

Poast and Fusilade Use in Arizona Cotton

Stanley Heathman, Extension Weed Specialist, Jim Armstrong, Agricultural Agent, Tucson
Charles Farr, Agricultural Agent, Phoenix, Don Howell, Agricultural Agent, Yuma
Sam Stedman, Agricultural Agent, Casa Grande

Summary

These herbicides show great promise for the selective control of Johnsongrass and bermudagrass in cotton. While they show great promise, they are not fool-proof. Care must be taken in insuring their timely, accurate application. The cotton must be managed so as to provide maximum competition with the weeds. Good cotton stands, frequent cultivations, adequate soil moisture and fertility, and preemergence seedling control of new weed infestations will help you achieve satisfactory weed control.

Field Testing

In the 1981 and 82 cotton crop years, field testing of sethoxydim (Poast) and fluzifop-butyl (Fusilade) was conducted for selective control of bermudagrass and Johnsongrass in cotton. Other promising herbicides for selective control of grass have been tested. However, these two herbicides will probably be the first to be registered. These foliar applied herbicides are sprayed over the top of the weeds and the crop. They affect the growth of susceptible grass weeds by interfering with cell division. The weeds stop growing and the cotton is able to make normal growth. These herbicides can therefore release the cotton from the weed competition. However, the cotton will not respond if there is not sufficient soil moisture and soil nutrients present after the weeds are controlled.

Fusilade and Poast are selective herbicides. Their effects on weeds are not the same as those produced by glyphosate (Roundup). If applied for ditchbank weed control at application rates used in cotton, they will temporarily stop the growth of the weeds, but will not kill them. For Poast and Fusilade to work successfully in the cotton field, they depend upon crop competition, cultivation, and adequate growing conditions to help the cotton outgrow the weeds. These herbicides will fail to give the expected control if these important conditions are not met.

If you plan on using these herbicides during the next year, the following may be considered when planning a program.

1. Preplant Herbicide

Fusilade and Poast have limited soil activity. A preplant herbicide will be essential for seedling control of Johnsongrass. It will do little good to pay for the control of established weeds if they are immediately replaced following the next irrigation. Fluchloralin (Basalin), pendimethalin (Prowl), and trifluralin (Treflan) preplant incorporated will give control of seedling grass weeds. However, where the growing season is long and irrigation amounts and frequency may be high, or where frequent cultivations may remove the preplant herbicide from the furrow, the preplant herbicide may not be sufficient for season long control. Where seedling Johnsongrass pressure is high, an additional layby application of a dinitroaniline herbicide may be required for season long control.

2. Johnsongrass Control

Two applications of Poast or Fusilade at 0.5 lb/A will probably be required. Use crop oil at the rate suggested on the label.

First application - Johnsongrass should be growing actively with no stress for moisture. Wait until Johnsongrass is near 10 inches in height. Cultivation prior to application may reduce control of weeds in the furrow. Cultivation following application will be very helpful. Roots of Johnsongrass cease growth shortly after application and gradually disintegrate. Cultivation will then remove the entire plant.

Second application - After several cultivations and probably an irrigation. Some of the Johnsongrass will begin to recover and make normal growth. The second application will likely be the most effective following an irrigation and again prior to cultivation to insure maximum coverage of the weeds. The second application has worked well following the first application by 2 weeks, 1 month, or 2 months. The important point to remember is to keep the cotton growing so that it can compete and stay ahead of the weeds. The Johnsongrass must not be stressed for moisture when the second application is made.

3. Bermudagrass Control

Two applications of Fusilade or Poast at 0.5 lb/A will probably be required. Use crop oil at the rate suggested on the label.

First application - Dense stands of bermudagrass emerging before and with the cotton are very competitive. Cotton seedlings often cease growth and appear severely stressed shortly after emergence. The first application of herbicide should be applied prior to these severe stress symptoms on the cotton, when possible, and before cultivation. Cultivation and irrigation should follow this application. The cotton, if already stressed from bermudagrass competition, will not begin to make normal growth until soil moisture and soil fertility have been restored. The first application of herbicide, therefore, may successfully stop the growth of the bermudagrass, but appear to have failed because the cotton will not resume its growth.

Second application - The second application of herbicide will be required when the bermudagrass begins to make normal regrowth. This may be in a few weeks or over a month in time. Cultivation following treatment will improve control. As with Johnsongrass, these herbicides restrict bermudagrass root development following treatment. Cultivation following treatment is made much more effective and the plants are easily torn loose from the soil. The herbicide, plus cultivation and plant competition, will allow the cotton to shade out the remaining bermudagrass and sustain normal growth.

Cotton Injury

Fusilade and Poast may cause spotting of the leaves, bronzing, and leaf distortion of the cotton. This has never appeared to permanently reduce cotton growth or yield in the fields where serious weed competition occurs. Where these herbicides have been tested under weed-free conditions, occasionally, some yield reduction has occurred. This has been only from applications made during the heavy fruit setting period in July, not from applications made in May through June.

Water Run Caparol for Pre-emergence Weed Control in Cotton

Don Howell, County Director, and Stan Heathman, Extension Weed Specialist

Summary

None of the 3 water run Caparol treatments were as effective as sprayed Caparol for pre-emergence weed control in cotton. The best treatment in the trial was a Prowl-Caparol tank mix. Water run Caparol was not uniformly distributed in the field. Rates of Caparol at 1 lb/A caused unacceptable injury to emerging cotton. The 2 lb/A rate eliminated cotton stands.

The possibility of applying prometryn (Caparol) in irrigation water could save the cost of application for applying this material with conventional spraying.

A demonstration on the James Heard farm near Wellton, comparing water run Caparol with Mr. Heard's standard treatment was conducted. Cotton was planted on June 23rd. Treatments and germination irrigation were applied on June 23rd also.

Cotton was planted on 30-inch beds with 2 rows per bed 30" apart at 12 lbs of seed/acre. DPL 70 was the variety of cotton. Soil type was silt loam. Air temperature at treatment time exceeded 100° F. Evaluations were made on July 26, after which the area was plowed up to keep escaped weeds from going to seed. Broadleaf weeds present were groundcherry, carelessweed and purslane. Grass present was barnyardgrass and southwestern cupgrass.

The test area was divided into 3 areas for evaluation purposes to monitor the movement of the water run herbicide. The areas were: 1. Head end or the 1/3 nearest head ditch, 2. The center 1/3 of the field, 3. The tail end 1/3 of the field. The field was 250' long. Plots were 1 furrow size with the 2 adjacent rows of cotton the length of the field. There were replications per treatment. Water was allowed to run into the area until water subbed past all of the rows of planted cotton. Water run required 3 hours. Run was started at 2:20 PM. By 3:30 PM, all rows of water had reached the end of the run. The field was deadlevel.

Treatments are shown in Table 1. Summarized data is displayed in Tables 2, 3 and 4.