POSTEMERGENCE WEED CONTROL IN CORN

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Under normal weed management program, growers use either preplant incorporated or preemergence herbicides. However, these weed control methods may not provide excellent weed control under conditions of heavy rainfall or flood, and long period of drought following herbicide application. Under these conditions, alternative methods of weed control should be available to our growers. Postemergence herbicides can effectively be used as a rescue operation for weed control. Stages of weed growth and crop growth are two important guiding factors that determine the possibility of using herbicides in postemergence. If weeds are too large, then effective control may not be up to our expectations. On the other hand, crop injury can be expected from the application of late postemergence herbicides. In general, stage of corn growth restricts the use of postemergence herbicides.

The experiment was conducted in 1983 at the Massachusetts Agricultural Experiment Station, South Deerfield. The experimental area was heavily infested with fall panicum, large crabgrass, common lambsquarters, and redroot pigweed. All postemergence treatments were applied with a backpack CO_2 sprayer at 22 psi delivering 40 gpa. Corn 'Cornell 281' was planted in 36 inch rows on May 11, 1983. Early postemergence treatments were applied June 14 when the grasses were at the 3-4 leaf stage and the broadleaf weeds were at the 4-pair leaf stage. Corn was at the 5 to 6 leaf stage. Weed control ratings (0 to 100%) were taken June 30. Corn was harvested September 12, 1983 for yield determination.

Control of grasses ranged from fair (68%) to good (88%) with combinations of atrazine and pendimethalin, from good (83%) to excellent (96%) for atrazine and Dow 356 combinations, good (87-90%) for the atrazine and bentazon treatment, and excellent (96-100%) for all cyanazine and pendimethalin combinations (Table 1). All herbicide treatments provided excellent (above 90%) broadleaf control. Silage, at 70% moisture for stalks and 32% for ears, was high (above 20 tons/A) for all treatments with the check topping the list at 25.6 tons/A. Ear weights (25% moisture) were similar at 4.2 tons/A for cyanazine and pendimethalin at 2 + 1 lb/A to 5.0 tons/A for cyanazine and pendimethalin at 1.5 + 1.5 lb/A, atrazine and Dow 356 (experimental) at 1.5 + 0.25, and the untreated check. Grain yield ranged from 79.6 bu/A for cyanazine and pendimethalin at 2 + 1 lb/A to 96.2 bu/A for atrazine and Dow 356 at 1.5 + 0.25 lb/A.

Table 1. Control of large crabgrass, fall panicum and broadleaf weeds and corn yields as affected by various postemergence herbicide combinations

Treatment	Formulation	Rate (lb/A)	Method of Application	Weed Control			plants/	Yield		
				LACG	FAPA	BL	9 ft	silage	ears	grain
				(%)			#	tons/A		bu/A
1. Cyanazine + Pendimethalin	80W + 4E	1.5 + 1.0	EP	96	99	100	15.0	22.9	4.3	80.0
2. Cyanazine + Pendimethalin	80W + 4E	1.5 + 1.5	EP	99	99	100	16.7	24.2	5.0	92:7
3. Cyanazine + Pendimethalin	80W + 4E	2.0 + 1.0	EP	100	100	100	15.0	20.9	4.2	79.6
4. Cyanazine + Pendimethalin	80W + 4E	2.0 + 1.5	EP	99	100	100	15.7	23.3	4.4	81.6
5. Atrazine + Pendimethalin	80W + 4E	1.5 + 1.0	EP	68	83	97	15.3	22.5	4.7	90.2
6. Atrazine + Pendimethalin	80W + 4E	1.5 + 1.5	EP	80	88	100	16.7	24.7	4.9	93.2
7. Atrazine + Dow 356 *	80W + 4E	1.5 + 0.25	EP	83	83	100	16,7	24.9	5.0	96.2
8. Atrazine + Dow 356 *	80W + 4E	1.5 + 0.5	EP	88	96	100	16.0	23.5	4.3	80.9
9. Atrazine + Bentazon (PM)	3.32 F	1.0	EP	87	90	100	14.7	21.1	4.8	91.7
10. Hoed Check	-	-	-	0	0	0	17.7	25.6	5.0	93.5
$LSD_{0.05}$				12	5	3	3.9	7.0	1.4	27.3

* Crop oil conc. used at the rate of 1 qt/A.
BL included COLQ and RRPW