

The development of a scorch-resistant subclover

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Following extensive outbreaks of clover scorch in subclover pastures in 1973 and 1974 the Victorian Department of Agriculture started a project to develop cultivars that are resistant to the disease caused by the fungus *Kabatiella caulivora*. The main objective was to develop a cultivar to replace Woogenellup, which is highly susceptible to the disease and widely grown in Victoria.

This project is associated with the National Subclover Breeding and Improvement Programme based in Western Australia. Subclover lines were obtained from the Programme and from other sources. These were screened for resistance to *Kabatiella* in a glasshouse test at the Plant Research Institute, Burnley. Seed of each line was germinated under a layer of inoculum mixed with sterile sand. The lesions on the petioles of the seedlings were counted two weeks later.

Those lines that were resistant to the disease and which made good growth in rows were included in small sward trials at a number of sites to assess herbage and seed production. In these trials the plots were 4-7 m² with 3 or 4 replicates. The plots were kept free of weeds and were sampled with a lawnmower for yield of herbage as often as growth permitted over a three-year period. They were also sampled for seed weight and number.

Field resistance of promising lines was tested at Werribee by spraying replicated plots with a suspension of *Kabatiella* spores in the spring of 1980. In the following spring the damage caused by clover scorch was assessed using a visual rating system (0-5) and by counting the lesions on 25 petioles from each of 4 replicates.

Among those lines that showed up in the testing as having good resistance to the disease was one which had been collected by a group from the University of Melbourne. It came from the roadside near Kilmore, about 60 km north of Melbourne. It is not fully resistant but in the field test the plots showed much less damage and there were fewer lesions on the petioles than was the case with Woogenellup. (See table below.)

This line has a number of other useful features that we consider justify its registration and commercial release. It sets more seed than Woogenellup and this seed germinates readily in the autumn to form a dense sward which gives greater autumn-winter production than Woogenellup. Persistence after 5 years has been good.

It flowers at about the same time as Woogenellup but matures a little earlier, so that spring growth may be less than that of Woogenellup in some years. It has an acceptable level of formononetin (<0.2%).

This line has been submitted for registration under the name Enfield. It should prove to be a useful alternative to Woogenellup until such time as other cultivars with better spring growth or greater resistance to clover scorch disease are available.

	Enfield	Woogenellup
Kabatiella rating -		
% clean petioles	28	6
Average number of lesions/petiole	1.8	8.6
Damage to plot (visual rating 0-5)	1.1	3.8
Winter herbage %, 5 sites	120	100
Seed number %, 3 sites	175	100
Seed weight %, 3 sites	116	100

