
Nitrogen Fixation of Pea and Chickpea in Response to Drought in Saskatchewan

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Abstract

Pulse crops are economically important in cropping systems because of their ability to assimilate atmospheric nitrogen (N_2). Cost of fertilizer N and an interest in developing ecologically sustainable agricultural systems has lead to an increased interest in the process of N_2 fixation. In stress-free environments, legumes fix nitrogen for crop growth and high-protein seed production. However, N_2 fixation in legumes is sensitive to water deficit, which restricts N supply, grain yield, and grain quality. The objective of this study was to quantify differences in N_2 fixation for chickpea and pea cultivars subject to drought in the field in 2002. Measurements included biomass accumulation and leaf ureide concentration, a potential nitrogen fixation product, throughout the season. At the end of the season, natural abundance of N by fixation and yield were taken. Results will be discussed relating differences in cultivar biomass accumulation and total N fixation to N fixation products.