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DEPARTMENT OF AGRICULTURE
WESTERN AUSTRALIA

SUMMARY OF EXPERIMENTAL RESULTS 1979

SCREENING OF CLOVERS
FOR RESISTANCE TO CLOVER SCORCH

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CLOVER SCORCH (jointly with Dr. C.M. Francis)

One thousand one hundred and seventy clover cultivars, varieties and crossbreds were screened in the field for susceptibility to the clover scorch disease fungus.

The varieties and crossbreds totalled 829 and comprised thirty two promising ones from earlier tests: eight from Spain; 22 from Turkey (including 20 brachycalycinums); and one each from Tunisia and Greece. The new varieties tested for the first time came from Western Australia (19), France (3), Italy (1), Spain (152), Portugal (4), Turkey (19), Israel (8), Morocco (3), Tunisia (19), Greece-Cyprus (437) and the Canary Islands (56).

Most of those tested for the first time were ssp. T. subterraneum. Exceptions were 10 brachycalycinums from Turkey and yanninicums from Spain (1), Portugal (2), Turkey (2) and Greece-Cyprus (71).

The five control varieties were Woogenellup, Daliak, Mt. Barker, Yarloop and Toodyay C. They were replicated eight times (Table 1) and there was very good agreement between replicates, however there was a steady increase in ratings for Mt. Barker, going from East to West. This is the first time variation like this has been detected.

The disease was slow to develop in 1979, however it was rampant by mid September and many of the varieties had collapsed by the end of September. The varieties retested in 1979 following their good performance in earlier tests again proved resistant. Table 2 compares their 1979 ratings with those from the earlier tests.

The most resistant varieties from those tested for the first time (Table 3) originated in Spain and Greece-Cyprus, which no doubt reflects the fact that most of the varieties tested came from these sources, particularly the latter. Five of the good ones came from the South West. They had been selected from a sample of seed collected by a farmer who considered that a clover he was growing was resistant to the disease.

Seventy five per cent of 341 cross breds rated gave low ratings (0-4.5).

TABLE 1

DISEASE INTENSITY RATINGS OF REPLICATED
CONTROL VARIETIES OF SUBTERRANEAN CLOVER USED IN THE
1979 CLOVER SCORCH SCREENING TRIAL AT DENMARK

Variety	Replicate Plot								Mean
	1	2	3	4	5	6	7	8	
Woogenellup	6	7	7	8	8	9	8	7	7.5
Daliak	0	0	0	0	0	0	0	0	0
Mt. Barker	3.5	4	4	4.5	5	5	6	6	4.8
Yarloop	8	8	8	9	9	10	10	9	8.9
Toodyay C	2	3	3	2	3	3	3	3	2.8

TABLE 3

THE MOST TOLERANT VARIETIES IN THE 1979 SCREENING TRIAL AT DENMARK

Variety	Rating	Variety	Rating	Variety	Rating	Variety	Rating
Daliak Mutant	1-1.5	GC 38	3-3.5	39359B*	4-4.5	GC 82 9	4-4.5
GC 84 4	"	GC 58 10	"	65181N	"	GC 86 2	"
CC 25/1A	2-2.5	GC 60 1	"	68046B	"	GC 86 3	"
CC 27	"	GC 61 1	"	GC 11 Sub 10	"	GC 93 4	"
CC 28/1	"	GC 62 1	"	GC 13 Sun 4	"	GC 94 Black 3	"
CC 35/3	"	GC 81 3	"	GC 13 Shade 1	"	GC 95 White 2	"
CC 36/3	"	GC 96 3*	"	GC 25	"	GC 98 2	"
CC 36/5	"	MJ 12/77	"	GC 35 4	"	GC 98 6	"
GC 7 5	"	CC 4/5	4-4.5	GC 57 6	"	GC 103 5	"
GC 13 Sun 2	"	CC 6/6	"	GC 60 2	"	GC 105 3	"
GC 18/11	"	CC 10/9	"	GC 60 5	"	GC 106 Black 3	"
GC 61 6	"	CC 12/4	"	GC 61 3	"	CI 12 1	"
GC 68 2	"	CC 12/5	"	GC 61 10	"	CI 13 3	"
GC 88 1	"	CC 13/8	"	GC 63 3	"	GC 59 6*	"
GC 100 White 2	"	CC 14/1	"	GC 63 7	"	GC 59 7*	"
CI 6	"	CC 14/7	"	GC 63 9	"	GC 64 4*	"
CC 18/1	3-3.5	CC 16/1	"	GC 63 13	"	GC 64 8*	"
CC 25/1 B**	"	CC 16/2	"	GC 66 6	"	GC 64 23*	"
CC 26/1	"	CC 17/1	"	GC 66 8	"	GC 67 1*	"
CC 26/2	"	CC 22/1	"	GC 67 Sub 8	"	GC 75 6*	"
CC 32/2	"	CC 24/2	"	GC 70 2	"	GC 83 Black 2*	"
CC 33/1	"	CC 24/3	"	GC 70 4	"	GC 83 Black 3*	"
CC 35/2	"	CC 30/1	"	GC 73 14	"	GC 83 White 3*	"
CC 36/2	"	CC 37	"	GC 77 7	"	GC 83 White 6*	"
CC 36/6	"	CC 37/1	"	GC 77 8	"	MJ 3/77	"
CC 36/9	"	CC 38/1	"	GC 81 7	"	MJ 4/77	"
CC 38/5	"	CFS 14/76	"	GC 81 11	"	MJ 10/77	"
GC 19 2	"	Gaitan Nat	"	GC 82 7	"	MJ 11/77	"

Rated from 0 = no disease to 10 = complete death.

* Trifolium subterraneum ssp. brachycalycinum.

** Trifolium subterraneum ssp. yanninicum.

GC = Greece-Crete collection; CC and CFS are Spanish collections; CI = Canary Island collection; M.J. are from Western Australia.

TABLE 3

THE PERFORMANCE IN 1979 OF VARIETIES
CHOSEN AS PROMISING IN EARLIER TESTS

Variety	Rating ^Ø	Variety	Rating
68036E	1-1.5 (3)	70001B	4-4.5 (4)
68040B	2-2.5 (3)	70040B	" (4)
68040G	" (1)	70056A	" (3)
69969C	" (1)	70057E	" (3)
70081B	" (3)	70074B	" (3)
70124B	" (4)	70077	" (3)
70131 *	" (1)	70078A	" (3)
65188T	3-3.5 (3)	70078B	" (4)
68041B	" (4)	70078C	" (3)
68043E	" (3)	70080A	" (3)
68043F	" (1)	70084A	" (3)
68043I	" (3)	70098	" (1)
70039B	" (4)	70112	" (3)
70071B *	" (1)	39357YB**	5-5.5 (4)
70076	" (3)	70057A	" (4)
70081D	" (4)	70079A	" (4)

Ø Figures in parenthesis refer to ratings in previous tests (mostly for 1978 screening).

* Brachycalycinums.

** Yanninicums.