DRR Dhan 42

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Rice Fact Sheet

About the variety:

DRR dhan 42 is a high yielding short duration (120 days) drought tolerant variety suitable for upland and drought prone shallow low lands. It has semi-tall plant stature (100-105 cm), and good grain quality (long slender). The variety has high yield potential (5.0 to 5.5 t/ha) and can replace other existing low yielding varieties of the same duration during both kharif and rabi seasons. It can tolerate drought well and offers yield advantage of 0.5 to 1.5 t/ha over other varieties under drought stress conditions. Farmers can grow this variety in intensively cultivated patches to take up a second crop of vegetables or potatoes after an early rice harvest.

How to grow:

DRR Dhan 42 can be direct seeded or transplanted depending on land and soil type, moisture and the cropping season. Fertilizer cum seed drills can be used for dry seeding in the kharif season and drum seeder in the rabi season. Mechanical transplanting is also fast catching up to save time, labour and cost. Laser levelling can further boost crop performance in larger field plots.

Land Preparation:

Apply available compost uniformly before first ploughing. The first ploughing, or deep ploughing, should be completed within 2-3 weeks before transplanting begins. The second ploughing should be done 7-10 days after the first ploughing then puddling should be done, ten days after the second ploughing and one day before transplanting. In case of DSR (rainfed systems), ploughing is done soon after receiving 50-60 mm rain in the month of June and repeated after 10-12 days to kill the first flush of weeds and planked get a fine tilth. During rabi, puddling is done after 1-2 cycles of ploughing to incorporate the stubbles and weeds. Puddling and levelling minimizes the water requirement.

Seed treatment:

Buy certified/ quality seed from reliable sources. Seed priming may be done by soaking the seed in water overnight or brine solution (20%) and washed with water soon after. Remove floating shrivelled or infected seeds, drain and dry the healthy seed in shade for a day or two. Seed treatment with carbendazim 1 g a.i. /kg seed before seeding is advised in areas endemic to diseases.

Crop establishment:

Primed, treated seed may be used for DSR @ 60 kg/ha with seed drill or 70 kg/ha for broadcasting. Raise dry/wet or mat nursery for transplanting using pre-germinated seeds @ 40 kg/1000 m^2 that would cover 1 ha of transplanted area. Transplant 20-25 days old 2-3 seedlings/hill using manually or mechanical transplanter with a spacing of 20 x 10 cm in puddled fields. Use pre-germinated seed (60 kg/ha) when using drum seeder.

Nutrient management:

IRRI promotes Site Specific Nutrient Management based nutrient/fertilizer management using a web/mobile based app called Rice Crop Manager (RCM)(http://webapps.irri.org/in/od/rcm/). RCM gives fertilizer recommendation based on the variety, soil fertility and target yield of the rice crop. Soil health cards are also issued which the farmer can use to economize fertilizer use for optimizing yield The general recommendations are apply full dose of P & K at final land preparation and N in three splits; half at seedling, one-fourth at active tillering and the remaining at the panicle initiation stages (see table).

Standard Fertilizer recommendation for DRR Dhan 42 is in the next page:

Crop establishment	Nitrogen (kg N/ha)*	Phosphorus (Kg P_2O_5/ha)	Potash (Kg K_2O/ha)	Zinc (kg $ZnSO_4$)/ha
Dry DSR (kharif)	30:15:15 (20, 40-45, 60-65 DAS)	30	30	25
Wet DSR (rabi)	40:20:20 (15-20, 40-45, 60-65 DAS)	40	40	25
Mechanical/ Manual transplanting	40:20:20 (0, 20-25, 40-45 DAT)	40	40	25

*If N applied through LCC, use the critical value 3 for broadcast and 4 for line sown drill seeded rice. If submergence occurs, apply 20 kg N per hectare 5—7 days after the water is completely receded, it helps the crop to recover faster.

Weed Management:
Depending on moisture status of the soil (DSR), use early post emergence herbicides (Pendimethalin, Pretilachlor) within 3-5 DAS and a post emergence herbicide (Bispyribac sodium) 15-20 DAS, followed by a light manual weeding (45-50 DAS) to prevent seed setting of those weeds that escaped the herbicides. Though puddling and transplanting reduces the weed population, weed seeds germinate in several flushes necessitating weed removal in transplanted fields. Holding a 3-5 cm water level in transplanted fields helps to control weeds and using mechanical weeder (cono/rotary weeder) further helps to control them. Manual weeding may be done 20-25 DAT. These measures are helpful in the rainy season when uncertainty of rains prevent the use of herbicides. However, application of post-emergence herbicides under clear skies are effective (15-20 DAT) in kharif, definitely in the rabi, and can reduce the drudgery associated with manual weeding.

Water Management: Moisture stress at rooting and tillering stage can cause poor root growth leading to reduction in tillering, poor crop stand and low grain yield. Critical stages of water requirement in rice crop are; a) panicle initiation, b) booting, c) heading and d) flowering. Keeping a 5cm layer of water with proper bunds in DSR fields is recommended under rainfed conditions, while alternate wetting and drying is advised in fields with assured water supply. Standing water may be drained off 15-20 days after flowering.

Management of Insect Pests & Diseases: DRR Dhan 42 is resistant to blast, and moderately resistant to bacterial leaf blight and brown spot. Clean cultivation, use of disease free seed/seedlings and avoiding excess N application beyond the recommended doses would keep the diseases and insect pests in check. IPM practices also help to avoid serious infestations. However, under very favourable conditions, the farmers may adopt need based sprays of pesticides to reduce damage.

Harvesting:

The crop is ready for harvest when 80% of the panicles turn straw coloured. Harvesting the standing crop with machines and threshing with pedal threshers would reduce the time and drudgery. Some farmers have reported shattering of grains in the field particularly in the rabi season. Harvesting may be advanced by one week in comparison to other varieties to reduce losses due to shattering. Dry the threshed paddy on pavements or tarpaulins to bring the grains to 12% moisture for storage.

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