

PACKAGE OF PRACTICES FOR KHARIF CROPS

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Directorate of Extension
Sher-e-Kashmir
University of Agricultural Sciences & Technology of Jammu

transplanting repair all bunds and again plough the land 2 to 3 times with disc harrow or desi plough. 10cm of irrigation water in the field needs to be applied and puddle it with puddler/disc harrow to obtain a fine puddle. Incorporate the basal dose of fertilizer during puddling.

3. If well decomposed F.Y.M. or compost is available, incorporate it thoroughly @ 15 tonnes/ha in the soil after 1st ploughing and before subsequent ploughings.
4. Obtain a fine well leveled puddled field to reduce water loss through percolation. It has been found that puddling 3 times increases the soil moisture to 2.76 cm over 2 times puddling.

FERTILIZERS: For efficient use of chemical fertilizers, get soil tested well in advance of transplanting from the Soil Testing Laboratory and apply the recommended dose of fertilizers to crop accordingly. In absence of such tests following fertilizer schedule is recommended for soil of an average fertility.

S.No.	Variety	Nutrients (kg/ha)			
		N	P ₂ O ₅	K ₂ O	ZnSO ₄
1.	IET-1410 & K-39	50	30	20	20
2.	China-1039	40	30	20	20
3.	Ratna	80	40	25	20
4.	Tawi (PC-19)/SJR-5	120	60	25	20
5.	Jaya	120	60	30	20
6.	KRH-2 (Hybrid)	120	60	30	20
7.	PHB-71 (Hybrid)	120	60	30	20

These plant nutrients can be made available from the following fertilizer combination:

S.No.	Variety	Fertilizer (kg/ha)			
		Urea	DAP	MOP	ZnSO ₄
1.	IET-1410 & K-39	85	65	33	20
2.	China-1039	63	65	33	20
3.	Ratna	140	88	40	20
4.	Tawi (PC-19)/SJR-5	210	132	40	20
5.	Jaya	210	132	50	20
6.	KRH-2 (Hybrid)	210	132	50	20
7.	PHB-71 (Hybrid)	210	132	50	20

Note:

1. Zinc sulphate should be applied once in three years.
2. When full dose of phosphate is applied in wheat crop then reduce the quantity of phosphate by 25% to 50% in case of paddy.
3. Phosphatic fertilizer can be top dressed upto 30 DAT if not applied as basal dose.

FERTILIZER APPLICATION:

1. When green manuring has been done the P should be applied to the green manure crop and full dose of K and 60% of the recommended dose of Nitrogen should be applied to the rice crop.

2. When F.Y.M. or Compost (15 tonnes/ha) has been applied, apply half of the recommended dose of N, P and K to the rice crop & rest half will be made available to the crop from the added F.Y.M. or compost.
3. Apply full quantity of DAP, MOP and Zinc Sulphate alongwith 1/3rd of N from Urea at the time of puddling and incorporate fertilizers in the soil thoroughly, along with ZnSO₄, remaining N be top dressed in two equal splits-one at tillering stage i.e. 25-30 days after transplanting and the another just before the panicle initiation stage. Drain off the water if possible before top dressing of fertilizer.
4. If in the standing crop yellowing of leaves from tips is noticed at any stage before flowering, the crop may be sprayed with a mixture of 3 g of Zinc Sulphate, 15 kg Urea and 1kg of Zineb/ha in 500 L of water with Knap Sack spray pump.
5. In case, the Zinc Sulphate has not been applied during the land preparation and symptoms of Zinc deficiency are noticed in the standing crop, the recommended dose of Zinc Sulphate may be mixed with equal quantity of dry soil and broadcast it in the affected fields.
6. In rice-wheat cropping system, yield stability & improvement in soil health can be brought about with the application of 50% recommended N through inorganic fertilizers and 50% through FYM in rice & 100% recommended NPK through inorganic fertilizers in wheat.
7. **Use of leaf colour chart (LCC):** Use LCC for need based nitrogen application to the paddy. Use of LCC can help avoid excessive use of nitrogen which is now a days polluting the soil as well as water. Apply 60 kg/ha of Urea as a basal dose after the completion of puddling operation. Match the colour of the youngest fully expanded leaf without any disease symptoms (2nd from top) of at least 10 randomly selected free rice plants with the colour strip of the leaf colour chart every 7-10 days starting from 2 weeks after transplanting of paddy till the flowering stage. Every time while matching the leaves with the strips of LCC if the greenness of 6 out of 10 leaves is less than the shade '4' on the leaf colour strip, top dress 75 kg Urea/ha. If the colour of 5 or more out of 10 leaves is greener than the shade '4' on the LCC strip, do not apply any urea to paddy. Use of LCC holds good for almost coarse varieties of paddy grown in all types of soils. Even if FYM is used, use of LCC gives good result in knowing the nitrogen need of the crop and thus help in avoiding the excessive use of nitrogen.

Zn deficiency: The symptoms of Zn deficiency normally appears 2-3 weeks after transplanting. The lower leaves become rusty brown in colour near the base and ultimately starts drying up. Once the deficiency symptoms are noticed in the field apply ZnSO₄ immediately. In highly deficient soils broadcast 30 kg/ha of ZnSO₄ (Heptahydrate) or 18 kg/ha of ZnSO₄ (Monohydrate) mixed with an equal quantity of dry soil on the affected patches.

Iron deficiency: Under moisture deficient conditions, chlorosis among seedlings appears in the youngest leaf about 3 weeks after transplanting. Plants die and often the crop fails completely. Give copious irrigation as soon as possible once chlorosis appears. Application of 2 or 3 sprays of 1% FeSO₄ solution at weekly intervals (3 kg of FeSO₄ in 100 L of water/ha).

8. In case of unavailability of FYM - alternatively *Leucaena* biomass @ 2.5 t/ha on dry wt. basis be applied at the time of puddling of rice crop.