

## CEREALS

### Rice (*Oryza sativa*)

#### Boro Rice

##### Varieties:

Variety	Year of release	Sowing time	Planting time	Harvesting time	*Duration (Days)	#Agro-climatic Zone	Average yield (t/ha)
Boro 1	-	Nov.	Dec./Jan.	Apr./May	150	N,U,C,L,B	3.0
Boro 2	-	Nov.	Dec./Jan.	May	165	N,U,C,L,B	3.0
**IR-50	-	Nov./Dec.	Dec./Jan.	Apr./May	155-160	C,B	3.0
Cauvery	-	Nov./Dec.	Dec./Jan.	Apr./May	150-155	B	3.0
Banglami	-	Nov./Dec.	Dec./Jan.	Apr./May	155-160	B	3.5
Joymati	-	Nov./Dec.	Dec./Jan.	May/June	175	C,L	5.1
Dinanath	-	Nov	Dec./Jan.	Apr./May	160-165	N,U,C,L,B	6.28
Swarnabh	-	Nov	Dec./Jan.	Apr./May	160-165	N,U,C,L,B	6.16
Kanaklata	2017	Dec	Jan-Feb	May/June	165-175	U,C,L, B	5.0-5.5

\* Durations of the varieties are based on experiments at RARS, Titabar. In areas with slightly higher winter temperature the duration will be shortened.

\*\* Not recommended for blast endemic areas

# Refer to page iii for full forms of the abbreviations

##### Land selection:

Low-lying typical boro areas or irrigation command areas are to be selected.

##### Seed selection:

Seeds are to be put in plain water and the healthy seeds to be selected.

##### Seed treatment with chemicals:

(a) **Wet method:** After selection, the seeds are to be soaked directly in any one of the following fungicidal suspensions for 24 hrs.

Fungicide	Concentration (g/lit of water)
Carboxin	2.0

One litre of fungicidal solution is required to treat one kg of seed. Time required for seed treatment with fungicidal solution is for >24 hrs and incubation for > 48 hrs.

(b) **Dry method:** Seeds are to be put in a closed container and then shake for five minutes for thorough mixing with the following fungicide

Fungicide	Concentration (g/kg of seed)
Carboxin	2.0

### Raising of Seedlings:

(a) **Seed-bed Preparation:** Flat seedbed is recommended. Beds should be 125 cm wide and 10 m long with 30 cm gap in between two beds. Six to eight such beds are required for transplanting 1 bigha. Low poly-tunnel (height: 75cm, width: 125cm, length: as per convenience) should be used for raising seedlings during the cold period (end of December to mid January). Poly tunnel is a portable structure constructed with a polythene sheet fixed onto a frame made of bamboo sticks. The structure is placed over the seedlings on the seedbed to ensure favourable temperature for the growing seedlings. Any gap between the polytunnel and the soil should be sealed with mud to maintain warmth inside the tunnel during night. The structure should be removed for 1-2 hrs daily, starting from the 7th day before uprooting in order to allow the seedlings to acclimatize. The duration of removal should be increased gradually and the seedlings should finally be kept completely exposed for about 2 days.

(b) **Seed rate:** Pre-germinated seeds are to be sown @ 0.65-1.0 kg per bed. Seed requirement for transplanting one hectare of main field is 40-45 kg.

#### (c) Plant protection in seedbed:

a) Spraying with ediphenphos @ 1 ml/lit of water is to be done as soon as one-two blast spots are seen.

b) For the control of insect pest any one of the following chemical could be sprayed

Insecticide	Dosage
Chlorantraniliprole 20 SC	30g <i>a.i.</i> /ha or 0.3 ml/lit
Fipronil 5 SC	50g <i>a.i.</i> /ha or 1.5-2ml/lit
Imidachloprid 70 WG	24.5g <i>a.i.</i> /ha or 0.3g/lit
Thiamethoxam 25 WG	25g <i>a.i.</i> /ha or 100g/ha

- High volume spray: 400 ml of water/10 sq.m
- Low volume spray: 100 ml of water/10 sq.m

(d) **Age of seedlings:** 5-6 leaf stage is suitable for planting.

### Field preparation:

The field should be ploughed 3-4 times followed by laddering. Leveling should be done properly to retain water uniformly in the field.

### Fertility Management:

Land situation	Nutrient requirement (kg/ha)			Fertilizer requirement (kg/bigha)		
	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Urea	SSP	MOP
Low lying area	0	0	0	0	0	0
Periphery of low-lying area	40	20	20	12	18	4
Irrigated area	60	30	30	18	27	6

**N.B.** For Barak Valley Zone and Central Brahmaputra Valley Zone, in the periphery of low lying area, NPK dose of 20:10:10 kg/ha (5 kg urea, 9 kg SSP and 2 kg MOP/bigha is recommended).

**Time of application:**

In marshy areas, whole of super phosphate and muriate of potash is to be applied and entire quantity of urea is to be top dressed after 21-25 days of transplanting. For irrigated area, 1/3<sup>rd</sup> urea as basal, 1/3<sup>rd</sup> at the time of tillering and the remaining part at panicle initiation stage are to be applied. Super phosphate can also be incorporated into the soil at active tillering stage 25-35 days after transplanting along with second dose of N.

**Transplanting:**

Variety	No. of seedling per hill for marshy area	Depth of planting (cm)	Spacing row× plant (cm)
Mahsuri Boro 1 Boro 2	2	5	25×20
Kalinga 2	2	5	20×20

**Gap filling:**

The dead hills are to be replaced within 7-10 days of transplanting.

**Water management:**

Irrigation water is to be applied to maintain 5.0±2 cm of standing water in the field after 2-3 days of transplanting up to 7-10 days before harvest. But under constrained availability of water, 7 cm irrigation water may be applied one day after disappearance of ponded water.

**Interculture:**

Two weedings are to be given preferably at 20 and 40 days after transplanting. Weeder can also be used after top dressing to incorporate the nitrogenous fertilizer with the soil. Pre-emergence application of pretilachlor @ 0.75kg a.i./ha followed by rotary paddy weeder at 40 days after transplanting.

**Plant protection:**

**A). Insect Pests:** Plant protection measures to be adopted against insect pests at their Economic Threshold Levels (ETLs) are given in Table 1.

To control rice pests, erect 50 Nos. of ‘T’-perches per ha 2 ft (60 cm) above crop canopy as roosting site for insectivorous birds, which are to be removed before flowering in order to prevent activity of granivorous birds

**B). Diseases:**

**i). Blast:** As soon as one or two spots on leaf are seen, the following spraying schedule is to be followed immediately.

Fungicide	Concentration
Ediphenphos	0.1% (1 ml/lit)
Copper oxychloride	0.4% (4g/lit)

- Volume of spray solution required is 525-750 lit /ha.
- Spraying is to be repeated at 10-15 days intervals till the disease gets controlled.

**ii). Sheath blight:**

For control of this disease, hexaconazole (2 ml/lit) with 525-750 lit of spray solution/ha is to be sprayed. Two sprays are required, the first at the appearance of the disease and another at 10 days after the first spraying.