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# THE YIELD AND QUALITY OF SOYBEAN SEEDS AS AFFECTED BY FOLIAR APPLICATION OF NITROGEN AND MOLYBDENUM

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A field experiment was conducted with soybeans (PB–1), to study the effects of foliar application of nitrogen and molybdenum (applied at the two-leaf, at blooming, and at pod-filling stages), on the uptake of nitrogen, seed yield and quality.

Foliar application of 0.5% $NH_4NO_3$ solution at the two-leaf stage of the plant significantly increased the nitrogen content of the plant from 3.33% in the control (nitrogen uptake–4.1 kg/ha.) to 4.06% (nitrogen uptake–5.0 kg/ha).

Foliar application of 1.5% $NH_4NO_3$ alone, at the pod-filling stage ($N_{F3}$), increased the nitrogen content in the plant to 7.32% (control–6.0%), thereby increasing the nitrogen uptake by 14.6 kg/ha. The application of molybdenum (0.5% ammonium molybdate) together with nitrogen at all three stages ($N_{F1} + N_{F2} + N_{F3}$)Mo increased the nitrogen content to 8.11% (control – $N_{F1} + N_{F2} + N_{F3}$ – 7.07%) and the uptake of nitrogen to 195.7 kg/ha (control—166.3 kg/ha). Similarly there was a significant increase in the seed yield (control–1188 kg/ha ; $N_{F3}$–1517 kg/ha : ($N_{F1} + N_{F2} + N_{F3}$–1766 kg/ha : ($N_{F1} + N_{F2} + N_{F3}$) Mo–1846 kg/ha).

The protein content of seeds was positively affected by foliar application of nitrogen. Application of nitrogen to leaves at the pod-filling stage significantly increased the protein content to 36.96% (control–33.5%). As a result of this a remarkable increase of the protein yield (160 kg/ha) was observed. The highest protein yield (752 kg/ha) was obtained when nitrogen was applied together with molybdenum, at all three stages of growth.

When considering the protein content of seeds of treated and untreated (control) plants, the protein content of seeds was negatively correlated with fat content ($r = -0.58$).