

## RATES of SEEDING

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The rates of seeding specified for highway use prior to World War II were given very little consideration. Seed was cheap, and seeding techniques were far less efficient than those of the present time. Hence it appears that the "rule-of-thumb" practice was to use sufficiently large quantities of seed to be doubly certain that all portions of the areas to be seeded were adequately supplied with seed.

Immediately following the war the price of a number of the base grasses extensively used in highway mixtures increased materially. This fact, together with the sharp rise in highway construction, focused attention on the cost of seeding. In some instances this resulted in the review of seeding specifications for possible reduction in seed species and rates of seeding.

For example, in Connecticut immediately after the war, by eliminating one species of grass seed which had nearly doubled in price per pound and reducing the rate of seeding from 125 lb. to 80 lb. per acre, it was found that a much more reasonable price per pound for the seed mixture than in use resulted. Also, equally as good if not better turf was obtained.

With the encouragement of this initial success, it was decided to run a series of tests to determine the optimum rate of seeding. Accordingly, plots were selected on representative backslopes, down slopes, and roadside areas. One-half of these plots were loamed and the other half left unloamed. All plots were fertilized at the rate of 1,200 lb. of 5-8-7 fertilizer per acre. Sections of each plot were then seeded at the rate of 10 lb., 20 lb., 30 lb., etc., through 70 lb. per acre. The loamed plots were lightly raked and rolled. Hay mulch 2 inches in depth was applied over the unloamed plots.

The results were most revealing. Actually, all sections seeded at the 10-lb.-per-acre rate produced a very fair stand of grass. However, it was decided that the 40-lb.-per-acre rate appeared most satisfactory. Since these tests, all seeding of roadsides in Connecticut has been at the 40-lb.-per-acre rate.

In reviewing a number of seeding projects which have been in force during the past two years on state highways and airfields in the northeastern region of the United States, it was found that the rates of seeding ranged from 40 to 170 lb. per acre on a bulk-weight basis. The seed mixtures were similar in all cases, and, of course, climatic conditions varied but slightly. Although the germination and purity of various kinds of seeds were unknown, it is assumed that in each case a good grade of seed was employed.

Undoubtedly, similar variances in seeding rates exist in most of the other regions of the country.

### COMMENTS

George B. Gordon:

A recent study of seeding rates in Standard State Specifications for Highway Construction brings out these facts:

Rates of seeding vary in different states in various regions of the country from about 10 to 15 lb. of grass seed per acre to a maximum of about 175 lb. Successful seeding is now being done in the Dakotas, for example, at the lower rates

mentioned. In New England and the Middle Atlantic States rates of from about 2 to 3 lb. of seed per 1,000 sq. ft. of seedbed are average, 2 lb. per 1,000 sq. ft. being about equivalent to 86 lb. of seed per acre. The trend in this and other regions is definitely toward lower rates. There is also a tendency toward reducing rates of seeding on steep slopes with poor dry soil conditions as compared with flat, well-cultivated traffic-island areas, for example, where conditions are favorable to grass growth. The trend also indicates a great reduction in seeding rates in localities with low average annual rainfall as contrasted with areas with higher rates of annual precipitation.

It is believed that this trend is well advised and that seeding rates will continue to be reduced with this principle in mind. It may be recalled that Dr. John Monteith found after some years of study at the old Arlington Experimental Farm that seeding of Kentucky bluegrass seed at rates of 1 lb. per 1,000 sq. ft. produced a fine turf cover. Seeding at three times this rate produced a good turf after a year, but at the close of the second year it was not any better than the original seeding at one-third the rate. Seeding at 4 and 5 lb. per acre was, as I recall, comparatively thin and sparse after the second season compared with the original seeding at the 1-lb. rate.

Experience in coming years may well indicate, as far as steep slopes with poor soils are concerned, that the 40-lb. rate mentioned by Mr. Wright may still be more seed than is needed under unfavorable conditions for grass growth.