

Type 3.—This group comprises the best of the South Island lines, which, while showing a fairly good colour, were as a whole more greyish-green in the early growth-periods, of divaricating habit in the broadcast plots, and having the individual plants open at the crown with more or less prostrate shoots. This type has persisted as well as Type 2 up to date, but not nearly so well as the best "true perennial" lines of Type 1.

Type 4.—The light-greyish-green colour, divaricating habit, and loose open crown associated with "false perennial" is typical of this group, which includes most of the Southland, Otago, and Canterbury lines, and may be regarded as the average "false perennial" coming from South Island districts. There is a very decided falling-off in persistency as compared with Type 3.

Type 5.—This type shows characteristic colour-differences very soon after soil establishment. Germination is as rapid as in Italian rye-grass, but looked on as a plot it typically assumes a steely grey-green colour quite distinct from the yellow green of Italian rye-grass or of the deeper green of true perennial rye-grass. The plants are spreading in habit of growth, and while making rapid seedling growth are unable to recover after being cut back. In many respects this type shows close affinities with Italian rye-grass, and in some ways is suggestive of a derivative of crossing between the normal "false perennial" of Type 4 and ordinary Italian. Single-plant studies have emphasized the approach to Italian rye-grass characteristics in this form, but it is important to note that in no case has the type shown the vigour associated with Italian rye-grass in the first year.

Type 6.—Normal Italian rye-grass sold as "perennial" or merely as "rye-grass." Single-plant studies have shown that there was a trace of perennial rye-grass in some of the lines placed in this group. The plots were all rapid in growth from seed, typically erect, and light yellowish-green in colour. Recovering well from the earlier cuts, Italian rye-grass failed to last the season, going out first and most completely on the weekly-mown section.

DISTRIBUTION OF THE TYPES IN NEW ZEALAND.

In Table 1 is set out the distribution in New Zealand of the commercial perennial rye-grass types according to source of origin as supplied with the seed. The figures indicate that most of the samples definitely stated to be of Hawke's Bay and Poverty Bay origin approach the "true perennial" type, whereas lines from Southland and Canterbury, including South Canterbury, are definitely of the "false perennial" type. Sandon rye-grass on the whole inclines towards the "true perennial"—in fact, a few of the best Sandon lines under test were indistinguishable from the average Hawke's Bay lines. Sandon rye-grass, however, taken as a whole, contains an excessive proportion of Italian rye-grass, some of the lines being dominant Italian with very little perennial. South Canterbury rye-grass is perhaps more predominantly Italian rye-grass than that from other sources of origin in New Zealand. Occasional samples were received, however, from Southland, Canterbury, Otago, Marlborough, and the Wairarapa, which proved to be dominant Italian.