

**MINNESOTA TURF SEED COUNCIL  
NEWSLETTER  
May 19, 2020**

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

Perennial ryegrass GDD's will be tracked for the 2020 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 = 411 (Table 1)
- Last week (May 11-17) accumulated GDD = 95 (13.6/day)
- Average GDD for the third week of May = 151 (21.6/day)
- Projected GDD for third week of May 2020 = 242 (34.6/day)
- Average temperatures for third week of May = High 67.3F and low 39.4F
- Projected temperatures for third week of May 2020 = High 77F and low 56F
- The new ten day forecast suggests warmer than average temperatures with a projected accumulated GDD of 33.3/day compared to the average of 23.3/day

Table 1. Growing Degree Days (GDD), March - May 2014 to March - May 2020 near Roseau MN.

<b>Year</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2019 vs. 2020</b>
March	30	0	0	90	38	119	0	+30
April	183	211	184	458	263	367	159	-28
May		548	815	679	765	659	654	
May 1-17	198							
Total	411	759	999	1,227	1,261	1,145	813	
*May 18-27	333							

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

**GENERAL CROP CONDITION**

With the return of warm temperatures and the precipitation received over a couple days last week, ryegrass plants will enter a rapid growth phase. The above normal temperatures projected for this week will promote tillering in perennial ryegrass. If nitrogen has been applied and is in the root zone, ryegrass plants are a deep green color with vigorous growth. Perennial ryegrass plants that are not tillering, or showing a pale green color may indicate nutrient stress. If spring fertilizer has yet to be applied in perennial ryegrass now is the time to get that scheduled and applied. Remember, sulfur can also cause yellowing of plant tissue. Previous research at the U of MN suggests that ryegrass can respond to spring applications of ammonium sulfate, especially in years of cool temperatures and heavy residue from the previous crop. Previous fertility research indicates if 30-50 units of nitrogen is fall applied, ryegrass yields were not reduced if spring applied nitrogen is the root zone by 700 GDD. With a spring only nitrogen application program, nitrogen should be in the ryegrass rooting by 500 GDD.

## **U of MN Winter Hardiness Perennial Ryegrass Trials**

Each year, perennial ryegrass varieties are seeded into bare ground (without a cover crop), seeded in early September (which is past the prime time to establish a late summer seeding of perennial ryegrass) to determine a winter survival score. These ryegrass varieties are seeded into a “worse case” scenario to determine the ryegrass plants ability to survive the winter. The objective of this trial is two-fold: 1) assess the winterkill potential of perennial ryegrass lines and, 2) evaluate genetic variability in winter survival of perennial ryegrass varieties grown in the environmental conditions.

Perennial ryegrass seeded in the fall of 2019, at the St. Paul Campus, all survived the winter, even annual ryegrass which suggests a mild winter in St. Paul in 2019/2020. However, in Roseau the situation was quite a bit different. None of the annual ryegrass survived the winter and of the 14 ryegrass selections, the winter survival score ranged from 9 (100% dead) to 3.5 (slight reduction in vigor and stand reduction). Further, five ryegrass varieties were in the 3 to 4 range, five were in the 5 to 6 range and three were in the 6 to 7 range and one was a 9 on the winterkill rating scale. This data suggests a genetic diversity in the ability of ryegrass plants to survive the environmental conditions of northern MN.

## **CROP MANAGEMENT**

In the last few weeks semi-trucks have been busy hauling 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 P<sub>2</sub>O<sub>5</sub> (10 straw + 8 seed)
- 106 pounds of K<sub>2</sub>O (100 straw + 6 seed)
- 10 pounds of sulfur (10 straw + <1 seed)

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

<b>Ryegrass Plant</b>	<b>Nitrogen</b>	<b>P<sub>2</sub>O<sub>5</sub></b>	<b>K<sub>2</sub>O</b>	<b>Sulfur</b>
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**

The most recent weather forecast suggests a warming trend this week. With the recent rain, weeds will enter a rapid growth phase and crop scouting will determine the optimum timing for effective weed control. Dandelions are blooming and winter annuals will soon be bolting. Cool season annual weeds (wild buckwheat, wild mustard, common lambsquarters and wild oats) are beginning to emerge in tilled ground.

Next week's newsletter will be released on May 26<sup>th</sup>.