Production technology for a high yielding early transplanted rice variety

CR Dhan 321

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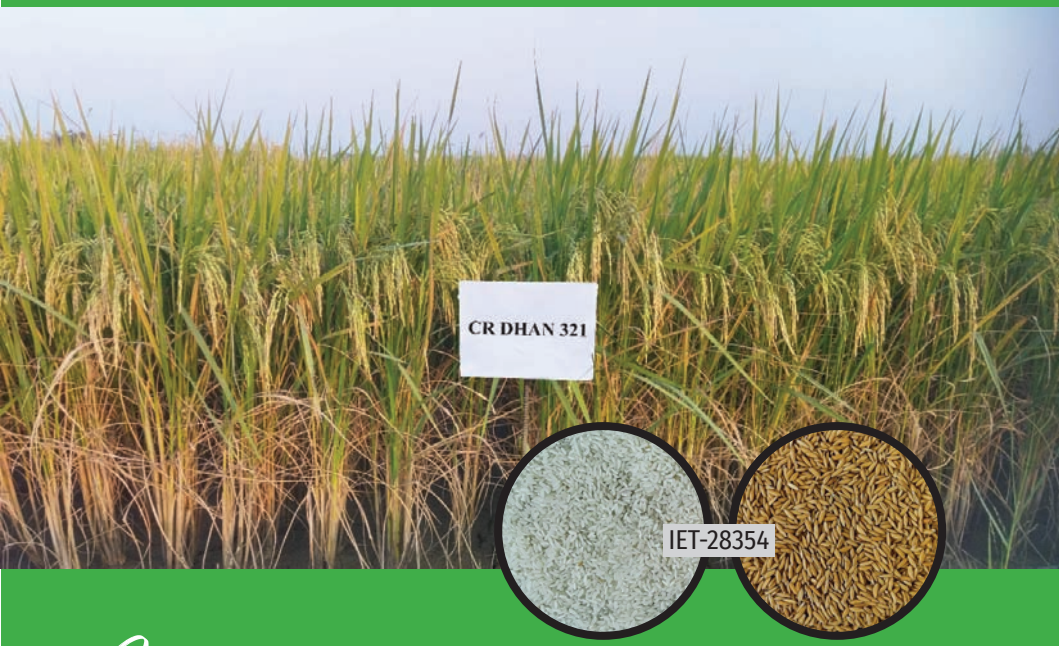

An inbred rice variety named CR Dhan 321 (IET 28354) has been developed at the ICAR-National Rice Research Institute (NRRI), Cuttack, from the cross between IET 22296 and RR 2-6. This is the first rice variety ever to be released for nine states by NRRI. This variety has been released and notified by the Central subcommittee on "Crop Standards, Notification, and Release of Varieties for Agricultural Crops" in 2022 for Odisha, Bihar, Jharkhand, West Bengal, Uttar Pradesh, Tripura, Assam, Chhattisgarh, and Maharashtra for irrigated ecology. It can be grown on irrigated medium lands in both the kharif and rabi seasons. It matures in 118–120 days and has a semi-dwarf plant type with lengthy panicles.

PACKAGE OF PRACTICES FOR HIGH YIELD

Seed selection

- Ensure genetic purity with more than 80% germination by obtaining seeds from a reliable source.
- Select well filled seeds from a healthy crop, free from insect and disease attack.
- The lighter seeds could be rejected by dipping in 2% brine solution which helps in selection of high-density seeds and separation of floating seeds.

Seedbed preparation

- Select suitable land near a water source in June for *kharif* and December for *rabi* crop.
- Plough the soil 3-4 times and level properly. Apply sufficient Farm Yard Manure (FYM)/ compost in the nursery area.
- Make raised beds of one-meter width of any convenient length keeping a gap of 30 cm around the beds. About one-tenth of the area of the main field is required as the seedbed.
- Sow the sprouted seeds on levelled and drained wet nursery beds with no standing water.

Seed rate and seed treatment

- 30-40 kg seeds per hectare are required for transplanting
- Treat the seeds with Agrosan GN or Ceresan or Carbendazim @ 2g/kg of seed before sowing
- In wet seedbed conditions, seed treatment can be done at the time of seed soaking for sprouting.

Sowing time

- Kharif / Wet season: first week of June in a nursery bed.
- Rabi/Dry season: end of November to mid-December in a nursey bed

Nursery management

- After 24 hours of seed soaking, drain the water and keep the seeds in a gunny bag for germination.
- Sow the sprouted seeds in a nursery bed and keep the bed moist for few days.
- Maintain a shallow layer of water in the nursery when seedlings reach about one inch height. Top dress the nursey bed with 1.5 kg powdered DAP or 2.0 kg of 17: 17: 17 NPK, 7 days before uprooting.

Main field preparation

- Irrigated medium land is suitable for growing this variety.
- Prepare the land well using a tractor-drawn plough.
- Apply and incorporate 5t/ha of FYM/compost during the early ploughing.

- Puddle the field twice and give a gap of at least 7-8 days between initial and final puddling for better weed control and nutrient availability.
- Level the field with a leveler to maintain a uniform water level throughout the plot.

Transplanting and stand establishment

- Transplant with a spacing of 20 cm × 15 cm by mid-July *kharif* and mid-January *rabi* season.
- 25-30 days old seedlings should be transplanted in the puddled field with 2-3 seedlings/hill. Gap filling should be done after 10 days of transplanting.

Fertilizer management

- Apply NPK @ 80:40:40 kg/ha. Apply one-third of the N, the entire amount of P, and two-third of K as basal and the remaining N in two equal splits at 3 weeks after transplanting and at the panicle initiation stage. Also, apply the remaining one-third of K at panicle initiation.
- Apply Zn@ 25 kg/ha in zinc deficient soils as basal dose.
- Use Leaf Colour Chart (LCC)based N application for increased N use efficiency

Weed management

- Spray herbicides Bispyribac sodium @ 320ml/ ha or Azimsulfuron @ 70 g/ha mixing with 500 liters of water 10 days after planting in a thin film of water for effective control of grassy weeds and sedges at 10-12 DAT.
- Keep the field and bund free from weeds to minimize disease and pest attacks.

Water Management

- Keep the field under saturated conditions for a week after transplanting for proper crop establishment and growth of roots.
- Continuously maintain a water level of 3-5 cm during the entire crop growth period to suppress weed growth.
- The field should be drained before the top dressing of fertilizers and irrigate after 24 hours of application.
- Drain out water 15 days after the milk formation stage.

Disease and insect pest management Diseases

- If bacterial blight appears, drain the field, apply an extra dose of K fertilizer @ 20 kg/ha and delay the top dressing of nitrogen fertilizer.
- Apply Plantomycin (1g)+Copper Oxychloride (2.5g) per liter water for controlling bacterial blight.

Insect Pests

- Protect the crop from insect pests with regular monitoring of pest attacks and by following need-based pesticide application.
- During *rabi* season, yellow stem borer is a major pest at the initial stage of plant growth. Therefore, dip the roots of the seedling in Chlorpyriphos

solution @ 2 ml/l of water overnight before transplanting. Give soil application of Chlorantraniliprole granules @ 10 kg/ha at 30 days after transplanting to reduce the incidence of stem borer and other insect pests.

- Application of Chlorantraniliprole (Ferterra 0.4% GR) @ 10 kg/ha at brood emergence is also very effective in controlling YSB.
- Foliar spray of Imidacloprid @ 1 ml/l or Chlorpyriphos @ 2ml/l can be applied for brown planthopper, WBPH, leaf folder, etc.
- When insect crosses economic threshold level, apply foliar spray of Triflymezopyrim @ 0.5 ml/l or Imidacloprid @ 0.5ml/l for brown planthopper, WBPH and leaf folder management.

Harvesting

- Harvest the crop at 25-30 days after flowering when 80% of grains in the panicle are ripened.
- Threshing, winnowing, and proper drying should be done before storage.
- Thresh immediately after harvesting and dry up to 12% grain moisture level of storage.

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