

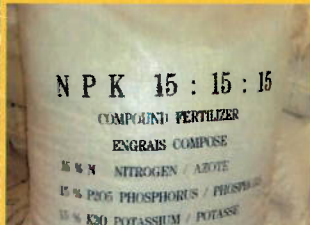


A GUIDE TO EFFICIENT USE OF FERTILIZERS IN RICE PRODUCTION

Rules for applying fertilizers



APPLY FERTILIZERS FOR MAXIMUM ECONOMIC RETURNS



- Basal application
- Top Dressing
- Use practical, effective and cost efficient methods



Integrated Nutrient Management

Gives: good soil health and optimum yield



Small Holders Agricultural Productivity Enhancement and Commercialization (SAPEC) Project

FERTILIZERS

Lowland Rice

Fertilizers are food for plants
Main nutrients that rice plant needs are:

- Nitrogen (N)
- Phosphorous (P)
- Potassium (K)

Fertilizers are organic (farm manure) or inorganic (NPK or Urea).

Numbers on fertilizer bags (NPK 15:15:15) indicate the percentage by weight of mineral nutrients in the fertilizer.



Rates of fertilizer to be applied largely depend on the following:

- Soil type
- The season
- The crop condition
- Prevailing weather conditions
- Fertilizer price in relation to yield increase

For efficiency use of fertilizers: AfricaRice climate change resilient, low-input and high yielding rice varieties are recommended.

- Farmers should apply fertilizers according to recommendations based on soil test analysis.
- Apply fertilizer as close to the recommended rate as you can afford.

Fertilizers should be applied in 3 split doses. All Phosphorous (P) and Potassium (K) should be applied as basal dose: during land preparation or transplanting.

- Apply 100-150kg/ha (2-3 bags of 50kg) of NPK thoroughly puddled in the soil before or during transplanting (basal application).
- Apply 50 – 100kg/ha (2-4 bags of 25kg) of Urea as top dressing at early tillering stage (10 -15 days after transplanting for early maturing varieties and 20 – 25 days after transplanting for medium maturing varieties) and another 50 – 100kg/ha (2-4 bags of 25kg) of urea as top dressing at panicle initiation stage (45-50 days after transplanting)



Initial application of fertilizer to lowland rice field



Fertilizer application at the onset of tillering



Application of fertilizer at panicle initiation

Note that application of Nitrogen fertilizers in split doses has the following advantages:

- ❖ Reduces loss of nitrogen
- ❖ Facilitates nitrogen use efficiency
- ❖ Improves growth and yield of rice.

Methods of fertilizer application

Broadcasting

Uniform spreading of fertilizer over the field



Band placement

Application of fertilizers in bands on one or both sides of the rice seed or plant in rows.



Integrated Nutrient Management

INM is a combination of all sources of nutrients (organic manure, inorganic fertilizers, legumes, crop residue, and biofertilizers) applied to soils for crop growth enhancement and good yield.

Organic fertilizers

Organic fertilizers come from plant and animal matter

Examples include: Green plant manure, Animal manure, Crop residue, Compost

Advantages of INM

- ✓ Improves chemical, physical and biological properties of soils.
- ✓ Improves the soil organic matter and nutritional status
- ✓ Provides micronutrients.

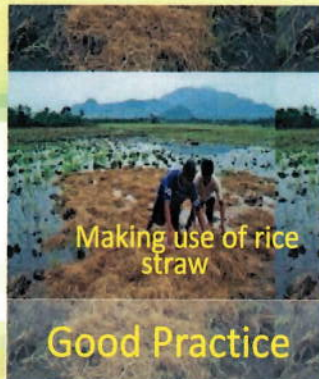
- ✓ Enhances microbial growth and nutrient turnover in the soil



Application of organic fertilizers

Organic materials or manures can be applied uniformly across the field two or more weeks before being incorporated into the soil during land preparation.

- Apply Farm Yard Manure/Compost/other manure at 5 – 10 t/ha.
- Rice straw can be mixed with animal manure (cow dung or poultry manure) in the field to enhance proper co digestion



Avoid burning of rice straw after harvest as 1 ton of rice straw contains between 5 – 8kg Nitrogen and other nutrients.

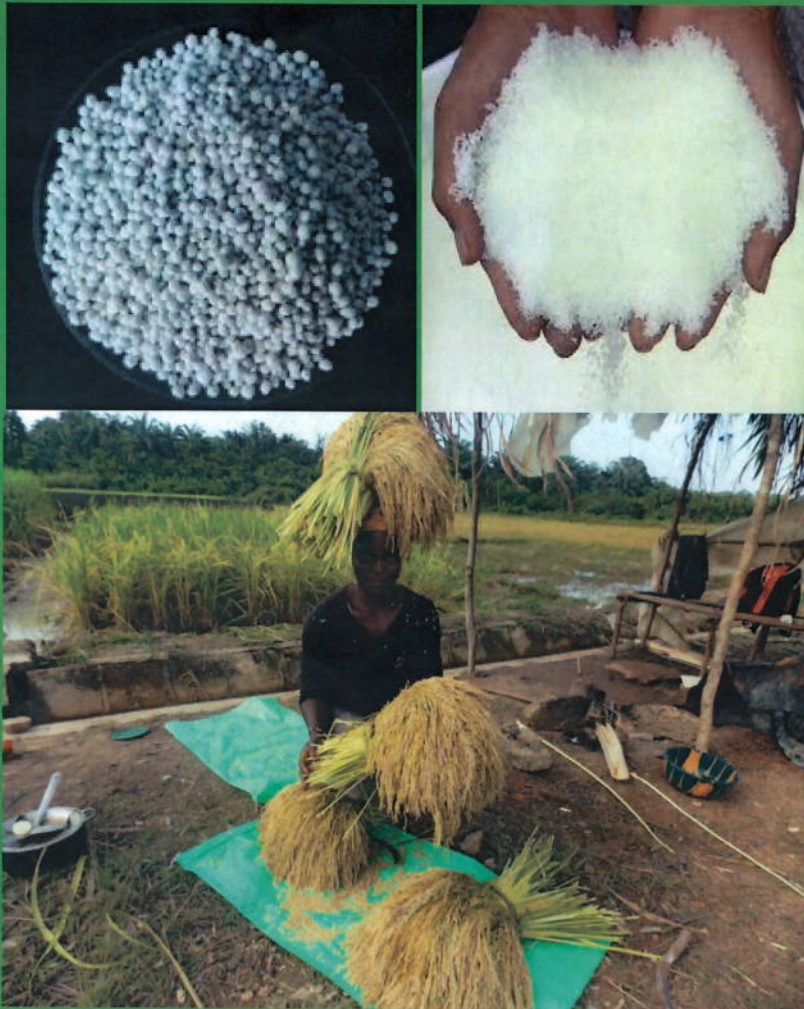


Efficiency use of fertilizer at a glance

- Chop crop and weed residues and mix them with the soil at first ploughing .
- Use improved low input varieties.
- The soil should be moist while top dressing.
- Early tillering and panicle initiation stages are the best times to apply nitrogen.
- Avoid excessive application of nitrogen to a fertile soil to prevent too much vegetative growth, high rate of non-productive tillers and lodging especially with the tall varieties.
- Efficiency of nitrogen fertilizer is higher in improved varieties than in traditional varieties.

Do not top-dress when leaves are wet to prevent leaf burning.

Do not top-dress when you expect heavy rain as fertilizer may be washed from the field.



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