



Crop Management Practices

An Agricultural Extension Initiative of **INDORAMA**

Rice (Paddy)



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Introduction

Nigeria produces approximately 4.5 million metric tonnes of rice per year. Rice is an economically and culturally important food crop and its production is regarded as the single most important economic activity on the planet. **More than 2.7 billion** people rely on rice as their major source of food and most of them are poor. By the year 2025, this number will grow to **4 billion people**.

Rice Cycle





Agronomic Practices

Soils

Loam to clay loam soil, which becomes soft on wetting but develops cracks on drying, is suitable for Rice Crop. The field is prepared primarily by ploughing with soil turning plough, followed by harrowing. Before transplanting, the main field is filled with water and is puddled twice by paddy puddler or once by rotavator. Puddling should be followed by planking.

Seed Treatment

Sort out the seeds by dipping it into a 10% salt solution. For this purpose, dissolve 1 kg salt in 10 litres of water for 10 kg of seed. Dip 2-3 kg of the seed at a time in the solution and remove the floating seeds. Collect heavy seeds settled at bottom of the solution and wash them 2-3 times with clean water before treating them.

For seed treatment, dip the seeds in a solution prepared by dissolving 10 g Carbendazim (Bavistin) or MEMC (Emisan 6 Hg) and 1g Streptocycline in 10 litres of water (for 10 kg seed) for 24 hours.

Take out the treated seed from the solution and cover it with moist gunny bags and allow it to sprout by sprinkling water frequently on the gunny bags.

Fertilizer Management

To get higher yield of rice and to maintain soil health particularly when exhaustive cropping systems like rice-wheat are followed, use of FYM or green manure along with chemical Fertilizers is necessary.

- Apply FYM @ 6 T/acre and incorporate it

into soil by ploughing before 25-30 days of transplanting

- The Fertilizers should be applied as per soil test report. However, in its absence, apply Fertilizers according to the following general schedule:

For Hybrid/High yielding varieties: N 100-150 kg/ha (Indorama Urea 220 to 330 kg/ha), P₂O₅ 60 kg/ha, K₂O 60 kg/ha, Zinc sulphate 25 kg/ha for hybrids and high yielding varieties

- Apply full dose of Phosphorus, Potash and Zinc at transplanting
- Apply Nitrogen (N) in 3 equal splits at 1 (transplanting), 21 and 42 days after transplanting and apply N in ammonical form through fertilizers like Urea
- Avoid stagnant water in the field at the time of application of N fertilizer.

Spray the Crop with a solution of 0.5% Zinc Sulphate and 2.5% Urea if Zinc deficiency symptoms appear. For this purpose **1 kg Zinc Sulphate and 5 kg Urea** dissolved in 200 litres of water is sufficient for spraying one acre of the Crop. Repeat the spray if needed.

Time of Application of Urea in Paddy

- Go for split application of Urea to increase its availability at different crop growth stages, to get uniform growth and to avoid Nitrogen losses.
- Paddy requires Nitrogen (Urea) at two different growth stages viz: vegetative stage and before panicle initiation stage
- Provide enough Nitrogen at the time tillering

Points to Consider for Quantity and Time of Application of Urea in Paddy

- Apply during initial stage of Crop growth to get more tillers
- Apply Urea after tillering leads to good seed setting in the emerging panicle.
- Apply Urea at later stages and before panicle initiation stage increases the Nitrogen content in seeds.
- Nitrogen should be available to the Crop at almost all growth stages to improve yield.

Nitrogen management

Quantity and time of Nitrogen application depends on soil characteristics, irrigation management, climate, and method and time application.

Weed Management

Chemical Weeding

- Direct Sowing :
 - As Post-Emergence Spray Butachlor 50 E.C. or Thiobencarb 50 E.C. @ 2-3 litre/ha in 700-800 litre of water after 2-3 days of sowing to control all types of weeds.
 - As Pre-Emergence Spray Alachlor 50 E.C. or Butachlor 50 EC @ 4 lit./ha before sowing in upland condition to check the germination of all weed seeds.
- Transplanted Rice Field :
Spray Anilophos 30 E.C. 0.4 lit./ha or Oxyflorfen 200 g/ha or Butachlor 50 E.C. 2 lit./ha in 600-700 lit. of water after 5-7 days of sowing to control all types of weeds.
Standing water in the field shouldn't be > 5 cm.

Insect Management

Stem Borer or Leaf Cutting Insects: To control the insects like Leaf Roller, Case Worm, Army Insects etc. spray Chlorpyrifos 1 lit. or Endosulfan or Quinolophos 1.5 lit./ha and add Tipol 5 ml/10 lit. of water during at the time of spray. To control Babhani insects spray Phosphymidon @4-5 ml/10 lit. of water or Monocrotophos @ 1 ml/lit. of water

Diseases Management

Blast:

Causal Organism : Pyricularia Grisera

- Seed treatment with Agrosan G.N. or Seresan or Thiram or Carbendazim @ 2g/Kg of seeds.
- Spray 0.1 % Hinosan 50 E.C. (4-5 times), Carbendazim 250 gm or Tricyclazole 75 wp @ 500 gm/ha.

Brown Spot:

Causal Organism : Helminthosporium Oryzae

- Seed treatment with Thiram or Carbendazim @ 2 g/Kg of seeds.
- Spray Edifenphos @ 500 ml/ha or Mancozeb @ 1 Kg/ha.
- Application of Neem coated Urea.

Harvesting and Threshing

Harvest the Crop when the panicles are mature and the plants have turned considerably yellow. The Crop can be harvested manually by sickles or by combine harvester. The manually harvested crop, tied into small bundles on the same day, is hit against hard surface to separate the grains from the straw, followed by winnowing.

Seed Production

For seed production, do not grow nursery in a field where Rice crop was grown for the last years. Harvest the crop for seed purpose from a place where the crop is good and healthy and rogue out the other variety plants and diseased plants from the area and thresh the seed crop separately. Dry the seed and keep it in fumigated stores

