

Colonial Bentgrass (*Agrostis tenuis* Sibth.) Breeding and Cultivar Development

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Goals:

- Develop resource efficient, improved colonial bentgrasses for use individually, in blends, or in mixtures with fine fescues.
- Improvements desired for colonial bentgrass include: brown patch resistance, increased cold hardiness, dark green color, close mowing tolerance, recuperative ability and wear tolerance, tolerance to reduced cultural inputs, retention of desired turf-type characters.

Primary emphases during the first year of the program included assessment of existing germplasm and acquisition of additional plants. Existing material came primarily from New England, and additional plants were obtained from the New Zealand collections of Dr. William Rumball, collection trips from Maine to Pennsylvania. A large area remains to be covered, including collections further south along the East Coast of the United States where higher humidity and heat conditions may be more favorable for obtaining brown patch (*Rhizoctonia* sp.) resistant colonial bentgrasses. The area of origin, Europe, needs to be explored as well.

Ms. Pei-Yu Zeng, an M.S. degree student, officially began working with this project last fall. Her thesis will concentrate on brown patch resistance screening in bentgrasses.

Cooperative collection efforts with private seed companies are forging associations which will enhance development of improved materials. This cooperative effort has already produced progeny from 69 collections which have been planted this fall for turf evaluation trials in Rhode Island.

Greenhouse facilities were greatly expanded with the addition of a 1,000 square foot polyhouse used almost exclusively for the turfgrass improvement program. This has facilitated the ability to increase plantings from seed or vegetative plant parts for field and greenhouse evaluations.

One of the most severe droughts in history for the Northeast region occurred last summer. Non-irrigated space plantings of the original bentgrass collection were examined for drought tolerance. Selections were grouped into one of three

categories: low, medium, or high drought resistance. One group of each classification, containing three to five parents each, was established in a polycross nursery for seed production in spring of 1994. Progeny will be evaluated for brown patch resistance and its potential relationship with drought resistance.

Six isolates of *Rhizoctonia* sp. were increased for inoculating greenhouse materials in November and December, 1993.

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