A generally recognized fact is that perennial grasses and legumes, even when supplied with adequate soil moisture and plant food, have in the temperate zone periods of active growth and other periods during the year when they are at least semi-dormant. The truly dormant period during the winter is of course due to low temperatures. In the summer, however, during July and August, Kentucky bluegrass and many other important pasture plants exhibit a reduced rate of growth which seriously affects their productiveness and consequent pasture value. This period of reduced growth occurs in most grasses coincident with or directly after that time of the year when these plants normally produce seed. Even though the grass is cut at frequent intervals preventing the actual formation of seed, there occurs a measurable retardation of the growth processes, an apparent physiological response of the plant to its environment, that is difficult to overcome.

The pasture experiments conducted cooperatively at Beltsville, Md., by the Bureaus of Plant Industry and Animal Industry have produced some results of interest in the above connection even though they have not continued long enough to be conclusive. These experiments on Sassafras silt loam soil were begun in the fall of 1928 when the plots under consideration, as well as the grazing paddocks used for a study of pasture management problems, were seeded. Weather conditions were favorable at the time of seeding and the following spring, but thereafter rainfall was exceptionally deficient and these drought periods occurring each year interfered with a normal seasonal growth of the plants.

In this section of the United States, rainfall is certainly the largest factor in determining the distribution as well as the size of the crop. Only under irrigation could there be an adequate measure of other growth factors, such as temperature, day length, etc. The rainfall at Beltsville, Md., approached normal only in the spring and summer of 1931. This year is chosen, therefore, to illustrate the growth habits of the principal pasture plants. The actual as compared with the normal rainfall from January, 1929, to December, 1931, inclusive, is shown on the graph in Fig. 1. This illustrates admirably the very unusual conditions prevailing during this period and explains the lack of late summer growth as shown by the yields given in the tables which follow. From July, 1929, to and including February, 1931, there were only two months, October, 1929, and April, 1930, when

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2Senior Agronomist and Assistant Agronomist, respectively.

3The pasture mixture included the following quantities (pounds) of seed per acre: Kentucky bluegrass, 12; reedtop, 3; timothy, 4; orchard grass, 4; meadow fescue, 4; Italian ryegrass, 8; perennial ryegrass, 4; red clover, 3; white clover, 2; alsike clover, 2; and lespedeza, 10.