

The Fertilizers

These notes are your ultimate revision weapon to revise The Fertilizers. We've distilled years of previous exam questions (PYQs) into one powerful, concise resource. Everything you need to know, nothing you don't.

- **PYQs, Decoded:** All key concepts from past exams, organized and simplified.
- **Revise in Record Time:** Short, precise, and designed for last-minute review.
- **Focus on What Matters:** Master high-probability topics and boost your confidence.

Overview of Fertilisers

- **Chemical Fertilisers:** Supply essential nutrients to plants more efficiently than organic manure in terms of quantity and speed.
- **Organic Manures:** Less efficient at supplying concentrated nutrients. For example, one metric ton supplies only 2-3 kg of phosphorus.

Classification of Chemical Fertilisers (by Nutrient Content)

Type	Primary Nutrient(s)	Examples
Nitrogenous	Nitrogen (N)	Urea, Ammonium Sulphate, Ammonium Nitrate, Calcium Ammonium Nitrate (CAN)
Phosphatic	Phosphorus (P)	DAP (Diammonium Phosphate)
Potassic	Potassium (K)	Various Potassium Salts
Mixed/Complex	Combination of N, P, K	NPK fertilizers

Detailed Look at Specific Fertilisers

Urea

- **Type:** Nitrogenous fertiliser.
- **Composition:** An organic compound containing Carbon (C), Hydrogen (H), Nitrogen (N), and Oxygen (O).
- **Nitrogen Content:** Approximately 46-47% by weight.
 - To supply 1 kg of nitrogen, about 2.2 kg of urea is required.
- **Nitrogen Form:** Supplies nitrogen in the **amide** form.
- **Properties:**
 - Highly soluble in water.
 - Most popular fertiliser for **foliar application** (sprayed on leaves).
- **Neem-Coated Urea:**
 - Coating slows down the dissolution rate.
 - **Benefits:** Improves Nitrogen Use Efficiency (NUE) and reduces environmental losses.



Other Specific Fertilisers

- **DAP (Diammonium Phosphate):** A complex fertilizer containing **18% Nitrogen** and **46% Phosphorus** (as P_2O_5).
- **Ammonium Sulphate:** Known for leaving the **maximum acidity** in the soil after application.

Plant Nutrients and Their Roles

Nutrient	Primary Role / Function	Key Fact
Nitrogen (N)	Essential for growth and development.	Wheat cultivation requires nitrogenous fertilizers.
Phosphorus (P)	Crucial for root development.	-

Potassium (K)	Regulates stomatal opening and closing.	-
Boron (Micronutrient)	Involved in cell wall formation and reproductive development.	Its role is not primarily disease resistance.

Plant Uptake of Nitrogen: Plants absorb nitrogen primarily as **Nitrate (NO_3^-)** and sometimes as **Ammonia (NH_3)**.

Soil Chemistry and Environmental Impact

- **Soil Acidity:** Excessive use of nitrogenous fertilisers can increase soil acidity. **Ammonium Sulphate** is notable for leaving maximum acidity.
- **Environmental Concerns:**
 - **Leaching:** Inappropriate use can lead to nitrate leaching into groundwater, causing pollution.
 - **Nitrous Oxide:** The use of **neem-coated urea** reduces the release of nitrous oxide, but does **not eliminate** it entirely.

Fertiliser Industry and Policy

- **Production Inputs:**
 - **Ammonia** (for urea) is made from **natural gas**.
 - **Sulphur** (for phosphoric acid) is a by-product of **oil refineries**.
 - **Carbon dioxide** is consumed in the manufacture of urea.
- **Government Policy (India):** The retail price of chemical fertilizers is **subsidized and administered** by the Government, not market-driven.

Organic Manures and Green Manuring

- **Green Manuring:** The process of ploughing green plants into the soil to enrich it.
- **Suitable Crop: Sunhemp** is a very suitable crop for green manuring.

Non-Fertilizers

- **Sodium Sulphate** is not a chemical fertilizer.
- **Humus** is an example of an organic colloid and is part of organic manure, not a chemical fertilizer.

Know More About The Fertilizers:

- [The Fertilizers – Old Year Questions](#)
- [The Fertilizers One Liner Questions & Answers](#)

