



## Quarterly

### **PTRC fall update: July-Sept 2023**

As the students return to classes, we are thankful for an excellent growing season in Alberta this year. September has brought our first single digit evening temperatures since June, so we're preparing once again. Our directors continue to motivate inclusivity among our Western Partners, welcoming a new Saskatchewan superintendent to the research board. Olds Turf alumni, and representative of the Sask Turf Association, we are pleased to announce Lance Wakefield superintendent of Royal Regina Golf & Country Club as your newest ATRF board member. We are grateful to have professional representation throughout the prairies!



### **Fall Trials:**

Wrapping up our spring and summer projects this month, we'll shift gears again to begin prepping winter snow mold trials. The PTRC usually performs at least one product test or snow mold formulations each winter, our AB location and often deep cold winters is an ideal testing center for Canada's product registration pipeline. We were thankful for those distributors who continue to value our site, and see value in our process and protocol. This fall we will welcome Syngenta and BASF back on site.

### **Minimum Recovery Threshold - research observations.**

It can be a challenging time of year when our owners are pushing to stay open, losing our summer staff, it's arguably the busiest time of year to prep the course for closure. Aerations, blow-out, fall fert., spray snow mold protection, etc., all necessary to overwinter successfully. We rarely have time to fight that "closure time" battle, perhaps because that conversation is clouded by subjectivity.

Among the various consulting locations in the province, I'd like to offer some observations.

We don't need crop science to tell us no turf will grow or germinate below 10°C. This is the basis for the course closure discussion I'd like to share.

When we stay open for play and traffic during colder fall temperatures, the turfgrass has lesser opportunity to recover and heal from the stress of play (and maintenance). Below images, Edmonton AB, Oct 14. Average weekly daytime temperatures 13°C, nighttime temperatures 3°C. Two pictures taken the same day: On the left, roped off bentgrass nursery, on the right, in-play golf green still running roughly 120 rounds per day.



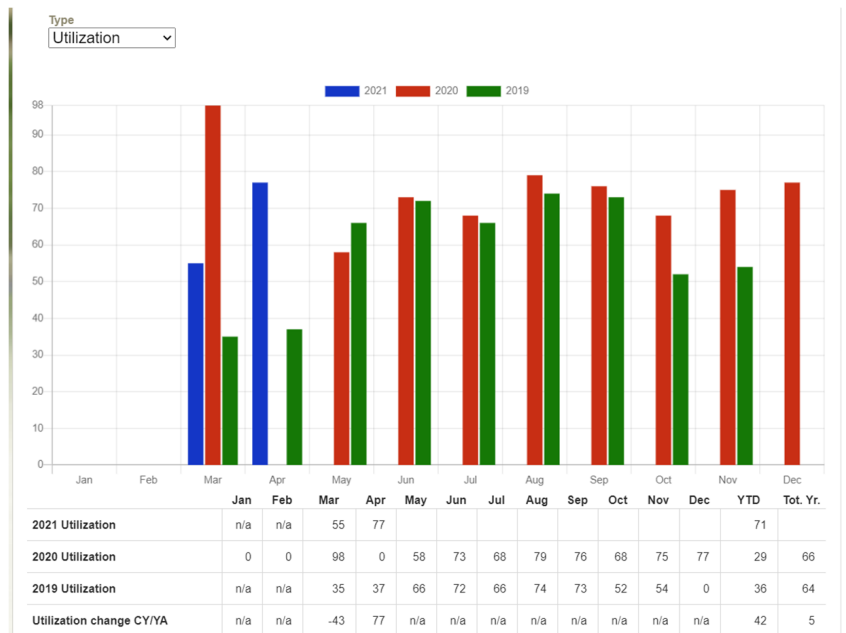
Close inspection with a macro lens identifies the turf on the right as injured, damaged from foot traffic and maintenance rolling and occasional cut. The left, a perfectly healthy green with all the same maintenance performed minus the golfer traffic. I feel this was a good example why we propose a “10 degree” rule for daily average temp. The simple math your GM can do as well, take daytime high plus daytime low, divided by 2.  $13^{\circ}\text{C} + 3^{\circ}\text{C} / 2 = 8^{\circ}\text{C}$ . In this example, we see falls below the minimum recovery threshold of  $10^{\circ}\text{C}$ , thereby meeting our quantifiable measure for course closure.

**Closure for fungicide efficacy:**

To also consider, a damaged or injured leaf blade is not functioning well. All available energy, all you have applied in fall fertility, is going towards repair - not photosynthesizing and storing that carbohydrate in preparation for winter. Look again at the images - which surface would you feel is more likely to accept a systemic fungicide application expected to last 160days? The plants ability to translocate is at risk.

**Spring vs Fall play:**

Also consider the revenue generated for a 100 round fall day @ \$60/round might hit \$7K, so sure - we’re here to make money. However, consider late season golfers are less motivated than those in the spring.



<https://www.pellucidcorp.com/reports/golf-market-research-center>

The Pellucid Corp reports golfers greater surge in spring play as golfers emerge from winter hibernation, flocking to our clubs. The surge can produce almost double the busiest days of fall, well above average utilization. Therefore, staying open later in the season is counter productive to the revenue model which risks our spring opening and highest revenue potential. All efforts to ensure maximum turf health and optimum fungicide translocation in the fall should be a shared message to owners or your board - at this time of year start thinking about spring revenues.

**Prepping for Alberta Winter:**

Alberta sees a wide range of winter conditions we prepare for; warming chinook winds in February have





been known to bare off the greens, followed by  $-48^{\circ}\text{C}$  temperatures, it could be  $15^{\circ}\text{C}$  on Monday and  $-50^{\circ}\text{C}$  on Tuesday. Among the four main reasons we lose turf over winter; A) crown hydration (chinook warming & freezing), or consider B) desiccation, C) anoxia, and d) direct low temperature kill. Crown hydration is a difficult one - keeping melt off the surface which fools the plant into thinking its spring. A quick freeze simply ruptures the plant cells. Those who can keep a good snow cover or layered tarp system will keep the cold in - and offers the best chance to keep your turf from absorbing any moisture too early.

Desiccation is common in open winters without sufficient snowfall to block drying winds. (image right). Evergreen tarps can be used all winter through the the spring, which also also helps warm the soil for an early season greenhouse effect.

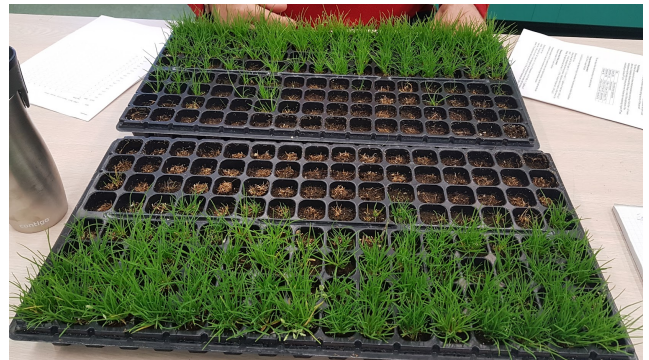


Other tried and true “Old school” techniques to avoid desiccation include heavy fall topdressing, and at the PTRC we also use snow fence. Where you have it, deep snow is the perfect insulator, and best protection from desiccation as it also breathes (porous).

### **Anoxia and Temperature:**

Be reminded your turf under the cover of darkness cannot photosynthesize - therefore must use carb/energy reserves to respire. Burning its energy and producing  $\text{CO}_2$  vs  $\text{O}_2$ , if this gas exchange is blocked by ice or impermeable tarps, the gas builds. As proven by past PTRC research, Jim Ross concluded in excess of 5%  $\text{CO}_2$  was detrimental to turf survivability over winter. [LINK](#)

Another important reflection, annual bluegrass is less adapted to survive anoxic conditions beyond 60-75 days where bentgrasses are can survive 120days. [LINK Ross](#) In addition to these proven realities, most recent studies out of the PTRC have re-iterated the lethal temperature  $\text{LT}_{50}$  of poa annua and poa reptans at  $-15^{\circ}\text{C}$ . As you can see in the image (right), the trays illustrate a temperature threshold, the bare/empty pods were subject to  $-15^{\circ}\text{C}$ , nearly 100% mortality. This continues to drive poa annua control topic, especially for Alberta, where  $-15^{\circ}\text{C}$  is a certainty, and liability.



### **Fall Fertility and Overwintering?**

Pack carbs. If your grass can't see the sun, its burning reserves. Make sure you've applied sufficient fall fertility and ensure it has the energy to “hibernate”. Latest research from PTRC recommends 1#N/5#K, anytime in September. **Myth: “We don't want to enter the winter too lush”**

As ambient temperatures drop, the 7 day mowing program shifts to 3-4days/wk. While a deep green turf might be viewed as “lush”, its only the chlorophyll expression proving the plant is photosynthesizing - and packing carbohydrate this time of year as needed for winter hibernation. This physiological change is unmistakable, top growth slows and we reduce mowing frequency. The energy applied is not gone, but redirected - top growth has shifted towards storage. Latest testing at PTRC applied fall rates over 4lbs/N/1000ft<sup>2</sup> in the month

of September, illustrating no significant difference than that of 1lb/N/. This defeats the “Too Lush” myth. Notably, foliarly applied N can accumulate as fast as granular up to 4.5% tissue content. Conversely, potassium applications are best applied granularly. [LINK : Anderson, Pick](#)

**ATRF Capital acquisitions:**

Strong growth since 2021 has allowed the ATRF to acquire a new sprayer, thanks to help from Zack Bishop and the team at Oakcreek. Our refurbished MP1750 unit will ensure testing aligns with industry standards, and will also act as a training tool for our diploma students. We now have the ability to assist our partners with not only diagnostics, but also emergency spray services if necessary.



**2023 Projects Completed:**

We continued several herbicide trials this summer as well as a thatch reduction product trial for Premier Tech. Long awaited Poacure project with Brett Young is also nearly complete. With Eastern and Western testing locations testing Poacure on Bentgrass at greens height and bluegrass on fairways, all the data is rolling in for the next steps and hopefully registration. A solution for *poa annua* control could be a potential game changer for the turf industry across North America.

Another trial exploring the widely misunderstood biostimulant market, evaluates how to enhance & maximize thatch degradation with focus on microbial activity. For Ontario and BC where organic matter accumulation is a major issue, we hope to produce some applied solutions in the new year.

This summer was our “establishment” year for the Drought tolerance trial with the City of Calgary and Sod Growers Commodity Group. As many saw during our field day, the largest project next year is prepped and ready to roll. (images: Left Sod component, Right Perennial Yard-Smart replication gardens. Watch for more quarterly updates on this unique study.





## Accepting 2024: Call to proposals

Each November various granting bodies open their research bids. Leveraging moneys generated, the national association is an excellent resource for the ATRF. We/ATRF continue to be corporate members of the Canadian Turfgrass Research Foundation, hoping our contribution is leveraged to more Canadian turfgrass advances.

## Membership update:

Trends in membership at the ATRF are positive - reflective of the gradual change from individual membership to corporate and association support. Although we will continue to send voluntary invoices to our past and current members, the trend is corporate growth. Thank you to all who have renewed their membership, individual clubs and associations, we have begin preparing for the CEU conference circuit. The first of the season, most recently to the BCGSA at their annual exchange tournament in Whistler BC. Next week to the Western Canada Cemetery Association in Leduc AB, and October to the Alberta Superintendents Association in Beautiful Canmore. Thanks to all for your individual, corporate, and association support.

## Alberta Turfgrass Research Foundation Field Day 2023

Despite some less than ideal weather, ATRF members and guests enjoyed a day of learning, taking in two pesticide continuing education credits, first from Matt Legg of Syngenta, and yours truly. Field project presentations included herbicide trials, thatch reduction (biostimulant), a drought avoidance experiment and an awesome Maredo demonstration including aeration, vertical mower, and fraze mowers.



Highlighted project in drought avoidance, a partnership between the Sod Growers Commodity Group and City of Calgary.



Kyley Dickson presents - A-List Sustainable turf was the premier sponsors for our field day, providing coffee and lunch for all delegates. A-List will be sowing 36 ryegrass varieties at the PTRC this fall.



Field demonstration by Maredo Turf attracted some attention!







Matt Legg of Syngenta Presenting “The art of application” and demonstration in product compatibility.



Presentations by Bob Hoffos and George Gaeke, Full time instructors in the Turf Program on the advances of drone technology and their application in the turf industry. Cutting edge!



Thanks to all who participated in our biennial field day, we hope next time the weather is a little nicer! We look forward to connecting on the conference circuit this winter! JP

**Recognizing our Project investors:**

