



Otherwise apply fertilizers as per state recommendation as per details given below in the table:

Name of fertilizer	Rate of fertilizer application (kg/acre)			
	Basal (prior to transplanting)	At transplanting)	At active tillering ¹	At panicle initiation ¹
DAP	35	-	-	-
Urea	-	6-8	25-35	25-30
MOP	15-20	-	-	15-20
ZnSO ₄	10	-	-	-

If DAP is not available it can be substituted with other complex fertilizers like Gromor and NPK mixtures @ 80-100kg N/ha, 40kg P₂O₅/ha and 40-60 kg K₂O/ha

¹ Active tillering (AT) stage: 15-25 DAT

² Panicle initiation (PI) stages: For short term (25-40 DAT), medium term and long term (35-55DAT)

Weed management

- Before land preparation (if weed density is high, particularly of perennial weeds), apply glyphosate 1000 ml/acre about one week before land preparation to kill existing weeds.
- Use pretilachlor 50 EC (Rifit or Erase) 750 g ai/ha (600 ml/acre product) or butachlor 50 EC 1250 g ai/ha (500 ml/acre product) as pre-emergence herbicide. Apply 2-3 days after transplanting, by broadcasting after mixing in 60 kg sand per acre or by splash bottle method in standing water of 3-5 cm depth. It controls grasses, broad-leaved weeds and sedges.
- If pre-emergence was not applied and there is a second flush of weeds, apply any of the following post-emergence herbicide depending on existing weed
 - Spray bispyribac-sodium 10% SL (Nominee Gold, Adora, Taarak) @ 20 g ai/ha (80 ml/acre product) 15-25 DAT: Controls grasses (*Echinochloa* spp and *Ischaemum rugosum*, broad-leaved and annual sedges. Suppresses *Cyperus rotundus*.
 - Bispyribac + pyrazosulfuron (Sathi 10% WP) @ 20 + 20 g ai/ha (80 ml + 80 g product/acre) 15-25 DAT: Controls weed same as above but broaden weed control of broadleaf weeds and all sedges including *C. rotundus*.
 - Chlorimuron+ metsulfuron (Almix) @ 4 g ai/ha (8 g product/acre) @ 20-25 DAT for control of broadleaf and sedges.

One hand weeding may also be supplemented to remove escaped weeds before seed setting.

Best Bet Agronomy of Machine Transplanted Rice in Coastal Odisha



What is mechanical transplanted rice?

Mechanical transplanting of rice is the method/technique of transplanting young rice seedlings grown in a mat-type nursery by using a paddy transplanter.

Advantages

- Addresses the problem of labour shortage as four labors can transplant up to four acres in a day.
- Ensures less transplanting shock, early seedling vigor and uniform crop stand.
- Provides opportunity for mechanical weeding because of line transplanting.
- Provides employment opportunities for rural youth and women through the development of custom service business.

Nursery Raising and Management

A mat-type nursery is a pre-requisite for machine transplanted rice. Mat-type nursery can be prepared in the following **two ways**:



Wet bed method

For transplanting one acre of field, prepare a raised bed (1.5 m wide x 20m long x 15 cm high) and cover it with perforated polythene sheet (1 to 5m. wide and 20 m long). Spread the wet clod free soil mixed with FYM/compost (4 parts wet soil +1 part FYM/compost) on the top of plastic sheet, with soil layer depth not exceeding 1.5 to 2.0 cm. An iron frame (1.2 m wide x 5.0m long x 0.5 inch thick) can be used to maintain the depth of soil layer. Spread the treated and sprouted seeds (8-10 kg/acre of hybrid and 15-18 kg/acre of inbred) uniformly on the top of soil layer. Cover the seeds by thin layer of straw or banana leaves, for 2-3 days. Prepare a channel of 50 cm width between two beds. Irrigate the bed by sprinkling water using watering can for the first 2-3 days till seedling emerge and then flood the bed by irrigating through channels. After one week of sowing, apply 100 g DAP for the said one acre nursery bed.

Dry bed method

The nursery is prepared in dry condition using sieved dry soil mixed with FYM/compost (4:1) on the raised beds covered with perforated polythene sheet. Dimension of raised bed and polythene sheet are same as in wet bed method but the thickness of iron frame and spacing between two beds should be 0.75 inch and 20-30 cm, respectively. Rest process is same as in wet bed method.

The nursery should be prepared 15-20 days prior to the intended date of transplanting in the main field. For high yields, nursery sowing should be done from June 15-30, especially for long-duration cultivars. If sowing is done after 30 June, medium and short duration cultivars should be used.

Seed treatment

Treat the seed with Bavistin or Vitavax @2g/kg of seed to control seed-borne fungal diseases. It can be done by soaking the seeds into water treated with the mentioned fungicides for 10-12 hours, further keeping inside a gunny bag (for sprouting) for 12-14 hours and then drying in shade for 1-2 hours.

Machine Transplanting

Land preparation

- For puddled mechanical transplanting: Prepare the field to a depth of 5-7 cm using a harrow or cultivator or power tiller followed by ponding of the field & puddling. Puddled fields should be well levelled and the soil should be allowed to settle for 12-24 hours before transplanting.
- For non-puddled mechanical transplanting: Prepare the field by ploughing once or twice in dry condition followed by planking. Irrigate the land one day prior to transplanting and allow the soil to settle. Maintain 1-2 cm stagnating water in the field while transplanting by re-irrigating, if required. Go for non-puddled transplanting in wet season only.

Cultivars Selection

For low and medium land	Swarna- Sub 1, Swarna, Pooja, CR 1009, CR 1018, CR 1009-Sub 1 Ranidhan, Pooja, Savitri, Pratikshya, BINA 11
For Upland	Sahbhagi Dhan, Lalat, Khandagiri, DRR 42
For flood prone areas	Swarna-Sub 1, CR 1009-Sub 1 , BINA 11

Transplanting method

Mechanical transplanting is done through a self-propelled riding type or walk-behind type planter.

Spacing: Row to row = 23.8 cm or 30 cm (fixed); hill to hill= optional (14 or 17, 19 or 23 cm)

Time of Transplanting

Duration	Variety	Time of transplanting
Long duration (140-160 days)	Pratikshya, Pooja, Sarala, CR 1009, CR 1014, CR 1009-Sub 1, Swarna, Swarna-Sub 1, Ranidhan	July 1 - July 15
Medium duration (120-140 days)	Lalat, BINA 11, Naveen, DRR-42	July 15 - Aug 30
Short duration (100-120 days)	Sahbhagi dhan, Khandagiri	Aug1 - Aug 15

Fertilizer management in the transplanted field

Rice Crop Manager, a decision support tool can be used for calculating field specific fertilizer requirement for a given variety. The tool is available at

<http://webapps.irri.org/in/od/rcm/>