a dominant trait, so achieving a high level of polled cattle happens quickly once mass selection for it is begun, but polled does not breed as true a red hair color which is a single gene recessive trait. A few other genes affect red hair color but it is mainly due to one gene.

Other single gene traits to select for? You can select for other milk quality traits such as Kappa casein, said to be associated with the cheese yield of the milk or the slick gene, which we have introduced to Holsteins from tropical adapted breeds. Slick cattle have shorter hair and are more heat tolerant than cattle without the gene.

More traits continue to be developed for dairy cattle selection. Canadian Holsteins now have measures for methane efficiency, feed efficiency and body maintenance requirements. Selection for cows that are more efficient feed converters is a highly heritable trait that we are just now beginning to select for.

Plans Coming Together for 2023 Farm Technology Days

Wisconsin Ag Connection - 11/03/2022

For the first time in its six-decade history, Wisconsin's largest outdoor farm show will not be hosted by a local county committee. But coordinators of Wisconsin Farm Technology Days say plans are coming together nicely for the event, which is slated to be held at the Badger Steam and Gas Engine Club grounds between Wisconsin Dells and Baraboo this summer.

General Manager Arnie Jennerman says exhibitor sign-up is ahead of pace compared to other years, with over 150 vendors and organizations already committed to the exposition.

"The plan is really far along to have a fun, interesting, educational, and diverse show that highlights the wide range of agriculture and industry in Sauk County," Jennerman said. "There will be something for everyone, and we're excited to showcase Sauk County industry and agriculture as well as the latest in ag technology."

Among the highlights will be six tours of different local farms and companies, as well as a wide variety of things to eat from area food trucks that will be on the grounds to offer their specialties. Some of the other traditional features will be back next year, such as Innovation Square, Ag Youth Adventure Area, and a full equine exhibit.

Meanwhile, there will still be a need for volunteers to make the show happen. As in the past, non-profit organizations can earn money for their causes by volunteering with a group before and during the show to take care of parking, admissions and serving food and beverages.

The dates for this year's Wisconsin Farm Technology Days will be July 18-20.

COW-CALF WORKSHOP

Extension
UNIVERSITY OF WISCONSIN–MADISON

SATURDAY, APRIL 29, 2023 9:45 - 12:30 PM

Location:

HOLLOW POINT ANGUS
MEETING BEGINS AT -
BABE'S COUNTRY CLUB
W7989 WELLS RD
MAUSTON, WI 53948
(9 MILES SOUTH OF MAUSTON ON HWY G TO WELLS RD)

RSVP Required by 4/24:

CALL THE TAYLOR COUNTY EXTENSION OFFICE AT 715-748-3327 EXT. 3
RSVP BY APRIL 24
PROVIDE YOUR NAME, NUMBER ATTENDING, AND PHONE NUMBER.

Topics Include:

BIOSECURITY BASICS - WORKING FACILITY CONSIDERATIONS
THE SELF-ASSESSMENT GUIDE - HERD HEALTH - PRECONDITIONING

Speakers:

University of Wisconsin-Madison Division of Extension Educators:

BILL HALFMAN
BEEF OUTREACH SPECIALIST
SANDRA STUTTGEN, DVM
TAYLOR COUNTY
AMANDA CAUFFMAN
GRANT/GREEN/LAFAYETTE/IOWA COUNTIES
CAROLYN IHDE
CRAWFORD/RICHLAND COUNTIES

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Lunch is available for purchase immediately following the program.

Beef x Dairy Crossbreeding and Calf Management Practices on Wisconsin Dairy Farms

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Winter 2023

Ryan Sterry | Regional Extension Dairy Educator |Barron, Pierce, Polk, & St. Croix Counties
Bill Halfman | Extension Beef Outreach Specialist | UW Madison Division of Extension
Erin Borchert |Intern |UW Madison Department of Animal and Dairy Sciences
Matt Akins |Scientist | USDA-ARS Dairy Forage Research Center

This project was supported by Agriculture and Food Research Initiative Competitive Grant no. 2021-68008-34110 from the USDA National Institute of Food and Agriculture.

Contributing Extension Educators: Aerica Bjurstrom, Amanda Cauffman, Carolyn Ihde, Tina Kohlman, Matt Lippert, Dan Marzu, Heather Schlesser, and Sandy Stuttgen

Here is a link to the full article: This is the link to the dairy program page: https://livestock.extension.wisc.edu/articles/beef-genetics-on-dairy-females-and-examining-the-care-of-newborn-calves-results-from-a-2021-survey/

Artificial Insemination Course:

This will be a hybrid course with both online sessions and in person sessions. Attending all sessions is required to complete this course.

Evening classroom sessions will occur via Zoom on April 18th and 19th from 7 - 9 pm.

In-person sessions will occur on April 27th 6 from 4 - 6:30 pm and on April 28th from 9am to noon. If needed, attendees are responsible for their overnight accommodations in the Dorchester area (not included in the registration fee for this program.)

Fee: $95.00 per person

Location for April 27 and April 28 in-person session:
Bach Farms
W861 Co Rd A
Dorchester, WI 54425
Register at: https://go.wisc.edu/ai

SUMMER FIELD DAYS

July 13
Hancock Potato Research Field Day

August 30
Arlington Research Field Day

Visit ars.wisc.edu for registration and more information

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farmwisconsin.com
7001 Gass Lake Rd.
Manitowoc, WI 54228

Open 7 Days a week
9am - 5pm

Vegetable Disease & Insect Forecasting Network Helps Growers Stay On Top of Pest Management

Natasha Paris
Regional Crops Educator
Green Lake, Marquette, Adams & Waushara Counties—UW-Madison Division of Extension

When growing vegetables there are many factors to keep track of. Each crop has a whole suite of different nutrient needs, life cycles, and pests. One can feel confident that things are going well and the next day find that a crop is facing serious threats, seemingly out of nowhere.

The vegetable pest management team at UW-Madison Division of Extension understands the challenges that this presents. That's why they have developed a tool called the Vegetable Disease & Insect Forecasting Network(VDIFN) to help growers address these issues. This tool is available at https://agweather.cals.wisc.edu/vdifn

While it may seem like these pests sneak up on us, there are actually well-documented patterns related to when each pest appears. For insects, this is done using degree day modeling. Degree days are the number of degrees above a specific baseline that the day's average temperature was in a given location. These units add up and there are thresholds for certain stages of insect development that have been designated based on research.

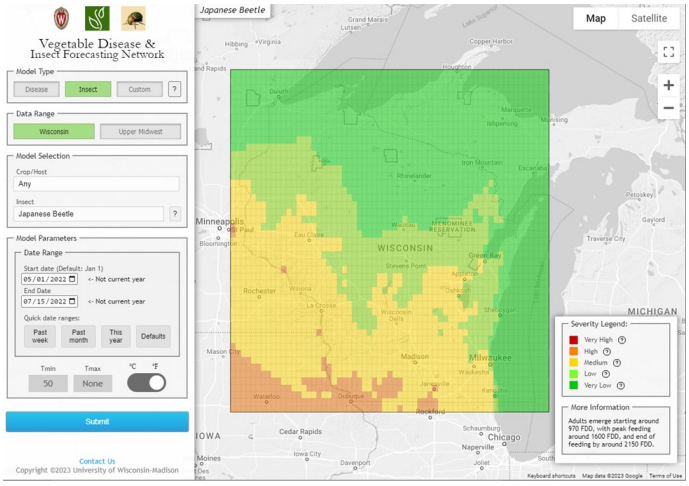
For example, the baseline temperature for Japanese Beetle is 50° Fahrenheit. So on a day where the high temperature was 80°F and the low was 54°F, the average is 67(80 + 54 = 134 /2 = 67). Then the baseline is subtracted from the average to get the degree days, in this case 17(67-50=17). These degree day units start adding up in the spring as soon as the average temperature is above the baseline. In the case of Japanese Beetle, adults start emerging to feed once 970 degree days have accumulated and stop posing a threat to crops around 2150 degree days.

This information is useful, but calculating the degree days each day and keeping track of them for every pest can be tedious and even overwhelming. This is where the VDIFN comes in. The degree day models of known vegetable pests in Wisconsin and the Upper Midwest have been loaded into an interactive tool that is connected to real-time weather data from NOAA. The user selects the crop they are growing, then the pest they would like to see the risk prediction for. Finally the user selects the date range they would like the degree days calculated for, which is usually the beginning of the growing season to the date they are using the model. After clicking submit, the tool generates a map showing areas of very low to very high risk severity. Clicking on a specific location will show the amount of degree days accumulated in total and over each day in the range with the high and low temperatures for each day.

Modeling for disease is a little more complex than for insects as the combination of heat and humidity is what creates a positive environment for disease. Thus choosing a disease will give you a map based on Disease Severity Values(DSV) derived from the combination of the average temperature and the number of hours in each day that had a high relative humidity. Each day is given a DSV rating from 0-4 and they are cumulative similar to degree days.

Once a degree day number or DSV has been determined for the area selected, it is important to know what the values or colors mean in terms of management. The "?" icon next to the insect or disease name will show information about the pest and provide a link to UW's page about the management of that organism. If VDIFN and the information pages are indicating that a treatment would be beneficial at that time, then referencing A3422 – Commercial Vegetable Production in Wisconsin is in order to look at what the treatment options are.

The VDIFN is a powerful tool, but it is no excuse for scouting. Just because the weather conditions are right for a pest doesn't necessarily mean they are present, so assessing the crop before treatment is still an absolutely necessary step. The VDIFN can help narrow down the window of what to look for and what to expect on the horizon. For more information about managing Disease & Insects in your crops, contact your Regional Crops Educator.



Caption: In this image, the number of degree days above 50° based on the daily average has been calculated for Wisconsin from May 1, 2022, to July 15, 2022 in order to assess the risk from Japanese Beetle. The model shows that Northern Wisconsin was not yet at risk for Japanese Beetle but the Southwest corner of the state was at a high risk for Japanese Beetle feeding and thus crops in that region should be more heavily monitored and an insecticide applied if scouting thresholds are met.

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EXTENSION CENTRAL NEWS

A cooperative effort of multiple Central Wisconsin Counties and Wisconsin Extension.

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To be the primary source of research based agricultural information and education for the agricultural community in Central Wisconsin.