ENVIRONMENTAL SCIENCE JOURNAL FOR TEENS

What are the benefits of growing multiple crop species together?

TEACHER'S KEY

UPPER READING LEVEL

Check your understanding

1 How does the amount of grain grown on a single field using sole cropping compare to the amount of grain grown using intercropping?

A. The amount of grain grown using sole cropping is greater than the amount grown using intercropping.

2 What are three benefits of intercropping?

Answer Intercropping grows diverse crops in one field. It also reduces the amount of nitrogen fertilizer needed to grow the crops, and it grows more food in less space.

3 How could this research impact the use of intercropping worldwide?

Answer This research provides evidence that intercropping can provide high production output using fewer resources. This information could help farmers and policy makers make the decision to switch from sole cropping to intercropping.

4 Intercropping requires farmers to select two or more crops that can grow together. With a partner, brainstorm at least two characteristics of crops that farmers need to consider when determining which plants to intercrop.

Answer Characteristics that need to be considered include the amount of sunlight needed, the amount of water needed, growing season, soil pH, and nutrient (nitrogen, phosphorus, and potassium) needs. Unrelated species also have fewer pathogens and herbivores in common and the ability to withstand different types of adverse conditions, such as drought or heavy rain.

ENVIRONMENTAL SCIENCE JOURNAL FOR TEENS

What are the benefits of growing multiple crop species together?

TEACHER'S KEY

UPPER READING LEVEL

5 The increase in stability provided by intercropping is known as an ecosystem service. An ecosystem service is a benefit that humans obtain from an ecosystem. Make a list of other examples of ecosystem services you can think of.

Answer

Answers will vary. Sample answers include:

- Forests provide wood for construction.
- Wetlands provide flood control and water filtration.
- Trees store carbon and regulate climate.
- Trees prevent soil erosion.
- Bees pollinate plants that provide humans with food.

How does the amount of corn (maize) grown as a sole crop compare to the amount grown with intercropping?

Answer

More corn (maize) grows when it is grown as a sole crop than when it is grown with intercropping.

How does the total amount of fertilizer needed to grow corn and soybeans separately compare to the amount of fertilizer needed to grow them as intercrops?

Answer

The total amount of fertilizer needed to grow corn (maize) and soybeans separately is greater than the amount needed to grow them as intercrops. Separately, the amount of fertilizer required is 300 kg of N/hectare. Together, they need only 150 kg of N/hectare.