

**MINNESOTA TURF SEED COUNCIL
NEWSLETTER
June 29, 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 = 1,972 (Table 1)
- Last week (June 21-27) accumulated GDD = 224
- Average GDD for the end of June = 220
- Projected GDD for the next 10 days = 421, or 42.1/day (Table 1)
- Average GDD for the first week of July = 230, or 32.9/day
- The new 10 day forecast suggest above average temperatures for the first week of July as the projected GDD accumulation is 42.1/day compared to the long term average of 32.9/day.

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

Year	2021	2020	2019	2018	2017	2016	2015	2021 vs. 2020
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 1-27	965							
June		995	919	1,007	917	945	941	
Total	1,972	1,808	1,678	2,006	2,144	2,011	2,086	
*June 28-July 6	421							

* Forecasted GDD at Roseau for the next 10 days.

GENERAL CROP CONDITION

The new 10 day forecast suggests warmer than average temperatures for the first week of July. The extended above average temperatures coupled with below average precipitation is causing a reduction in ryegrass growth and development, especially on lighter textured soils. Pollen dust clouds can still be observed moving across perennial ryegrass fields. Perennial ryegrass is in the late pollen shed to early seed filling stage of growth.

SUMMER GRASS SEED FIELD TOUR - JULY 1

The annual grass seed summer tour is scheduled for this Thursday, July 1st, with the field tour to begin at 5pm at the U of MN Magnusson Research Farm. Directions to the U of MN Magnusson Research Farm. At the intersection of MN Hwy 11 and 310, proceed north on MN 310 for approximately 2 miles, turn left (west) on Roseau County 16 and proceed west for approximately 3 miles. The U of MN Research Farm is located in the north side of Roseau County 16. Grass seed research trials include: Kernza, perennial ryegrass and tall fescue variety trial evaluations, fertility research in perennial ryegrass and tall fescue, fungicide, growth regulator and weed control research in perennial ryegrass and residue management in kernza, and perennial ryegrass.

CROP MANAGEMENT

Semi-trucks continue to haul straw bales out of the area that were baled and stacked last fall. That serves as a good reminder of the nutrient content in perennial ryegrass. The data presented in Table 2 are from research trials conducted by researchers in the Pacific Northwest. In the environmental conditions of northern MN, perennial ryegrass will produce between 1 to 3 tons of straw (dry matter). When the ryegrass straw is baled and removed, consideration should be given to the replacement value of these nutrients removed by the straw and seed. For example, if 1,000 pounds of seed was harvested and 2 tons of ryegrass straw was baled and removed from the field the following nutrients were removed:

- 60 pounds of nitrogen (40 straw + 20 seed)
- 18 pounds of P₂O₅ (10 straw + 8 seed)
- 106 pounds of K₂O (100 straw + 6 seed)
- 10 pounds of sulfur (10 straw + <1 seed)

Table 2. Nutrient content of perennial ryegrass straw, seed and roots.

Ryegrass Plant	Nitrogen	P₂O₅	K₂O	Sulfur
Straw (#/ton)	20	5	50	5
Seed (#/1,000#)	20	8	6	<1
Roots (#/ton)	16	7	5	1.5

Source: Oregon State University

PEST MANAGEMENT

Now that perennial ryegrass is nearing full seed head extension it's important to protect the entire seedhead with a fungicide. Growth regulators in perennial ryegrass tend to have plants that are more upright which leads to more efficient pollination compared to plants without a growth regulator. How about seed weight? Research conducted by Tretheway et.al. covered up various portions of the perennial ryegrass plant during the seed filling period. The results are presented in Table 2. The results of this research indicate that the lowest seed weight was from plants that had the entire ryegrass seed head covered. Plant diseases on the seed head reduce the photosynthetic area. This research highlights the importance of a fungicides to protect the ryegrass seedhead from full head extension through physiological maturity. One of the conclusions of this research was over 60% of the energy required to produce ryegrass seeds came from the seedhead and associated plant structures (spikelets, glumes, and peduncle).

Table 2. Influence of ryegrass 1,000 seed weight by shading various portions of the ryegrass plant (Tretheway et. al.).

<u>Treatment</u>	<u>TSW (grams)</u>
Stems wrapped	2.95
Heads wrapped	2.55
Flag leaf removed	3.06
Flag leaf attached	3.10
Unlodged tiller	3.10
LSD (0.05)	0.28

Next week's newsletter will be released on July 6th.