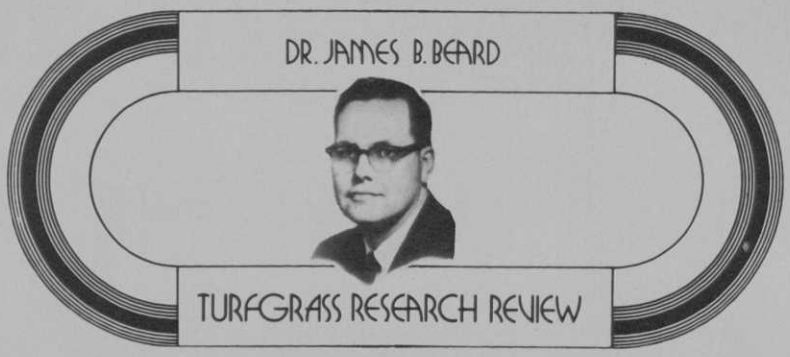


## ROOT GROWTH OF POA ANNUA NOT INFERIOR

***Rooting of* Poa annua *L.*, Poa pratensis *L. and* Agrostis palustris *Huds. at three soil bulk densities. J. F. Wilkinson and D.T. Duff. 1972. Agronomy Journal. 64(1):66-68. (from the Department of Plant and Soil Science, University of Rhode Island, Kingston, R.I. 02881).***

The objective of this research was to determine the root growth of annual bluegrass (*Poa annua* L.) in comparison to Kentucky bluegrass (*Poa pratensis* L.) and creeping bentgrass (*Agrostis palustris* Huds.) when grown under varying degrees of soil compaction. The bentgrass cultivar used was Penncross. The annual bluegrass and Kentucky bluegrass were cut at 1.5 inches; the creeping bentgrass at 0.5 inch. All three species were established from seed. Three degrees of soil compaction were established on a sandy loam soil. The specific bulk densities were 1.1, 1.25 and 1.4 grams of dry soil per cubic centimeter. These levels of compaction had previously been determined to be representative of conditions commonly found in the field. The experiment was established in a randomized block design of two replications. Following establishment, the turfgrass plants were watered as required to prevent wilt and were grown under controlled growth chamber conditions. Experimental data collected included root growth produced eight and 12 weeks after germination. Root weight was determined by the weight loss after ashing the samples.

No differences were noted in the comparative rooting ability of the three grasses, no matter which level of soil compaction was compared. Root growth increased proportionally with the bulk density. Evidently the degree of compaction at a bulk density of 1.4 was not high enough to cause a restriction in root growth. Finally, the root weight decreased with depth.

*Comments:* It is widely believed and is frequently stated in turfgrass literature that the root growth of annual bluegrass is inferior to that of Kentucky bluegrass and creeping bentgrass. Thus, one of the undesirable characteristics commonly cited for annual bluegrass is its shallow rooted nature. The data reported in this study, which is supported by an earlier study by Sprague and Burton in 1937, indicate that, contrary to the widely accepted belief, annual bluegrass is capable of producing a comparable degree of rooting to that of creeping bentgrass and Kentucky bluegrass. It is surprising how widely that concept has become accepted, even though no data supports this position.

Why has annual bluegrass become known as a shallow root species? It is frequently observed growing in compacted soil conditions where no bentgrass or Kentucky bluegrass is found. Under these conditions it would naturally have a more restricted root system. Perhaps this is how the idea that it is a shallow rooted species developed among individuals making only casual observations. Perhaps other species such as creeping bentgrass and Kentucky bluegrass could not have even produced as extensive a root system as annual bluegrass under those compacted soil conditions. Unfortunately, this possibility is not supported by the data reported here,

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because the rooting increased with bulk density. Future studies may support this possibility, providing higher degrees of soil compaction are utilized in the experiments. One must also consider the possibility that the rooting ability of annual bluegrass varies among its varieties, particularly among the widely different annual versus perennial types.

A number of recent studies concerning annual bluegrass indicate that we have not really understood this particular species, so common on golf course greens and fairways. We need to continue to develop a better understanding of its (a) growth habit, (b) specific environmental and cultural requirements and (c) specific adaptational characteristics, because it is the dominant component in a high percentage of the golf course fairways in the United States. By having a better understanding of the annual bluegrass plant the professional turfman will be better able to (1) select a cultural system that will discourage its encroachment into the desirable bentgrass and Kentucky bluegrass turfs or (2) if he chooses, to select a cultural system that will ensure its presence. The latter approach is utilized by a number of professional turfmen, perhaps by default, though, rather than through a planned program. □

OTHER PAPERS OF INTEREST:

***1. Evaluating sands for athletic turf.*** *D.E. Bingaman and H. Kohnke. 1970. Agronomy Journal 62(4):464-467. (from the Department of Agronomy, Purdue University, Lafayette, Ind. 47907).*

***2. Responses of some Kentucky bluegrasses to high temperature and nitrogen fertility.*** *T. L. Watschke, R.E. Schmidt and R.E. Blaser. 1970. Crop Science. 10(4):372-376. (from the Department of Agronomy, Virginia Polytechnic Institute, Blacksburg, Va. 24061).*

***3. Effect of corn steep liquor for erosion control and vegetative establishment on highway backslopes.*** *B.L. Schmidt, G.L. Taylor and R.W. Miller. 1969. Agronomy Journal. 61:214-217. (from the Department of Agronomy, Ohio State University, Columbus, Ohio 43210).*