

- For the control of Gundhi bug, apply Chlorpyrifos @ 25 kg/ha or spray Monocrotophos @ 1.5 litres/ha.
- For the control of leaf folder, spray Quinalphos 25 EC @ 2 litres/ha.

Disease Control

- For control of fungal diseases such as blast and brown spot spray 0.1 % Hinosan or 0.1 % Bavistin. Sheath blight can be controlled by spraying Sheath mar @ 2 ml/litre.
- For control of bacterial diseases such as bacterial leaf blight (BLB) and bacterial leaf streak, drain the field, and apply an extra dose of K fertilizer @ 20 kg/ha. Delay top dressing of N.
- For control of viral diseases such as Tungro and Grassy stunt remove the infected plants and control the insect vector by applying Furadan @ 30 kg/ha.

Harvesting, Drying and Storage

- Drain out water from the rice field after 15 days from the milk formation stage. Harvest the crop when 80% of the grains in panicles are ripened. Dry the harvested paddy. Thresh with paddle thresher or power thresher. Clean paddy grains by winnowing. Dry gradually under shade. Store the rice in improved storage bins.

Points to remember

- Never use the harvested hybrid rice grains for raising the next crop.
- Apply N in four equal splits at basal, 21DAT, PI and panicle emergence.
- Apply K in two splits 3/4th in basal and 1/4th at PI.
- Nursery sowing should be very thin (20 gms/sq.m.) to get robust seedlings.
- Transplant only one or two seedlings /hill at 15 cm x 15 cm or 15 cm x 20 cm.



Production Technology for Hybrid Rice- Rajalaxmi

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RICE hybrids have higher yield potential due to the phenomenon of heterosis or hybrid vigour and can produce 7-8 t/ha which is more than 1 t/ha over the best high-yielding varieties of similar duration. So far, in India, 59 hybrids with duration of 90 to 145 days have been developed and released for cultivation in irrigated and shallow lowlands. The Central Rice Research Institute has developed three hybrids, Ajay, Rajalaxmi and CR dhan-701 suitable for both irrigated and shallow lowlands. Ajay & Rajalaxmi were released during 2005 by Odisha State Seed Subcommittee. Of these two hybrids, the hybrid Rajalaxmi (CRHR-5, IET18850) is a F₁ hybrid developed through three-line system of hybrid rice breeding from the cross CRMS32Ax IR42266-29-3R. This hybrid is based on an indigenous diverse CMS line other than IR 58025 A and was the first hybrid to be released in the country using a CMS line with diverse cytoplasm (Kalinga-I) other than WA. This hybrid is medium statured (110 cm), non-lodging with moderate tillering habit and high spikelet fertility (>87%). It has non-shattering habit with long slender, non-aromatic translucent grains with good milling (60% HRR), cooking and eating qualities. The hybrid matures in 125-130 days and has an yield potential of 6.0 tons (*kharif*) to 7.0 tons (*rabi*) per hectare which is more than 1.0 t/ha over the comparable checks, Tapaswini and Lalat. The hybrid is tolerant to leaf blast, BLB and has field tolerance to stem borer and WBPH. The hybrid also has tolerance to excess stagnant water for a period of 10-15 days and can tolerate brief spells of submergence. Rajalaxmi also performed extremely well under boro situation and has moderate cold tolerance at seedling stage and was identified during 2010 by CVRC for boro

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areas of Odisha and Assam. It has also shown good performance under aerobic and saline/alkaline conditions. The hybrid has shown good performance in the states of Odisha, Chattisgarh, Jharkand, Bihar, West Bengal, AP and Maharashtra. Seed production of the hybrid was found to be commercially feasible as the two parental lines do not differ widely in flowering duration resulting in good flowering synchronization in seed production plots.

Suitable agronomic management practices are to be followed to obtain the potential yield of the hybrids. This bulletin gives information on production technologies to be followed for obtaining optimum yields by cultivating the hybrid, Rajalaxmi.

Nursery Bed Preparation

- Plough the seed bed area twice when the land is dry. Impound water for four to five days. Drain excess water. Puddle the area twice or thrice. Level it by laddering.
- Prepare raised and levelled wet nursery beds of 1 m width with provision of drains of 30 cm width between the beds. Apply NPK @ 500: 500: 500 g/ 100 m² of nursery area and 100 kg of farmyard manure (FYM) for every 100 m² of nursery area before final land preparation.
- Use 20-25 g of seeds per 1 m² of nursery area. Nursery area of 600 m² is required for one hectare of main field.

Selection of Seeds

- Use faithfully labeled hybrid seeds.
- As hybrid seeds are light, never use salt solution for discarding light and half-filled grains before sowing. These grains normally have good germination.

Seed Rate

- As the test weight of this hybrid is low, twelve to fifteen kgs of hybrid rice seeds are sufficient to transplant in one hectare of land.

Seed Treatment

- Treat the seeds with Carbendazim (Bavistin) @ 2 g/kg of dry seeds after soaking in water for 24 hours.
- Spread the treated seeds on a hard floor under shade. Cover with wet gunny bag and straw and sprinkle water 2-3 times a day. Seeds will sprout in one to two days.

Time and Method of Sowing

- The right time for sowing seeds is mid-June for wet season and early December for dry season.
- Sow the sprouted seeds on levelled and drained wet nursery beds with no standing water.

Nursery Management

- Irrigate with a thin film of water two to three days after sowing of sprouted seeds. Give light irrigation afterwards.



- After 15 days of seedling growth, apply Carbofuran (Furadan 3G) @ 250 g/ 100 m² of nursery.
- Keep the nursery weed-free.

Land Preparation

- Irrigated medium land with drainage facility is suitable for growing hybrid rice.
- Apply and incorporate 5 t/ha of FYM compost during the dry ploughing.
- Irrigate the field and puddle 7 to 10 days before transplanting to incorporate the weeds, if any. Puddle the land again, and level it by laddering prior to transplanting.

Transplanting

- Uproot seedlings and dip the roots of the seedlings in Chlorpyrifos solution @ 1 ml/litre of water, overnight before transplanting.
- Transplant 25 to 30 days old seedlings erect at a shallow depth of 2 to 3 cm on puddled and levelled land (with no standing water) @ one to two seedlings/hill with a spacing of 20 cm (row-to-row) and 15 cm (plant-to-plant) or 15 x 15 cm between plants and rows. Rows should preferably be in the north-south direction.

Fertilizer Application

- Apply NPK @ 100: 50: 50 kg/ha in wet season and 120 : 60 : 60 kg/ha in the dry season. Soil test based fertilizer application especially for P and K is preferred over blanket dose.
- Apply one fourth of total N, entire amount of P and three fourths of K as basal after draining out the standing water but before final puddling. Top-dress the remaining N in three equal splits, each at three weeks after transplanting, panicle initiation (70 days from the date of sowing) and panicle emergence stages. Also apply remaining one fourth of K at panicle initiation stage.

Irrigation and Cultural Practices

- Irrigate the field two days after transplanting. Maintain continuous shallow submergence to a water depth up to 5 cm till mid-grain filling stage.
- Complete gap filling to replace dying plants within 7 to 10 days after transplanting.
- Weed out the rice field at least twice, once at 21 days after transplanting (DAT) and again at 42 DAT.

Plant Protection

- Protect the crop from insect pests and diseases with regular monitoring of pest attacks and by following need based pesticide application.
- While spraying pesticide, use 500 liters of water/ha in case of power sprayer. Keep the field bund clean to minimize disease and pest attack.

Insect Pest Control

- Give one application of Furadan 3G @ 30 kg/ha or Thimet 10 G @ 10 kg/ha at three weeks after transplanting and then spray applications of Monocrotophos 36 EC @ 1.5 litres/ha or Chlorpyrifos 20 EC @ 2.5 litres/ha twice at 15 days interval thereafter, to keep the crop free from insect pests.

