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American Forage and
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# PENNSYLVANIA FORAGE and GRASSLAND NEWS

Volume 28, No. 1, Winter 2018

## Supporting Members of PFGC

Many businesses support the PFGC through their membership and involvement in many of the PFGC sponsored activities. Our supporting members for 2018 are:

AgChoice Farm Credit
Barenbrug, USA
Delmhorst Inst.Co.
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Fulton Bank-AG
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Ampac Seed Co.
Chemgo Seeds
Dow AgroSciences
Farmshine Publications
Kings Agriseeds
New Holland N.A. Inc.
Rohrer Seeds
Timac, USA. Inc.

## 2018 PA Forage Conferences

This year the PFGC will sponsor two forages conferences in different regions of the state. Mark your calendar! There will be something for harvested hay producers as well as grazers! Brochure enclosed.

**Tuesday, February 27, 2018**
Park Inn by Radisson
1395 Wayne Avenue
Indiana, PA

**Wednesday February 28, 2018**
Grantville Holiday Inn
604 Station Rd
Grantville, PA

Our keynote address will be delivered by Dan Undersander, Forage Specialist at University of Wisconsin. Undersander will be discussing the use of low-lignin alfalfa in beef and dairy rations, as well as minimizing drying rate through swath width and machinery adjustments. Other topics include Weeds in Forages, Soil Fertility in Forages, Does Hay Pay?, and Forage-Based Beef Production.

Visit with industry professionals and farmers and enjoy the day listening and learning about educational topics pertaining to forage production from industry leaders!

For more information and event registration, contact Terri Breon at 814-355-2467 or paforagegrassland@gmail.com. The conference is sponsored by the Pennsylvania Forage and Grassland Council in collaboration with Penn State Extension.

## Congratulations to Penn State Agronomy Club – 2018 National Forage Bowl Winners!

A team from the Penn State Agronomy Club competed in the National Forage Bowl Competition at the American Forage and Grassland Conference in Louisville, KY on January 15 & 16. In the semi-finals, Penn State knocked off Wisconsin and really showed their skill and knowledge winning the Championship against Purdue.

The Forage Bowl competition requires the students to identify forage and weed species and answer questions about any aspect of forages from seed to animal health. This is all done in a competitive environment where speed in answering is crucial to winning.


Penn State's 2018 Forage Team (L-R) Glenn Travis, Casey Baxter, Jon Stephens, Zack Curtis, Marvin Hall (advisor), Cullen Dixon, Taylor O'Guinn, Ben Crusan and Sunnie Liggett.

# We're Pricing Hay All Wrong

"We need to think about alfalfa as a package of nutrients," said Bill Weiss, Ohio State University Extension dairy nutritionist. "As such, the value of that alfalfa (or any forage) should reflect the value of the nutrients provided."

Perhaps most buyers and sellers of hay already think this is being done, but Weiss takes it to another level. He shared his thoughts on valuing hay at the Western Alfalfa & Forage Symposium's Hay Quality Workshop held in Reno, Nev.

"Cows don't need to be fed alfalfa," Weiss bluntly said. "We can get lots of milk and never feed a stick of alfalfa. You're producing alfalfa to compete with other feeds. Instead of saying cows need alfalfa, we say cows need nutrients; they need energy, protein, minerals, and fiber. If cows didn't need fiber, there wouldn't be a speck of alfalfa produced. Rather, we'd feed corn and soybean meal just as we do with chickens and pigs," he opined.

**Nutrient pricing**

Using the current Midwest market prices of competing feed sources, Weiss estimated the value of alfalfa hay having 42 percent neutral detergent fiber (NDF), 0.58 megacalorie per pound net energy of lactation (NEL), and 20 percent crude protein (CP) is about $200 per ton.

In making the calculation, Weiss noted that not all protein is created equal and that CP should not be used to compare feeds. Rather, he recommended using metabolizable protein (MP). For alfalfa, only 55 percent of the CP is considered MP. By comparison, soybean meal has 70 percent of its CP as MP.

Breaking down the nutrient component value of his $200 per ton alfalfa, Weiss noted that 39 percent of the value came from protein, 36 percent came from energy, and 25 percent came from the fiber fraction.

According to Weiss, there's still an issue with this approach if we stop here.

"The problem is that such an approach ignores the effect of forage quality on milk yield," Weiss said. "Fiber has value, but too much depresses intake and milk production. That said, we need to adjust the nutrient value of hay to account for the NDF level and its effect on milk production."

Weiss offered an example using a base NDF level of 44 percent and milk priced at $17 per hundredweight (cwt). For every percentage unit lower than the base, the value of the forage is increased by $4.75 per ton. Conversely, the price declines by the same value if NDF levels exceed the base of 44 percent NDF. This unit change is dependent on milk price; for example, at $22 per cwt., the unit change in hay price bumps to $7 per ton for every percentage unit change in NDF above or below 44 percent.

**Index pricing**

"Valuing nutrients and adjusting for fiber concentration is a fair way to sell alfalfa; however, the market doesn't do that," Weiss said. "Rather, it's very much sold on indexes such as relative feed value (RFV) and relative forage quality (RFQ)."

The nutritionist reminded the audience that RFV is basically the same as fiber concentration. "Relative forage quality is more useful, accounting for fiber digestibility and ash," Weiss said. "Both of these factors are important."

Weiss noted that CP percent is correlated to RFV and RFQ, but it's a weak relationship with a high amount of variability.

"Somehow we have to build protein into the pricing equation because protein has value," Weiss stated. "This is especially true today when alfalfa comprises a smaller percent of the ration than it did years ago."

Weiss proposed an equation whereby RFV and RFQ are adjusted for protein. The first step is to calculate the deviation from the expected CP percent at a given RFQ. Next, adjust the RFQ. His proposed equations are as follows:

Step 1: 1 + {[Actual CP% - (13.5 + (0.05 x RFQ))] x 0.02}

Step 2: Adjusted RFQ = Actual RFQ x {Step 1}

For example, an alfalfa with an RFQ of 160 and 19 percent CP would have a CP-adjusted RFQ of 152. It's lower because we would expect a 160 RFQ alfalfa hay to have a higher CP content than 19 percent.

The "Eureka Index"

"Where we'll eventually get to is that all this (component-based pricing) will go away and we'll just be able to directly predict milk production," Weiss said. "With the statistical methods we have now, this is possible. We just need a lot more data, but it's coming," he predicted.

Weiss ended with this thought: "Most of the studies involving these various measurements and animal responses were done with a lot of alfalfa in the diet. The quality parameters probably become less important when we're feeding 5 pounds of alfalfa in the diet compared to 25 pounds. At lower inclusion rates, fiber should have more value."

Mike Rankin, Hay & Forage Grower, 12.12.2017

## Maximizing Success with Frost Seedings of Clover

Here are a few tips to ensure you have the best chance of getting clover established from a frost-seeding.

1. Address soil fertility needs. Get a current soil test, and apply the needed nutrients. Clovers need soil that is pH 6.5 to 7 and medium or better in P and K. Do not apply additional N except for that supplied from diammonium phosphate (DAP) if used to supply the needed P. But get the soil test; anything else is just a guess.

2. Select a good variety. Choose an improved variety with known performance and genetics. Choosing a better red clover variety can mean as much as three tons of additional hay and long stand life compared to common seed (variety unknown).

3. Spread enough seed. 8 to 12 pounds of red or 1 to 3 pounds of white/ladino clover per acre. Applying the minimum (8 lb. red and 1 lb. white) will put over 60 seeds per square foot on the field (50 red, 18 white).

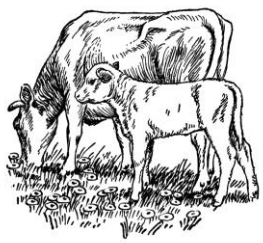
4. Make sure seed lands on bare soil. Excess grass or thatch must be grazed and/or disturbed until there is bare ground showing prior to overseeding. The biggest cause of seeding failure with frost seedings is too much ground cover. Judicious cattle traffic or dragging with a chain harrow can accomplish this.

5. Get good seed-soil contact. With frost seeding, we depend on the rain and snow or freeze-thaw action of the soil surface to work the clover seed into the top inch of soil. A corrugated roller can also be used soon after seeding to ensure good contact.

6. Control competition next spring. Do not apply additional N on overseeded fields next spring, and be prepared to do some timely mowing if grass or spring weeds get up above the clover. Clover is an aggressive seeding but will establish faster and thicker if grass and weed competition is controlled.

Clover can be reliably established into existing grass pastures with a little attention to detail. Soil fertility, variety, seeding rate, seed placement and competition control are the major keys to success.

Dr. Jimmy Henning, Univ. of Kentucky



## Your Corn Silage is Changing

Many dairy cow rations rely heavily on corn silage. The versatile feed staple combines both fiber and grain into an excellent source of nutrients and energy.

A recent Iowa State University *Dairy News & Views* newsletter notes that where fiber tends to break down slowly in the rumen, starch is more readily fermentable. The degree of starch digestion hinges on the breakdown of the kernel's protective layer, or pericarp.

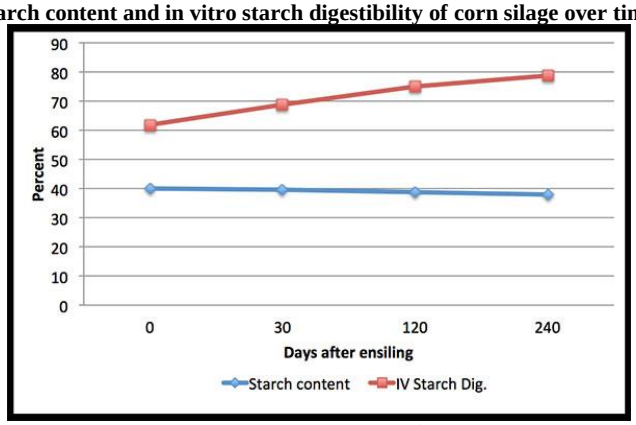
"When a dairy cow consumes corn kernels that are properly fragmented, the microbes in its rumen ferment the starch and release energy that can then be used for biological processes, including milk synthesis," states Carrie Shouse, Iowa State University animal scientist.

Starch content is determined by the number of kernels and degree of maturity. This value is a constant as it remains the same from harvest through fermentation and feedout, Shouse adds. That said, starch does become more digestible over time during fermentation.

"This is because starch is arranged in granules surrounded by proteins that degrade over time under the acidic conditions of silage fermentation," Shouse says.

As shown in the graph, starch becomes more accessible for microbial fermentation in the rumen at around six to eight months of ensiling. Shouse cites in vitro studies that show almost 20 percent more ruminal starch digestibility after eight months of fermentation – or, more energy for both microbes and the cow.

**Starch content and in vitro starch digestibility of corn silage over time.**




Adapted from Ferraretto et al. (2015)

This comes with a downside, explains Shouse, because while it generally raises feed quality, too much starch being degraded can also depress fiber digestibility and milkfat synthesis. Producers are urged to test corn silage after six to eight months for in vitro starch digestibility. From there, Shouse recommends working with a nutritionist to rebalance diets and account for the added starch digestibility. "This can translate into better rumen health and even economic savings by using feedstuffs more efficiently," Shouse says.

Lauren Peterson, Hay & Forage Grower, 1.16.18

**Pennsylvania Forage & Grassland Council**

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**Save the Date for the Forage Conferences!**

## Tuesday, February 27, 2018
## Park Inn by Radisson
## Indiana, PA

## Wednesday, February 28, 2018
## Grantville Holiday Inn
## Grantville, PA

**Upcoming Events:**
**Hay Production Workshops**
**Penn State Extension**

**- March 13, 2018**
Penn State Extension Crawford County
1099 Morgan Village Rd., Suite A
Meadville, Pennsylvania 16335

**- March 14, 2017**
Penn State Extension Cambria County
499 Manor Dr.
Ebensburg, Pennsylvania 15931

To register:
https://extension.psu.edu/hay-production-workshop

## PFGC Officers and Board

The following is a list of the current officers and Board of Directors of the PFGC. If you have questions, concerns or suggestions on how the PFGC could serve you better, please contact one of these people.

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