SMALL, replicated row or broadcast nursery plots are used extensively in the preliminary evaluation of red clover strains. Since timothy is commonly sown with red clover, it is important to evaluate strains of red clover in respect to their forage yield when grown in a red clover-timothy mixture. To obtain the forage yield of the red clover portion of such a mixture it is necessary to make a hand separation of all or a portion of the plot, which is a very time-consuming process and thus is not practicable unless the number of strains under test is small. Studies have been conducted at Madison, Wis., since 1937, to determine if the relative forage yields of red clover strains are the same in small plot trials, whether seeded in rows or broadcast and either with or without timothy.

MATERIALS AND METHODS

Trials were made during 1937–38, 1939–40, and 1942–43. A trial was seeded in 1941, but a late spring drought resulted in a very poor stand so it was not completed. The strains of red clover used in the 1937–38 trial were all of the medium red type. Four were locally adapted Wisconsin strains and one was a Minnesota strain. In the 1939–40 trial four medium red strains and one mammoth red strain were used, namely, Commercial (obtained from a local seed company), Composite (a composite of several locally adapted strains), Wilson's White (a white-flowered strain grown in certain areas of Wisconsin for many years), Longhurst (an Idaho strain), and Graham's mammoth (a mammoth type grown by P. S. Graham near Fennimore, Wis., for many years). The same strains were used in the 1942–43 trial with the exception that the certified variety Midland was substituted for the commercial seed lot.

The methods of planting were as follows: Clover in rows spaced a foot apart; clover in rows over-broadcast with timothy; clover broadcast and clover plus timothy broadcast. In the 1937–38 trial the row plots were seeded as a unit separate from and adjacent to the broadcast test. For each group a split-plot design was used in which the strains were assigned at random and planting methods were in strips across the strains in each replicate. For the 1939–40 and 1942–43 tests a split-plot, latin square design was used. Planting methods were assigned at random to the 16 whole plots and the strains to the sub-plots within each whole plot. Four replicates were used in all tests. Each whole plot was 18 × 20 feet in size and was divided into five sub-plots of equal size.

Seeding was at the rate of 12 pounds of clover when seeded alone and 8 pounds of clover and 4 pounds of timothy in the mixtures, per acre. The plots were harvested when the clover was in the 50% bloom stage. The area harvested for each sub-plot was 4 × 16 feet. Borders 2 feet in width were used between all whole plots, but no border was removed between sub-plots as it was felt that more error...