B-103: Effect of N levels and polythene mulch on pole bean cultivation in the upcountry intermediate zone

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Pole bean is a popular vegetable crop grown in the upcountry intermediate zone. Generally, vegetable cultivation in the upcountry is intensive and highly commercialized. Hence, many farmers in this region use a large quantity of both organic and chemical fertilizers. This has resulted in the accumulation of P and K in the soil in this region and it may also lead to ground water pollution by nitrates. The use of polythene mulch to increase vegetable yields through increased N use efficiency was also tested in this study.

A field experiment was therefore conducted at Bandarawela to determine the effect of different levels of N and polythene mulch (brown) on the yield of pole bean (Katugastota). Five levels of N (0, 50, 100, 150 and 200 kg/ha) were factorially combined with and without polythene mulch and tested in a randomized complete block design with three replicates. Phosphorus and potassium were added at rates of 125kg P_2O_5/ha and 90 kg K_2O/ha respectively.

The application of N at 100 kg/ha significantly increased the yield of pole bean. In addition, the use of polythene mulch also increased the yield of pole bean significantly. However, the interaction effect between N levels and polythene mulch for pole bean yield was not significant.

These findings suggest that the application of 100 kg N/ha is sufficient for pole bean cultivation in this region. This will be an economical approach to farmers who generally apply almost 3-4 times as much as this quantity. Although polythene mulch increased the yield of pole bean it is not considered economical (additional cost Rs 24.0/kg pole bean) under Sri Lankan conditions due to the high cost of polythene.