

## INFLUENCE OF NITROGEN ON INOCULATION EFFICIENCY OF SOYBEANS

K. Sabesan and T.J. Pathmapuvanendran

Department of Agronomy, Faculty of Agriculture,  
Eastern niversity, Sri Lanka.

The nitrogen nutrition of soybeans is complex. The response of this plant to nitrogen is confounded by it's ability to utilize both mineral nitrogen from soil and atmospheric nitrogen through symbiotic relationship with Rhizobium japonicum. As such, a field experiment on soybeans was conducted in the regosols of the Eastern Province in order to find out whether soybeans under local conditions can respond to inoculation and to determine the amount of supplemental fertilizer nitrogen needed.

Nitrogen in the form of  $(\text{NH}_4)_2\text{SO}_4$  at the rates of 0, 30, 60 and 90 kg N/ha, as basal application to inoculated (Nitrogin-S) and uninoculated plants were tested in the experiment.

The results showed that inoculation of soybean seeds favourably affected the rate of nodulation with a corresponding beneficial seed yield response. High nitrogen levels were found to encourage the growth and development of the plants which was evident through such parameters like plant height, leaf area index and dry mass accumulation. However, the rate of nodulation was inversely related to the increase in fertilizer nitrogen.

The highest seed yield of 2720 kg/ha was obtained when 30 kg/ha of fertilizer nitrogen was applied to inoculated plants. The results also indicated that the application of fertilizer nitrogen at rates greater than 30 kg/ha decreased the seed yield, suggesting that the symbiotic nitrogen fixation played a greater role than mineral nitrogen in the formation of seed yield.

11th Dec. 1987 (Friday) 02.00 p.m. - 02.15 p.m.