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APPROXIMATELY 85% of the total cultivated crop acreage in North Carolina was fertilized in 1942 (7). There are no available estimates of the plowable pasture acreage that was fertilized, but it is known that little fertilizer is applied to this crop. This is partially explained by the fact that North Carolina farmers have not been primarily interested in grassland farming.

North Carolina can be divided into two climatic zones with reference to the adaptation of pasture species. The western portion of the state is suitable to the species that are grown in the more northern regions of the United States. This paper will not include the adaptation studies of these species, since their response to fertilization and management is similar to observations made by other workers (5,6).

The eastern portion of the state falls south of the 60° isotherm; within this area both Dallis grass and carpet grass are grown. Bledsoe and Sell (2) have reported that southern pasture species, namely, carpet, Dallis, and Bermuda grass, respond slightly to applications of calcium, moderately to phosphorus, and greatly to nitrogen. The adaptation of southern species has also been investigated by Mayton (3), Blaser and Stokes (1), and Ritchey and Henley (4).

Most of the investigations with these grasses have included the effects of fertilization upon the yields of mixtures of grasses and legumes. The practice of seeding a mixture of Dallis grass and carpet grass often results in virtually pure stands of the latter within a few years. Information on the relative yielding abilities of the two grasses, their behavior when grown in association with legumes, and their response to fertilization and management practices would provide information basic to the management of such permanent pastures.

METHODS

FIELD STUDIES

The field phase of the study was conducted on a Norfolk fine sandy loam soil of the upper Coastal Plain and a Lynchburg fine sandy loam soil of the lower Coastal Plain. The Norfolk was well drained and had been fertilized in previous years. The Lynchburg was poorly drained. The base exchange capacity and percentage base saturation are given in Table 1. On both fields the design was a split plot in which the fertilizer treatments were the whole plots and the seeding mixtures were the subplots.

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3 Figures in parenthesis refer to "Literature Cited", p. 600.