

Introduction

Most soils provide only limited amount of nutrients to the crop, therefore fertilizers need to be applied to increase grain yield. In some cases fertilizers are also added to improve the soils physical condition. The amount and type of fertilizer applied are determined on the assumption that 1 ton of grain will remove 10-15 kg nitrogen, 2-3 kg phosphorus and 15-20 kg of potassium. These base rates need to be modified according to the soil type, the season, the crop condition and prevailing weather conditions and efficiency of application.

Nutrient requirements

| Essential Plant Nutrients | | | |
|---------------------------|--------------------------------|--------------|-----------------|
| Taken from air and water | Taken from soil in ionic forms | | |
| 1. Carbon | Macro nutrients | | Micro nutrients |
| 2. Hydrogen | Primary | Secondary | |
| 3. Oxygen | 1. Nitrogen | 1. Calcium | 1. Zinc |
| | 2. Phosphorous | 2. Magnesium | 2. Copper |
| | 3. Potassium | 3. Sulphur | 3. Manganese |
| | | | 4. Iron |
| | | | 5. Boron |
| | | | 6. Molybdenum |
| | | | 7. Chlorine |
| | | | 8. Nickel |

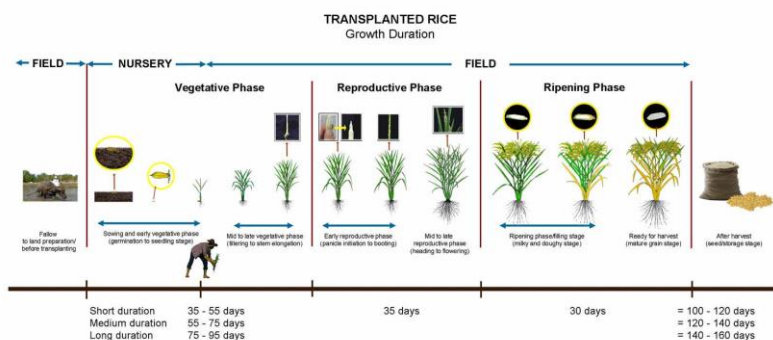
Steps for efficient fertilizer use:

- Use organic fertilizer (manure, compost, straw, husk, plant leaves) whenever possible especially in nurseries.
- Apply fertilizer according to soil type and expected yield. As a guide, for a 2 t/ha yield on clay loam soil will requires 20 kg N and 5 kg P. Sandy soils may require another 10-15 kg K. Double these recommendations for a 3 t/ha expected yield.
- Apply all P and K and 10% N evenly just before transplanting. For direct seeded broadcast crops it is okay to apply 10-14 days after establishment when there is water in the fields.
- Apply remaining N (urea) in 2 equal portions at 30 days and 50-60 days (panicle initiation) after emergence.
- In established crops apply chemical fertilizer only in standing water and evenly across the whole field.
- Do not apply fertilizer beyond recommended dose for traditional varieties as they may have limited response and lodge.

Safety Measures

- Do not use chemical fertilizer if you need more than 5 kg paddy to pay for 1 kg of fertilizer.
- Inorganic fertilizers must be stored dry and cool.
- They are not very poisonous but keep them out of children's reach.

Use a crop calendar to plan out quantity and time of fertilizer application. Follow the growth stage shown below to know the time of fertilizer application.



Growth stage indicating time of fertilizer application

