The Performance of Six Grasses Growing Alone and in Combination with Legumes with Differential Nitrogen and Phosphate Fertilization in a Yakima Valley Pasture

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Legumes and grasses are the main components of most pasture mixtures. In central Washington, Ladino clover has become the most common legume in improved irrigated pastures. Alfalfa has been used to some extent, but there has been considerable prejudice against its use because it has been believed to be short-lived in pastures. Orchardgrass and Alta fescue are the most important grasses in many of the mixtures. Smooth bromegrass has been included in many pasture mixtures, but for reasons not understood, it has been difficult to establish and the plants that do become established do not fill in the stand as they do where smooth brome is well adapted. Kentucky bluegrass is seldom included in pasture mixtures, but it often becomes prominent in pastures several years after establishment.

Perennial ryegrass, a short-lived grass, has often been used because it becomes established readily and relatively cheap. It has been used in pasture mixtures to provide forage until the slower-establishing long-lived grasses become productive. Tall oatgrass, another short-lived grass, has been used for the same reason. It is preferred to perennial ryegrass because it is more palatable.

Nonleguminous crops growing in Sagen loam soil at the Irrigation Experiment Station generally respond to applications of nitrogen fertilizer but not to phosphate fertilizers, except where exhaustive cropping has been practiced. Alfalfa has responded to phosphate fertilizers after the land has been cropped about 10 years. Neither legumes nor nonlegumes growing on this soil respond to potash fertilizers.

Keller and Peterson (1) have recently reviewed the literature on pasture mixtures and fertilization of irrigated pastures.

The object of this experiment was to determine the influence of two legumes, six grasses, and differential nitrogen and phosphate fertilization on the forage production of an irrigated pasture in the Yakima Valley.