

BAU-STR Grain Dryer

BANGLADESH

Reducing loss through accessibility of small-scale mechanical drying

Rice is a crucial staple food in Bangladesh and daily serves as both a nutritional and cultural necessity. Approximately 13 million farmers are involved in rice production in Bangladesh, accounting for 75 percent of land use and 28 percent of GDP in the country.

Drying of paddy rice in Bangladesh traditionally happens in field and on farm, leaving it open to contamination from pests, dirt and dangerous fungal toxins. Post-harvest loss at the farm level is estimated to be about 14%, with drying and storage losses a key component of these losses.



The BAU-STR Dryer

To address these challenges, the PHLIL Bangladesh team developed the BAU-STR dryer, modified from

Vietnam, which is a small-batch dryer that is mobile and can be operated on farm. It provides an effective drying technology alternative to traditional sun drying in terms of drying rate and drying efficiency. The PHLIL team's adaptations to the BAU-STR dryer were effective in improving its efficiency, cost and mobility, and removing its reliance on the national electrical grid. Not only has the dryer been validated for rice, wheat, and maize, it was also recently added to the Bangladeshi government's ag machinery subsidy program, enabling more farmers, millers and service providers to buy the dryer.

CAPACITY AND COST

Drying capacity: 500 kg/batch

Drying time: 3 to 5 hours/batch

Price: US\$ 700

Operating cost:

0.74 Bangladeshi Taka/kg (with electricity supply)
(about \$4USD for a 500 kg batch)

0.87 Tk/kg (with diesel generator)

1.0 Tk/kg (sun drying).

Payback period: < 1 year

The BAU-STR dryer can dry one-half metric ton of paddy rice in 4-5 hours and bring moisture content from 22 percent, which is often the result from field drying, to a safe 12 percent, reducing the risk of the growth of mycotoxins.

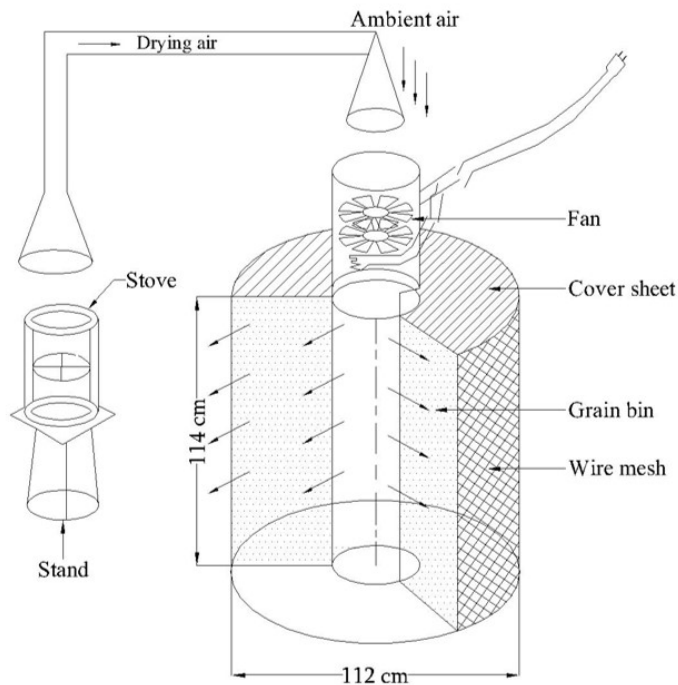
The BAU-STR dryer is suitable for farmers and small traders and can be used regardless of weather conditions, presenting economic opportunities as well as ensuring a safer harvest with less post-harvest loss.

In Bangladesh, the majority of rice is parboiled and must be dried again after this time-consuming process. Research is being conducted to hopefully identify a way to dry parboiled rice using the BAU-STR dryer.

In Bangladesh, the BAU-STR dryer has been successfully adapted, validated, piloted and deployed in forty villages across six districts. With the exception of the blower (under development), it is entirely locally manufactured and repaired by agricultural equipment manufacturing businesses. The dryer has been covered in the national media, highlighted in a Nature Magazine editorial, and purchased for end-use. Demand and interest are high, with business models for deployment at various points in the value chain under consideration.

“The BAU-STR dryer will dry paddy in less time and cost, and reduce post-harvest drying loss.”

-The Daily Jugantor, a Bangladeshi news outlet



Schematic of the dryer



**POST-HARVEST LOSS
INNOVATION LAB**

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