

**MINNESOTA TURF SEED COUNCIL
NEWSLETTER
April 27, 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 = 310 (Table 1)
- Last week (April 19-25) accumulated 28 GDD
- Average GDD for third week of April =71
- Projected GDD for the next 10 days = 185, or 18.5/day (Table 1)
- Average GDD for end of April = 86, or 12.3/day

Table 1. Growing Degree Days (GDD), March - April 2015 to March - April 2021 near Roseau MN.

Year	2021	2020	2019	2018	2017	2016	2015	2021 vs. 2020
March	131	30	0	0	90	38	119	+101
April		183	211	184	458	263	367	
April 1-25	179							
Total	310	213	211	184	548	301	486	
*April 26-May 5	185							

* Forecasted GDD at Roseau for the next 10 days.

GENERAL CROP CONDITION

The last two weeks in April has been cold. However, the short term forecast suggest a rapid warmup beginning mid-week. The current 10 day forecast indicates an accumulated GDD of 185 (18.5/day) which is 6.2 GDD/day above average for the end of April. Due to below average daily high temperatures of the last two weeks, with freezing temperatures at night, ryegrass plants have not been growing very fast and as a result ryegrass stand assessments for winter injury will have to be made after a few days of warm weather.

Lake of the Woods – Ice-Out Date

The date when lakes are free of ice (ice-out date) is an indication of the “earliness” or “lateness” of spring. In 2021, the ice-out date on Lake of the Woods was April 23rd which is ten days earlier than the median date of May 3rd (Table 2). The earliest recorded ice-out date is April 8th in 2012. The latest ice-out date was recorded on May 21st in 2014. It's interesting to note that the earliest and latest recorded ice-out on Lake of the Woods are only two years apart in 2012 and 2014.

Table 2. Ice out date on Lake of the Woods from 2009 to 2020.

2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
April 23	May 2	May 14	May 14	April 24	May 4	May 3	May 21	May 15	April 8	May 5	April 13

*Median ice-out date for Lake of the Woods is May 3rd (MN DNR Website)

CROP MANAGEMENT

When should spring nitrogen be applied in perennial ryegrass? Ideally after the frost has come out of the ground and the ground is firm enough for the application equipment to travel 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 in 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 15% ESN and 85% 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 fertility data is available on the U of MN Turf Website:

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

PEST MANAGEMENT

Annual weeds are just beginning to emerge from the soil. Volunteer canola and sunflowers, smartweed, annual bluegrass and wild mustard were observed in fields prior to tillage late last week. The cool season perennial and winter annuals weeds are greening up and beginning to grow. 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 4th.