

Design and development of a small scale paddy dryer

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At present, there are large numbers of small scale paddy producers and parboiled rice producers in Sri Lanka. Sun drying is the most common paddy drying practice of them and under tropical climatic conditions high rainfall is seriously affected on sun drying. It becomes extremely difficult for drying of freshly harvested paddy and parboiled paddy during rainy weather. Mechanical dryers are used only large scale rice millers and there is no presently available dryer that compatible with the capacity of small scale paddy producers and parboiled rice producers in Sri Lanka. Hence, a study was undertaken to develop a small scale dryer to introduce as a solution for the above two drying problems of paddy. It was observed that the developed dryer can be used to dry 500-700 kg of freshly harvested paddy containing 19.8-20.9%(wb) moisture to a moisture content of 13-14%(wb) that suit to store within 3.1 – 4.25 hrs. And also, 400- 600 kg of parboiled paddy containing 35.6-35.8 % (wb) moisture can be dried to moisture content of 13-14%(wb) that suit to milling within 8.22-9.88 hrs. The drying air temperature was varied within 55-72.5°C. Optimum batch size for better quality final product was 600kg per batch in both cases of drying freshly harvested paddy and parboiled Paddy. Relevant drying times were 3.4hrs and 8.87hrs respectively. Cost of drying per kg of freshly harvested paddy and parboiled paddy were 1.56SLR and 2.38SLR respectively