

Measuring Dry Matter Production

Use it...

When studying plant growth

Time requirements

At least 10 days

Background

Plants grow by taking carbon from the atmosphere (via *photosynthesis*), as well as nutrients and minerals from the soil and atmosphere. Plants also gain and release water throughout their lives. The amount of water they hold at any one time can vary greatly, depending on environmental conditions and the life cycle of the plant.

To compare plant growth, it is usually best to remove the water and compare the plants on a *dry matter* basis. It is also useful to measure and report the dry matter in different plant parts – stems, leaves, seeds and roots.

Procedure

- After harvesting the plant, weigh it immediately and record the *total fresh weight*. (Remember to subtract the weight of the container the plant is in.)
- Cut the plant into the separate parts you want to weigh – stems, leaves, seeds, roots, etc.
- Weigh the separate parts to obtain the *fresh weight* of each part.
- Place all plant parts in a drying oven at 70 °C. Avoid over-packing the drying oven so that good air circulation is maintained.
- After 10 days check the weight of at least 3 plant parts daily. When the weight stops changing from one day to the next, then the drying is finished.
- Remove samples from drying oven and weigh immediately to record the *dry weight* of each plant part.