



National Agricultural Research Institute

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Storage and Preservation of Rice



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RGP007

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Storage Techniques for Rice

Introduction

During storage, paddy rice is still alive because it respire. The by-products of respiration can promote microbial growth which can damage the grains.

You must follow proper storage techniques to protect your rice from micro-organisms, rats, insects, water and air. This leaflet describes some simple techniques that you can use to store paddy rice.

Materials

You need sacks, containers, abaca twine, shipping tags, wooden pallets and a good storage room.

If you have money, you can buy chemicals like malathion E57, Carbaryl 85S and a knapsack sprayer for use.

Caution

- 1). Before you spray, seek professional advise from pest control technicians
- 2). Rice to be used as food should not be treated at all

Acknowledgement

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Compiled by Joel G. Waramboi Rice and Grain Programme April 2003
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Recommended Storage Practices

You can safely store your seeds for longer periods only if you do the following:

- dry the grains to 13% MC
- protect the grains from insects, rats etc
- keep out water, rain and air
- allow air circulation in the store
- remove damaged crop from good ones
- spray the area if pests are found
- keep the storage shed clean and tidy
- use proper storage techniques

1. At 14-18% MC, you can store seeds up to only 3 weeks. You will face problems with mould, heat built-up and weight loss.

2. At 13% MC or less, you can store for 8-12 months. Insects are likely to damage your crop during storage so you must spray.

3. At 9% MC or less, you can store for a year and over. Seeds may lose viability so quickly regenerate them after this time.

(Source: IRRI, Rice Knowledge Bank CD)

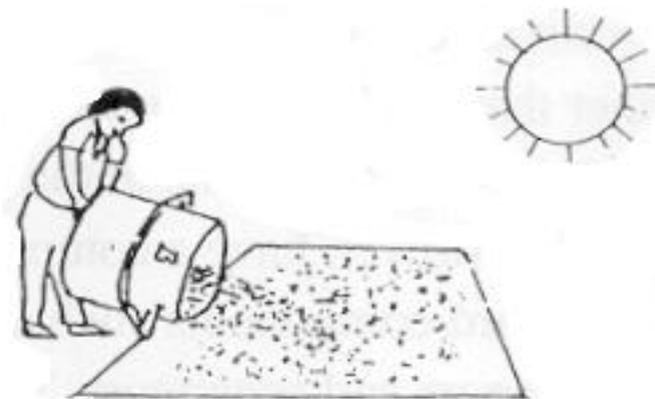
Method 1. Sack storage

Sacks or bags are readily available. You can use plain bags or jute sacks for seed storage. Follow the steps below.

Step 1. Drying of grains

Dry the rice in clear sunlight for 5 consecutive days for at least 6 hours per day.

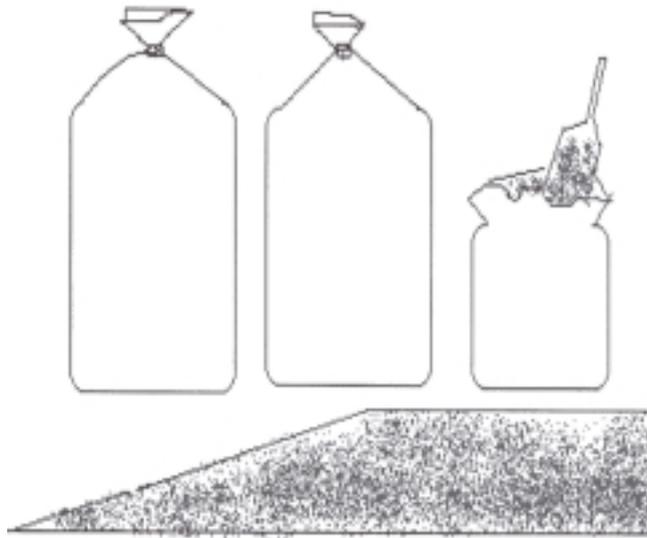
Spread the grains on a canvas at a depth of 3cm thickness. The moisture content (MC) should be at 13% or less for safe storage.



Source: Pande, H.K, Tran, D.V and That T.T (1994), Improved upland rice farming systems, FAO, Rome, pg 107

Step 2. Bagging of grains

Put the grains in clean bags made of jute or other materials. You can treat your seeds by soaking in 1% carbaryl insecticide. Dry it before putting them into the bag.



Caution

If you intend to use the grains for food, do not treat it with chemicals.

Method 3: Hermetic storage

Bulk storage becomes necessary when you handle large quantities for extended periods. This is necessary in commercial operations.

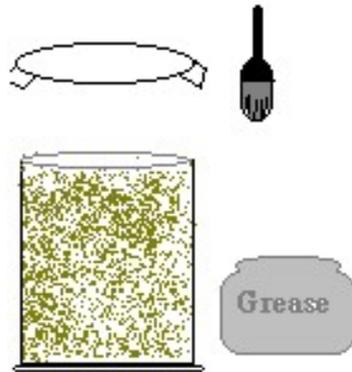
You can use large storage facilities such as silos, steel tanks, granaries and cement-plastered storage bins. They have good protection against insects, rodents, water and air.



The cement-plastered bin shown above can act as a hermetic seal if a lid is properly attached to it.

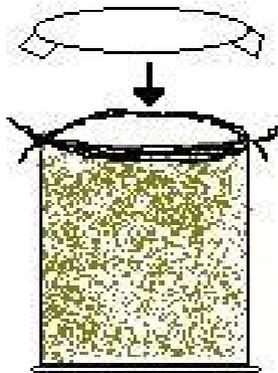
Step 3. Application of sealant

Apply ordinary car grease (sealant) around the mouth of the drum. The grease will stop air from going in and out of the drum.



Step 4. Closing of lid

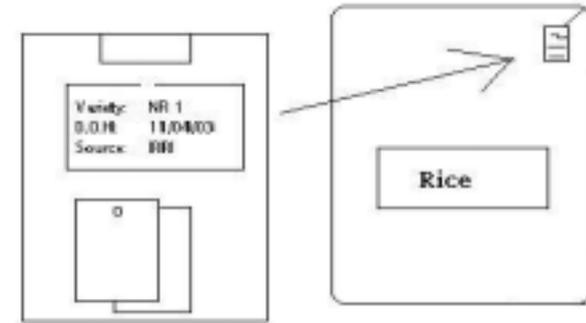
Close the drum with the lid. Tie the lid with rubber to firmly keep it in place. Only remove seeds from the drum when required.



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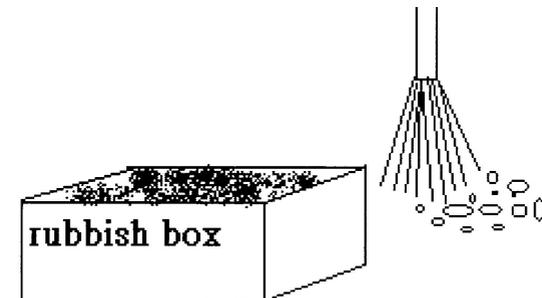
Step 3. Label the bags

Write the name of the variety, date of harvest, source and weight. Indicate the moisture content if known.



Step 4. Clean the storage area

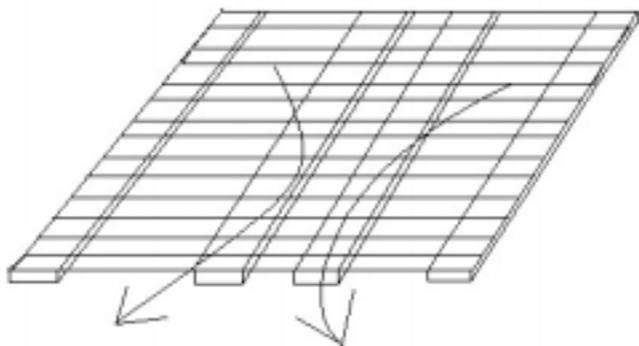
Clean the storeroom properly. Remove any rubbish and dirt. You may spray the area with 2% Malathion solution before use.



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Step 5. Allow good ventilation

Airflow is important. Leave 1m space between the pallet and the wall to allow good air flow in the shed.



Step 6. Stacking of bags

Place wooden pallets on the floor and stack the bags on top of one another. Stacks should not be too high for reach. Do not put chemicals near your stock.

Step 7. Routine inspection

Check the stock twice a week for signs of insects, micro-organisms, rats and water.

If there are insects, spray with Cabaryl solution.
If seeds are wet, redry them in the sun.

Method 2. Container storage

Simple hermetic seals can be made using a 200 litre drum. This method can store seeds up to 18 months. Follow the steps below.

Step 1. Clean the drum

Wash the drum properly with detergents to remove dirt, rust, oil, grease and smell. Dry it before use.

Step 2. Filling the drum

Fill the drum with grains to full capacity. Do not leave empty spaces. If there is, fill it with straws to take up the empty space.

