

**MINNESOTA TURF SEED COUNCIL
NEWSLETTER
April 25, 2023**

INTRODUCTION

Welcome to the first edition of the Northern Minnesota Turf Seed Growers Newsletter for 2023. 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 six 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 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 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 2023, we have accumulated 32 GDD's as of April 23rd (Table1).

Table 1. Growing Degree Days (GDD), March - April 2017 to March - April 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		95	236	183	211	184	458	
April 13-23	32							
Total			367	213	211	184	548	
*April 24-May 3	90							

* Forecasted GDD at Roseau for the next 10 days.

GENERAL CROP CONDITION

Perennial ryegrass growing under stubble had snow cover until the second week of April. This generally is good news for the winter survivability of perennial ryegrass. After the winter snowfall had melted, ryegrass plants had what appeared to be a good stand with a green color to the leaves. However, we received several snow events over a three-day period (April 19-21) with a range of 4-9 inches. The NDAWN weather station at the U of MN Magnusson Research Farm recorded nine days of low temperatures in the mid to high 20's from April 15- 23. Perennial ryegrass stands will be evaluated after this recent snow has melted and the soil temps increase from 32F. Remember, the process of ryegrass coming out of winter dormancy is more of a gradual process, not like the flipping of a switch. A better assessment of ryegrass winter survival will be made after a few days of daily high temps in the 40's into the 50's.

CROP MANAGEMENT

The following is a review of the critical soil temperatures for perennial ryegrass growth and development. The following information is based on soil temperatures at a 4-inch depth and 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.

The North Dakota Weather Network (NDAWN) has weather recording stations distributed state-wide in North Dakota and Northwest MN. On April 23rd, the average soil temperatures recorded at the U of MN Magnusson Research Farm was 32F in both bare soil and turf conditions. The depth of frost from the soil surface on April 23rd was 5-7 inches deep in spring seeded perennial ryegrass, 7-11 inches deep in fall seeded ryegrass and 3-5 inches in bluegrass. The long term GDD accumulation for the end of April is 12.3/day compared to the projected GDD of 9/day in 2023. The short-term weather forecast suggests a continued colder than normal pattern as the calendar will turn to May before we see projected daily high temps in the mid 50's.

PEST MANAGEMENT

With snowbanks in shelterbelts and the frost slowly coming out of ryegrass fields, it may seem early to be thinking about weed control. However, winter annuals have a rapid growth rate and for optimum weed control an early application (pre-bolt) is required. This is especially true if a broadleaf herbicide was not applied last fall. Winter annuals (cockle, Shepards purse, field pennycress, dandelion) will have a well-developed rosette of leaves near the soil surface and it seems as soon as the snow melts, they begin to grow. For most effective weed control, broadleaf herbicides should be applied before the winter annuals begin to bolt.

Next week's newsletter will be released on May 2nd.