STUDIES ON GROWTH IN RICE

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STUDIES on the growth curve of rice have been reported for the more important rice-producing countries of the world. There is, however, little or no data available on this subject in the United States. Information on the growth of rice under field conditions should be of interest to those concerned with the improvement and production of rice in this country. Therefore, a study of the growth of three varieties of rice was conducted at the Rice Branch Experiment Station, Stuttgart, Ark., during the 3-year period 1932-34. Increases in height, in dry weight, and in the number of tillers and leaves per plant were recorded each year, and the results obtained are reported herein.

MATERIAL AND METHODS

The varieties used were Caloro, a midseason short-grain variety; Early Blue Rose, an early-maturing medium-grain variety; and Edith, an early-maturing long-grain variety. These varieties were described by the writer (1) in 1934.

The rice was sown on May 14 in 1932 and 1934 and on May 10 in 1933 on a well-prepared seedbed. The plants were spaced about 4 inches apart in rows 1 foot apart.

Since the plants were grown under ordinary field conditions, they were subject to varying temperatures, soil conditions, and attacks by insects and diseases.

Each year the rice was irrigated about 3 or 4 weeks after seeding, and the water was held for about 4 weeks. The land was then drained and allowed to dry and again submerged, the water being held throughout the remainder of the growing season. The depth of the water during the submergence period was 3 to 6 inches. This method was followed because it is recommended by Isely and Schwartd (4) for the control of root maggots, the larval stage of the rice water weevil (Lissorhoptrus simplex Say). The periods from seeding to first irrigation, to drainage, and to resubmergence were 22, 47, and 60 days, respectively, in 1932; 31, 62, and 72 days in 1933; and 30, 56, and 67 days in 1934.

The weather for the 3 years was somewhat variable. The monthly rainfall for the 5 months period of May to September in 1932 ranged from 1.11 inches in August to 4.39 inches in July, and the total was 13.98 inches; in 1933 the rainfall ranged from 1.08 inches in June to 9.97 inches in May, and the total was 28.00 inches; and in 1934 the rainfall ranged from 1.25 inches in August to 6.56 inches in June, and the total was 17.52 inches.

The daily maximum and the average monthly daily maximum, minimum, and mean temperatures for the period May 10 to September 30 in 1932, 1933, and 1934 are shown in Fig. 1.

The temperatures were rather uniform during the entire growing season of 1933, whereas they were very high in July and August of 1932 and 1934 and rather variable and much lower in September.