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FERTILIZERS

A fertilizer or fertiliser is that substance which is used to make soil more fertile such as manure or a mixture of nitrates. It is applied to the soils or to plant tissues (usually leaves) to supply one or more plant nutrients essential to the growth of plants. Hence, we can say in other words that the fertilizers are the chemical substances which are directly respondent for the substantial growth of the plants (trees) or crops and being supply the nutrients in the form of nitrogen, phosphorus, potassium etc and keep the soils fertile.

Classification of fertilizers

- The fertilizers are classified on the basis of the nature of nutrient elements like Nitrogen, phosphorus, potassium (NPK) present chemically in the compounds.
- There are various nitrogenous chemical fertilizers like ammonium sulphate, calcium ammonium nitrate, basic calcium nitrate, calcium cyanamide (nitrolium), urea etc. Obviously, these fertilizers supply nitrogen to the soil.
- Similarly, there are various phosphatic chemical fertilizers like super phosphate of lime, triple super phosphate etc and potash chemical fertilizers like potassium chloride, potassium nitrate, potassium sulphate etc. Thus, phosphatic and potash chemical fertilizers supply phosphorus and potassium to the soil respectively.
- There are also some chemical fertilizers of different composition like that of nitrogen phosphorus (NP) fertilizers in which nitrogenous and phosphatic fertilizers are mixed up in a definite and proper ratio. The fertilizers like dehydrogenate ammoniated phosphate, calcium super phosphate etc are NP fertilizers. Sometimes NPK fertilizers are composed to supply nitrogen, phosphorus and potassium all simultaneously to the soil.

Main chemical fertilizers

Ammonium sulphate [$(NH_4)_2\ S0_4$]:

- This is a nitrogenous fertilizer which is used for the raising the production level of crops like paddy, potato etc.
- In this fertilizer there is nearly 25% ammonia which is transformed into the nitrate by the denitrifying bacteria present in the alkaline soil. Thus, these nitrates are easily absorbed by the crops and plants.
- This fertilizer is produced in India at large scale at Sindri in Jharkhand.

Calcium Ammonium Nitrate [$Ca\ (N0_3)_2\ NH_4NO$]:

- This is also a nitrogenous fertilizer in which the amount of nitrogen is about 20 which is directly absorbed by the plants. On mixing it in the soil no any side effect appears in the soil and due to the extreme solubility in water it is easily intermixed in the soil.

Super Phosphate of lime [$Ca\ H_2\ (P0_4)_2 + Ca_50_4.2H_2O$]:

- This is a homogeneous mixture of calcium dehydrogenate phosphate [$Ca\ H_2\ (P0_4)_2$] and Gypsum [$CaS0_4.2H_20$] in which 16-20% P_20S exists. The reactive component of this fertilizer is calcium dehydrogenate phosphate which is soluble in water.

- Another phosphatic fertilizer is triple super phosphate of lime which is also used on the behalf of super phosphate of lime and it is prepared by the micro powder of bones.

Urea (H_2NCONH_2):

- This is obtained by heating the mixture of carbon dioxide at 125-150°C and at about 8.5 atmospheric pressure. In urea there is nearly 46% nitrogen and this fertilizer is used during introducing the seed into the soil but this fertilizer is never brought in the contact of the seed. After spreading urea on the soil, water is supplied 3-4 days later.

Calcium Cyanamid [$Ca(CN)_2$]:

- This is also called Nitrolim and it is basically a nitrogenous fertilizer which is supplied in the market as a mixture of [$Ca(CN)_2$] and carbon. This fertilizer is used before introducing seed into the soil but never used for the growth purposes of the crops.

Calcium nitrate [$Ca(N0_3)_2$]:

- This is the nitrogenous fertilizer and in market or commercially it is called Narvegian salt peter.