

COMPREHENSIVE RESEARCH ON RICE
ANNUAL REPORT

I. PROJECT NUMBER ACCORDING TO PROGRAM AREA: RB4. Introduction of Rice Germplasm from Foreign Rice Programs into the United States.

II. PROJECT LEADER AND PRINCIPAL UC INVESTIGATORS: W. F. Lehman, J. N. Rutger, and M. L. Peterson

III. LEVEL OF 1975 FUNDING: \$2,300

IV. OBJECTIVES ACCORDING TO 1975 PROPOSALS AND EXPERIMENTS BY LOCATION CONDUCTED TO ACCOMPLISH THESE OBJECTIVES:

Produce seed of 300 to 500 rice lines under quarantine regulations. Obtain notes on height, maturity, and, perhaps, other characters. Harvest, thresh, package, and send the seed to three locations. Distribute the information.

V. SUMMARY OF CURRENT YEAR'S WORK (MAJOR ACCOMPLISHMENTS) BY OBJECTIVE:

During 1975, 562 rice lines from five seed lots or locations were introduced, seed-treated, planted, grown, inspected, harvested, and distributed to three locations.

Thirty-five of the introduced lines were saline resistant. These lines were all later than Caloro and Earlirose and about one-half of them were taller. Most of the lines now identified as saline resistant should now be in the United States. The degree of resistance to salinity of these introduced lines was not indicated.

Twenty-three lines that appeared to have some value to California were sent by Marvin Davis from Brazil. This seed was sent in 1974 but was lost in Washington, D. C. for a few months and arrived too late to be planted in 1974. Most of this material was about ten days later and six inches taller than the California check varieties.

A third group of material was the IRRI (International Rice Research Institute) cold water nursery consisting of 451 lines. This material was received along with background information for each of the lines. This material was variable in height and generally later in maturity than the California varieties. Many of these lines were early generation material and some combining has been recommended.

Thirty-six lines were introduced from China via IRRI. Most of these lines were similar in maturity to Earlirose and Caloro and shorter in stature. These lines were reported to have been released as a result of President Nixon's visit to China in 1972. This material may prove to be the most interesting group introduced this year.

The last group of material grown was 17 lines from which no seed

was obtained in 1974. These lines were tall and late. They grew very tall in 1974 and most of the seed was lost because they lodged severely. Soil fertility rates were kept lower this year, and seed was produced on all of the lines.

Information and seed of the rice varieties grown in 1975 will be distributed to rice programs at Davis and Biggs, California, and Beltsville, Maryland.

In an effort to determine future policy and objectives, the rice introduction program will be reviewed at a meeting of interested individuals in March, 1976. Because of this, no request for funds for introduction work will be made from the Rice Research Advisory Board this year.

In addition to growing the rice introductions, we have been able to obtain additional information on rice at no cost to the Rice Research Board. This was possible primarily because the rice was being grown in the area and other research workers wanted to use it in their research projects.

Work on the effect of salinity on rice varieties was conducted in cooperation with Dr. Kaddah of the USDA. Eleven varieties were grown at three levels of salinity. All varieties were affected by salinity to some degree. Because of the confounding effect of factors such as maturity and temperature, it may be difficult to find characteristics that will indicate the true effect of salinity.

Work on control of water weeds by fish was conducted in cooperation with Dr. Hauser, a fish biologist working on control of weeds in irrigation ditches in the Imperial Valley. In this work, young fish from the species Tilapia mossambica were introduced after the rice had emerged from the water. Weeds germinating after there had been a sufficient fish population build-up (usually 0 to 2 weeks) were controlled. In addition, algae and water weeds growing in or on the water were almost completely controlled. These fish will die as water temperatures of 55 to 60°F are reached.

VI. PUBLICATIONS OR REPORTS:

Kaddah, M. T., W. F. Lehman, B. D. Meek and F. E. Robinson. 1975. Salinity effects on rice after the boot stage. *Agronomy Journal* 67: 436-439. May-June.

VII. CONCISE GENERAL SUMMARY OF CURRENT YEAR'S RESULTS:

Rice lines from five general groups containing 565 varieties were introduced, seed-treated, planted, grown, inspected, harvested, threshed, packaged, and distributed to three locations. Notes were taken on maturity, height, and special characters and distributed. The material introduced was: 35 saline resistant lines, 23 lines from Brazil, 451 lines in the IRRI cold water nursery, 36 lines from mainland China, and 17 lines grown in 1974 which produced no seed. Maturity of most of the introduced lines was later than the

California check varieties. Height of the majority of the varieties was similar to Earlirose and Caloro, but many were also taller. In cooperation with Dr. Kaddah, information was obtained on the reaction of eleven rice varieties to salinity. All varieties were affected by low levels of salinity, but it was difficult to classify the varieties because of the confounding effects of temperature and maturity. In cooperation with Dr. Hauser, the fish Tilapia mossambica was introduced into rice paddies after the rice had emerged above the water line. Good control was obtained of the plant material floating into the ponds and germinating after the fish were introduced.