

# Potassium Fertilization Effects on Isoflavone Concentrations in Soybean

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## Abstract

Soybean isoflavone concentrations vary widely, but the contribution of soil fertility and nutrient management to this variability is unknown. Field experiments from 1998 to 2001 on soils with low to high exchangeable potassium (K) concentrations evaluated K fertilizer application and placement effects on isoflavone concentrations and composition of soybean in various tillage and row width systems. Soybean seed yield and concentrations of daidzein, genistein, glycitein, leaf K, and seed K were measured. Significant increases in daidzein, genistein, and total isoflavone in soybean seed were observed with deep-banded K or surface-broadcast K fertilizer on low and medium K soils. Positive effects of K fertilization on isoflavones were less frequent on

medium- to high-testing K soils. Both individual and total isoflavones were often positively correlated with seed yield and concentrations of trifoliolate leaf K and seed K. Appropriate K management could be an effective approach to increase isoflavone concentrations for soybeans produced on low- to medium-K soils.

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## Reference

Vyn, Tony J., X. Yin, T.W. Bruulsema, Chung-Ja C. Jackson, Istvan Rajcan, and Sylvie M. Brouder. 2002. Potassium Fertilization Effects on Isoflavone Concentrations in Soybean [*Glycine max* (L.) Merr.]. *J. Agric. Food Chem.* 2002. 50, 3501-3506.

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