An Evaluation of Orchardgrass Strains Grown Alone and With Alfalfa

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MOST perennial forage grasses are commonly used in association with legumes. For this reason it is generally held that the final evaluation of grass varieties should involve growing them with the legume with which they will be utilized.

Orchardgrass (Dactylis glomerata L.) is widely used as a forage grass throughout the humid regions of northern United States. It has also been shown to be one of the most productive pasture grasses under irrigated conditions of the west (6, 17). Plant breeders have developed many strains of orchardgrass, providing a range of relative maturities for use as pasture and hay. The medium maturing strains are approximately a week later than the early strains; the late maturing are ten days to two weeks later.

This trial was undertaken to study the effect of the companion alfalfa on comparative yields of orchardgrass strains of different relative maturities under irrigation. It was also undertaken to determine the relative advantage of one maturity group over the others for use in pastures.

REVIEW OF LITERATURE

Several studies have been reported on the comparative effect of growing strains of perennial grasses alone and in mixtures with legumes. Myers and Garber tested Kentucky bluegrass clones in plots overseeded with white clover (9). They found significant differences among strains for yield and competitive ability with white clover, and differences in seasonal yield among the grass clones. Yield was not always associated with aggressiveness in association with the legume, as indicated by the percentage of clover. Results comparable with those obtained with Kentucky bluegrass were obtained with clones of orchardgrass, red top, and perennial ryegrass grown in association with Ladino clover.

Taller growing, more productive strains of Kentucky bluegrass were better competitors with white clover than the shorter growing, less productive strains (2). However, low correlations were obtained between yield and competitive ability, indicating that other factors were influencing the behavior of the various selections of bluegrass grown in association with white clover. The competitiveness of the bluegrass strains was estimated on a scale of 0 to 10. Thomas and Hayes (13) reported no differential response of Kentucky bluegrass strains in clipped plots with or without mixtures with white clover.

Torrie and Allison (14) found that the timothy portion of red clover-timothy mixtures varied in yield with the vigor of the strains of red clover with which it was grown. Nissen (10) reported low correlations between yields of timothy hay grown alone and with red clover.

Churchill (4) reported greater differences in yield among bromegrass strains grown alone than when grown in mixtures...