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## Growth environment influences grain protein composition and dough functional properties in three australian wheat cultivars (Article)

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### Abstract

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The objectives of this study were to assess how functional properties of proteins in whole meal wheat (*Triticum aestivum* L.) flour vary across different growth environments. Grain from three commercial Australian Hard milling wheat cultivars was analyzed from four growth locations in 2008 and from two of the corresponding cultivars and locations in 2009. The protein content of the grain, soluble and insoluble extractable protein fractions, swelling index of glutenin (SIG), glutenin-to-gliadin ratio (Glu:Gli), percent unextractable polymeric protein (%UPP), and dough properties including force at maximum resistance (Rmax) and extensibility were measured. Based on analysis of variance of aggregated data for the cultivars, growth locations, and seasons, growth environment factors made significant contributions to variability in the total grain protein, Glu:Gli ratio, %UPP, SIG, Rmax, and extensibility of the wheat flour. Variability of protein content of the soluble and insoluble extractable protein fractions was mostly owing to genotype. © 2014 AACC International, Inc.

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