

## What is harvesting?

## What is paddy drying?

Drying is the process of removing water from the grains to reach safe storage moisture content (MC).

## Why is drying important?

Dried paddy can be stored safely for a longer period of time unlike wet paddy.

## Paddy is harvested wet

Rice is harvested at grain MC between 20 and 30% (wet basis).

## Dried paddy can be stored safely

Depending in the desired storage period there are different recommended moisture contents for safe storage.

Storage period	Required MC	Potential problems at higher MC
2 to 3 weeks	14 - 18%	Molds, discoloration, respiration loss
8 to 12 months	13% or less	Insect damage
More than 1 year	9 % or less	Loss of viability

## Wet paddy deteriorates quickly



Delays in drying, incomplete drying or uneven drying will result in qualitative and quantitative losses including:

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- Yellowing or discoloration caused by mold development and heat build-up from respiration
- Reduced milling yields caused by high temperatures and re-wetting of grains
- Loss of germination and vigor from grain respiration, mold and insect activities, or from exposure of grains to temperatures above 42°C
- Damage caused by insects that are more active at higher MC levels

## Traditional drying system



Sun drying is the preferred drying method in Asia by spreading the grains under the sun. It has low cost but is labor intensive and control of grain temperature is difficult.

## Mechanical drying systems

### In-store drying



*Paddy with MC below 18% can be slowly dried in storage bins using aeration with slightly pre-heated air.*

## Heat

### Heated drying system



#### Fixed Bed Batch Dryer

For farmers, contractors, small rice mills, flexible in capacity and heat source but labor intensive.



#### Re-circulating Batch Dryer

For rice mills and cooperatives with automatic operation and good quality.



#### Continuous Flow Dryer

For commercial grain centers for large capacity drying.

Prepared by M. Gummert with input from Joe Rickman (2004), updated by M. Gummert (2010)

For more information, visit the Rice Knowledge Bank: <http://www.knowledgebank.irri.org> or email: [IRRIPostHarvest@cgiar.org](mailto:IRRIPostHarvest@cgiar.org)