

The dinitroaniline type herbicides such as PreM, Balan, and Team all gave good control, however, the higher rates or split applications performed better than the standard label rates.

The postemergence trial was conducted as three separate tests with applications at the 2-3 leaf crabgrass growth stage (appl. date 6-2-89), the 2-4 tiller growth stage (appl. date 6-23-89), and the 4-6 tiller growth stage (appl. date 7-7-89). Results (Table 6) indicate that Acclaim gave good to excellent control of crabgrass through the 2-4 tiller application. Combinations of Acclaim plus preemergence herbicides gave excellent control when applied on the 6-2-89 date. MON-15151 or other formulations of the dithiopyr active ingredient gave excellent postemergence control of crabgrass at the early (2-3 leaf) stage. At the later growth stages, however, the MON-15151 did not provide any control. The BAS 514 (to be named Impact when registered by the EPA) gave excellent control at all three growth stages with rates of 0.75 LB/A or above yielding 95% control or higher at 2 weeks after treatment.

BROADLEAF WEED CONTROL

Three separate broadleaf weed control studies were conducted in 1989 on four broadleaf weed species. The weed species were dandelion, white clover, buckhorn plantain, and creeping speedwell. Results are shown in tables 7-10. One new product which is attracting considerable attention is called Confront from Dow Chemical. Confront is a mixture of two broadleaf herbicides called triclopyr and clopyralid. Triclopyr plus 2,4-D make up the Turflon products so the Confront can be thought of as broadleaf herbicide without 2,4-D. The data displayed in tables 7-10 show that Confront performs as well as or better than the other commonly used broadleaf mixtures on dandelion, white clover, and buckhorn plantain but fell down on the control of creeping speedwell. The data also indicate that for most of the common broadleaf weeds, good control should be obtained if applications are made when the weeds are actively growing.

FAIRWAY MANAGEMENT STUDY

In August of 1987, a study was initiated at six golf courses around the state to determine the effects of Prograss, Cutless, and Scott's TGR on the competition between annual bluegrass and creeping bentgrass. Treatments of the plant growth regulators were applied in August of 1987, 1988, and 1989 and in April of 1988 and 1989. Prograss was applied in September and October of 1987, 1988, and 1989. Results in table 11 show the percent

control of annual bluegrass taken in August of 1989. This study will be continued for at least one more year.

The data indicate that all three products increase the amount of creeping bentgrass present in the turf. The PGR's have shown the best results but have also had the most treatments, five, compared to three Prograss treatments. An interesting point is that at each course, the amount of increase in bentgrass in the untreated (control) plot is about one-half of the best PGR treatment. Thus, The PGR's simply speed up a process which is occurring naturally on its own. The Prograss does show some progress especially at the higher rates but there is a price to pay for that progress. Prograss works by either injuring or killing the annual bluegrass when it comes out of dormancy in the spring. This means that by the spring, the annual bluegrass in the turf is in poor condition and this is the time when the creeping bentgrass can outcompete and fill in the injured areas. But the early spring is not a time when the bentgrass is growing rapidly so while some gain in bentgrass is made, the annual bluegrass recovers and fills back in. Using Prograss can therefore be difficult because of the amount of early spring quality losses that have to be suffered to achieve the conversion. The PGR's, on the other hand, cause some discoloration but not to the extent of the Prograss. Also, these chemicals are generally applied in April and/or August and exert their effect for the next 6-8 weeks which is prime growing conditions for grasses which permits the bentgrass to fill in more rapidly.

Thus these products are both useful but in different ways. The PGR's make sense to use in a conversion program where there is still quite a bit of annual bluegrass present. Prograss would be useful in a situation where creeping bentgrass or another desirable species dominates the turf and the Prograss is used to kill any annual bluegrass that is present and to prevent more from filling back in. At this time, we would not recommend using Prograss on fairway turf containing less than 80% bentgrass unless low rates are used to achieve a slow transition.

Table 11. Percent control of AB at 6 Locations in Michigan rated 8/89.

<u>TREATMENT</u>	<u>LOCATIONS</u>					
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
Flurprimidol 0.6 kg/ha	11	67	34	73	24	60
Flurprimidol 0.8 kg/ha	9	74	54	77	40	63
Paclobutrazol 0.4 kg/ha	49	70	66	75	57	52
Ethofumesate 0.8 + 0.8 kg/ha	1	33	18	79	36	19
Ethofumesate 0.8 + 1.7 kg/ha	6	62	64	80	48	46
Ethofumesate 0.4 + 1.7 kg/ha	2	37	32	72	44	48
Control	0	47	28	67	3	52
Location Avenue	11	56	42	75	36	47