INHERITANCE OF EARLINESS AND LENGTH OF KERNEL IN RICE

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THE primary purpose of this study was to determine if it is possible to isolate from crosses selections that are earlier and later than either parent, and also lines having different kernel lengths than those of the parents.

Crosses between short- and long-grain, short- and medium-grain, and medium- and long-grain varieties, varying in maturity, were made in 1929 at the Biggs Rice Field Station, Biggs, Calif., and the F₁ plants were grown there in 1930. In 1931 seed from the same F₁ plants was sown at the Biggs Rice Field Station, at the Rice Branch Experiment Station, Stuttgart, Ark., and at the Texas Agricultural Substation No. 4, Beaumont, Texas.

These three stations are located in areas having somewhat different environmental conditions, and information on the inheritance of earliness and kernel length from the same crosses, grown under such conditions, should be of interest.

During the growing season from May to September, inclusive, 1931, the average maximum temperature was slightly higher at Biggs, Calif., than at Beaumont, Texas, and Stuttgart, Ark. The average minimum temperature, however, was distinctly lower and the average mean temperature slightly lower at Biggs than at Stuttgart and Beaumont.

At Stuttgart the total precipitation for the 6-month period was 18.40 inches, at Beaumont 17.65 inches, and at Biggs 2.42 inches. The total evaporation was slightly higher at Biggs than at Stuttgart and distinctly higher than at Beaumont. The humidity of the atmosphere at Stuttgart and Beaumont, owing largely to the higher summer precipitation, was naturally higher than that at Biggs.

MATERIAL AND METHODS

The crosses Bozu x Edith, Bozu x Blue Rose, Colusa x Edith, and Colusa x Blue Rose were used in the study of the inheritance of earliness, and the crosses Butte x Edith, Caloro x Honduras, Colusa x Blue Rose, and Edith x Blue Rose were used in the study of the inheritance of kernel length.

Bozu, Colusa, Caloro, and Butte are short-grain varieties. Bozu matures very early, Colusa early, and Caloro and Butte are midseason varieties. Edith and Honduras are long-grain varieties that mature early in the southern States but late in California. Blue Rose is a medium-grain, late-maturing variety.

In the study of earliness the date of first heading of each F₂ plant was recorded.

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