

Introducing new cultivars of subterranean clover into existing clover pastures in South West Victoria by direct drilling

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In South West Victoria experiments have shown that large increases in pasture productivity can be expected by replacing Mt. Barker subterranean clover, the most common cultivar in district pastures, with Trikkala or Larisa (1).

The successful introduction of a new cultivar of subterranean clover has, in the past, involved reducing the seed bank of the old cultivar by cropping or deep cultivation, then sowing and managing the pasture so the new cultivar sets as much seed as possible and the old cultivar sets as little seed as possible, in the first year. There are thousands of hectares in S.W. Victoria where reducing the seed bank by these methods is either unattractive (low returns from crops, loss of perennial grass), or impractical (non-arable). New methods, which would include drilling the seed directly into the old pasture, need to be developed if these areas are to benefit from developments such as Trikkala and Larisa.

A program encompassing these ideas was tested in experiments sown in the Hamilton district of S.W. Victoria in autumn 1984 (5 sites) and 1985 (4 sites). The program involved having the pasture very short by the autumn break, waiting until there had been a complete germination of all annuals including subterranean clover, spraying with split applications of Sprayseed (R) (1.5 t/ha followed by 1.5 t/ha 7-10 days later). The seed of the new cultivar was then drilled directly into the old pasture the day after the second spray using a drill fitted with Baker points. The post sowing management recommended by Collins (2) was used. The subterranean clover seed yield at the end of summer was used to measure treatment effects.

Where Trikkala or Larisa was sown at 100 kg/ha in 1984, their average seed yield (no significant difference between cultivars) at the end of the first summer was 843 kg/ha on areas sprayed before sowing and 155 kg/ha on the unsprayed areas (S.E. diff. ($p < 0.05$) = 28 kg/ha). The average seed yield of Mt. Barker was 297 and 712 kg/ha on the sprayed and unsprayed treatments (S.E. diff ($p < 0.05$) = 43 kg/ha).

On the experiments sown in 1985, the whole site was sprayed before sowing. The average Mt. Barker seed yield before sowing was 119 kg/ha. There were 4.3 Mt. Barker seedlings/m² 6-8 weeks after sowing and the Mt. Barker seed yield at the end of the season was 144 kg/ha. Sowing rates of 5-80 kg/ha of Trikkala and Larisa had no significant ($p < 0.05$) effect on the Mt. Barker seed yield.

These experiments are being monitored to determine if, and under what conditions, Trikkala and Larisa become dominant. They must become the dominant subterranean cultivar in the pasture if their benefits are to be realised. The shorter the time between sowing and when this state is reached the more financially rewarding the decision to sow them becomes.

Research work (3) has shown that it may be impossible to maintain a high proportion of a new cultivar in a subterranean clover pasture. This has important implications for both research and extension.

1. Reed, K.F.M., Schroder, P.M., Eales, J.W., McDonald, R.M. and Chin, J.F. 1985 Aust. J. Exp. Agric. 25 351-61.

2. Collins, W.J. 1978 Aust. J. Agric. Res. 29 789-801.

3. Rossiter, R.C. 1974 Aust. J. Agric. Res. 25 757-66.