OPTIMUM AND ECONOMIC LEVELS OF PHOSPHORUS AND POTASSIUM FERTILISATION FOR GROUNDNUT

(Arachis hypogaea L.)

With the object of studying the response of graded doses of phosphorus (50, 75 and 100 kg $P_2O_5$/ha) and potassium (25, 50 and 75 kg $K_2O$/ha) on two varieties of groundnut, an experiment was conducted in the Instructional Farm, College of Agriculture, Vellayani during 1976-77. Quadratic response curves of the type $Y = c + bx + ax^2$ were found to be the best fit to the data for both phosphorus and potassium. The response model for $P_2O_5$ was $Y = 696.3012 + 28.0176P - 0.1484P^2$, while the model for $K_2O$ was found to be $Y = 1570.7121 + 8.6284K - 0.0347K^2$. The optimum level $\left(\frac{-b}{2a}\right)$ and the economic level $\left(\frac{-b + \frac{1}{2}P_X}{2aP_Y}\right)$ of phosphorus (where $P_X$, the price per unit input of $P_2O_5$, and $K_2O$ were Rs. 3.50 and Rs. 1.40 respectively and $P_Y$, the price per unit output was Rs. 2.50) were found to be 94 kg and 90 kg $P_2O_5$ per hectare respectively. The rates of increase in yield of pods per kg of $P_2O_5$ due to increasing levels of $P_2O_5$ from 50 to 75 kg and from 75 to 100 kg $P_2O_5$ per hectare were 23.64 kg and 5.11 kg respectively.

The economic and optimum doses of potassium were calculated as 116 kg and 124 kg $K_2O$ per hectare, respectively. The rate of increase of pod yield per kg of applied $K_2O$ for increasing levels of potassium from 25 kg to 50 kg and from 50 kg to 75 kg $K_2O$ per hectare were 15.08 and 10.68 respectively.

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