* *

1955 GLADIOLUS WEED CONTROL

Arthur Bing
Ornamentals Research Laboratory
Farmingdale, Long Island, New York

Experiments carried out the past several years by Bing (1), Carlson (2), Jenkins (3), Holm & Beck (4), and Wolz (5) have shown that several materials were effective when used as preemergence sprays to control weeds in gladiolus plantings. Also corm yields in many instances were higher from treated plots than from untreated plots. Materials that have shown to be most promising include forms of 2, 4-D, TAT-GW, Dinitro (Premerge, Sinox), Crag #1, Chloro IPC, and CMU.

This years experiment was to include preemergence treatments with Dinitro, Crag #1, Chloro IPC, Karmex DW (a form of CMU), and N5521 (a relative of Chloro IPC). Cormels of varieties Elizabeth the Queen and Edith Cave Cole were planted 1,000 per plot. The equal numbers in each lot were determined by weighing carefully graded cormels. The cormels were planted in an 8 x 10 replication giving 8 rows of 10 plots each. Each plot contained a half-plot of each variety. The treatments were distributed at random on these plots.

The cormels were planted 3 inches deep with 1,000 per 4 feet with 2 feet between plots and 3 feet between rows. The cormels were planted May 1 and covered with a hill of soil. This was raked down and irrigated May 15 and sprayed with chemicals on May 17. One gallon hand sprayers with No. 730385 Tee Jet spray nozzles were used to distribute the liquid herbicides. Materials used are shown in the following list:

Crag #1	4 lbs. per 100 gallons per acre
Crag #1	6 lbs. per 100 gallons per acre
Chloro IPC	6 lbs. per 100 gallons per acre
Chloro IPC	8 lbs. per 100 gallons per acre
Karmex DW	3/4 lbs. per 100 gallons per acre
Karmex DW	1 1/2 lbs. per 100 gallons per acre
M5521	6 lbs. per 100 gallons per acre

The dinitros were not used because of other experimental crops such as cotton which was planted close by and which could easily be injured by drift of the dinitro as the prevailing wind was in that direction. The plots scheduled for dinitro treatment were carried as checks for weed counts and then, after hand weeding, were given a postemergence treatment with granular Chloro IPC.

After treatment the plots were frequently observed. Weed control on all treated plots was effective but less so from the Crag #1 treatments. Moisture was not a problem as frequent overhead irrigation was used. The Chloro IPC and Karmex DW treatments gave lasting control as can be seen in Table I. The readings of 0-5 were made by two independent observers on July 1. All materials gave a significant decrease in weed population. The Crag #1 plots were weeded and resprayed in mid-July.

The granular Chloro IPC was applied with a Lawn Beauty Spreader July 20. The 2% granular was applied at a rate of 200 lbs. per acre and the 4% was applied at a rate of 100 lbs. per acre, both giving an application of 4 lbs. actual Chloro IPC per acre. This looks promising for postemergence weed control and will be more adequately tested this coming season.

None of the herbicides caused any visual injury to the gladiolus plants. All corms and readily adhering cormels were dug around September 1, washed and then cured at 80 - 90°F for two weeks, cleaned, held at 80°F for a week and the weights of large, medium and small corms and cormels were recorded. Table II shows the effects of treatments on total yield. Higher yields on most treated plots are probably due to reduction of gladiolus plant stand in Check and Crag #1 plots caused by hand weeding--this is one of the best reasons for using chemical weed control. The Chloro

Con't on page 3.

Gladiolus--Con't from page 2.

IPC and Karmex DW treatments were very effective against weeds (Table I) and increased yields (Table II).

After several years experimentation by the author and others, several materials have shown up very favorably as preemergence sprays and are shown in order of preference in Table III. Larmie (6) of Rhode Island has shown that Karmex DW at 1/2 lb. per acre is fairly effective as a later herbicidal spray for larger corms. This coming season attention will be shifted to postemergence treatments that may possibly be used to follow the effective preemergence treatments.

References

1. Bing, Arthur. Gladiolus Weed Control Experiments 1953. The Gladiolus 1954: 85-91.

   Bing, Arthur. Gladiolus Weed Control Experiments 1954. The Gladiolus 1955: 78-82.

2. Carlson, R. F. Practical Weed Control in Gladiolus. The Gladiolus 1053:83-85.

3. Holm, L. & G. Beck. The Effect of Herbicides on Gladiolus Flower, Corm, and Cormel Production. Proceedings of the American Society for Horticultural Science. 63:447-452, 1954.

4. Jenkins, J. M. From data published in Weed Control Summary. North American Gladiolus Council Bulletin (37):85 March, 1955 and (45):81 March, 1956

5. Wolz, S. S. From data published in Weed Control Summary. North American Gladiolus Council Bulletin (37):85 March, 1955 and (45):81 March, 1956

6. Larmie, W. E. Chemical Weed Control in Gladiolus. The Gladiolus 1955:138-144

TABLE I

Control of Weeds

Treatment		Weed Growth on July 1[a]								
	Rate per	Row								
Material	100 gal./A	A	B	C	D	E	F	G	H	Average[c]
Crag #1	4 lbs.	4	4	3	2	1	3	4	2	2.9
Crag #1	6 lbs.	2	4	0	2	1	1	2	2	1.8
Chloro IPC	6 lbs.	0	1	1	0	0	2	0	2	0.8
Chloro IPC	8 lbs.	0	0	1	0	1	0	2	2	0.8
Karmex DW	3/4 lb.	1	2	3	0	2	0	1	0	1.1
Karmex DW	1 1/2 lbs.	1	0	0	0	0	0	0	0	0.1
N5521	6 lbs.	3	1	0	0	1	3	2	2	1.5
Check		5	5	5	5	5	5	5	5	5.0
	Dry									
Granular Chloro IPC[b]	200 lbs.	5	5	5	5	4	5	5	5	4.9
Granular Chloro IPC[b]	100 lbs.	5	5	5	5	4	5	5	5	4.9

(a) 0 - no weeds
1 - very few weeds
2 - few weeds
3 - some weeds
4 - many weeds
5 - very weedy

(b) Postemergence treatment July 20.

(c) 5% level 2.1
1% level 2.69

TABLE II

Effects of Herbicides on Yields of Cormels

Treatment		Yield in grams of corms and cormels								
	Rate per	Row								
Material	100 gal./A	A	B	C	D	E	F	G	H	Average[c]
Crag #1	4 lbs.	180	205	125	201	115	232	220	196	184
Crag #1	6 lbs.	153	196	270	57	227	181	246	125	182
Chloro IPC	6 lbs.	305	383	151	363	84	240	281	103	239
Chloro IPC	8 lbs.	342	318	301	335	212	292	356	91	281
Karmex DW	3/4 lb.	253	197	352	335	265	231	317	312	283
Karmex DW	1 1/2 lbs.	452	296	390	299	290	255	236	308	316
N5521	6 lbs.	239	270	325	321	249	188	270	232	262
Check		195	241	258	193	260	93	263	127	205
	Dry									
Granular Chloro IPC 2%[b]	200 lbs.	297	181	353	92	206	262	260	176	228
Granular Chloro IPC 4%[b]	100 lbs.	295	326	290	275	206	306	53	142	237

(a) Planted May 1. Each lot 1,000 cormels, var. Elizabeth the Queen. Harvested September 1.

(b) Postemergence treatment July 20.

(c) 5% level 20.2
1% level 26.9

Con't on page 4.

Gladiolus--Con't from page 3.

TABLE III

Available Materials Effectively used as Preemergence Herbicides on Gladiolus

Code Name	Chemical Name	Rate per Acre in 40-100 gals. of water
Chloro IPC	47% Isopropyl N (3-chloro phenyl) carbamate	4-8 quarts
Dinitro (Premerge) (Sinox P. E.)	53% Alkanolamine salts of dinitro ortho sec butyl phenol	4-6 quarts
Karmex DW (CMU)	80% 3- (3, 4 dichlorophenyl)-1. 1 dimethyl urea	3/4-1 1/2 lbs.
2, 4-D	Esters of 2, 4-dichlorophenoxy acetic acid	1-3 lbs.
Crag #1	90% sodium 2, 4-dichloro phenoxy ethyl sulfate	3-6 lbs.

* *