

Phosphorous



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What is the Role of Phosphorus (P) in Plants

Phosphorous is an essential plant nutrient important for root development, tillering, early flowering, and ripening. It is mobile within the plant, but not in the soil.

How to Manage P ?

P deficiency symptoms. Stunted dark green plants with erect leaves and reduced tillering; thin and spindly stems; delayed maturity (and no flowering at all with severe P deficiency); and high levels of unfilled grains

Occurrence of P deficiency. P is often deficient in sandy soils with low organic matter content; calcareous/saline/alkaline soils; degraded lowland soils; volcanic ash soils or acid upland soils with high P fixation capacity; peat soils; and, acid sulfate soils high in active iron and aluminum.

How much P to apply At optimum plant nutrition, the rice crop (straw plus grain) takes up around 6.4 kg P₂O₅ (2.8 kg P) per ton of grain yield (4.4 kg P₂O₅ in grain and 2.0 kg P₂O₅ in straw). Recommendations for P are based on yield goal and soil P status (see Table on opposite page) as determined by grain yield in P-omission plots (see also Fact Sheet on Nutrient Omission Plot Technique for P and K).

When to apply P fertilizers ? Incorporate all fertilizer P before the last soil puddling before transplanting or top dress all P within 10-15 days after direct seeding.



P deficient plants are stunted and have erect leaves compared with normal plants.



Tillering is reduced in P deficient crops



Leaf discoloration is common in P deficient plants.

P fertilizer	% P ₂ O ₅	Fertilizer P ₂ O ₅ (kg/ha)					
		10	20	30	40	50	60
		Amount of fertilizer required (kg/ha)					
Single super phosphate	16	63	125	188	250	313	375
Triple super phosphate	46	22	43	65	87	109	130
Di-ammonium phosphate (DAP)	46	22	43	65	87	109	130

Phosphorus application (kg/ha)					
Growth stage	Sali season		Boro season		Ahu season
	Semi dwarf HYVs/ STRVs	Tall varieties	Semi dwarf HYVs	Hybrid	Semi dwarf HYVs
Basal application	20 Kg	10 Kg	30 Kg	60 Kg	20 Kg

