

INTRODUCTION:

The importance of rice as the world's largest crop is well known. The world production during the 1954-55 season is estimated at 159,000,000 tons grown on about 246,000,000 acres (Comm. Ec. Rep. 1955), some 75% of this being produced in Asia. It is thought that the rice plant, Oryza Sativa, did, in fact, originate in South-East Asia and from thence it has spread around the world. It was introduced into Central and South America in the seventeenth century (Grist 1953), but it seems that its introduction to Trinidad as a crop was not until the mid-nineteenth century when it was brought in by Indian labourers, who first came to Trinidad to work on sugar cane plantations in 1845 (Farrell 1955). From then on the crop was allowed to expand without much notice being taken of it, the majority of rice required in the island being imported from Burma.

When imported rice became unavailable during the second World War, the acreage under rice in Trinidad grew rapidly to about 20,000 acres in 1945, and the Department of Agriculture began to take a serious interest in the crop. An agreement was signed in 1947 with British Guiana guaranteeing an adequate supply of rice for the island, and in 1950 a Rice Officer was appointed by the Government to deal with problems of the production and distribution of pure line paddy seed throughout the island. In 1953 Trinidad produced 25,000 tons of rice and imported a further 31,400 tons (Annual Stat. Digest, 1955).

At the Imperial College work has been done on various aspects of the rice crop. This thesis, which deals with milling quality and conditions, follows upon two previous

theses on the storing and milling problems found in Trinidad. Rice is different from most other cereals in that its quality is largely dependent on its physical properties and especially upon its resistance to cracking before and during milling. The "milling quality", which is an expression of the percentage whole rice ("head rice") in a sample, is an index of such a quality. The highest quality rice marketed in British Guiana has a standard of 95% whole grains. Such a figure is hardly possible without mechanical separation, normal samples seldom go above 85%.

Laboratory means, something about the optimum conditions for drying and milling and to see how the present conditions compare with these. It is necessary to know these facts, not only because there is little material on this subject in Trinidad, but also to enable a more critical appraisal of the value of the work done in North and South America to be made in relation to Trinidad conditions.

The present system employed in Trinidad is that the paddy is cut by hand, possibly piled on the field for a few hours, as in the Central area, or stacked for a day or so, as in the Grenada area, thrashed by hand on a wooden platform, and the threshed paddy taken to the house where it is sun-dried on sacks or on the roof at the earliest opportunity. It is stored in a variety of containers, or loose on the floor (Tuckett 1954) at about 1-4% moisture until required, when it is further dried to about 10-12% moisture and milled. Usually the rice is for home consumption and about 20 lbs. are dried and milled at a time. Each of these operations will affect the milling quality of the rice. It should be noted that milling quality in fact depends largely on the degree of breakage during milling. Other factors occasionally affect it, such as the cleanliness of milling in removing the bran and the incidence of fungus. A discussion of the major processes involved in producing rice