

Evaluation of Annual and Perennial Clovers for Tolerance to 2,4-D

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In southwest Louisiana many clover varieties have been evaluated in the past for forage production. Whether seeded in conventional seedbeds or overseeded on warm-season grass pastures, broadleaf weeds can severely limit legume dry matter production and reduce forage quality. When applied early in the spring, the herbicide 2,4-D can provide effective control of broadleaf weeds. Since many of the newly released varieties have not been evaluated for herbicide tolerance, studies were conducted to evaluate 2,4-D tolerance of 35 clover varieties representing 10 species.

Materials and Methods:

Thirty-five clover varieties representing ten species [arrowleaf (*Trifolium vesiculosum* Savi), ball (*T. nigrescens* Viv.), berseem (*T. alexandrinum* L.), crimson (*T. incarnatum* L.), kura (*T. ambiguum* (Bieb.), persian (*T. resupinatum* L.), red (*T. pratense* L.), rose (*T. hirtum*), subterranean (sub) (*T. subterraneum* L.), and white (*T. repens* L.)] were planted on a Crowley silt loam soil at the LSU Rice Experiment Station to investigate tolerance to 2,4-D. The experimental design used was a randomized complete block with four replications. Clovers were seeded on 28 October, 1981 at a rate of 15, 3.6, 20, 20, 10, 7, 12, 20, 20, and 5 lb/A for arrowleaf, ball, berseem, crimson, kura, persian, red, rose, sub, and white clovers, respectively. Clovers were fertilized with 24, 42, and 80 lb/A of N,P, and K, respectively. 2,4-D amine was applied on 3 March 1982 at a rate of 2 lb/A in a spray volume of 20 gal/A.

Results and Discussion:

Of the ten clover species tested, sub clover showed the greatest tolerance for 2,4-D (Table 1). Yuchi and Amclo arrowleaf clover were the most tolerant of the arrowleaf clover varieties. Ball, berseem, the crimson clover varieties, kura, and persian were similar in 2,4-D tolerance. Some variability existed among the red and white clovers. Of the red clover varieties, K4-183 showed the most tolerance and K4-184 the least. For white clover Lucky and Nolins exhibited the greatest tolerance and Regal and Sacramento the least.

The tolerance of sub clover varieties to 2,4-D combined with their reseeded ability in a pasture system indicates that sub clover may be the best suited of the clover species tested for use in pasture programs.

Table 1. 2,4-D injury rating for established clover varieties grown at the LSU Rice Experiment Station (1982).

SPECIES	VARIETY	RATING 2,4-D INJURY†	SPECIES	VARIETY	RATING 2,4-D INJURY
Arrowleaf	Amclo	6.5	Kura	KY-1282 (F-1)‡	6.8
	BE-1	7.0		Persian	Abon
	Meeche	7.3	Iranian‡‡		6.5
	RRPS-5	7.5	Rose		Wilton
	Yuchi	5.5		Kondinin	5.5
Ball	Common	6.8	Sub	Mt Barker	2.5
Berseem	Winter hardy Exp.	6.3		Miss Ecotype	2.5
				Nangeela	2.3
Crimson	Autauga	6.0		Tallarook	2.3
	Chief	6.3	Woogenellup	2.5	
	Dixie	6.3	White	LA S-1	6.8
	Tibbee	6.0		LA White	
Red	Arlington	6.0		Nolins	4.8
	Kenland	6.3		Lucky	4.5
	Kenstar	6.3	Regal	7.8	
	K4-183	5.5	Sacramento	7.8	
	K4-184	7.3	S.C. Med.		
	NAPB-7802	6.5	flowering	6.5	
	Nolin's				
	Improved	7.3			
Redland II	6.3				

† Injury ratings were based on a scale of 0-10 with 10 representing complete kill.

‡ PI No. 325489

‡‡ Persian clover originated in Iran and was purchased through Kaufman Seeds, Ashdown, AR.

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