

FERTILIZER RECOMMENDATION GUIDE – 2005

Bangladesh Agricultural Research Council

1. Introduction

1.1 Development of Fertilizer Recommendation Guide in Bangladesh

Research on soil fertility and fertilizer use at farm level was started in The Then East Pakistan during 1960's with establishment of the Soil Fertility and Soil Testing Institute. The Bangladesh Agricultural Research Council (BARC) had published the First Fertilizer Recommendation Guide (FRG) in 1979. Findings of the soil fertility trials under field conditions were incorporated in that guide.

Later on, data generated by different organizations in the areas of soil analysis, plant nutrition, crop response to fertilizer application and soil survey were taken into account while publishing the Second Fertilizer Recommendation Guide in 1985. This Guide had provided fundamental principles for fertilizer recommendation on the basis of soil test and crop response.

After 1985, a good progress in the soil fertility and fertilizer management research has been made in this country. During the period, a computerized data base on land type, soil & hydrology and agro climatic parameters has been developed and subsequently used in preparing the AEZ map of Bangladesh. Information on soil fertility and land type-wise major cropping patterns along with crop management practices in different agro-ecological zones were compiled. The Fertilizer Recommendation Guide of 1985 was updated and published in 1989. It had two parts: Part 1 dealt with the principles for making location specific fertilizer recommendation of crops and Part 2 dealt with cropping pattern based fertilizer recommendation for moderate yield goals for the main AEZs.

With the advancement of time and research progress, the FRG-1989 was updated in 1997. Main features of the FRG 1997 were: (i) interpretation of the soil test values based on critical limits for different nutrients was updated and classified into six categories, and (ii) recommended fertilizer doses for phosphorus and potassium were shown as P instead of P_2O_5 and K instead of K_2O for uniformity and simplicity.

The present “**Fertilizer Recommendation Guide-2005**” is a revised and updated version of the FRG-1997. Some important issues have been taken care and critically reviewed. Main features of this guide (FRG-2005) are:

- Updated recommendation of fertilizers for different crops based on varieties & yield target
- Changing crops and cropping patterns
- Updated soil nutrient status of different AEZs
- Updated critical limit of plant nutrients
- Nutrient balance status
- Liming of acid soils
- Socio-economic impacts on balanced fertilization
- Increasing nutrient use efficiency with an emphasis on deep placement of nitrogen

- Soil and fertilizer management based on IPNS concept
- Fertilizer management in multiple cropping systems
- Fertilizer management in crops under minimum tillage
- Fertilizer management in problem soils (saline, peat, acid sulphate and charlands)
- Fertilizer management in hill farming
- Fertilizer management in risk environment
- Quality control of fertilizers
- Maintenance of organic matter in soils

1.2 Use of Fertilizer Recommendation Guide

This Fertilizer Recommendation Guide has been prepared primarily for the extension personnel in developing location specific fertilizer recommendations for different crops and cropping patterns. Two approaches have been used: (a) The first one is the development of location specific fertilizer recommendation for crops based on soil test values and target yields and (b) The second one is the fertilizer recommendation for moderate yield goals and land category based cropping patterns for different agro-ecological zones (AEZs).

This guide deals more with the principles rather than blanket recommendations. Therefore, one should have clear concept about objectives of the guide. The following steps are suggested for the users:

1. Read the guide thoroughly to understand the rationale and the principles of fertilizer application.
2. Use general fertilizer recommendations for cropping patterns (Page 146-220) for those areas for which site specific soil test values and their interpretations are not available.
3. Develop location specific fertilizer recommendations for crops (upland and wetland) where soil test values are available. Interpret the soil test values into soil fertility classes, such as very low, low, medium, optimum, high and very high based on Appendix 8 and Fig. 8
4. Prepare fertilizer recommendation for a target yield of a specific crop based on the tables given on pages 60-143 and Appendix-9. Develop fertilizer recommendations for the cropping patterns based on the rationales given on pages 40-41
5. Calculate the amount of fertilizer materials required for the recommendation using Appendix 2.