MINNESOTA TURF SEED COUNCIL
NEWSLETTER
May 2, 2018

INTRODUCTION

Welcome to the second edition of the Northern Minnesota Turf Seed Growers Newsletter for 2018. The primary objective of this newsletter is to report on weather conditions, crop growth & development, pest management and to 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 during the growing season.

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RYEGRASS GROWING DEGREE DAYS (GDD)

Ryegrass GDD will be tracked for the 2018 growing season with comparisons to the previous six years. In northern MN, the accumulation of GDD is triggered after the snow has melted from perennial ryegrass fields. The base temperature for ryegrass is 32 degrees F (T Base = 32 F)

Formula to calculate GDD:

$$\frac{(\text{Daily High Temp} + \text{Daily Low Temp}) - \text{T base}}{2}$$

Reported GDD are based on the total accumulation from the beginning of the calendar year to the current date. Thus far in 2018, we have accumulated 160 GDD as of April 29th (Table1). For the first week of May the average daily high is 60.3 F and low temperature of 32.6 F, with an average GDD accumulation of 104, or 14.9/day. The new 10 day forecast indicates a warming trend with projected daily highs in the mid to high 60's and lows in the mid 40's. If this forecast holds true, the accumulated GDD for the next ten day period will be 213 GDD, or 21.3/day.

Table 1. Growing degree days (GDD), March & April 2011 to March & April 2017 near Roseau MN.

Year	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2017 vs. 17**
March	0	90	38	119	0	0	304	-90
April		458	263	367	159	80	370	
April 1-29	160							
Total		548	301	486	159	80	674	
*April 30 to May 9	213							

* Forecasted GDD at Roseau for the next 10 days.

The frost is making its way out of the ground. The sounds of frogs croaking and the water making its way to the surface in tilled fields and gravel roads are signs of frost coming out of the ground.

GENERAL CROP CONDITION

Perennial ryegrass plants are beginning to break winter dormancy. Frost depths in fields near the Magnusson Research Farm ranged from 15-19 inches in bluegrass sod to 19-24 inches deep in tilled ground. As of April 29th, average soil temperatures at Roseau was 47 F in tilled ground and 40 F in turf conditions. The projected elevated temperatures this week should bring the frost out of the ground and will allow a better assessment of ryegrass winter survivability.

Perennial ryegrass breaks winter dormancy in more of a gradual than rapid process (e.g. flipping a switch). Perennial ryegrass variety, time of seeding (spring vs. fall), size of the crown going into winter, residue on the soil surface, temperatures and soil moisture are all factors that influence the speed in which ryegrass breaks dormancy.

PEST MANAGEMENT

With an accelerated accumulation of GDD's the growth of biennial weeds will proceed at a rapid pace. As average daily temperatures increase, herbicide applications for broadleaf weeds will be right around the corner. This is especially true if a broadleaf herbicide was NOT applied last fall as winter annuals (dandelion, shepardspurse, and cockle) are green and are actively growing. Cool season annual weeds (volunteer canola, mustard, and smartweed) are first to emerge in the spring. Weeds grow fast and regular scouting is essential to determine the best weed control program for your situation.

CROP MANAGEMENT

Soil temperature of 40F is a good indicator of the beginning of the growing season (Table 2). In 2018, 40F soil temperature was recorded in black ground on April 20th and in sod conditions on April 29th. Black ground, most likely, would be similar to a late summer seeding of ryegrass in fallow or prevent planted situations, while sod conditions would be similar to ryegrass in wheat stubble. It's interesting to note that in the 10 year period (2009 - 2018) the average number of days between bare and sod ground was 11.9 days. In this 10 year period the number of days between the 40 degree temperature in tilled and turf conditions ranges from 1 day in 2016 to 20 days in 2014. This year we are close to normal at 9 days between 40 degrees in tilled and turf conditions.

Table 2. Calendar date of 40F soil temperature, (4 inch depth) in black ground and sod conditions, near Roseau in a 10 year period from 2009 to 2018.

	2018	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**
Black	4-20	3-30	4-14	3-31	4-19	5-4	3-12	4-8	3-30	4-14
Sod	4-29	4-13	4-15	4-15	5-9	5-7	3-23	4-23	4-13	4-29
Difference	9	15	1	16	20	3	11	15	14	15

Next week's newsletter will be released on May 9th, 2018.