Forage Newsletter

Fall 2018

DLF PICKSEED
SEEDS & SCIENCE

Field Day Report

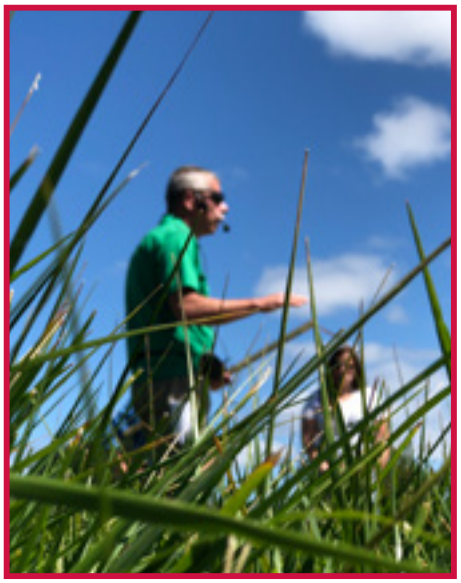
June 28th was our Field Day, a unique once every two-year event showcasing DLF's new developments in grass and clover. Over 120 customers from US and abroad, came to our Research Station in Philomath, OR, to see and hear from our researchers and product managers the new products in DLF's Seeds and Science 'pipeline'.

Several technical presentations preceded the guided tours of the turf and forage plots, where one could see and feel the next generations for themselves. After lunch there was another round of turf and forage tours and an opportunity to take a tour of the production area with seed field and cleaning facility visits. To top it off, our guests were treated with magnificent weather and a great Carne Asada dinner.

Roeland Kapsenberg, V.P. of Agriculture
DLF Pickseed Field Day, Philomath Research Station

"It was a great pleasure to attend the DLF Field Day in June! I loved being able to see many of the species and varieties that Pawnee Buttes Seed uses in our forage program. Roeland Kapsenberg did an awesome job leading the tour of forage species, including perennial ryegrass, tall fescue, orchard grass, and Festulolium. Personally, I thought the bio-fumigant crop Braco White Mustard was very interesting. It was a fantastic trip, and the ability to see the grasses as well as ask questions and the discussions I had, made it well worth my time!"

Don Hijar
Pawnee Butte Seed, Greely CO



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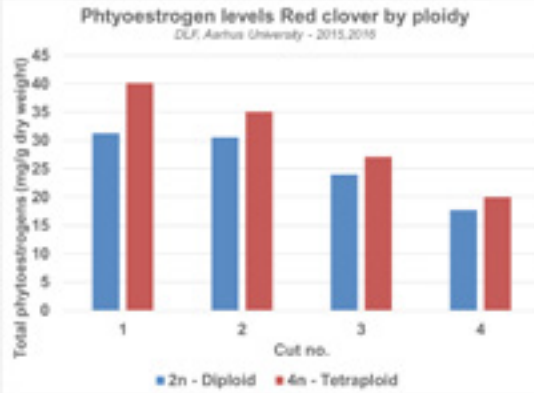


Phytoestrogen in Red Clover

It is well documented that phytoestrogens (PE) can have health benefits and adverse effects on both humans and livestock.

Eight identified phytoestrogens naturally occur in certain Leguminosae plants such as soybeans, alfalfa and clovers. Most documented health benefits are related to human consumption of soy products and red clover extracts. The documented adverse effects have been on fertility in cows and sheep at certain times. Studies have shown that levels of the phytoestrogen Formononetin >8,000 ppm (dry matter basis) in feed can be considered problematic for sheep (ewes) and heifers/cows and levels <3,000 ppm have no measurable effect. The range in between is the “possible good or bad” zone. There is limited information at what consumption rate of red clover the adverse effects of phytoestrogens become problematic and what can be considered a safe level, or even beneficial to the animal’s health.

DLF researchers, in cooperation with Aarhus University in Denmark, conducted a study on PE types and levels in various [European] Red Clover varieties and subsequent cuts over the course of a growing season.

Some of the findings:

- Formononetin decreases from approx. 25% to 15% of total phytoestrogens from 1st to 4th cut
- There is varietal difference in total PE levels, ranging from 20,000 – 35,000 ppm in the varieties used in the study
- Total PE concentration is highest in the first cut, decreasing in subsequent cuts.
- Tetraploid varieties have on average a 20% higher PE level than diploid varieties

What this means

There are no studies on levels of PE in current legume varieties sold in the US market. But we can learn from the DLF study: for one, we are not aware of any tetraploid red clover varieties sold in the US market.

There is not enough data on what the PE health benefits are and how to manage that in a grazing situation. Therefore, one should be cautious and manage pastures to stay below the 3,000 ppm Formononetin level.

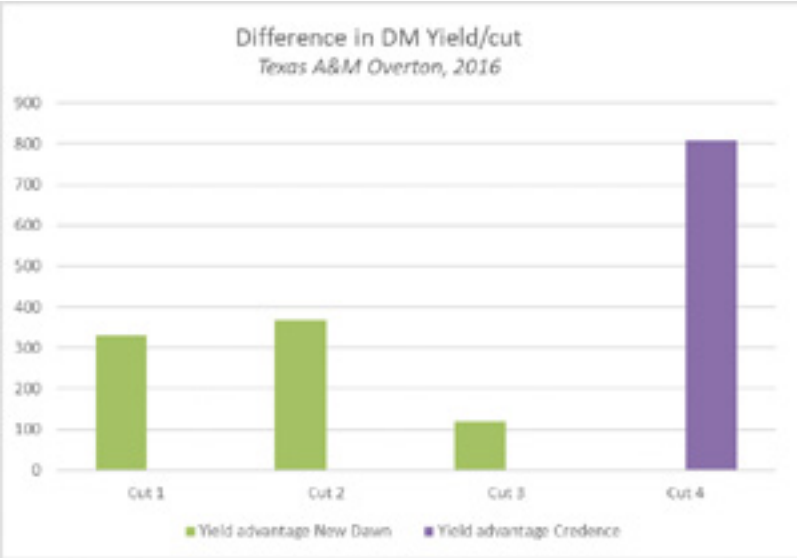
From the DLF study we learned that there is substantial variance in PE levels per variety. We should assume this true for varieties available in the US as well. The study showed that a stand of 100% red clover for the first cut, has a potential of Formononetin levels over 8,000 ppm (for specific varieties), but most certain well over 3,000 ppm on most varieties. It is wise to avoid this scenario for grazing ewes or cows, when at sensitive reproductive periods. Without specific PE level and composition information on the varieties sold in the US, we should err on the side of caution. Any mixed stands with (red) clover making up less than 30% of the stand (Dry Matter produced), can be considered safe at any time. When feeding red clover hay/silage (assuming a mix of the various subsequent cuts), limit the amount to no more than 40% of the daily dry matter intake per day. This will keep the ration well below the 3,000 ppm PE level.

Overgrazing or too short cutting of grass-clover stands can favor clover especially white, which may then overtake the stand completely. Proper grazing and cutting management can keep this in check. Overseeding with N-Hancer should be done in pastures with an adequate grass population to ensure a balanced grass- clover sward.

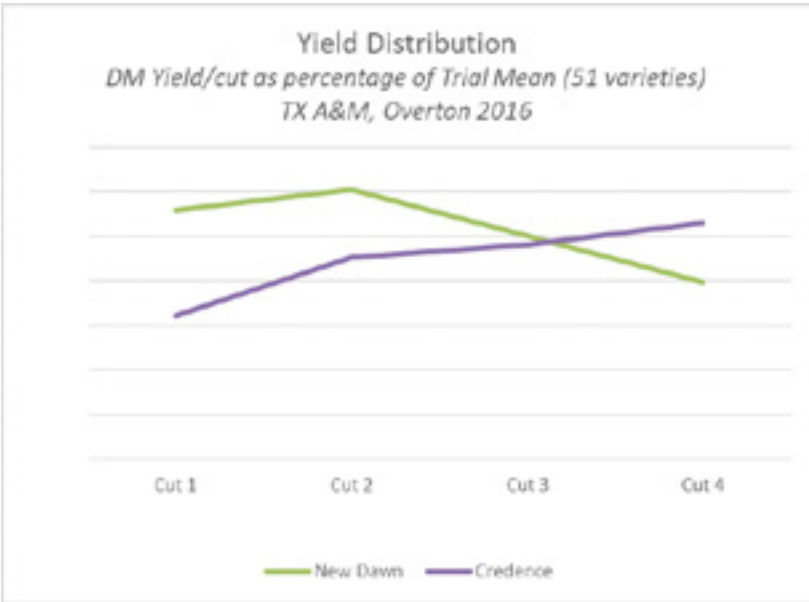
N-Hance wisely!

Making use of Yield Distribution

When looking for extended grazing periods and minimized feeding of hay, it serves well to use varieties with different growth patterns. Early varieties, like New Dawn, provide early forage, and can transition out early. It allows the over-seeded warm season perennial grass to break dormancy with less competition and regrow faster. A later variety, such as Credence, will provide the needed forage late in the season, while the transitioned warm season pastures are getting ready for grazing.



Credence offers the same Total Season DM production as New Dawn, but with its DM production advantage in the fourth cut when New Dawn has already started to transition out. By planting some fields with New Dawn and others with Credence, and managing the grazing, you can shorten or even avoid the early summer forage gap.



"By planting fields with New Dawn and fields with Credence and manage the grazing, you can shorten or even avoid the early summer forage gap."

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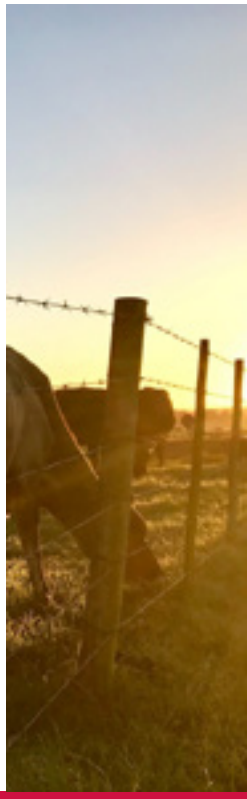
You can't judge a tall fescue by its cover!



When European tall fescues first came to the US market, they were presented as soft and fine leaved, and in theory more palatable. Several years ago, in an on-farm trial on a dairy farm in Central Oregon, several soft leafed and traditional leafed variety tall fescue were compared. A year into the trial, grazing preferences became visible. Based on observations the cows had grazed on all plots, but had avoided the Fawn. The traditional leafed variety Tuscany II was clearly the most preferred variety. The soft leaf tall fescues were in the second group of preferred palatability as were some of the traditional leafed varieties. Fawn was the lowest preferred variety. A clue to this grazing preference comes from a forage trial in New York where Tuscany II was rated highest for sugar (Non-structural carbohydrates, NSC). Cows apparently have a 'sweet tooth' and prefer high sugar over leaf texture: taste is a factor in palatability.

Grazing preference of Tuscany II was later repeated on a grazing dairy in the Columbia River Basin. An irrigation circle was split between Tuscany II, and a mix of soft leafed tall fescue and perennial ryegrass. When given a choice, the cows chose the traditional leafed Tuscany 2 over the softer grass. And when on Tuscany II paddocks, gave more milk.

The results of a tall fescue palatability trial at the DLF Research Farm in KY also disprove the theory that palatability can be determined just by leaf texture. Grazing steers did not show preference based only on leaf texture. Martin 2, another traditional leafed tall fescue, was the most palatable in that trial, preferred over the soft leafed varieties.

Keep in mind that leaf texture becomes irrelevant when the grass is harvested as hay, balage, or silage.

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