UNIVERSITY OF WISCONSIN - EXTENSION

Central Wisconsin Agricultural Extension Report

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CONTACT INFORMATION FOR 7-COUNTY TEAM MEMBERS

Adams County: Vacant
Agronomy & Nutrient Management
569 N. Cedar, Suite 3
Adams, WI 53910
(608) 339-4237
lynn.dolata@ces.uwex.edu

Portage County: Ken Schroeder
Vegetable Production
1462 Strongs Avenue
Stevens Point, WI 54481
(715) 346-1316
ken.schroeder@ces.uwex.edu

Juneau County: Alana Voss
Dairy & Forage Management
211 Hickory St.
Mauston, WI 53948-1386
(608) 847-9329
alana.voss@ces.uwex.edu

Wood County: Matt Lippert
Dairy & Cranberry Production
Courthouse, 400 Market St.
PO Box 8095
Wisconsin Rapids, WI 54495-8095
(715) 421-8440
matthew.lippert@ces.uwex.edu

Waushara County: Vacant
Farm Business Management
Courthouse, 209 S. St. Marie, PO Box 487
Wautoma, WI 54982-0487
(920) 787-0416
rosie.kowalewski@ces.uwex.edu

Green Lake County: Vacant
Agronomy, Commercial Horticulture & Marketing
571 County Road A, PO Box 3188
Green Lake, WI 54941-3188
(920) 294-4032
kathleen.ninneman@ces.uwex.edu

Marquette County: Lyssa Seefeldt
Livestock Production & Emerging Markets
480 Underwood Avenue, PO Box 338
Montello, WI 53949
(608) 297-3141
lyssa.seefeldt@ces.uwex.edu

Wood County to Host Wisconsin Farm Technology Days

Matt Lippert—Agriculture Agent, Wood County

The 2018 Wisconsin Farm Technology Days will be held in Marshfield, Wisconsin on July 10-12. Wisconsin Farm Technology Days is the largest agricultural show in Wisconsin and one of the largest in the nation. The three-day outdoor event showcases the latest improvements in production agriculture, including many practical applications of recent research findings and technological developments.

This year, WI Farm Tech Days will take place at D&B Sternweis Farm and Heiman Holsteins. The show is co-hosted by the Heiman family and the Sternweis family. These families have been farming in the town of Lincoln at the edge of Marshfield, each with a farming history of over one hundred years. There is also a long history of dairy processing including cheese manufacturing at Nasonville Dairy and retail milk sales at Weber's Farm Store.

This is the 65th WI Farm Technology Days or as it was previously known as Farm Progress Days. Wood County last hosted this event in 1960. It has formerly been held nearby in Greenwood, Marshfield (Marathon Co.), Stratford and Plover. It is a must-see event with 40,000 attendees expected and 800 exhibitors, including many special displays for youth, family, crafts, conservation and UW-Extension. There are dairy facility tours and field demonstrations. This year, forage harvest will be featured. Heritage farm equipment will be a large highlight, as this year's event will also be the host to the National Oliver Tractor Show.

Wood County is very proud to highlight local agriculture at this year's Farm Tech Days. Dairy farming and milk processing will be featured throughout the show. Wood County is also the largest cranberry-producing county in the nation, which will be a main focus in the Innovation Square area with a real, miniature cranberry marsh. The 2018 show will also emphasize Wood County's long-established relationship between agriculture and healthcare. Marshfield Clinic is home to the largest group of dedicated agricultural health and safety experts in the country, and they will be sharing their knowledge through demonstrations of tractor rollovers and rescue, PTO entanglement, grain bin rescue, safe play areas, and youth work guidelines.

Wood County Farm Tech Days is also looking for volunteers! Getting involved with Farm Tech Days is a great way to get involved in a community-wide effort, while meeting new friends and supporting our area's largest industry – Agriculture!

For more information or to volunteer, please visit www.wifarmtechnologydays.com/wood . Also stay up-to-date with the latest announcements by following our Facebook page at facebook.com/FTD2018/.

Throttle Back on Stress

Dr. John Shutske, Agricultural Safety & Health Specialist
University of Wisconsin-Madison and UW-Extension

When I was a little boy, I was intrigued by trucks, tractors, and machines like any farm kid. I understood what the "gas pedal" was in my Mom's car and my Dad's pickup. But, it took me a while to understand exactly what the "throttle" did on the steering column our John Deere 4020 and that it controlled fuel flow. Understanding stress is similar—and for our health and the well-being of our loved ones and relationships, learning where to find the levers to "throttle down" the chemicals that fuel high levels of stress is crucial.

All people feel short-term stress when something frightening happens—a fire in a shed; opening a letter that tells you about an increase in your operating loan interest rate; or, you learn of unexpected medical news. When we encounter acute events or "stressors" like these, the information we channel through one or more of our five senses triggers a chain of responses that start in the brain. Your brain tells your pituitary gland to release small amounts of hormones that tell your body yank down the throttle to add fuel to the stress response. These hormones flow through your bloodstream and quickly turn on a bigger release of neurotransmitter and steroid hormones (mainly adrenaline and cortisol) that have immediate effects that we all recognize.

These hormones speed up heartrate. Blood pressure increases. Stress hormones cause your spleen to release more red blood cells to supply oxygen so you can act quickly. Lots of other things happen – blood sugar increases, our digestive and reproductive systems go on a temporary vacation, and the front part of your brain that is responsible for deep thinking, careful decision-making and productive communication becomes less effective.

In short-term stress situations, the response of "fight or flight" is helpful. We are prepared to fight a threat (like calling 911 and grabbing an extinguisher to fight a fire) or we can run away from the situation. In scary situations, sometimes this release of hormones is so overwhelming that we "freeze up." Humans have developed this acute stress response over thousands of years. It helps insure our survival.

The problem is that during prolonged challenging and stressful times over months or years, this stress response repeats itself over and over. The brain has thermostat mechanisms that keep these chemical releases in check, and these mechanisms become less effective. Or they simply begin to wear out. The result becomes long-term, chronic stress that often leads to physical and mental health problems (cardiovascular disease, diabetes, infection, depression), injury (because of constant distraction while working) and deteriorating relationships. The constant presence of high levels of this stress fuel (adrenaline and cortisol), can make it more difficult to make smart and focused long-term financial decisions. Chronic, unresolved stress sometimes leads to substance abuse, addiction, and even suicide.

So – The question is "Where is this throttle" that we can pull back on or release to slow the flow of the hormones that fuel chronic stress?

There are many answers to this question, and I recommend that you explore the publications cited at the end of this article for more information. But, here are some specific suggestions – there are many stress throttle levers. We need to pay some attention to all of them if want to cut back on the stress-inducing fuel supply.

Check in with your primary healthcare provider: Fighting off stress in difficult times takes physical energy. If you are dealing with underlying health problems or conditions, it's important to seek good medical advice and follow the directions of your local physician or other health professional who you trust.

Give your body the quality fuel that it deserves: Coping with stress, difficult financial decisions, and an uncertain future requires that you eat well and provide the high-quality energy your body needs. Our brains are relatively small (about three pounds). Yet, the brain burns 20% of the energy our body uses. No farmer would dream of heading out to harvest an 80-acre field in a $300,000 chopper or combine filled with lousy grade, dirty fuel. The crop won't get harvested, and the machine will break down when it's most needed. But, sometimes that's how we treat our bodies in stressful times. Eat breakfast. Eat often. Eat healthy, well-balanced meals. And, stay hydrated.

Find time to quietly power down: Increasingly, research points to the value of short (10-15 minute) opportunities to quiet our minds and to purposely relax our bodies and our brain. In my teaching, I've had people tell me they'd never care to learn how to meditate or practice "mindfulness." But, some of these same people wait all year, craving the quiet moments and opportunities like sitting in a silent deer stand for hours at a time during hunting season while watching snow flurries dust the landscape. Or quietly working in the garden on a warm summer evening while basking in the glow of a sunset.

Throttle Back on Stress—continued

Powering down can include a quiet walk in the woods where you purposely pause to reflect on the things you are grateful for in life while you enjoy the sights, sounds, and smells of nature. These actions help rebuild our brain's "thermostat" and capacity to throttle back chronic stress. A little bit of exercise has also been shown to increase the size of parts of the brain that keep stress in check.

Take control in areas where possible: There are some things you simply cannot control—the weather, global market conditions, and others. Yet, research in both people and animals suggests that having some sense of control, *where it is possible*, is the most important stress fuel throttle! Work with trusted advisors, experts, friends, and family members to look at options and develop plans. It's hard if chronic stress has partially shut down that front part of your brain which functions like a mental scratch pad. But, push through that urge to shut down. Enlist help and seek advice—first steps are always the hardest. Write down ideas. Set goals. Be specific. Identify next steps and actions that are measurable and realistic. Give yourself time, but also set deadlines for next steps and decisions. Again, when stress gets the best of you and you feel like you want to shut down, there are others out there who will help. Stay connected to your community (including church, school activities, etc.), and ask lots of questions.

Farming is truly a stressful occupation. But, there are ways to find and then use the throttles that control that flow of hormones and chemicals that fuel chronic stress. Find those throttles and put them to use. The world depends on you and appreciates what you do!

For More Information and a more detailed discussion of the importance of diet, exercise, mindfulness, planning, and connecting with others, see:
https://uwmadison.box.com/v/FarmStressShutske
For a case study that shows the direct impacts of chronic stress on farm families for discussion and conversation, see:
https://uwmadison.box.com/v/FarmStressCaseShutske
For a list of ten recommendations for agricultural professionals who work closely with farmers and their families, see:
https://uwmadison.box.com/v/FarmStress10Shutske

Photo from friend, Darrell Marks of Wanatah, Indiana. While this is not my Dad's old 4020 (it's Darrell's), Darrell does now own my Dad's old JD 630. Thanks Darrell!!

Wisconsin Department of Agriculture, Trade and Consumer Protection

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There's Still Time to Respond to the 2017 Census of Agriculture

USDA's National Agricultural Statistics Service (NASS) continues to accept completed census questionnaires. All operations are important and every response matters. As of March 15, Wisconsin's response rate is about 53%, ranking the state seventh nationally.
In February, DATCP Harsdorf shared this message: "Thank you to all the Wisconsin farmers who have completed their Census of Agriculture. The more responses submitted by Wisconsin farmers, the more the data will accurately reflect what is actually happening in our state's fields and barns."
The Census of Agriculture is a complete count, taken every five years, of America's farms, ranches and the people who operate them. Information provided in the Census of Agriculture will be kept confidential, and results will be available in aggregate form only. Census data influences future budgets, services, programs and policies.
Farmers are encouraged to complete their census either online at www.agcounts.usda.gov or by mail as soon as possible. For more information about the 2017 Census of Agriculture, visit www.agcensus.usda.gov. For questions about or assistance filling out the census, producers can call toll-free (888) 424-7828.
Thank you for making sure Wisconsin agriculture is counted!

Industrial Hemp Research Pilot Program

Alana Voss—Agriculture Agent, Juneau County

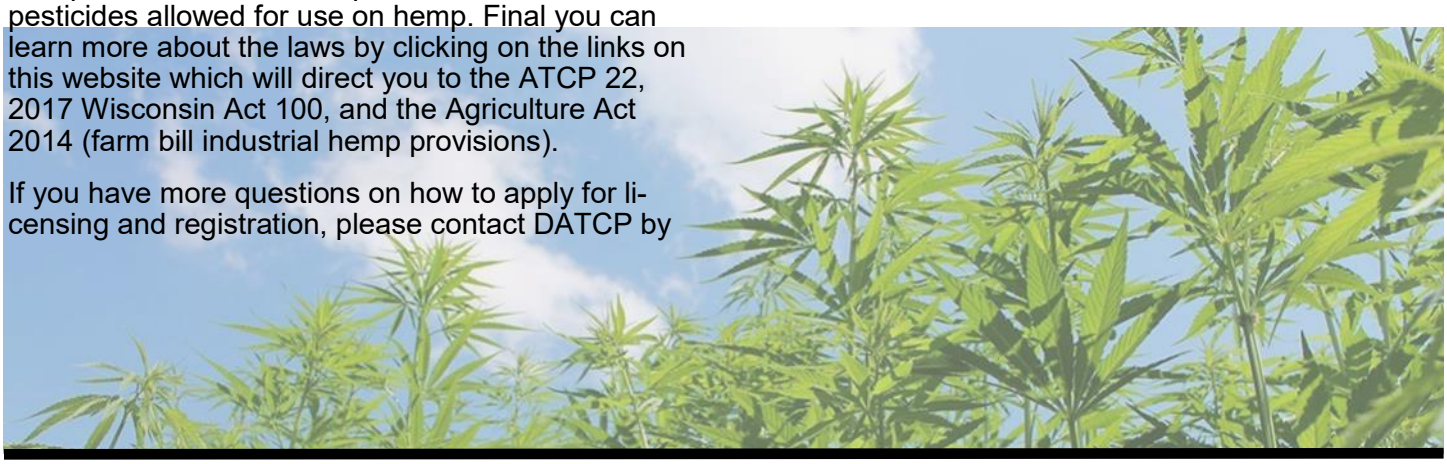
For those that may be interested in applying for this program you can find the information on Department of Agriculture, Trade and Consumer Protection's website. They now have all the application materials for growers and processors available on their website. **The deadline to apply for these licenses and to register with DATCP is May 1, 2018.** A part of the receiving your license and registration is to do a background check. There is also a breakdown of the fees for participating in this program. See the chart below for more on the fees, this chart can also be found on the website under licensing, registration, and fees.

Fees	
Grower license (one-time fee)	$150 (0-30 acres)
	$5/acre (31-199 acres)
	$1,000 (200 acres or more)
Processor license	No fee
License modification	$50/change (plus fee for additional acreage as listed above)
Grower registration (annual fee)	$350
Processor registration (annual fee)	$100
Sampling/testing	$250/sample and test (each field and variety needs at least one sample/test

The website contains information on the reporting and recordkeeping, inspection and testing, and also on seed. DATCP has also added some additional resources on frequently asked questions, program overview, Wisconsin Hemp 101, and Minnesota's Industrial Hemp Annual Report 2017. Many have been wanting to receive more information on the production of industrial hemp. You can find that on this website as well. Some of the information that is currently available is: Wisconsin Industrial Hemp productions: A basic FAQ guide for growing an old crop in a new era (UW-Extension Blog), Canadian Hemp Trade Alliance Hemp Production eGuide, and pesticides allowed for use on hemp. Final you can learn more about the laws by clicking on the links on this website which will direct you to the ATCP 22, 2017 Wisconsin Act 100, and the Agriculture Act 2014 (farm bill industrial hemp provisions).

If you have more questions on how to apply for licensing and registration, please contact DATCP by calling this number 608-224-4574. Or for other general program questions DATCP says to contact them by emailing them at DATCPIndustrialhemp@wi.gov or calling this number 608-224-4500 (Press 0, state that you are calling about industrial hemp, and leave your name and telephone number).

To get to the DACTP – Industrial Hemp Website, follow the link to access any of the information described above and to get to the application and registration forms: https://datcp.wi.gov/Pages/Programs_Services/IndustrialHemp.aspx



Poultry for Beginners

Lyssa Seefeldt—Agriculture Agent, Marquette County

This is the time of year that many people start getting excited about raising poultry. You get a shiny catalog in the mail with all kinds of cool looking birds. You start seeing the local feed mills and farm supply stores running "chick days". You stop into the post office early on in the morning and hear the cheeps of mail-order chicks waiting to be sent to their new owners.

For those that are not old hats at raising poultry, caring for young birds isn't hard, but does require some attention to detail. What do chicks need to survive and thrive? A draft-free enclosure, dry bedding, clean water, and a good starter feed.

The brooding area might start out in an old stock tank, a large cardboard box, or a small section in your poultry coop. This area is generally heated with a heat lamp and a 250 watt bulb that gets hot. Some safety precautions need to be taken to ensure that if something happens to the lamp, it does not end up on a pile of dry shavings creating a fire hazard. Generally the brood area has tall sides to prevent drafts of cold air from sapping the strength of your chicks.

When brooding day old chicks or other birds, the temperature at chick level needs to start off at 95°F for the first week. After the first week, you will gradually reduce the temperature by 5°F each week until you get to ambient temperature. Note this process takes about six weeks to go from 95°F to 70°F.

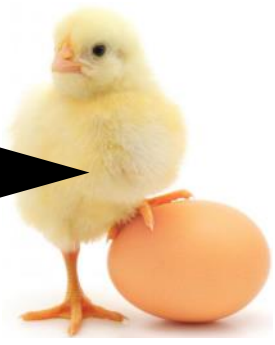
You may need to continue some supplemental heating for birds that have not fully feathered out at six weeks. Some careful planning can eliminate the need for supplemental heating beyond six weeks, but that will also mean that you will likely not be purchasing chicks prior to the first week of March.

Keeping the water for chicks clean can be somewhat of a challenge. Chicks are naturally curious and will pick at their bedding, which sometimes ends up in their waterer. Raising up a traditional chick waterer onto a scrap piece of wood or a brick can help keep the water cleaner longer.

Once the chicks get a bit older, you might consider a bucket with nipples to water your birds for the ultimate in clean water. Birds naturally pick at shiny objects and learn how to use nipples quite rapidly. They can also be fairly easily made by someone with a bit of do-it-yourself determination.

A starter chick feed is generally around 22% protein. Note that if you are raising, turkeys, ducks, geese, or basically anything other than a chicken, you will need a higher percent protein starter. These are sometimes labeled as "game starter". The starter feed is what the chicks will eat for the first four weeks. Once the chicks have reached four weeks, you switch them over to a grower feed that usually contains 17-20% protein. If your chicks are destined to be laying birds, once they reach their mature size, they will be switched to a layer ration with around 16% protein and a higher level of calcium to support egg production.

Visit the
Central Wisconsin Agricultural Specialization Team
on the web http://fyi.uwex.edu/cwas/



71st Alice in Dairyland Top Candidates Announced Finals held in Adams County

Press Release from: DATCP News

The six top candidates for the 71st Alice in Dairyland were announced today at a press conference at Heartland Farms in Adams County, a key step in the selection of Wisconsin's next "agricultural ambassador."

Following an extensive interview process, the next Alice in Dairyland will be selected from among the six top candidates at the conclusion of the Alice in Dairyland Finals Program, May 17-19 in Adams, Wis.

Over the next two months, the candidates will participate in a rigorous interview process allowing them to showcase communications and public relations skills required to be the next Alice in Dairyland. Although only one of the six top candidates will be selected as the 71st Alice, the personal and professional growth experienced by all six candidates as a result of participating in the process will carry far into their future careers.

"The Alice in Dairyland program has a strong history of promoting the diversity of Wisconsin's agriculture industry, and one of the six top candidates will continue this tradition as Wisconsin's most recognized agricultural spokesperson," said 70th Alice in Dairyland Crystal Siemers-Peterman. "For all six top candidates, participating in the finals process will be an invaluable asset to build upon throughout their careers."

Candidate biographies:

Kristen Broege is a senior at the University of Wisconsin-Madison, studying Dairy Science with a certificate in Agricultural Business Management. Her passion for agriculture extends beyond the classroom and on campus she is involved in Badger Dairy Club, the Association of Women in Agriculture, Dairy Challenge and Dairy Judging. Broege's interest in agriculture stems from growing up on her family's dairy farm in Janesville. She, along with her sisters, own and show a small herd of registered Holsteins. In her youth, Broege was actively involved in 4-H, FFA, and the Wisconsin Junior Holstein Association. She recently applied her knowledge and learned more about Wisconsin's agricultural industry through internships with Gil-Bar Jerseys, Landmark Services Cooperative, and East Central/ Select Sires.

"If chosen to represent Wisconsin's diverse agriculture industry as Alice in Dairyland, I will use my enthusiasm to learn and hear about other agriculturists' passions and communicate that new knowledge to consumers," said Broege.

Sydney Endres grew up on her family's Jersey farm in Lodi. She graduated in August from the University of Wisconsin-Madison with degrees in Dairy Science and Life Sciences Communication. While there, she was involved in multiple agriculture student organizations including the Association of Women in Agriculture, the Dairy Girl Network, and the UW-Madison Dairy Cattle Center and had positions with the Wisconsin State Fair, Land O' Lakes, Inc. and Professional Dairy Producers Association. After graduation, she interned for Fair Oaks Farms and now works for US Jersey. A Jersey Association Lifetime member and All-American Junior Show Committee member, in her spare time, Endres enjoys helping out on the farm, Nordic skiing and spreading her love of Wisconsin agriculture.

"As Alice in Dairyland, I will devote my time to learning and sharing about Wisconsin's diverse agriculture industries with audiences of different ages and backgrounds," said Endres. "With so much to share, I will find something valuable for everyone to know about the top industry in our state."

Alexus Grossbier grew up in Elk Mound and developed an understanding and excitement for Wisconsin's vast agricultural commerce on her family's small hobby farm. She was involved in the Elk Meadow 4-H club, where she raised and showed pigs at the county fair, along with crocheting, vegetables, and cake decorating. She served as secretary and president for her 4-H club. Previously, and presently, she furthers her agricultural knowledge by helping her dad with his meat processing business. She graduated in May, 2017 from the University of Minnesota-Twin Cities with a major in psychology and a minor in leadership. On campus she was involved in the Gopher Dairy Club, was a teaching assistant, and worked as a social media specialist with the Upper Midwest Agricultural Safety and Health Center. She recently ended her reign as Dunn County's 2017 and first-ever, Fairest of the Fair.

"As Alice, I will use my communication and leadership skills to not only educate and teach consumers of all ages about Wisconsin's agricultural impact but also grow myself and my knowledge of all the agricultural products this great state has to offer."

Jacqueline Hilliard, a Wisconsin Dells native, discovered her passion for Wisconsin agriculture on her parents' grain farm and through involvement in Adams County 4-H and Wisconsin Dells FFA. Through these organizations, she served as Adams County Fairest of the Fair and competed at nationals to receive her FFA

American Degree. In May, 2017 Hilliard graduated from the University of Wisconsin-Madison with degrees in horticulture and agronomy. There she was involved in collegiate FFA as the chapter's president, the UW Marching Band, UW Crops Club, and the UW Horticulture Society. Previously, she interned at Allen Centennial Garden, and the West Madison Agricultural Research Station. Currently she works as an Assistant Plant Propagator at McKay Nursery Company in Waterloo, and assists in managing her family's wedding and event barn.

"As Alice in Dairyland, I hope to be a liaison between consumers and agriculture," Hilliard said. "I feel the conversations with everyone whom Alice meets are essential for fueling the future of Wisconsin's agriculture industry, while building relations between the Alice program and consumers."

Kaitlyn Riley, Gays Mills, learned first-hand the passion and work ethic of Wisconsin farmers growing up on her family's registered Jersey dairy farm. Wanting to share agriculture's story, she studied strategic communications and broadcast journalism at the University of Wisconsin-Madison. In college, she held officer positions with the Association of Women in Agriculture and Badger

Dairy Club. She also founded the university's first agricultural radio talk show, AgChat. After graduating with honors in May, 2014 Riley served as the 48th Wisconsin Fairest of the Fairs. Professionally, she worked as the farm news director at WPRE-WQPC Radio in Prairie du Chien and as a multimedia journalist with WQOW News 18 in Eau Claire. In May, 2017 she returned to the family farm where she manages calf and heifer care. She continues sharing the stories of agriculture by freelance writing for Hoard's Dairyman, and she volunteers with agricultural organizations such as the Crawford County Dairy Promoters, Crawford County Livestock Camp Committee, and Wisconsin Farm Bureau Federation.

"As Alice in Dairyland, I will give a positive voice to Wisconsin's diverse agriculture industry," said Riley. "Through my travels, I will learn from the many faces of agriculture to better educate urban and rural audiences about the importance of Wisconsin food, fuel and fiber production in our daily lives."

Megan Schulte grew up in Hammond, and found a passion for Wisconsin agriculture through her family's dairy farm and raising her own herd of beef cattle. She was active in St. Croix County 4-H and the New Richmond FFA Chapter. Through these organizations she was able to compete in dairy judging at the local and state levels, as well as exhibit dairy, beef, and hogs at the county and state fairs. She will graduate in May from the University of Minnesota-Twin Cities with a major in Agri-

cultural Communication and Marketing and a minor in Animal Science. On campus she has been involved in the Gopher Dairy Club, Agricultural Education Club, and Beta of Clovia, a sorority built on the foundations of 4-H. Previously, she interned with Clark County 4-H and Extension Services, and Fair Oaks Farms.

"Supporting Wisconsin agriculture will always be a passion of mine," said Schulte, "and as Alice in Dairyland, I will work to foster a positive relationship with the public and strive to better connect the majority of the population to the people who are directly connected to the farm."

Alice in Dairyland is a one-year, full-time public relations position with the Wisconsin Department of Agriculture, Trade and Consumer Protection. The start date for the 71st Alice is June 4, 2018.

In this highly visible and fast-paced position, Alice in Dairyland travels throughout the state teaching rural and urban audiences of all ages about Wisconsin's extensive agricultural industry.

Each year, a different Wisconsin County hosts the Alice in Dairyland interview activities, with Adams County serving as the host county this year. The 71st Alice in Dairyland will be selected at the conclusion of the three-day finals program, May 17-19.

The public is welcome to attend two public events during the Finals in Adams County in May:

Candidate Discussion Panel, Friday, May 18; Fawn Creek Winery (3619 13th Ave., Wisconsin Dells); 5 p.m., Social Hour; 6 p.m., Dinner; 7 p.m., Discussion Panel. Join the 71st Alice in Dairyland candidates as they take part in a discussion panel addressing agriculture topics. Ticket required, email agandadventure@gmail to inquire.

71st Alice in Dairyland Finale Program, Saturday, May 19; Adams-Friendship Fine Arts Center (1109 E. North Street, Adams), 4:30 p.m., Social Hour; 6 p.m., Dinner; Finale Program, 7:30 p.m. Join 70th Alice in Dairyland Crystal Siemers-Peterman and longtime ag radio broadcaster Bob Bosold as they host the Finale Program culminating in the announcement of the 71st Alice in Dairyland. Ticket required, email agandadventure@gmail to inquire.

For more event information, visit aliceindairyland.com.

Direct program questions to Alice in Dairyland Program Manager, Ti Gauger at 608-224-5115 or Ti.Gauger@wisconsin.gov

Maple Syrup Production

Wisconsin Energy Efficiency and Renewable Energy—UW-Extension

In 2016 Wisconsin produced approximately 235,000 gallons of maple syrup, according to the Wisconsin Agricultural Statistics, from 765,000 taps. Production has doubled since 2006 when about 100,000 gallons was produced. In 2012 there were 1155 producers up from 638 producers in 1997. According to the Ministry of Agriculture and Food, Ontario, Canada, it takes between 2.7 to 3.4 gallons of fuel oil to produce 1 gallon of maple syrup or between 4 to 500,000 BTUs per gallon. Based on Wisconsin's average production of 235,000 gallons, it would require 106 billion BTUs of energy to produce or the equivalent of 766,000 gallons of heating oil. Several different fuel sources are use for processing including wood, heating oil, propane and natural gas. According to the summary of a 2003 survey of Wisconsin Producers, the breakdown of primary fuel types was 45% wood, 49% fuel oil, 4% natural gas and 2% Propane. Wisconsin is ranked a distant 4th in maple syrup production in 2015 behind Vermont, New York and Maine, producing 6% of the U.S. production. Energy is a major component in the cost of production, accounting for 26 to 34% of the production costs without reverse osmosis and 8 to 11% with reverse osmosis based on using wood or fuel oil , respectively (2012).

There are several technologies and devices that can reduce the energy costs in producing maple syrup.

- **Evaporator and burner maintenance** – Typical maintenance issues include cleaning nozzles, insulating fireboxes, correct size nozzles, cleaning build up off of pans, proper air mixture.

- **Pre-heater** – A Sap pre-heater increases the efficiency of an open pan evaporator by using the steam coming off the evaporator pan to preheat the sap before it enters the pan. The heat exchanger is typically copper tubing that is suspended under a hood over the evaporator pan. The steam condenses on the cooler pipe surface, transferring heat to the sap. A drip pan catches the condensate and drains it away from the evaporator pan. A properly sized pre-heater will commonly increase the efficiency of an evaporator by 15%.

- **Piggy-back or economizer units** – These units are a combination pre-heater and evaporator. The unit sets over the evaporator pan and uses steam from the evaporator pan to pre-heat the sap to as high as 200°F. From manufacturer's literature, it appears to increase production by 60% to 65% with no increase in energy usage.

- **Reverse osmosis** – Reverse Osmosis systems have been used commercially in maple syrup production since the mid 1970's. The technology works the same as desalination of salt water except water is the by-product and the sugar concentrated sap is the product. Reverse osmosis can remove 75% of the water from the sap, reducing energy usage by 70% over open pan evaporation. The equipment is pricey and is therefore only economical on larger operations but it can reduce energy use to about a gallon of heating oil per gallon of syrup produced.

Evaporator designs – New designs of evaporators incorporate pre-heaters and economizer units as well as preheating of fuel oil and air for more efficient combustion, air tight and insulated combustion chamber and combustion chambers design to maximize the heat transfer rate.

Energy Efficiency Studies

In a 1988 study, 15 sugaring operations were provided energy audits with 11 of the operations determine to have energy conservation opportunities that would reduce energy costs an average of 31%. There were eight recommendations to increase burner efficiency, four to install or upgrade a sap pre-heater, 3 to install economizer units and one recommendation to install a reverse osmosis unit. The paybacks ranged from 0.3 to 7.4 years. Increasing burner efficiency and installing a preheater had the lowest cost and fastest payback. A 2003 survey reported wood fuel efficiency of producing a gallon of maple syrup ranged from 170,000 BTU for a producer that used a pre-heater, economizer and a reverse osmosis unit to 5,343,000 BTU per gallon for a hobbyist. Non-wood fuels ranged from 133,250 BTU per gallon for a producer using a reverse osmosis unit to 454,000 BTU. Large producers were more efficient as well as those using non-wood fuels. Large producers were more apt to use some type of energy efficiency equipment.

Links of interest:

General Information

- Wisconsin Maple Syrup Producers Association web site – www.wismaple.org

Equipment Suppliers

- Anderson's Maple Syrup Inc., Cumberland, WI – Phone: 715-822-8512, www.andersonsmaplesyrup.com
- James Adamski – Antigo, WI – Phone: 715-623-6853
- Kickapoo Gold, LLC, Westby, WI – Phone: 608-634-4155, www.kickapoogold.com
- Maple Hollow, Merrill, WI – Phone: 715-536-7251, www.MapleHollowSyrup.com
- Roth Sugar Bush, Cadott, WI – Phone: 715-289-3820, www.rothsugarbush.com

Cover Crop Termination

Elizabeth Bosak and **Vince Davis**
Department of Agronomy, University of Wisconsin-Madison

University of Wisconsin-Extension

This quick sheet is intended to give a brief overview of **cover crop termination methods and suggestions for termination using herbicides**. These recommendations are specifically for cover crops—**NOT** forage crops that will be fed to animals.
The chart to the right includes all of the cover crops listed by the Midwest Cover Crops Council broken into three categories: Brassica, Legume, and Non-legume. The seeding dates listed are based on the Midwest Cover Crops Council suggested last seeding date for good cover crop establishment prior to the first hard frost. Last seeding dates vary according to county in Wisconsin and the chart contains dates for Columbia County.

If there is an "X" for a specific cover crop, then it should likely winterkill and no spring termination is required. If there is an "*", then depending on either the variety or severity of the winter it may not winterkill. This chart does not consider changes in winter hardiness due to mixing cover crop species such as hairy vetch with oats.

For some of these cover crop species, like hairy vetch, hard seed will continue to germinate throughout the season and the following growing seasons. Remember to check your seed container for the percentage of hard seed. The initial cover crop may winterkill, but more seedlings emerging in subsequent crops may become weeds.

Below there is a chart of termination methods and herbicides for termination of legumes and winter cereals that will survive a Wisconsin winter. Please remember to factor in the site-of-action(s) of your cover crop burndown application into your herbicide resistance management plan.

Termination methods include mowing, rolling/crimping, tillage, and chemical desiccation with herbicides. Final choice of a termination method may depend on your goal for that cover crop. For instance, if you planted buckwheat to attract pollinators, but do not want a buckwheat weed problem, then you should mow the buckwheat before seeds start to develop.

		LAST SEEDING DATE	WINTERKILL
BRASSICA COVER CROPS	Canola/Rapeseed	AUG 15	*
	Oilseed radish	AUG 15	X
	Turnip	AUG 15	X
LEGUME COVER CROPS	Field pea	JUN 10	X
	Cowpea	JUL 15	X
	Berseem clover	AUG 1	X
	Crimson clover	AUG 1	X
	Red clover	AUG 15	
	Sweet clover	AUG 15	
	Winter pea	SEPT 1	*
	Hairy vetch	SEPT 1	
NON-LEGUME COVER CROPS	Japanese millet	JUL 15	X
	Pearl millet	JUL 15	X
	Sorghum-sudangrass	JUL 15	X
	Sudangrass	JUL 15	X
	Buckwheat	AUG 1	X
	Spring barley	AUG 15	X
	Spring wheat	AUG 15	X
	Oats	SEPT 1	X
	Annual ryegrass	SEPT 1	*
	Winter barley	OCT 10	
	Winter triticale	OCT 10	
	Winter wheat	OCT 10	
	Winter/Cereal rye	OCT 20	

		WINTERKILL	ROLLING CRIMPING	MOWING	TILLAGE	HERBICIDE	COVER CROP GRWOTH STAGE	HERBICIDES FOR TERMINATION
BRASSICA	Canola/Rapeseed	*	NO	NO	YES	YES		Glyphosate , may require multiple applications (see reference 3)
LEGUME COVER CROPS	Red clover	NO	NO	NO	?	YES	AT BLOOM	Glyphosate + Dicamba or 2,4-D
	Sweet clover	NO	NO	NO	?	YES		Dicamba or 2,4-D (see reference 3)
	Winter pea	*	NO	YES	YES 2+ PASSES	YES		Glyphosate + 2,4-D or either product alone
	Hairy vetch	NO	YES AT FULL BLOOM	NO		YES	PRE OR MID BLOOM	Glyphosate + Dicamba or 2,4-D
NON-LEGUME COVER CROPS	Annual ryegrass	*	NO	NO		YES 2 APPS	<6 IN HEIGHT	SEE BELOW
	Winter barley Winter triticale Winter wheat Winter/Cereal rye	NO	YES AT MILK OR DOUGH STAGE	YES		YES	PRIOR TO BOOT STAGE <18 IN HEIGHT	Glyphosate 4.5 lb ae per gal, 22 fl oz per acre

Always follow the product's current label restrictions and instructions.


WOOD COUNTY • JULY 10-12 •
2018
WISCONSIN FARM TECHNOLOGY DAYS
• Farm Forward •
2018
WISCONSIN FARM TECHNOLOGY DAYS
JULY 10-12 MARSHFIELD, WI
9 AM – 4 PM
600+ EXHIBITORS
• Large & small equipment vendors
• Agriculture products & services
• Free skin cancer screenings
• Heritage equipment display
INNOVATION SQUARE
• Miniature cranberry marsh
• Discover the newest in ag technology
FIELD DEMONSTRATIONS
• Alfalfa mowing & cutting
• Hay merging
• Forage harvesting
• Unmanned aerial scouting
UW-EXTENSION
• Talk with crop & livestock experts
• Review the latest in University research
• Educational displays
VIRTUAL FARM TOURS
• D&B Sternweis Farms
• Weber's Farm Store
• Heiman Holsteins
• Nasonville Dairy
FOOD TENT
• Enjoy a variety of foods locally grown and produced in Wood County
FUTURE GENERATIONS TENT
• Hands-on learning
• Farm safety education
• Agriculture career speakers
FAMILY LIVING
• Entertainment
• Interactive learning sessions
• Arts & crafts
• Vendors
FIND MORE INFORMATION OR VOLUNTEER AT:
WWW.WIFARMTECHNOLOGYDAYS.COM/WOOD
WWW.FACEBOOK.COM/FTD2018
Admission:
$8
Location: D&B Sternweis Farms and Weber's Farm Store-Heiman Holsteins, 9885 County Hwy H, Marshfield, WI

2 **Green Lake County Focus on the Farm Breakfast,**
Grams Farms, LLC, N549 Cty. Rd. O, Markesan 53946
7:00 AM-12:00 PM.

2 **Mayor's Dairyfest Breakfast,** Central WI State Fairgrounds, Expo Bldg.
513 E. 17th Street, Marshfield 54449
5:30 AM-9:30 AM.

10 **Marquette County Dairy Breakfast,**
Marquette County Fairgrounds, 757 Main St., Westfield
7:00 AM-12:00 PM.

16 **39th Annual Portage County Dairy Brunch**
Ostrowski Brothers, LLC, 8931 Cty. Rd. SS, Amherst Junction 54407
8:00 AM-12:00 PM, $6 adults; $2 children 6-10; 5 & under-free

24 **Juneau County Dairy Breakfast**
Elroy Fair: 80/82 south of Elroy, at the City Park, Entertainment Tent
7:00 AM-11:00 AM, $5/$3

25 **Waushara County Dairy Breakfast**
Location yet to be determined.

Green Lake County

Green Lake County
571 County Road A
Green Lake WI 54941-8630

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CENTRAL WISCONSIN AGRICULTURE SPECIALIZATION (CWAS)

A cooperative effort of seven Central Wisconsin Counties and University of Wisconsin Extension.

University of Wisconsin-Extension

Our Mission

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