

EVALUATION OF HERBICIDE TREATMENTS FOR SNAP BEANS, LIMA BEANS,
AND SOUTHERN PEAS

C. A. Mullins and R. A. Straw

Department of Plant and Soil Science, University of Tennessee,
Plateau Experiment Station, Rt. 9, Box 363, Crossville, TN 38555

Several new herbicides have become available for potential use on bean crops. Several of these herbicides and herbicide combinations were evaluated in test plots at the Plateau Experiment Station at Crossville, Tenn. during the past 3 years. Treatments were evaluated in tests using a randomized complete block experimental design with 4 replications. Plot size was 4 rows, each 96 cm wide and 6.1 m long. Cultivars were 'Eagle' snap beans, 'Jackson Wonder lima beans, and 'Purple Hull Pinkeye' Southern peas.

Imazethapyr was the primary herbicide evaluated in the trials. Imazethapyr did not cause any crop damage in trials in 1987 or 1988 when rainfall levels were low. However, in 1989, when rainfall was excessive, crop damage was moderate to severe. This was especially true with snap beans and much of the vigor loss was due to root rot which was increased by root pruning and root injury of the snap beans. The crop injury due to imazethapyr was more severe with pre plant soil incorporated treatments, intermediate with preemergence treatments, and less severe with post emergence treatments. Injury was more severe at the 0.070 than at 0.053 kg /ha ai. Addition of dinitroaniline herbicides pre plant incorporated at 0.84 kg/ha ai increased the amount of crop injury for all 3 crops.

Lactofen at 0.22 kg/ha ai post emergence severely injured all 3 crops. Clomazone at 0.56 kg/ha ai pre plant incorporated did not injure the 3 crops. Bentazon at 0.84 kg/ha ai combined with sethoxydim at 0.28 kg/ha ai post emergence was an excellent treatment. Bentazon at 0.84 kg/ha ai combined with quizalofop at 0.28 kg/ha ai post emergence caused slight injury which the crops soon outgrew. Bentazon at 0.84 kg/ha ai combined with paraquat at 0.22 kg/ha ai post emergence did not damage snap or lima beans, but severely damaged the Southern peas.