**MINNESOTA TURF SEED COUNCIL**
**NEWSLETTER**
**May 3, 2022**

## INTRODUCTION

Welcome to the second edition of the Northern Minnesota Turf Seed Growers Newsletter for 2022. 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 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).
Formula to calculate GDD:

$$\frac{(\text{Daily High Temp}) + \text{Daily Low Temp}}{2} - 32$$

Thus far in 2022, we have accumulated 101 GDD's as of May 1st (Table1).

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 | 6 | | | | | | | |
| May | | 640 | 600 | 548 | 815 | 679 | 765 | |
| Total | | 1,007 | 813 | 759 | 999 | 1,227 | 1,066 | |
| *May 2-11 | 191 | | | | | | | |

* Forecasted GDD at Roseau for the next 10 days.

## GENERAL CROP CONDITION

Weather records indicate April of 2022 was one of the coldest on record. GDD accumulation in the last week of April was 30 compared to an average of 86. Further, turf soil temperatures at the U of MN Magnusson Research Farm has not moved from 32 F all month. As a result, limited perennial ryegrass growth has been observed. However, the recent rainfall which has helped to bring the frost out of the ground and forecast high temps in the low 60's for later in the week should move perennial ryegrass out of dormancy and will begin the green-up phase of plant growth and development.

## CROP MANAGEMENT

With the cold and wet weather conditions this April, the month of May will be a busy one for wheat planting. A common method to establish perennial ryegrass is underseeded with spring wheat. Another method is to seed perennial ryegrass into wheat stubble after wheat harvest. As spring wheat seeding

gets later into May, a question being asked is what impact will delayed wheat seeding have on the potential for late summer seeding of perennial ryegrass? The data in Table 2 lists the week ending date when 50 -75% of spring wheat was planting and harvested. This data was gleaned from the USDA/NAAS Weekly Crop Reports from 2012 to 2021. This is state-wide data, so northern MN information may be a bit later that what is listed in the table. Further, the choice of wheat variety will also have an impact on wheat maturity and harvest. The range of 50-75% spring planting date ranged from April 15th in 2021 to May 25th in 2014. The range of 50-75% harvest date ranged from July 29th in 2012 to September 1st in 2019. The number of days from spring wheat planting to harvest ranged from 92 to 119 in this ten year period.

Table 2. Spring wheat planting and harvest date from USDA weekly progress reports (50 to 75% complete for the week ending) in MN in a ten-year period from 2012 to 2021.

| | **2021** | **2020** | **2019** | **2018** | **2017** | **2016** | **2015** | **2014** | **2013** | **2012** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Planting^** | 5-2 | 5-17 | 5-19 | 5-13 | 5-7 | 5-1 | 4-19 | 5-25 | 5-19 | 4-15 |
| **Harvest^** | 8-8 | 8-23 | 9-1 | 8-19 | 8-21 | 8-14 | 8-16 | 9-7 | 8-25 | 7-29 |
| **# Days** | 98 | 98 | 92 | 98 | 106 | 105 | 119 | 105 | 98 | 105 |

^ Calendar date for 50-75% completion of wheat planting and harvest. Data from USDA/NASS.

The date of late summer seeding of perennial ryegrass will impact seed yields the following year, Table 3. Perennial ryegrass seeded after the third week of August produced an averaged 1,626#/acre. However, as planting date was delayed into September seed yields declined by 22%, 31%, 45% and 69% when seeded on September 6, 13, 20, and 27, respectively. This planting date data suggests that perennial ryegrass yields are optimized from August seeding and yield potential declines each week that perennial ryegrass seeding is delayed into September.

Table 3. Perennial ryegrass 'Arctic Green' date of seeding trial conducted at the U of MN Magnusson Research Farm in 2007.

| Seeding Date* | Seed Yield** | Seed Yield^ | Dry Matter ** |
|---|---|---|---|
| | (#/acre) | % of August | (tons/acre) |
| 8/23 | 1,557 | 100 | 3.00 |
| 8/30 | 1,695 | 100 | 3.36 |
| 9/6 | 1,276 | 78 | 2.43 |
| 9/13 | 1,128 | 69 | 2.14 |
| 9/20 | 892 | 55 | 1.58 |
| 9/27 | 508 | 31 | 0.89 |
| 10/4 | 116 | 7 | 0.37 |
| LSD (0.05) | 319 | | 0.63 |

* Plots were watered after each seeding date

** Perennial ryegrass seed yields (#/ac) and dry matter yields (tons/ac) were averaged over the fallow seeding with a wheat cover crop and, plots seeded directly into wheat stubble

^ Average seed yield of August seeding = 1,626 #/acre

The take home message in these two data tables, to optimize perennial ryegrass seed yields in 2023, perennial ryegrass seeded with spring wheat in 2022 will provide a higher yield potential than late summer seeding, especially if wheat harvest is delayed into September.

Next week's newsletter will be released on May, 10th.