

Organic Weed Management Strategies in Dry Edible Bean

Erin C. Taylor*, Christy L. Sprague, and Karen A. Renner

Two two-year field studies were conducted in 'Jaguar' black beans to 1) evaluate the use of a propane flamer (F) and rotary hoe (RH) alone and in combination for early-season weed management, and 2) determine optimal timing of rotary hoeing using growing degree days (GDD). The first study focused on five early-season weed management treatments: 1) F once, before bean emergence, 2) F twice, before emergence and when beans were in the cotyledon stage, 3) F once before emergence + RH twice at the cotyledon stage and again when the beans had one trifoliolate, 4) RH three times, before emergence, at the cotyledon stage and at one trifoliolate, and 5) no early-season weed management. In both years, the F + RH twice and the RH three times treatments resulted in the fewest weeds and the highest yields. The F twice treatment reduced the bean stand by 46% and the yield by 54% compared to the other treatments. In the second study, there were three RH timing treatments, every: 1) 7 days, 2) 125-150 GDD, and 3) 225-250 GDD. Also included were a no early-season weed control treatment and a weed-free treatment. Rotary hoeing, regardless of timing, reduced weed density compared to the no early-season weed control treatment. In the first year, yield of the rotary hoed dry beans, regardless of timing, was lower than the weed-free treatment. However, in the second year the 225-250 GDD dry bean yield was similar to that of the weed-free control. These results indicate that flaming is effective for weed control in dry beans when done prior to emergence and in combination with rotary hoeing, however it may not be as economical as using the RH alone. Rotary hoeing every 225-250 GDD early in the season results in weed control similar to other more frequent timings while reducing the number of field operations.

*=presenting author