

**MINNESOTA TURF SEED COUNCIL  
NEWSLETTER  
May 4, 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 = 413 (Table 1)
- Last week (April 26- May 2) accumulated GDD = 103
- Average GDD for the end of April =86
- Projected GDD for the next 10 days = 132, or13.2/day (Table 1)
- Average GDD for first week of May = 104, or 14.9/day
- The new 10 day forecast suggest a cooling trend as projected GDD accumulation of 13.2/day compared to the long term average of 14.9/day.

Table 1. Growing Degree Days (GDD), March - May 2015 to March - May 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 1-2	46							
May		600	548	815	679	765	659	
Total	413	813	759	999	1,227	1,066	1,145	
*May 3-12	132							

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

**GENERAL CROP CONDITION**

Soil temperature of 40F is a good indicator of the beginning of the growing season for many cool season plants. Soil temperatures in bare ground would be similar to ryegrass seeded in fallow, or prevent planting acres and soil temperatures in sod conditions would be similar to ryegrass spring planted in wheat stubble. In 2021, 40F soil temperature, for three consecutive days, was reached on April 3 in bare soil and April 26 in sod conditions (Table 2). In the ten year period from 2012 to 2020 the average difference in bare soil compared to sod conditions was 11.1 days. The range between bare soil and sod conditions was 1 day in 2016 and 23 days in 2021. In 2021, the difference between bare soil and sod conditions to reach 40F was 26 days compared to 11.1 for the ten year average.

Table 2. Calendar date of 40F soil temperature, at a four inch depth, in black ground and sod conditions near Roseau in a ten-year period from 2012 to 2021

	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>2012</b>
<b>Bare</b>	4-3	4-22	4-16	4-20	3-30	4-14	3-31	4-19	5-4	3-12
<b>Sod</b>	4-26	4-27	4-29	4-29	4-13	4-15	4-15	5-9	5-7	3-23
<b>Difference</b>	23	5	8	9	15	1	16	20	3	11

## **CROP MANAGEMENT**

In the last couple weeks, fertilizer applications in perennial ryegrass proceeded at a rapid pace. At a minimum, a quarter inch of rain is needed to move the applied urea into the root zone. With the lack of rainfall in the later part of April, one of the questions asked is how much nitrogen has been lost? Soil temperature is one of the factors that can influence nitrogen volatilization into the atmosphere. The data in Table 3 is research conducted by Overdahl, et al., in 1987. This research suggests that when soil temperatures are low (45F) nitrogen losses to volatilization was 6% after 10 days. As would be expected, as the soil temperature increased the percent nitrogen lost also increased. Soil temperature data from the NDAWN station last week ranged from the mid 40's to low 50's in bare ground and low to mid 40's for sod conditions recorded at the U of MN Magnusson Research Farm. The good news, the rain over the weekend should be enough to move nitrogen into the ryegrass root zone.

Table 3. Percent of surface applied urea volatilized as ammonia as influenced by soil temperatures and the number of days urea was left on the soil surface.

Days	Soil temperature in degrees F			
	45	60	75	90
	-----% nitrogen losses to volatilization -----			
0	0	0	0	0
2	0	0	1	2
4	2	2	4	5
6	5	6	7	10
8	5	7	12	19
10	6	19	14	20

\*Source: Overdahl, et al., 1987

## **PEST MANAGEMENT**

Over the weekend yellow flowers have been observed in lawns, especially on the south facing areas along buildings and sheltered areas. Dandelions are one to the first perennial broadleaf weeds to bloom in the spring. With the rain over the weekend look for a rapid emergence of cool season annual weeds and many winter annual weeds will begin to bolt. If a broadleaf herbicide was not applied last fall, field scouting will determine if an early season treatment will be needed to control these winter annual broadleaf weeds. Winter annuals including: field pennycress, cockle, shepardspurse, and marestail, will have a well-developed rosette of leaves near the soil surface and these plants begin to grow in the early spring. For most effective winter annual weed control, broadleaf herbicides should be applied in the spring prior to bolting.

Next week's newsletter will be released on May 11<sup>th</sup>.