

EFFECT OF NITROGEN AND POTASSIUM ON NITROGEN FIXING ACTIVITY
OF WINGED BEAN (*PSOPHOCARPUS TETRAGONOLOBUS* (L) DC.)

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The effect of five rates of nitrogen (0 - 40 kg/ha) and three rates of potassium (0 - 80 kg/ha) on the nitrogen fixing activity of two varieties (SLS-40 and SLS-44) of winged bean were tested in the field.

Nitrogenase activity per unit weight of nodule per hour (specific ARA) was inhibited with increase in combined N levels, and the inhibition was most pronounced with increase of N from 0 to 10 kg/ha. This can be clearly seen upto 75 DAS. On the 90th DAS, there was no significant inhibition due to added nitrogen.

Specific ARA increased in proportion to K-fertilization from 40 - 80 Kg K₁₀/ha specially during the early stages of growth (30 and 45 DAS). Therefore under these K levels the inhibition of ARA by combined nitrogen was less pronounced. This effect became less marked as the plants grew older.

Nitrogenase activities correlated more positively with nodule weight than with nodule number.

The nodule number and weight decreased with increase in combined - N levels specially in SLS-40. The highest mean nodule weight was recorded on 75 DAS old plants in both cultivars, irrespective of the K-level.

K-fertilizers stimulated early root growth (30-45 days) but the overall root growth at the end of the experiment was similar under all the K-treatments.