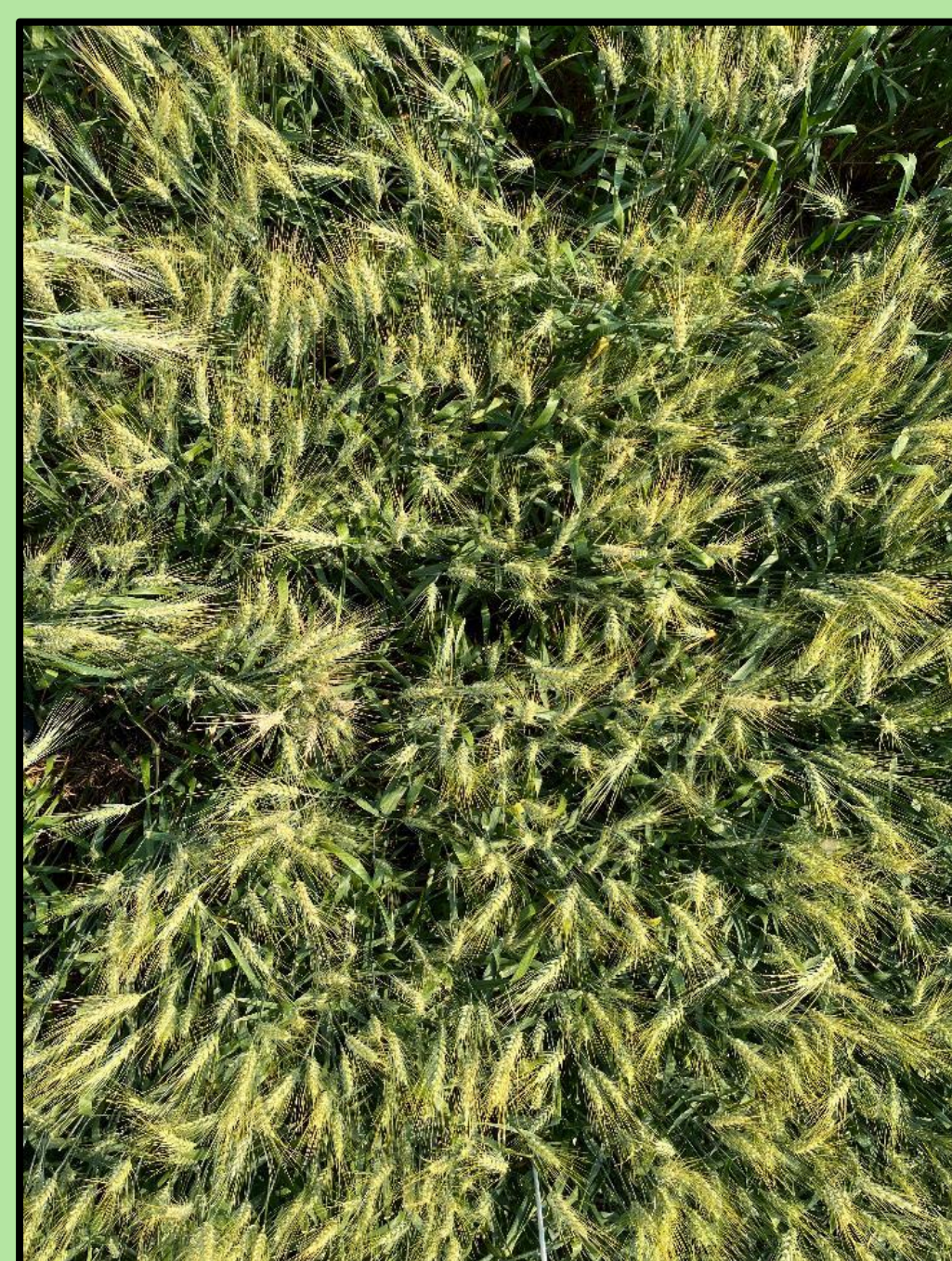


## Background

- The Yield Enhancement Network (YEN) is a collaborative program originally launched in 2012 in the UK. There are now a global series of YENs, and the first Prairie Spring Wheat YEN was established in Manitoba in 2025.
- The purpose of the YEN is to help farmers better understand their yield potential and learn what is limiting their yield potential. Potential yield is the theoretical maximum yield that a crop can produce. This project focuses on potential yield limited by location specific weather conditions for rainfed production.
- Prior Prairie research suggests there is a production gap between obtained yield and the yield potential of spring wheat in Manitoba (Beres, 2023). YENs data driven program uses on-farm field data to give farmers better insight into their actual and potential spring wheat yields, as well as providing more information about how their wheat crop grows and develops. A spring wheat yield potential model was developed to compare obtained yield vs yield potential, thus providing an understanding of current percent yield captured on Manitoba farms.
- The program benchmarks the selected fields soil properties, soil nutrient levels, plant tissue nutrient levels, yield components, and yield capture, which are key parameters to consider when making future management decision. This info will be used to identify practices that lead to high yield potential capture, and therefore higher actual yields on Manitoba farms.

## Materials and Methods

- 6 trial sites across Manitoba. Trial test areas were between 2-5 acres and treated the same as the larger field. Management decisions were chosen by the farmer.
- 10 sampling locations were randomly selected throughout the trial site. Sampling locations were revisited for in season sampling and data collection.
- Sampling:
  - Soil sample 0-6" (nutrient analysis and texture) and plant tissue nutrient analysis (GS 30-31, GS 39)
  - Photo canopy capture (GS 31, GS 69)
  - Head counts (m<sup>2</sup>)
  - Mature plant sample (GS 89+): shoot and head length, spikelet number, grain number and weight, plant biomass weight
  - Harvest grain sample (quality tests)
  - Trial yield collected through weigh wagon or calibrated grain cart
- Samples collected by the farmer or farmer's agronomist. Sample processing is conducted by MCA and MB Ag staff.
- Using weather data from the Manitoba Ag Weather Program and soil characteristics an algorithm was adapted (Bennett and Harms 2011; Martel et al. 2018) to calculate cumulative potential evapotranspiration at any location in Agro-Manitoba. Potential yield will be derived from yield trials and calculated evapotranspiration.



## Results and Discussion

- Results are preliminary as modelled yield potentials are not available at this time, full pilot project report will be available in January 2026.
- Average yield for the 2025 Prairie Spring Wheat YEN was 84 bu/acre across all farms.
- Yield was highly dependent on moisture conditions. Yields were exceptional for farms located in areas that received adequate moisture during the growing season, while the farm with the lowest yield received just 65% of long-term normal precipitation.
- Heads/m<sup>2</sup> was the yield component most closely related to final yield (Figure 1). There were no trends observed when spikelets/head, biomass and thousand kernel weight were compared to grain yield.
- As this project moves beyond the pilot year farmers will start to be able to benchmark progress and make management decisions based on yield increases and percentage of potential yield achieved.

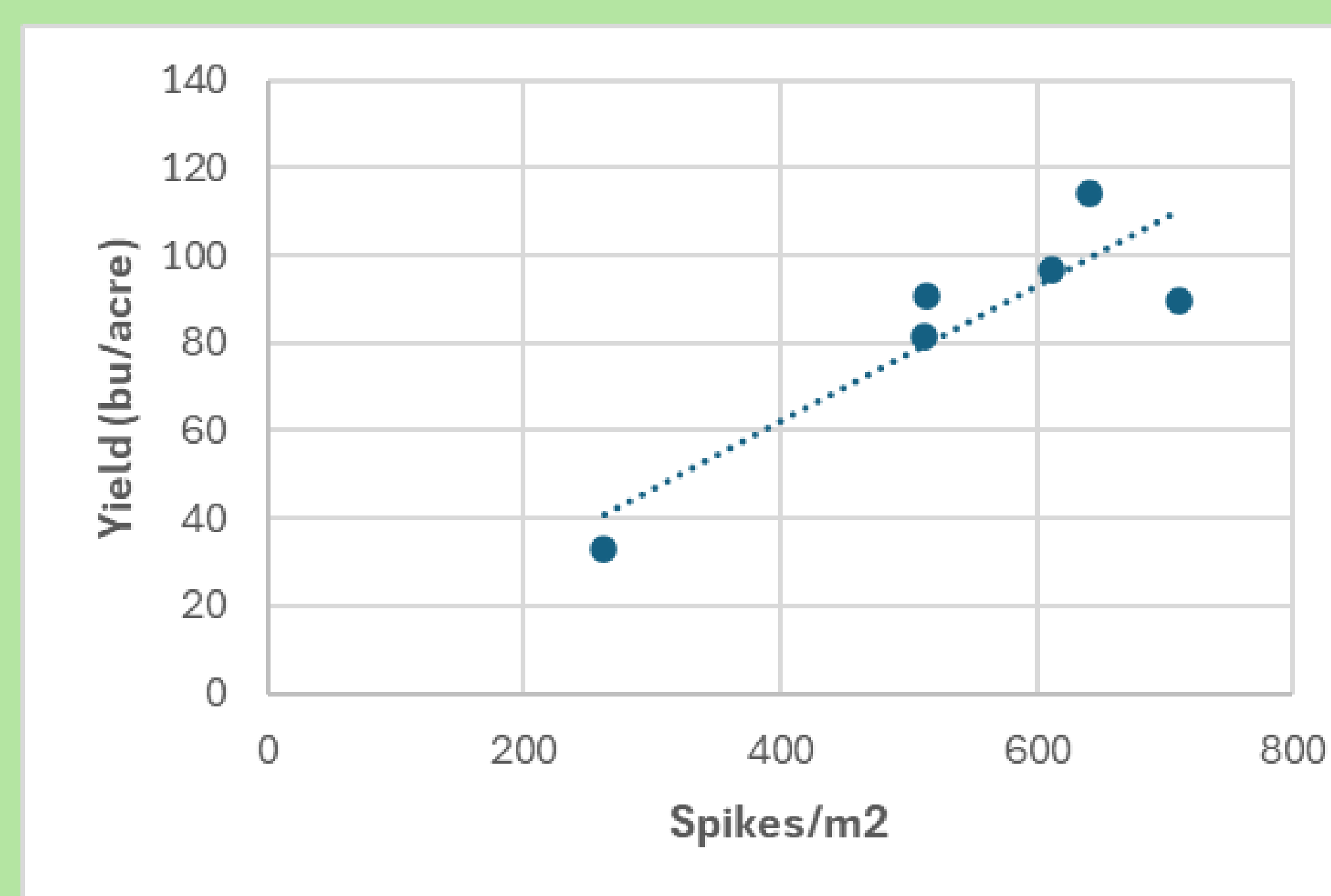


Figure 1. Yield (bu/acre) and spikes/m<sup>2</sup> at the 6 YEN locations.

## References

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- Beres, B. (2023). Wheat Yield Gaps: magnitude and opportunities to sustainably improve yield. Achieves of the Manitoba Crop Alliance, Carman, MB.
- Martel, M., Glenn, A., Wilson, H. and Kröbel, R. 2018. Simulation of actual evapotranspiration from agricultural landscapes in the Canadian Prairies. *Journal of Hydrology*. 15, pp. 105-118.

## Future Work

The Manitoba Spring Wheat YEN will continue in the 2026 season and actively looking for participant. If interested in participating, please reach out to [andrew@mbcropalliance.ca](mailto:andrew@mbcropalliance.ca) or [anne.kirk@gov.mb.ca](mailto:anne.kirk@gov.mb.ca).

## Acknowledgements

This project would not be possible without the help of the farmer cooperators and funding by the Manitoba Crop Alliance and support from Manitoba Agriculture.