UW-Madison Extension| Fond du Lac County

From Field to Barn

September 2019

Extension Fond du Lac County

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Pam Bartoli **Tina Engelhardt**
Katie Gindt **Cassi Worster**

Requests for reasonable accommodations for disabilities or limitations should be made prior to the date of the program or activity for which it is needed. Please do so as early as possible prior to the program or activity so that proper arrangements can be made.

New faces to the FDL Extension Ag Team!

We are excited to announce that our Extension Agriculture Team is complete! Make sure to contact us with any questions that you may have this harvest season!

Joe Zimbric, Crops & Soils Agent

Joe recently completed his MS degree in agronomy at UW-Madison where his research focused on optimizing the forage and grain production of a perennial wheat species called Kernza. In addition Joe has evaluated several problematic weed species for potential resistance to various herbicides.

Prior to starting graduate school, Joe spent time in Montana where he organized various educational programs for cattle ranchers and dryland wheat farmers. Joe can be reached by email at jwzimbric@wisc.edu.

Katie Gindt, Administrative Assistant

Katie joined the Fond du Lac County Extension team in June. As a member of the team, Katie's responsibilities include supporting Fond du Lac County Agriculture and the various agriculture programs and outreach conducted by the extension agents and educators.

Previously, Katie worked with the Sophia Foundation and Moraine Park Technical College. Katie can be reached at 920.929.3173 or katie.gindt@wisc.edu.

Tina Kohlman
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Make Sure Your Kernel Processor is Doing Its Job

For cows to digest starch in corn efficiently, the kernels in chopped and processed whole-plant corn must be broken into small particles. With today's high-producing animals, kernels must be processed into smaller particles for dairy cattle to get adequate starch utilization given the short duration feed resides in the rumen.

The right time to determine adequacy of kernel processing is at time of harvest when harvester adjustments can be made to correct inadequate processing. However, it can be difficult to see how well kernels are processed when they are mixed with the stover fraction of the plant. A water separation technique has been developed that can be used in the field or at the silo to separate the stover and kernel fractions (Savoie et al., 2004). This simple technique exploits differences in buoyancy between the kernels and stover. Simply put, when placed into a water bath, stover floats and kernels sink.

The method is simple, requires very little equipment, and can be done in the field or at the silo:

- **Step 1:** Fill a dishpan or 5-gallon pail ¾ full of water or a 5-gal. pail about ½ full.
- **Step 2:** Collect two to three representative handfuls of processed crop and place in water.
- **Step 3:** Gently agitate for a minute material to help separate kernels from stover mat.
- **Step 4:** Skim the floating stover from the water. This can be done by hand or by using a strainer.
- **Step 5:** The water will be quite murky and kernels difficult to see, but they will be at the bottom of the container. To see kernels, carefully drain water from container.
- **Step 6:** The kernels can be poured onto a cloth or heavy-duty paper towel and water squeezed from the kernels. The kernels can then be spread out for inspection and evaluation of the degree of processing.

The process works well under most crop conditions and can even be used to evaluate ensiled corn silage.

Very green corn and very wet corn silage can be more challenging to separate so consider these alternatives:

- When the crop is very green, dark green leaves will sink with the kernels. These leaves can be separated by hand after step 5 above.
- Ensiled material, especially if ensiled at high moisture, will not separate well. Thoroughly drying sample in an oven promotes better separation.
- If after draining water from the container (Step 5 above) there is too much stover with the kernels, add some water back to the container, swirl the contents and quickly drain off water. This second iteration helps remove remaining stover.

The presence of many whole-kernels is a clear indication processing level is insufficient. If there are almost no whole kernels, but many are simply nicked, cracked or broken, then processing level may be considered barely adequate. Properly processed materials should have almost no whole- or cracked-kernels.

Figure 1. Chopped whole-plant corn placed into water.

Figure 2. Gently agitating material to help the kernels sink to the bottom of the container.

Figure 3. Skimming and removing the floating stover.

Figure 4. Carefully draining the water so only the kernels remain in the container.

Figure 5. Example of separated stover and kernel fractions using the water separation technique.

Adjusting Corn Silage Contracts for 2019

Grain producers and dairyman annually debate the question, "What is corn silage worth this year?" This question will be even more important in 2019 because grain yields will be all over the board due to late planting. With variability in corn maturity and quality comes variability in price.

Most grower-dairyman silage contracts are based upon prices determined at some point during the growing season using CBOT and CME grain markets. A fair price must be negotiated from the seller's (minimum to accept) and buyer's (maximum to pay) perspectives. Buyers and sellers need to consider local market conditions that will influence the final negotiated price.

In most years there are about 8 bushels of corn grain in a ton of corn silage. However, significant variation in this number is caused by the production season, forage moisture, and the actual grain-to-stover ratio.

Often, the recommendation is to multiply the price of grain corn times 7.5, 8 or 8.5 to get the comparative price per ton for wet silage. It usually is a good estimate because the cost of grain harvest (a savings) is near equally offset by the value of additional nutrients and organic matter removed in the silage crop (a cost).

SELLER'S PERSPECTIVE

When pricing corn for silage, it's best to first approach the transaction from the seller's perspective. The seller (grain producer) has opportunities with marketing grain and opportunities with marketing stover (i.e. bedding, fertilizer value, decreasing soil erosion, etc.). Generally, the seller is not going to price the crop for less than what could be made if it was harvested and sold for dry grain. An exception is when the crop won't reach maturity for dry grain harvest.

The seller starts with the value of the standing corn minus grain harvest costs. The price is adjusted for the value of phosphorous and potassium harvested in the stover. To derive the fair market price for corn silage, calculate the potential gross income from grain (price x yield); subtract grain harvesting costs including combining, trucking, drying, storage, and harvest loss; then add back the fertilizer value of the stover being removed. The result from these calculations is then divided by the estimated corn silage yield to give an equivalent price per ton that equals the net grain return.

BUYER'S PERSPECTIVE

The buyer (dairyman) starts with the price of standing corn and adjusts for quality and harvesting costs. The buyer usually assumes harvesting costs when corn is standing and adjusts the value of corn silage based on what it would cost to purchase corn and straw to replace the nutritional value of corn silage. Forage quality adjustments can be derived through opportunities with marketing milk. Some corn, like brown midrib hybrids (bmr), have more stover value than non-bmr hybrids.

GRAIN PRICE DRIVES THE PROCESS

Corn grain price drives silage price. Both buyer and seller need to first agree on how the base grain price will be determined. Some options include local price on a given date, average of local price on several dates, or using a futures market price. Once a base price is determined, some adjustments may still need to be made. Finally, sell by the ton; estimating silage yield and selling by the acre will almost always result in someone getting the short end of the cornstalk.

FACTORS AFFECTING THE GRAIN EQUIVALENT CALCULATION

- **Harvest timing** can affect grain yield in the forage. Kernel milkline is a good indicator of development and remaining potential grain yield. For example, grain yield can still increase 5 to 12% when the kernel is at 50% kernel milk. No further grain yield increases occur after "black layer" formation at the kernel tip. Make price adjustments for immature corn. The easiest way to do this is to take a

percentage of the normal price (for example: use 70 to 80 percent of a normal corn price based on lower silage quality).

- **Moisture content** in forage and grain has a major influence on this relationship and needs to be considered to accurately determine fair forage prices. If the base price is set for 65 percent moisture corn silage, an adjustment must be calculated if the silage is harvested wetter or drier than 65 percent.
- **Environment** can significantly affect the amount of grain in corn forage. Drought can reduce plant stature and affect pollination reducing both grain and forage yield. Sometimes early drought can reduce plant stature, but normal precipitation might relieve stress, and high grain yields occur. Depending upon year, grain equivalents have ranged from 6.4 to 9.4 at a 150 bu/A yield level. Some locations produced consistently higher grain equivalents than others.
- **Hybrid types** evaluated have included bmr, leafy, bioengineered, and conventional hybrids. The range among hybrids for grain equivalents was 6 bu/T (min. hybrid= 4.5 bu/T, max. hybrid= 10.5 bu/T). Brown mid-rib hybrids had significantly lower grain equivalents than conventional or bioengineered hybrids.

A DIFFERENT APPROACH – USING STARCH CONTENT

In order to accurately use grain equivalents in contract negotiations, measurements need to be taken "after the fact" (after silage harvest). Few growers are willing to leave "check strips" in the field. Weather, wildlife and hybrid standability and ear droppage can influence post-silage harvest grain yield measurements.

To deal with variability, corn forage starch content at harvest and be back calculated to determine grain equivalents on a field-by-field or load-by-load basis (Starch method in Table 1). This would allow for a much more accurate estimation of corn grain produced in a field regardless of circumstance and a fairer method for payment.

Table 1. Corn grain equivalents (15.5% moisture) per ton of silage (65% moisture).

Grain Yield	Forage Yield	Starch content	Grain equivalents (1972)	Grain equivalents (Revised 2016)	Grain equivalents (Starch method)	difference
Bu/A	T DM/A	%	Bu/T	Bu/T	Bu/T	Bu/T
Less than 90	3.8	20.9	5.0	5.1	4.4	0.7
90-110	5.4	27.3	5.5	6.6	5.8	0.8
110-130	6.0	29.0	6.0	7.1	6.1	1.0
130-150	6.7	30.4	6.5	7.5	6.4	1.1
150-170	7.3	31.4	7.0	7.8	6.6	1.2
170-190	7.9	32.2	7.0	8.1	6.8	1.3
190-210	8.6	32.6	7.0	8.3	6.9	1.4
210-230	9.3	32.6	7.0	8.5	6.9	1.6
230-250	9.9	32.4	7.0	8.6	6.8	1.8

Assuming that starch is 70% of the grain, we can back calculate grain equivalents using starch content and forage yield (Starch method in Table 1). This method consistently underestimated true grain yield equivalents. The difference (or bias) between these two methods was affected by the grain yield level. However, by using a forage yield measurement, a more accurate contract could be arrived at between grain producers and dairymen.

Source: UW-Madison Extension Corn Agronomist Joe Lauer

An App Makes It A Snap!

It will soon be that time of year when Fond du Lac County dairy and beef producers and corn growers explore their options of buying and selling standing corn silage.

To help farmers better evaluate their options, UW Madison-Extension has developed a Smartphone app to provide a simple way to help estimate the market value of corn silage. The app includes links to current corn and hay market prices, and allows buyers and sellers to enter their own yield estimates and harvest costs. The difference in values of soil nutrients removed when harvesting silage versus corn for grain is also calculated helping sellers fine tune their standing value per acre.

Corn Silage Dry Down Days

Let Whole Plant Moisture Guide Your Corn Silage Harvest

Fond du Lac County Forage Council & Extension Corn Silage Dry Down Days

10 am to 12 noon | Country Visions Cooperative | 457 W 11th Street, Fond du Lac

Tuesday, September 17	Tuesday, September 24	Tuesday, October 1	Tuesday, October 8

Next day results via UW-Marshfield Forage & Soils Lab

- No fee
- Morning of the dry down day, cut 4 to 5 stalks at chopper height, representative of the field, from inside the field, avoiding field border and headland effects
- Drop off samples between 10 am and 12 noon at Country Visions Cooperative
- Provide the following information with samples: name; city/town; contact info; hybrid variety and relative maturity; and planting date

Thank you to the following businesses for their financial support:
Country Visions Coop | CP Feeds | Bayer (Dekalb/Asgrow Seeds) | Syngenta (NK Seeds)
Corteva (Mycogen Seeds) | Winfield United (Croplan Seeds) | Insight FS
Hodorff Seed & Agronomy | Rock River Seed & Chemical | United Coop
Oakfield Elevator | Community Ag Service | Farmers Elevator Waupun

Results available at https://fyi.extension.wisc.edu/fdlag/fdl-ag-corn-silage/

Farmer to Farmer-Forage & Corn List

The **Farmer to Farmer Hay, Forage and Corn List** puts Wisconsin farmers in touch with one another for the purpose of buying and/or selling corn silage, high moisture corn, haylage, straw and other forages. Search just one county or several counties at the same time. Extension assumes no responsibility in the transaction of buying or selling the items listed on the website. All transactions and negotiations are handled directly between buyers and sellers.

- Add a listing
- Search listings
- Browse listings
- Remove my listing

Listings remain active for 60 days or until a request to remove is made.

http://farmertofarmer.uwex.edu

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Mark Your Calendars for Upcoming Agricultural Events

September 2019

13 **Farm Management Update for Ag Professionals**
9:00 am to 2:30 pm | Liberty Hall Banquet & Conference Center | 800 Eisenhower Drive, Kimberly

17 **Fond du Lac County Forage Council Corn Silage Dry Down Day**
10:00 am to 12:00 noon | Country Visions Cooperative | 457 W 11th Street, Fond du Lac

17 **Fond du Lac County Soil Health Farmers' Group' Interseeding Cover Crops Field Walk**
6:30 pm to 8:00 pm | Hiemstra Dairy | W10972 County Road T, Brandon

24 **Fond du Lac County Forage Council Corn Silage Dry Down Day**
10:00 am to 12:00 noon | Country Visions Cooperative | 457 W 11th Street, Fond du Lac

25 **Meeting Tomorrow's Feeding Challenges Today-Supporting Farmers During Challenging Times**
9:00 am to 12:00 noon | Millhome Supper Club. Kiel

October 2019

1-5 **World Dairy Expo**
Alliant Energy Center | Madison

1 **Fond du Lac County Forage Council Corn Silage Dry Down Day**
10:00 am to 12:00 noon | Country Visions Cooperative | 457 W 11th Street, Fond du Lac

8 **Fond du Lac County Forage Council Corn Silage Dry Down Day**