Extension
UNIVERSITY OF WISCONSIN–MADISON
WAUPACA COUNTY

AG UPDATE / SPRING 2019

Greg Blonde, Agriculture Extension Agent...715-258-6230(x 2) or greg.blonde@wisc.edu

INSIDE THIS ISSUE:

"...we must rise to the occasion. As our case is new, so must we think anew and act anew."

Abraham Linclon

LOW INVENTORY = HIGH PRICED HAY

Unlike commodity crops, the price of baled hay is sky high (good news for sellers, bad news for buyers) due in large part to very low supply, not only in the Midwest, but across the country. In fact, the nations hay inventory at the end of 2018 was the second lowest (79.1 million tons) in almost 20 years. Among the largest hay producing states, WI lead the pack down by more than a third (34%) as a result of widespread winterkill and flooding. But other major hay producing states like TX (-30%), CA (-24%), MN & PA (-21%) also saw significant declines in 2018.

As a result, good quality hay is hard to find and expensive. Prime hay (>150 RFQ) sold in large square bales averaged nearly $230/ton at the end of March; Grade 1 hay (125-150 RFQ) averaged just under $200/ton and lower quality hay was at $150/ton. The price of hay will likely continue to go up until first crop harvest gets underway.

Upper Midwest Hay Price Summary - March 25, 2019

Hay Grade	Bale type	Price ($/ton)		
		Average	Minimum	Maximum
Prime (> 151 RFV/RFQ)	Small Square	$265.00	$210.00	$350.00
	Large Square	$234.00	$175.00	$350.00
	Large Round	$185.00	$125.00	$290.00
Grade 1 (125 to 150 RFV/RFQ)	Small Square	$186.00	$150.00	$250.00
	Large Square	$192.00	$110.00	$260.00
	Large Round	$165.00	$110.00	$220.00
Grade 2 (103 to 124 RFV/RFQ)	Small Square	$136.00	$110.0	$170.00
	Large Square	$168.00	$85.00	$235.00
	Large Round	$137.00	$75.00	$200.00
Grade 3 (87 to 102 RFV/RFQ)	Small Square	No Reported Sales		
	Large Square	$189.00	$110.00	$255.00
	Large Round	$120.00	$50.00	$180.00

Straw prices for oat, barley and wheat straw are also strong. Small square bales averaged almost $3.50/bale ($1.50 to $6.00) with large square bales near $50/bale ($25 to $70). Large round straw bales averaged $60/bale (a wide range of $35.00 - $100.00). Wheat straw will typically bring a slightly higher price with overall straw quality affecting final sale price as well.

The Upper Midwest Hay Price Summary report is updated every two weeks and is available online at: https://fyi.extension.wisc.edu/forage/h-m-r/. The summary price data is compiled from public and private quality tested sales and reports. Hay auction data is collected during the first and third week of the month and posted the following Monday whenever possible. All hay prices quoted are dollars per ton FOB point of origin for "as fed" alfalfa hay unless otherwise noted. Previous reports dating all the way back to January 2015 are also available at this web site under "past hay reports".

Those looking to buy or sell hay (and other types of feed, i.e. haylage, silage or grain), should visit the Extension Farmer to Farmer feed exchange web site at: https://farmertofarmer.extension.wisc.edu/ to place an ad to either buy or sell. Postings remain active for sixty days, or until you remove the ad.

Farm Management Update for Ag Professionals

Friday, May 3, 2019
Liberty Hall, Kimberly

9:30 am	**Registration, milk, coffee, juice, and rolls**
10:00 am	**"Dairy Market Update / Outlook"** *Bob Cropp, Extension Dairy Market Specialist, UW-Madison Professor Emeritus*
10:45 am	**"WI Dairy Processor Perspective & Outlook"** *Ted Galloway, V-P Galloway Company, Neenah WI* *& Current Member of the WI Dairy Industry Task*
11:30 am	**"WI Dairy Enterprise Budget - New Extension Spreadsheet Tool"** *Kevin Bernhardt, Extension Farm Management Specialist, UW-Platteville* *& WI Center for Dairy Profitability*
12:15 pm	**Lunch**
1:00 pm	**"Crop Update"** *Area Extension Agents*
1:30 pm	**"Tax Management Update - What We Learned About the New Tax Law"** *Mike Harer, Manager, Fox Valley Farm Management Association*
2:15 pm	**"Farm Stress & Exit Planning"** *Panel Discussion* Cari Sabel, Collins State Bank Frank Friar, Farm Finance Consultant, WDATCP Farm Center JoAnn Maedke, Maedke Tax and Farm Accounting LLC Troy Schneider, Twohig, Rietbrock, Schneider, & Halbach, S.C
3:00 pm	***Adjourn***

UW Extension
University of Wisconsin-Extension

Farm Management Update for Ag Professionals Registration Form

Name(s):_____

_____

_____

_____

E-Mail(s): _____

_____

_____

_____

Business:_____

Address: _____

City: _____

Zip: _____

Phone: _____

Registration Fee: $40 per person

Make check payable to: **Waupaca County**

Mail this registration form and check to:
Waupaca County UW-Extension
811 Harding Street
Waupaca, WI 54981
715-258-6231

Registration Deadline: April 26, 2019

Greg Blonde, Agriculture Extension Agent...715-258-6230(x2) or greg.blonde@wisc.edu

Revolution Plastic Recycling Program Update

Thank you all for your support of the Revolution Plastics ag plastics recycling program in Waupaca County. This has quickly become one of the most successful ag plastics recycling programs in history.

Earlier this year there were questions about winter collection service and I wanted to take this opportunity to share a few reminders. First, easy access to your dumpster is crucial, Second, open lids that allow excess snow and rain into the dumpster creates problems for both hauler and processor, not to mention less room for the plastic.

We strive for excellence and we ask that our recycling partners do the same. Issues like these cause lengthy delays and decreases the number of farms each truck can service within a given route.

Your help educating farm family members and employees on the basics of farm plastic recycling will go along way to help improve and maintain this free farm service.

1) Always keep the lids closed. Make sure the metal lid on the rear of the dumpster is bolted down and keep the black plastic lids closed when not filling the dumpster. Use a weight or latch on the lid keep it from blowing open.

2) Always pack the dumpster full. Short loads will delay your next pick-up and threaten long-term survival of the program. Visit *www.revolutionplastics.com* for a 1-2 minute training video on how to properly load and pack your dumpster.

3) Never block access to the dumpster.

4) Always shake off excess dirt and feed before placing the plastic in the dumpster. Contaminated material is another major threat to the programs long-term success.

Thank you for your cooperation and support. If you ever have any questions or concerns, please contact me directly.

Price Murphy
Director of Operations
608-851-0048

Timing First Crop Alfalfa Harvest

The Waupaca County Forage Council is again sponsoring the annual PEAQ (Predictive Equations for Alfalfa Quality) first crop alfalfa monitoring program this year. Field data from cooperating farms/consultants will be available mid- May through early June to help improve timing of first crop harvest. Measurements will be taken on Mondays and Thursdays, then posted on-line at: www.uwex.edu/ces/ag/scissorsclip/

PEAQ Stick Instructions

Step 1: Choose a representative area in the field.

Step 2: Identify the most mature stem in a 2 sq. ft. sampling area using the criteria in the table below.

Step 3: Measure the length of the tallest stem in that area from the soil surface (next to plant crown) to the tip of the stem just below the top leaves (NOT to the leaf tip). Straighten the stem for an accurate measure of its length. (note, tallest stem may not be the most mature)

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

Step 4: Based on the most mature stem and length of the tallest stem, use the chart above to estimated relative forage quality (RFQ) of your standing alfalfa forage.

Step 5: Repeat in several areas across the field. Start harvesting 10-15 points above desired relative feed value level to offset quality declines during harvest.

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What's Standing Alfalfa Worth in 2019?[1]

One of the challenges when pricing standing hay is the lack of an established market like corn or soybeans. Another challenge is multiple cuttings of hay versus a single harvest for grain crops. No wonder the price for standing hay will vary greatly from farm to farm, even between fields. Here's one approach for pricing standing hay in 2019.

Example: assume 4-5 ton dry matter (DM)/acre for the entire year of dairy quality alfalfa hay worth $200 to $250/ton baled ($0.11 to $0.14 / lb DM); half the value is credited to the owner for input costs (land, taxes, seed, chemical and fertilizer) and half the value is credited to the buyer for harvesting, field loss, weather and price risk.

To estimate total annual dry matter yield potential, determine average stems per square foot at several locations in the field, then calculate using this formula: (0.10 x stems/ft^2) + 0.38. Wait until stems are at least 4-6 inches and count only stems tall enough to be cut by the mower. Actual yield could be less due to environmental conditions and harvest management practices.

Using yield distribution estimates from ongoing UW-Extension field research for both three-cut (40% / 30% / 30%) and four-cut (35% / 25% / 20% / 20%) harvest systems, the following price range (rounded to the nearest $5) may offer a starting point for buyers and sellers to negotiate the sale of good to premium quality standing alfalfa in 2019:

	4 cuts	3 cuts
1st crop	$155-245/a	$175-280/a
2nd crop	$110-175/a	$130-210/a
3rd crop	$ 90-140/a	$130-210/a
4th crop	$ 90-140/a	

In this example, the sale or purchase price for all cuttings the entire year would range from $440 to $700/acre. Again, the same price is not always the right price for every situation. Ultimately, a fair price is whatever a willing seller and an able buyer can agree on.

To help farmers and landowners better evaluate the options, Waupaca County Extension Ag Agent, Greg Blonde, developed a mobile app for pricing standing hay. It offers quick access to current baled hay markets with a projected sale/purchase price for each cutting using your own yield and harvest cost information. The app is free to download from the Google Play Store and is also now available for iPhones and iPads thru the Apple Store (search for ***Hay Pricing***). The app also includes links to the current WI Custom Rate Guide and the NCR Alfalfa Management Guide. For more information contact Greg Blonde at *greg.blonde@wisc.edu*.

Farm Safety & Equipment Operation

Multiple Locations and Dates Available!

Learn how to operate a tractor over 20 PTO horsepower, including how to connect and disconnect equipment or equipment parts. Topics include specialized machinery for livestock, toxic environments, agricultural chemicals, blasting, fertilizer and the youth certificate program.

Appleton Agriculture Center

Class #	Date	Day	Time	Register
70063	6/17/19 - 6/21/19 6/22/19	Mon - Thurs Friday	9:00 am – 3:30 pm Scheduled Test Time	Open Registration starts April 29th (920)735-5645

Chilton Regional Center

Class #	Date	Day	Time	Register
70059	7/8/19 – 7/11/19 7/12/19	Mon - Thurs Friday	9:00 am – 3:30 pm Scheduled Test Time	Open Registration starts April 29th (920)849-4416
70060	7/22/19 – 7/25/19 7/26/19	Mon - Thurs Friday	9:00 am – 3:30 pm Scheduled Test Time	

Clintonville Regional Center

Class #	Date	Day	Time	Register
62515	3/18/19 – 4/15/19	Mon & Thurs	4:30 pm – 7:30 pm	Register Now! (715)823-1555

Waupaca Regional Center

Class #	Date	Day	Time	Register
70062	6/10/19 - 6/13/19 6/14/19	Mon - Thurs Friday	9:00 am – 3:30 pm Scheduled Test Time	Open Registration Starts Aptil 29th (715)942-1700

Focus on Forage

Wisconsin TEAM Forage

Making a Feed Inventory

*by Brian Holmes**

What is a feed inventory?

Doing a feed inventory establishes your current stock of various feed ingredients. Generally, the process involves determining the volume of each feed stored and then multiplying by the stored density to yield a weight of feed.

For example, silage in a bunker silo has a dimension of 30' x 10' x 50'. Its volume is 15,000 cu ft. If the silage has a stored density of 40 lb (as fed) /cu ft, the weight of feed in the bunker is:
15,000 cu ft x 40 lb AF /cu ft = 600,000 lb = 300 T as fed.

There are several ways to do a feed inventory: 1) pencil and paper, 2) computer spreadsheets, 3) commercial software that integrates with your feed weighing system. There are a number of publications and software tools that can help establish your feed inventory. Some of these materials are listed below:

Dairy Freestall Housing and Equipment (MWPS-7). Tables of quantities of feeds in various storage types. Call 1-800-562-3618 or www.MWPSHQ.org to order.

Other MWPS publications have feed storage information as follows:

MWPS-Grain/Forage/Silage Publications
http://www.mwps.org/index.cfm?fuseaction=c_Categories.viewCategory&catID=715

MWPS Dairy Publications
http://www.mwps.org/index.cfm?fuseaction=c_Categories.viewCategory&catID=735&category=Dairy

MWPS Beef Publications
http://www.mwps.org/index.cfm?fuseaction=c_Categories.viewCategory&catID=736

The following materials can be found at the University of Wisconsin Extension Team Forage Harvesting and Storage web page:
http://www.uwex.edu/ces/crops/uwforage/storage.htm

* Brian Holmes, Extension Ag Engineer
University of Wisconsin - Madison
bjholmes@wisc.edu

Spreadsheets

Silage Pile Capacity Calculator
Silage Pile Density Calculator
Bunker Silo Volume and Weight Calculator
Bunker Silo Density Calculator
Bunker Silo Sizing Spreadsheet - includes a section for estimating daily forage feed needs for the dairy herd.
Silage Bag Capacity Calculator
Storage Density Calculator-allows a person to calculate density based on weight removed divided by volume removed
Tower Silo Capacity Calculator
Tower Silo Capacity Calculator-Multiple Fills
Cost of Forage Storage Spreadsheet - look in the help section for calculators for storage areas for bags, piles, bunkers, silage bales etc.
Grain Bin Capacity Calculator
Estimating Winter Hay Needs for Beef Cattle

Publications

Silage Bag Capacity
Choosing Forage Storage Facilities
Density and Losses in Pressed Bag Silos

The Crop Storage Institute has a **Spreadsheet for Determining Capacity of Various Storages**
http://www.cropstorage.com/silocap.xls

What is inventory management?

Feed inventory management is slightly more complicated. With inventory management, you are predicting how long an ingredient will be available to feed and making adjustments accordingly. If the projected date to feed depletion occurs before a new crop comes in, you need to consider if you will reduce the rate of consumption to extend the feed ingredient, purchase more of that feed, substitute an existing feed ingredient into the ration or a combination of these choices.

How long will my feed last?

The projected **Time to Inventory Depletion = Feed Inventory** (tons) / **Consumption Rate** (tons/day)

For example:
100 tons stored/ 2 tons fed/day = 50 days to depletion

Will feed need to be purchased?

The projected F**eed to Purchase** (tons as fed) to meet feed needs at a given consumption rate is:
Feed Inventory (tons) **– [Consumption Rate** (tons/day) * **Time till harvest** (days)**]**

For example:
100 tons – [2 tons/day * 70 days] = -40 tons (as fed) to purchase ***(negative value means feed to purchase, positive value means excess feed)***

There are a number of publications and software tools that can help establish your inventory and manage it. Some of these materials are listed below:

Managing Dairy Feed Inventory (A2945) – a University of Wisconsin bulletin available through your county extension office or off the internet at:
http://learningstore.uwex.edu/pdf/a2945.pdf
NOTE: there is an error in this publication. Area of a circle should be Pi x $D^2/4$

Dairy Feed Inventory Planner - a useful dairy inventory spreadsheet developed by a Michigan State University extension area dairy agent. Download at:
https://www.msu.edu/user/steind/**FEEDINV.XLS**
Instructions for the above spreadsheet are at:
https://www.msu.edu/~steind/**FEEDINV**_INSTRUCTIONS.pdf

The **Penn State Cash Flow** Analyzer incorporates a feed inventory component to the spreadsheet.
http://extension.psu.edu/animals/dairy/business-management/financial-tools/cash-flow-planning/monthly-cash-flow-planner/penn-state-monthly-cash-flow-spreadsheet-2007-2010/view

Checklist for the Top 5 Priorities for Fall/Winter Dairy Feeding Programs (eXtension article)
http://www.extension.org/pages/65108/checklist-for-the-top-5-priorities-for-fallwinter-dairy-feeding-programs

An article on **Calculating Bushels** is found in the "Handouts" section at:
http://www.bbe.umn.edu/ExtensionandOutreach/FoodProductionandProcessingSafety/Post-HarvestHandlingofCrops/index.htm

When is the best time to do a feed inventory?

There is no one best time to do an inventory. Doing an inventory at different times for different reasons may be beneficial. For example, doing an inventory in:

October/November - allows you to make a projection to see if purchased feed will be needed or if the consumption rate needs to be adjusted. This allows needed purchases when commodity prices are apt to be lower in winter and will allow purchases before December 31, assisting in tax management.

February/March - allows you to make a mid-course correction prior to the harvest season. Estimates of density will be more accurate after having fed from a storage for a while, so estimates of quantity stored will be more accurate.

June/July - allows you an early warning of inadequacy of feed supplies for the up-coming feeding season. Purchases of standing crops remain an option if deficiencies are discovered.

Anytime you are required by a lender to provide a balance sheet, a feed inventory and the feed value is needed.

Where can I get help with inventory management?

The information available from the sources in this article will be of help in doing your inventory and its management. Don't overlook the assistance available from UW Extension county agents and well-trained nutrition professionals who can help you with these issues and decisions.

Seven Things to Know About China To Better Understand The Trade War

by Wengdong Zhang, Iowa State University Extension Agriculture Economist, (reprinted with minor edits from the February 2019 Iowa State Extension Ag Decision Maker newsletter).

2018 witnessed arguably the largest trade war in human history, and the trade disputes between the United States and China quickly escalated to a scale without precedent. As of now, the United States imposed tariffs on more than $250 billion worth of products from China, and China retaliated with tariffs on more than $110 billion worth of U.S. products, including substantial tariffs on U.S. agricultural products such as soybeans, pork, and ethanol.

Since the Trump-Xi G20 Summit in December 2018, there was a 90-day truce with both sides agreeing to hold off further escalations and actively negotiate for a trade deal. Since January 2019, U.S. Trade Representative Robert Lightihizer and Chinese Vice Premier Liu He have led mid-level and high-level negotiations and made some progress including the recent Chinese pledge to purchase an additional five million metric tons of soybeans (183.7 million bushels). However, there is still significant uncertainty regarding U.S.-China agricultural trade: all tariffs such as the 25 percent additional tariffs on soybeans are still in effect, and the negotiations still need to deal with more difficult items such as intellectual property protection, market access of U.S. firms into China and Chinese industry subsidy policies.

In this article, I outline seven economic, cultural and political facts about China to better understand the trade war. The aim is to help U.S. producers, agricultural professionals, and policymakers to better understand the broader context of the trade war, the immediate and long-term implications for U.S.-China economic relations especially U.S. agricultural exports to China, as well as the growing need to better understand Chinese agriculture and economy, producers and consumers. It is important to note that this article only represents my personal opinions of the evolving trade issues.

Row crop production is not China's comparative advantage.

A critical economic concept related to agricultural trade is comparative advantage, which refers to the ability of a country to produce a product at a lower opportunity cost than that of trade partners. In agricultural trade, this, in essence, drives countries with higher production costs for agricultural products to be customers of those who are more cost-efficient. This is a particularly useful concept to understand why China has become a leading customer of U.S. agricultural exports because row crop agricultural production is not China's comparative advantage.

There are both natural and social constraints in China's agricultural productions, especially when compared to the United States. Although China and the United States cover roughly the same land area, the amount of arable land – land that could be farmed – is limited for China. In general, China has seven percent of the world's arable land but needs to feed almost one-fifth of the world's population, while the United States boasts more than 15 percent of the global arable land with only four percent of the global population. Many U.S. Corn Belt states enjoy ample precipitation for profitable rain-fed row crop production. By comparison, most major agricultural production areas in China rely heavily on irrigation. Furthermore, the soil and land quality are arguably significantly better in the United States than in China. Societal constraints further hinder the production efficiency of Chinese agriculture. China has at least 270 million farmers actively engaged in crop or livestock production compared to 3.2 million for the United States, which results in less than two acres, on average, for a typical Chinese farming household. In addition, China also bans planting of genetically modified corn and soybean varieties. As a result, the most productive provinces in China could only produce 50-60 percent of the corn or soybean yields when compared to the United States. However, there is potential to substantially increase yields in China, as some farmers in the Heilongjiang region already raise 200 bu. corn.

China also has long-standing food security policies that shape the composition of their agricultural import demand. In particular, China regards rice and wheat as critical food crops that are directly used for food consumption, and maintains a 100 percent self-sufficiency ratio, and thus are neither major exporters nor importers of rice or wheat. Similarly, China could produce 97 percent of its pork domestically with half of the pigs in the world living in China. In contrast, China plays a much more significant role in the international feed grain markets. For example, China could only satisfy 15 percent of its need for soybean consumption via domestic production, and could play a bigger role in the ethanol and corn markets as China pushes forward its 2020 E10 ethanol mandate and incentivize more corn for silage production domestically.

The Brookings Institute estimates that 88 percent of the next billion people in the middle class worldwide will be in Asia with more than 330 million additional citizens in China. With the Chinese economy projected to continue its growth, likely at a lower rate around 5 to 6.5 percent over the next decade, China will continue to be one of the most important trading partners with U.S. agriculture, once the trade disputes are resolved.

China will suffer greater economic loss; however, trade retaliation has disproportionally larger impacts on U.S. farm states.

Undoubtedly, China will incur greater economic loss from the trade war. Previous analysis shows that if the United States looses a quarter of one percent off its economy due to the tariffs, the Chinese economy will suffer a 1.3 percent loss (5x larger). Many other countries and regions, especially major exporters of manufactured goods to the United States such as Mexico, gain from the trade disputes between the United States and China. In 2018, the China Shanghai Composite Stock Market Index decreased from near 3,600 in January 2018 to less than 2,500 in January 2019. In particular, the Chinese electronic equipment and other machinery sectors, which rely heavily on exports, suffered most significantly.

These economic losses translated into incentives and willingness for China to engage in trade negotiations for possible trade deals.

However, despite modest economic impacts for the U.S. economy as a whole, U.S. agricultural industry and agricultural states such as Iowa suffer disproportionally larger impacts from the trade disruptions. Previous analysis of China's trade retaliation strategies suggests that China tends to target agricultural products for economic and political damages, especially when the products are easily substituted by supplies from U.S. competitors or alternative products.

Trade disruptions give China incentives to further diversify away from the United States, potentially benefitting our competitors.

One long-term impact of the trade disruption is that it gives China even more strategic incentives to diversify away from the United States. In 2016, China bought over 60 percent of U.S. soybean exports, but even then China was buying even more soybeans from Brazil. Due to strong and growing Chinese demand, Brazilian soybean acreage has risen from 25 million hectares in 2012 to 35 million hectares for the 2018/19 season. In 2006, the United States exported more meat to China than all our competitors combined. However, over the past decade the United States has lost market share as China increased meat imports from around the world. This is in part related to China's Belt and Road Initiative, also known as China's 21st Century Silk Road, which better connects the European hog suppliers with China via new railroads. But this also represents China's active diversification in their meat exports even before the trade war. In 2016, Europe supplied more pork to China than the United States, while Australia, Brazil, and Uruguay dominated China's beef imports. As a result, the trade disruptions could accelerate China's diversification away from the United States, potentially benefitting our competitors. Current trade disruptions also limit future growth opportunities with Chinese domestic agricultural markets. Here are three examples: First, China now has an E10 ethanol mandate that requires all gasoline to be blended with 10 percent ethanol by 2020. But currently, Chinese domestic ethanol production is not sufficient and thus needs to import either corn or ethanol. However, currently, U.S. ethanol has a prohibitive 70 percent tariff rate. The other two examples relate to a potential increase in Chinese pork imports due to the ongoing African Swine Fever as well as the growing appetite for beef consumption especially for urban Chinese residents.

It's important to remember, Chinese demand is so large that changes in its domestic policies or markets would have significant implications for international commodity markets.

Both China and U.S. may have strategically misjudged the trade war, exposing lack of mutual understandings and eroding mutual trust.

Although trade issues are one of the major topics during President Trump's 2016 presidential campaign, rapid escalation of the trade war to its current unprecedented scale arguably exposed the strategic misjudgments by both sides regarding the others intentions and resolve. For China, many people including several prominent policy advisors relied on the historical departure of U.S. campaign rhetoric and actual policies and thought the trade war would be unlikely or at least limited in scale. For the U.S., policymakers may have underestimated the resolve and speed of Chinese response, the challenging nature of resolving issues such as intellectual property protection and market access, and the complexity of simultaneously engaging in trade disputes with Mexico, EU, Japan, and other countries. Trade disruptions are often easy to start but often have long-term implications: the U.S.-China 2010 chicken vs. tire trade disputes essentially resulted in a loss of a $1 billion U.S. poultry export market to China now supplied by our competitors, even after a decade this market has not returned to previous levels.

One critical issue exposed from this trade war, unfortunately, is the lack of mutual understanding and effective communications between the United States and China, and the quickly eroding mutual trust or the growing mistrust.

For example, many know that former Iowa Governor Branstad is currently the U.S. Ambassador to China, but many have never heard of China's emerging e-commerce giants, such as Alibaba, or don't know Chinese hog production actually overlaps with populous provinces but no major corn production areas. In contrast, the typical Chinese citizen would not know U.S. soybeans are actually imported mainly as feed grains and thus could not be substituted just by switching to cooking oil rather than soybean oil. More importantly, so far all rounds of negotiations almost never resulted in joint statements by the two sides, but rather separate statements often with inconsistent messages and full of political jargon. A particularly hindering moment was when China agreed to buy seven billion dollars' worth of agricultural and energy products in June 2018 and thought the trade war would end, and discovered a week later it was back on. That in part explains why "ongoing verification and effective enforcement" are demanded to be a critical part of any trade deal.

China is a country of rapid change: accurate knowledge about China five years ago may not apply today.

China is a country of rapid change, and this means that even for frequent visitors, your knowledge about China that was accurate five years ago may not apply even today. For the general economy, China quickly became a country that lead the world in the construction of high-speed rail over the past decade. China now has more miles of high-speed rails than all other countries combined, with over 60 percent of these miles constructed in the past five years.

In addition, Chinese students often make the largest group of foreign students in American and European universities. But a major shift is underway. In 2001 when China joined the Worl Trade Organization (WTO), only one in ten Chinese students returned to China after studying abroad. In 2017, eight in ten of the 600,000 Chinese students who studied abroad returned after graduation.

The agricultural sector in China has also witnessed significant change over the last decade. In 2007, there was no crop or livestock insurance, but now China is the second largest agricultural insurance market in the world. Twenty years ago there was no medical insurance coverage for Chinese rural residents, and now over 96 percent of them are enrolled in the New Rural Cooperative Medical Insurance which covers 75 percent of in-patient medical expenses.

There are also three important new trends in the Chinese agricultural industry. In 2017, China started a new national mandate for all gasoline to be blended with E10 ethanol by 2020; per-capita beef consumption in China rose almost by 20 percent over the last five years, and the Belt and Road Initiative started in 2013 has significantly reduced the transportation time between Europe and China.

Both the Chinese economy and U.S.- China relations are at critical inflection points.

The unprecedented trade war of 2018 indicate and that both the Chinese economy and U.S.-China economic relations are at critical point in time. After four decades of phenomenal economic growth and deepening bilateral ties with the United States, the Chinese economy recently experienced significant challenges. Many speculate the Chinese economy is slowing to an annual growth rate of 5-6 percent over the next decade. And while that is still comparatively fast growth, the Chinese economy faces structural reforms that are more challenging than ever before. How China Became Capitalist, an insightful book by Nobel Laureate Ronald Coase, describes how Chinese economic growth benefited with gradual market reforms with regional experimentation and local trials. However, currently many Chinese people feel government employees, state-owned enterprises, upper social class have significant unfair economic advantages, and the public trust of the government's pledge to "let the market play a decisive role" is quickly eroding. One example of the governmental dominance is the lack of independent and research-based analysis on the actual impacts of the trade disruptions on various Chinese sectors and provinces, or the ban on publicizing these studies that might contradict Chinese government's positions.

More importantly, the trade war reflects the status of potentially deteriorating U.S.-China relations. A Pew Research Center survey in August 2018 shows that American attitudes toward China have become somewhat less positive over the past year. Overall, 38 percent of Americans have a favorable opinion of China, down slightly from 44 percent in 2017. At the same time, the same survey also shows that globally 70 percent of people think China plays a bigger role in the world despite a lack of enthusiasm for Chinese world leadership. One of the most striking surprises for the Chinese policymakers is that U.S. business leaders, who are often advocates for expanding economic ties with China, joined the policymakers arguing for a tougher stance when dealing with China.

This reflects the disappointment in recent stagnation in China's critical market reforms, but also reflects the general attitude shift in the U.S. to treat China as a strategic competitor.

The growing confrontation also adds fuel to the discussion of the prospect of greater U.S.-China confrontation, and in particular, whether China and the U.S. are destined for the so-called Thucydides Trap, which is the idea that when one great power is rising it will inevitably threaten to displace the established power, consistently resulting in war. While this is unlikely, concerns are growing in both countries regarding a new cold war between the United States and China.

A greater danger to me is the immediate and intermediate impacts of rising nationalism. In China, the hope to be more self-reliant on "core technology" could potentially disproportionally benefit Chinese state-owned enterprises, and hinder or delay long-overdue structural reform. In the U.S., there is growing risks of policies that restrict its ability to attract, train and retain talents from across the globe.

Chinese consumers and producers increasingly think and act like their U.S. counterparts, at least economically.

U.S. citizens should pay less attention to the cultural and/or societal differences between China and the United States and recognize that Chinese producers and consumers increasingly think and act like you or your neighbors. Although Chinese agricultural Although Chinese farmers do not own land, their 30-year contract rights essentially give them free reign regarding their crop choice, land rent, and marketing strategies. Increasingly, Chinese government institutions look less and less like the Soviet Union system but rather more similar to the governmental structures of the United States. As mentioned, Chinese producers now have crop insurance, ethanol mandate, planted acre subsidies, and also face environmental regulations. Chinese consumers fundamentally prioritize food quality, school quality, air and water quality, and quality of life for themselves and their kids.

Conclusion

China is and will continue to be one of the most important agriculture trading partners with U.S. and the trade disruptions suggest we need to better understand China economically, culturally and politically.

How to get a good stand of alfalfa or grass

A properly maintained Brillion or drill seeder can consistently get good forage stands while reducing seeding cost from $40 to $100 per acre.

- High seeding rates may be necessary with poor seeders since few seeds germinate.
- Lower seeding rates can be used with better seed placement and packing.
- Research has shown that, no matter how much is seeded, forage stands will thin to 25 to 35 plants per square foot by fall.

Seeder Calibration

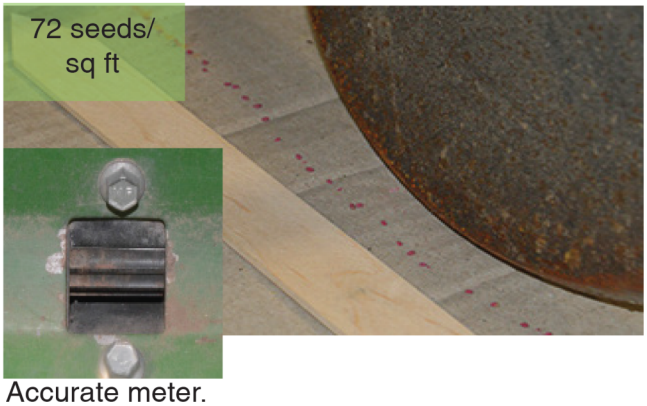
1. Different lots of seed flow at different rates as shown in this table where seeding rates of two different seeders were measured for different seed lots with no change in drill settings.

Variety/ Seed Lot	Brillon Seeder	John Deere Drill
	lbs seed/ acre	lbs seed/ acre
1	18.3	21.4
2	17.0	20.3
3	15.0	16.3
4	13.8	16.3
5	20.8	16.5
6	20.3	16.8

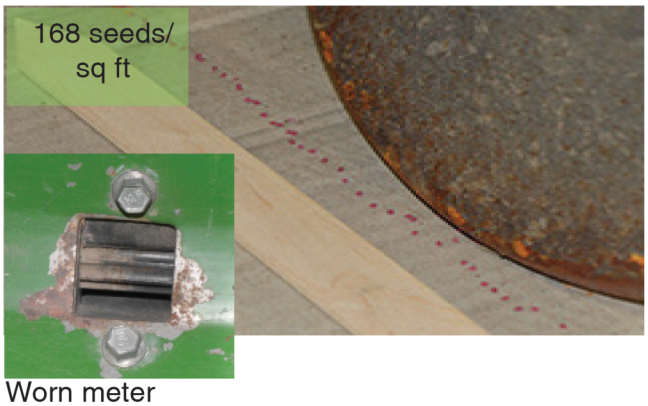
Ever run out of seed?
This could be why.

Calibrate seeder by monitoring acres seeded from first half of bag.

2. Worn seed metering devices may have different seeding rates for different rows. Box on right is seeding at twice the rate on the left.



Accurate meter.



Worn meter

Recommended maximum is 75 seeds/sq ft. Final desired plant count is 25 to 30 plants/sq ft at end of season.

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Seeding Failures

1. Seeding depth – seeds must be placed at ¼ to ½ inch deep. If deeper the seed may not be able to push the growing plant to the soil surface, if too shallow, soil moisture may not be adequate for germination

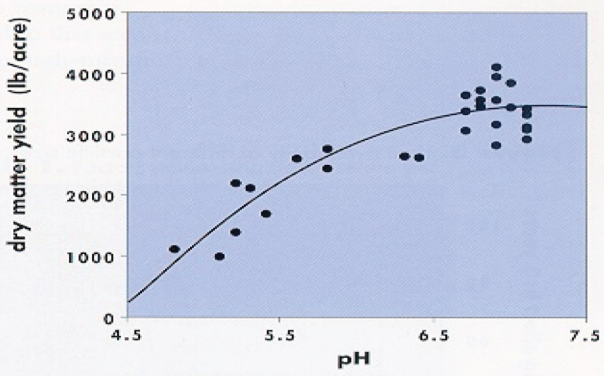
a. Brillion seeders will naturally place seed at the correct depth unless soil is crusted or too soft.

b. Drills with depth bands are best for keeping seed placement at consistent depth.

c. Press wheels close to disc opener are second best they reduce the disc crossing a furrow or ridge separately from the press wheel.

2. Soil pH must be 6.8 for alfalfa and 6 to 6.2 for grasses and clovers.

Figure 2. First-cutting alfalfa yield relative to soil pH.



Source: Wollenhaupt and Undersander, University of Wisconsin, 1991

3. Soil packing -- failure to pack soil around seed inhibits the seed's ability to take up soil moisture necessary for germination.

TIP SHEET

INTERSEEDING INTO CORN

INTERSEEDING GOALS

- Establish cover crop early to improve cover crop variability and fall harvest efficiency
- Diversify plant community to feed soil microbes
- Advance soil health through improved soil structure and increased organic matter over time
- Keep soil covered; Increase water infiltration

CONSIDERATIONS

- Fields must be weed free. Interseed at the final cultivation or herbicide application. Following interseeding there are few weed control options. Residual herbicides may negatively affect cover crop establishment. Read and follow all herbicide label directions.
- Fields with herbicide resistant or troublesome weeds may require residual herbicides or several POST applications and may not be good choices for interseeding.
- Earlier maturing corn hybrids may be beneficial in competitive environments.
- Aim for corn populations between 32,000 and 35,000 plants/A.
- Select shade tolerant cover crop species. University of Wisconsin research has demonstrated success with annual ryegrass, cereal rye, radish, and medium red clover. Local research has demonstrated success with annual ryegrass, medium red clover, and dwarf Essex rape.

EXPECTATIONS

- Cover should germinate 7-10 days after planting
- Cover will go dormant with shading of corn; the cover crops will look very weak. If the cover crop is too competitive yield loss is possible.
- Moisture throughout growing season is important for covers to survive

TIMING/APPLICATION CONDITIONS

- V3 to V5 corn stage
- Cover should germinate 7 to 10 days post planting

SEEDING RATE FOR SOME SHADE TOLERANT SPECIES (rates & costs may vary, i.e. for mixtures)

Soybeans following Corn

- Annual Ryegrass, 9 to 12 lbs. /A (cost ~ $0.75/lb.)
- Medium Red Clover, 3-4 lbs. /A (costs vary & may range from $1.50 to $3.00/lb.)
- Dwarf Essex Rape, 1 lb. /A (cost ~ $1.00/lb.)

Corn following Corn (for approximate seed costs, see above)

- Annual Ryegrass, 6 to 10 lbs./A
- Medium Red Clover, 10 to 12 lbs./A
- Dwarf Essex Rape, 1 lb./A

SEEDING METHODS

1. Drill (application cost ~ $11 to $12/A)
   Advantages: Drill provides consistent depth and seeding rate control.
   Disadvantages: Drill needs to be modified, should match corn planter width unless planted with RTK
2. 28% Fertilizer applicator with an air applicator attached (application cost ~ $10 to $15/A)

-over-

SEEDING METHODS (continued)

Advantages: Can spread fertilizer and seed together (reduce passes over field); no need to purchase additional equipment

Disadvantages: Fertilizer may burn some of the germinating cover crop, resulting in cover stand loss.

3. Spinner spreader (application cost ~ $3 to $5/A)
   Advantages: Can spread with a fertilizer pass
   Disadvantage: Lacks soil to seed contact and potential for fertilizer burn resulting in stand loss
4. Modified corn cultivator or rotary hoe with a seed delivery system (application cost ~$ 7 to $14/A)
   Advantages: Incorporates seed into soil
   Disadvantages: Disturbs soil; Not suitable for no-till systems
5. Aerial-- plane or helicopter (application cost ~$13-$17/A)
   Advantages: Can seed almost anytime and not limited by wet soil
   Disadvantages: Lacks seed to soil contact; generally, 25 to 50% higher seed rate

SPRING COVER CROP MANAGEMENT

If the cover crop overwinters there are several spring management options:

- Herbicide Termination: Terminate the cover crop 14 days prior to planting. Soil fertility and residue management should be considered at planting. The cover crop should be actively growing, and weather conditions should be a minimum of 40° at night and 50° during the day for a minimum of 3 days prior to and following termination. Read and follow all label directions. Crop insurance requirements may require a specific termination timeline.
- Tillage- Several tillage passes may be necessary for cover crop termination and may be undesirable for soil conservation.
- Crimping- Utilizing a roller-crimper to termination susceptible cover crop species is a great option and provides a long-lasting mulch to control weeds and retain moisture.
- Plant Green- Planting green involves planting into a living cover crop and terminating following planting. Ensuring proper seed placement and residue management is critical.

REFERENCES & RESOURCES

Interseeding:

-University of Wisconsin-

Considerations for Interseeding: http://ipcm.wisc.edu/blog/2017/05/considerations-for-2017-cover-crop-interseeding/

No-till drill modification for Interseeding: http://ipcm.wisc.edu/blog/2017/07/video-modifying-a-no-till-drill-for-cover-crop-interseeding/

Spring Interseeding Update:http://ipcm.wisc.edu/blog/2018/05/winter-rye-interseeding-spring-update-video/

-Penn State Extension- Cover Crop Interseeder: Improving the Success in Corn: https://extension.psu.edu/cover-crop-interseeder-improving-the-success-in-corn

Use, Benefits, and Species Selection:

-UW-Extension- Cover Crops in Wisconsin- https://fyi.uwex.edu/covercrop/

-Purdue Agriculture- *Midwest Cover Crops* ***Field Guide,*** 2nd Ed. ID-433; Midwest Cover Crops. Available for purchase at: https://ag.purdue.edu/agry/dtc/pages/ccfg.aspx

-Midwest Cover Crops Council- Multi State/Provinces Organization sharing cover crop knowledge - http://mccc.msu.edu/

Herbicide and Cover Crop Interactions:

-University of Missouri- http://weedscience.missouri.edu/extension/pdf/cover_crop_carryover_slideshow.pdf

-Purdue University- https://ag.purdue.edu/btny/weedscience/Documents/covercropcarryover.pdf

-Penn State- http://extension.psu.edu/plants Or https://extension.psu.edu/herbicides-persistence-and-rotation-to-cover-crops

Written by M. Weiss, (Co-Chair, Dodge County Farmers for Healthy Soil-Healthy Water) and L. Ortiz-Ribbing, (UW- Extension). Sept. 2018

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Extension
UNIVERSITY OF WISCONSIN–MADISON
WAUPACA COUNTY

Upcoming Events:

May 3
Ag Lender/Farm Manager Update
9-3 Liberty Hall, Kimberly

June 20
4H Area Animal Science Days
Fairgrounds, Weyauwega

July 23-25
WI Farm Technology Days
Jefferson County
Walter Grain Farms
W5340 French Road
Jefferson, WI

Extension Crop Production & Management Videos

Check out the following UW-Extension educational videos on various crop production recommendations for low-margin years available on the UW IPM YouTube Channel:

- **Soybean Inputs that Deliver the Highest Return on Investment**
- **Practical Weed Management Strategies**
- **Fundamental Soil Fertility Strategies for Success**
- **How to Survive and Thrive on Current Corn Price Projections**
- **Low Grain Prices = Smart Disease Management Decisions**
- **Managing Insects Economically Using Conventional Hybrids**
- **Machinery/Technology Management**
- **Tillage Considerations to Reduce Operational Costs**
- **Partial Budget Analysis: A Practical Tool for Low Margin Years**

Also, go online for and search for UWEX A4137...
"Grain Management Considerations in Low-Margin Years".

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