

HERBICIDE COMBINATIONS FOR WEED CONTROL IN GLADIOLUS

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One of the problems associated with the use of herbicides in gladiolus plantings is that no one herbicide controls all species of weeds. Although Karmex (diuron) can be safely used to control most weeds in gladiolus corms (bulbs), the rates of application that are required (1-1 1/2 lb. active ingredient per acre) are not consistently safe for use on cormels (bulblets). The lower rates that are safe for cormels often do not provide adequate control of annual grasses. Similarly, the herbicides that are effective against annual grasses--Dacthal (DCPA), Treflan (trifluralin) or Planavin (nitralin)--do not control certain common weeds such as ragweed and galinsoga. Therefore, tests were conducted with combinations of low rates of Karmex with annual grass killers for season-long weed control in gladiolus cormels.

Experiments with herbicide combinations were conducted with cormels of the variety Torchy in 1971 and with White Friendship, Pink Romance, and Torchy during 1972. The preplanting sprays of Treflan were incorporated into the upper 2 inches of soil. Karmex, Dacthal and Planavin were sprayed on the soil surface after planting and before weed emergence.

Outstanding herbicide treatments during both years were combinations of Karmex at 1/2 lb. active ingredient per acre plus Dacthal at 10 lb./A, or Planavin at 1 1/2 or 2 lb./A. In 1971 Karmex at

1/2 lb./A plus Treflan at 3/4 lb./A provided excellent weed control without injury, but in 1972 Treflan at 1 1/2 lb./A injured the cormels that weighed 37 percent less than did the plots that were handweeded every 10 days. In all varieties, the combinations of Karmex plus Dacthal or Planavin produced yields of corms that were greater than the weedy controls. In the varieties Torchy and White Friendship, these combinations produced yields that were greater than or equal to the handweeded controls. Therefore, weeds seriously compete with gladiolus cormels, and herbicides properly applied offer great potential savings in labor to produce a crop.

A second test during 1972 in corms of the variety Torchy showed that the Karmex-Dacthal combination also was effective on emerged seedling weeds. Seedlings of annual broadleaved weeds were killed. Seedlings of all annual grasses were not killed but the root systems of surviving grasses were severely retarded so that they were easily removed by a shallow cultivation or scraping. Although the emerged gladiolus plants from corms were not injured, it is not yet known whether plants from cormels will tolerate a postemergence spray of this combination.

The rates of herbicide application used by growers of gladiolus must be altered somewhat to account for soil texture and organic matter content. These experiments were conducted on a sandy loam soil of low organic matter content. Soils of finer texture or higher in organic matter content usually require higher rates of herbicide for adequate weed control, and coarser textured soils require lower rates to prevent crop injury due to excessive leaching of herbicides to root zones.

Table 1. Effects of herbicides on control of broadleaved three varieties of gladiolus cormels--1972.

Herbicide	Rate a.i. lb./A	Percentage control of broadleaved weeds		
		July 5	Aug 9	Oct 11
Check--weed free (handweeded until Sept.)		98	98	0
Check--weedy (weeded monthly)		18	0	0
Karmex (diuron)	1/2	98	81	84
	1	98	95	96
Dacthal (DCPA)	10	68	56	41
Treflan (trifluralin)	1 1/4	74	84	45
Planavin (nitralin)	2	94	69	79
Karmex+Dacthal	1/2+10	98	96	97
Karmex+Treflan	1/2+1 1/4	99	99	98
Karmex+Planavin	1/2+2	99	94	96
Least significant difference between two means				
95% probability				

weeds and yields of corms from

Relative weights of corms		
Pink	White	
Romance	Friendship	Torchy

100	100	100
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66	59	64
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83	101	103
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59	101	82
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112	85	102
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64	62	63
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98	87	108
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81	108	110
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40	76	62
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87	103	112
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26	31	36
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In summary, the combinations of lower than standard rates of Karmex with standard rates of Dacthal or Planavin provided season-long weed control and excellent yields in gladiolus cormels. Combinations of Karmex and Dacthal were effective either preemergence or postemergence in plantings of gladiolus corms without reducing yields of cut flowers or corms.