

2.16 40315 FERTILISER TECHNOLOGY

UNIT-1 OVERVIEW OF FERTILIZER:

- 1.1 Synthetic fertilizers, Classification of fertilizers,
- 1.2 Role of essential Elements in plant Growth, Macro elements and Micro elements,
- 1.3 Application of fertilizers considering Nutrient, Balance and types of crop.
- 1.4 Development of fertilizer industry; Fertilizer production and consumption in India; Nutrient contents of fertilizers; Secondary nutrients;
- 1.5 Feedstock and raw materials for nitrogenous, phosphatic and potassic fertilizers.

UNIT-2 NITROGENOUS FERTILIZERS:

- 2.1 Introduction to Ammonia: Physical & chemical properties, applications, Synthesis gas by Catalytic partial oxidation Steam Hydrocarbon reforming, Ammonia converters:
- 2.2 Design aspect of Single bed and multi-bed converter, Kellogg process and HaldorTopsoe process, Storage and Transportation of Ammonia.
- 2.3 Introduction to Nitric acid: Chemical, physical properties and applications, Manufacturing of Nitric Acid by Pressure ammonia oxidation process and Intermediate pressure ammonia oxidation process, Concentration of Nitric acid by $Mg(NO_3)_2$.
- 2.4 Urea: Physical, chemical properties, Manufacturing of Urea by Stamicarbon's CO_2 stripping process, Toyo-Koatsu total recycle process,
- 2.5 Manufacturing of Ammonium nitrate by Prilling process, Ammonium sulphate from Ammonium carbonate and gypsum, Ammonium chloride from Ammonium sulphate and sodium chloride

UNIT-3 POTASSIUM FERTILIZERS:

- 3.1 Physical, chemical properties and uses of Potassium Chloride,
- 3.2 Potassium nitrate, Potassium sulphate, Manufacturing of potassium chloride from sylvinite,
- 3.3 Preparation of Potassium nitrate, Potassium sulphate

UNIT-4 MISCELLANEOUS FERTILIZER AND BIO FERTILIZERS:

- 4.1 Manufacturing of NPK, Ammonium Sulphate Phosphate (ASP), Calcium Ammonium Nitrate(CAN), Biofertilizers,
- 4.2 Types of Biofertilizers, Nitrogenfixing biofertilizers, Phosphate-solubilizing biofertilizers, Preparation of a biofertilizers

Reference Books:

1. Fertilizer Technology and Management” by Mishra Brahma
2. Soil Fertility and Fertilizers” by Havlin/ Tisdale/ Nelson/ Beaton