

Vegetables are losing their nutrients. What can we do about it?

Level 2: Intermediate

1 Warmer

a. Discuss these questions with a partner.

1. How often do you eat vegetables? What are your favourite ones?
2. Do you ever eat frozen or canned vegetables? Are they as healthy as fresh ones?
3. What could you do to improve your eating habits?

2 Key words

a. Match the words on the left with the definitions on the right. Then, find and highlight them in the article to see them in context.

- | | |
|-------------------------|---|
| 1. alarming _____ | a. worrying |
| 2. boosting _____ | b. decreased rapidly |
| 3. concern _____ | c. gradually become smaller or less |
| 4. crop _____ | d. increasing or improving |
| 5. declining _____ | e. a feeling of worry about something |
| 6. plummeted _____ | f. money given by the government to help something happen |
| 7. policies _____ | g. ideas or plans used for making decisions, especially by businesses and governments |
| 8. simultaneously _____ | h. amount of a product or service that is available to customers |
| 9. subsidies _____ | i. a cultivated plant that is grown and harvested in large amounts |
| 10. supply _____ | j. at the same time |

b. Use some of the key words from task A to complete the sentences below. You may need to change the form of the word.

1. The global unemployment situation is _____ because it's increasing every year.
2. The price of vegetables _____ last month, making them more affordable for everyone.
3. Because of _____ sales, the company has started to sell other products.
4. The programme is _____ opportunities for young farmers in the area.

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5. One of the main _____ for nutritionists is the amount of fast food teenagers eat.
6. The programme depends on _____ given by the government.
7. The new _____ try to promote innovation and more efficient working.
8. At the moment, _____ is not enough to meet demand.
9. If you have a small garden, you should plant _____ that have a short growing period to harvest.
10. Many plants are growing _____ in the garden.

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- 1 In 2004, Donald Davis and fellow scientists at the University of Texas made an alarming discovery: 43 foods, mostly vegetables, showed a marked decrease in nutrients between the mid- and late-twentieth century.
- 2 According to that research, the calcium in green beans dropped from 65 to 37mg. Vitamin A levels plummeted by almost half in asparagus. Broccoli stalks had less iron.
- 3 Nutrient loss has continued since that study. More recent research has shown the declining nutrient value in some crops due to rising atmospheric carbon dioxide (CO₂) levels; a 2018 study that tested rice found that higher CO₂ levels reduced its protein, iron and zinc content.
- 4 The climate crisis has only increased concerns about crops' nutritional value. That has led to the development of a process called biofortification, a strategy to recover lost nutrients or those that foods never had in the first place.
- 5 Biofortification includes multiple technologies. One involves genetically modifying a crop to increase its nutritional contents. Another, agronomic biofortification, uses nutrient-rich fertilisers or soil improvements to concentrate particular minerals in plants. Lastly, selective plant breeding can produce new varieties, though it can take a decade or more to produce a single variety.
- 6 Biofortification is an alternative to fortification, which has been part of the US industrial food system since the 1920s, when the nation began boosting table salt with iodine to decrease health issues associated with a lack of minerals. Biofortification puts nutrients directly into the seed, while fortification adds nutrients to food once it's grown. The World Health Organization (WHO) has set the development of nutrient-enhanced biofortified crops as one of their goals to achieve food security.
- 7 HarvestPlus is an organisation that provides global leadership on biofortification evidence and technology. It is currently working with governments in more than 30 countries, and its biofortified varieties have been planted by more than 100 million farmers across the world, mostly in developing countries. By 2030, the organisation estimates, 1 billion people will be benefiting from biofortified foods.
- 8 While malnutrition demonstrates the urgent need to increase the amount of nutrients in crops, Benjamin Cohen, professor of Environmental Studies, believes biofortification is not a real solution to the problem. He thinks funders and policymakers may choose to invest in biofortification instead of supporting more efficient farming models.
- 9 Davis, who led the original University of Texas study, said: "A limitation of biofortification is that it focuses on one or possibly two nutrients per plant, whereas nutrient decline tends to affect many nutrients simultaneously."
- 10 Accessibility is also a problem. Walton notes there's not yet a consistent supply of biofortified seeds. HarvestPlus also intends for its biofortified seeds to cost less than traditional seeds. But those lowered costs are the result of government subsidies.
- 11 Cohen pointed out that while the need might be greatest in less industrialised countries, these countries may have fewer means to resist policies originating in developed countries. They may have fewer regulations about genetically modified, biofortified crops.
- 12 Peter Kelly, CEO of Grow Further, a philanthropic organisation that invests in early-stage agricultural innovations in developing countries, stated that all their work "is about adapting to climate change in some sense. Carbon dioxide levels can affect the nutrient levels in plants; we have to do this plant breeding just to keep up."

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3 Comprehension check

a. Choose the correct option to complete the sentences.

1. According to research, CO2 has made rice **less tasty** / **lower quality** / **harder to grow**.
2. Biofortification involves using **complex strategies** / **different technologies** / **a variety of plants**.
3. Fortification was first introduced **by the WHO** / **in the 1920s** / **to achieve food security**.
4. Unlike biofortification, fortification boosts food **before** / **while** / **after** it is grown.
5. HarvestPlus works mostly with **farmers** / **developing countries** / **global leaders**.
6. Cohen believes biofortification isn't the **problem** / **model** / **solution**.

4 Key language

a. Read the sentences below and choose what idea the verbs in bold are expressing.

1. Nutrient loss **has continued** since that study.
a. action at a specific time in the past b. action at an indefinite time in the past
c. action that began in the past and is still true
2. The climate crisis **has only increased** concerns about crops' nutritional value.
a. action at a specific time in the past b. action at an indefinite time in the past
c. action that began in the past and is still true
3. That **has led** to the development of a process called biofortification.
a. action at a specific time in the past b. action at an indefinite time in the past
c. action that began in the past and is still true
4. Biofortification **has been** part of the US industrial food system since the 1920s...
a. action at a specific time in the past b. action at an indefinite time in the past
c. action that began in the past and is still true
5. ... when the nation **began** boosting table salt with iodine to decrease health issues associated with a lack of minerals.
a. action at a specific time in the past b. action at an indefinite time in the past
c. action that began in the past and is still true

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b. Answer the questions below:

1. Which tense do you use to talk about actions at a specific time in the past?
 - a. simple past
 - b. present perfect
2. Which tense do you use to talk about actions at an indefinite time in the past?
 - a. simple past
 - b. present perfect
3. Which tense do you use to talk about actions that began in the past and are still true?
 - a. simple past
 - b. present perfect

c. Complete the sentences using the present perfect or past simple form of the verbs in brackets.

1. I _____ vegetables in my garden since the pandemic. (grow)
2. The baby _____ mangoes before. (eat)
3. She _____ her first cooking book in 2002. (write)
4. They _____ their business a couple of years ago. (start)
5. Farmers _____ their products in local markets for years. (sell)

5 Discussion

a. Discuss these statements.

- “Biofortification is not a real solution to the problem.”
- “Funders and policy makers may choose to invest in biofortification instead of supporting more efficient farming models.”
- “While the need might be greatest in less industrialised countries, these countries may have fewer means to resist policies originating in developed countries. They may have fewer regulations about genetically modified, biofortified crops.”

6 In your own words

- #### a. Prepare a presentation outlining different initiatives that could help to reduce global hunger. Do some online research and gather relevant information to support your views.