Research Note

PRE- AND POS-EMERGENCE CONTROL OF VASEY GRASS (PASPALUM URVILLEI STEUD.) WITH SEVERAL HERBICIDES[1]

Vasey grass (*Paspalum urvillei* Steud.) thrives along pineapple fields of the Land Authority of Puerto Rico, specially those in Barceloneta. This weed is a robust, erect, perennial, commonly found throughout the southern United States. A warm season bunchgrass indigenous to southern Brazil and northern Argentina, it grows in moist, sandy soils. It often attains a height of 2 meters[2,3]. On the one hand, vasey grass is a weed in pineapple fields; on the other hand, with proper management it is an acceptable forage grass and high quality hay. This species is a dense tufted tussock-forming perennial, tall and coarse. The seed stalks, hairy and purplish at the base, grow very high. The leaf blades are 3 to 15 in. long and may be 1/2 in. wide[3]. This weed escapes the preemergence herbicide treatment in the fields.

Two greenhouse experiments were conducted in Río Piedras in an attempt to evaluate preemergence and postemergence effect of several herbicide formulations for the control of Vasey grass. Previous results indicated that herbicides such as hexazinone, bromacil, diuron, ametryn, atrazine, and terbutryn in preemergence applications are effective in the control of certain grasses such as Alexander grass[4]. Glyphosate, if applied postemergence, is effective for the control of grasses[5].

The purpose of this study was to determine the effect of five commonly used preemergence herbicides and two postemergence herbicides on Vasey grass.

A preemergence experiment was initiated July 1985 to determine the effect of various herbicides alone and/or in combination in the control of Vasey. Tufts of Vasey grass 5 cm. in diameter and 22.5 cm high were obtained at random from patches in the vicinity of Barceloneta and transplanted into plastic trays 20 cm wide, 20 cm long and 23 cm deep. The trays contained equal amounts of sand and loam with a pH 5.53. After a 1-month establishment period, the grass was clipped 3 cm above the soil level and fertilized with 200 kg/ha of 15-5-10 fertilizer. After the second month, the grass was again clipped 3 cm above the soil level and fertilized with 100 kg/ha of 15-5-10 fertilizer. After these 2-month periods, the trays were divided into groups of five. Each group received one of the following herbicide treatments: Hexazinone at the rate of 0.5 and 1.0 kg ai/ha, bromacil at 2 and 4 kg/ha, a mixture of ametryn + atrazine at 2 + 2 kg ai/ha, and terbutryn at the rates of 2, 4 and 8 kg ai/ha. One group of trays was left untreated. The above-mentioned differential treatments were completed October 1985. The experiment was arranged in a randomized complete block design with 4 replicates. After 1-month of treatment, clippings of Vasey grass from each tray

[1]Manuscript submitted to Editorial Board June 11, 1986.

[2]Havard-Duclos, B. 1969. Las plantas forrajeras tropicales. Colección Agric. Tropical, Editorial Blume, Barcelona, España.

[3]Judd, I. B. 1975. New World tropical forage grasses and their management. World Crops, July-Aug. 1975, pp.175-77.

[4]González-Ibáñez, J. Effectiveness of several herbicides on Alexander grass [*Brachiaria plantaginea* (Link.) Hitch.] control grown under glass. Submitted for publication.

[5]González-Ibáñez, J. 1984. Glyphosate for weed control in Puerto Rican pastures. J. Agric. Univ. P.R. 68 (3): 289-96.

were weighed, and the experiment was terminated. This phase of the study was conducted under greenhouse conditions from June to December 1985.

The second experiment was initiated October 1985 to determine the postemergence effect of glyphosate and fluazifop-butyl for the control of Vasey grass. Intact plants 7 cm in diameter and 30 cm high obtained at random from patches in the vicinity of Plazuela sector, Barceloneta, were transplanted in plastic trays (20 cm wide, 20 cm long and 23 cm deep). The trays were filled with sand. After 1-month establishment period, when all were green, 45 trays were divided into 5 groups. Each group received one of the following postemergence herbicide treatments: fluazifop-butyl 1.25% v/v (recommended rate for postemergence grass control), 10%, 20%, 40%; and glyphosate 2% v/v. Two groups were left untreated as checks. These herbicide applications were performed with a hand held sprayer. The experiment was arranged in a random block design with 9 treatments and 4 replications. After 15 days of treatment, plants were photographed and weighed, and the study was terminated after 30 days.

Fresh weights were statistically analyzed and treatment means compared with Duncan's multiple range test.

The following tabulation shows preemergence control of Vasey grass.

Herbicide treatment	*Rate kg ai/ha*	*Vasey grass control (weight in gm)*
Untreated	—	16.875 a[6]
Terbutryn	4	3.200 b
Terbutryn	2	2.100 b
Terbutryn	8	1.825 b
Ametryn + Atrazine	2 + 2	1.650 b
Bromacil	4	0.325 b
Hexazinone	0.5	0 b
Hexazinone	1	0 b
Bromacil	2	0 b

All herbicidal treatments either severely injured the grass or significantly controlled the grass. On the check plots, Vasey grass continued a normal growth so visual evaluations was considered an appropriate method to measure the herbicide effect. Among the herbicides evaluated, hexazinone at both rates and bromacil at 2 kg/ha provided the most efficient control of Vasey grass. In general, bromacil at 4 kg/ha followed by the mixture of ametryn + atrazine each at 2 kg/ha and terbutryn at 8, 2 and 4 kg/ha, respectively, also provided adequate control of the weed.

In the second trial, all doses of fluazifop-butyl caused scorching. Also, glyphosate exerted a similar effect. Vasey weed control 4 weeks after postemergence application of various doses of fluazifop-butyl and one dose of glyphosate in the greenhouse is shown below.

Herbicide treatment	*Concentration v/v (%)*	*Vasey grass control shoot fresh weight in g*
Untreated	—	12.4850 a[7]
Untreated	—	11.4219 a
Glyphosate	2.0	8.1296 b
Fluazifop	40.0	5.7189 b
Fluazifop	2.5	5.6237 b
Fluazifop	1.25	5.1005 b
Fluazifop	10.0	4.2705 b
Fluazifop	5.0	3.8415 b
Fluazifop	30.0	2.9481 b

Both herbicides at the doses tested exhibited significantly postemergence action, showing a great potential for Vasey grass control under actual field conditions. The data offered here cannot be compared with any other for there is no literature cited regarding this matter.

Jaime González-Ibáñez
Department of Crop Protection

[6]Values with a common letter within columns do not differ significantly (P = 0.01).
[7]Values with a common letter within columns do not differ significantly (P = 0.01).