Gibberellic acid inhibits greenbrier germination

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Seeds of common and cat greenbrier moistened with distilled water germinated better than those moistened with 1, 50, or 100 ppm solutions of GA_3 in a West Virginia study. Best germinations were 96 percent for common greenbrier after 9 months and 82 percent for cat greenbrier after 24 months.

Common greenbrier (Smilax rotundifolia L.) and cat greenbrier (S. glauca Walt.) may be regarded as nuisances to eradicate or else as excellent wildlife food and cover to establish or maintain. We favor the latter view and have found that common greenbrier seed is fairly easy to germinate but cat greenbrier is not. Because seeds of the latter species did not germinate readily we tried gibberellic acid (GA3) treatments.

Methods

Seeds from fruits collected in November and December at 18 locations near Morgantown were cleaned, mixed, and stored at 35° to 41 degrees F for 3 or 4 months. Then the seeds were soaked for 5 minutes in a fungicidal solution (liquid laundry bleach and water, 1:5) and lout into eight lots of 200 seeds. each lot divided into four replicates of 50 seed: each. Each group of 50 seeds was placed between paper towels that were moistened with either distilled water or a G-1s solution, the towels were rolled in a thin sheet of plastic, and the rolls placed upright in beakers containing either *distilled water or a GA3 solution. The* beakers were stored at about 72°F and germination was checked monthly for 2 years.

Results and Discussion

In the best treatment-distilled water-common greenbrier seeds required 4 Mouths to attain 90 percent of their germination potential (96 percent), whereas cat greenbrier seeds needed 15 mouths to reach the sauce proportion of a lower potential (86 percent, including 4 percent still alive but dormant after 24 months).

Gibberellic acid at each of three rates depressed germination of both species and had no compensating value in hastening germination. Differences between species and among treatment, were statistically significant (P.05. _Analysis of Variance). Negative effects of the acid may have heels less at 1 or 50 ppm than at 0 or 100 ppm, and this may help in understanding the seed dormancy mechanism. Otherwise, gibberellic acid had no value (table I).

Fortunately, common greenbrier is both easier to propagate from seed and cuttings (Halls and Alcaniz 1965), and more versatile for habitat management than cat greenbrier. However, we are continuing studies on propagating both species from seed and cuttings.

TABLE 1.—*Germination percentages of greenbrier seeds (200 per lot) in response to gibberellic acid*

Acid concentration,	Common greenbrier, 9 months	Cat greenbrier, 24 months	Difference between species
Ppm.	---------- *Percent* ----------		
	(a)	(b)	(a-b)
0	96	82	14
1	74	69	5
50	45	43	2
100	40	25	15

Literature Cited

Halls, L.K. and R. Alcaniz. 1965

Rooting cuttings of browse plants. USDA

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