

**MINNESOTA TURF SEED COUNCIL
NEWSLETTER
June 20, 2023**

PERENNIAL RYEGRASS GROWING DEGREE DAYS (GDD)

Perennial ryegrass GDD's will be tracked in the 2023 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 is used for perennial ryegrass (T-Base = 32 F).

- Year to date GDD = 1,688 (Table 1)
- GDD last week (June 12-18) = 215; Long term average = 197
- GDD projected in next 10 days = 400 or 40.0/day (Table 1)
- Average GDD fourth week of June = 212 or 30.3/day
- The ten-day forecast suggests warmer than average temperatures for the end of June. Projected GDD is 40.2/day compared to the long-term average of 31.4/day.

Table 1. Growing Degree Days (GDD), March - June 2017 to March - June 2023 near Roseau MN.

Year	2023	2022	2021	2020	2019	2018	2017	2023 vs. 2022
March	0	0	131	30	0	0	90	0
April	93	95	236	183	211	184	458	-2
May	959	649	640	600	548	815	679	+310
June 1-18	636							
June		959	1,007	995	919	1007	945	
Total		1,703	2,014	1,808	1,678	2,006	2,172	
*June 12-21	402							

* Forecasted GDD at Roseau for the next 10 days.

GENERAL CROP CONDITION

The ten-day forecast indicates a continuation of the warming trend that began in mid-May. Perennial ryegrass fields are in the heading stage and pollen has been observed rolling across fields.

SUMMER GRASS SEED FIELD TOUR – June 28

The annual grass seed summer tour is scheduled for June 28th 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 two miles, turn left (west) on Roseau County 16 and proceed west for approximately three miles. The U of MN Research Farm is located on the north side of Roseau County 16.

Dr. Nancy Ehlke, U of MN grass seed breeder will provide an update on the U of MN ryegrass breeding program. Donn Vellekson will lead a field tour of the various perennial ryegrass trials which includes: preemergence herbicides, fertility, growth regulator, postemergence herbicides and a perennial ryegrass variety trial.

CROP MANAGEMENT

Now that perennial ryegrass is nearing full seed head extension it's important to protect the entire seedhead with a fungicide. Perennial ryegrass, treated with a growth regulator, produces plants with an upright growth habit which leads to more efficient pollination compared to plants without a growth regulator. How about seed weight? Research conducted by Tretheway et.al., evaluated seed weight (thousand seed weight) produced from various parts of the perennial ryegrass plant at full head extension. Ryegrass plant parts were covered during the seed filling period. The results of this research (Table 2) indicate the lowest seed weight was from plants that had the entire ryegrass seed head covered. A disease infestation like leaf and stem rust on the seed head will reduce the photosynthetic area. This research highlights the importance of timing a fungicide to protect the ryegrass seedhead from full head extension through physiological maturity.

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

One of the conclusions of this research was that over 60% of the energy required to produce ryegrass seeds came from the seedhead and associated plant structures (spikelet's, glumes, and peduncle).

PEST MANAGEMENT

Crown Rust and Leaf & Stem Rust

By the end of the week, the 2023 season will have accumulated enough GDD's for leaf and stem rust infections in perennial ryegrass. In northern MN conditions we typically can observe leaf and stem rust after the accumulation of 1,900 GDD. Leaf and stem rust spores are transported by southerly winds into northern MN. The length of time that a fungicide will provide protection against rust will be influenced by the choice of product, product rate, infestation level of the disease pathogen and the number of days since the last fungicide application.

Armyworms

A fourth armyworm flight was documented over the weekend of June 16-19. Armyworm traps located in areas of thunderstorms and rain had an average of 22 moths/trap while, armyworm traps in locations that didn't have rain recorded 0 to 3 moths/trap. This observation would suggest that the front line that produces thunderstorms may also be involved in the deposition of armyworm moths.

Field scouting has identified pockets of armyworm larvae. In addition to armyworm larvae, Brachnid wasp cocoons have been observed in perennial ryegrass fields. The Brachnid wasp is a beneficial insect which will kill the larvae by laying eggs in armyworm caterpillar. This beneficial insect is a good reminder that just because armyworm moths have been captured in a pheromone trap doesn't mean that we will see an outbreak of armyworms. Field scouting will determine the level of armyworm pressure in perennial ryegrass fields.

Next week's newsletter will be released on June 27th.