

New Liskeard Agricultural Research Station

By Nathan Mountain, NLARS Cropping Systems Research Technician

The New Liskeard Agricultural Research Station (NLARS) maintains two research sites, with the primary site at New Liskeard, ON and the secondary site at Verner, ON (160 km south of New Liskeard). NLARS had a range of locally – significant, yield–focused variety and management trials in 2019. For committee trial results (data), such as the Ontario Cereal Crops Committee (OCCC) and the Ontario Soybean and Canola committee (OSACC), please visit the gocereals.ca and gosoy.ca websites, respectively.

Spring

As like the rest of the province the soil was very wet at planting time in New Liskeard, due to the combined effects of April showers and runoff from the relatively large amount of winter snowfall received. See Graph A and Graph B for precipitation and temperatures for April-May 2019 (weather data from HOBO weather station located on site). Cereal planting started late May and finished in the first week of June, followed by planting for soybean and grain corn trials. Between June 13th and 15th, over 60 mm of rainfall occurred (see Graph C) on top of our already wet soil and high-water table, which resulted in water pooling in lower-lying areas of the fields (see Table D for a weather summary and Photo 1).

Comparatively, the provincial cereal trials in Verner were planted somewhat earlier than New Liskeard (May 15th). Fertilizer was applied as per the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) guidelines for spring wheat, spring barley, and oat trials, and worked into the soil prior to seeding. Herbicide (Logic M) was applied on May 30th, following label instructions. As the International Plowing Match was held in Verner this year, we updated our signage to better identify our research site in Verner, as well as recognize the contributions of local collaborators (see Photo 2).

Land use update

At the New Liskeard site, land preparation started this year for a new Agronomy building; construction is scheduled for some time in 2020 (see Photo 3). The new building will accommodate staff and equipment maintenance areas, and an additional building will house larger equipment.

Updates to tile drainage at the New Liskeard site were also undertaken in 2019. Over the years, we have noted that drainage has continually worsened, particularly in higher traffic areas. By replacing half of the mains and adding new tile runs (now every 30') this year, we hope to divert some of the spring rainfall and snow melt water that slowed planting in 2019 (see Photo 4 & 5). Replacement of the remaining mains is scheduled for 2020.

On July 18th, NLARS hosted an Open House that provided an opportunity to highlight current research trials and discuss our work with interested members of the local farm community, as well as the general public during on-site tours (Photo 6). In future years, plans are in motion to work closely with OMAFRA specialists and researchers at the University of Guelph to enhance the learning opportunities available during our tours (like a Crop Diagnostic Day), with the hope of benefitting both local growers and the general public.

Seeding

In New Liskeard, Area 5 provincial cereal trials (Image 1) were planted on May 31st; the previous crop on the land was soybeans. The trials were planted in accordance with OMAFRA recommendations, and also received an addition of 12 kg/ha actual calcium sulphate (worked into soil prior to seeding). The herbicide used was 1.25 L/ha Logic M at Zadoks scale (Z) 13 for oats, Z20 for barley and spring wheat.

For fungicide/intensive management trials, oats and spring wheat received 500 ml/ha of Twinline as a foliar application on managed repetitions, whereas spring wheat received an additional 800 ml/ha of Prosaro at Z64 (anthesis) on the same managed repetitions. Winter wheat received 1 L/ha and 300 ml/ha of Trivapro A & B, respectively, at Z59-69 followed by an anthesis application of Prosaro (800 ml/ha) on managed repetitions.

The Ontario Soybean and Canola Council variety trial Early MG00 maturity group was seeded into last year's cereal field on June 5th. Due to soil wetness, working of the soil was reduced to just the first 1-2"; however, this did not result in reduced weed growth. Some wicking of larger weeds was necessary until the last plot reached the first trifoliolate; afterwards, Roundup was used to control weed pressure. Some stunting of the crop was observed, due to the impacts of standing water resulting from a large rain event between June 13th-15th; however, most varieties recovered and performed well. At the time of writing this article, the 2019 data has not yet been released on the *gosoy.ca* website.

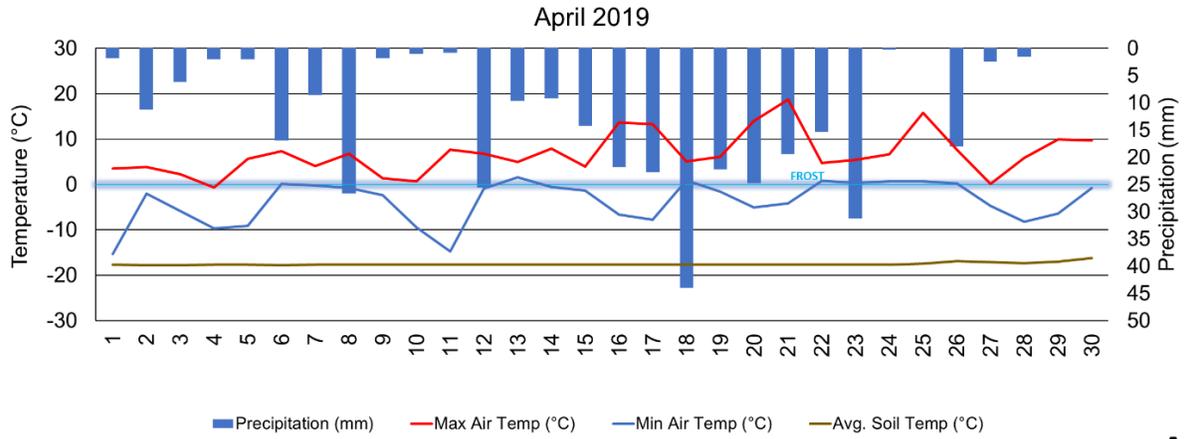
Harvest

Winter wheat was harvested on August 14th, spring barley on the 17th, and finally, spring wheat and oats on September 18th. Due to a relatively wet fall, harvest of the spring cereals was timed between larger and smaller rain events; the additional challenge of late planting made it more difficult to get the crop off. Harvest moisture for the spring cereals varied, with some trials coming off with high moisture contents of upwards of 20%. Results for 2019 (New Liskeard data) along with the 5-year average (Area 5 data) can be viewed in Appendix A.

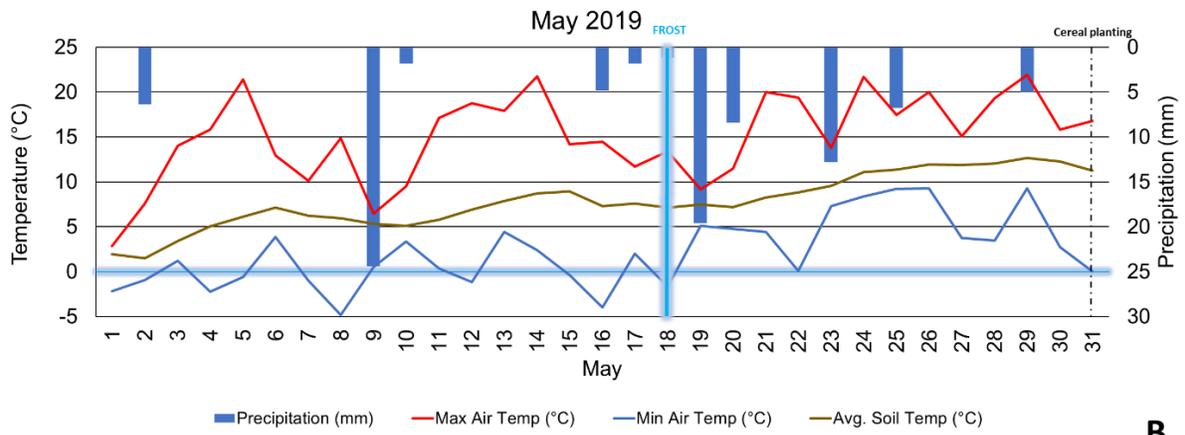
A special thanks to our team this year (Photo 6 & 7), who worked diligently to ensure data was collected both accurately and quickly. There were many trials this year that were interesting and uniquely challenging, but our students were certainly equal to the task! Best of luck to our summer students with their ongoing studies!

Publications

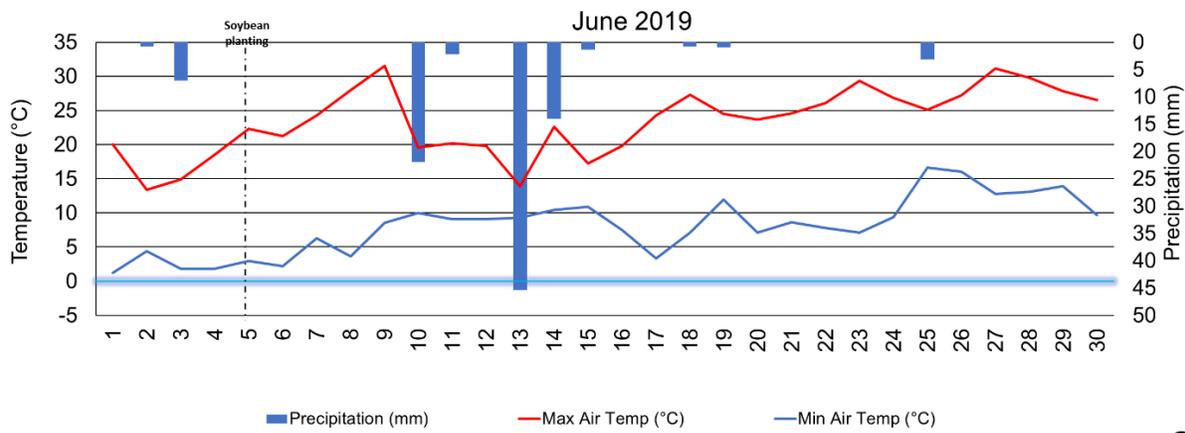
This year, the New Liskeard Agricultural Research Station – Agronomy Unit was listed as a co-author in the *Journal of Crop Breeding, Genetics and Genomics*, for a research paper titled *Genotype and Management Evaluation Based on Genotype by Yield*Trait (GYT) Analysis*. This article is based on New Liskeard NLARS data on the results of nitrogen fertilizer and fungicide effect on three contrasting oat cultivars. While this paper focuses on statistical methods, it provides an interesting overview of new Northern Ontario-based oat management results.



A



B



C

Summary 2019

Month	Air Temperature			Precip (mm)	Growing Degree Days	Corn Heat Units (CHU)	Days with Precip.
	Avg °C	Min °C	Max °C				
May (from 19th)	8.7	2.2	15	93.0	80	139	11
June	15.9	8.1	23	97.8	323	526	10
July	20.8	12.2	29	23.6	482	713	8
August	17.9	10.6	26	72.4	406	645	13
September (up until 23rd)	14.0	7.7	20	66.2	207	360	10
October (Until Oct 5 - First Frost)	6.8	2.6	12	1.6	10	16	3
Total				355	1508	2400	

Note: Blue text calc. from last frost to first frost

D



Photo 1: 14 June 2019 – Photographed by Melinda



Photo 2: 6 Aug 2019 – Photographed by Melinda Drummond



Photo 3: 25 July 2019 – Photographed by Melinda Drummond



Photo 4: 13 Aug 2019 – Photographed by Melinda Drummond



Photo 5: 9 Aug 2019 – Photographed by Nathan Mountain



Photo 6: 18 July 2019 – Photographed by Melinda Drummond

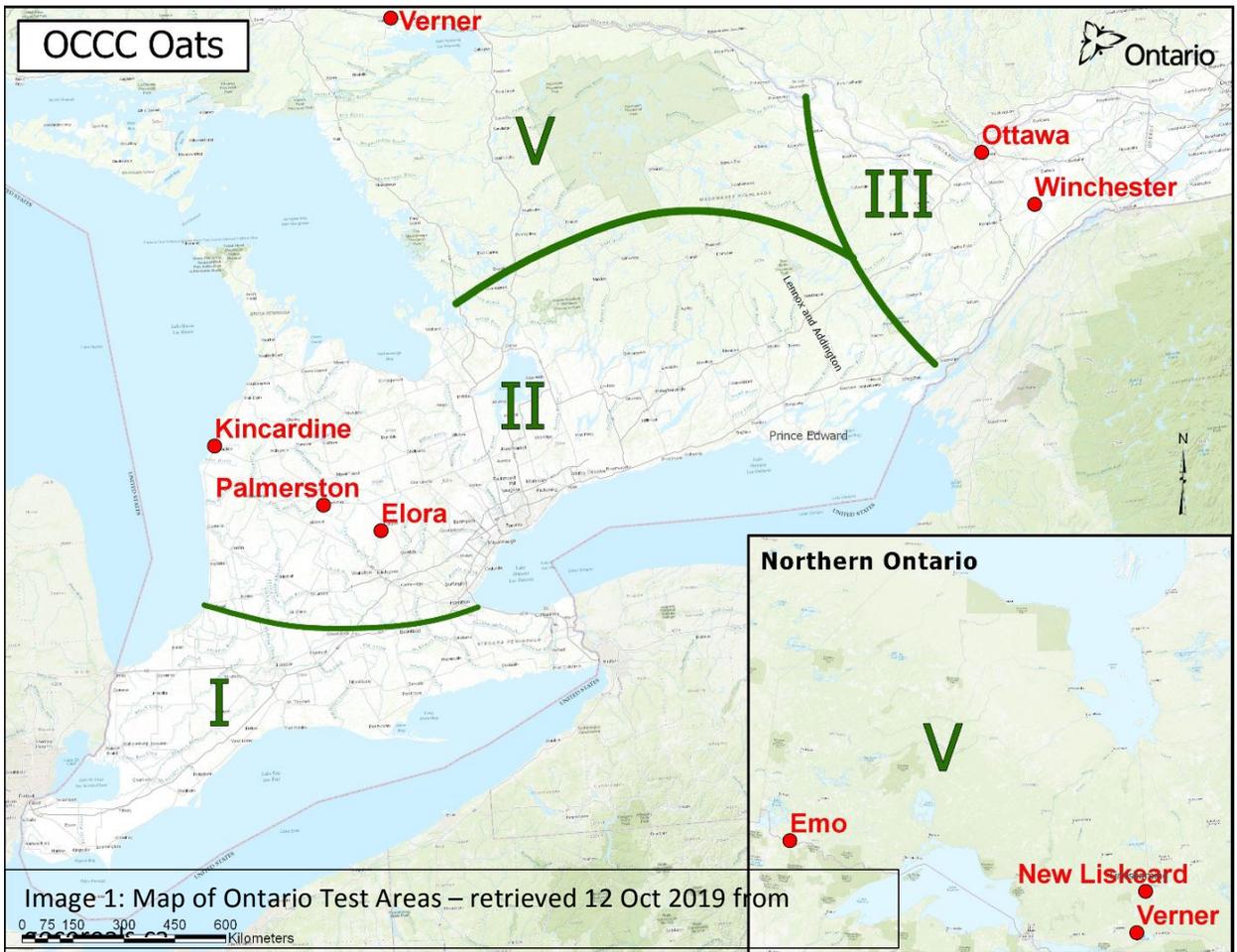
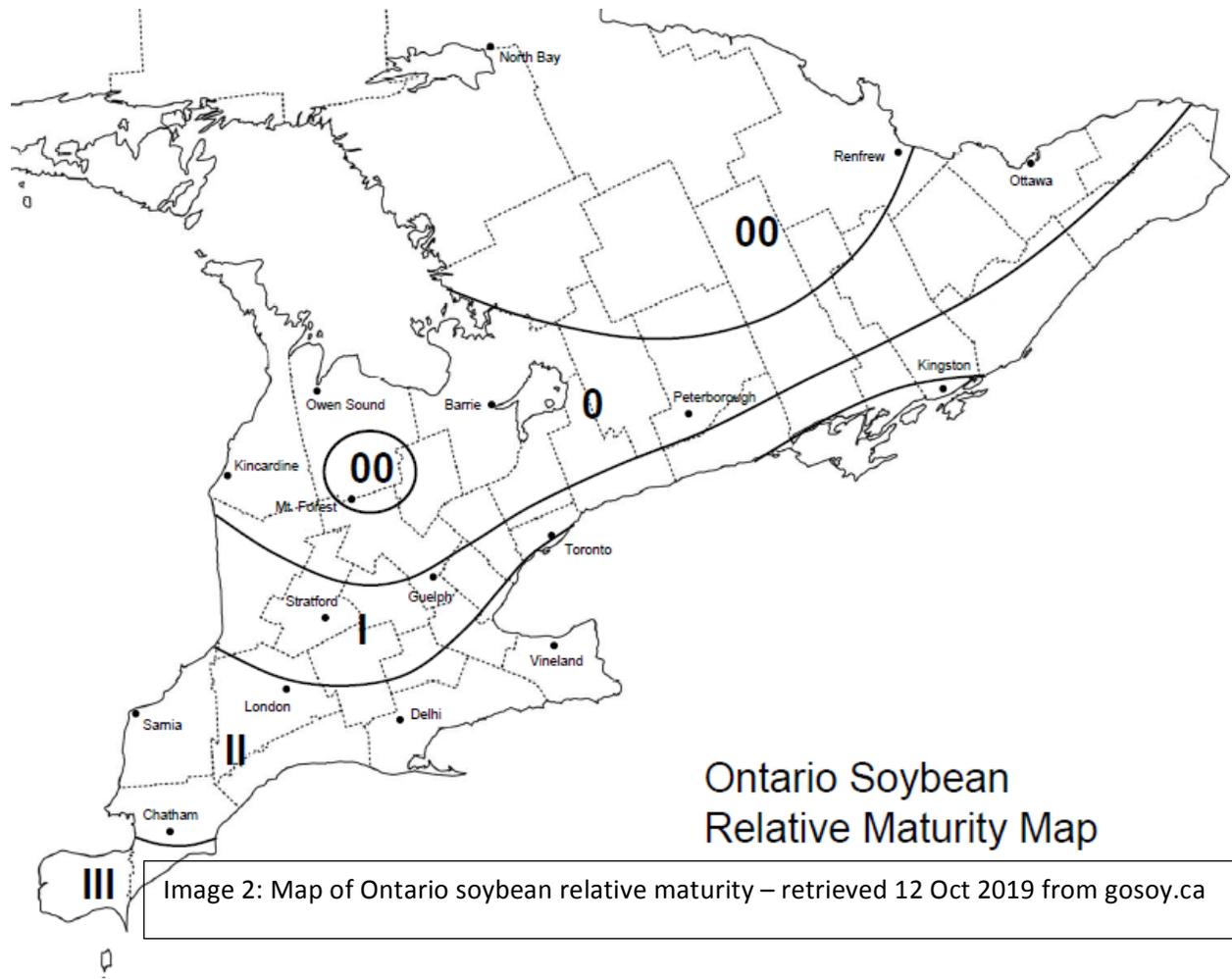


Image 1: Map of Ontario Test Areas – retrieved 12 Oct 2019 from



Ontario Soybean Relative Maturity Map

Image 2: Map of Ontario soybean relative maturity – retrieved 12 Oct 2019 from gosoy.ca



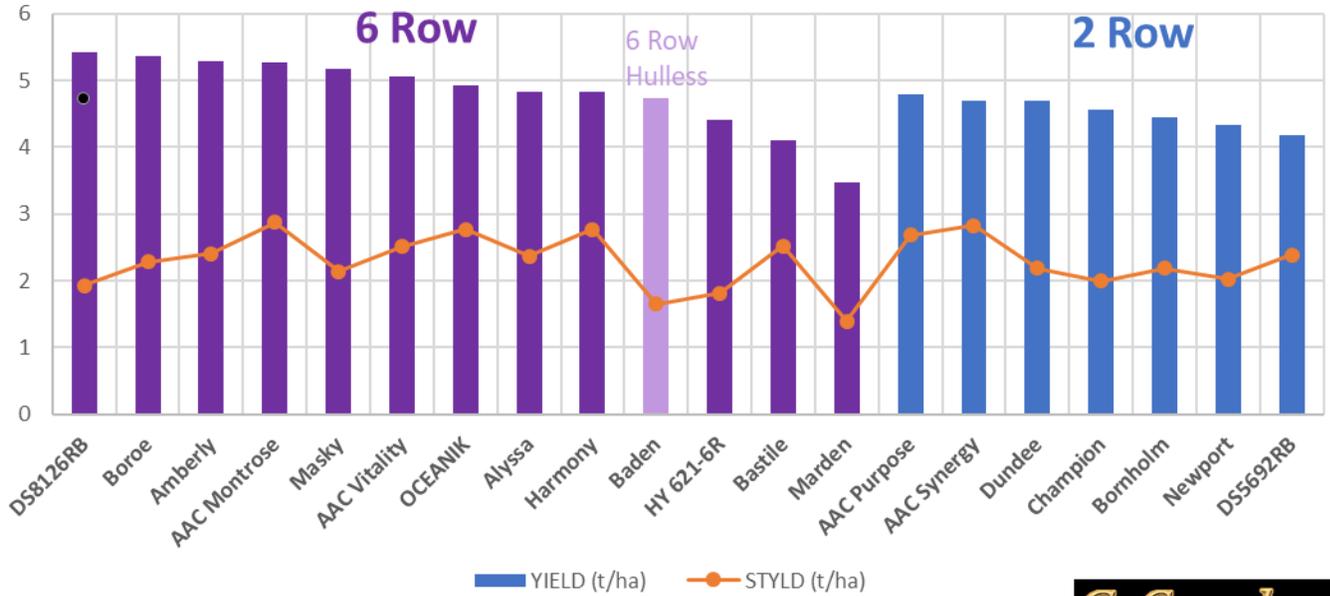
Photo 6: 26 July 2019 – Photographed by Rhonda McDiarmid



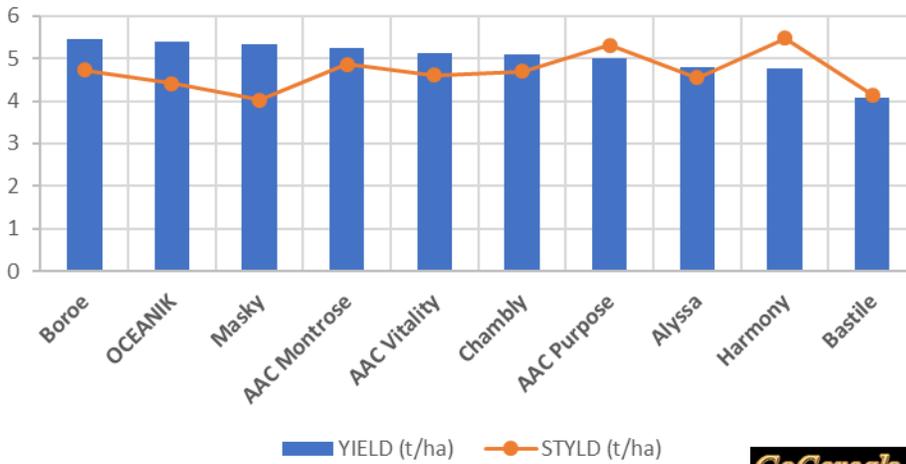
Photo 7: 21 August 2019 – Photographed by Melinda Drummond

Appendix A

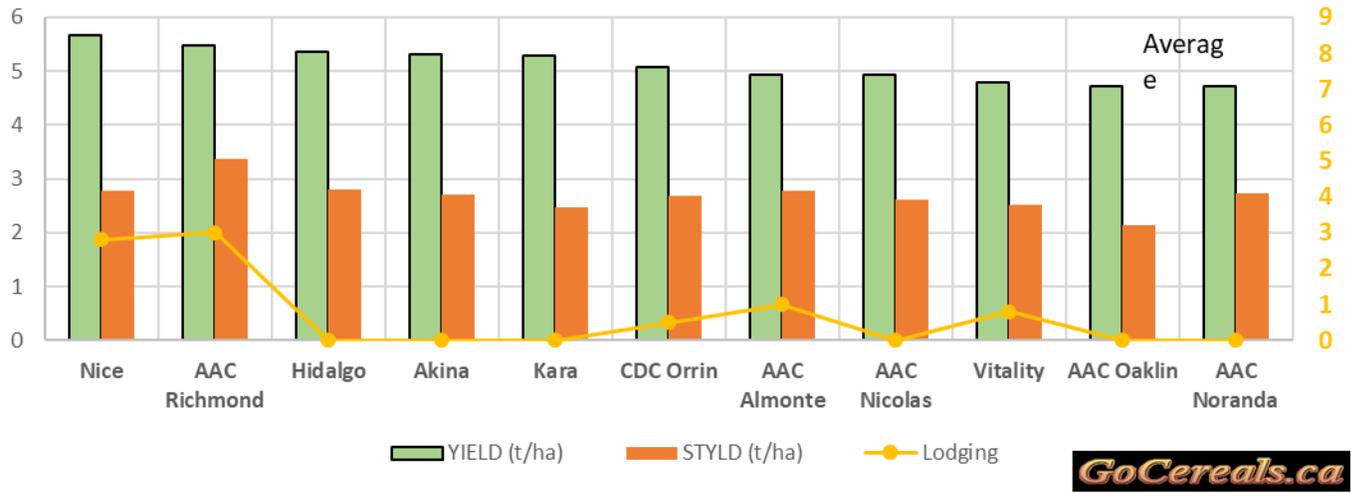
Ontario Performance Trial 2019; Spring Barley - New Liskeard



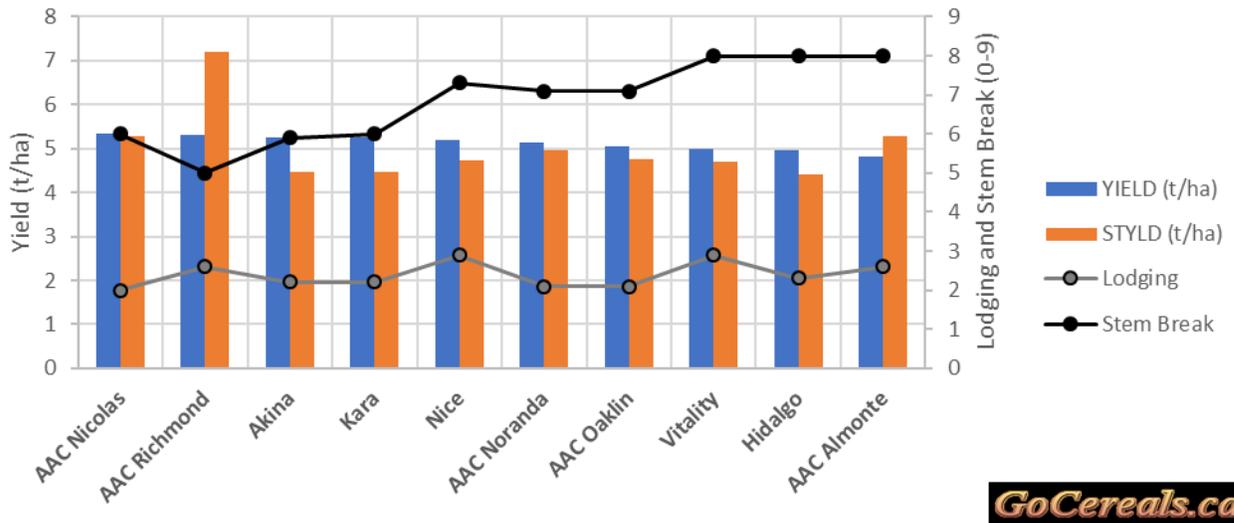
Ontario Performance Trial; Spring Barley - Area 5
5 Year Average (2015-2019)



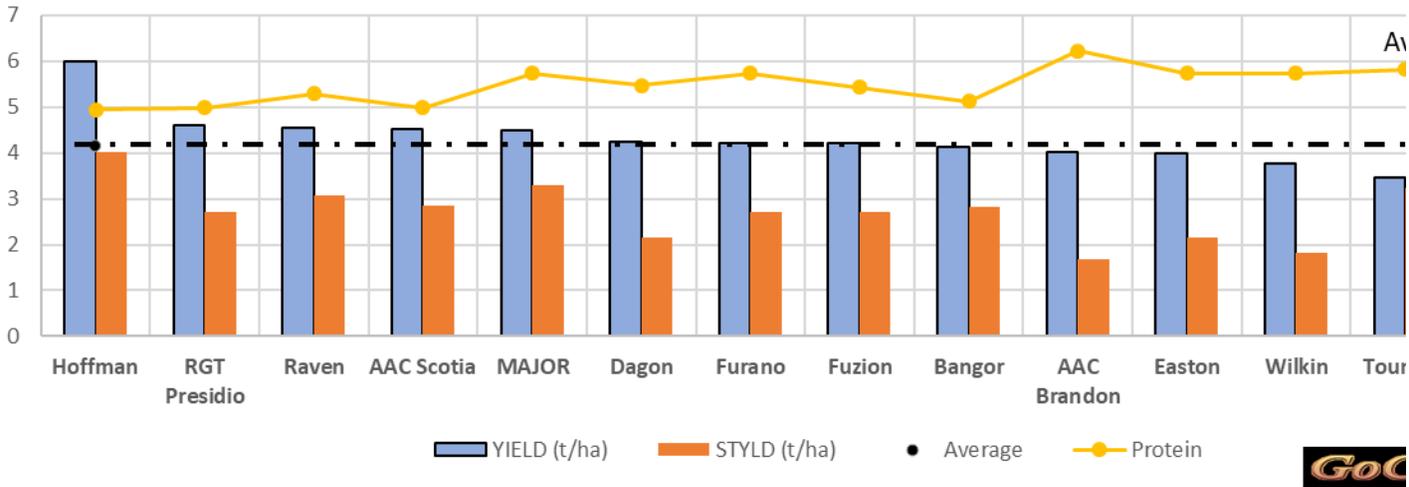
Ontario Performance Trial 2019; Oat - New Liskeard



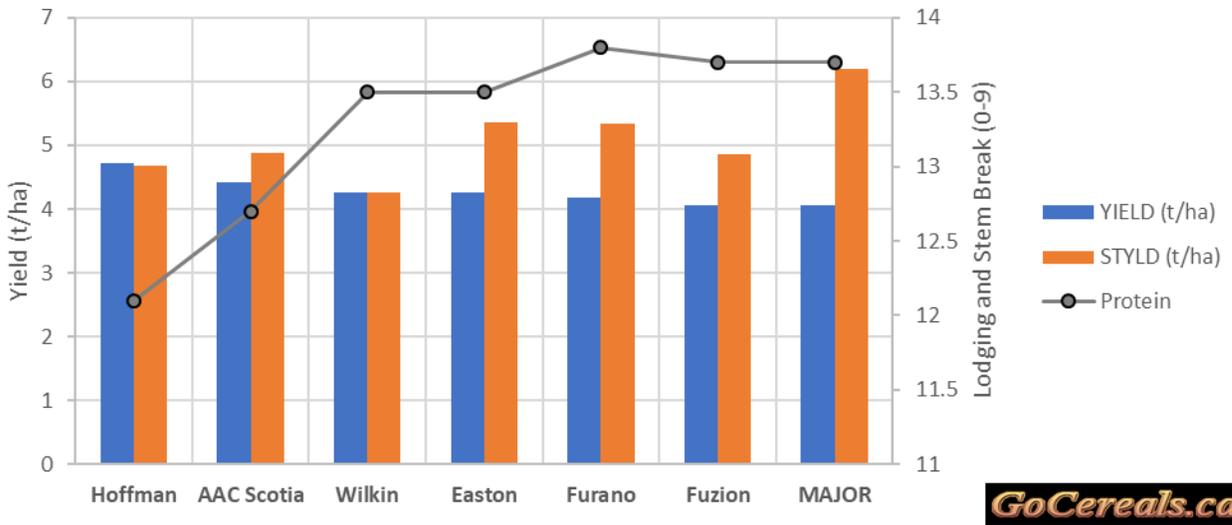
Ontario Performance Trial; Oat - Area 5 5 Year Average (2015-2019)



Ontario Performance Trial 2019; Spring Wheat - New Liskeard



Ontario Performance Trial; Spring Wheat - Area 5 5 Year Average (2015-2019)



Ontario Performance Trial 2019; Winter Wheat - New Liskeard

