

Effects of Ethephon on the Growth, Yield and Yield Components of Beans (*Phaseolus vulgaris* L.)

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ABSTRACT

Two experiments to determine the effects of timing and levels of application of ethephon on the growth and yield of common bean (*Phaseolus vulgaris* L.) were conducted. Bean cultivar 'Mwezi moja' was used. Four levels of ethephon (0, 100, 200 and 300 mg/l) were sprayed to the plants at 7, 14 or at 28 days after emergence (DAE). Application of ethephon at all the three timings led to reduced plant height. Application of ethephon at 28 DAE reduced the leaf area index (LAI), fractional solar radiation interception, shoot dry mass and total dry mass. Root dry mass was not affected by ethephon application. Application of ethephon particularly at 28 DAE reduced yield and number of pods per plant. Application at 7 and 14 DAE in experiment 1 and 28 DAE in both experiments increased the number of seeds per pod. Ethephon application at 14 DAE increased the 100-seed mass in experiment 1 but reduced it in experiment 2. Most reduction in 100-seed mass occurred with application at 28 DAE. The harvest indices were reduced by application of ethephon at 28 DAE in both experiments and 14 DAE in experiment 1. It was concluded that ethephon (ethylene) application did not have any beneficial effects in bean production.

KEYWORDS: Beans; ethephon; growth; yield and yield components.