Research Note

CHEMICAL CONTROL OF CLIMBING MIMOSA IN A LOCAL PASTURE[1]

Climbing mimosa (*Mimosa casta* L.) is reported to exist in Jamaica, the Lesser Antilles, Panama, Colombia, and Brazil.[2] In Puerto Rico, a closely related climbing mimosa, *Mimosa ceratonia* (L.) Raf., locally known as "zarza," was described by Vélez in his book published in 1950.[3] The presence of *M. invisa* and *M. casta* L. in Puerto Rico was confirmed by Liogier and Martorell in 1982.[2] Both species are spreading rapidly and infesting pastures in northeastern and eastern parts of humid Puerto Rico. All these species of mimosa have long recurved spines which tear both the tongues and udders of grazing cows. Consequently, it becomes a weed of particular undesirability in local pastures. The only information on chemical control of *M. casta* L. was published by Kasasian.[4] He found that the butyl ester of 2,4, 5-T (2,4,5-trichlorophenoxyacetic acid), at 1.12 kg ai/ha gave 95% kill of *M. casta* in a Pangola grass pasture in Trinidad.

A field experiment was conducted at the Gurabo Substation, AES-UPR, to evaluate herbicides for control of climbing mimosa. Weed Master[5] and Tordon 101 mixture[6,7] were tested in a single experiment in 1988. The experiment was arranged in a randomized complete block design with three replicates. A field naturally-infested with climbing mimosa was divided into 9 x 12 m plots. Weed Master and Tordon 101 mixture, at rates of 2.34 and 4.68 L/ha, were administered as aqueous foliar sprays 28 January 1988. The climbing mimosa plants were at blooming stage when treated. The spray volume was equivalent to 1,356 L/ha. Because weed control from the first application was not satisfactory, these plants were sprayed again 19 February 1988. Spray volume for the second application amounted to 1,018 L/ha. The predominant pasture grasses present in the experimental plots were para grass [*Brachiaria purpurascens* (Raddi) Henr.] and guinea grass (*Panicum maximum* Jacq.). Visual weed control performance was rated twice (19 February and 17 March, 1988). The evaluation scale was 0 to 100 (0 = no control, 100 = perfect control). Crop injury was also rated at the time of weed-control evaluation.

Weed Master at both rates gave only fair control at the first evaluation date (table 1). Tordon 101 mixture at its lower rate produced the same degree of control as Weed

[1]Manuscript submitted to the Editorial Board 22 April 1988.

[2]Liogier, H. A. and L. F. Martorell, 1982. Flora of Puerto Rico and Adjacent Islands: A Systematic Synopsis. Editorial de la Universidad de Puerto Rico, Río Piedras, P. R.

[3]Vélez, I., 1950. Plantas indeseables en los cultivos tropicales. Editorial de la Universidad de Puerto Rico, Río Piedras, P. R.

[4]Kasasian, L., 1963. The chemical control of *Mimosa pudica* and *M. casta* in a Pangola grass pasture. *Trop. Agric.* 40:315-17.

[5]Weed Master contains 15.5% of dimethylamine salt of dicamba and 35.75 of dimethylamine salt of 2,4-D. This herbicide is manufactured by the Velsicol Chemical Co.

[6]Tordon 101 mixture contains 10.2% of picloram and 39.6% of triisopropanol salt of 2,4-D. This herbicide is manufactured by the Dow Chemical Co.

[7]The mention of Weed Master and Tordon 101 mixture does not imply endorsement or preferential treatment by the Agricultural Experiment Station, Univ. of Puerto Rico.

TABLE 1.—*Effect of Weed Master and Tordon 101 mixture on the control of climbing mimosa at the Gurabo Substation, 1988*

Herbicide treatment	*Climbing mimosa control ratings at*[1] 2-19-88	3-17-88
1. Weed Master 2.34 l/ha	48 b[2]	90 a[2]
2. Weed Master 4.68 l/ha	66 ab	92 a
3. Tordon 101 mixture 2.34 l/ha	70 ab	100 a
4. Tordon 101 mixture 4.68 l/ha	83 a	100 a
5. Nonweeded check	0 c	0 b

[1]Weed control ratings are based on a scale of 0 to 100; 0 = no control; 100 = perfect control. Each value is the average of three replicates.

[2]Means followed by the same letter do not differ significantly at the 0.05 probability level.

Master at its high rate. However, Tordon 101 mixture at the high rate gave slightly better weed control. The overall weed control by one spray application was less than expected. This might be attributable either to slow action of the herbicides or to lower herbicide efficacy resulting from heavy rainfall. Some 762 mm of rain fell during the week of the first herbicide application. Table 1 indicates an improved weed control at the second evaluation date. Weed Master at both rates gave 90% or greater control of climbing mimosa. In the meantime, Tordon 101 mixture at either rate attained total weed control. In addition, both herbicides at their high rate gave excellent control of morning glory (*Ipomoea setifera* Roir), wild bean (*Vigna luteola* Jacq. Benth.), waterprimrose [*Ludwigia erecta* (L.) H. Hara], spreading dayflower (*Commelina difusa* Burm. f.) and wild hops (*Hyptis capitata* Jacq.). None of the herbicide treatments caused any apparent pasture injury. Both herbicides, at the rates tested, appear safe for the two pasture grasses mentioned above. A handweeded check was not included since both herbicides are known to be highly selective against grass crops including forages.[3] Moreover, it is important that these herbicides be applied before the formation of viable weed seed, thereby avoiding reinfestation via seed dissemination. If necessary, initial herbicide application should be repeated to ensure complete kill of the climbing mimosa. Both herbicides are approved for use in local pastures. However, a waiting period of 7 days is required for milking cows and one of 30 days is required for meat animals after each herbicide application.

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[3]Klingman, G. C. and F. M. Ashton, Weed Science: Principle and Practices 2nd ed., John Wiley & Sons, 1982.