

Helping plants make sugar

ALL green plants make sugar.

Some store more than others, but all make sugars as a way of storing and managing energy, which originally comes from sunlight.

Plants use photosynthesis specifically for making sugar, using captured light as the energy, carbon dioxide as the base and hydrogen and phosphorus as the energy storage bits.

What is important to growers in sugar production is that plants need help to make the sugar they store.

Plants get about 20 per cent of the energy they use to make sugar during photosynthesis from stores of energy in the soil.

Plants enlist help to make sugar from microbes, which live in healthy soil.

There is a complex trade-off — which happens around plants to help plants obtain the energy they need to make sugar.

Like a fully operating economy, it takes all sorts of participants, large and small, to make this system work well.

Plants trade off sugars and other sweeteners with fungi and other organisms in the soil in exchange for nutrients, energy compounds and building materials — like enzymes and proteins.

If these compounds are in short supply, the plant suffers. But when populations of microbes are abundant and diverse, there is more of what the plant needs available and the cost (to the plant) is cheaper.

Nutrients may be the stock in trade of this economy, but sugar is the currency that drives it.

Plants need energy from microbes in the soil to make sugar, and they spend sugar to buy nutrients.

The less plants need to spend in order to stimulate the supply of nutrients, the more sugar they have left when it comes to harvest time.

The more microbes there is supplying energy, the more sugar plants can make.

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