

**MINNESOTA TURF SEED COUNCIL  
NEWSLETTER  
May 2, 2023**

**INTRODUCTION**

Welcome to the second 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 93 GDD's as of April 30th (Table1).

Table 1. Growing Degree Days (GDD), March - May 2017 to March - May 2023 near Roseau MN.

<b>Year</b>	<b>2023</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2023 vs. 2022</b>
March	0	0	131	30	0	0	90	0
April	93	95	236	183	211	184	458	-2
May		649	640	600	548	815	679	
Total		744	1,007	813	759	999	1,227	
*May 1-10	218							

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

**GENERAL CROP CONDITION**

April of 2023 was cool and windy. The long term average GDD for April is 209. In 2023, the accumulated GDD's for April was 93 which is 45% of normal. The accumulated GDD's for the last week of April was 61 or 8.7/day. The ten-day forecast suggests a rapid warmup with a projected GDD accumulation of 218 (21.8/day).

The frost is slowly coming out of the ground at the U of MN Magnusson Research Farm. The depth to frost was 16-20 inches in perennial ryegrass and 8 to 10 inches in hard fescue sod. Frost is about out in tilled ground. Look for increasing ground temperatures as the frost comes out of the ground. As the soil temperatures move from the low 30's into the 40's look for perennial ryegrass to begin tillering and cool season weeds to begin to germinate.

## **CROP MANAGEMENT**

When to apply spring nitrogen requirements in perennial ryegrass? Ideally, after the frost is out and the ground is firm enough to support application equipment without rutting the field. In the environmental conditions of northern MN, perennial ryegrass will go through three distinct phases in the uptake and utilization of nitrogen. These three phases:

- Phase one - Slow nitrogen uptake, up to **700 GDD**
- Phase two - Rapid nitrogen uptake, **700 to 1,300 GDD**
- Phase three - Nitrogen redistribution, **1,300 GDD to physiological maturity**

The best management practices (BMP's) listed below are for perennial ryegrass spring fertility management based on over two decades of U of MN research.

- Spring applied nitrogen should be in the rooting zone prior to 500 GDD's with no previous nitrogen and up to 700 GDD if 30 to 50 units of nitrogen was applied in the fall.
- Delay applications of spring nitrogen until the frost has come out of the ground and the fields have firmed up to reduce chances of rutting the field with heavy equipment.
- Spring applied nitrogen should be based on yield goal, but 140 pounds of nitrogen has given consistent results after a good wheat crop with average residue. This nitrogen rate should be reduced in PP situations, high residual N, or if a below average wheat crop was harvested.
- Positive ryegrass yield response observed from up to 20% ESN with urea.
- Spring applications of ammonium sulfate (AMS) produced ryegrass plants that were taller, greener, and more vigorous compared to urea alone.
- A positive response yield response has been documented from AMS up to 20 pounds/acre when added to spring nitrogen, especially in coarse textured soil, heavy residue, and cool soils.
- Try to schedule applications of spring fertilizer before a forecasted rain event. If rain is not in forecast, consider the use of a nitrogen stabilizer and/or rolling fields.
- If soil test for P is in the low to medium range, additional P (40 pounds) in the spring has shown ryegrass seed yield increases compared to no additional P.
- If plants show nitrogen stress mid-season, perennial ryegrass is tolerant to foliar 28% nitrogen.

Additional perennial ryegrass fertility data is available on the U of MN Turf Website:

<https://turf.umn.edu/seed-production-newsletters>.

## **PEST MANAGEMENT**

Winter annual weeds are growing well and have begun to grow from the rosette of leaves near the soil surface. Field pennycress, cockle, Shepards purse, and marestail are examples of winter annual weeds in ryegrass fields. If winter annual weeds were not controlled last fall, field scouting will determine if an early season herbicide treatment will be needed to control these winter annual broadleaf weeds.

As the soil temperatures increase, the first annual weeds to emerge are volunteer canola sunflowers, smartweed, annual bluegrass, and wild mustard. A soil applied herbicide (Dual, Nortron or Prowl) can be an effective method of weed control in perennial ryegrass fields, but these products should be applied prior to weed emergence in the spring. Nortron has some foliar activity, but root uptake is responsible for most of the herbicidal efficiency. To optimize weed control from a spring applied preemergence herbicide these products should be applied soon to maximize effectiveness.

Next week's newsletter will be released on May 9<sup>th</sup>.