

Agricultural Newsletter

UW-Madison College of Ag & Life Science
University of Wisconsin-Extension



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Drought strategies: What we learned

Otto Weigand & Kevin Schoessow
Area Ag Agents
Burnett, Sawyer, & Washburn Counties

Phil Holman
Asst. Superintendent
Spooner Ag Research Station

As we approach the new season, we will soon have to plan for or at least consider what effects another year of drought or sporadic weather could have in NW Wisconsin. Based on weather data from the Spooner Ag Research Station, Spooner came into 2007 with a 9.6 inch deficit in precipitation from 2006, about 1/3 short of the normal 28-29 inches for the area. Other areas in NW Wisconsin are showing deficits as well. While its anyone guess what will happen in the 2007 growing season, there are a number of strategies to improve on what we might do to capture whatever precipitation we get whenever it comes.

1. Plant drought tolerant crops and drought tolerant varieties. In general, short season annual crops were damaged less by last year's drought. Check seed variety ratings for drought tolerance.
2. Use best management practices for crops. Plant early to take advantage of spring moisture and lower evaporation rates. Generally, early planting helps time pollination and seed formation before drought or summer heat. Have up-to-date soil tests and follow recommendations. Control weeds and insects. Both compete with crops causing more stress. Consider minimum or no-till.
3. Use crop insurance to complement other risk management strategies. If filing a claim, follow insurance and adjuster guidelines and deadlines. Don't rely on government drought assistance.
4. For pastures, resist the temptation to over graze. Leave at least 2-3 inches of residue if possible. Over grazing is hard on pastures and will greatly reduce forage stand density and increase weed pressure. The shorter the top growth the shorter the rooting depth. Do you have enough summer stored feed if pastures don't keep up?
5. Evaluate current feeding strategies to stretch or conserve feed stocks. Look for ways to reduce feed wastage, use proper feeders, consider options to using alternative feed by-products. If you do have to harvest and feed drought stressed forages, make sure and have them tested for nitrates and feed quality.
6. Be patient with crops already in the field. Many of us were surprised by the recovery of some crops after the drought. Alfalfa recovered nicely late last summer and soybean yields were higher than expected.

About the only guarantee in farming is there are no guarantees. Good Luck!

Agricultural NEWSLETTER

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and
UW-Madison College of Ag & Life Sciences

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Cow-calf seminar to be held at Alpha farm

Otto Wiegand
Area Agricultural Agent
Burnett, Sawyer, & Washburn Counties

The University of Wisconsin Extension Livestock Team is pleased to announce a beef cow-calf seminar to be held at the Joe and Virginia Hennessey Hidden Pond Farm at Alpha in Burnett County on Thursday evening, April 12, from 4:30 to 8:30 p.m. The farm is located at 11658 State Highway 70 across from the Burnett Dairy Cooperative five miles east of Grantsburg or ten miles west of Siren. Look for the farm signs.

The Hennesseys raise 25 Buelingo beef cows plus youngstock. Buelingo is a fifty-year-old breed developed in the western US from crosses of Belted Galloway, Black Angus and Milking Shorthorn. Buelingos are noted for good finishing efficiency on marginal pasture and little or no grain.

The picturesque 156-acre farm features a licensed bed & breakfast called Smoland Prairie, a farm store and a number of grazing paddocks. The Hennesseys have a state-inspected bakery and walk-in freezer. They sell beef cuts, bread and eggs at the farm. Virginia occasionally caters meals for smaller events at the farm. For a bit of history, the Siren tornado of 2000 began its 40-mile path of destruction on the west end of this farm, destroying the barn and outbuildings and killing eight cattle and a horse before moving on.

The cow-calf program will begin with a tour of the farmstead at 4:30 followed by a meal at 5:15,

introductions at 5:45 and three seminars. The topics this year will be cost of production, lost-cost handling systems and disease prevention. Brief updates on Animal ID and predator issues will also be covered.

Pre-registration is required by Monday, April 9. The cost is \$10. For registration or more information, contact UW-Extension Ag Agents Otto Wiegand or Kevin Schoessow at Spooner, 715-635-3506 or 800-528-1914.

Notes from Dairy-L *Responses to a question about an unknown source of calf scours*

Tom Syverud
Extension and Outreach Educator
Ashland & Iron Counties

A farmer wrote that they “are having a problem with 90% of newborns getting slight scours and going off feed at almost exactly 24 hours old. They are fine for the first day, drinking eagerly, and then they won’t drink or only drink half a bottle. Then I’ll find one or two puddles of yellow scours. They almost all bounce back and are fine by day 3 or 4. But this weekend one didn’t recover and died. And some take several days to recover. That’s not off to a good start!”

He mentioned that “good procedures are followed; calf is born in the hospital pen, cleaned twice a day. Newborns are removed immediately, dried off with clean towels, navels sprayed, and put in a clean metal pen”. Of course, colostrum is fed right away. “Good, thick stuff only from cows, not first calf heifers, even tried pasteurizing the colostrum. No effect.” “We stopped vaccinating at birth for rotavirus with no effect. We tried First Defense and

probiotics with little effect--probably wishful thinking. We sent several fecal samples to the vet, but everything he tests for comes up negative. He's out of ideas." "What could they be exposed to that has less than a 24 hour incubation period? Or are they being born with it?"

Some felt Ecoli were responsible. "Make sure to culture for Ecoli, or have a necropsy done, usually scours at this early age are cause by enterobacteria, mainly Ecoli." One farmer had the same thing on their dairy, "Calves would drink fine for a feeding, then go off milk in the afternoon and be dead by morning. The vet cultured and he believed it was an Ecoli virus."

More felt the problem was in the colostrum handling. "The first thing I always think of with a history like this is that the colostrum is not getting cooled promptly. If it sits around warm for any time at all, that can make calves sick or kill them. At 100°F, the bacteria count doubles about every 15 minutes." A vet said, "Problems this early are often associated with unsanitary colostrum handling equipment, or at least contaminated colostrum. This is too early for crypto. The diagnosis is most important. If you are going to "shotgun" treat without a diagnosis, I would give 1 ml Immunoboost under the skin to the new born calf. I find it covers E coli, rota, corona, salmonella, etc. I think you are early to be having a clostridial problem, but if you are, 5 - 10 ml penicillin orally should help."

A recommendation was to do a standard plate count on your colostrum. Take samples from the cow, from the bottle it is stored in, the tube feeder and nipple, just before it is

fed. "You might have a dirty milk hose that needs to be changed or a poorly cleaned gasket on the milker bucket, etc. The colostrum milking system needs to be as clean as the milking system touching milk for sale." Another farmer agreed "It was finally traced to the drenching tubes we were using for colostrum feeding."

After this discussion, the original farmer leaned toward rota/corona virus as the causing agent, because "the vet checked three different fecal samples. They were negative for Ecoli, salmonella, giardia, coccidiosis, crypto. For some reason he did not check for rota/corona virus. Although 24 hours seems too early for that, we know it has been a problem on our farm in the past."

Additional crop research at the Spooner Ag Research Station

*Phil Holman
Assistant Superintendent
Spooner Ag Research Station*

Spring Wheat — This year we will be conducting two spring wheat trials. Wheat prices in the 4 to 5 dollar per bushel range and a good straw market make spring wheat a potential cash grain option. The first trial will be a variety trial looking at dozen varieties from public and commercial sources. The second trial will look at six nitrogen fertilizer rates of spring wheat ranging from 0 to 100 lbs. of nitrogen per acre.

Sunflower – With recent news of potential bio-diesel processors looking for sunflowers, we are initiating a sunflower trial. This trial will examine planting date and plant population effects on sunflower production.

Canola – The past several years the Spooner Ag Research Station has had canola variety trials each summer. The researcher who worked with canola genetics has left the University of Wisconsin, thus, there will be no canola research this summer. A Canola Fact Sheet includes a summary of canola production practices and recent yield information. This fact sheet can be obtained from your local ag agent.

Awards available for beginning project members

The University of Wisconsin-Madison Saddle and Sirloin Club would like to announce the annual Saddle and Sirloin Club Swine Project Awards. Up to five awards of \$100 each will be awarded to first or second year swine project members.

The Swine Project Awards were introduced to help beginning 4-H or FFA members get started in the swine industry. To be eligible, an applicant must be a first or second year swine project member, 9-18 years old and a Wisconsin resident. The completed application is due postmarked on or before April 27, 2007.

The awards may be used for any expenses related to the recipient's swine project including the cost of pigs, feed, supplies, equipment, and facility maintenance.

The award application can be found online at www.uwsaddlesirloin.com. For any additional information on the Swine Project Awards, please contact Saddle and Sirloin Swine Award Chair Paul Humphrey at (262) 490-0951, or email him at pumphrey@wisc.edu.

Tillage in continuous corn production

Dick Wolkowski
Extension Soil Scientist

It is estimated that ethanol production will consume about 30% of the US corn crop by 2010. This phenomenon is encouraging favorable grain prices and dramatically increasing corn acreage. A consequence of long-term continuous corn production could be the adoption of more aggressive tillage to manage large amounts of crop residue. This could potentially lead to decreased soil quality and increased soil loss. Research has shown that moldboard and chisel systems reduce aggregate stability. Coupled with the lower surface crop residue resulting from tillage the affected soils are prone to more erosion than no-till or other low disturbance systems. Soil degradation and increased soil erosion would be a poor trade-off for fuel independence. Therefore, producers must carefully consider tillage options when growing corn on corn.

There are few long-term Wisconsin studies that examine tillage management in continuous corn. One example is a study that this author has overseen since 1997 that has included fall chisel, fall strip-till, and no-till in continuous corn and corn/soybean rotations, along with several fertilizer placement treatments. Data for the main effect of tillage in the continuous corn portion are shown in Table 1. The no-till system did not employ any in-row residue management. Yield was not measured in 2000. Of the nine years that these tillage treatments

have been in place significant yield differences were observed in three seasons, each time in favor of the chisel system. Averaged over the nine years grain yield was five and nine percent lower for strip-till and no-till, respectively. A detailed analysis is required to determine the overall profitability between tillage systems, however more soil loss could be anticipated for the chisel system, especially if stalks were shredded prior to tillage and an aggressive chisel implement were used.

Table 1. Tillage effect on corn grain yield in continuous corn, Arlington, 1997-2006.

Year	Chisel	Strip-till	No-till	Pr>F	LSD
1997	190	178	176	0.37	—
1998	161	160	164	0.85	—
1999	147	135	147	0.34	—
2001	189	182	151	<0.01	11
2002	181	175	174	0.41	—
2003	161	157	149	0.26	—
2004	187	178	159	<0.01	17
2005	182	187	176	0.19	—
2006	210	181	166	<0.01	15
Average	179	170	162	—	—

Soil loss can be predicted by the RUSLE 2 formula which is used to determine soil loss for crop rotations as part of a farm conservation plan. A simulation of the soil loss for six common Wisconsin soils was conducted over a four year continuous corn rotation for an eight percent slope of 150 ft. in length. Table 2 shows the soil loss estimates for these six soils with moldboard plowing, chisel plowing, and no-till. As expected there is variation in soil loss between soils, but in all cases the moldboard system exceeded allowable soil loss. Using a chisel system substantially reduced soil loss, but depending on the soil the loss may still be relatively high. No-till generated very little soil loss, but some producers may not be able to produce sustainable crop yields using strict no-till and will likely opt for some form of tillage, which could include strip-tillage or other methods of in-row residue management.

Table 2. Estimated soil loss for four years of continuous corn using three tillage systems on six Wisconsin soils.

Soil	Tillage			Allowable Soil Loss (T)
	Moldboard	Chisel	No-Till	
Plano	6.3	2.8	0.1	5
Fayette	10.4	4.6	0.2	5
Norden	9.2	4.1	0.2	3
Kewaunee	4.1	1.8	0.1	3
Loyal	5.4	2.4	0.1	5
Hochheim	6.4	2.9	0.1	5

Slope =8%; Slope Length

Producers and their consultants need to balance the aggressiveness of the selected tillage system with its effect on soil quality and soil loss. A return to clean tillage systems will not be sustainable and will likely result in soil loss values exceeding “T”. While the increase in biofuel crop production is offering opportunities to producers, care must be taken to avoid “back-sliding” into practices that in the long term will reduce productivity and impact water quality.

Organic Ag workshop offered in April

*Kevin Schoessow
Area Ag Development Agent
Burnett, Sawyer, & Washburn Counties*

Are you interested in learning what's required to produce and sell organically certified livestock or poultry? Are you looking for an alternative marketing option for your fresh farm raised meat? Or perhaps you have an interest in growing and selling organic vegetables or fruits. To help producers with these questions and other opportunities in organic production, UW-Extension and the Midwest Organic and Sustainable Education Service (MOSES) will be sponsoring workshops to help answer these questions on Tuesday April 3rd and Wednesday April 4th.

The demand for organic certified and organically grown or raised crops and livestock continues to grow at 20% per year. With more opportunities to sell produce locally, farmers and market gardeners have an opportunity to help meet that demand. In some instances there is not enough supply to meet demand.

These workshop will focus on organic productions methods for raising vegetables and fruits, feed crops for livestock, animal health management and specific organic certification requirements for beef and poultry. The featured speaker will be organic inspector and MOSES outreach coordinator Harriet Behar.

Harriet will be presenting three separate workshops.

Organic Livestock and Poultry,
Tuesday April 3, Balsam Lake
Government Center West Conference

This Quarter's Events

March 27, Tuesday, 9:30 a.m.- 3:30 p.m. – Stetsonville, Taylor County, North Central Graziers Spring Conference – Centennial Community Center, \$15, contact Bob Brandt, 715-748-2008

April 3, Tuesday, 6:00-8:30 p.m. – Balsam Lake, Organic Beef Seminar – Government Center, topics include organic production and certification, speaker Harriet Behar of MOSES Organic, contact Ryan Sterry, 715-485-8600

April 4, Wednesday, 1:00-3:30 p.m. – Barron, Organic Vegetable Seminar – Courthouse Auditorium, topics include organic transition and certification, speaker Harriet Behar of MOSES Organic, contact Tim Jergenson, 715-537-6250

April 4, Wednesday, 6:00-8:30 p.m. – Hayward, Organic Beef Seminar – Veterans Community Center, topics include organic production and certification, speaker Harriet Behar of MOSES Organic, contact Kevin Schoessow or Otto Wiegand, 715-635-3506

April 12, Thursday, 4:30-8:00 p.m. – Alpha, Burnett County, Beef Cow-Calf Seminar – Joe & Virginia Hennessey Farm, see attached article, contact Otto Wiegand or Kevin Schoessow, 715-635-3506

June 9, Saturday – Spooner, Washburn County Dairy Breakfast – Fairgrounds

June 16, Saturday – Burnett County Dairy Breakfast

June 18, 19, 21, Monday, Tuesday & Thursday – Spooner, Washburn County, Tractor Safety Training – Spooner Ag Research Station

June 23, Saturday – Hayward, Sawyer County Dairy Breakfast – Fairgrounds

room. 6:00 – 8:30 p.m.. Contact Ryan Sterry, Polk County Ag Agent at 715-485-8600.

Organic Vegetables and Fruit,
Wednesday April 4, Barron County
Courthouse Auditorium. 1:00-3:30
p.m.. Contact the Barron County
UW-Extension Office at 715-537-
6250 or the Spooner Area UW-
Extension Office at 715-635-3506 or
1-800-528-1914.

Organic Livestock and Poultry,
Wednesday, April 4, Hayward
Veteran Community Center, (Hwy. 63
and Main Street, Hayward). 6:00-
8:30 p.m. Contact Kevin Schoessow,

Spooner Area Ag Agent at 715-635-3506 or 1-800-528-1914.

Whether you have cattle, several acres of vegetables, a commercial greenhouse, a backyard flock, or an interest in supplying organic feed to livestock this is your opportunity to find out exactly what is involved in the organic certification and marketing process and how you can participate in this growing industry.

All participants will receive a packet of reference materials. There is no cost to attend any of these workshops; however, pre registration is required up until the day of the event.

Late-planted and replanted corn likely to respond to starter fertilizer

Larry G. Bundy
Extension Soil Scientist

Where corn planting has been delayed due to wet soils or where replanting is necessary due to poor stand establishment, use of starter fertilizer is important to increase yields and profits with these plantings. The increased probability of economic response to starter applies even on soils with excessively high P and K soil test levels. Results from numerous on-farm studies with corn response to starter fertilizer in Wisconsin showed more frequent response to starter with later planting dates and longer season relative maturity (RM) hybrids. Where the sum of the day of year of planting and the hybrid relative maturity exceeds about 235, the probability of response to starter fertilizer is about 50% or more. This would be the case any time a 100-day RM hybrid is planted after May 15 (100 RM + day of year 135) = 235. Table 1 shows the probabilities of response to starter fertilizer with various hybrid RM and planting date combinations and shows the increasing probabilities of economic response to starter fertilizer as planting dates become later. For a May 30 planting date, the probability of response to starter fertilizer ranges from 45 to 65% across the range of hybrid RM appropriate for Wisconsin. On soils with very high or excessively high soil tests, the full yield benefit from starter applications can be achieved with about 10-20-20 (lb/ acre of N-P2O5-K2O) in a 2-inch by 2-inch side placement relative to the seed. On these soils, higher starter rates will not give additional yield benefits. Broadcast applications of fertilizer are not likely to give the same benefits as a banded starter treatment. Using a starter fertilizer that contains potassium is important to ensure maximum benefits from the starter application. Although some additional time may be needed to apply starter at planting, the beneficial effects of the starter treatment on yields becomes more likely with the later planting dates.

Table 1. Probability of obtaining a positive economic return from starter fertilizer for several corn relative maturity ratings at various planting dates on soils with excessively high P and K levels. *

Relative Maturity	Planting date							
	4/25	5/1	5/5	5/10	5/15	5/20	5/25	5/30
	----- probability, %-----							
90	10	15	20	25	30	35	40	45
95	15	20	25	30	35	40	45	50
100	20	25	30	35	40	45	50	55
105	25	30	35	40	45	50	55	60
110	30	35	40	45	50	55	60	65

* This table does not alter current recommendations for early planting and selection for corn hybrids with appropriate relative maturities for the production zone.

Youth tractor & machinery training dates set

Kevin Schoessow
Area Ag Development Agent
Burnett, Sawyer, & Washburn Counties

Wisconsin Law requires that any youth less than 16 years of age be certified to operate a tractor or machinery on public roads—even if working for a parent or guardian. In addition, Federal Child Labor regulations make it unlawful to hire or even permit without pay any youth under age 16 to participate in any work activities listed as hazardous unless the youth is working on a farm owned and operated by the youth's parents or legal guardian, or the youth has a training certificate which provides an exemption from certain hazardous work activities. Operating a tractor over 20 PTO horsepower is included in the list of hazardous work activities.

Wisconsin training guidelines require that youth participate in 24 hours of classroom training and complete a driving course. A course satisfying these requirements will be conducted in Spooner at the Spooner Agricultural Research Station on June 18, 19, and 21 from 8:30 a.m. to 4:30 p.m.

Students must be at least 12 years old to enroll in the program and attend all the training sessions to receive their certification. Pre-registration is required.

To preregister for the training, contact Lorraine Toman at the Spooner Area Ag Agents UW-Extension office at 715-635-3506 or 800-528-1914. Please provide the name, address, telephone number, date of birth, and social security number of the youth to be certified.

Comparing bio-oils for use as biodiesel fuel

Ronald T. Schuler
 Extension Agricultural Engineer

Numerous bio-oils can be used to produce biodiesel fuel, but these oils have some different performance characteristics in agricultural tractors and self-propelled machines. These characteristics, which differ from the standard petroleum diesel fuel, include cetane rating, lubricity, pour point, and cloud point. The oil production, gallons per acre, resulting from the various crops vary a great deal.

The primary Midwestern US and Central Canada crops considered for production of biodiesel are canola, sunflowers, safflowers and soybeans. This discussion will include corn because the oil is a potential by-product of the ethanol process or other processes.

Oil production per acre will be dependent on the seed yield and the oil content of the seed and will vary from year to year. Using average yield data, canola produces the greatest quantity of oil per acre (127 gallons) followed by sunflowers, safflowers, soybeans and corn in that order, see table. Corn has the lowest production per acre (18 gallons).

Table. Bio-oil production and characteristics estimates.

	Production (gallons/acre)	Cetane Rating	Cloud Point (°F)	Pour Point (°F)	Energy (BTUs/lb)
Canola	127	55	25	-25	17,930
Sunflowers	102	52	45	5	*
Safflowers	74	—	10	5	*
Soybeans	48	53	25	10	17,437
Corn	18	53	30	-40	—
Diesel Fuel #1	—	46	-35	-45	**
Diesel Fuel #2	—	47	5	-27	19,308

*similar to Canola

**similar to Diesel Fuel #1

Cetane rating describes the ignition characteristics of diesel fuel. Fuels with higher rating will cause an engine to operate more efficiently and will tend to start more easily. Most petroleum diesel fuels on the market range from 40 to 55. The biodiesel fuels have higher ratings than the standard petroleum diesel fuels, see table. The differences among the bio-oils are small, see table, with canola being slightly higher.

For older engines, a minimum cetane rating of 40 is recommended. For modern tractors, one manufacturer recommends a minimum cetane rating of 45 but 50 is preferred. The ratings for biodiesel are above the preferred rating which should not create a problem.

Cloud point is the temperature where the wax crystals become visible in the fuel. One tractor manufacturer recommends the cloud point should be ten degrees Fahrenheit below the coldest temperature. The cloud points for biodiesel will create problems for temperatures in Wisconsin, see table. These crystals will plug the fuel filter. The pour point is the temperature where the fuel is

no longer pumpable, resulting no fuel being delivered to the engine, leaving it inoperable. Sunflower oil exhibits the highest cloud point, 45 degrees Fahrenheit, see table.

If 100 percent biodiesel is going to be used, at least two solutions are available to address the cloud and pour point problems. Heating the fuel to a temperature about ten degrees above the pour point will reduce the problem but would require modifications to the engine and its fuel tank. Additives are on the market for lowering the cloud and pour points of diesel fuel. The additives may be referred to as pour point depressants or antigels. Based on market information on fuel additives, there appears to be some additives developed specifically for the biodiesel fuels.

The energy available in each pound of biodiesel fuel is eight to ten percent less than petroleum diesel fuel, see table. The density of biodiesel is about four to five percent greater than the petroleum diesel fuel. Therefore the difference is less when considering the energy in a gallon of fuel but the biodiesel fuel is slightly less efficient. Under normal engine loads, the operator may not perceive a difference in engine performance when switching to biodiesel due to the small difference.

Lubricity is the ability of the diesel fuel to lubricate the fuel pump and injectors where parts are close fitting. Biodiesel fuel has higher lubricity characteristics and can be used to improve petroleum fuels. A blend of one to two percent of biodiesel with petroleum diesel will greatly improve its lubricity. Adding more biodiesel will have little impact on the lubricity of the blend.