

## 13

Agripreneurs in China  
fighting food insecurity

DSE

Level: 

## Let's think!

1. Do you want to be a farmer in the future? Why or why not?
2. What are the benefits of using robots in farming?

PLAYLIST



READ ALONG



## MEGA CORPORATION

## A MESSAGE FROM THE CEO

## Empowering trend-setting farmers

1 Today, the world is faced with an increasing food crisis because of the exploitation of natural resources. It brings hundreds of millions of people in the world closer to starvation. MEGA Corporation has always been at the forefront of artificial intelligence (AI) and e-commerce technologies, and we hope to adopt them to help improve the quality of agricultural products, optimise the use of resources and increase food productivity. 5

2 MEGA is applying AI-assisted automation in various areas of the crop production process, including planting, watering, and harvesting. Farmers are able to remotely and accurately track the temperature, humidity and pH levels of the soil to maintain crop health and optimise the use of water, fertilisers and pesticides. 10

3 The company has also developed a drone system to monitor the conditions of the soil and spray pesticides. It used to take a farmer a week to carry out pest control to an average plot of farmland, especially in terraces, but this task can be shortened to just a few hours with the use of drones. This technology is estimated to be capable of saving up to 30% of pesticide use and 50% of labour costs. 15

4 In the area of poultry and livestock farming, MEGA has employed intelligent image-sensing technologies to help monitor the health of poultry and pigs. Information about the animals' nutrient intake, medical history and level of activity is fed into a central system for analysis. The aim is to take appropriate action at every stage of their development to help maintain optimal health. 20 25



5 In MEGA's experimental farm, this AI monitoring system has been used to detect and identify the distressed cries of piglets. In many pig farms, piglets are sometimes crushed by sows, thus causing serious losses. This monitoring system allows workers to step in and rescue the injured piglets. Moreover, infrared cameras are used to measure body temperatures and detect the onset of diseases. Therefore, the mortality rate of pigs at the experimental farm was reduced by 5% and the overall productivity increased 15% after the implementation of our monitoring system.

30



6 Currently, there is a shortage of seasonal fruit pickers in China, and thousands of tons of unpicked fruits are left to spoil in the fields each year. MEGA has developed a robot which uses artificial intelligence to identify and pick fruit. It can work 24 hours a day and pick only ripe fruit. Farms that use this robot saw more than 200% increase in the total output of fruit production.

35



7 MEGA has long been a pioneer in e-commerce. It has started to assist farmers in selling their produce online for 10 years. As a result, farmers are able to make use of its extensive logistics network and cold storage system to ship fresh produce to any part of the country. Our AI system can also help to plan the fastest transportation route, thereby maintaining the quality of agricultural products and other perishables along the way.

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8 These projects represent just a part of the effort that MEGA is making in improving efficiency and increasing agricultural productivity. We will continue to come up with digital solutions that will transform China's rural economy and bring this traditional sector into the 21<sup>st</sup> century. Through these, we hope to make important contributions to helping China and the world tackle the food crisis.

50



~590 words

### Looking into Grammar

We use **linking words** to connect ideas. We can use **as a result, thus, therefore** and **thereby** to talk about results.

- ✓ It has started to assist farmers in selling their produce online for 10 years. **As a result**, (✗ As a result of) farmers are able to make use of its extensive logistics network and cold storage system to ...
- ✓ Our AI system can also help to plan the fastest transportation route, **thereby** maintaining (✗ to maintain) the quality of agricultural products and other perishables along the way.

? Circle TWO linking words in paragraph 5 that talk about results.

Read the text and answer questions 1–14. For multiple-choice questions, choose the best answer and blacken **ONE** circle only. (19 marks)

1. This message from the CEO is found in a \_\_\_\_\_.
- A. medical research paper  
 B. system-generated field report  
 C. drone manual  
 D. company newsletter
- A      B      C      D

2. According to paragraph 1, which of the following is the cause of world hunger?

- A. the increase demand for food  
 B. the destruction of the environment  
 C. the development of AI and e-commerce technologies  
 D. the improvement of the quality of agricultural products

2 Note whether the question asks for a reason or a result.

- A      B      C      D

3. According to paragraph 2, which of the following is TRUE?

- A. There is no longer manual work on farms.  
 B. Adjustments are made to improve the process of planting and watering.  
 C. Farmers have to go to the fields to check if their crops are healthy.  
 D. The fertility of the land does not affect crop production.

- A      B      C      D

4. Find a word in paragraph 3 which can replace ‘temperature, humidity and pH levels’.

\_\_\_\_\_

5. According to paragraph 3, how do drones carry out pest control?

\_\_\_\_\_

6. According to paragraph 3, which of the following makes farming more difficult?

- A. too much farmland  
 B. the huge number of pests  
 C. the hilly landscape  
 D. harsh weather conditions

- A      B      C      D

7. Complete the table based on the information in paragraph 3. Situation: Stone Farm used 3,000 ml of pesticides and its labour cost of farmers was \$80,000 per month before using the drones.

	Before the use of drones	After the use of drones
<b>Time needed</b>	(i) _____	(ii) _____
<b>Amount of pesticides</b>	3,000 ml	(iii) _____
<b>Labour cost (per month)</b>	\$80,000	(iv) _____

7 The question requires analysing the key information in paragraph 3 and doing simple calculations.

8. According to paragraph 4, what statistics do MEGA study to maintain the quality of the pigs?

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9. According to paragraph 5, what is the cause of injuries or deaths in pig farms?

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10. Find a word in paragraph 6 which has a similar meaning as 'damage'.

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11. According to paragraph 7, what are the effects of AI systems on logistics?

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12. Complete the summary by filling in each blank with ONE word taken from paragraph 8.

Agriculture, as a (i) \_\_\_\_\_ industry, is the foundation of China's economy. Faced with the current food crisis, MEGA has been committed to developing (ii) \_\_\_\_\_ platforms. It has made great (iii) \_\_\_\_\_ to solving the global food crisis.

13. Which of the following is NOT a benefit of AI as mentioned in the text?

- A. recognising ripe fruit
- B. tracking the humidity of the soil
- C. arranging workers to work on farms
- D. providing medical observation to pigs

A	B	C	D
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. In your opinion, will the world food crisis worsen or be solved? Explain your answer.

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# Vocabulary

## GLOSSARY



A. Complete the conversation below with the given words. Make sure your answers are grammatically correct.

agricultural (*adj.*)

drone (*n.*)

fertiliser (*n.*)

forefront (*n.*)

humidity (*n.*)

optimise (*v.*)

perishables (*n.*)

pesticide (*n.*)

pioneer (*n.*)

starvation (*n.*)

## The application of artificial intelligence in agriculture

**Tom:** Pat, I've just visited the Museum of Science and Industry. There's an exhibition about the application of artificial intelligence (AI) in agriculture. I've learnt a lot from it.

**Pat:** Great. The number of people dying of (1) \_\_\_\_\_ has risen significantly around the world. This has brought the problem of food shortage to the (2) \_\_\_\_\_ of attention. Food insecurity concerns us all.

**Tom:** That's true. In recent years, AI technologies have been used to increase crop productivity. In the exhibition, there is an intelligent greenhouse system. The system helps farmers monitor the temperature and (3) \_\_\_\_\_ at the same time. It also regulates the two indices automatically.

**Pat:** I once visited a farm in New Zealand. There were devices flying over the crops. Does the exhibition display something similar? What are they?

**Tom:** Perhaps you're talking about (4) \_\_\_\_\_. These flying devices are multifunctional. One of their functions is to spread (5) \_\_\_\_\_ on the fields to make plants grow well and spray (6) \_\_\_\_\_ to kill pests.

**Pat:** I can see decaying tomatoes and bananas in the market very often. Can AI technologies also deal with this problem?

**Tom:** Yes. With the use of AI, all growing conditions, like the amount of sunshine and water absorbed by crops, are closely monitored. AI keeps (7) \_\_\_\_\_ the conditions to grow the best crops. The quality of (8) \_\_\_\_\_ can also be guaranteed.

**Pat:** That's cool. Thanks to the efforts of the (9) \_\_\_\_\_ in the application of AI in agriculture, the (10) \_\_\_\_\_ sector will thrive and more people around the world will have enough to fill their bellies.



B. Label the pictures with the given words.

**Areas using artificial intelligence**

e-commerce

education

gaming

healthcare

marketing

social media

space exploration

transportation

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_



personalising shopping experience



controlling autonomous vehicles



detecting diseases



identifying new planets

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_



grading homework



creating virtual players



translating posts



locating target customers

**Writing**

How does AI help agriculture and what problems does it pose?

Write an article about the advantages and disadvantages of introducing AI into agriculture in about 200 words.