This paper reports yield trials with strains of timothy which were conducted at Cornell University from 1920 to 1927. Twelve strains were sown in broadcast plats; and 72 strains, of which only 12 are considered in this paper, were sown in rod rows in 1920; and 39 strains were sown in rod rows in 1923.

Broadcast plats were 16½ feet by 49½ feet with pathways 1 foot wide between all plats. They were seeded with 150 grams of seed per plat, equivalent to 17.6 pounds per acre, on September 8, 1920. The rod rows were 17 feet long, 3 feet apart, and had pathways 3 feet wide between ends. They were seeded with 0.71 gram of seed per row, equivalent to 1.14 pounds per acre, originally estimated as 0.3 pounds per acre regarding each row as an area of 17 feet by 4 inches. Seeding was done on September 8 and 9, 1920, and on September 15, 1923.

Each plat was cut as soon as convenient after its period of full bloom. Rod-row crops were bundled and dried on wire trays in the drier to air-dry weight and weighed in that condition.

Broadcast plats were cut with a mowing machine and the herbage was immediately piled into crates which were weighed in the field within 5 minutes of cutting. A random sample of 10 to 13 pounds per acre, originally estimated as 10.3 pounds per acre regarding each row as an area of 17 feet by 4 inches. Seeding was done on September 8 and 9, 1920, and on September 15, 1923.

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Comparison of Rod Rows with Broadcast Plats

The broadcast plats, sown in 1920, were harvested in the 3 years 1921–23. Eleven varieties were sown in duplicate and a twelfth (No. 1777) was sown as a check in six plats. In the light of recent statistical theory, it may seem unfortunate that the varieties were sown in a systematic, as opposed to a random, order. In this connection it should be recalled that at the time these plats were laid out, the idea of complete randomization in agronomic experiments had not become established to the extent that it since has. However, the check plats indicated no noticeable fertility gradient, and therefore it may be deemed permissible to assume that the systematic arrangement does not influence the results and that an analysis of variance may be performed upon them. The 28 plats were arranged in two series, and all 11 varieties plus three check plats occurred once in each series. For the analysis of variance the two series containing 28