

COLONIAL BENTGRASS BREEDING

DEPARTMENT OF SCIENTIFIC & INDUSTRIAL
RESEARCH - NEW ZEALAND

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1988 Research Grant: \$10,000
(third year of support)

This New Zealand-based project sets out to breed a cultivar of Colonial bentgrass (Agrostis tenuis) that is attractive and stable under low-input conditions. The material used so far in the project has been collected from over 70 golf courses in the drier regions of New Zealand, and largely from those parts of the courses that have no upkeep except mowing.

The project is proceeding to schedule, though several strategy changes have been made during the year. On the one hand, there is now evidence that "dryland bent" (Agrostis castellana) is more immediately useful than A. tenuis for dry soils. It has some natural disadvantages as well, such as relative paucity of seed production and an undistinguished color. However, there is scope within the existing Grasslands material to reduce these weaknesses.

On the other hand, we continue to suspect that A. tenuis has less genetic ability to adapt to severely dry sites than might have been assumed. There has been no difficulty locating plants of A. tenuis in non-irrigated golf courses, but we suspect they are usually confined to microsites that are damper or of heavier soil texture than average. Where the greens or other parts of a course are irrigated, it is noticeable that the A. tenuis is much more frequent. However, we are continuing to gather data on all 1,400 plants collected in 1987 and 1988, both for seed-producing potential and for agronomic desirability in close-mown swards. The question to be next considered is whether it is wise to complete a refined selection program entirely within New Zealand, i.e. totally unexposed to the unique American stresses of high temperature, disease races etc., that a selection must eventually meet. It may be more sensible to make an early selection of the most promising New Zealand collection, and then to evaluate this in the USA for guidance on further improvements.

A further option as a breeding strategy is to apply an artificial low-maintenance screen across large numbers of seedlings, either of our two successful cultivars Egmont and Sefton, or of the large and varied unselected gene pool of A. tenuis naturalized throughout New Zealand. We have preferred to take the ecotypic approach of collecting material from existing low-maintenance sites because it is simpler and quicker. There is little question now that if such naturally selected material exists in New Zealand, it is probably contained within our two collections. Our immediate task is to locate the most adapted plants, and to assemble them into a selection for evaluation and further screening.