

Soil Fertility II (Inorganic Fertilizers) - Agriculture Form 2 Notes

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[Introduction](#)

- Plant nutrients occur in the soil in form of soluble substances.
- These substances are taken in by the plants in different quantities depending on their roles in the plant tissues.

[Essential Elements](#)

- These are nutrients needed by plants for various uses.
- They are divided into two broad categories namely:
 - Macronutrients
 - micronutrients.

[Macro-nutrients](#)

- These are also referred to as major nutrients.
- They are required by the plant in large quantities.
- They include;
 - carbon,
 - hydrogen,
 - oxygen,
 - nitrogen,
 - phosphorus,
 - potassium,
 - sulphur,
 - calcium
 - magnesium.
- Nitrogen, phosphorus and potassium are referred to as **fertilizer elements**,
- Calcium, magnesium and sulphur, are referred to as **liming elements**.

Role of Macronutrients in Plants

Nitrogen (NO_3 , NH_4^+)

Sources:

- Artificial fertilizers
- Organic matter
- Atmospheric fixation by lightning
- Nitrogen fixing bacteria.

Role of Nitrogen in Plants

- Vegetative growth
- Chlorophyll formation
- Build up of protoplasm.
- Improves leaf quality in leafy crops such as tea and cabbages.

Deficiency Symptoms

- Yellowing of the leaves/chlorosis.
- Stunted growth.
- Premature ripening.
- Premature shedding of the leaves.
- Light seeds.

Effect of Excess Nitrogen

- Scorching of the leaves.
- Delayed maturity.

Loss of Nitrogen From the Soil:

- Soil erosion.
- Leaching.
- Volatilization.
- Crop removal.
- Used by microorganisms.

Phosphorus (H_2PO_4 , HPO_4^{2-} , P_2O_5)

Sources:

- Organic manures
- Commercial fertilizers
- Phosphate rocks

Role of Phosphorus

- Encourages fast growth of the roots.
- Improves the quality of the plant.
- Hastens maturity of the crops.
- Influences cell division.
- Stimulates nodule formation in legumes.