SUN DRYING

What is sun drying?

Sun drying is the traditional method for reducing the moisture content (MC) of paddy by spreading the grains in the sun. The solar radiation heats up the grains as well as the surrounding air and thus increases the rate of water evaporating from the grains.

Why Sun Drying?

Sun drying is the preferred drying method in Asia because of its low cost compared to mechanical drying. It requires little investment and is Co_2 neutral since it uses the sun as heat source. Sun drying has some limitations:

- Not possible during rain and at night. Any delay leads to excess respiration and fungal growth causing losses and yellowing.
- Labor intensive and has limited capacity.
- Temperature control is difficult. Over heating of grains can result in low milling quality caused by cracked grains.

Options for Sun Drying

Field Drying

Placement of cut plants on the ground or on racks.

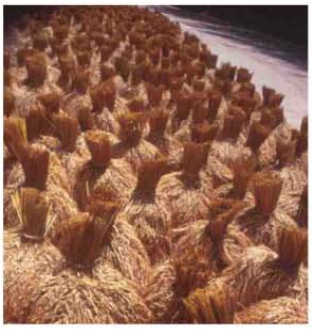
- Bridges time until threshing can be done and pre-dries the crop.
- At night grains re-wet from the soil and from wet straw.
- Limited air circulation and drying.

Potential for rapid reduction in grain quality.

Panicle Drying

Traditional, small-scale method for individual farmers.

- Tied bundies placed on pavements or mats or hung from frames.
- Need for manual harvesting of panicles.
- Uneven drying. Grains inside dry slower than grains outside.



Drying on Nets, Mats or Canvas

Medium-scale method for farmers, groups, and contractors.

- Most hygienic method.
- Quick collection and mixing.
- Re-wetting and pollution from the ground when using nets.
- Small capital requirement.

Pavement Drying

Medium-to large-scale for grain collectors, traders and millers.

- Economics of scale.
- Capital requirements for pavement.
- Partial mechanization.
- Pollution with stones and dirt.
- Mixing using tools.

Technology Options to improve Sun Drying

- Pavements with elevations for the grains and drainage channels for rain water.
- Tools or machines for mixing and collecting grains.
- Moisture meters and thermometers for monitoring the drying process.

How to Sun Dry

- Spread the grains in thin layers, ideally 2-4 cm but less than 5 cm.
- For faster drying place the grains/panicles in well aerated or windy areas.
- Mix frequently, at least every 30 minutes.
- Monitor grain temperature and MC.
- Shade or cover when temperatures are above 50°C (42°C for seeds).
- Collect/cover the grains during rain and at night.
- To minimize cracking use sun drying for first-stage drying to 18% MC, safe for 2 weeks storage. Use other drying systems for final drying to MC below 14%.
- Keep animals off the grains.
- Do not dry on public roads because it pollutes the grains, hinders traffic and can cause accidents.

For more information:

See Fact Sheet "Paddy Drying Systems"

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