

**MINNESOTA TURF SEED COUNCIL
NEWSLETTER
May 10, 2022**

PERENNIAL RYEGRASS GROWING DEGREE DAYS (GDD)

Perennial ryegrass GDD's will be tracked in the 2022 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 = 227 (Table 1)
- Last week (May 2 - 8) accumulated GDD = 126
- Average GDD for the first week of May = 104
- Projected GDD for the next 10 days = 230, or 23/day (Table 1)
- Average GDD for the second week of May = 124, or 17.7/day
- The new 10 day forecast suggest a warming trend as projected GDD accumulation of 24.9/day compared to the long term average of 16.3/day.

Table 1. Growing Degree Days (GDD), March - May 2016 to March - May 2022 near Roseau MN.

Year	2022	2021	2020	2019	2018	2017	2016	2022 vs. 2021
March	0	131	30	0	0	90	38	-131
April	95	236	183	211	184	458	263	-141
May 1-8	132							
May		640	600	548	815	679	765	
Total		1,007	813	759	999	1,227	1,066	
*May 9-18	230							

* Forecasted GDD at Roseau for the next 10 days.

GENERAL CROP CONDITION

April of 2022 was a cold, wet and cloudy month. Weather records indicate April of 2022 was in the top ten for all time record cold temperatures. After the snow melted from ryegrass fields, the green ryegrass tissue changed to a brown color. This leaf tissue desiccation looks bad, but if the ryegrass plants have a well-developed crown, the plants will begin to green-up as the soil temperature warms up. When ryegrass crowns are dug up and the plants have white roots that's a good sign that healthy green leaf tissue will grow when the soil temps warm up. The temps in the 60's at the end of last week and the forecasted temps in the mid-to-high 60's later this week will stimulate ryegrass growth and development.

CROP MANAGEMENT

When should spring nitrogen be applied in perennial ryegrass? Ideally after the frost has come 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 from the soil. The following are the three phases:

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

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.

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

- Spring applied nitrogen should be applied prior to 500 GDD's with no previous nitrogen and up to 700 GDD if a modest amount 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 decrease the 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. 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), especially in cool springs, produced ryegrass plants that were taller, greener and more vigorous compared to urea alone.
- If soil tests low in sulfur, has coarse texture, or heavy residue consider a supplemental application of AMS with spring nitrogen
- Try to schedule applications of spring fertilizer before a rain. If rain is not in forecast, consider the use of a nitrogen stabilizer and/or rolling fields to help move nitrogen to the soil
- 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, shepardspurse, and marestail are examples of winter annual weeds in ryegrass fields. 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.

As the soil temperatures increase, the first annual weeds to emerge are volunteer canola and sunflowers, smartweed, annual bluegrass and wild mustard. A soil applied herbicide (Dual, Nortron or Prowl) can be 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 the majority of the herbicidal efficiency. To optimize weed control from a spring applied herbicide that product has to be applied soon.

Next week's newsletter will be released on May, 17th.