

Grass Weed Control in Melons

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Abstract

Efficacy of the grass herbicides showed that Select (clethodim) and BAS-620 (BASF Corporation) at rates as low as 0.1 lb AI/A were nearly comparable in controlling 2 leaf stage of growth watergrass or when applied a week later on 3-4 inch tall watergrass. Fusilade DX (fluazifop-p-butyl) was intermediate in controlling grasses and 0.188 lb AI/A was necessary to give equivalent control of larger grasses as compared to the 0.1 lb AI/A rate that gave acceptable control of smaller grasses. Poast (sethoxydim) at 0.188 lb AI/A gave acceptable control of small grasses but lower rates or later timed applications were not as efficacious.

Introduction

Grass weeds in vegetable crops occasionally escape preemergence herbicide treatments and might require the application of postemergence herbicides. Poast herbicide was the first available grass herbicide and is labeled for use in many vegetable crops. Fusilade was registered shortly after Poast and has fewer registrations on vegetable crops. Select is gaining several registrations for use in a variety of crops and has demonstrated especially good efficacy against annual bluegrass. BAS-620 is a newly introduced chemistry that is being developed as a grass herbicide. Many changes in formulations for Poast and refinement of the active isomer for Fusilade have provided improvements since their introductions to the marketplace. Activity against specific hard-to-control grasses and improved activity have now lead to the introduction of new grass herbicides for potential use in vegetables. This field study was conducted to evaluate and compare the relative effectiveness of four grass herbicides in melons.

Materials and Methods

A small plot field experiment was conducted at the University of Arizona Maricopa Agricultural Center, Maricopa, AZ. Cantaloupe and watermelon were direct seeded into single rows on adjacent raised 40-inch beds. Watergrass (*Echinochloa crus-galli*) seed was spread over the beds using a hand fertilizer spreader before irrigation. The melons were irrigated as necessary for the entire season with water in every other furrow between cantaloupe and watermelon. The treatment plots consisted of two beds (cantaloupe and watermelon) measuring 20 ft in length. Each treatment was replicated four times in a randomized complete block design. The herbicides were applied using a backpack CO₂ sprayer equipped with a hand-held boom with four flat fan 8002 nozzle tips spaced 20-inch apart. The herbicides were applied in 20 gpa water and included Agridex crop oil concentrate at 1 qt/A and delivered at a pressure of 30 psi. The first timing of application was on 18 July 2000 when the melons were at the cotyledon to 1 leaf stage of growth and the watergrass at the 2 leaf stage or approximately 1-inch height. The temperature was 95F with the sky clear and no wind. The second timing of application was 24 July with the watergrass 3-4 inch tall. The temperature was 92F and there was a slight breeze. Crop injury and grass weed control visual observations were made on 03 and 14 August.

Results and Discussion

Earlier timed applications of grass herbicides generally offered better weed control than a later timed application a week later. At 16 days after treatment (DAT), Fusilade at 0.125 lb AI/A and BAS-620 and Select at 0.1 lb AI/A gave better than 90% control when applied on watergrass at the 2 leaf stage of growth (Figure 1). Select at as low as 0.1 lb AI/A and BAS-620 at 0.188 lb AI/A continued to give better than 90% grass weed control at 27 DAT. BAS-620 at 0.125 lb AI/A and Fusilade at 0.188 lb AI/A continued to provide acceptable weed control at better than 85% at 27 DAT. Poast at 0.188 lb AI/A was comparable to Fusilade at 0.1 lb AI/A in providing acceptable control at 89% at 16 DAT, but grass control diminished at 27 DAT.

Grasses treated a week later at the 3 to 4 inch height stage of growth were controlled better than 90% by Select at 0.125 lb AI/A and BAS-620 at 0.188 lb AI/A at 10 DAT (Figure 2). BAS-620 and Select at 0.1 lb AI/A gave acceptable grass control at better than 85% at 10 DAT as well as Fusilade at 0.188 lb AI/A. BAS-620 and Select at 0.125 lb AI/A continued to offer good weed control at 21 DAT of the later applications. Poast did not provide acceptable grass control with the later timed application at any rate.

Cantaloupes and watermelons were not injured by any of the herbicide treatments when observed at any of the rating dates.

Efficacy of the grass herbicides showed that Select and BAS-620 at rates as low as 0.1 lb AI/A were nearly comparable in controlling watergrass when applied early or late. Fusilade was intermediate in controlling grasses and the highest rate was necessary to give equivalent control of larger grasses as compared to the 0.1 lb AI/A rate that gave acceptable control of smaller grasses. Poast at 0.188 lb AI/A gave acceptable control of small grasses and lower rates or later timed applications were not as efficacious.

Figure 1. Grass weed control in melons at 16 and 27 DAT of early applications.

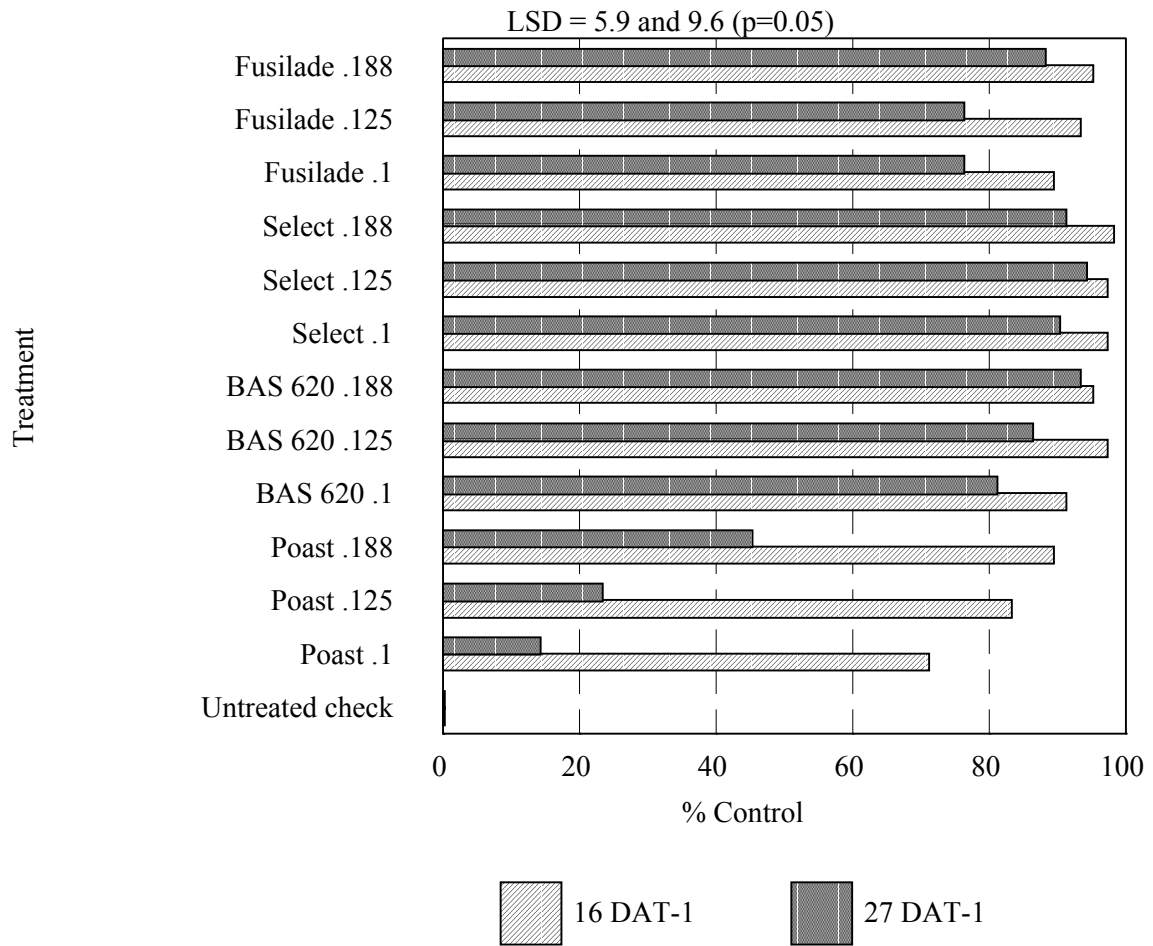


Figure 2. Grass weed control in melons at 10 and 21 DAT of late applications.

