

**MINNESOTA TURF SEED COUNCIL
NEWSLETTER
July 6, 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 = 2,255 (Table 1)
- Last week (June 28-July 4) accumulated GDD = 283, the average for first week of July 230
- Projected GDD for the next 10 days = 371, or 37.1/day (Table 1)
- Average GDD for the second week of July = 243, or 34.7/day
- The new 10 day forecast suggest above average temperatures for the second week of July as the projected GDD accumulation is 37.1/day compared to the long term average of 34.7/day.

Table 1. Growing Degree Days (GDD), March - July 2015 to March - July 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	1,077	995	919	1,007	917	945	941	+82
July 1-4	171							
July		1,179	1,067	1,100	1,095	1,123	1,147	
Total	2,255	2,987	2,745	3,106	3,239	3,134	3,233	
*July 5-14	371							

* Forecasted GDD at Roseau for the next 10 days.

GENERAL CROP CONDITION

The new 10 day forecast suggests a continuation of the warmer than average temperatures. 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. Ryegrass fields, most likely, will begin this week in field on light textured soils.

PERENNIAL RYEGRASS ROOTING DEPTH

How deep are perennial ryegrass roots in the soil profile? The data below was collected in 2006 at the U of MN Magnusson Research Farm and suggests ryegrass rooting depth is at least 34 inches deep in the soil profile.

<u>Soil depth</u>	<u>Percent root dry matter</u>
0-6	75
6-12	9
12-18	7
18-24	3.6
24-34	5.5

CROP MANAGEMENT

With ryegrass beginning to turn from green to light brown, swathing will be right around the corner. The following ryegrass swathing data is from Oregon (Table 2) and the U from the MN Magnusson Research Farm (Table 3). When to swath ryegrass? The swathing decision is a balancing act, not to cut the late-maturing seeds too early and the early-maturing seeds too late. When ryegrass is cut too early (high seed moisture content) will shorten the seed filling time which leads to immature seeds and reduced seed size and weight. Cutting too late (lower seed moisture) will reduce seed yield due to increased shatter in the swathing and harvesting operations. Data in Tables 2 and 3 suggest that optimum seed moisture to swath ryegrass is in the mid-30's. Significant seed yield losses occurred when ryegrass was swathed when the seed moisture content was over 40% or, when seed moisture levels dropped into the high 20's.

Table 2. Harvest components in perennial ryegrass swathed at different moisture contents and seed shatter, Lindsay Farms near Shedd, Oregon in 2004.

Seed Moisture (%)	Seed Yield (#/acre)	Cleanout (%)	1,000 seed wt. (%)	Seed Germ (%)	Seed Shatter* (#/sq. ft.)	Seed Shatter** (#/sq. ft.)
45	1,695	14.5	1.84	95.9	2	17
36 [^]	1,727	15.1	1.82	97.0	3	78
29	1,662	14.5	1.87	95.8	4	131
LSD (0.05)	48	NS	NS	NS	NS	82

*Ryegrass seed shatter between swaths

**Ryegrass seed shatter under swaths

[^] Normal swathing moisture content of perennial ryegrass

Table 3. Ryegrass seed yield, seed moisture and test weight influenced by cutting date average over two small plot locations (Rice Farms and U of MN Mag Farm in 2014).

Sample Date	Seed Yield* (% of the mean)	Seed Moisture** (%)	Test Wt.*** (#/bu)
7/30	96.9	46	28.5
8/1	93.8	43	29.2
8/3	107.5	40	29.3
8/5	110.2	38	29.9
8/7	121.7	34	30.1
8/9	93.9	28	31
8/12	88.8	26	31
LSD (0.05)	6.2		

*Mean seed yield U of MN Mag Farm = 1,368#/acre and Rice Farms 1,348#/acre

** Seed moisture determined by microwave oven

*** Clean seed test weights corrected to 12.5% moisture

PEST MANAGEMENT

On July 5th, low levels of leaf and stem rust was 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 full head extension.

Next week's newsletter will be released on July 13th.