Extension
UNIVERSITY OF WISCONSIN-MADISON

Spring 2021

EXTENSION CENTRAL NEWS

In this issue

CONTACT US

Extension Central News
UW-Madison Division of Extension

• • • ADAMS COUNTY • • •
Evan Henthorne—608-339-4237
evan.henthorne@wisc.edu

• • • CLARK COUNTY • • •
Richard Halopka—715-743-5121
richard.halopka@wisc.edu

• • • CLARK & WOOD COUNTIES • • •
Matt Lippert—715-421-8440
matthew.lippert@wisc.edu

• • • GREEN LAKE COUNTY • • •
Ben Jenkins—920-294-4032
ben.jenkins@wisc.edu

• • • JUNEAU & SAUK COUNTIES • • •
Alana Voss—608-847-9329
alana.voss@wisc.edu

• • • LINCOLN & LANGLADE COUNTIES • • •
Dan Marzu—715-539-1078
dan.marzu@wisc.edu

• • • MARATHON COUNTY • • •
Heather Schlesser—715-261-1239
heather.schesser@wisc.edu

• • • MARQUETTE COUNTY • • •
Vacant—608-297-3141

• • • PORTAGE COUNTY • • •
Ken Schroeder—715-346-1316
ken.schroeder@wisc.edu

• • • TAYLOR COUNTY • • •
Sandy Stuttgen—715-748-3327
sandra.stuttgen@wisc.edu

• • • WAUSHARA COUNTY • • •
Vacant—920-787-0416

Pinkeye Vaccination Programs

By Sandy Stuttgen, DVM
Taylor County

Moraxella bovis is the bacteria responsible for summer pinkeye. Research has identified a non-summer pinkeye that is associated with carrier animals and its lesions do not need physical trauma or summer flies and UV light to precipitate them. Isolated from bovine eyes, the causative bacteria, *Moraxella bovoculi,* may be isolated from nasal and vaginal tissues of cattle. Laboratory submissions from active pinkeye infections often find mixed infections from both *M.bovis* and *M. bovoculi*.

Photo source: https://images.unsplash.com/

Five pharmaceutical companies currently produce commercial pinkeye vaccines for *M. bovis*; three have conditionally licensed commercial vaccines for *M. bovoculi*. Studies have shown that vaccination with *M. bovis* does not protect against *M. bovoculi*, and vaccination with *M. bovoculi* does not protect against *M. bovis*. A prevention program that includes vaccines that target both *M. bovis* and *M. bovoculi* involves vaccinating with each product separately on the same day.

Work with your veterinarian to determine the agent causing pinkeye in your herd and to determine the prevalence of carrier animals. Autogenous vaccines may also be made from the bacteria causing the problem in your herd.

Other agents, including Infectious Bovine Rhinotracheitis (IBR) virus and *Mycoplasma* bacteria may cause eye lesions that look like pinkeye. Especially in calves, IBR eye lesions occur when respiratory vaccination programs are not performing correctly. The Wisconsin Veterinary Diagnostic Laboratory uses a PCR test from an eye swab to identify IBR, *Mycoplasma bovoculi, Moraxella bovis and Moraxella bovoculi.*

Annual vaccinations are required. Immunity from vaccination takes time to develop, and labels recommended that vaccinations be completed three to six weeks prior to 'pinkeye season.' When talking about summer pinkeye that means during peak face fly season. Read the label of the products being

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Pinkeye Vaccination Programs—*Continued from front page*

considered, several require two doses three weeks apart. Experience and testimonials indicate optimal protection is provided six weeks after the final dose. Protecting against summer pinkeye in Wisconsin means vaccinating for it in April-May.

Photo courtesy of Michael Baker, Beef Cattle Extension Specialist Cornell University

Consult your veterinarian to select the product that fits into your herd's overall vaccine program. *Moraxella* bacteria release endotoxins, so the vaccines made from them have associated risks that range from localized reactions to full anaphylaxis.

The New Way to Grow

Submitted by Ben Jenkins
Green Lake County, Agriculture Educator

I would like to take you on a mental stroll down a line of logic. I will bet you remember a particular lesson about plants from your elementary school days. If your teachers were like mine, they wanted you to be very much aware that plants breath in carbon dioxide (CO2) and give off oxygen (O2). The bottom line being we need to plant trees and other plants to have clean air.

Now, let us take this a level further to your high school chemistry class. In your high school chem class you no doubt learned about the theory of matter. That all things can be disassembled until they are at their most basic level and can be disassembled no further. Meaning you can take a living thing like a big tree and dissect it past even its cellular level to just that of a singular element such as carbon. You also learned that in a chemical reaction matter is not gained nor lost it simply changes form.

As we build upon our understanding do you see a problem with your elementary school lesson? Where did the carbon (C) from the carbon dioxide (CO2) go? Knowing what we know about matter it had to go somewhere. Congratulations you have now entered the realm of organic chemistry. Here you will learn that all living things are organic and that organic is defined as carbon-carbon, and carbon-hydrogen bonds. So, it stands to reason that the carbon from the CO2 ended up becoming part of the plant's structure and the left-over oxygen (O2) from the chemical reaction in the plant was simply emitted. This is how plants grow.

Much focus has been given to the buildup of carbon in our atmosphere over the course of that last several decades. Isn't it interesting that while we were obtaining this basic knowledge in our school course work, we might not have made the connection that plants are in fact carbon sponges?

So now we all know why we should plant more trees and other plants. Let us go a little further with that. When plants die, they start the process of decomposition. This happens because fungus and tiny microorganisms in the soil are feeding on the dead plant material. In farming we call this dead plant material, organic matter. Organic matter is simply matter composed of carbon. The smart farmer or gardener works hard to preserve their organic matter because it is exceedingly valuable to the growth of future crops. Organic matter gives soil the ability to hold water, helpful in times of drought. Organic matter helps to hold onto nutrients that the growing crop needs, sort of a time release mechanism. It will help loosen hard clay soils and help firm delicate sandy soils.

In the effort to conserve your organic matter in you have two challenges. The first being oxygen the second being nitrogen. If you are planting corn you are dealing with both simultaneously. So, the question really becomes once the carbon has been taken out of the atmosphere and sequestered it in the soil, how do we keep it in the soil while still maintaining the ability to feed a growing global population?

This is not an easy thing to do by any means, but with today's knowledge and technology we can accomplish this goal. Some of you already know where I am going with this and have already embraced the new way of growing. For others it will require baby steps.

Step one: reduce or remove tillage from your current practices. Every time you stir the soil with tillage you allow your organic matter to be exposed to oxygen. Really what you are doing is exposing your decomposers to oxygen giving them a breath of fresh air which boosts feeding on your organic matter thereby speeding up the decomposition process.

Step 2: Keep the soil covered. After you have harvested your crop plant a cover crop. There are a range of cover crops that will quickly establish and give rapid growth. You might have to change your harvest dates to accomplish this. You might need to grow a 95 day corn instead of a 104 day corn. Yes, nine days can make all the difference in having a soil warm enough to germinate winter rye. The benefits of cover crops include carbon sequestration (soil building), reducing or eliminating erosion, scavenging excess nutrients, loosening tight soils, firming delicate soil, fixing nitrogen, and weed suppression. In essence cover crops help to build organic matter faster in a soil than relying on the residue from last year's crop alone.

Step 3: Reduce nitrogen application. The microorganisms that break down organic matter love nitrogen. Just as much as they love oxygen and in as much the same way as they love oxygen. More nitrogen means more eating. This is admittedly tricky as our staple crop corn is a heavy nitrogen user. The trick can be getting the timing of the

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The New Way to Grow—*Continued from page 2*

application right as well as the amount applied so that you do not have excess N sitting in the root zone keeping your decomposers in hyperdrive. Or worse yet leaching below the root zone where it enters the ground water supply. This means you use just the right amount for the crop but no more.

Step 4: Add livestock: Either graze the cover crop in the fall or spread manure to feed a living cover. Grazing will stimulate more root growth. Roots are a key part of getting more carbon into the soil. Manure will promote more biology going into the future. Remember healthy cover healthy crop!

If your still with me then you have just strolled through a world called Regenerative Agriculture. This "new" world uses the accumulated scientific knowledge of living things and puts it all together in a system that works with nature to produce food for a global population while reducing our carbon footprint. If you are interested in learning more about the science behind these systems, I am always available to talk to you at 920-294-4037 or write me at ben.jenkins@wisc.edu.

Badger Crop Connect is returning for the 2021 growing season!

The University of Wisconsin-Madison Division of Extension's Badger Crop Connect will be starting its 2nd annual webinar series for the 2021 growing season. The purpose of this series is to provide agronomists, crop consultants and farmers timely crop updates for Wisconsin. These free webinars will be offered, on the 2nd and 4th Wednesday of the month at 12:30 PM, from March through September 2021. Registration is required. The series will be split into three sets of webinars: spring, summer, and fall.

April 14	Spring Planting Field Conditions, Francisco Arriaga Planter Set-up, Brian Luck
April 28	Wheat Fungicides, Damon Smith TBD
May 12	Corn Update, Joe Lauer Insect Update, Bryan Jensen
May 26	Soybean Update, Shawn Conley TBD

The registration link for the above sessions is at go.wisc.edu/bccspring2021

Session resources and information on upcoming webinars can be found at: https://fyi.extension.wisc.edu/grain/badger-crop-connection/

This program is sponsored by University of Wisconsin-Madison Division of Extension with special support from the following Extension Educators: Mike Ballweg, Sheboygan County, Dan Marzu Lincoln and Langlade Counties, Steve Okonek, Trempealeau County, Alana Voss, Juneau and Sauk Counties, Josh Kamps Lafayette County, Jerry Clark Chippewa County and Kimberly Schmidt Shawano County.

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Controlling Flies on Dairy Cattle

Submitted by Heather Schlesser
Marathon County, Extension Dairy Agent

With warm weather right around the corner, it is essential to start thinking about fly control. While 100% elimination of flies is impossible, it is possible to control and reduce their numbers. The two principal fly pests we see on dairies are house and stable flies.

House flies are nonbiting insects that breed in animal droppings, manure piles, decaying silage, spilled feed, bedding, and other organic matter. While house flies are only a minor annoyance to animals, they have considerable potential to transmit disease and parasites to humans. The female housefly lives 10 – 21 days and can produce 150 to 200 eggs per batch. The Female housefly lays batches of eggs in 3-4 day intervals.

Stable flies are about the same size as house flies, except the adult has a piercing mouthpart that protrudes from under its head. Stable flies attack the legs, sides, back and belly of cattle. Stable flies breed in wet straw, straw bedding, spilled feeds, silage, grass clippings, and various other types of decaying vegetation. Female stable flies live 20 -30 days and lay 200 to 400 eggs. Cattle are most irritated by these pests during the warm summer months. Both male and female stable flies feed on blood several times each day. While these flies have less potential to transmit disease they do cause issues with cattle performance. Production performance declines due to the animals' fatigue from efforts to dislodge the flies.

Fly control options:

Removing material used for fly breeding and egg deposition at least once a week will help to decrease the number of new flies. The fly's life cycle requires immature flies to live in this material for 10 to 21 days. Removing the breeding materials and land spreading will help to break the life cycle of the fly. Therefore, weekly removal and spreading of potential breeding material in a thin layer (less than 3 cm) is encouraged to keep fly numbers low.

Natural enemies of flies can also be used to reduce fly populations. Many bird species, including bluebirds, purple martins, and tree or barn swallows, feed on flies. To attract purple martins to your property, you can hang groups of gourds for housing. Bluebirds prefer wooded areas, so if your farm is near a pasture and wooded areas, hang bluebird nesting boxes 100 yards apart at the edge of the fields. Barn swallows can be encouraged to nest by leaving a door or window open for them to gain access. Having a readily available supply of mud for them to build their nest will also help attract them.

Parasitic wasp larvae have been shown to attack house fly larvae but not stable fly larvae. You can purchase larvae from biological supply houses to help increase the numbers present on your property. The adults do not sting cattle or humans. Parasitic wasps occur naturally in areas with flies; however, their numbers typically lag behind the flies. Parasitic wasps are more susceptible to insecticides, so sprays that kill flies kill larger numbers of parasitic wasps. Other natural preditors such as beetles and predatory mites can help to keep fly numbers down by eating the fly eggs and larvae.

Larvicides are chemicals that provide control against developing larvae. Some larvicides are sprayed directly into the infested breeding, others are administered as a feed additive or bolus. However, many of the larvicides on the market are developed specifically for filth flies such as house flies. Therefore, larvicides are not effective on stable flies. The active ingredient in the larvicide only targets the developing fly larvae and has little to no effect on other insects or mammals.

Traps can be used to control house flies. Options are limited for stable flies and the Olson biting fly trap is one of the only effective ways to collect stable flies. Sticky traps, light traps, and sugar and pheromone-based insecticidal baits are effective ways of controlling house flies. It is important to change/ clean the traps so they remain effective.

Residual sprays to control adult house and stable flies are less effective. For these chemicals to work the fly must come in contact with them and this is hard to accomplish on a continual basis.

Effective control of flies requires a combination of control options. Reducing production losses from fly irritation results in a better bottom line for your farm. Pre-planning your fly control methods will improve your successful management of them.

References:
https://livestockvetento.tamu.edu/insectspests/house-fly/
https://livestockvetento.tamu.edu/insectspests/stable-fly/

Reviewed by: Sandra Stuttgen – Extension Taylor County

When to Harvest First Cutting of Forages

Submitted by Richard Halopka, CCA
Clark County, Crops & Soils
Senior Outreach Specialist

How can I determine when to harvest the first cutting of forages in Wisconsin? Many want to go by a calendar

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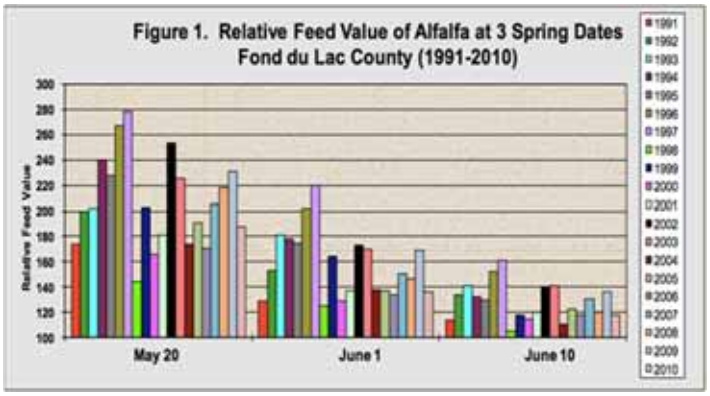
date, however if you look at 10 years of data from my former colleague Mike Rankin (table 1) that date could be prior to May 20th to after June 1st depending on weather conditions that spring and the type of forage in the field.

Table 1: Rankin 2010



First, the livestock we are feeding will determine forage quality we need to harvest. If a dairy farm needs 170 relative feed value (RFV) coming out of storage, then harvesting standing forage will begin at 190 RFV.

Second, what type of forage do you have in the field? A grass stand will start growing sooner in spring and will begin to mature based on day length not growing degree days, which will drive maturity of alfalfa if there is a mixed stand. A clover stand can be another consideration.

We need to build a better mousetrap to determine when to harvest forages. Two methods:

Scissor clipping: This method works best for grass and alfalfa mixed stands (legume & grass). The key for scissor clipping is to clip the sample about the same height, as you would harvest with your mower to be accurate, collect the sample in a plastic bag remove oxygen, and take it directly to the lab. A cost will be involved to pay for the lab analysis.

Predictive Equations for Alfalfa Quality (PEAQ): OK, this will only work if alfalfa is present in a stand. As a farmer, you could purchase a PEAQ stick from your local forage association council or contact Midwest Forage Association. Understand a PEAQ stick will only determine RFV of alfalfa. The ease of it is once you purchase the PEAQ stick you will have no cost.

PEAQ stick measurements are as accurate as scissor clipping results, remember we are determining RFV, not relative feed quality (RFQ), which is a different calculation used to determine feed quality, but RFV is accurate to determine when to harvest first cutting alfalfa.

A PEAQ stick has four sides (see Chart 1) one is a measuring stick the other three identify alfalfa stage of growth. As alfalfa matures you need to turn the stick to correct side and the height of the plant will provide RFV of the standing forage. As mentioned you will need to begin harvest about 20 points above your desired forage RFV. If you have a mixed stand of alfalfa/grass/clover measure the alfalfa determine the stage of growth and current RFV estimate of the alfalfa, if the grass has a seed head beginning to move upward in the grass sheath you may want to cut sooner than later.

Now another method to keep you informed of forage quality changes during the spring is to visit this site: https://fyi.extension.wisc.edu/scissorsclip/. A number of Extension agriculture educators are collecting data and posting it on this site each week during the spring season. In addition, many will have reports on local radio or web sites with forage changes each week. Contact your local county Agriculture Extension educator for more information.

To summarize, using a calendar date to cut first crop forage may not be the best method, as there is no correlation between calendar date and RFV of forages. Scissor clipping is a very good method, but will involve more work and some cost each time you would check a sample, but may be the best method for grass or mixed forage stands. The PEAQ stick will provide a low cost investment alternative to determine harvest timing for alfalfa and you could follow the UW-Extension site for the changes of forage quality each spring. First cutting of forage will supply about 50% of your forage needs for the year and you know that in the dairy business you need quality forage.

If you have questions on PEAQ or scissor clipping please contact your county Extension Agriculture Educator or myself richard.halopka@wisc.edu.

Chart 1, PEAQ stick

Height of Tallest Stem (from soil surface to stem tip)	Stage of Most Mature Stem		
	LATE VEGETATIVE	BUD STAGE	FLOWER STAGE
	Vegetative (>12") No buds visible	1 or more nodes with visible buds. No flowers visible	1 or more nodes with open flower(s)
-inches-	Relative Feed Value		
16	237	225	210
17	230	218	204
18	224	212	198
19	217	207	193
20	211	201	188
21	205	196	183
22	200	190	178
23	195	185	174
24	190	181	170
25	185	176	166
26	180	172	162
27	175	168	158
28	171	164	154
29	167	160	151
30	163	156	147
31	159	152	144
32	155	149	140
33	152	145	137
34	148	142	134
35	145	139	131
36	142	136	128
37	138	133	126
38	135	130	123
39	132	127	121
40	129	124	118
41	127	122	115
42	124	119	113

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We are committed to programming policies that provide for the safety of our participants against COVID. Based upon current scientific and medical guidance, Extension sponsored workshops, trainings and meetings follow University and Division of Extension guidelines regarding room and outdoor occupancy, participant number and distancing, and event duration.

The recent Wisconsin Supreme Court decision invalidating the Governor's Executive Order on face coverings did not impact the university's face covering requirements. The university has independent statutory authority to determine the appropriate health and safety measures on university lands and for university sponsored events and activities. The university required face coverings before the Governor's executive order and based on current scientific and medical guidance, will continue to require face coverings at this time to help prevent further spread of COVID-19.

2021 County Farm Safety Grants Available

The University of Wisconsin Center for Agricultural Safety and Health announced the availability of $15,000 to award grants for farm safety and education, training, or informational programs. Grants will be awarded for amounts up to $500 per county with groups securing or providing equal matching funds.

As we move into another growing season, we're aware that farming continues to be the nation's "most dangerous" occupation as measured by the number of deaths per 100,000 workers ," said Cheryl Skjolaas, UW-Madison Division of Extension agricultural safety and health specialist. "Programs receiving county farm safety grants provide a focus on the farm safety and health issues for youth and adults. These community-based efforts target local needs and interests and work towards reducing the number of farm-related fatalities."

The grants help counties sponsor programs focusing on farm safety and health prevention efforts. Priority will continue to be use with Wisconsin Safe Operation of Tractor and Machinery Certification Programs.

"Every year there is a new generation of youth ready to start working on their family farm or to be employed on a local farm," Skjolaas said. "The Wisconsin Safe Operation of Tractor and Machinery Certification provides these youth with a basic safety awareness on tractor and machinery operation, so the programs remain a priority."

Funds may also be used for programs such as:

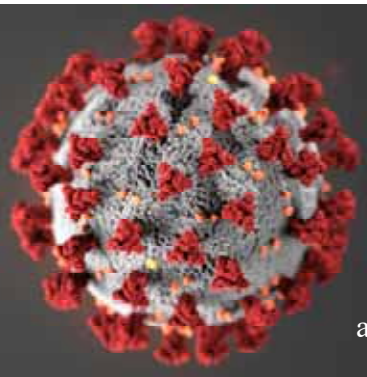
- occupational safety and health training for employees or farm family members;
- hazard inspections trainings for farm operators and employees;
- emergency personnel training for farm accident rescue;
- farm safety day camps or school programs for youth; and
- public policy forum on agricultural safety and health.

The programs are to be developed in consultation with county extension personnel, agricultural education instructors, public health personnel, or other person with expertise or interest in farm safety topics

Proposals are due by April 30, 2021. Application guidelines are available at https://fyi.extension.wisc.edu/agsafety/county-grants/. The grants will be awarded in May 2021; activities are to be completed by December 31, 2021.

For further information visit Extension's Agricultural Safety and Health website at https://fyi.extension.wisc.edu/agsafety/

COVID-19 Guidance for Farm Employers



Trisha Wagner

Extension Farm Management Outreach Program Manager

Farms have unique challenges with the rapidly spreading COVID-19. Make sure your employees understand that your primary concern is their health and the health of their families, and measures are in place to ensure long and productive careers at your farm.

Organize your communication to keep employees informed on local developments, staffing shortages, shipments and deliveries. Provide information at set times and (or) a central location to ease anxiety and ensure employee questions are answered. Keep your message simple and inform employees of what is happening, what the farm is doing and what employees need to do. **Take these steps now to minimize the impact COVID-19 has on your farm and minimize risk to family and friends.**

- **Require that *sick* employees to stay home, emphasize respiratory etiquette, and hand hygiene by all employees and provide special attention to workers at high risk (older workers and underlying health conditions):**
  - Farm workers who arrive at work feeling ill or become sick while at work should be isolated from other employees and sent home immediately.
  - Place posters that encourage staying home when sick, cough and sneeze etiquette, and hand hygiene at entrances and within your workplace where they are likely to be seen.

- **Perform routine cleaning:**
  - Routinely clean all frequently touched surfaces in the workplace, and visit the detailed cleaning and sanitizing recommendations.
  - Take extra sanitation precautions in employee breakrooms, rest rooms, and other areas where your team meets. Wipe down surfaces like countertops, light switches, food preparation areas, commonly used equipment, time clocks, tool handles, steering wheels, and doorknobs.
  - Encourage employees to wash their hands with soap and warm water for at least 20 seconds and provide *hand sanitizer* that contains a minimum of 60% alcohol.

- **Provide accurate information and instructions from trusted sources:**
  - Wisconsin-specific information about COVID-19 including fact sheets in English, Chinese, Spanish, Hmong (WI Department Health Services)
  - Employees who are well but who have a sick family member at home with COVID-19 should notify their supervisor and refer to CDC guidance for how to conduct a risk assessment of their health.
  - If an employee is confirmed to have COVID-19, employers should inform fellow employees of their possible exposure to COVID-19 in the workplace but maintain health record confidentiality and refer to CDC guidance for how to conduct a risk assessment of their health.
  - Information on medical attention and health insurance including telemedicine (a doctor's visit on a computer, smart phone or tablet) fact sheets in English and Spanish (UW-Madison)

- COVID19 is caused by a *novel* coronavirus (unique to other coronavirus) and there is no approved vaccine for COVID-19. This pandemic disease has caused a global crisis. Discourage all travel at this time and encourage "social distancing" as the best way to show concern for family and friends here or in a different country.

Extension
UNIVERSITY OF WISCONSIN-MADISON
ADAMS COUNTY

Adams County
569 North Cedar St Ste #3
Adams WI 53910

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EXTENSION CENTRAL NEWS

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

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Our Mission

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