

COLONIAL BENTGRASS BREEDING

Department of Scientific and Industrial Research
New Zealand

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(fifth year of support)

This project aims to breed a new cultivar of Colonial bentgrass (*Agrostis capillaris*) that is attractive and useful under maintenance inputs at about half of the 1983 levels. We have taken this management recipe very seriously, particularly the need for a cultivar to survive and flourish under reduced water inputs. With this recipe in mind we a) collected breeding material only from sites that were virtually unirrigated and unfertilised b) are now screening this material under similar conditions, and with a reduced mowing regime as well c) added *Agrostis castellana* to the project, because it is naturally more suited to such conditions than is *A. capillaris*.

Since the 2 collections in 1987 and 1988, we have made interim selections. These are being screened both in New Zealand and (by the kind courtesy of Dr Reed Funk) at Rutgers University, New Jersey. I was able to visit this material in July 1990, and am confident that it will be in very good condition to face the climate and disease pressures that are expected within a year. After these pressures, we should be able to combine the data from New Jersey and New Zealand, to make final selections by 1992.

Whilst in the USA, I was able to visit sites of the National Turfgrass Evaluation Program. This was of particular interest because our selection from the *Agrostis castellana* project has been entered in these tests. This on-the-spot experience will allow us to focus far more precisely on what are regarded as desirable turfgrass characters in the United States, particularly the fixation with very dark colours. I was equally interested to learn that customer pressure will probably not allow sward standards to fall below their current near-perfect levels. Consequently our adherence to very low-input levels in the breeding project may be a little unwise, if the resulting selections are to be evaluated or used under levels of mowing, irrigation etc that will be increased if necessary to maintain near-perfect surfaces.

Despite these factors, our project is on schedule. Our screening sites have not been topdressed for 2 years, and mowing is sometimes withheld for long periods. Irrigation is not applied (but it is not as necessary anyway as in the hot USA summer). Large differences between genotypes have been displayed under these conditions. Even if some of the best plants have to be subsequently discarded because of poor seed production, it should be possible to provide a useful selection.

Executive Summary

The New Zealand project was visited by Dr Peter Hays^e (STRI, Bingley) in August 1990, after his duties at the 4th Sports Turf Research Convention. Although Peter was not accompanied by good weather, we were able to examine and discuss the material. Peter met other staff in the project, and we were very pleased to get the benefit of his perspective. I discussed with him my concerns (outlined in the attached report) that a) the evaluations (and therefore the rankings and subsequent publicity) our selections will receive in due course in the USA, do not relate that closely to low-maintenance. I suspect that our New Zealand project is taking it more seriously than other projects. This may backfire on us in the NTEP, where irrigation, frequent mowing, etc. will probably be applied if stress appears in the trials b) any bentgrass colour other than the colour of "Providence" creeping bentgrass, is bad. I saw the scores on some trials, and all entries of *A. castellana* and *A. tenuis* (= *A. capillaris*) were marked down because they did not have the dull blue colour of creeping bentgrass. In other turf respects they (currently) equalled or surpassed the creeping bentgrasses. This fixation with colour had special mortification for me, as it downgraded our NZ-bred 'Egmont' colonial bent. At the STRI in England, where comparative colour is not so important, Egmont is the best bentgrass. However, we will probably make adjustments in our project to cater for these American idiosyncrasies. Standards of surface excellence will not be allowed to drop just for the sake of low maintenance, and we will try to make the colours darker. This should not delay or expand the project.

In terms of finance, about \$1200 was spent in visiting our project (and equivalent ones) in the USA. This was added to an already-arranged visit to South America and the USA (on pasture breeding) so the cost to the USGA project was highly subsidised. The remaining part of the \$10,000 collection was spent on

- 1) labour
 - to evaluate the 2100 genotypes for several characters at different seasons
 - to break up and shift new material into the seed-production area
- 2) potting mix etc. for propagating this material.

The project remains for me a most exciting and enjoyable part of my work. The targets are environmentally very worthwhile, and the material is interesting. Most of all, the feeling of being able to collaborate in a bi-national project, and one at the forefront of customer use and funding is unique. It is a great change from the highly competitive aspects of many other breeding projects.