FORM, LEVEL AND FREQUENCY OF APPLICATION OF NITROGENOUS FERTILIZER FOR SOYBEANS

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The nitrogen requirement of soybean is very high. Although a large part of this requisite can be obtained from the atmosphere through its symbiotic relationship with Rhizobium japanicum, a certain amount of soil nitrogen is needed for its initial growth, prior to active nitrogen fixation. Since one heavy application of fertilizer nitrogen would reduce the rate of nitrogen fixation, it was intended to study the effect of split light applications on yield of soybeans. It was also intended to compare the efficiencies of urea and ammonium sulphate as sources of nitrogen in regosols.

The following treatments were tested in the experiment using both urea and ammonium sulphate:

i) 30 N Kg/ha (Basal)
ii) 20 + 10 Kg N/ha (Basal and dressing at 2 weeks after sowing)
iii) 15 + 15 Kg N/ha (Basal and dressing at 2 weeks after sowing)
iv) 10 + 10 Kg N/ha (Basal and dressing at 2 and 4 weeks after sowing)

The increase in basal fertilizer nitrogen enhanced the growth and development of the plants which was evident through parameters such as plant height, leaf area index and dry mass accumulation. At the initial stages of growth, the process of symbiotic nitrogen fixation was found to be adversely affected by heavy basal nitrogenous fertilizer. In the later stages, however, this negative effect was observed where frequent top dressings were given to the plants.

The highest seed yield of 2420 Kg/ha was obtained when nitrogen was given as 20 Kg/ha of basal application and 10 Kg/ha of top dressing. The results also indicated that urea was more effective than ammonium sulphate on soybeans in regosols.