

ADAPTATION OF KANGAROO VALLEY ECOTYPES OF PERENNIAL RYEGRASS

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The overall programme will characterize the variation between and within populations of the Kangaroo Valley ecotype in quantitative terms; define distinct groups within the population; examine the physiological basis of variation in response to temperature and water stress on growth characters and seed production; and propose what would be the consequences of inadvertent selection within populations producing seed in particular environments.

The work for this poster is part of a research programme by S.G. Shah and Prof. C.J. Pearson which was begun at the University of Western Australia and is now continuing at Sydney.

The poster displayed provides information on variations in flowering behaviour and seed production characters within Kangaroo Valley ryegrass and for biotypes selected from extreme populations on the basis of plant habit. The order of flowering in seven populations remained the same in Perth and in the Kangaroo Valley. The mean flowering time of a population was relatively stable. Each population was composed of various proportions of erect to prostrate plants which, in turn, influence large variation (57-74 days) in time to head emergence. In general, floret fertility contributed most to seed yield. Nonetheless, the three highest yielding genotypes showed several strategies for high yield. Heads emerged within 21 days of the first head emergence, contributed 58 percent of the total heads per plant which, in turn, produced 81 percent of harvested seed. Seedling growth rate (up to 75 days from mean date of seedling emergence) was not affected by the environment in which the seeds were produced.

Studies are continuing to assess whether the variability within Kangaroo Valley ryegrass causes increased tolerance to drought or temperature.