

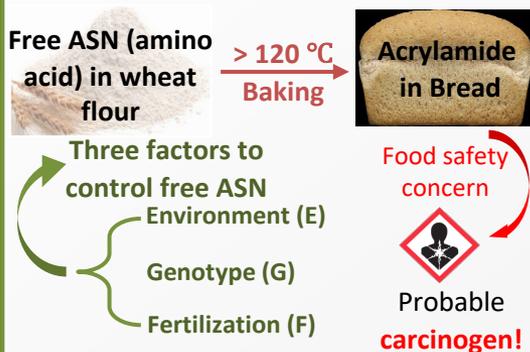
Agronomic practices can help to reduce free asparagine (ASN) in Western Canadian wheat

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Introduction



Objectives

Determine the effects of E, G, and F on asparagine content

Materials & Methods

G (8 wheat genotypes)
 AAC Cameron, AAC Brandon, BW5011, CDC Plentiful, AAC Elie, Glenn, Prosper, SY Rowyn

E (4 location-years)
 2018: Carberry and Lilyfield
 2019: Grosse Isle and Lilyfield

F (4 fertilization treatments)
 2 N levels: 100 & 135 kg ha⁻¹
 2 S levels: 0 & 17 kg ha⁻¹

UPLC-PDA
 Free ASN analysis



Results

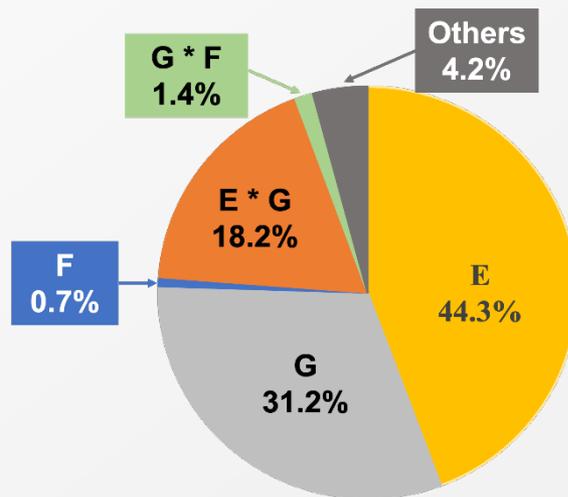


Fig. 1. Percent of total variance contributed by each factor and interactions

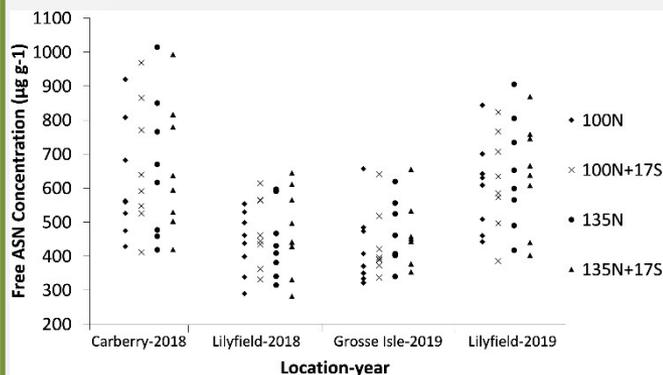


Fig. 2. Distribution of free ASN concentration of whole-wheat flour samples

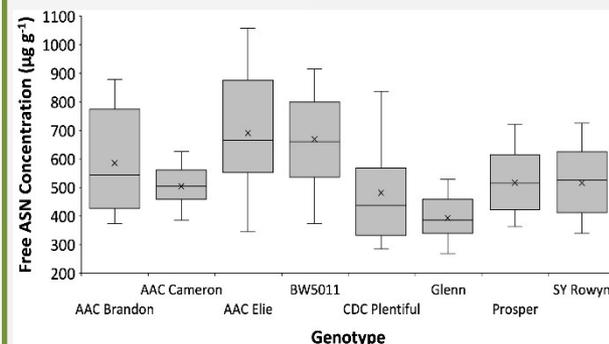


Fig. 3. Free ASN concentration of 8 G averaged over 4 E and 4 F treatments

Conclusions (take-home message)

- Growing environment played a critical role in variation of free ASN in wheat
- Producers can control free ASN through:
 - Judicious selection of low ASN genotypes to grow
 - Applying suitable levels of fertilizers to soil

Acknowledgement



Reference

Xie et al. (2021). Effects of growing environment, genotype, and commercial fertilization levels on free asparagine concentration in Western Canadian wheat. *Cereal Chemistry*, 98(1), 89–99.