

CANOLA CULTIVAR BY SULPHUR FERTILIZER RATE INTERACTION EFFECTS ON SEED YIELD AND QUALITY

S.S. Malhi and D. Leach

Agriculture and Agri-Food Canada,
P.O. Box 1240, Melfort, Saskatchewan S0E 1A0
Phone: 306-752-2776, Ext. 230; Fax: 306-752-4911;
E-Mail: malhis@em.agr.ca

BACKGROUND

- In recent years, many farmers in the Parkland zone experienced substantial loss in seed yield due to severe S deficiency in the growing season.
- Canola has high requirements for S which may vary with cultivars (and canola type) depending on the differences in growth rate, yield potential, rooting system and genetics.
- The use of high yielding canola cultivars with high rates of N and other fertilizers can increase instances of S deficiency in the growing season due to faster depletion of S in soil.

OBJECTIVE

- To compare the relative response of selected canola cultivars to S deficiency and S fertilization in relation to seed yield and quality.

MATERIALS AND METHODS

- **Locations:** South Tisdale
- **Soil:** Gray Luvisol
- **Mean Precipitation:** 450 mm
- **Growing Season:** May to August
- **Canola Cultivars:** Quantum (*B. napus*)
AC Excel (*B. napus*)
Maverick (*B. rapa*)
AC Parkland (*B. rapa*)
- **Rates of S:** 0, 5, 10 and 15 kg S/ha
- **Source of S:** Potassium Sulphate (0-0-50-17)
- **Other Fertilizers:** Blanket Application of N, P and K Fertilizers
- **Data Recorded:** Seed Yield, Protein Content, Oil Content and Total S in Seed and Straw

SUMMARY AND CONCLUSION

- In the zero-S treatment, some cultivars exhibited S deficiency more severe than others, and seed yields without and with applied S varied with cultivars.

- In the zero-S treatment, seed yield was highest for AC Excel and lowest for AC Parkland.
- In the S-fertilized plots, Quantum produced the greatest seed yield, which was closely followed by AC Excel, and the lowest yield from Maverick and AC Parkland.
- In conclusion, the results suggest that severity of S deficiency and increase in seed yield of canola from applied S may vary with cultivars.

ACKNOWLEDGEMENTS

- The authors would like to thank C. Hutchison, T. Donald and K. Hemstad-Falk for technical help; and ENVIROTEST Laboratories Saskatoon for soil and plant analyses.

Table 1. Seed yield of four canola cultivars with different rates of S at South Tisdale site in 1999 (2.0 mg SO₄-S/kg in 0-15 cm soil).

Cultivar	Seed yield (kg/ha) at S rates (kg S/ha)			
	0	5	10	15
Quantum (<i>B. napus</i>)	530	1667	1983	1951
AC Excel (<i>B. napus</i>)	1048	1286	1579	1764
Maverick (<i>B. rapa</i>)	554	759	875	1056
AC Parkland (<i>B. rapa</i>)	237	545	812	803