Effect of sulphur and phosphorus on yield and quality of soybean

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ABSTRACT

A field experiment was conducted at Post Graduate Institute Farm during kharif, 2005 with a view to study the effect of sulphur and phosphorus on yield and quality of soybean (Phule kalyani) in Inceptisol (Vertic haplustept). From the experiment it was emerged out that application of 40 kg S and 100 Kg P\textsubscript{2}O\textsubscript{5} ha\textsuperscript{-1} recorded highest grain and straw yield, oil content and crude protein content of soybean. The combined application of 40 kg S ha\textsuperscript{-1} and 75 kg P\textsubscript{2}O\textsubscript{5} ha\textsuperscript{-1} proved to be the best combination resulting in significant increase in grain and straw yield, oil and crude protein content.

RESULTS AND DISCUSSION

Grain and straw yield:

Increasing levels of S significantly increased the grain and straw yield. Application of P in the absence of added S on an average, increased the grain and straw yield up to 100 kg P\textsubscript{2}O\textsubscript{5} ha\textsuperscript{-1}(Table 1). The highest grain (22.21 q ha\textsuperscript{-1}) and straw (27.38 q ha\textsuperscript{-1}) was observed with the application of 100 kg P\textsubscript{2}O\textsubscript{5} ha\textsuperscript{-1}. As the level of S increased from 0 to 40 kg ha\textsuperscript{-1}, grain and straw yield also increased significantly. Nimje and Potkile (1998) and Wastmatar et al. (2002) have also reported S and P responses. The combined application of P and S resulted into significant interaction. The significant increase in grain and straw yield was observed when 40 kg S ha\textsuperscript{-1} was applied in combination with 75 kg P\textsubscript{2}O\textsubscript{5} ha\textsuperscript{-1}.

Oil content:

The increasing levels of sulphur significantly increased the oil content up to 40 kg S ha\textsuperscript{-1}. The highest oil content of 21.30% was recorded due to the application of 40 kg S ha\textsuperscript{-1} whereas with phosphorus addition oil content increased up to 100 kg P\textsubscript{2}O\textsubscript{5} ha\textsuperscript{-1}. Similar results was reported by Dwivedi and Bapat (1998) and Varavipour et al. (1999). The highest oil content (21.52%) was obtained with combined application of 40 kg S and 75 kg P\textsubscript{2}O\textsubscript{5} ha\textsuperscript{-1} (Table 2).

Crude protein content:

The increasing levels of sulphur significantly