

**MINNESOTA TURF SEED COUNCIL
NEWSLETTER
April 26, 2016**

INTRODUCTION

Welcome to the second edition of the Northern Minnesota Turf Seed Growers Newsletter for 2016. The primary objective of this newsletter is to report on weather conditions, crop growth and development, and chart year-to-date perennial ryegrass growing degree days (GDD) compared to the previous six years. The newsletter is scheduled for weekly distribution from the beginning of ryegrass green-up through swathing. Special alerts will be sent as pest infestations dictate or production problems arise.

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RYEGRASS GROWING DEGREE DAYS (GDD)

Ryegrass GDD will be tracked for the 2016 growing season with comparisons to the previous six years. A base temperature of 32 degrees F will be used for ryegrass (T-Base = 32 F)

Reported GDD are based on the total accumulation from the beginning of the year to the current calendar date. Thus far in 2016, we have accumulated 223 GDD as of April 24th (Table1). Long term average temperatures for the last week of April are daily highs of 56.6 F and daily lows of 31.1 F for an average of 12 GDD/day. The short term forecast indicates slightly above average temperatures (15 GDD/day) for the last week of April, with an increase in temperatures into the first week of May. The projected GDD for next ten days at Roseau is 177 (17.7/day).

Table 1. Growing degree days (GDD), March & April 2010 to March & April 2016 near Roseau MN.

Year	2016	2015	2014	2013	2012	2011	2010	2016 vs. 15
March	38	119	0	0	304	7	137	-81
April		367	159	80	370	278	476	
April 1-24	185							
Total		486	159	80	674	285	613	
April 25 to May 4*	177							

* Forecasted GDD at Roseau for the next 10 days.

GENERAL CROP CONDITION

Soil temperature of 40F is a good indicator of the beginning of the growing season (Table 2). In 2016, 40F soil temperature was recorded in black ground on April 14th and in sod conditions on April 15th. Black ground, most likely, would be similar to a late summer seeding of ryegrass in fallow or prevent planted situations and sod conditions would be similar to ryegrass in wheat stubble. It's interesting to note that in 2016 the difference between bare and sod ground was the narrowest since 2008, only one day compared to 16 and 20 days for 2015 and 2014, respectively.

Table 2. Calendar date of 40F soil temperature, in black ground and sod conditions, near Roseau in 2008 to 2016.

	2016	2015	2014	2013	2012	2011	2010	2009	2008
Black	4-14	3-31	4-19	5-4	3-12	4-8	3-30	4-14	4-15
Sod	4-15	4-15	5-9	5-7	3-23	4-23	4-13	4-29	4-18
Difference	1	16	20	3	11	15	14	15	3

CROP MANAGEMENT

When should nitrogen be applied in ryegrass? That answer will depend upon production practices, labor and equipment constraints, field conditions and the source of nitrogen applied. However, the ryegrass plant goes through three distinct phases in the uptake and utilization of nitrogen from the soil.

- **Phase 1 - Slow nitrogen uptake**
- **Phase 2 - Rapid nitrogen uptake**
- **Phase 3 - Nitrogen redistribution, slow or no uptake (movement within the plant)**

Phase 1 takes place in the fall and early spring when ryegrass plants are in the vegetative to the early tillering stage. Research in Oregon indicates less than 20% of the above ground biomass is accumulated prior to tillering. In Minnesota conditions, ryegrass will be in Phase 1 from the vegetative to the beginning of jointing (accumulated GDD up to **700 GDD**).

Phase 2 is a time of rapid nitrogen uptake in ryegrass which corresponds to jointing to early heading stage. In Minnesota environments ryegrass jointing begins at approximately **700 GDD** to the beginning of early heading **1,200 GDD**. In phase 2, research from Oregon has documented ryegrass plants can take up 2 to 4 pounds of nitrogen/day. This rapid uptake of nitrogen is completed at head emergence which is 6 weeks or more prior to harvest. It's essential to have applied nitrogen in the root zone during this period of rapid nitrogen uptake

Phase 3 occurs during heading to mature seed set > **1300 GDD**. The majority of the nitrogen has been taken up by the ryegrass plant. Plant nitrogen needs are redistributed from lower leaves and tillers to the upper parts of the plant. Nitrogen applied at this time is of limited utility for ryegrass seed yield. The exception may be foliar feeding, which will be a topic in a future newsletter.

With projected increase in temperatures, frost making its way out of the ground and field conditions beginning to firm up, now would be a good time to talk to your grass seed fieldman and agronomists to determine a timeline for plant food applications in ryegrass.

U of MN Research Reports

Grass Seed research results are available on the web. Research reports from 1967 to the present are available at the web address below.

http://www.mnturfseed.org/html/progress_reports.html

Next week's newsletter will be released on May 3rd, 2016.