YIELD AND QUALITY OF LARGE-SEEDED TYPE PEANUTS 
AS AFFECTED BY POTASSIUM AND CERTAIN 
COMBINATIONS OF POTASSIUM, MAGNESIUM, 
AND CALCIUM

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THE importance of calcium in the proper kernel development of large-seeded type peanuts has been discussed in an earlier paper (3). The following report is concerned with the effects of potassium and various combinations of potassium, magnesium, and calcium on kernel development.

The limited information available concerning the effects of potassium on peanuts suggests that the addition of this element is unfavorable for kernel development. For example, the use of potassium has been found to limit the filling of fruit in solution culture experiments (1), and to lower shelling percentages in field experiments (2). In some field experiments, however, this element has been found to increase yields, but the increases occur infrequently and are usually not large (2, 5).

An inevitable potash problem on soils regularly cropped to peanuts is readily recognized when this general lack of response is considered along with two additional facts, viz., (a) the removal of potassium by a crop of peanuts is very large, about 75 pounds K2O being lost when the hay and fruit of a crop yielding 1,500 pounds per acre of unshelled nuts are removed (2); and (b) the potassium content of most peanut soils in North Carolina is very low as shown in a recent summary of soil analyses compiled by Reed (4). The range of exchangeable potassium in the 14 soils used in the present investigation was from 0.04 to 0.19 M. E. K per 100 grams, while the average was only 0.08 M. E. per 100 grams.

The major objective of the present investigation was to study the effects of potassium on kernel development and yields of large type peanuts in field experiments located on soils of widely different chemical characteristics. As a part of this study, calcium was added along with potassium in several of the experiments since the former element was found to be limiting for normal kernel development on many of the soils.

The magnesium content of many peanut soils is very low and inasmuch as little is known regarding the specific effect of this element on kernel development, the work was extended to include a study of the effects of magnesium treatments.

Thus, the data reported here provide information on the effects of potassium alone and in placement combinations with magnesium or calcium. At the same time, results are available to show the effects of certain magnesium and calcium combinations. Particular atten-