RICE

Designed by:

Crop Manager Team

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Varieties

There are two main rice varieties grown in the tropics today and they include:

Up land rice - this type of rice is grown on land and does not require swampy areas e.g. NERICA 1, 4, and 10.

Lowland rice - this is the oldest type of rice grown, and it requires water soaked places for its production. Also known as paddy rice it has the following types grown i.e. K6 and K85.

Soil needs

Rice is best grown on fertile, clay loam soils for lowland rice, and clay loamy soils for upland rice.

Propagation

All rice varieties are best started using seeds.

To gain profitably one should use viable seed without insect damage or contaminants.

Planting

Prepare the field early by removing barriers and level the ground as this helps in giving better water coverage and establishment of the crop.

Before planting select the seeds to use by sun drying them for 1 or 2 days to break dormancy and then also adding water to the seeds to help discard all empty grains that float in water.

There four basic methods for growing rice and these include

For transplanted crops:

Select a nursery site that is 1/10 in size of the intended planting area.

Prepare the nursery by plowing at least twice and harrow at least once.

Level the soil surface and put in drainage lines across the field.

Pre-germination and sowing - soak the seed for 24 hours and then drain for 24 hours in the shade. Broadcast seed in the nursery evenly, over the water covered soil surface.

Apply seed: 30–40 kg seed/ha transplanted area.

Apply both chemical and organic fertilizer in the field before the last plowing.

Transplanting age: short-medium duration varieties need 20-30 days and long-duration varieties need 20-40 days in nursery after seeding

Transplant in lines into puddle and water-covered fields

Maintain water coverage in field

For direct seeding:

Prepare the field by plowing at least twice and harrowing once-compare seed size and clod size.

Level the soil surface.

Apply and incorporate basal fertilizer before the last plowing or at 10 days after establishment.

Wet direct seeding:
Pre-germination of seed - soak the seed for 24 hours and then drain for 24 hours in the shade before broadcasting evenly over the water-covered soil surface.

Broadcast pre-germinated seed at 100 kg/ha

Allow surface water to drain or percolate naturally into soil

Keep soil surface moist by adding water.

Add permanent water at 10–15 days after establishment or at 2–3 leaf stage.

Apply basal fertilizer after permanent water is added.

Dry direct seeding

Hand broadcast dry seed at 100 Kg/ha or machine drill seed at 80 Kg/ha and 20 mm depth

Apply basal fertilizer through the seed drill.

Cover broadcast seed and fertilizer with a light harrowing

Flash flood until 15 days after emergence or 2-leaf stage then add permanent water

Fertilize the growing plants with NPK to boost the residual nutrients in the soil

Disease management

Brown Spot Disease

Symptoms

- Infected seedlings have small, circular or oval, brown lesions, which may cause distortion of the primary and secondary leaves. (Symptom is called seedling blight)
- Infected seedlings become stunted or die.
- Young or underdeveloped lesions on older leaves are small and circular, dark brown or purplish brown.
- A fully developed lesion on older leaves is oval, brown with gray or whitish center with reddish brown margin.
- Lesions on older leaves of moderately susceptible cultivars are tiny and dark.
- When infection is severe, the lesions may coalesce, killing large areas of affected leaves.
- Infected glumes with black or dark brown spots.
- Infected grains with black discoloration or with brown lesions.
- Infected young roots have a black discoloration.

Control

- Grow resistant varieties.
- Adopt seed treatment with Carbendazim (12%) + Mancozeb (63%) combination 75 WP @ 2 g/kg or Carbendazim 50 WP @ 2 g/kg or Mancozeb (63%) 75 WP @ 2 g/litre or Mancozeb 75 WP @ 2.5 g/litre.

Sheath Blight

Symptoms

- Initial symptoms usually develop as lesions on sheaths of lower leaves near the water line when plants are in the late tillering or early internode elongation stage (approximately 10 – 15 days after flooding) varies from place to place.
- These lesions usually develop just below the leaf collar as oval-to-elliptical, green-gray, water-soaked spots about ¼ inch wide and ½ to 1 ¼ inch long.
- Disease development progresses very rapidly in the early heading and grain filling stages during periods of frequent rainfall and overcast skies.
- As plants grow from maturity, lesions will dry and become grayish-white to tan with brownish borders.
- Sclerotia, initially white turning dark brown at maturity, are produced superficially on or near the lesions. Sclerotia are loosely attached and easily dislodge from the plant.

Control

- Grow resistant varieties.
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False Smut

Symptoms

- The color of the ball becomes orange and later yellowish green, or greenish black.
- The surface of the ball cracks at a given stage.
- The outermost layer of the ball is green and consists of mature spores together with the remaining fragments of mycelium.
- The outermost layer is greenish black with powdery spores; the middle layer, orange; the innermost, yellowish.

Control

Spray Propiconazole 25 EC @ 1 ml/litre or Chlorothalonil 75 WP @ 2 ml/litre or Copper oxychloride at around flowering.

Bacterial Blight

Symptoms

- Affected areas become yellowish and light brown due to drying.
- Withering of leaves or entire young plants.
- Pale yellow leaves at later growth stages.

Control

- Apply judicious level of fertilization (60-80 kg N/ha with required level of potassium) without sacrificing the yield. Apply N in 3-4 splits.
- Destroy infected stubbles and weeds. Avoid shade in the field.
- Grow resistant/tolerant varieties.

Harvesting

Rice is ready for harvesting when the grains are hard and turning yellow or brown.

This is about 30 to 45 days after flowering or a month after flowering.

Cut the stems with a sickle about 10-15cm above the ground.

Lay harvested rice crop in upright position for drying before threshing can be done manually by beating rice against the floor or a stick to release the seeds.

Winnow to separate the husks from well matured grains.

Sundry the rice 2-3 days before milling to reduce breakage during mill

Mill the grains to produce clean white rice, then pack and store for market.