

**MINNESOTA TURF SEED COUNCIL  
NEWSLETTER  
July 13, 2021**

**PERENNIAL RYEGRASS GROWING DEGREE DAYS (GDD)**

Perennial ryegrass GDD's will be tracked in the 2021 growing season with comparisons to the previous six years. The accumulation of GDD's will begin after the snow has melted from the perennial ryegrass fields and continue through swathing. A base temperature of 32 degrees F will be used for perennial ryegrass (T-Base = 32 F).

- Year to date GDD = 2,494 (Table 1)
- Last week (July 5-11) accumulated GDD = 235
- Average GDD for second week of July = 243
- Projected GDD for the next 10 days = 439, or 43.9/day (Table 1)
- Average GDD for the mid-July = 239, or 34.1/day
- The new 10 day forecast suggest above average temperatures for the third week of July as the projected GDD accumulation is 43.9/day compared to the long term average of 34.4/day.

Table 1. Growing Degree Days (GDD), March - July 2015 to March - July 2021 near Roseau MN.

<b>Year</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2021 vs. 2020</b>
March	131	30	0	0	90	38	119	+101
April	236	183	211	184	458	263	367	+53
May	640	600	548	815	679	765	659	+40
June	1,077	995	919	1,007	917	945	941	+82
July 1-11	410							
July		1,179	1,067	1,100	1,095	1,123	1,147	
Total	2,494	2,987	2,745	3,106	3,239	3,134	3,233	
*July 12-21	439							

\* Forecasted GDD at Roseau for the next 10 days.

**GENERAL CROP CONDITION**

The new 10 day forecast indicates the warmer than average temperature pattern will continue for the next couple weeks. Perennial ryegrass fields are losing green color and many areas of fields are turning brown. This brown color is most pronounced in light textured soil, sand knobs and ridges, compacted areas and soils with shallow root profiles. The decision on when to swath ryegrass will be complicated this year by the accelerated ryegrass maturity due to lack of soil water in areas of the field. Some perennial ryegrass fields were swathed last week and this week looks to be a busy one for ryegrass swathing.

**PEST MANAGEMENT**

Low levels of rust can be observed in a perennial ryegrass field at the U of MN Magnusson Research Farm that didn't receive a fungicide treatment. No rust was observed in perennial ryegrass areas that received a fungicide treatment at full head extension. Leaf and stem rust at this time will result in minimal yield losses as much of the ryegrass will be swathed this week.

The insect pest in perennial ryegrass in the 2021 season was grasshoppers. This is in contrast to the 2020 season which was a year of severe outbreaks of armyworms. Armyworm moth flights were documented into the area the week of May 18. However, very few armyworm larvae have been observed in perennial ryegrass fields in 2021. This armyworm monitoring project will continue for the next couple years to get a better understanding of the dynamics of armyworm moth flights and the production of larvae in perennial ryegrass fields in northern MN.

### **CROP MANAGEMENT**

In 2021, perennial ryegrass generally has been shorter with less biomass production than in previous years. Many perennial ryegrass plants average 14-18 inches tall which is at least 8 to 10 inches shorter than what we typically observe in the growing conditions of northern MN. The extended hot and dry weather is, most likely, a major factor in the reduction of ryegrass height and biomass production compared to what would be considered average. The short plant height and reduced biomass production will create a challenge in the swathing operation. In the last few years, the disc cutters have been a popular swather in perennial ryegrass. However, with the reduced biomass, short plant height and lack of dew in the mornings the disc cutters may not be the best swather for the 2021 ryegrass crop. The data in Table 2 is from Oregon State University and was obtained from on-farm strip trials.

Table 2. Perennial ryegrass seed yield and seed loss from various swather types operated in on-farm strip trials in Oregon. N.P Anderson, M. Goussard and B. Donovan, 2018.

Swather Type*	Seed Yield (#/acre)	Seed Loss (#/acre)	Seed Loss (%)
MD Single Auger	2,465 b	712 b	28.6 b
JD Double Auger	2,182 a	763 b	34.3 b
MD Draper	2,516 b	453 a	17.3 a
JD Rotary Disc	2,356 ab	630 b	27.6 b

\*MD = MacDon; JD = John Deere

The above data was collected from on-farm strip trials conducted in Oregon and is the average of two sites the day the farmer cooperators would swath the field. Average seed moisture at swathing was 21.4%. The data collected, averaged over the two sites, suggest a difference in seed yield and seed loss based on the type of swather used in perennial ryegrass. The small letters after the numbers are LSD (0.05) values. Letters that are the same indicate no statistical difference, however if letters are different the values are different based on a statistical confidence level of (0.05). Data is limited from various swathers in perennial ryegrass in MN conditions. Several considerations for swathing the 2021 ryegrass crop in MN include:

- As swather width is reduced a short ryegrass plant may not produce a windrow that can be efficiently picked up with the combine
- The lack of biomass will result in more movement of the ryegrass plant from the swathing operation, especially traveling as speeds over 10 mph which will increase seed shatter
- The lack of dew in the morning will result in more seed shatter, especially with more aggressive cutting operations
- Ryegrass seed shatter increases as seed moisture moves from the mid-30's into the 20's
- Wider swather widths, when operated at lower speeds, will produce a windrow that should be more efficiently picked up with the combine

Next week's newsletter will be released on July 20<sup>th</sup>.