

Photosynthesis

The population of the Earth is increasing. At the same time, suitable farmland is decreasing due to climate change and changes in the places people live. It is important to make better use of raw materials to produce food so that there is enough food to feed everyone.

Syngenta is a company that researches and produces products to make growing crops more efficient. They want to help farmers grow more food, and use fewer resources.

Plants make their own food in a chemical process called photosynthesis. Researchers at Syngenta are studying photosynthesis in different types of plants to find out how they can make the process as efficient as possible.



Credit: I.KENPEI, via GFDL, CCAS 2.1, Japan

Tomato plant

Know

1. Name three things that a plant needs for photosynthesis.
2. Give the two outputs from photosynthesis.
3. State where photosynthesis happens in a plant cell.

Apply

1. Many different factors will affect the rate of photosynthesis in a plant. One factor is temperature. Write down three other factors and explain how they will affect the rate of photosynthesis.
2. Suggest two ways in which farmers could increase the rate of growth of their crops.
3. Explain why global climate change will have an impact on farmers' ability to grow crops.

Extend

A team of agricultural biologists want to investigate the effect of temperature on the yield (amount of food produced) of a particular type of tomato plant. Plan an experiment, or series of experiments, that they could use to investigate this.

Make sure you include:

- A control
- Dependent and Independent variables
- The data that will be collected
- Any health and safety considerations that the biologists need to take into account.

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