UW Extension
Shawano County

Shawano County UWEX
311 North Main Street
Shawano, WI 54166
(715) 526-6136

Website:
http://shawano.uwex.edu

Like us on Facebook at:
uwex.shawano.ag

Hours:
Monday - Friday
8:00 am - 4:30 pm

In this edition:

Shawano Ag Newsletter

University of Wisconsin Cooperative Extension

October 2018

USDA-Farm Service Agency Market Facilitation Program Meetings—Shawano and Oconto

FSA FARM SERVICE AGENCY

The USDA Farm Service Agency (FSA) will host informational meetings on the Market Facilitation Program (MFP) on October 10 and 17, 2018. The meetings will be held at the Oconto-Marinette FSA office on October 10 at 10:30 a.m., and the Shawano FSA office on October 17 at 10:00 a.m. FSA staff will provide an overview of the program and discuss eligibility and documentation requirements.

USDA is taking action to assist farmers in response to trade damage from unjustified retaliation by foreign nations. FSA will administer the MFP to provide payments to corn, cotton, dairy, hog, sorghum, soybean, and wheat producers starting September 4, 2018. The initial MFP payment will be calculated by multiplying 50 percent of the producer's total 2018 actual production by the applicable MFP rate. If CCC announces a second MFP payment period, the remaining 50 percent of the producer's total 2018 actual production will be subject to the second MFP payment rate.

Please RSVP for the Wednesday, October 10 meeting to the Oconto-Marinette County FSA Office at (920) 829-5406 extension 2 no later than Tuesday, October 9, 2018. Persons with disabilities who require accommodations to attend or participate in this meeting should contact Nancy Swenty at (920) 829-5406 extension 2, or Federal Relay Service at 1-800-877-8339 by October 3, 2018.

Please RSVP for the Wednesday, October 17 meeting to the Shawano County FSA Office at (715) 524-4814 ext. 2 no later than Tuesday, October 16, 2018. Persons with disabilities who require accommodations to attend or participate in this meeting should contact Emily Schlidgen at (715) 524-4814 extension 2, or Federal Relay Service at 1-800-877-8339 by October 10, 2018.

Environmental Quality Incentives Program (EQIP) applications due November 16, 2018 for funding in 2019. Applications are being taken at all USDA Service Centers in Wisconsin.

September 24, 2018 Hay Market Report

Upper Midwest Hay Price Summary by Quality Grade

Hay Grade	*Bale type*	*---------- Price ($/ton) ----------*		
		Average	Minimum	Maximum
Prime (> 151 RFV/RFQ)	Small Square	$250.00	$220.00	$300.00
	Large Square	$214.00	$150.00	$260.00
	Large Round	$130.00	$130.00	$130.00
Grade 1 (125 to 150 RFV/RFQ)	Small Square	$188.00	$160.00	$260.00
	Large Square	$158.00	$120.00	$200.00
	Large Round	$122.00	$80.00	$170.00
Grade 2 (103 to 124 RFV/RFQ)	Small Square	$113.00	$105.00	$120.00
	Large Square	$124.00	$100.00	$150.00
	Large Round	$101.00	$63.00	$118.00
Grade 3 (87 to 102 RFV/RFQ)	Small Square	No Reported Sales		
	Large Square	$93.00	$93.00	$93.00
	Large Round	$86.00	$80.00	$95.00

Dairy Situation and Outlook, September 19, 2018

With favorable domestic sales, slower growth in milk production and higher dairy exports September milk prices will be higher than August. Higher cheese and dry whey prices will push the September Class III price to around $16.00 compared to $14.95 in August and a low of $13.40 back in February. While the price of butter will average lower this will be more than offset by high nonfat dry milk prices pushing the September Class IV price to around $14.70 compared to $14.63 in August and a low of 12.87 back in February.

Fluid (beverage) milk sales continue to trend lower. Fluid milk sales January through July were 2.2% lower than a year ago. But, with butter and cheese sales running higher total domestic sales of milk and dairy products for September will be higher than a year ago and positive for milk prices. July milk production was up just 0.5% from a year ago which was also positive for milk prices. But a little surprising August milk production improved to 1.4% higher than a year ago. Milk cow numbers fell by 9,000 head June to July but regained 5,000 head in August. August Cow numbers were down slightly from a year ago but an improvement in milk per cow of 1.4% higher than a year ago resulted in the 1.4% increase in total milk production. This higher than expected increase in August milk production could dampen milk prices some. But, schools are now in session moving more milk to fluid use and less for cheese production, and the fact that the sales of butter and cheese improve seasonally during the thanksgiving to Christmas period is still positive for milk prices.

Contributing to the higher August milk production were increases in California milk production of 1.2%, Wisconsin and Minnesota by 1.4%, South Dakota by 2.7%, Texas by 9.5%, New York by 1.7% and Idaho by 0.9%. Both Kansas and Colorado had increases of 8.6%. Dairy expansions were still evident in Texas, Kansas and Colorado by the fact that these states had 20,000, 8,000 and 14,000 more cows respectively than a year ago. In contrast Michigan had 5,000 fewer cows reducing their milk production by 0.6%, Pennsylvania had 6,000 fewer cows reducing milk production by 2.6% and Florida had 5,000 fewer cows reducing milk production by 7.3%. While California had 12,000 fewer cows, milk per cow had improved to 1.9% higher than a year ago. Wisconsin had 4,000 fewer cows but milk per cow was 1.7% higher.

Retaliatory tariffs imposed by Mexico and China beginning in July is having some impact on dairy exports. It appears that Mexico in anticipation of their 25% tariff on U.S. cheese increased cheese imports from U.S. by 43% in June compared to a year ago because July imports were 1% lower than a year ago. July cheese exports to China dropped 56% from a year ago with whey exports down 26%. With China being the largest U.S. market for whey products July whey exports were 8% lower than a year ago, the lowest whey exports in more than two years.

While the volume of dairy exports in July were the lowest since January they remained above a year ago due to continued strong exports of nonfat dry milk to Mexico and higher exports of dairy products to other U.S. international customers. Compared to a year ago, July exports of nonfat dry milk/skim milk powder were 30% higher, cheese just 1% higher, butterfat 84% higher and lactose 15% higher. On a total milk solids basis July exports were equivalent to 15.0% of U.S. milk production bringing the year-to-date to 16.6% of U.S. milk production. While stocks of dairy products remain more than adequate to meet demand they did tighten some in July. Compared to a year ago, July 31st stocks of butter were just 3.5% higher, American cheese stocks 0.8% lower, stocks of cheese varieties other than American 9.1% higher bringing total cheese stocks to 3.3% higher. Nonfat dry milk stocks were 21.3% lower and dry whey stocks 21.7% lower.

How retaliatory tariffs impact U.S. dairy exports in the months ahead continues to bring uncertainty to future milk prices. But, for the last quarter of the year domestic demand should continue to run above a year ago and the growth in milk production may increase by no more than 1%. Even if U.S. dairy exports show some more weakness the Class III price could stay in the low $16's and the Class IV price in the low $15's. Looking into 2019 a continued relatively strong economy will be positive for domestic sales. The growth in milk production is likely to stay well below 2%. Milk cow numbers may show little or no increase. With anticipated somewhat lower feed prices milk per cow may improve some. USDA is forecasting just a 0.1% increase in cow numbers and a 1.4% increase in milk per cow bringing the increase in total milk production to 1.5%. If retaliatory tariffs remain, USDA is forecasting lower dairy exports but not falling to a level that will lower milk prices compared to 2018. In fact, USDA's is forecasting that 2019 milk prices could average higher than 2018. I think it is reasonable to assume milk prices will average higher in 2019. The level of milk production and dairy exports will be major factors in how much higher.

Robert Cropp
racropp@wisc.edu
University of Wisconsin-Madison

For more information on dairy markets and policy, please visit Dr. Mark Stephenson's website at: https://dairymarkets.org/

To view a discussion on the September Dairy Situation and Outlook by Drs. Cropp and Stephenson, please visit: https://dairymarkets.org/PubPod/Podcast/Outlook/

Green Valley Dairy
Jacobs Brothers

invites you to a:

Soil Health Field Day

Wednesday, October 10th
1 pm to 3 pm

Field is located at the intersection of County Road E and Division Road, Bonduel
Follow the signs for parking

Field day is FREE - No preregistration
In the event of rain, field day will be held October 11th

AGENDA

12:45 to 1 pm
Registration

_____

1 pm to 3 pm

Cover Crops

_____

Tile Drainage and Water Quality

_____

Soil Health and Soil Erosion

_____

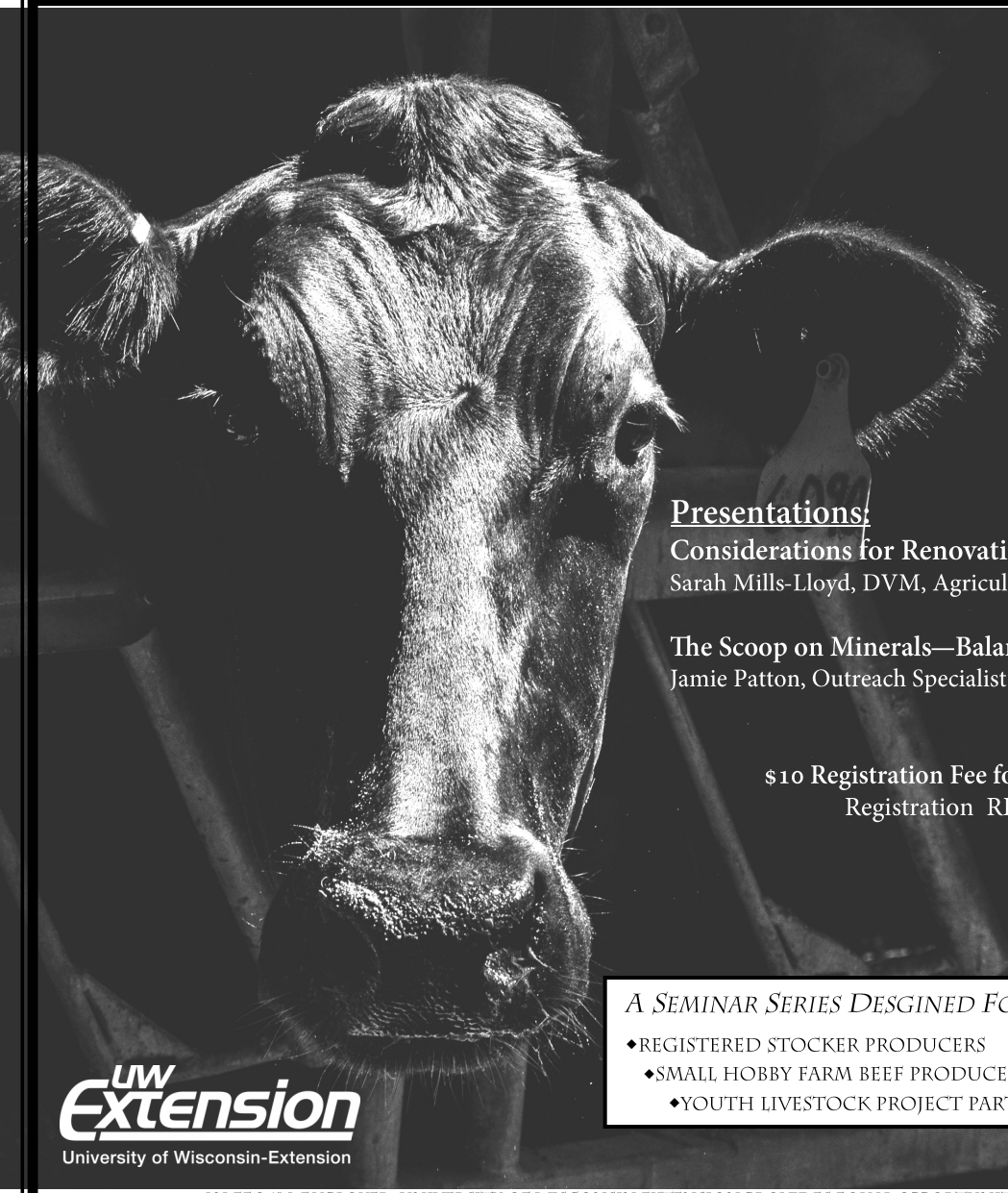
Precision and Cover Crop Equipment

USDA NRCS U.S. Department of Agriculture Natural Resources Conservation Service

NPM

DISCOVERY FARMS WISCONSIN

UW-Extension
Fall Beef Meeting
October 17, 2018



Lowland Farms
Kevin & Terri Ferfecki
W1123 Nichols Drive
Krakow, WI 54137

3:30 PM Registration

Farm Tour /Pasture Walk

Presentations:

Considerations for Renovating Dairy Barns for Your Beef Herd
Sarah Mills-Lloyd, DVM, Agriculture Agent, UW-Extension Oconto County

The Scoop on Minerals—Balancing Forages, Soil Fertility, and Supplements
Jamie Patton, Outreach Specialist Nutrient Pest Management, UW-Madison

$10 Registration Fee for printed materials and Light Supper
Registration REQUESTED BY October 10, 2018

A Seminar Series Desgined For:

- Registered Stocker Producers
- Commercial Cow/Calf Producers
- Small Hobby Farm Beef Producers
- Agriculture Professionals
- Youth Livestock Project Participants
- Educators

UW Extension
University of Wisconsin-Extension

PHOTO COURTESY OF UW-MADISON CALS

2018 UW-Extension Fall Beef Cattle Meeting Registration

Name(s): _____

Company: _____ Telephone: _____

Address: _____ City/State/ZIP: _____

Email address (for a direct mailing in future years): _____

Registration: _____ People x **$10 per person** (includes meals & materials) = $_____

Total Enclosed: = $_____

Make Check Payable to: **UW-Extension**

Mail to:
UW-Extension Oconto County
Attn: Sarah Mills-Lloyd
301 Washington Street
Oconto, WI 54153

Registration due Wednesday, October 10th

Beef Quality Assurance (BQA) Certification Sessions Scheduled

Some large packers and processors have announced that effective January 1, 2019, buyers representing them will only purchase from farms that are BQA or FARM Certified.

Most dairy farms are certified with their dairy processor; ask your dairy rep for help in providing your FARM Certification number at the point of sale. This will be in effect for all markets and all private treaty transactions. Buyers will confirm your certification by collecting your certification identification number at the point of sale. Additional processors may begin to require BQA or FARM Certification from their suppliers.

Beef Producers can obtain their BQA certification online at no cost by going to (http://www.bqa.org). Here you will create an account (based upon your email address) and select the course that best fits your particular operation. Each interactive course takes about 2 hours to complete, and requires an 80% score to pass the final test. You will receive your certification number via email, which you will provide at the point of sale.

UW Extension and the Wisconsin Beef Council are working together with various Auction markets to hold in person BQA certification workshops for producers who are not able to get certified online. There is a $15 fee for live certification workshops to help offset costs. Checks must payable to: WI BQA Program.

Beef producers created the voluntary Beef Quality Assurance Program in 1987 to assist each other in raising, feeding and harvesting high quality beef. By participating in BQA and adopting BQA production practices, you are helping to answer the call from the packers' consumers, for safe beef raised in a humane manner.

Following is a list of certification workshops that are scheduled at this time:

Date	Location	RSVP and additional information for each location at:
Sept 25	Rolling Hills Rehabilitation Center 14345 County Road B Sparta, WI 54656	Equity Sparta Market, (608) 269-3104 UWEX Monroe Co, (608) 269-8722
Sept 27	Monroe Market N1365 Hwy. 69 Monroe, WI 53566	Equity Monroe Market, (608) 328-8344
Oct 18	Johnson Creek Market N6225 County Y Johnson Creek, WI 53048	Equity Johnson Creek Market, (920) 699-3588
Oct 19	Bonduel Market 455 N. Cecil St. Bonduel, WI 54107	Equity Bonduel Market (715) 758-2125
Oct 26	Altoona Market 5150 Hwy. 53 South Eau Claire, WI 54701	Equity Altoona Market, (715) 835-3104 UWEX Eau Claire Co, (715) 839-4712
Oct 30	Lancaster Agricultural Research Station 7396 State Rd 35 & 81 Lancaster WI 53813	UWEX Grant Co, (608) 723-2125
Nov 2	Stratford Market EP4363 State Hwy. 97 Stratford, WI 54485	Equity Stratford Market, (715) 687-4101 UWEX Taylor Co, (715) 748-3327 ext. 1
Nov 8	Lomira Market N11579 Industrial Dr. Lomira, WI 53048	Equity Lomira Market, (920) 269-4351
Nov 8	Premier Livestock & Auctions, LLC N13438 St. Hwy 73 Withee, WI 54498	Premier Livestock, (715) 229-2500
Nov 17	Waukon Market 1645 Hwy. 76 North Waukon, IA 52172	Equity Waukon Market, (563) 568-4501
Dec 5	Richland Center Market 26702 County Hwy. O Richland Center, WI 53581	Equity Richland Center Market, (608) 647-6151

Learn About Your Land - Three Sessions - Oconto and Pulaski

Session 1 Keys to Keeping Your Trees Healthy
A healthy woodland provides many benefits. Is yours healthy? Do you have injured or dying trees? Your woods may look fine, but is it healthy? This session will review insects, diseases, animals, non-native invasive species, environmental factors, and improper woodland management that can affect the health of your woodland. You will leave knowing signs and symptoms of sick trees, and who to call if you have a concern.
October 22, 6-8 PM- Oconto County Courthouse, 301 Washington St., Oconto, WI 54153
October 23, 6-8 PM- Pulaski High School, 1040 S. St. Augustine St., Pulaski, WI 54162

Session 2 How to Invite Wildlife to Your Woodland
Learn to enhance your woodlands to attract a variety of wildlife. This session identifies the four requirements to attracting wildlife to your land: space, water, food and shelter, as well as how you can manage your woods to improve the wildlife potential.
Oct 29, 6-8 PM- Oconto County Courthouse, 301 Washington St., Oconto, WI 54153
Oct 30, 6-8 PM- Pulaski High School, 1040 S. St. Augustine St., Pulaski, WI 54162

Session 3 Successful Tree Planting
This session will identify the steps needed to successfully establish new trees. Learn which trees will grow best on your land, how to prepare your land, techniques for planting, and how to care for newly planted trees.
Nov 5, 6-8 PM- Oconto County Courthouse, 301 Washington St., Oconto, WI 54153
Nov 6, 6-8 PM- Pulaski High School, 1040 S. St. Augustine St., Pulaski, WI 54162

COST/REGISTRATION:
$35 for the entire series or $15 per session Space is limited.
Pre-registration is recommended
https://woodlandinfo.org/event-page/learn-about-your-land-oconto-and-pulaski/

Deadline- October 15, 2018

CONTACT:
Bill Klase
Natural Resource Educator, UW-Extension
william.klase@uwex.edu
715-365-2658

Learn About Your Land
CLASSES FOR WOODLAND OWNERS

The "Mailbox Price Forecaster" Tool Forecasts Your Farm's Future Milk Price

Dr. Brian Gould and his team at UW-Madison have developed a web-based tool, called the "Mailbox Price Forecaster" (MPF). The MPF can generate 12-month forecasts of mailbox prices for several federal orders and California. To run the MPF, you will need to input a minimum of the last 36 months of mailbox prices received by your farm. You can also enter in your monthly average milk fat and protein contents to increase the model's accuracy. The tool will then calculate the historic relationship between your farm's prices as compared to the market-generated monthly announced Class III and IV milk prices. This relationship, as well as the previous days Chicago Mercantile Exchange Class III and IV future contract settlement prices, are then used to forecast your mailbox milk price for the next 12 months.

To read more about the MPF, you can access an August 2018 Hoards' Dairyman article at:
https://fyi.uwex.edu/dairy/files/2018/08/Hoards-Model-helps-predict-on-farm-milk-prices.pdf

You can contact Dr. Gould at bwgould@wisc.edu for more information on the Mailbox Price Forecaster.

You can access the MPF tool itself, go to: https://dairy.aae.wisc.edu/dairy-marketing-tools/

2018

Wisconsin Pest Management Update Meetings

Three hours of Certified Crop Advisor CEU credits in pest management are requested for each session.

The schedule for the Wisconsin Pest Management Update meeting series is listed below. Presentations will include agronomic pest management information for Wisconsin field and forage crops. Speakers include Mark Renz and Rodrigo Werle, weed scientists, Damon Smith, plant pathologist, and Bryan Jensen, entomologist.

The format will be the same as in 2017. Meetings will either be in the morning or afternoon and will run for 3 hours. Note that several locations and contacts have changed since 2017 (marked with *). Please read carefully and make sure you contact the appropriate person at your desired location.

Please make your reservation with the host agent at least one week prior to the scheduled meeting date.

	Location	Contact
Monday, November 12 1pm – 4pm	**Marshfield** Marshfield Agricultural Research Station 2611 Yellowstone Drive Marshfield, WI 54449	Richard Halopka Clark County Extension Courthouse Room 104, 517 Court Street Neillsville, WI 54456 (715) 743-5121
Tuesday November 13 9am-12pm	**Chippewa Falls** Lake Hallie Eagles Club, 2588 Hallie Road Chippewa Falls, WI 54729	Jerry Clark Chippewa County Extension 711 N. Bridge Street Chippewa Falls, WI 54729 (715) 726-7950
Wednesday November 14 9am-12pm	**Platteville*** Student Center – University Rooms University of Wisconsin-Platteville 1 University Plaza Platteville, WI 53818	Amanda Cauffman* Grant County Extension 916 E. Elm Street Lancaster, WI 53813 (608) 723-2125
Wednesday November 14 1pm-4pm	**Janesville** Holiday Inn Express Janesville 3100 Wellington Place Janesville, Wisconsin 53546 (I-90 and US Highway 14, West on 14)	Nick Baker Rock County Extension 51 S. Main Street Janesville, WI 53545 (608) 757-5698
Thursday November 15 9am-12pm	**Fond du Lac** University of Wisconsin – Fond du Lac Rm 113 University Center 400 University Drive Fond du Lac, WI 54935	Tina Engelhardt* Fond du Lac County Extension 227 Admin/Extension Bldg. 400 University Dr. Fond du Lac, WI 54935 (920) 929-3171
Thursday November 15 1pm-4pm	**Kimberly** Liberty Hall 800 Eisenhower Drive Kimberly, WI 54136 (Highway 441, College Avenue Exit, East 1 block)	Kevin Jarek Outagamie County UW Extension 3365 W. Brewster St. Appleton, WI 54914 (920) 832-5128
Friday November 16 9am-12pm	**Bangor*** Log Cabin, Jones Road, Bangor, WI 54614	Kaitlyn Lance* La Crosse County UW Extension 212 6th Street North La Crosse, WI 54601 (608) 785-9593

Join us for a pre-conference dinner and discussion:

Want more soil health?

- Bugging Out on Soil Health -

The diversity & function of soil microbes

February 19, 2018 • 5:00 PM

cover crops in WISCONSIN

Taking place after the DATCP Producer-Led Workshop

UW Extension
University of Wisconsin-Extension
Department of Soil Science
Univ. of Wisconsin-Madison

SAVE the DATE

Soil, Water and Nutrient Management Conference

December 5, 2018

The Main Event, Cecil

Information coming soon...

How are you celebrating

National 4-H Week

?????????

October 4th - 10th

Shop Amazon Smile?

Choose Shawano County 4-H Leaders Association, listed as **Board of Regents of the University of Wisconsin System – Shawano, WI**, as your charitable organization!

More information here…
https://fyi.uwex.edu/shawano4h/2017/11/14/amazonsmile/

amazonsmile
You Shop. Amazon Gives.

WISCONSIN FARM CENTER

Department of Agriculture, Trade and Consumer Protection

Financial Consultation Available Through the Wisconsin Farm Center

About the Financial Assistance

The Wisconsin Farm Center has financial experts who are experienced in a wide range of farm-related subject areas. The Farm Center team can answer questions and assist with cash flow and enterprise analysis, feasibility analysis, debt restructuring and business planning.

All personal and business information is kept confidential. The Wisconsin Farm Center can also direct you to useful resources available.

Cash Flow And Enterprise Analysis

The Wisconsin Farm Center can assist with difficult financial decisions by working with the farmer on cash flow and enterprise analysis. This could be done as part of an expansion plan, restructuring or feasibility study.

Basic financial information needs to be provided by the farmer or their lenders. The financial analysis is based on three to five years of actual historical and current financial data. This analysis can help with preparing to meet with lenders and make future business decisions. The Wisconsin Farm Center provides assistance to calculate the operation's assets, liabilities and farm net income.

After a financial analysis, the Wisconsin Farm Center can assist with a review of cash flow projection to attempt to look into the future of the business and determine long-range viability. The cash flow projections include how debt terms and structure will be paid in the future, provide for capital replacement and cover family

living expenses. During the projection, various price and production scenarios are used to consider multiple options.

Feasibility analysis

The Wisconsin Farm Center can assist with the financial pieces of a feasibility study prior to making a business plan. The purpose of the feasibility study is to explore the viability of changes to your current farm business. Examples could be expansion, modernization of facilities, changes to business management or succession planning.

To begin a feasibility study, the farmer must agree on personal and/or family goals. By doing the study, farmers can explore multiple options for changing the business. Wisconsin Farm Center staff will go over a summary of planned capital expenditures for the proposed project and detailed budgets. The feasibility study will include a detailed balance sheet of existing assets and liabilities for the business.

Debt analysis and restructuring

The Wisconsin Farm Center can help farmers look not only at the debt owed, but also the term of the debt, interest rates and repayment amount to get a complete picture of the operations debt structure. Farm Center staff can review financial data with farmers to determine if cash flow problems may be related to the debt structure more than the amount of debt.

Learn more

Find the Wisconsin Farm Center online at http://datcp.wi.gov/Farms/Wisconsin_Farm_Center. The Wisconsin Farm Center is available weekdays from 7:45 a.m. to 4:30 p.m.
Farmers can contact the Farm Center toll-free at:

1-800-942-2474

or by email at

farmcenter@wisconsin.gov

MC-FC-93.indd (1/14)

Nutrient Management Planning

This course is designed for participants to develop a nutrient management plan that will meet the NRCS 590 Standard requirements. Participants will enter soil test information into the software program, SNAPPLUS, and will develop a plan using the data. Subjects include conservation plans, field mapping, soil test analysis, manure management and crop selection and crop nutrient requirements.

It is highly recommended that you have current soil tests no more than four years old, sampled on a one sample per five acre basis and analyzed by a DATCP approved laboratory.

Why Attend

- Growers who completed this training in 2016 (or before) need to complete this course to remain qualified to write their own plans. **DATCP requires that farmers must also complete a department approved training course at least once every four years to maintain qualification.**
- Take ownership of your farm's nutrient plan for the next four years in just 16 hours of classroom instruction.

  Even if you have another individual write your nutrient management plan this is a good opportunity further your understanding about how to implement your plan.

- Past students have appreciated taking ownership of writing their own nutrient management plan and saving money by doing it themselves.
- Students successfully completing a nutrient management plan will be compensated up to $120 as a stipend for attending. You may also be eligible to receive reimbursement for a limited number of soil samples.

Catalog No: 47-090-497

Class No: **84832**

Day/Dates: Fridays October 26, 2018, January 18, January 25, and February 1, 2019

Time: 10:30 a.m. - 2:20 p.m. NWTC Room: AG214

Estimated Fee: $58.18

Instructor: Brad Holtz, University of Wisconsin – Extension

Northeast
Wisconsin Technical College

REGISTRATION FORM

Visit our Web site at ...
www.nwtc.edu

Student Number | National ID (SS#) | Last Name | First Name | Middle Initial | Previous Last Name

Street Address | City | State | Zip Code | ☐ Male ☐ Female

Check one:
☐ U.S. Citizen
☐ Immigrant
☐ Nonimmigrant

Area Code | Home Telephone | Legal Resident of: | County | ☐ Village ☐ City ☐ Town

Required Government Statistical Information
☐ 1. American Indian/ Alaskan Native
☐ 2. Asian
☐ 3. Black, Not Hispanic
☐ 4. Hispanic
☐ 5. White, Not Hispanic
☐ 6. Native Hawaiian/ Other Pacific Islander
☐ 9. I choose not to disclose

Area Code | Work Telephone | Area Code | Cell Phone Number | Date of Birth

Education: Name of High School | City | State | H.S. Year Graduated | Highest Grade Completed | ☐ HSED _____ ☐ GED® Tests _____ Year Completed

Disability: ☐ Yes ☐ No Check '**Yes**' if you are self identifying a disability.

For registration information, call (920) 498-5444.

Out-of-state residents may be responsible for additional fees.

Class Number	Class Title	Catalog Number	Start Date	Class Fee

I certify that the information on this form is true to the best of my knowledge.

Signature *(required)* _____ **Date** _____

The College reserves the right to cancel classes in the event of insufficient enrollments. If a class cancels, you will be notified prior to the starting date.

NWTC is an equal opportunity, access, affirmative action employer and educator. 5074CRLS nd 03_08

Registration:

Phone-In Registration

To register with one of our Enrollment Services staff, please call: (920) 498-5444 or (888) 385-NWTC. Please have your Student ID and a credit card available for payment of all non-credit classes.

Green Bay Hours: Monday-Thursday 8 a.m.—6 p.m., Friday 8 a.m.—4:30 p.m., Saturday 8 a.m.—11 a.m.

Mail-In Registration

Registrations are processed by postmark date. Checks should be made payable to Northeast Wisconsin Technical College and mailed WITH REGISTRATION FORM to: Registration, NWTC, PO Box 19042, Green Bay, WI 54307-9042

For Additional Class Information: Call Bonnie in the Trades & Engineering Technologies Office at (920) 498-5457

NWTC does not discriminate on the basis of age, race, color disability, sex, national origin, or other protected classes

East of Shawano

PULASKI
Angelica/Pulaski Food Pantry
234 W. Town Road, Pulaski
920-822-6054
1st & 3rd Tuesday of each month from 1-4 pm
Serving residents in Pulaski school district;
income based

NAVARINO
The Loaves & Fishes Food Pantry at the Navarino School Library
W5135 Hwy 156, Navarino
715-758-8312
3rd Saturday of each month from 10 am-1 pm

Additional Food Resources

Food Share (formally Food Stamps)
Apply online at ACCESS.wi.gov or call
1-800-794-5747 for Brown, Door, Marinette, Oconto and Shawano Counties
1-888-794-5556 for Waupaca County
1-888-445-0012 for Marathon County

National School Lunch Program
Apply at your child's school district office for free and reduced cost lunches

Women, Infant, and Children Supplemental Nutrition Program (WIC)
Serving pregnant & postpartum women, infants, and children up to age 5
Shawano WIC—311 N. Main St., Shawano
715-526-2822; call to inquire about eligibility
Keshena WIC— W3275 Wolf River Rd, Keshena 715-799-5444
Stockbridge-Munsee WIC—W12802 Cty HWY A, Bowler; 715-793-5012

Summer Options

Community Garden
Dreams of Green Gardeners
Community Garden at Zion Lutheran Church
$8 for a 10x10 plot, water included
Contact Nancy Wise 715-584-6416

Share the Bounty
Distribution of extra produce from area Gardeners. Sites are located at:

SAFPARC—218 E. Richmond St., Shawano
Monday-Friday 9-11:30am
Goodwill—300 Lakeland Rd., Shawano
Monday-Saturday 9am-9pm
Sundays 9am-7pm
St. Martin's Catholic Church
407 S. Warrington Ave., Cecil
4th Tuesday of each month 1-4pm
St. Paul's Lutheran Church
240 E. Green Bay St., Bonduel
2nd Wednesday of each month 4-6pm
Wittenberg Community Center
208W. Vinal St., Wittenberg
Monday-Thursday 9am-5pm
St. Michael's Food Pantry
N816 HWY 47/55, Keshena
1st & 3rd Tuesdays 1-3 pm

Farmers Markets
Shawano Farmers Market
Saturdays 8-Noon at Franklin Park
Many Trails Farmers Market
Fridays Noon-5pm at North Star Casino parking lot
Keshena Farmer's Market
Fridays Noon-6p.m. at Vet-

WISCONSIN WIC HERE FOR YOU
UW Extension University of Wisconsin-Extension

The Greater Shawano Area

Resource Guide

Created June 2018

Shawano Area

SHAWANO
Shawano Area Food Pantry & Resource Center (SAFPARC)
218 E. Richmond St., Shawano
715-524-5863
Monday-Friday from 9-11:30 am

Divine Savior Church
102 Northridge Dr., Shawano
715-526-6880 (Church) or 715-526-3401
Thursdays from 1-3 pm

CECIL
St. Martin's Catholic Church (in church hall)
407 S. Warrington Ave., Cecil
715-745-6681
4th Tuesday of each month from 1-4 pm

BONDUEL
Bonduel Community Food Pantry at St. Paul School/Church
240 E. Green Bay St., Bonduel
715-758-8532
Serving residents in Bonduel school district
2nd Wednesday of each month from 4-6 pm

KESHENA
St. Michael's Catholic Church
N816 State Hwy 47/55, Keshena
715-799-3811 or 715-7994821
Serving Menomonie County reservation residents; *must provide ID*
1st & 3rd Tuesday of each month from 1-3 pm

Gillett
Ruby's Pantry at Gillett High School
208 West Main Street, Gillett
920-855-2962
2nd Saturday of each month from 8:30-11:30am
$20 Donation Required
Food Distribution at 9 am; *registration required*

South of Shawano

MARION
Marion Area Food Pantry at Momma's House of Hope
121 E. Garfield Ave., Marion
715-754-5201
1st & 3rd Thursday of each month from 3-4 pm
Serving residents in Marion school district

CLINTONVILLE
Clintonville Area Food Pantry
55 E. 12th St., Clintonville
Located in the Basement
715-823-5461
Every Monday from 11 am—1 pm
Every Thursday from 3-5 pm

Ruby's Pantry at Family of Christ Church
600 S. Main St., Clintonville
715-823-2199
2nd Saturday of each month from 9-10:30 am
$20 Donation Required

SHIOCTON
Loaves & Fishes Food Pantry at Ascension Lutheran Church
W6106 Navarino Rd., Shiocton
715-851-2104
3rd Wednesday of each month from 5-7pm And the following Saturday from 9-11 am

North of Shawano

OCONTO FALLS
Kingdom Come Food Pantry
520 Locust Ave, Oconto Falls
920-604-2729
Tuesdays from 10 am-6 pm

West of Shawano

BIRNAMWOOD, MATTOON & ANIWA
St. John's Trinity Lutheran Church
407 Birch St., Birnamwood
Birnamwood: 715-449-3277
Mattoon: 715-623-6072
Aniwa: 715-449-2768
Call to pick up; no specific hours

MATTOON
Birnamwood Area Community Cupboard at St. John's Lutheran Church
304 Flint Ave., Mattoon
715-489-3647 or 715-623-6072
No specific hours

WITTENBERG-BIRNAMWOOD
Community Bread Basket
715-449-2278
No specific hours

TILLEDA
TULP Food Pantry at United Lutheran Parish
N6135 County Rd. D, Tilleda
715-787-3367
3rd or 4th Wednesday of the month

BOWLER
St. Paul's Food Pantry at St. Paul Lutheran Church
201 E. Wall St., Bowler
715-535-2679
1st Thursday of each month from 6-6:30pm
Serving residents in Bowler school district

Planting Winter Rye after Corn Silage:
Managing for Forage

Jim Stute, University of Wisconsin (UW) Extension, Rock County
Kevin Shelley, UW Nutrient and Pest Management Program
Dwight Mueller, UW Arlington Agricultural Research Station
Tim Wood, UW Lancaster Agricultural Research Station

Rye field cut and windrowed on a Rock county farm.

Why Plant Rye?

Winter rye (*Secale cereale*) can be used as a cover crop after corn silage to protect against soil erosion, and in parts of Wisconsin is recommended by conservation planners. Properly managed, it has multiple uses and benefits beyond conservation, including forage production, nutrient management and weed suppression. It can also provide a hedge against weather related forage shortage caused by alfalfa winterkill or drought.

This publication focuses on using rye as an early-season forage crop. However, when rye is managed for optimum forage production, conservation and nutrient management benefits will also be achieved. Except where otherwise noted, the information presented is based on trials conducted at research stations at Arlington, Lancaster and Janesville, WI from 2004 to 2006.

Forage Production

Rye, planted in the fall, can produce substantial dry matter (DM) yield the following spring, often without undue planting delay for the following crop. Rye harvested at boot stage typically produces DM yield in the 2 to 3 ton per acre range at quality levels acceptable for many animal production groups (Table 1).

Table 1: Rye forage yield, quality and nutrients removed by harvest.

	Average	Range
Yield (ton/acre)	2.37	1.34–3.88
RFQ	180	149–205
CP (%)	16.2	13.3–19.0
ADF (%)	27.6	24.6–31.4
NDF (%)	52.2	47.2–56.7
P (%)	0.39	0.29–0.48
K (%)	3.05	2.10–4.37
Nutrient removal (lb/acre) dry matter basis, harvested at boot stage		
N	121	69–178
P_2O_5	42	29–71
K_2O	178	110–344

Factors Affecting Rye Forage Yield and Quality

Planting: Rye should be planted as soon after corn silage harvest as possible. In southern Wisconsin, rye planted in mid-to-late September produces higher forage yield, and tends to mature slightly earlier the next spring. However, yield potential does not significantly decline until about October 10 (Figure 1). Later planting results in less soil cover going into winter, thus reducing soil protection (Figure 2). However, rye grows rapidly in spring and acceptable forage yield can usually be achieved with later October planting.

Rye planted at different planting dates, Oct. 10 (left) and Sept. 20 (right). Photo taken the following April .

UW Extension · The University of Wisconsin Madison · NPM

Figure 1.
Effect of planting date on rye forage yield.

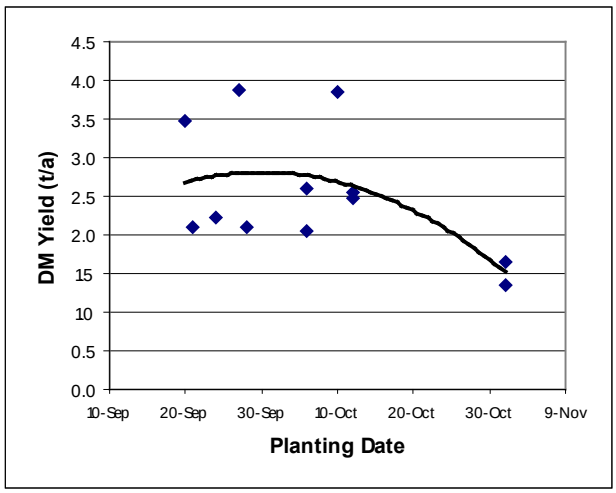
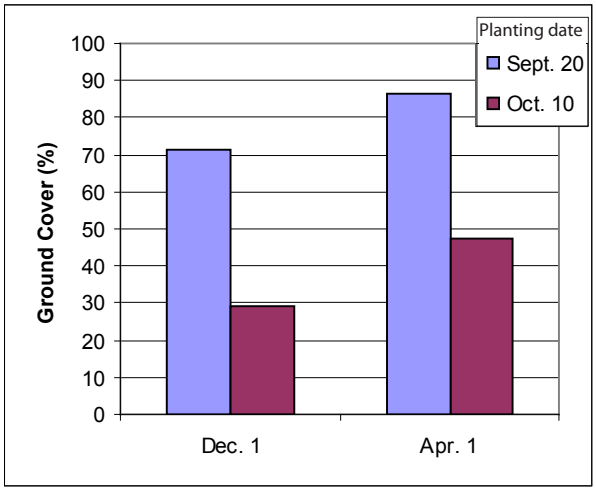


Figure 2.
Effect of planting date on soil cover.

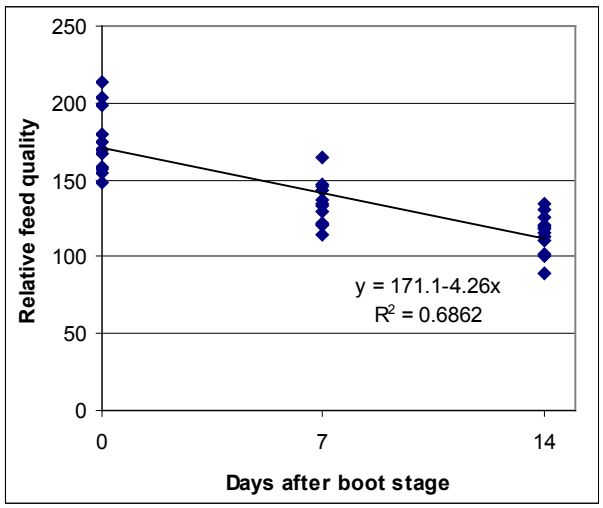


Seeding rates of 90 to 112 lb per acre are needed for maximizing forage yield when rye is planted in a timely fashion. Published recommendations of 60 to 90 pounds are based on rye intended for grain production and will probably result in lower forage yields and insufficient soil cover. Seeding rates beyond 112 lb per acre (2 bushel) may increase yield when rye is planted later than October 10 and will help to increase over-winter soil cover.

Harvest: Rye is harvested in boot stage to balance yield and quality, similar to oats. Boot stage is just before seed head emergence when the head can be felt near the top of the leaf whorl within the sheath of the flag leaf. Earlier harvest results in high quality but low tonnage and later harvest results in lower quality. Forage quality declines rapidly with increasing maturity beyond boot stage, 4 to 5 relative forage quality (RFQ) points per day, making timely harvest critical (Figure 3). Also, boot stage is short, lasting only a few days. To optimize both yield and quality, rye should be harvested on the earlier side of this stage, well before the flag leaf splits and heads begin to show.

Boot stage typically occurs by mid-May in southern Wisconsin, but can vary, depending mostly on growing conditions. This can complicate planning, especially if harvest involves custom operators and may delay planting of the summer crop. This is also a period with high probability for rainfall in Wisconsin, potentially creating a problem with rapid quality decline if harvest is delayed. Practical experience suggests rye should be harvested early if long-term forecast predicts a wet period in the future.

Figure 3.
Rye forage quality decline with increasing maturity.



Rye at boot stage.

Fertility: Rye responds to added nitrogen (N) with increased yield and crude protein. Under Wisconsin conditions, the economically optimal N rate to apply is 40 to 60 lb per acre when using commercial fertilizer. If all of the N will come from manure and/or previous legumes, the economic optimum may be closer to 80 lb of creditable N per acre. The higher rate from these organic sources will also help account for variability in manure application and mineralization of organic N. Nitrogen applications may be reduced if the pre-plant soil nitrate test (PPNT) suggests that elevated levels of residual N exist in the soil. Nitrogen should be applied in early spring before rapid growth begins. Nitrogen rates beyond 80 lb per acre reduce yield for a variety of reasons including lodging.

Additional N is not needed if used only as a cover crop, and may result in excessive residue which may be difficult to manage. Soil phosphorous (P) and potassium (K) should be sufficient on most farms that no additional nutrients are needed to support rye growth.

Storage and Feeding Aspects

Rye harvested and used as forage has some storage and animal health considerations. Practical experience suggests rye forage can put excessive pressure on silage bags causing failure. The University of Arkansas recommend bags not be overfilled, and closely monitored for tearing, especially along the top of the bag. Reducing packing pressure may reduce the risk of bag failure. Bags should be monitored frequently and tears repaired immediately.

Rye forage can contain high levels of K which may limit its feeding flexibility in dairy rations. Data from the National Research Council (NRC) shows average K levels of 3.34%, greater than most forages including alfalfa. This increases concern about hypocalcemia (milk fever), especially given that its nutritional value is more suited to dry cow rations than lactation diets if harvested on the late side. Care should also be taken because rye is a luxury feeder of K. Many farms have elevated soil test K levels which could lead to excessive K uptake. Wisconsin data has shown forage levels as high as 4.37% when rye was grown on soils exceeding 300 ppm K . Rye forage should be tested so K levels are known and rations adjusted accordingly.

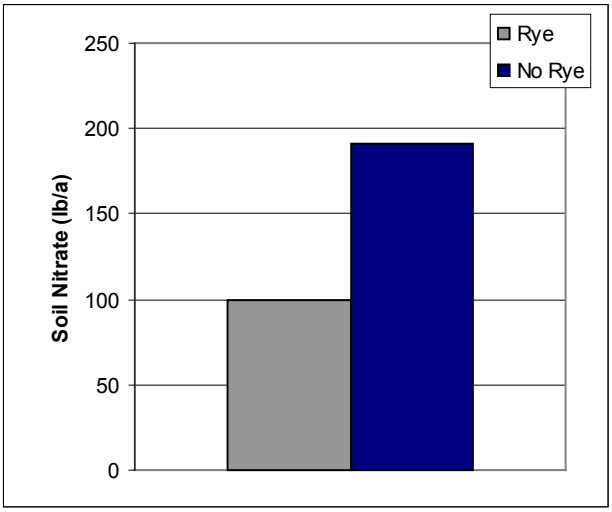
Farm Nutrient Management

Rye can be an important component in whole-farm nutrient management planning and nutrient cycling. It grows actively, taking up nutrients during the late fall and early spring when significant infiltration and leaching occur. Harvest of rye forage, followed by a subsequent crop significantly increases annual nutrient removal from soil. Nutrient management planning benefits include both N and P, or just N, depending on whether rye is harvested.

Nitrogen Implications

Rye's ability to reduce the amount of soil nitrate that remains from the previous crop is well documented in eastern and southeastern states where milder winters increase the likelihood of over-winter leaching losses. Even in Wisconsin, where frozen soil prevents leaching for much of the winter, rye can significantly reduce soil nitrate following fall manure application (Figure 4). This benefit occurs even if rye is not harvested and will help protect groundwater quality where heavy manure applications have been made.

Figure 4.
Effectiveness of rye reducing soil profile nitrate following fall application of 40 ton/acre dairy manure, measured in spring at rye harvest.



Phosphorus Implications

Removal of rye forage in spring can also remove significant amounts of P and K (Table 2). Coupled with nutrient removal from the summer crop, annual nutrient removal is significantly increased, which can greatly benefit nutrient management planning. Rye could be used to help draw down soil test P in fields with excessive levels where nutrient applications may otherwise be prohibited under P based planning and regulations. Rye could also be used to maintain current soil test levels under higher rates of nutrient application (i.e. maintain higher application rates by matching application with removal). Although further research is needed, a nutrient management planner can assist in estimating a field's nutrient budget when including rye as forage.

Table 2: Estimated nutrient removal by forage harvest.

Nutrient	lb per ton dry matter
N	52
P_2O_5	18
K_2O	80

Additional Considerations:

Herbicide Choice in Corn before Rye

All corn herbicides have a rotation interval before rye can be planted. Rye may be listed specifically, or grouped with "other crops". Many herbicides list rye specifically and require a four month or greater interval from herbicide application to rye planting. Care should be exercised choosing herbicides when planning to follow silage with rye to prevent herbicide related problems.

Planting Recommendations

Seed source and variety: Seed suppliers may not commonly stock winter rye seed so availability should be checked in advance. Certified seed of varieties "Hancock" and "Spooner" are available in Wisconsin, along with uncertified common seed. All have performed similarly in Wisconsin trials.

Depth: Rye should be planted 1 to 1.5" deep, regardless of tillage system. Good soil-seed contact will aid germination and hasten the development of soil cover. Rye is well suited to no-till establishment.

Manure Application

Planned manure applications following corn silage harvest can be an obstacle to timely rye planting, especially for a daily haul situation. A possible option is to apply manure after the rye is planted and has emerged as a way of avoiding a planting delay. However, this is likely a good choice only if the manure is very liquid (< 10% solids) and if rates are kept at 5,000–7,000 gallons per acre or less. Side-by-side demonstrations have indicated slight yield reductions where semi-solid manure was applied to early-growing rye because seedlings were smothered by bedding or feed refuse in the manure.

When Not To Harvest

Variations in weather and maturity may make harvest of forage with satisfactory quality challenging in some years. Should delays prevent harvest at boot stage, termination with herbicide should be considered. Conservation and nitrogen scavenging benefits will already have been realized, weed suppression potential improved, and an inventory of lower quality forage prevented.

How to Kill Rye

Use glyphosate or paraquat at standard burndown rates. Be sure to adjust boom height to insure adequate coverage of the canopy, especially with taller rye.

Following Crop

Planting corn, soybeans or alfalfa are all options following rye forage harvest. Immediate no-till planting of glyphosate resistant corn or soybeans into the rye stubble can be followed by later glyphosate applications to control rye regrowth as well as other weeds. In most cases, a single application is adequate. No-till crops should be closely monitored for insect infestation. With tillage-based planting, fairly aggressive tillage, followed by a post-emerge weed management plan is likely required for adequate rye control unless the rye was harvested later than boot stage.

Trials conducted at the Arlington Research Station (ARS) suggest soybeans or alfalfa may be the better options than corn following rye. Overall, corn showed yield reductions when planted with or after rye, while soybean yields were similar across the rye cover crop, forage and no rye scenarios (Tables 3 and 4).

Table 3: Crop yields following rye cover crop vs. no rye, ARS.

Crop	Rye Treated Cover Crop*	No Rye as Control
Soybeans (3 year ave.)	46 bu/acre	45 bu/acre
Alfalfa (2 year ave.)	2.20 ton/acre	2.30 ton/acre
Corn (3 year ave.)	127 bu/acre	140 bu/acre

Table 4: Crop yields following rye cover crop vs. rye harvested as forage, ARS.

Crop	Rye Treated Cover Crop*	Rye Treated as Forage
Soybeans (2004)	46 bu/acre	47 bu/acre
Corn (2004)	145 bu/acre	110 bu/acre

One-year of data (2006) showed alfalfa planted with or following rye harvested as forage yielded less than conventionally seeded alfalfa (Table 5). However, adding in the rye, total forage yield was significantly higher.

Table 5: Alfalfa and rye yields, 2006 Alfalfa establishment trials, ARS.

Alfalfa was seeded:	Alfalfa Yield 2 cuttings	Rye Yield
Early into rye as nurse crop	1.98 ton/ac	1.53 ton/ac
Following rye forage harvest	1.79 ton/ac	1.83 ton/ac
Early w/rye as cover crop only*	2.13 ton/ac	-----
Conventional with no rye	2.32 ton/ac	-----

*Rye killed with Roundup and not taken as forage

** Note that rye may inhibit establishment of alfalfa.

For more information, contact Kevin Shelley at (800) 994-5853.

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High Moisture Corn Harvest and Storage Considerations

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October, 2009

Even the best plans to ensile high moisture corn at the proper moisture level are sometimes thwarted by weather and time constraints. These types of situations prompt the question, "What can I get away with?" Here are some factors and suggestions to consider when making decisions regarding the harvest and storage of high moisture corn.

Moisture

Consider the type of silo first. High moisture corn can be stored in conventional, oxygen-limiting, bunker, or bag silos. Recommended moisture levels for these silo types are presented in Table 1.

Table 1. High Moisture Corn Storage in Conventional, Bunker, Bag, and Oxygen Limiting Silos

Conventional Top Unloading Silos, Bunkers, and Silo Bags			
	Corn Kernel Moisture, %		
	Minimum	Desired	Maximum
Ear Corn	26	32-36	40
Shelled Corn	26	28-32	36

Bottom Unloading Oxygen Limiting Silos			
	Corn Kernel Moisture, %		
	Minimum	Desired	Maximum
Ear corn-rolled*	26	28-32	36
Shelled corn	24	26-28	32

**OL Silo with Forage Unloader*

In years when crop maturity has lagged behind normal or frost puts an early halt to the growing season, corn may be wet (or dry slowly) and maximum moisture percentage to preserve corn becomes a primary issue. For corn stored above 40% moisture, an undesirable fermentation may take place and yeast may proliferate along with high ethanol levels. Animal acceptance may be poor with this type of fermentation. Additionally, harvesting high moisture shelled corn above 32% kernel moisture for oxygen limiting silos equipped to handle high moisture shelled corn may result in unloading problems.

Processing

Most high moisture corn is processed (rolled or ground) before going into the storage unit. The two exceptions to this rule are shelled corn being stored in an oxygen limiting unit and corn that is excessively wet (near 35% kernel moisture). Take care not to over process corn that is

over the desired moisture level. It is easy to get excessively fine high-moisture corn that may result in rumen acidosis, fat test depression, off-feed problems or an increased incidence of displaced abomasums. As the corn approaches optimum moisture content, increase the degree of processing.

Harvest Recommendations

Check corn kernel moisture from different fields and determine if the grain can be removed from the cob (shelled corn). Harvesting high moisture corn as shelled corn as compared to snaplage or high moisture ear corn may reduce mycotoxin risk. Harvest corn nearest to optimum moisture contents first and place at the bottom or back of storage structures. Corn with higher than desirable moisture levels may be more of a problem at feed-out during the warm months and is best to put on the top or front of the silo for winter feeding. Very wet corn may be prone to aerobic instability (heating) upon removal from the silo. Plan to feed higher risk (wet or moldy) high moisture corns during the coldest months to facilitate slow removal rates if needed.

Corn with significant mold on the kernels and cob is best harvested and stored as high moisture shelled corn (rather than ear corn). Some producers have taken moldy corn and dried it down to storable moisture while screening off the fines. Where drying is not an option, propionic acid is recommended. The propionic acid will not lessen any problems from the mold, but will likely prevent mold problems from getting worse.

If high moisture corn is stored in bags, locate bags away from trees, long grass, and keep snow removed from around the bags. For best results, remove bagged high moisture corn during cooler months. Punctures, rips, or tears in the summer can cause rapid and expansive spoilage.

Preservation

High moisture corn offers some unique preservation challenges compared to corn silage because it ferments more slowly and less extensively while containing high levels of starch, which promotes aerobic deterioration. Any aid to hasten fermentation, use up available oxygen, and inhibit yeast growth (once exposed to oxygen) is beneficial in the ensiling process. Several options are currently available to producers. Here's a quick rundown of each:

<u>Standard bacterial inoculants</u>

High moisture corn inoculants have been available for many years. These primarily produce lactic acid during the fermentation process (homofermentative) and increase the speed of fermentation, while reducing dry matter loss. They MAY also increase animal performance. Choose an inoculant that has been specifically developed for ensiling high moisture corn. Specific strains of bacteria may not grow well on all crops and across a wide range of moisture contents. Thus, a corn silage inoculant may or may not work well under the drier conditions of high moisture corn. Most standard high moisture corn inoculants were developed to improve fermentation. For this reason, aerobic stability during and after feed-out may not be significantly improved. In fact, some standard lactic acid producing bacterial inoculants may actually improve fermentation but decrease aerobic stability (heating at feedout). With all

inoculants, it is important to follow the manufacturer's application rates. Typical rates are between 100,000 and 500,000 colony forming units (cfu) per gram of high moisture corn.

Lactobacillus buchneri

Lactobacillus buchneri is a unique bacterial inoculant that has been developed to improve aerobic stability of silages and high moisture corn by reducing the growth of yeasts. The net result is grains inoculated with *L. buchneri* are more resistant to heating when exposed to air as compared to untreated silages. *L. buchneri* was originally isolated from naturally occurring aerobically stable silages. It is a heterofermentative bacteria that produces both lactic and acetic acid during fermentation. Silages treated with an effective dose (600,000 CFU/gram of wet corn) of *L. buchneri* have higher concentrations of acetic acid and lower levels of lactic acid than untreated silages.

The beneficial impact of *L. buchneri* appears to be related to the production of acetic acid. Although the precise mechanism has not yet been determined, it is likely that aerobic stability is improved because acetic acid inhibits growth of specific species of yeast that are responsible for heating upon exposure to oxygen. As a result, the temperature of fermented feed inoculated with *L. buchneri* does not readily rise upon exposure to air and tends to remain similar to ambient temperature for several days, even in warm weather. Using *L. buchneri* often results in a slightly higher dry matter loss during fermentation compared to standard homofermentative bacterial inoculants.

L. buchneri is a well-researched, highly effective inoculant to use for high moisture corn preservation in all storage units. Use of L. buchneri improves aerobic stability and this is important if high moisture corn removal rates need to be reduced because of mycotoxins or excessively degradable starch.

Propionic acid

Preserving high moisture corn with propionic acid or propionic acid mixtures (propionic, acetic, benzoic) has been a proven effective practice for many years. However, it is more costly than simply using a standard inoculant and requires specialized equipment to apply. There are several situations where the use of propionic acid to reduce pH and preserve corn makes good sense. In years past, some producers have successfully used concrete or wood floors/bins to store high moisture corn. In this case, it's a must that corn be treated with propionic acid. Applying propionic acid at the proper rate reduces the pH of preserved corn to about 4.0 and inhibits the growth of harmful microorganisms. The cost of treatment is usually comparable to that of on-farm drying.

The proper application rate depends on two factors: 1) the moisture content of the grain, and 2) the intended length of storage (Table 2). Rates are based on pounds of actual acid. It's most economical to treat corn with acid when kernel moisture is near 30 percent. It typically takes 10 to 20 lbs. of actual acid to fully preserve a ton of high moisture corn.

Another situation where acid may prove beneficial is when an upright silo is being filled but not fed from for an extended period of time. In this case, producers often only apply acid to corn that will fill the last 5 to 10 feet at the top of the silo. It is at the top where spoilage is most likely to occur as a result of oxygen infiltrating the grain. Again, determine rates based on length of storage and moisture.

Table 2. Recommended application rates of propionic acid to preserve high moisture corn

Corn moisture %	Lbs. propionic acid to apply per 1000 lbs. wet corn[1]		
	----------Months corn to be stored----------		
	6	9	12
20	3.3 - 5.0	4.0 - 6.0	5.0 – 7.5
25	5.0 - 6.5	6.0 - 8.5	7.5 – 10.0
30	6.5 - 8.5	8.5 - 11.0	10.0 – 12.5
35-40	8.5 - 10.5	11.0 - 14.0	12.5 – 15.0

[1]Use lower rate for well-mixed corn and higher rate if acid and grain cannot be well-mixed.

Feedout

Be careful to plan for variable removal rate from the silo. A removal rate of 3 to 4 inches per day is typically required to prevent heating during feeding in warmer weather. However, if the high moisture corn contains mycotoxins or is wet with rapidly degradable starch, which may induce acidosis, the removal rate may need to be reduced to augment the addition of clean dry corn to the diet. Treating the bottom third to half the silo of high moisture corn with *L. buchneri* or propionic acid (12-15 lb/ton) may be desirable to insure flexible removal rates and maintain quality during warm weather feeding.