

# **Comparative Seed Yield Response of Oilseed, Cereal and Pulse Crops to Sulphate-S Fertilizer on S-Deficient Soils in Northeastern Saskatchewan**

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Because of high S requirements, canola is more prone to S deficiency than cereals. Cereals and pulses have lower S requirement than canola. To compare the relative response of canola, wheat, oat and pea to S fertilization in S-deficient soils, so as to optimize seed yield and economic benefits, results from various field experiments are summarized in this poster. All field experiments were conducted on S-deficient Gray Luvisol (Boralfs) soils in northeastern Saskatchewan, Canada. The source of S fertilizer used was ammonium sulphate or potassium sulphate. All plots in experiments received a blanket application of N, P and K fertilizers. All fertilizers were applied in spring prior to or at seeding. Data were recorded on seed yield, total S concentration, S uptake in seed and straw, and protein and oil concentration in seed. For canola, there was a substantial response of seed yield and S uptake to S fertilization in all years. There was a reduction in seed yield, and S and N uptake of canola when N at high rates was applied in the absence of S fertilizer. For wheat, the response of seed yield and S uptake to S fertilization was smaller and less frequent than canola. For oat, there was a significant increase in seed yield from S fertilizer at one site, but little increase at the other S-deficient site. For pea, there was little or no increase in seed yield from S fertilizer. In conclusion, canola was much more responsive to S fertilization than wheat, oat or pea, which indicated the need for different fertilizer S rates for each crop species.