

# Competitiveness of Ryegrasses with Annual Bluegrass

by R.W. Daniels

Reality is that until *Poa annua* can be eradicated, turfgrass growers must try to manage the existing invasion of this turf species.

Research performed at the Nova Scotia Agricultural College during 1983 was directed to:

**A** reduce the invasion of annual bluegrass in a turfgrass stand and, **B** reduce the decline of this species in turfgrass where it presently exists.

All experiments have been conducted both in growth chambers and field plots.

Long term (three years) effects of competitive factors will be evaluated.

## Test results

Annual bluegrass (*poa annua* L) and five perennial ryegrass cultivars, Citation, Derby, Linn, Loretta and Manhattan, grown in

monoculture and in competition with annual bluegrass were compared in a controlled environment pot culture.

Ryegrass cultivars grown in monoculture showed a wide variation in their competitive ability as evaluated by number of tillers, leaves and total leaf area.

These same factors made them competitive with annual bluegrass. The ryegrass cultivar Citation was the most competitive against annual bluegrass. All other tested cultivars were about equal in competitive ability. Little difference between cultivars was evident in terms of fresh weight and dry weights of tops and roots of the plants.

To reduce the decline of annual bluegrass and evaluate the performance of ryegrass cultivars as competitors in established turfgrass stands, various

forms of nitrogen were used.

All cultivars of perennial ryegrass Citation, Linn and Manhattan and annual bluegrass were fertilized with  $NH_4$  (ammonia form of nitrogen) and  $NO_3$  (nitrate form of nitrogen). Ratios of  $NH_4:NO_3$  used were 100:0; 75:25; 50:50; 25:75 and 0:100. The ratio of  $NH_4:NO_3$  of 25:75 produced the most superior turfgrass plants in terms of competitiveness (number of tillers, leaves and total leaf area.)

In fact, all plants evaluated responded best to this fertilizer ratio. The second best ratio of  $NH_4:NO_3$  was 50:50. The poorest plant growth was from plants fertilized with  $NH_4:NO_3$  ratio of 100:0. □

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