Rice phenological phases and their nutrition requirements

Nutrients removal by a rice crop (cv. IR36) yielding 9,8 MT/ha of rough rice grains and 8,3 MT/ha of straw

Plant nutrients *Nutrientes de la planta*	Amounts of nutrient removed (at harvest) / *Cantidad de nutrientes removidos (en cosecha)*				
	Straw / *Paja*		Grain / *Grano*		Total
	kg/ha	%	kg/ha	%	kg/ha
N	75	21	143	70	218
P	5	1	25,5	12	30,5
K	232	65	26	13	258
Ca	27	7	1	0	28
Mg	13	4	10	5	23
S	3,3	0,2	0,5	0,2	3,8

Nutrients removal by a high yielding rice variety ('IR64'), 12 MT/ha rough rice grains and 8,3 MT/ha of straw, by 2 - 3 crops per year.

Plant nutrients *Nutrientes de la planta*	Amounts of nutrient removed (at harvest) / *Cantidad de nutrientes removidos (en cosecha)*				
	Straw* / *Paja**		Grain / *Grano*		Total
	kg/ha	%	kg/ha	%	kg/ha
N	63	20	137	63	200
P	10	3	24	11	34
K	168	53	36	17	204
Ca	46	14	6	3	52
S	31	10	13	6	44

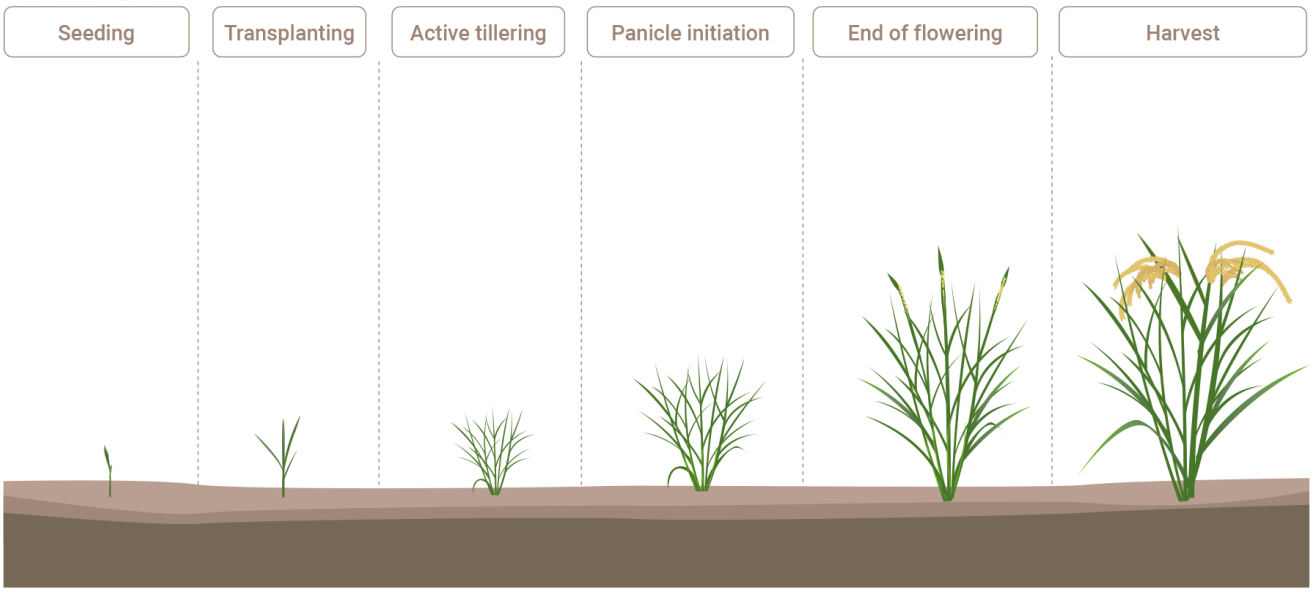
Removal of Si and K_2O are particularly large if panicles and straw are taken away from the field at harvest. However, if only the grains are removed, and the straw is returned and incorporated back into the soil, the removal of Si and K_2O is greatly

reduced, although significant amounts of N and P_2O_5 are still removed.

Optional mineral nutrition schedule for field-grown rice at expected yield of 7-10 MT/ha.

Phenological stage *Fase fenológica*	Days after transplanting *Días después de transplante*	Physical application rates (kg/ha) *Tasa de aplicación física (kg/ha)*	Proportional application rates Tasas proporcionales de aplicación
Pre-planting *Pre-siembra*	-20	N 45 P_2O_5 42 K_2O 42 CaO 18 MgO 7 S 8	N 1 P_2O_5 1 K_2O 1 CaO 0,43 MgO 0,17 S 0,18
Transplanting *Transplante*	0		
Transplant establishment *Establecimiento de transplante*	0 - 14		
Active tillering *Labranza activa*	20 - 30	N 66 P_2O_5 6 K_2O 97 CaO 3 MgO 2 S 5,6	N 1 P_2O_5 0,1 K_2O 1,5 CaO 0,05 MgO 0,03 S 0,09
Panicle initiation *Iniciación de la panícula*	35 - 50	N 15 P_2O_5 19 K_2O 49	N 1 P_2O_5 1,3 K_2O 3,3
Heading	60 - 70		
Grain filling *Relleno de grano*	80 - 100		
Harvest *Cosecha*	110 - 130		
Total application rate (kg/ha) Tasa total de aplicación (kg/ha)		**N 126 P_2O_5 67 K_2O 188 CaO 21 MgO 9 S 13**	**N 1 P 0,53 K 1,5 Ca 0,17 Mg 0,07 S 0,10**

RICE


Seeding
Transplanting
Active tillering
Panicle initiation
End of flowering
Harvest