Postemergence Control of Crabgrass

A study was initiated to examine a new class of postemergence grass herbicides that have shown promise as selective crabgrass herbicides. The herbicdes that were tested in this study were Hoelon, Poast, Fusilade, DOWCO 4532, CGA 82725, and a commercial formulation of methanearsonate. The two numbered compounds are experimental materials under development by Dow Chemical and CIBA-GEIGY.

The results of this study are shown in Table 4. The materials which looked the best were DOWCO 453 at 0.2 lbs/A and Poast at 0.2 lbs/A. Another treatment which looked good was Hoelon at 3.0 lbs/A with a second application of 1.5 lbs/A at 10 days after the first application. The experimental herbicide CGA 82725 performed fairly well at a rate of 0.5 lbs/A but that rate seemed too low to give as good control as the above mentioned treatments.

Table 4. 1983 Post Emergence Crabgrass Control. Hancock Turfgrass Research Center. Rate: 9/8/83. Treated: 8/2/83.

Treatment		Rating
Chemical	Rate	0 = 9; 0.1 = no crabgrass
Dowco 453 + OC	0.2 lb ai/A	0.1 A*
Dowco 453 + OC	0.2 + 0.1 lbs ai/A	0.1 A
Poast + OC	0.2 lb/A	0.1 A
Poast + OC	0.2 + 0.1 lbs	0.1 A
Hoelon	3.0 + 1.5 lb ai/A	0.3 AB
CGA 82725 + OC	0.5 + 0.25 lb ai/A	0.5 AB
AMA 2 apps.	Recommended Rate	0.7 A-C
CGA 82725 + OC	0.156 lbs ai/A	0.8 A-D
CGA 82725 + OC	0.5 lbs ai/A	0.9 A-D
CGA 82725 + OC	0.25 lbs ai/A	1.0 A-D
Dowco 453 + OC	0.05 lbs ai/A	1.2 A-D
Dowco 453 + OC	0.1 lbs ai/A	1.2 A-D
Poast + OC	0.1 lbs ai/A	1.5 A-E
Poast + OC	0.15 lbs ai/A	1.5 A-E
Fusilade + OC	0.15 lbs ai/A	1.7 A-E
Fusilade + OC	0.2 + 0.? lbs ai/A	2.0 B-E
Hoelon	2.0 lbs ai/A	2.3 C-F
Heolon	3.0 lbs ai/A	2.5 D-F
Hoelon	1.0 lbs ai/A	3.2 E-G
Fusilade + OC	0.1 lbs ai/A	3.8 F-H
Am 1 app.	Recommended Rate	4.3 G-I
Check		5.2 HI
Check		5.5 I

* Treatments having the same letter are not significantly different. Mean separation by Duncan's MRT (5%).

Interestingly, there was little phytotoxicity with any of the herbicides, although DOWCO 453 and CGA 89725 did seem to show some potential for phytotoxicity. This study was conducted on a turfgrass consisting predominately of annual bluegrass and fine fescue. Another field study was initiated to look at the phytotoxicity potential of these herbicides on Kentucky bluegrass. This study was put out on August 28 at the Hancock Turfgrass Research Center.

The three herbicides which showed the most promise, Poast, CGA 82725, and DOWCO 453, were tested on Kentucky bluegrass along with HOE 35609, an experimental herbicide for quackgrass control. The three herbicides from the original postemergence study all showed unacceptable levels of injury. The data in Table 5 shows ratings of the treatments 47 days after application. At this time the Paost treatments had recovered from the herbicide injury but DBA 82725 and DOWCO 453 treatments still had not recovered. The injury from these herbicides develops slowly taking 3-5 weeks for the grass to go off color. The injury symptoms were exhibited for a period of about six weeks. The length of time the injury symptoms are expressed is totally unacceptable on Kentucky bluegrass. The fact that these herbicides seem to be much less phytotoxic to annual bluegrass and fine fescue merits further research.

Table 5. Phytoxicity to Kentucky Bluegrass with New Herbicides. Hancock Turfgrass Research Center. Treated: 8/28/83. Rated: 10/14/83.

Treatment		Rating
Chemical	Rate	Lowest Rating Indicates Least Phytoxicity
Poast + OC	.2 lb/A	1.0 A
Poast + OC	.15 lb/A	.13 A
Hoe 35609	.5 lb/A	1.5 A
Check		1.7 AB
Hoe 35609	1.0 lb/A	2.3 AB
CGA 82725 + OC	.25 lb/A	3.0 B
CGA 82725 + OC	.5 lb/A	4.8 C
Dowco 453 + OC	.2 lb/A	5.7 C
Dowco 453 + OC	.15 lb/A	7.7 D

* Treatments having the same letter are not significantly different. Mean separation by Duncan's MRT (5%) Standard error = .4; F = 30.59.

Environmental Fate of Agricultural Chemicals Using Model Ecosystems

To complement the field studies on pesticide efficacy, a model ecosystem has been developed to examine the total fate of an agricultural chemical applied to turf. These model ecosystems will go far beyond field studies in providing clues as to how pesticides are affected by soil and thatch and how to improve pesticide effectiveness.

The model ecosytem consists of a 31.5 x 30.5 x 5.0 cm (LxWxH) stainless steel base on top of which rests a 23.5 x 31.4 x 16 cm (LxWxH) glass chamber. The glass chamber was constructed from 0.625 cm plate glass. On one face of