Biology 20

Unit C: Photosynthesis and cellular respiration

Photosynthesis in fields and labs

Grain holds sugar made in sunlight

- A barley field turns a summer of light into grain you can harvest.
- The same open leaves are losing water while they take in carbon dioxide.

Three field facts from one leaf path

- Agriculture and forestry harvest carbon that photosynthesis stored.
- Evapotranspiration rises when stomata stay open in sun and wind.
- A herbicide can block the electron path that makes NADPH and ATP.

Key terms

evapotranspiration

Water evaporating from soil and from leaves, including the water lost through open stomata.

herbicide

A chemical used to kill or stunt plants, sometimes by blocking the light reactions.

C4 photosynthesis

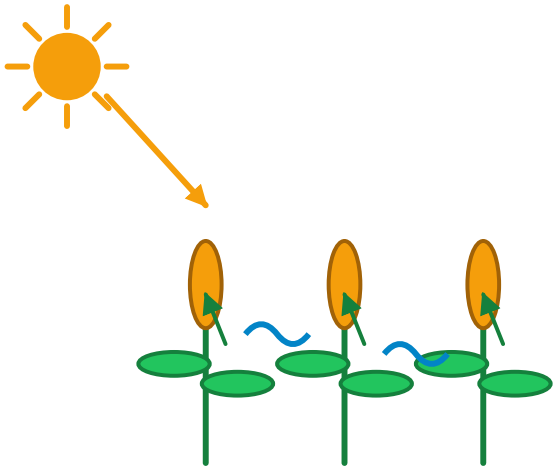
A leaf path, used by corn, that concentrates carbon dioxide for the sugar-building enzyme.

stomata

Pores in a leaf that let carbon dioxide in and water vapour out.

What the barley drawing shows

- The top bar says sunlight on the crop.
- Green arrows carry sugar into the grain head.
- Blue waves are water leaving the leaves.



Sugar arrow into the head

Waves are water leaving the leaf

Covered soil and pot mass

- Cover the soil so the loss is from the leaves.
- Compare one sunny hour with one shady hour.

One herbicide, one blocked step

- Name the crop and the product in the first sentence.
- Say whether the brief claims a block in the light reactions.

Field and lab

- Connect grain to photosynthesis.
- Explain a water-loss comparison and a herbicide block.

Respiration releases the energy in sugar

- Cells can release the energy stored in that glucose.
- The next lesson starts in the cytosol with glycolysis.