

## C. WEED CONTROL

### Herbicide Combination In Cotton

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The following herbicides are now registered for use in cotton: CIPC, dalapon, DCPA, dicryl, diuron, DSMA, linuron, monuron, MSMA, norea, petroleum oils, prometryne, trifluralin and combinations of herbicides with various surfactants.

Some of these herbicides which are effective against grasses do not control all broadleaved weeds. Others control broadleaved weeds but have little effect on grassy weeds. When the weed problem is a single species, one herbicide may provide effective control. However, in most cotton producing areas of Arizona annual weed infestations contain a mixture of grassy and broadleaved weeds. The best control for this type of infestation usually is a combination of herbicides.

#### Many application methods

Herbicide combinations can be applied one or more times during each season. They can be applied before furrowing, or preplanting irrigation, or seedbed preparation. In limited areas one or more herbicides are applied immediately after planting. After cotton emerges, herbicides can be applied in combinations in a single application or individually at two or more times. The choice will depend on the relative cost of herbicides and applications, the availability of labor and equipment, and the germination pattern of weeds.

The herbicide combinations of trifluralin and diuron are effective on the weed infestations at the Cotton Research Center in Phoenix, where the dominant weeds are groundcherry, carelessnessweed, and several annual grasses. The annual grasses and carelessnessweed can be controlled by an application of 3/4 pound per acre of trifluralin. However, this herbicide does not control groundcherry. Diuron at the rate of 1 to 1-1/4 pounds per acre gives season-long control of groundcherry but annual grasses are not controlled with the maximum cleared rate of 1.6 pounds per acre.

A combination of trifluralin and diuron will control annual weeds and with less herbicide than if either were used alone. It can be applied pre-planting, postemergence, or one herbicide, preplanting; the other, post-emergence.

Effects of the trifluralin-diuron combination on cotton and weeds in one experiment at the Cotton Research Center are summarized in the following table.

Weed Control and Cotton Yield in Herbicide Combinations Test at the Cotton Research Center in 1964.

Treatment					Weed Control Percent estimated 9/30/64		Yield of seed cotton in pounds per acre
Treatment		Date	Layby		Broadleaf	Grasses	
Herbicide	lb./A		Herbicide	lb./A			
trifluralin	.75	6/18	diuron	1.25	94	96	2,720
trifluralin	.75				79	96	2,420
		6/18	diuron	1.25	95	81	2,420
Check-cultivated and handweeded					99	96	2,720
Check-cultivated					0	0	1,170

The combination produced excellent weed control and yields equal to those of hand-weeded cotton. Trifluralin, alone controlled grass, but not broadleaved weeds. Diuron achieved the reverse. Use of only one herbicide permitted increased weed competition which reduced yields.

Shift with the opposition

Herbicide combinations should be altered for specific weed problems. Where morningglories are present, monuron might be applied at layby in place of diuron. If small weeds became established in the row, DSMA or diuron with surfactant could be applied as a directed spray. In fields where pre-planting applications of trifluralin might injure cotton, DSPA could be used.

Combinations have several advantages over single herbicides, giving better control of mixed weed infestations, and minimizing the buildup of weed species resistant to one herbicide. Combinations may permit a lower total rate than a single herbicide, resulting in less danger to cotton and usually costing less. Lower rates should mean less residues to affect following crops, and this may be their greatest importance.

To assure season-long control, selection of combinations should be based on performance of individual herbicides in the field. The grower should vary herbicides, rates, times and methods of application from field to field, depending on weeds, soil type, irrigation practices and crop rotations. Growers experienced with individual herbicides will have an advantage in selecting the best combinations.

Look at the label

All use of herbicides should be in accordance with restrictions and directions on the manufacturer's label. Before using the herbicides mentioned in this article, a potential user should consult with his local Extension Service representative for guidance.

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