Forage Newsletter

Fall 2017

DLF PICKSEED
SEEDS & SCIENCE

Managing the Toxicity of K-31 Pastures

K-31 tall fescue is the most common forage grass in the transition zone. The endophytes found in the K-31, help the grass to persist, but produce ergot alkaloids which have negative impacts on grazing animals. This can include reduced weight gain, lowered milk production, and diminished reproduction.

Complete Renovation

One option is to eliminate the toxic K-31 in the pasture and replace with a novel endophyte tall fescue like Martin 2^{Protek} and Tower^{Protek}, that is safe for grazing animals. One recommended practice is the Spray-Smother-Spray method. The K-31 is sprayed out in the late spring before seed head development, a summer smother crop is planted with a no-till drill, a second spray in late summer kills the smother crop and any escaped tall fescue plants, and then a novel endophyte tall fescue is no-tilled, before fall rains start. Other effective renovation methods can be used including a Spray-Spray method, and following a row crop rotation. Fall establishment of a novel endophyte tall fescue is generally recommended.

Solution by Dilution

Complete renovation may not be an option on rented pastures, or where effective pasture management is limiting. In these situations, other forages (grasses and/or legumes) are overseeded to increase DM yield of the pasture, to reduce the daily intake of K-31, diluting the dose of the toxic ergot alkaloid.

N-Hancer is an excellent way to increase the clover content of a pasture. In addition to the bump in forage production, the higher forage quality of clover improves animal performance, and reduces the need for nitrogen fertilizer. Pastures used for stockpiling this fall, will respond to a frost seeding next spring with N-Hancer. Especially pastures grazed into late fall and winter,

Grasshancer 300FLC combines the benefits of clover with festulolium, a rapid establishing high forage quality grass. The Frost Seeding Formula (FSF) is best for late winter seeding.

Alternative Summer Forage

The toxicity of K-31 is highest in the summer, consider moving the livestock to an alternative summer pasture. Options include summer annuals, bermudagrass (Vaquero and Gaucho), native warm seasons, or prairie bromes (Persister).

DM Yield and Nutrient Management

Livestock farming operations have a big challenge with nutrient management in relation to the acres accessible for manure applications. Based on the nutrients removed per year by a given crop and the nutrient composition of [liquid] manure, the maximum possible annual manure application will in most cases be determined by P_2O_5. Table 1 below shows the relationship between nutrients removed relative to the DM yield of a grass crop and the amount of manure that can be applied. The "gal/acre, yr liquid manure equivalent (*1,000)" gives the amount of manure that can be applied to balance the given component for each DM yield level.

Table 1:

Grass Crop			
Yield DM Ton/Acre	6	8	10
Crude Protein in % DM	12	12	12
Nutrient Removal in Lbs/Acre			
N	231	308	384
P_2O_5	82.8	110.4	138
K_2O	362.4	483.2	604
Gal/Acre, Yr Liquid Manure Equivalent (*1,000)			
N	8.9	11.8	14.8
P_2O_5	7.5	10.0	12.5
K_2O	15.8	21.0	26.3

In all DM yield cases, with CP=12%, the P_2O_5 balance is achieved with the lowest application rate.

For a given DM yield, the protein level in the harvested crop will influence the uptake of available N. The example in table 2 shows that with 8 tons harvested DM with a CP=10%, both N and P_2O_5 removal are balanced with manure applications of 10,000 gal/acre. For CP<10% the maximum manure application is determined by the N application, when CP>10% P_2O_5 will be the limiting factor. Higher DM yields will increase the maximum possible manure application, but the tipping point between N or P_2O_5 being the limiting factor, will remain around the CP=10%.

Table 2:

Grass Crop				
Yield DM Ton/Acre	8	8	8	8
Crude Protein in % DM	8	10	12	14
Nutrient Removal in Lbs/Acre				
N	205	256	308	359
P_2O_5	110.4	110.4	110.4	110.4
K_2O	483.2	483.2	483.2	483.2
Gal/Acre, Yr Liquid Manure Equivalent (*1,000)				
N	7.9	9.9	11.8	13.8
P_2O_5	10.0	10.0	10.0	10.0
K_2O	21.0	21.0	21.0	21.0

These tables show the importance of producing high quality forage and as much as possible. It helps the nutrient management and allows for higher applications of manure.

For instance, a dairy farm produces approx. 5,000 gl/yr manure per lactating cow equivalent (including dry cows, heifers and calves). The difference between a poor forage crop (low yield, low quality) and a high yield, high quality forage crop, can mean 6,000 gal/acre,yr versus 12,000 gal manure/acre,yr. Or, in other terms, you may need almost 1 acre/cow versus 0.4 acre/cow to balance the nutrients on your farm.

Therefore, Grasshance in Time, to Maintain a High Producing, High Quality Pasture.

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Forage Seed Harvest 2017

At the time of writing, the Western Oregon seed production conditions have been favorable for the 2017 crop. It was a very wet year, with some all-time precipitation records set. Especially compared to the two prior years, which were well below average rainfall. The result is a later maturing crop, more on an average level, but at least two weeks later than prior years. Pollination conditions have been good in general. The outlook is for an average crop, with the normal variation between fields and maturity of varieties. Due to the early onset of the rains, not all planned production fields were planted. Most of those are the ryegrasses, with annual ryegrass being the largest in that group. That market has already responded and we have very firm prices on annual ryegrass for fall delivery.

Forage seed production areas in Canada were wet early in the fall and in places have seen quite severe winter damage. It is too early to tell how the crop is shaping up, it is still a long way away from seed harvest.

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