



**Leaving Cert Agricultural  
Science**

**Free Notes**

**Soil Structure**



## Soil structure

### Q) what is soil structure?

A) “the coming together of the primary soil particles (sand, silt and clay) into larger, separate units”.

The separate units are called **peds** or **aggregates**.

### Flocculation & Aggregation

In aggregation the sand & silt particles are held together by clay, organic cements & inorganic cements.

Flocculation is when soil particles come together in small clumps. The sand & silt are trapped together.

Lime is added to flocculate soil, **WHY?**

### Importance of soil structure:

1. Root development is much more adequate and successful.
  2. Cultivation of the soil is improved as a result.
  3. Drainage and aeration of the soil is also improved.
  4. Biological factors (earthworms, soil organisms) are allowed to survive in higher populations
- Crop rotation i.e. have a 4 year crop cycle will maintain good structure and fertility.
- EXAMPLES?**
- Adding lime ( $\text{CaCO}_3$ ) alters pH to an optimum level required.
  - Autumn ploughing: when land is ploughed in autumn, the turned up surface is exposed to the effect of wetting/drying and freeze thaw action. The soil is broken up (positive result).
  - Biological factors: introduction of earthworms burrow through the soil, therefore aerating (breaking up) of the soil.

### POACHING & PUDDLING:

- Poaching occurs when animals (farm animals) compact soil (due to their weight) and damage the soil (especially in winter months) therefore removing them in late autumn is ideal.
- Puddling: This occurs in the same fashion of poaching but the animals effect on the soil turn it into mud in wet conditions, there causing compaction which is not wanted.
- Cementation is when particles are pushed together
- Separation of cemented materials into aggregates.

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