

**Title** Development of cross-flow fluidized bed paddy dryer  
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#### **Abstract**

A cross-flow fluidized bed paddy dryer with a capacity of 200 kg/h was designed, fabricated and tested. Experimental results showed that final moisture content of paddy should not be lower than 23 % dry-basis if quality is to be maintained. Drying air temperature was kept constant at 115°C according to the recommendation of previous work. Results obtained from the mathematical model developed in this study indicated that optimum operating parameters should be as follows : air speed of 2.3 m/s, bed thickness of 10 cm and fraction of air recycled of 80 %. At this condition, energy consumption was close to the minimum while drying capacity was near the maximum. A prototype fluidized bed dryer with a capacity of 1 t/h was designed, fabricated and installed with the collaboration of a private company. The unit has been used for almost the whole past harvesting season in 1994 at a paddy merchant site with preference compared to conventional column continuous dryers. More than 300 tons of paddy were dried without any problems.