

**MINNESOTA TURF SEED COUNCIL  
NEWSLETTER  
April 23, 2024**

**INTRODUCTION**

Welcome to the first edition of the Northern Minnesota Turf Seed Growers Newsletter for 2024. The primary objective of this newsletter is to report on weather conditions, crop growth & development, pest management and chart the year-to-date perennial ryegrass growing degree days (GDD) compared to the previous seven years. This newsletter is scheduled for weekly distribution from the beginning of ryegrass green-up through swathing.

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

Perennial ryegrass GDD's will be tracked in the 2024 growing season with comparisons to the previous seven 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).

Formula to calculate GDD:  
$$\frac{(\text{Daily High Temp}) + \text{Daily Low Temp} - 32}{2}$$

Thus far in 2024, we have accumulated 187 GDD's as of April 21st (Table1).

Table 1. Growing Degree Days (GDD), March - April 2017 to March - April 2024 near Roseau MN.

<b>Year</b>	<b>2024</b>	<b>2023</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2024 vs. 2023</b>
March	0	0	0	131	30	0	0	90	0
April		93	95	236	183	211	184	458	
April 1-14	139								
April 15-21	48								
Total		93	95	367	213	211	184	548	
*April 22- May 1	159								

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

**GENERAL CROP CONDITION**

Thus far in 2024, temperatures in April have been on a roller coaster. The average daily recorded GDD, departure from average, recorded at the U of MN Magnusson Research Farm was +5.6, +6.3 and -3.2/day for the first three weeks of April. Further, the soil temp in bare ground hit 40 degrees on April 8 and remained over 40 degrees until April 18. Since April 18, the soil temps in bare ground averaged in the mid 30's. Soil temps in sod conditions have yet to reach 40 degrees. Field observations of perennial ryegrass fields suggest more leaf and crown desiccation than what would be expected in an average year. Early indications point to the size of the ryegrass crown going into winter as an important factor in ryegrass winter survival thus far in 2024. More time is required to make an accurate assessment of perennial ryegrass stands.

Early field evaluations suggest spring seeded ryegrass and August seedings into cover have green leaf tissue, while ryegrass seeded in September have mostly brown leaf tissue at this time. The frost was out in bare ground and averaged 16 inches in sod conditions at the U of MN Magnusson Farm on Monday (April 22). Ryegrass coming out of dormancy is more of a gradual process, not like the flipping of a switch. A better assessment of ryegrass winter survival can be made after the soil temperatures in bare ground and sod conditions are in the mid 40's.

### **CROP MANAGEMENT**

The following is a review of the critical soil temperatures for perennial ryegrass growth and development. This information is based on soil temperatures at a 4-inch depth that had air in the soil pore spaces (not waterlogged).

90F - Shoot growth ceases

77F - Root growth ceases

70F - Maximum temperature for expansion of root growth

60-75F - Optimum temperatures for shoot growth

50-65F - Optimum temperatures for root growth

40F - Shoot growth ceases

33F - Root growth ceases

20F - Low temperature that will kill plants if temperatures drop rapidly below 20F

### **Perennial Ryegrass Stand Assessment**

The assessment of perennial ryegrass stands in fields that have experienced winterkill from environmental stress can be a challenge. Typically, the winterkilled areas are not uniform, rather irregular patterns in the field. One method to assess stands is the use of a grid to determine the presence or absence of plants. The grid frame used to collect data in Table 2 had a total area of 30 inches x 30 inches and each individual square was 6 x 7.5 inches. The data in Table 2 indicates that ryegrass stands of 56 and 73% produced similar ryegrass seed yields. However, ryegrass stands of 39% produced 553# of ryegrass seed compared to over 1,000 pounds/acre for 56 and 73% stand.

Table 2. Perennial Ryegrass 'Quest' spring stand evaluation at Magnusson Farms in 2009

Stand*	Seed Yield (#/acre)
39%	553
56%	1048
73%	1066

\*A 6" x 7.5" grid frame was used to assess ryegrass stand. If at least one ryegrass plant was in the square that was a positive count and if no ryegrass plants were in the square that was a negative count. Data presented is the % of grid squares that had a ryegrass plant averaged over four replications.

Another method of ryegrass stand assessment is when walking on a diagonal path in a field make notes on the number of ryegrass plants on each step. Headlands, low areas, and other suspect areas of the field should not be included in this assessment. When walking a field if a green ryegrass plant is stepped on the stand is probably good enough to be kept. If the ryegrass stand has large bare areas (gaps) the field probably should be replanted to another crop.

Next week's newsletter will be released on April 30th.