SPECIAL REPORT ON WRRC RICE

RESEARCH NOT SPECIFICALLY SUPPORTED BY

THE RICE RESEARCH BOARD

The composition and taste evaluation of rice milled to different degrees (3,5,8,10% weight reduction) has been completed. Results indicate improved yields and nutritional qualities of undermilled fractions and good acceptance in taste panel tests.

A method of extraction and measurement or residual oil in milled white rice, using infrared spectrophotometry, has been developed as a measure of degree of milling. This procedure has distinct improvements in precision of determination of extractable oil and is not affected by abrasive milling additives such as calcium carbonate.

High temperature storage tests of rice bread mix and rice flour were completed. The bread mix (containing rice flour, salt, sugar, and Methocel) and be held 4-5 months at 100°F). At elevated temperatures, the mix gradually developed an off-odor, off-color, and off-flavor. The deterioration in the mix was related to similar deterioration in the flour. The Methocel was stable. If high temperature storage was anticipated for a mix, a lower moisture content (10%) of the rice flour would increase stability slightly. If dried yeast were to be included in a mix, yeast stability must be considered.

Physico-chemical characteristics and eating quality of several rice flours important for baking properties were determined. The characteristics necessary to produce moist, soft, smooth-textured rice bread were prevalent in California rices but not in long grain rices. Texture differences obtained for 100% rice flour breads were found to be carried to wheat flour breads when rice flours were used as 30% replacement for the wheat flour.

In USAID supported postharvest rice activities, Japan, Korea, Philippines, Taiwan, Indonesia, Sri Lanka, India, Thailand, Colombia, Bolivia, Ecuador, Brazil, Peru, Sierra Leone and Liberia, have been visited by one or more of the following WRRC personnel: R. M. Saunders, A. P. Mossman, T. Wasserman (hired consultant), and E. C. Beagle (hired consultant). We believe the experience gained from observing rice industries, practices, and utilization in these countries to be extremely valuable to our rice research efforts within the U.S.

CONCISE SUMMARY

Significant reductions in rice stickiness were obtained through abbreviated parboiling techniques. Quick-cooking brown rice was prepared from California rices utilizing the centrifugal fluidized bed drier technique.

Blends of precooked rice brokens-soy-non fat dry milk were prepared as a potential government purchase under PL 480.

Some undermilled rices (varying degrees) were judged acceptable in consumer taste tests. A new procedure was developed to measure degree of milling.

Rice flour storage tests, and effects on bread baking quality were completed.

Rice processing machinery and practices were studied in numerous countries under a contract with AID.