way but allowed glycolysis to proceed. Results suggest, therefore, that the CI level might be important in shunting the carbohydrate metabolism into the triose phosphate to pyruvate pattern by interacting with inorganic P in the plant, since the high CI treatment had less energy-rich sugar compound (fructose-1-6-diphosphate). This postulate should, however, be further investigated by the fractionation of P compounds within potato plants into inorganic and organic components, because, as indicated, CI could feasibly affect the esterification of inorganic P. Translocation and respiratory studies are also needed.—H. W. GAUSMAN, G. R. COOPER, and R. A. STRUCHTEMeyer; Professor in Agronomy, Professor in Botany, and Head, Department of Agronomy, respectively.

USE OF PAPER FORMS IN PERFORMANCE TESTING

Much repetitious writing is necessary in performance testing. Variety names and test, entry, replication and plot numbers must be written on entry lists, seed packets, field books, worksheets and report tables. Plot data must be copied from field books to worksheets. In our testing program, it has been possible to eliminate much of the copying and thereby reduce the chances for errors.

For recording field data, cards are used instead of the fieldbook. These cards are ruled in five parts, each providing space for an entry summary and four plots. When all data have been recorded, the cards are cut apart and each entry matched with its four plots, for summarization and analysis. An extra column on the entry cards provides space for converting totals to bushels/acre, percents, etc., and the entry cards may be ranked for tabulating the final report.

Seed is packaged as received or whenever time is available. At planting time, the final entry list is made, and the test design and randomization selected. Sheets, each ruled into small rectangles and "printed" with the entry, replication, and plot numbers for one replication, are selected. Entries are in the same relative position on all sheets; using carbon paper, test and entry numbers and variety names are typed on all copies in one operation. The sheets are then cut into small slips or tags, which are clipped or stapled to the seed packets. The packets are then sorted by replications and plot number and are ready for planting.

For each randomization, the replication sheets also list the entries in the order of plots, the plots in the order of entries, and the entries as they appear in blocks. Test and entry number and variety name are written on each entry card; replication, plot and entry numbers are written on each plot card. The entry list and the four lists of entries-in-order-of-plots contain the information needed. After the seed packets are randomized, either that list, or the list of entries-in-blocks may be used for checking. A list of entries with the plots in which each entry appears may be made from the lists of plots-in-order-of-entries. Field layouts, showing plots and entries as they appear in the field, are also useful and may be made from the lists of entries-in-blocks.

All necessary forms are prepared in advance and reproduced by mimeograph, hectograph, or other printing process. Sample sets, for a 7 X 7 Simple Lattice with four replications, are available on request.—L. J. GUNDY, Agronomist, Hoblitzelle Agricultural Laboratory, Texas Research Foundation, Runner, Texas.

THE FEASIBILITY OF ESTABLISHING COASTAL BERMUDAGRASS IN A COMMON BERMUDAGRASS SOD

The popularity and acreage of Coastal bermudagrass, Cynodon dactylon, has increased steadily and rapidly since its release in 1941, until at the present time an estimated two million acres are grown in the U. S. Even though Coastal bermudagrass has proved superior to common bermudagrass in yield, drought and disease resistance, length of growing season, and response to fertilizer, in Georgia common bermudagrass still occupies slightly over twice the acreage of Coastal.

Since some of the acreage now in common bermudagrass is being changed over to Coastal, the question of whether or not Coastal bermudagrass can be successfully established and become a good competitor in a common bermudagrass sod often arises. This study was undertaken to determine whether Coastal can be established in a common bermudagrass sod without first destroying the common bermudagrass and renovating the sod.

Experimental procedure.—A heavy sod of common bermudagrass, well established on Cecil clay soil, was turned with a disk plow in April 1954. On half of the plots an average of 800 bushels per acre of common bermudagrass stolons were removed by using an orchard tiller and rakes. On the other half no bermudagrass was removed. Coastal bermudagrass stolons were then broadcast at 3 rates: 25, 50, and 100 bushels of stolons per acre. The stolons were disked in and the area cutupacked prior to superimposing 5 rates of nitrogen, namely: 0, 50, 100, 200, and 400 pounds per acre. These applications were split so that half was applied at sprigging and half after the grass became established in the summer. Overhead irrigation was used twice after sprigging to insure survival of the stolons.

A split-split plot experimental design replicated three times was used. The ultimate plot size was 6 by 20 feet. Each replication contained all rates of Coastal stolons with the rates of nitrogen superimposed in all possible combinations.

When the forage had reached a height of 18 to 24 inches, grazing was simulated by mowing and removing a 36-inch swath through the plots, leaving a 3-inch stubble. Each year the percentage Coastal in each treatment was estimated. The nitrogen treatments were applied each succeeding year in the early spring.

Results and discussion.—Crab grass invaded the test area so severely that results could not be obtained the first summer. However, by the second year the bermudagrass had thickened up, the crab grass was eliminated, and for the four years following the percentage of Coastal was determined. These results, expressed in percentage of Coastal established by years for the period 1955 through 1958 are presented in figures 1 and 2.

Four years' results show that the highest percentage of Coastal was obtained: (1) where the common bermudagrass roots were raked out; (2) where the largest quantity of Coastal stolons was sprigged; and (3) where the highest rate of nitrogen was applied. It is significant that in 1956, the year which gave the highest percentage of Coastal established, the rainfall was the lowest of the 4 years during which the test was conducted (table 1). Moisture was critical, especially during the summer months. Coastal bermudagrass is characterized by its ability to grow during periods...