Nutrient limitation on yield and quality of peanuts grown in four soils in the Kingaroy area - III sulphur

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A nutrient omission trial (Jones and Crack 1970) to examine the nutrient limitations on peanut yield and quality was conducted in a glasshouse using four soils viz. cultivated and uncultivated krasnozem (C.K. and U.K.) and cultivated and uncultivated red earth (C.R.E. and U.R.E.). This paper reports the effect of sulphur omission on the yield of tops and fruit by comparison with a "complete" treatment in which all nutrients tested were applied.

TABLE l. Dry weight (g/box) of peanut tops and fruits.

Soil	Tops "Complete"	Tops -S	Tops LSD (P=0.05)	Fruit "Complete"	Fruit -S	Fruit LSD (P=0.05)
C.K.	195.3	166.7	41.2	106.3	126.8	53.1
U.K.	178.3	153.7	40.4	155.1	165.6	50.6
C.R.E.	142.0	160.0	38.3	152.7	161.8	54.1
U.R.E.	161.0	113.7	38.9	154.5	164.5	53.0

Symptoms of sulphur deficiency described by Fritz et al. (1974) appeared on peanut plants grown in the U.R.E. from 13 weeks after emergence and became progressively more severe. Mild symptoms appears on plants in the remaining three soils after 15 weeks from emergence. The reduction in tops yield but not fruit yield is consistent with the findings of Bromfield (1973) that yield of fruit is unlikely to be affected if sulphur deficiency symptoms do not appear within 13 weeks of sowing. Fruit quality was largely unaffected by omission of sulphur in the present trial. The occurrence of sulphur deficiency symptoms late in the peanut growing season i.e. after 13 weeks from emergence would indicate an impending sulphur deficiency. Where symptoms occur, sulphur fertilizers can be applied in the next season. Where phosphorus is also deficient, superphosphate would appear the most appropriate fertilizer. In areas treated with superphosphate (or other sulphur-containing fertilizers) for an extended period, sulphur deficiency is unlikely to occur for some time after the application of superphosphate has ceased. This would be due to the build up of sulphur in the soil profile. This would be particularly true of the C.K. as krasnozems are known to have a high sulphate sorption capacity (Probert 1977).

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