

INFLUENCE OF DALAPON ON FLOWERING AND SEED YIELD OF
BIRDSFOOT TREFOIL (LOTUS CORNICULATUS L.)

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Perennial grasses, primarily quackgrass, may become established in birdsfoot trefoil seed fields and drastically reduce the seed yield of trefoil. Dalapon (Dowpon M) has been effectively used to control grasses in trefoil seed fields. It is also reported to control volunteer red and white clover when applied at the appropriate rate. In preliminary studies in Wisconsin with dalapon it was observed that, contrary to reported results, some injury may occur to the trefoil. Therefore, a two year study was initiated to evaluate the effects of dalapon on forage growth and seed production of birdsfoot trefoil.

Dalapon at the rate of 4.4 kg ai per ha was applied to replicated plots of a uniform stand of established 'Leo' birdsfoot trefoil in 1987 and 1988 when the forage growth of the trefoil was 4, 10, 16, or 22 cm in height. The studies were conducted in northern Wisconsin on the Agricultural Experiment Station, Ashland, Wisconsin.

Perennial grasses were most effectively controlled when dalapon was applied to the grass when it was 10 cm in height (Table 1.). Percent flowering and seed pod development and final seed yield were all reduced with later applications of the chemical. Volunteer red and white clover were present in some plots but not uniformly distributed through all treatments. However, observations would suggest that late applications of dalapon (trefoil at 16 or 22 cm) effectively suppressed seed production of the clover. Early applications, however, suppressed the initial growth of the clovers but subsequent regrowth produced seed.

These results would suggest that early applications of dalapon effectively controlled weedy grasses but was not effective in controlling the seed production of volunteer clovers. On the other hand, later applications of the chemical controlled the clovers but delayed flowering and reduced seed yield of the trefoil.

Table 1. Mean grass control, flowering, seed production and seed yield of birdsfoot trefoil treated with dalapon¹ in 1987 and 1988 in Ashland, WI.

Height of treated trefoil	Grass height	Grass ² control	Flower ²	Seed pod ²	seed yield
			----- % -----		-kg ha ⁻¹ -
Control	---	0	51	18	136
4 cm	8 cm	81	74	13	116
10 cm	15 cm	94	64	6	68
16 cm	22 cm	65	28	3	48
22 cm	30 cm	24	30	3	50
Mean	---	53	50	8	84
LSD(5%)	---	16	9	2	20

a Dalapon (Dowpon M) applied at the rate of 4.4 kg ai ha⁻¹.
 b Visual estimates determined on June 18 and 22, 1987 and 1988, respectively.

COOPERATIVE USDA/ARS--UNIVERSITY OF WISCONSIN LOTUS
 RESEARCH PROJECT, Madison, WI, USA
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Research objectives of the Cooperative USDA/ARS--University of Wisconsin Lotus project emphasizes 1) breeding and genetics of L. corniculatus for persistence, forage and seed yield, seedling vigor and forage quality; 2) management and cultural practices associated with trefoil seed production; and 3) cooperation in a multi-location convergent-divergent selection project directed by P. R. Beuselinck, USDA/ARS, Columbia, MO.