

**INTERACTION OF POST GRASS HERBICIDES  
WITH PYRITHIOBAC FOR JOHNSONGRASS  
AND COMMON LAMBSQUARTERS  
CONTROL IN COTTON**

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**Abstract**

Johnsongrass [*Sorghum halepense* (L.) Pers.] is a severe problem in many cotton (*Gossypium hirsutum* L.) growing regions in the southwestern U.S. Other broadleaf weeds, such as common lambsquarters (*Chenopodium album* L.), can also become a problem. The introduction of POST graminicides have made a substantial impact on grass weed control in cotton. It is often desirable to apply herbicides in a mixture in order to broaden the weed control spectrum and to reduce application trips across the field. Studies have been conducted to evaluate the activity of various POST broadleaf grass herbicides when applied in a mixture. Reduced grass control through antagonism often is a result of applying these combinations.

Field studies were conducted near Cuero in south-central Texas during the 1997 growing season to evaluate johnsongrass and common lambsquarters control with clethodim (Select), fluazifop-P-butyl (Fusilade), and fluazifop-P-butyl + fenoxaprop-P-ethyl (Fusion) applied alone, in combination with, or in sequential applications of pyrithiobac (Staple).

The grass herbicides and rates used were clethodim at 0.14 kg/ha, fluazifop-P-butyl at 0.21 kg/ha, and a commercial premix of fluazifop-P-butyl and fenoxaprop-P-ethyl at 0.14 kg/ha and 0.04 kg/ha, respectively. Pyrithiobac at 0.88 kg/ha was the broadleaf herbicide. An untreated check was included for comparison. Herbicides were applied individually and in tank mix combinations of each grass herbicide and pyrithiobac. Sequential applications, where pyrithiobac was applied 24 h before or after the grass herbicide, were also evaluated. A crop oil concentrate (Agri-Dex) at 1.0% (v/v) was added to all treatments.

Plot size was 2 rows wide by 8 m long with 91 cm spacing. The experimental design was a randomized complete block with four replications. Herbicides were applied in water with a compressed-air bicycle sprayer calibrated to deliver 190 L/ha at 180 kPa. Johnsongrass was up to 15 cm tall at herbicide application.

When rated 4 weeks after application (WAA), pyrithiobac followed by fluazifop-P-butyl or clethodim 24 h later resulted in reduced johnsongrass control when compared with the POST grass herbicides applied alone. Common lambsquarters control was reduced when any of the grass herbicides were followed by pyrithiobac 24 h later or pyrithiobac was tank mixed with clethodim when compared with pyrithiobac alone.

When rated 10 WAA johnsongrass control was reduced only with the tank mix of clethodim and pyrithiobac compared to clethodim alone. Common lambsquarters control was reduced with all POST grass herbicides followed by pyrithiobac 24 h later.

Cotton seed yield with the POST grass herbicide alone or pyrithiobac alone were not significantly different from the untreated check. All herbicide combinations produced cotton yields which were better than the untreated check.