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2 **New farmers, new future** *p26*	**Video:** The relay *p28*	**Text:** Farming by committee: How we organize our agroforestry co-op *p30* **Thinking globally:** Formulating a plan for running a cooperative *p35* **Enhancing writing skills:** Using contrast to show the benefits of a specific farming practice *p36*
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4 **Fields of joy** *p74*	**Video:** Linking agriculture and tourism to strengthen agrifood systems in Asia and the Pacific *p76*	**Text:** The surprising history of America's pick-your-own farms *p78* **Thinking globally:** Discussing how agriculture adapted to historical crises and keeps evolving through collaboration and innovation *p82* **Enhancing writing skills:** Writing a cause-and-effect essay on the development of agritourism *p83*

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Discovering China	Getting on the stage
Text: Yucun Village: From mining to green development *p107*	Presenting a proposal for rural revitalization *p111*
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Text: Ancient rules for modern diets *p178*	Creating a podcast episode about Chinese food culture addressing modern health issues *p182*

Unit 3

Feeding the growing world

Learning objectives

After completing this unit, you will be able to:

- explain the value of 3D ocean farming and the revival of forgotten crops in addressing global food challenges;
- introduce China's contributions to sustainable agricultural practices, focusing on the development and implementation of perennial rice;
- compose a well-structured problem-solution essay on food security;
- give an informed and persuasive speech on China's innovative approaches to advancing global food security.

Unlocking the topic

Setting the scene

Food security encompasses the availability, accessibility, and utilization of food resources to ensure that all individuals have consistent access to sufficient, safe, and nutritious food to maintain a healthy life. In the face of escalating challenges, such as population growth, climate change, and natural resource scarcity, experts worldwide are intensifying efforts to develop innovative and sustainable solutions. Against this backdrop, your university is organizing a youth forum on food security, convening both domestic and international students to foster dialog, exchange perspectives, and collaborate on feasible strategies. As a representative of your university, you are invited to deliver a three-minute speech during the forum's opening ceremony, focusing on China's pioneering initiatives in enhancing global food security.

Unit orientation

Activating subject knowledge

Scan the code and complete the knowledge activation exercise on Ucampus.

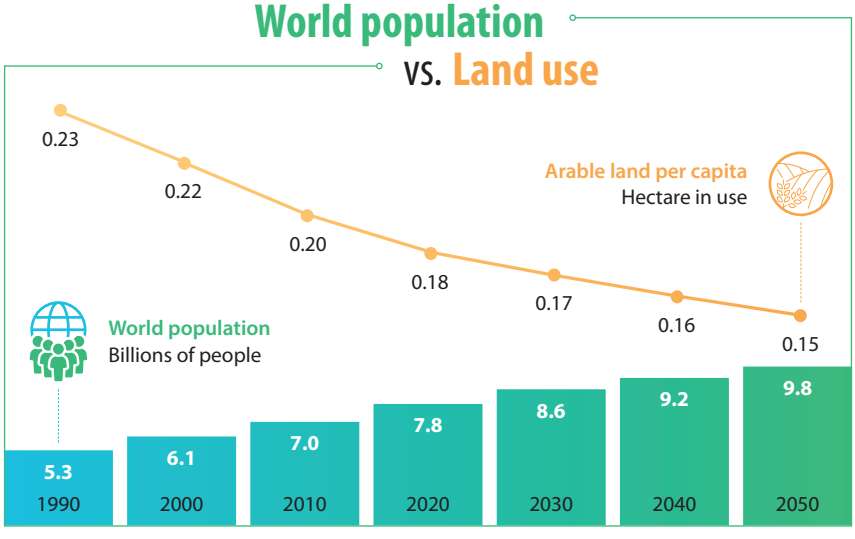
Viewing through the lens

Word bank

seaweed /ˈsiːˌwiːd/ *n.* 海藻
mussel /ˈmʌsl/ *n.* 贻贝
scallop /ˈskɒləp/ *n.* 扇贝
crate /kreɪt/ *n.* 板条箱
clam /klæm/ *n.* 蛤蜊
antibiotic /ˌæntibaɪˈɒtɪk/ *n.* 抗生素
regenerative /rɪˈdʒen(ə)rətɪv/ *a.* 再生的
nitrogen /ˈnaɪtrədʒ(ə)n/ *n.* 氮

Pre-viewing

Work in groups and examine the graph in detail. Identify the core challenges of food security illustrated by the graph.



Viewing and synthesizing

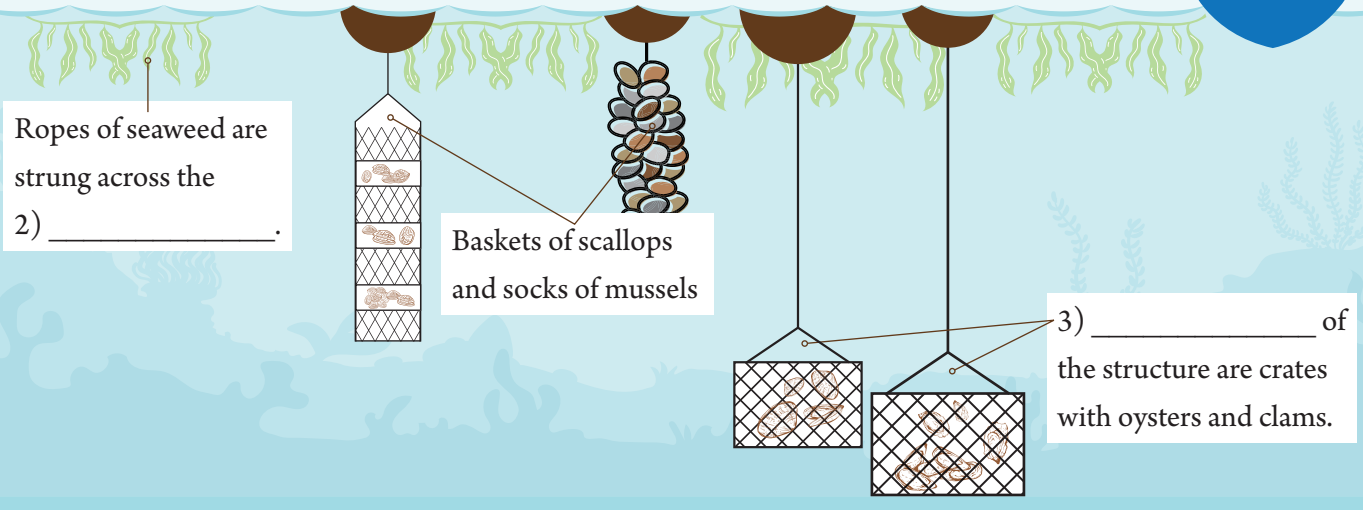
Video clip

What do you think about using the ocean for future food and fuel? Scan the code. Watch the video clip and complete the notes with what you hear.

Future farming challenges

- The rapidly growing global population, combined with changes in people's diets, will require 50% more food production by 2050.
- 1) _____ for agriculture is running out, and existing farmland is being degraded.

A solution: 3D ocean farming



Benefits of 3D ocean farming

- **Efficient:** Using the entire vertical 4) _____ below a certain area of ocean to produce high yields in a small amount of space
- **Clean:** Growing food without using any fertilizers, 5) _____, antibiotics, or fresh water
- **Regenerative:** Improving the marine environment and supporting 6) _____ to thrive
- **Water-purifying:** 7) _____ filter carbon, nitrogen, and pollutants.
- **Versatile:** Using seaweed as food, a fertilizer, a(n) 8) _____ alternative, and a biofuel source
- **Sustainable and accessible:** Focusing on eco-friendly practices and being available to diverse communities

Viewing and discussing

Work in groups and discuss the questions.

1. Do you think 3D ocean farming could be a viable solution to food security challenges worldwide? Why or why not?
2. The video clip mentions that "There are similar ideas out there that use different crops and different animals together to maximize harvests." Can you think of any examples of such ideas?

Exploring the frontier

Log on to Ucampus for interactive learning.

Building a future with crops from the past

maize /meɪz/ *n.* 玉米

1 Today, just a handful of crops dominate our diets, with wheat, rice, and corn (also known as **maize**) accounting for almost half of the world's daily caloric intake. Yet, scientists say that a rich **tapestry** of over 7,000 **edible** plant species exists, largely overlooked, right in front of our eyes. The striking contrast between our heavy reliance on a few species and the **abundance** of edible plants available in nature **unveils** a critical issue in modern agriculture.

homogeneity /ˌhəʊməʊdʒəˈniːəti/ *n.* 同质

2 Increasing **homogeneity** in food systems raises concerns about food and nutrition security, food sovereignty, and environmental sustainability. With global food demand expected to increase significantly by 2050, the need to rethink our agricultural **paradigms** calls for urgent action.

3 Recent trends in food and environmental science might give us a glimpse of hope, such as the revitalization of what we now call forgotten crops, also known as **indigenous**, lost, traditional, or **underutilized** crops. These crops, once cornerstones of ancient diets, offer a **repository** of nutrition and resilience that could be key to future sustainability.

indigenous /ɪnˈdɪdʒənəs/ *a.* 土生土长的
underutilized /ˌʌndəˈjuːtɪˌlaɪzd/ *a.* 未充分利用的

domestication /dəˌmestɪˈkeɪʃn/ *n.* 驯化

4 Throughout history, people worldwide have relied on diverse crops for subsistence. These crops, originating from the **domestication** of wild species, date back to the early days of human civilization, where agriculture symbolized the intimate relationship between people and the environment. Each of them adapted to its unique ecological **niche** both naturally and through **selective** cultivation. **Natural selection** favors **traits** enhancing survival in nature, whereas the practice of agricultural

niche /niːʃ/ *n.* 生态位

natural selection *n.* 自然选择

selection is **intentional**, with farmers breeding plants for **desirable** traits like higher yields, sweeter fruits, or pest **resistance**.

5 Yet, despite their importance, these locally adapted and **nutritious** crops have rapidly slipped into **obscurity**, **displaced** by the rise of modern agriculture. Since the **green revolution** of the mid-20th century, the advent of industrial farming has **culminated** in a significant reduction in agricultural diversity.

green revolution *n.* 绿色革命

6 This has not come without consequences: The increasing reliance on a limited selection of crops has **progressively** undermined the resilience of our food systems. The more **homogenous** a system is, the more vulnerable it becomes to pests, diseases, and environmental stresses. On top of that, the decline of traditional crops has **eroded** the knowledge related to their cultivation and **culinary** uses, threatening the collective **agronomic** heritage that sustained communities for generations and disconnecting peoples from the roots of their cultural identity.

agronomic /ˌægrəˈnɒmɪk/ *a.* 农业经济学的

7 But why is the disappearance of these crops a threat to the health of our food systems, and what are the benefits of their rediscovery? There is broad evidence that cultivating forgotten crops could offer abundant environmental and nutritional benefits. First, these plants are often resilient to adverse climate conditions and poor soil quality – an ability not to be underestimated in the face of the climate crisis. This resilience reduces the need for many external inputs, such as water, fertilizers, and pesticides, promoting sustainable farming practices and boosting soil fertility.

8 From a health perspective, forgotten crops are real treasure chests of vitamins, minerals, and essential **nutrients**. This is due both to the quality of the soil they grow in and to their **genetic** heritage, which has been largely preserved through traditional farming methods. Crops like **teff**, **fonio**, **moringa**, and **amaranth** are not just naturally **robust** but also nutritionally rich. They could be critical in addressing **micronutrient deficiencies**, especially in regions with limited food diversity and nutrition insecurity.

teff /tef/ *n.* 埃塞俄比亚画眉草
fonio /ˈfəʊnɪəʊ/ *n.* 福尼奥米
moringa /məˈrɪŋgə/ *n.* 辣木
amaranth /ˈæmrænθ/ *n.* 苋属植物
micronutrient /ˌmaɪkrəʊˈnjuːtriənt/ *n.* 微量营养元素

9 Although forgotten crops represent a valid solution to some of the **multifaceted** issues affecting our current food systems, several challenges prevent the widespread revitalization of these hidden **gems** from the past.

10 One of the greatest limitations is the lack of awareness and knowledge about these plants, both among farmers and consumers. The major decline in their cultivation has created a profound disconnect between these time-tested solutions and modern food systems. Bridging this divide is challenging, as it requires a systemic shift that not only brings these crops back to our fields but also **realigns** modern agricultural practices with ancient wisdom.

11 There are several **misconceptions** about the taste, cooking methods, and market appeal of these crops, which can further **impede** their reintroduction. Although creating a market demand for these species is **imperative** to effectively reintroduce them into our diets, it is easier said than done. Firstly, it involves educating consumers about the benefits and culinary characteristics of these crops that are now long forgotten. Secondly, it requires supporting farmers throughout the transition to cultivate them. This is not an easy job: It **necessitates** providing access to seeds, economic incentives, and capacity building on sustainable farming practices.

12 In addition to these challenges, there is a real risk of market-driven exploitation if these crops become **trendy** in wealthier countries. As seen with **quinoa**, **avocados**, and other **superfoods**, an increase in demand can quickly lead to over-cultivation and environmental degradation in the regions where these crops are traditionally grown. This not only stresses local ecosystems but can also lead to social and economic issues for local communities in growing regions. For instance, as these crops become more **lucrative** on the global market, local prices may rise, making them unaffordable for local populations.

13 Reintroducing forgotten crops is a critical step toward consolidating more sustainable and resilient food systems. They can help us redesign more environmentally appropriate agricultural practices while boosting the nutritional **profile** of our modern diets. However, cultivating these crops is not just about planting their seeds; it is about cultivating a new market, a culture, and an appreciation for their unique value.

14 Effective change requires a **holistic** approach. Essential first steps toward **reintegrating** these valuable crops into our food systems and collective **consciousness** include policymaking that **fosters** agrobiodiversity both at the farm and the market level, scientific research that deepens our understanding of these crops, and educational **outreach** that informs and empowers us as consumers.

Reading and synthesizing

Global understanding

The passage is divided into six parts, each exploring a specific facet of the topic. Read the passage and match each part with its corresponding main idea.

Paras. 1-2	**A** Cultivating forgotten crops can provide significant environmental and nutritional benefits.
Para. 3	**B** A holistic approach is needed to reintegrate forgotten crops into modern food systems.
Paras. 4-6	**C** The reliance on just a few crops threatens food security and sustainability, necessitating urgent agricultural reform.
Paras. 7-8	**D** Revitalizing forgotten crops may be key to future sustainability in agriculture.
Paras. 9-12	**E** The shift to modern agriculture has reduced crop diversity and undermined food system resilience.
Paras. 13-14	**F** The reintroduction of forgotten crops faces several challenges.

Detailed understanding

Read the passage again and examine the underlying causes and consequences of the disappearance of forgotten crops, as well as the advantages and obstacles linked to their revival. Then complete the notes with words or expressions from the passage.

Forgotten crops

Forgotten crops are indigenous, lost, traditional, or underutilized crops that were once staples in ancient diets.

Causes of their disappearance

- Agricultural selection prioritizes crops with 1) _____ such as higher yields, sweeter fruits, or pest resistance.
- The rise of 2) _____ led to a decline in agricultural diversity.

Consequences of their disappearance

- Weakening the 3) _____ of food systems and increasing the vulnerability of crops
- Eroding the knowledge related to their 4) _____
- Threatening agronomic heritage and the roots of peoples' 5) _____

Benefits of their reintroduction

- Reducing the need for many 6) _____ like water, fertilizers, and pesticides thanks to their resilience
- Being valuable for addressing 7) _____ since they are rich in essential nutrients

Challenges of their reintroduction

- A lack of 8) _____ about these plants among farmers and consumers
- A number of 9) _____ about the taste, cooking methods, and market appeal of these crops
- A risk of 10) _____

Thinking
globally

In addition to the forgotten crops referred to in the passage, such as teff, fonio, and moringa, there are other examples. Work in groups and discuss the questions.

1. What other forgotten crops can you identify? Conduct research and develop a list of these crops, noting down the name of each crop and its geographic cultivation range (local, national, or global).
2. If you had the opportunity to reintroduce a forgotten crop to tackle the issue of food security, which crop would you choose, and why? Explain your choice from the following aspects:

Nutritional value

Economic implications

Cultural significance

Geographic suitability

Environmental benefits

3. How do you plan to reintroduce the forgotten crop you have selected? Outline your strategy, considering practical steps and potential challenges.

Enhancing writing skills

Log on to Ucampus to get guidance from your AI tutor.

Writing a problem-solution essay on food security

More about the skill

The passage highlights the issue of food security on a global scale and proposes a viable solution. It serves as a classic example of a problem-solution essay aimed at tackling real-world challenges and presenting effective strategies. While there are numerous ways to structure such an essay, a widely accepted one is outlined below.

First, articulate the problem and underscore the significance of addressing it. If the problem is new or not widely recognized, explain how it works and what potential consequences it may have. For a prevalent problem, tell readers what happens if the problem is not solved. Whatever the case may be, your objective is to convince readers of the urgency and relevance of this issue.

Second, propose a logical and feasible solution to the identified problem. To strengthen your argument, consider incorporating the following points:

- Introduce your solution properly.
- Explain how this solution effectively addresses the problem.
- Support your solution with evidence, such as expert opinions, personal experiences, official statistics, research findings, or relevant examples.

Finally, the essay should address the potential challenges or limitations of the proposed solution, such as economic constraints or implementation difficulties. This helps provide a balanced perspective on the solution's feasibility and demonstrate a critical and thoughtful approach to problem-solving.

Task 1 Reread the passage and analyze how it aligns with the structure outlined above. Then reflect on how effectively the logical structure enhances the overall persuasiveness of the passage.

Task 2 Choose a specific problem related to food security and write a problem-solution essay of no less than 150 words.

Improving language skills

Agricultural terms

Complete the sentences with the agricultural terms given below. Change the form if necessary.

domestication　natural selection　underutilized crop
ecological niche　micronutrient deficiency

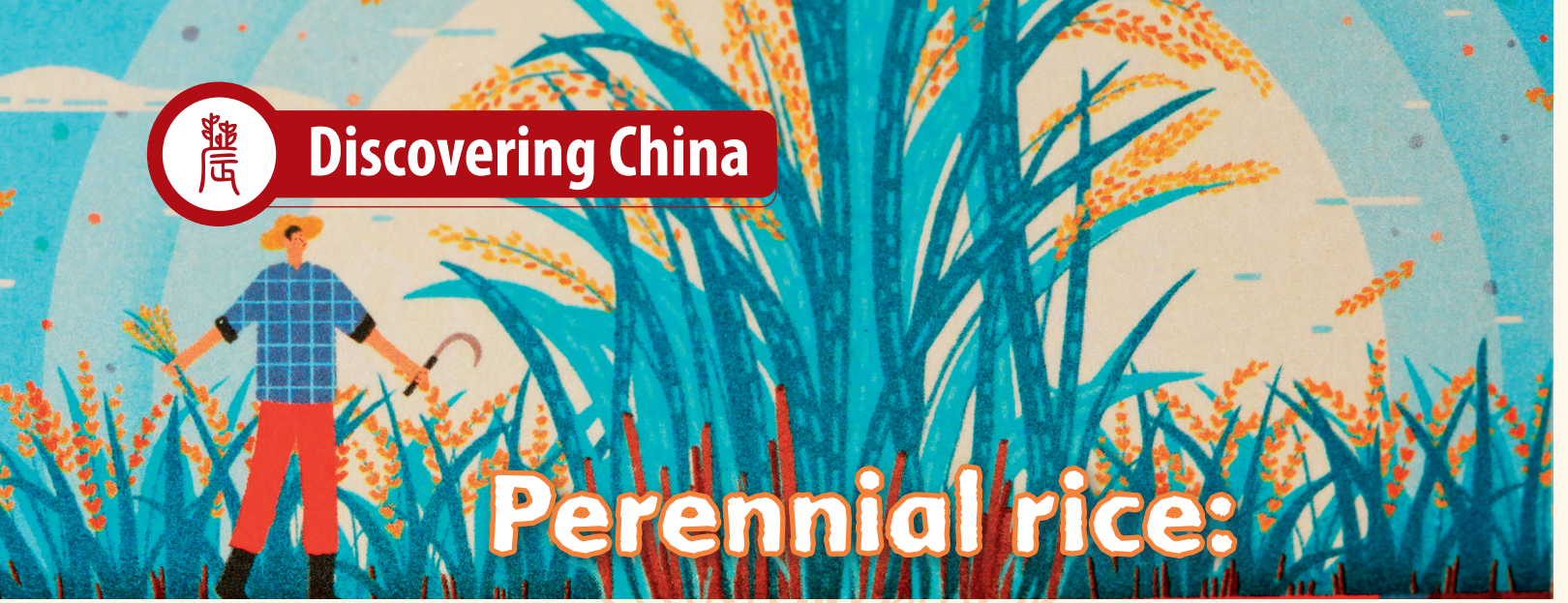
1. _____ in cultivated soils and plants are a global problem that adversely affects crop production and plant nutritional value, as well as human health and well-being.
2. The process of changing wild plants and animals to make them more useful to humans is referred to as _____.
3. _____ have specific characteristics, such as availability of nutrients, temperature, terrain, sunlight, and predators, which dictate how and how well a species survives and reproduces.
4. In drought-prone regions, plants with deeper root systems gradually dominated the landscape over generations as a result of _____.
5. Teff and fonio are _____ that have been largely overlooked in modern agriculture despite their potential to promote sustainable farming practices.

Translating agriculture-related materials

Translate the paragraph into English.

民为国基，谷为民命。粮食事关国运民生，粮食安全是国家安全的重要基础。新中国成立后，中国始终把解决人民的吃饭问题作为治国安邦的首要任务。经过艰苦奋斗和不懈努力，中国在农业基础十分薄弱、人民生活极端贫困的基础上，依靠自己的力量实现了粮食基本自给，不仅成功解决了 14 亿人口的吃饭问题，还显著提升了居民生活质量和营养水平，在保障粮食安全上迈出了关键一步。

Scan the code and complete more language exercises on Ucampus.



Perennial rice:

Cultivating a sustainable future

Log on to Ucampus for interactive learning.

seedling /ˈsiːdlɪŋ/ *n.* 种苗

perennial /pəˈreniəl/ *a.*（植物）多年生的

1 Traditionally, most rice farmers plant new **seedlings** every year, a process that requires time, energy, and costly inputs like fertilizers and pesticides. However, in the fertile fields of Yunnan, China, a new option has captured the imagination of scientists and farmers alike: **perennial** rice plants that regrow year after year.

2 The **quest** to find a new way to grow rice began in the 1970s when the Food and Agriculture Organization (FAO) of the United Nations advocated for a shift from annual to perennial crop varieties. This initiative sparked inspiration among scientists worldwide, including those in China. However, the path to developing a viable perennial rice variety was **fraught** with trials and **tribulations**. It wasn't until the mid-1990s that Chinese researchers made a significant breakthrough: A variety of annual Asian rice was **hybridized** with a wild perennial relative from Africa. The resulting **embryo** was **fragile** and wouldn't normally survive, but scientists adopted a laboratory technique known as **tissue culture** to cultivate a new hybrid rice plant. This new plant had retained permanent living roots, **akin** to its African parent, while also being viable for **crossbreeding** with standard cultivated rice. After decades of experimentation and **refinement**, the successful variety, **designated** Perennial Rice 23 (PR23), was ultimately introduced to Chinese farmers in 2018.

hybridize /ˈhaɪbrɪdaɪz/ *v.*（使）杂交
embryo /ˈembriˌəʊ/ *n.* 胚
tissue culture *n.* 组织培养

crossbreed /ˈkrɒsbriːd/ *v.* 杂交繁育

Perennial rice experimental field in Yunnan Province

3 Perennial rice presents substantial economic advantages. By eliminating the need for annual replanting, it **markedly** reduces costs and boosts profits. Farmers growing perennial rice could save about 60% of labor and nearly half of input costs in each regrowth cycle. While the annual yield of perennial rice varies across different study locations, its profits are found to range from 17% to 161% higher than those of elite annual rice. These economic benefits position perennial rice as an appealing option for farmers, particularly in regions where labor is both scarce and expensive.

4 In addition to economic gains, perennial rice provides **notable** environmental benefits. Its deep roots have been shown to boost **soil organic carbon** and nitrogen levels, which in turn enhances the soil's ability to retain more water. Furthermore, the practice of **no-tillage** helps maintain soil structure, which promotes the **oxidative** capacity of **methane**-oxidizing bacteria, **ultimately** leading to reduced methane **emissions**. In contrast, plowing in annual rice paddies can increase methane emissions by over 50%.

soil organic carbon *n.* 土壤有机碳

no-tillage /ˈnəʊˈtɪlɪdʒ/ *n.* 免耕法
oxidative /ɒkˈsɪdətɪv/ *a.* 氧化的
methane /ˈmiːˌθeɪn/ *n.* 甲烷
emission /ɪˈmɪʃn/ *n.* 排放物

5 The success of perennial rice has sparked global interest. In 2018, perennial rice technology was introduced to Africa as a South-South cooperation program. A notable **milestone** was reached in 2022 when the perennial rice variety Yunda 107 successfully passed national testing and **registration** in Uganda, paving the way for its commercial **adoption** across the continent. Countries participating in the Belt and Road Initiative, including Laos, Thailand, Cambodia, Vietnam, Myanmar, and Bangladesh, have engaged in research collaborations with China, demonstrating international confidence in the immense potential and **applicability** of perennial rice technology. This global collaboration **underscores** China's **commitment** to addressing global food security challenges while sharing innovative agricultural technologies and fostering sustainable development.

6 The development and **promotion** of perennial rice mark a significant step in the **advancement** of sustainable agriculture. As international collaborations and research efforts progress, this groundbreaking crop is **poised** to play a crucial role in shaping a more resilient and food-secure future for generations to come.

Getting insights from China

Understanding essential information

Read the passage and complete the profile about perennial rice with information from the passage.

Perennial rice

Development process

- A significant breakthrough made in the mid-1990s:

  _____

  _____

- Challenges with the initial embryo and improvement:

  _____

  _____

Benefits

- Economic benefits:

  _____

  _____

- Environmental benefits:

  _____

  _____

Global adoption

- Key progress:
  - In 2018:

    _____

    _____

  - In 2022:

    _____

    _____

Exploring in depth

Work in groups and conduct a small-scale research project to delve deeply into the development process of perennial rice. Then talk about the key factors that have contributed to China's achievements in this field. The following aspects are for your reference:

- Technological advancements
- Experimental approaches
- Research methodologies
- Guiding philosophies

Applying in a global context

Work in groups and discuss the questions.

1. What challenges might arise when introducing perennial rice to different countries? You may consider cultural, technological, and economic factors.
2. What strategies could be implemented to address these challenges?

Improving language skills

Scan the code and complete the language exercises on Ucampus.

Getting on the stage

Delivering a speech on China's contributions to global food security

In this unit, we have examined various strategies to address global food security challenges. As a student representative at your university's youth forum on food security, you are going to deliver a three-minute speech at the opening ceremony, highlighting China's innovative approaches to tackling food security issues.

Log on to Ucampus to get guidance from your AI tutor.

Step 1 Collect information

Collect information from diverse sources, such as official reports, scientific journals, reliable news outlets, books, etc. You may also refer to the passage "Perennial rice: Cultivating a sustainable future." When you collect information, consider the following questions:

- What is the background of global food security, and why is it an urgent issue?
- What innovative approaches has China implemented to address food security challenges?
- What are the outcomes and impacts of these approaches?

Step 2 Structure your speech

Construct an outline for your speech using the information gathered. The outline may include three main parts: an introduction with facts about global food security issues, a body presenting China's innovative approaches and achievements in addressing these issues, and a conclusion summarizing key points and suggesting future directions.

Step 3 Draft your speech

Write your speech based on your outline and the information you collected.

Tips

- Use clear and straightforward language to ensure your message is easily understood. Incorporate useful expressions and sentences in this unit to enrich your language.
- Simplify complex ideas by breaking them down into digestible concepts. Provide clear explanations or examples to aid comprehension.
- Use transitional phrases or sentences to seamlessly connect one main point to the next, thus maintaining a smooth flow throughout your speech.

Step 4 Rehearse your speech

Practice your speech thoroughly to refine your delivery and ensure it stays within three minutes. Consider rehearsing in front of a friend who may provide valuable feedback. Additionally, prepare for potential questions the audience may ask to enhance your confidence.

Step 5 Deliver your speech

Deliver your speech in class. Use a proper tone, appropriate body language, and eye contact to engage the audience effectively. After your speech, invite questions to encourage interaction and discussion.

Scan the code. Watch the micro course recorded by industry experts to help you better complete the project.

Vocabulary

Viewing through the lens

New words

▲ **antibiotic** /ˌæntibaɪˈɒtɪk/ *n.* [C, usu. pl.] a drug that is used to kill bacteria and cure infections 抗生素

▲ **barren** /ˈbærən/ *a.* unable to produce plants or fruit 贫瘠的；荒芜的

biodiversity /ˌbaɪəʊdaɪˈvɜːsəti/ *n.* [U] the variety of plants and animals in a particular place 生物多样性

biofuel /ˈbaɪəʊˌfjuːəl/ *n.* [C, U] a substance made from plants or animal waste that can be used to produce heat or power 生物燃料

clam /klæm/ *n.* [C] 蛤；蛤蜊

▲ **crate** /kreɪt/ *n.* [C] a large box made of wood or plastic that is used for carrying fruit, bottles, etc. 板条箱；（木制或塑料制的）装货箱

▲ **degrade** /dɪˈgreɪd/ *vt.*

1. make a situation or the condition of sth. worse 使（局面或情况）恶化
2. treat sb. without respect and make them lose respect for themselves 贬低；羞辱

mussel /ˈmʌsl/ *n.* [C] 贻贝；壳菜；淡菜

▲ **nitrogen** /ˈnaɪtrədʒ(ə)n/ *n.* [U] 氮（一种化学元素，符号为 N）

oyster /ˈɔɪstə/ *n.* [C] 牡蛎；蚝

regenerative /rɪˈdʒen(ə)rətɪv/ *a.* having the effect of making sth. develop or grow strong again 再生的；更生的

scallop /ˈskɒləp/ *n.* [C] 扇贝（一种小型海洋生物，可食用）

seaweed /ˈsiːˌwiːd/ *n.* [U] 海藻；海草

shellfish /ˈʃelˌfɪʃ/ *n.* [C, U] an animal that lives in water, has a shell, and can be eaten as food, e.g., crabs, lobsters, and oysters 水生有壳动物

Phrases and expressions

a bunch (of sth.) a large amount of sth.; a large number of things or people 大量；大批

get on with sth. start or continue doing sth., esp. work 开始（继续）做（尤指某项工作）

run out (of sth.) finish, use, or sell all of sth., so that there is none left 用完；耗尽；卖光

wipe sth. out destroy sth. completely 完全摧毁

Exploring the frontier

New words

★ **abundance** /əˈbʌndəns/ *n.* [U, sing.] a large quantity of sth. 充裕；丰富

agronomic /ˌægrəˈnɒmɪk/ *a.* (*BrE*) (*also* **agronomical**) relating to the scientific study of the cultivation of land, soil management, and crop production 农业经济学的

amaranth /ˈæmrænθ/ *n.* [U]（产于南美的）苋属植物

avocado /ˌævəˈkɑːdəʊ/ *n.* [C] (*also* **avocado pear**) 鳄梨；牛油果

★ **consciousness** /ˈkɒnʃəsnəs/ *n.* [U]
1. the ideas, beliefs, or opinions held by a group of people 觉悟；意识
2. the state of being awake 清醒；意识；知觉

culinary /ˈkʌlɪn(ə)ri/ *a.* (*only before noun*) (*fml.*) relating to cooking 烹饪（用）的

▲ **culminate** /ˈkʌlmɪˌneɪt/ *vi.* (*fml.*) end with a particular result, or at a particular point（以某种结果）告终；（在某一点）结束

★ **deficiency** /dɪˈfɪʃnsi/ *n.* [C, U] (*fml.*) a lack of sth. that is necessary 不足；缺乏

★ **desirable** /dɪˈzaɪrəbl/ *a.* worth having and wanted by most people 值得拥有的；渴望获得的；令人向往的

▲ **displace** /dɪsˈpleɪs/ *vt.* take the place or position of sth. or sb. 取代；替代

★ **domestication** /dəˌmestɪˈkeɪʃn/ *n.* [U] the process of bringing animals or plants under human control in order to provide food, power, or company 驯化；驯养；人工培植

▲ **edible** /ˈedɪbl/ *a.* suitable or safe for eating（无毒而）可以吃的，适宜食用的

▲ **erode** /ɪˈrəʊd/ *v.*
1. slowly reduce or destroy sth. 削弱；逐步破坏
2. rub or be rubbed away gradually 侵蚀；腐蚀；磨损

fonio /ˈfəʊnɪəʊ/ *n.* [U] 福尼奥米（西非原产作物）

▲ **foster** /ˈfɒstə/ *vt.* help a skill, feeling, idea, etc. develop over a period of time 促进；培养；助长

gem /dʒem/ *n.* [C]
1. a person, place, or thing that is esp. good 难能可贵的人；风景优美的地方；美妙绝伦的事物
2. (*also* **gem stone**) a beautiful stone that has been cut into a special shape 宝石

★ **genetic** /dʒəˈnetɪk/ *a.* relating to genes or genetics 基因的；遗传学的

green revolution *n.* [sing.] the increase in agricultural production that has been made possible by the use of new types of crops and new farming methods 绿色革命（引进高产种子和现代农业技术以增加粮食产量的活动）

holistic /həʊˈlɪstɪk/ *a.* considering a person or thing as a whole, rather than as separate parts 整体（论）的；全面的

▲ **homogeneity** /ˌhəʊməʊdʒəˈniːəti/ *n.* [U] the quality of consisting of parts or people that are similar to each other or are of the same type 同种；同质

▲ **homogenous** /həˈmɒdʒɪnəs/ *a.* (*also* **homogeneous** /ˌhəʊməʊˈdʒiːniəs/) consisting of people or things that are all of the same type 由同种族人组成的；由同类组成的

impede /ɪmˈpiːd/ *vt.* make it difficult for sb. or sth. to move forward or make progress 妨碍；阻碍

▲ **imperative** /ɪmˈperətɪv/ *a.* extremely important and needing to be done or dealt with immediately 极重要的；紧急的

▲ **indigenous** /ɪnˈdɪdʒənəs/ *a.* used to refer to plants and animals that grow or live naturally in a place, and have not been brought there from somewhere else 当地的；本土的；土生土长的

★ **intentional** /ɪnˈtenʃn(ə)l/ *a.*
1. (*fml.*) relating to intention 目的的；意图的
2. deliberate 有意的；故意的；蓄意的

▲ **lucrative** /ˈluːkrətɪv/ *a.* producing a large amount of money; making a large profit 赚大钱的；获利多的

maize /meɪz/ *n.* [U] (*BrE*) 玉米

micronutrient /ˌmaɪkrəʊˈnjuːtriənt/ *n.* [C] a substance that animals and plants need in small amounts in order to live and grow 微量营养元素

misconception /ˌmɪskənˈsepʃn/ *n.* [C] an idea that is wrong because it has been based on a failure to understand a situation 误解；错误的想法

moringa /məˈrɪŋgə/ *n.* [U] 辣木

multifaceted /ˌmʌltiˈfæsətɪd/ *a.* having many parts or sides 多方面的；包含多方面的

natural selection *n.* [U] the process by which only plants and animals that are naturally suitable for life in their environment will continue to live and breed, while all others will die out 自然选择

★ **necessitate** /nəˈsesɪˌteɪt/ *vt.* (*fml.*) make it necessary for you to do sth. 使成为必需；需要

niche /niːʃ/ *n.* [C]

1. an environment that has all the things that a particular plant or animal needs in order to live 生态位（满足某种植物或动物一切生存所需的最小环境单位）
2. a job, activity, etc. that is very suitable for sb. 称心的工作；合适的事情

★ **nutrient** /ˈnjuːtriənt/ *n.* [C] a chemical or food that provides what is needed for plants or animals to live and grow 养分；营养物

★ **nutritious** /njuːˈtrɪʃəs/ *a.* food that is nutritious is full of the natural substances that your body needs to stay healthy or to grow properly（食物）有营养的，滋养的，营养价值高的

▲ **obscurity** /əbˈskjʊərəti/ *n.* [U] the state of not being known or remembered 无名；默默无闻

outreach /ˈaʊtˌriːtʃ/ *n.* [U] the activity or process of bringing information or services to people 外展服务；延伸服务

▲ **paradigm** /ˈpærəˌdaɪm/ *n.* [C] (*fml.*)

1. a theory or a group of ideas about how sth. should be done, made, or thought about（理论或思想的）模式，范式，典范
2. a model or pattern for sth. that may be copied 范例；典范

▲ **profile** /ˈprəʊfaɪl/ *n.* [C]

1. the general impression that sb. or sth. gives to the public and the amount of attention they receive 印象；形象
2. a description of sb. or sth. that gives useful information 概述；简介；传略

★ **progressively** /prəʊˈgresɪvli/ *ad.* gradually over a period of time 逐渐地；逐步地

quinoa /ˈkiːnwɑː/ *n.* [U] 藜麦

▲ **realign** /ˌriːəˈlaɪn/ *vt.* change the way in which sth. is organized 对…重新组织

★ **reintegrate** /riːˈɪntɪgreɪt/ *v.* make or be made into a whole again（使）再次成为整体

repository /rɪˈpɒzɪt(ə)ri/ *n.* [C]

1. an abundant source or supply 丰富的资源；充足的供应
2. a container or place where things are deposited and stored 贮藏器；贮藏所；仓库

★ **resistance** /rɪˈzɪst(ə)ns/ *n.* [U, sing.]

1. the ability to prevent sth. from having an effect 抵抗性；抵抗力
2. refusal to accept sth. new or different 抗拒；抵制

▲ **robust** /rəʊˈbʌst/ *a.* strong and healthy 强壮的；茁壮的；健全的

★ **selective** /sɪˈlektɪv/ *a.*
1. affecting or relating to the best or most suitable people or things from a larger group 有选择的；选择性的；择优的
2. careful about what you choose to do, buy, allow, etc.（做事、购物等）认真选择（挑拣）的

superfood /ˈsuːpəfuːd/ *n.* [C] a food that is believed to contain a lot of substances that make you healthy 超级食品（指具有较高营养价值的天然食物）

tapestry /ˈtæpɪstri/ *n.*
1. [sing.] a variety or mixture of things 丰富多彩
2. [C, U] a thick heavy cloth that has pictures or patterns woven into it（织有图案的）绣帷，挂毯，织锦

teff /tef/ *n.* [U] (*also* **tef**) 埃塞俄比亚画眉草（一年生禾草，分布于非洲东北部）

▲ **trait** /treɪt/ *n.* [C] a particular characteristic, quality, or tendency that sb. or sth. has 特征

★ **trendy** /ˈtrendi/ *a.* influenced by the most fashionable styles and ideas 时髦的；受新潮思想影响的

underutilized /ˌʌndəˈjuːtɪˌlaɪzd/ *a.* (*also* **underused**) not used as much as it could or should be 未充分利用的；浪费的

▲ **unveil** /ʌnˈveɪl/ *vt.* reveal or make known 向公众透露；揭示

Phrases and expressions

a handful of sth. a very small number of people or things 几个人（物）；少数人（物）

easier said than done used to say that sth. would be very difficult to do 说来容易做来难

on top of sth.
1. if sth. bad happens to one on top of sth. else, it happens when one has other problems 除…之外（还有其他问题）
2. on the highest surface of sth. 在…上面

the advent of sth. the time when sth. first begins to be widely used …的出现（到来）

Discovering China

New words

★ **adoption** /əˈdɒpʃn/ *n.*
1. [U] the act of starting to use a particular plan, method, way of speaking, etc. 采用；采纳
2. [C, U] the act or process of adopting a child 收养；领养

★ **advancement** /ədˈvɑːnsmənt/ *n.* [C, U] progress in society, science, human knowledge, etc.（社会、科学、人类知识等的）进展

▲ **akin** /əˈkɪn/ *a.* (**~ to sth.**) (*fml.*) very similar to sth. 与…相似的；与…类似的

★ **applicability** /əˌplɪkəˈbɪləti/ *n.* [U] the fact of affecting or relating to a person or thing 适用性

★ **commitment** /kəˈmɪtmənt/ *n.* [U] willingness to give your time and energy to a job, activity, or sth. that you believe in 投入；承诺；保证

crossbreed /ˈkrɒsbriːd/ *v.* if one breed of plant or animal crossbreeds with another, or if you crossbreed them, they breed, producing a new type of plant or animal（使）杂交；杂交繁育

▲ **designate** /ˈdezɪgˌneɪt/ *vt.* (*usu. passive*)
1. give a name or title to 把…定名为；把…称为
2. mark or point out; specify 标出；指明；指定；详细说明

embryo /ˈembriˌəʊ/ *n.* [C] an animal that is developing either in its mother's womb or in an egg, or a plant that is developing in a seed 胚；胚胎

★ **emission** /ɪˈmɪʃn/ *n.* [C, usu. pl.] a gas or other substance that is sent into the air 排放物；散发物

▲ **fragile** /ˈfrædʒaɪl/ *a.*
1. not very strong or healthy 虚弱的；体弱的
2. easy to break or damage 脆的；易碎的；易损坏的

fraught /frɔːt/ *a.* (**~ with problems / difficulties / danger, etc.**) full of problems, etc. 充满问题 / 困难 / 危险等

hybridize /ˈhaɪbrɪdaɪz/ *v.* form a new type of plant or animal from two existing types, so that the new type has some qualities from each of the other types（使）杂交

markedly /ˈmɑːkɪdli/ *ad.* in a clear and noticeable way 显著地；明显地

methane /ˈmiːˌθeɪn/ *n.* [U] a gas that you cannot see or smell, which can be burned to give heat 甲烷；沼气

▲ **milestone** /ˈmaɪlˌstəʊn/ *n.* [C] (*AmE*) a very important event in the development of sth. 重大事件；里程碑

★ **notable** /ˈnəʊtəbl/ *a.* (*usu. before noun*) important, interesting, excellent, or unusual enough to be noticed or mentioned 显要的；显著的；值得注意的

no-tillage /ˈnəʊˈtɪlɪdʒ/ *n.* [U] a system of farming that consists of planting a narrow slit trench without tillage and with the use of herbicides to suppress weeds 免耕法

oxidative /ɒkˈsɪdətɪv/ *a.* an oxidative chemical reaction adds oxygen to the tissues of the body 氧化的

perennial /pəˈreniəl/ *a.*
1. (of plants) living for two years or more（植物）多年生的
2. continuing for a very long time; happening again and again 长久的；持续的；反复出现的

▲ **poised** /pɔɪzd/ *a.* (*not before noun*)
1. completely ready to do sth. or for sth. to happen, when it is likely to happen soon 准备好的；蓄势待发的
2. not moving, but ready to move or do sth. at any moment（摆好姿势）准备行动的

★ **promotion** /prəˈməʊʃn/ *n.*
1. [U] the activity of encouraging or supporting sth. 鼓励；提倡；支持
2. [C, U] a move to a higher level in a company, institution, or sport（公司、机构或运动中级别的）提升，晋升，升级

▲ **quest** /kwest/ *n.* [C] a long search for sth. that is difficult to find（长期的）寻求，探索，追求

★ **refinement** /rɪˈfaɪnmənt/ *n.*
1. [U] the process of improving sth. 改良；改进
2. [C] an improvement, usu. a small one, to sth.（一般指细微的）改进，改善

★ **registration** /ˌredʒɪˈstreɪʃn/ *n.* [U] the act of recording names and details on an official list 登记；注册

★ **seedling** /ˈsiːdlɪŋ/ *n.* [C] a young plant or tree grown from a seed 籽苗；种苗；幼苗

soil organic carbon *n.* [U] 土壤有机碳

tissue culture *n.* [U] growth of tissue cells in artificial media 组织培养

tribulation /ˌtrɪbjʊˈleɪʃn/ *n.* [C, U] (*fml.*) serious trouble or a serious problem 苦难；艰辛

★ **ultimately** /ˈʌltɪmətli/ *ad.* finally, after everything else has been done or considered 最后；最终

underscore /ˌʌndəˈskɔː/ *vt.* emphasize the fact that sth. is important or true 强调

Proper names

Bangladesh /ˌbæŋgləˈdeʃ/ 孟加拉国（南亚国家）

Cambodia /ˌkæmˈbəʊdiə/ 柬埔寨（东南亚国家）

Food and Agriculture Organization (FAO) 粮食及农业组织（联合国专门机构）

Laos /laʊs/ 老挝（东南亚国家）

Myanmar /ˈmjænmɑː/ 缅甸（东南亚国家）

Thailand /ˈtaɪlænd/ 泰国（东南亚国家）

Uganda /juːˈgændə/ 乌干达（东非国家）

Vietnam /ˌvjetˈnæm/ 越南（东南亚国家）

Unit test

Scan the code and take the unit test on Ucampus.