



**Leaving Cert Agricultural  
Science**

**Free Notes**

**Fertilisers and Manures**



## Fertilisers and Manures

**Manure** = an organic material that consists of the wastes of plants and animals

**Fertilisers** = an inorganic manufactured material that may contain one or more of the essential elements required for crop growth

### Q) Distinguish between a straight and compound fertiliser.

- Fertilizers containing only one nutrient are called **STRAIGHT FERTILIZERS!!!! EX CAN (calcium ammonium nitrate) – found in ground rock phosphate USED IN FORESTRY**
- Fertilizers containing two or more nutrients are called **COMPOUND FERTILIZERS!!!!!!!**

**EX: N,P and K**

### Q) Write a note on CAN (calcium ammonium nitrate)

- Most widely used straight fertiliser in Ireland which contains two forms of nitrogen (ammonium ions and nitrate)
- Ammonium ions are acidic and reduce soil pH (negative impact on crops if too acidic)
- CAN contains calcium which is alkaline that acts as a buffer against the acidic ammonium ions and prevent pH levels becoming too acidic
- Its advantage is that it is a fast acting fertiliser available for uptake for plants. (must be in nitrate form)
- CAN is **hygroscopic** (a substance that can absorb moisture from the atmosphere)

### Q) Why is urea not as popular as CAN?

- Slower acting fertiliser that must be converted from urea > ammonium > nitrates
- It undergoes volatilisation (ammonium convert to ammonia gas and is lost to the atmosphere)
- This gas causes toxicity in germinating seedlings in warm and dry weather
- Crop losses are the main result by spreading them on established crops

**Q) What determines the amount of fertiliser that has to be added to a crop?**

- The pH of soil and Climate
- Soils current fertility and condition
- Type of soil i.e. sandy, clayey and silt
- Type of crop that has been sown.
- Requirements of REPS (Rural Environmental Protection Scheme)

<b>NPK fertiliser</b>	<b>Common use</b>
18-6-12	grassland, cereals
27-2.5-5	Cereal crops, intense grazing
24-2.5-10	Grassland
7-6-17	Root Crops

**Q) Use of artificial fertilisers may result in “run off” from grassland. State 4 ways a farmer can minimise this.**

- Don't apply fertiliser in periods of heavy rain
- Not applied in drought as it will be of no use
- Do not apply anywhere near streams.

**Q) What will happen as an affect of run off?**

- Run off occurs when excess fertilisers wash into streams, rivers or lakes.
- The high amount of fertilisers cause eutrophication within the soil

**Q) Define the term BOD (Biological Oxygen Demand)**

- This is the amount of dissolved oxygen within a sample of water that has been:
  1. Kept in the dark
  2. For 5 days
  3. At 20°C,

<b>Organic materials</b>	<b>mg/L</b>
Raw domestic sewage	300
Dairy parlour	1,000 – 2,000
Dirty yard water	1500
Cattle slurry	17000
Pig Slurry	25000
Silage Effluent	65000
Whole milk	100000

**Q) What is meant by Eutrophication?**

- This is the depletion of oxygen within a river, lake or stream due to the additions of nutrients (nitrates and phosphates) from run off.
- Over time there is a build up of algae blooms which cause this oxygen depletion which will lead to fish kills.

**Q) Name a type of organism that causes BOD to occur in water.**

- Aerobic Bacteria (Use the oxygen of the water)

**Q) What is Farmyard manure?**

- It is a by product of winter housing of animals
- It is a mixture of faeces, urine and rotted bedding.
- Organic matter within FYM improves soil structure and plant nutrients.
- It has a low concentration making it a bulky material as a fertiliser.
- The average composition: 0.5%N, 0.15%P and 0.6%K

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