MINNESOTA TURF SEED COUNCIL
NEWSLETTER
August 15, 2018

RYEGRASS GROWING DEGREE DAYS (GDD)

Ryegrass GDD will be tracked for the 2018 growing season with comparisons to the previous six years. A base temperature of 32 degrees F will be used for ryegrass (T-Base = 32 F). Reported GDD are based on the total accumulation from the beginning of the calendar year to the current date.

- Year to date, GDD = 3,260 (Table 1)
- Average temperatures for the third week of August, high of 77 F and low 51 F
- Average GDD accumulation for first week of August = 226 (32.3/day)
- Current 10 day forecast projects daily highs in the mid 80's and lows in the mid 50's
- Projected 10 day GDD = 352 (35.2/day)
- Current 10 day forecast projects warmer than average temperatures (+2.9 GDD/day)

Table 1. Growing degree days (GDD), March - July 2012 to March - July 2018 near Roseau MN.

Year	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2018 vs. 17**
March	0	90	38	119	0	0	304	-90
April	184	258	263	367	159	80	370	-74
May	815	679	765	659	654	640	726	+136
June	1,007	917	945	941	964	975	979	+90
July	1,100	1,095	1,123	1,147	1,066	1,088	1,230	+5
Aug 1-5	154							
Total	3,260	3,066	3,134	3,030	2,843	2,783	3,609	
*Aug 13-22	352							

* Forecasted GDD at Roseau for the next 10 days.

GENERAL CROP CONDITION

Ryegrass harvest should wrap up this week with spring wheat harvest in full swing!

CROP MANAGEMENT

If the ryegrass straw is baled off, or burned, what is the nutrient content of ryegrass straw? "Ballpark" estimates of the dry matter yield of ryegrass straw will be one to over three tons/acre with an average of two tons/acre. The approximate values of **nutrient/ton of ryegrass straw** for the macronutrients.

- Nitrogen - 20#/ton
- Phosphorus - 4#/ton
- Potassium - 40#/ton
- Sulfur - 4#/ton

If the ryegrass straw is burned, most of the phosphorus and potassium will be available for future crops. However, the majority of the nitrogen and sulfur will be consumed in the fire and not be available for future crops.

A large plot replicated trial was initiated in the spring of 2018 with the trial objective to determine if supplemental sulfur would impact ryegrass growth development and yield. This trial had three treatments replicated three times. The spring fertility program was 120# actual nitrogen applied to the entire field on 5-7-18. The AMS and urea in the research area was applied on 5-11-18. Individual plot size was 48 feet wide by 500 feet long. A rainfall event of 1.8 inches fell on 5-18-18. Trial was harvested on 7-24-18.

The three treatments in this trial were:

- 1) AMS, 26-0-0-30 applied at 125#/acre
- 2) Urea, 26-0-0 applied at 57#/acre to equalize the amount of nitrogen contained in AMS
- 3) A base nitrogen applied to the entire field at 120 pounds of actual nitrogen.

Table 2. Perennial Ryegrass Sulfur Content, Plant Height, Relative Chlorophyll Index (RCI) and Seed Yield as Influenced by Fertilizer Treatment.

Treatment	Sulfur Tissue *	Plant Height^	RCI**	Yield ***
	(%)	(Inches)	(Index)	(#/acre)
AMS	0.38	11.9	639	1,660
Added 46-0-0	0.14	9.1	528	1,343
Background 120# Nitrogen	0.14	8.6	513	1,325

Farmer cooperators: Brian and Sheldon Rice
Soil test information: Organic matter = 3%, pH = 7.9, 0-6 inch sulfate sulfur = 10#/acre
* Approximately, 50 plants from each treatment and rep (3 treatments x 3 reps) = 9 samples sent to AGVISE for sample processing
^ Average of 5 heights in each treatment and rep (3 treatments x 3 reps = 9 samples
** Relative Chlorophyll Index (RCI). Higher number more chlorophyll
*** Ryegrass seed yield off the combine. Subsamples were taken from each treatment for seed quality and to determine a cleanout percentage.

The data from this large on-farm sulfur trial suggests spring applied sulfur was a positive for perennial ryegrass growth, development and yield. The following conclusions can be made from the data in Table 2:

- Plant tissue tests indicate the AMS treatment contained over 2.5% more sulfur than either the added urea or background nitrogen
- Ryegrass plant height from the AMS treatment were taller, had a higher RCI index and were more vigorous than the other two treatments
- The added urea gave similar results than the background nitrogen, but both were lower than the AMS treatment.
- Ryegrass seed yield was at least 317#/acre higher from AMS compared to the added urea or the field nitrogen rate. The additional urea application gave similar ryegrass seed yields that the base nitrogen rate of 120#/acre.

Next week's newsletter will be released in August 22nd.