





Implementing site-specific nutrient management (SSNM) for irrigated rice in the Philippines

Apply fertilizer based on critical growth stage and yield targets as indicated below.

Fertilizer	Early growth  Within 14 days after transplanting (DAT) or 21 days after sowing (DAS)	Active tillering 	Panicle initiation 	Maturity 
Nitrogen (N)	Moderate amount	LCC-based (see part 2)	LCC-based (see part 2)	-
Phosphorus (P ₂ O ₅), Zinc (Zn), and Sulfur (S)	100%	-	-	-
Potassium (K ₂ O)	50–100%	-	As needed (see part 3)	-

Part 1. Apply fertilizer during early growth within 14 DAT or 21 DAS.

- Step 1. Select a yield target from the options of 4.5–5.5, 6–7, and ≥7.5 t ha⁻¹ (with yield expressed at 14% water content).
- Step 2. Select a fertilizer N rate from the table based on yield target.
- Step 3. Select a fertilizer P₂O₅ rate from the table based on historical use of P₂O₅.
- Step 4. Select a fertilizer K₂O rate from the table based on straw management and yield target.
- Step 5. For rice-growing areas where fertilizer Zn is recommended, apply 25 kg zinc sulfate ha⁻¹.
- Step 6. Where S is recommended, apply ammonium sulfate at the rate indicated in the table.




Fertilizer	Yield target (t ha ⁻¹) →	4.5–5.5	6–7	≥7.5
	Target location ↓	Fertilizer rate (kg ha ⁻¹)		
N	All fields	20	30	40–50
	Threshold historical P ₂ O ₅ rate	20	25	35
P ₂ O ₅	Fields receiving ≥P ₂ O ₅ threshold in past 2 years	20	25–30	35–40
P ₂ O ₅	Fields receiving <P ₂ O ₅ threshold in past 2 years	25–30	30–40	40–50
K ₂ O	Fields with straw removed and low stubble retained (<10 cm)	30	30–40	40–50
K ₂ O	Fields with straw removed and stubble retained (≥30 cm)	20	25–30	35–40
K ₂ O	Fields with straw returned and stubble retained	0	20	30–40
Zinc sulfate	Rice-growing areas where Zn is recommended	25	25	25
S	Rice-growing areas where S is recommended	10–15	15–20	20–25

Either single-element fertilizers or compound (NPK) fertilizers can be used to obtain the desired amounts of N, P₂O₅, and K₂O at the lowest cost.

Part 2. Topdress N as needed by the crop, based on leaf color.



Option 1. Take LCC readings at active tillering and panicle initiation, and apply urea as indicated below.

- Panicle initiation (PI) is about 60 days before harvest.
- Active tillering is midway between 14 DAT or 21 DAS and PI.

Yield target (t ha ⁻¹) →	4.5–5.5	6–7	≥7.5 ^a
LCC reading (immediately before N application)	Application of urea (kg ha ⁻¹)		
 LCC ≤ 3	75	100	125
 LCC = 3.5	50	75	100
 LCC ≥ 4	0	0	50

^a For hybrid rice, apply 50 kg urea ha⁻¹ at early heading if LCC ≤ 3.

Option 2. Take LCC readings every 7–10 days from tillering to booting. Apply urea when the LCC reading falls below the critical value, as indicated below.

LCC critical value (apply N when leaf color reaches critical value) ↓	Application of urea (kg ha ⁻¹)					
	Tillering to PI			PI to booting		
Yield target (t ha ⁻¹) →	4.5–5.5	6–7	≥7.5	4.5–5.5	6–7	≥7.5 ^a
Wet-seeded  LCC < 3	50	75	100	0 ^b	50	50 ^c
Transplanted  LCC < 3.5				0 ^b	50	50 ^c

^a For hybrid rice, apply 50 kg urea ha⁻¹ at early heading if LCC reading reaches the critical value.

^b Apply 50 kg urea ha⁻¹ in seasons with climate favorable for high yield.

^c Increase to 75 kg urea ha⁻¹ for hybrid rice.

Part 3. Apply fertilizer K₂O at panicle initiation as needed.

- Step 1. Identify fields requiring additional fertilizer K₂O based on the presence of one or more of the following:
 - Previous history of K deficiency, such as determined with MOET.
 - Yield response to fertilizer K₂O of ≥1 t ha⁻¹ with nutrient omission plot technique.
 - Alkaline (pH>8) irrigation water.
 - Yield target >6 t ha⁻¹ and removal of straw.

Step 2. For identified fields, select a fertilizer K₂O rate from the table below based on yield target.

Step 3. Encourage farmers to apply the recommended fertilizer K₂O rate to a portion of their field and compare yields with and without the added K₂O.

Yield target (t ha ⁻¹)	4.5–5.5	6–7	≥7.5
Fertilizer rate (kg K ₂ O ha ⁻¹)	10–20	20–30	30–40