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## **The Breaking News English.com Resource Book**

“1,000 Ideas & Activities For Language Teachers”

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## **Scientists discover gene to waterproof rice**

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**11 August, 2006**

## THE ARTICLE

### **Scientists discover gene to waterproof rice**

Scientists have found a gene that will allow rice to survive longer in rice paddies that are under water. Plants under water for longer than a week receive so little oxygen they die. The scientists hope their discovery will mean the crops will last longer in regions that are regularly flooded. Rice growers in parts of Asia lose an estimated \$US one billion annually to floods. They hope a new, stronger type of rice will reduce the financial damage that occurs in typhoon and monsoon seasons. They also hope they will get bumper harvests. This is good news for the millions of people who suffer from food shortages because of heavy rains. Rice production must increase by 30 per cent over the next 20 years for a billion people to receive their staple diet.

The research is from teams from the University of California and the International Rice Research Institute. Their findings have been published in the science journal [Nature](#). Dr David Mackill, one of the researchers, said scientists had been trying for 50 years to develop a breed of rice that can live under water. He explained that: "Attempts to breed [underwater] tolerance into commercially [profitable] rice failed to generate successful varieties." Another team member, Dr Pamela Ronald, said she hoped that the research would lead to new rice varieties that would mean a better food supply for poor farmers and their families. The discovery is sure to add to the debate on the need for genetically modified rice.

## WARM-UPS

**1. STAPLE FOOD:** Look at these staple foods from around the world. Talk with your partner(s) about them. Research the ones you don't know:

bananas / pasta / cassava / tapioca / lentils / rice / bread / beans / sorghum / potato / yams

**2. CHAT:** In pairs / groups, decide which of these topics or words from the article are most interesting and which are most boring.

*Scientists / genes / rice / water / oxygen / floods / financial damage / heavy rain / research / institutes / living under water / food supply / poor farmers / debates*

Have a chat about the topics you liked. For more conversation, change topics and partners frequently.

**3. VERSATILE:** Rice is one of the most useful foods in the world. Which of these ways of eating rice from around the world sound delicious to you?

- boiled rice with hot tea
- rice for breakfast
- rice and curry
- savory rice crackers
- rice cake with a strawberry inside
- pickled plum rice balls
- paella / risotto / gratin
- rice baked in milk and sugar
- sushi
- other \_\_\_\_\_

**4. QUICK DEBATE:** Students A believe the water-resistant rice is a great idea. Students B believe any kind of genetically modified food is dangerous. Debate this with your partners. Change partners often.

**5. OPINIONS:** In pairs / groups, write down the opinions of the following people or creatures on the new water-resistant rice. Change partners and exchange opinions. Talk about whether or not you agree with these opinions.

- a. Rice farmer
- b. Organic rice grower
- c. Greenpeace member
- d. Very poor consumer
- e. Scientist
- f. An insect that lives in a rice paddy
- g. Supermarket owner
- h. Other \_\_\_\_\_

**6. RICE:** Spend one minute writing down all of the different words you associate with rice. Share your words with your partner(s) and talk about them. Together, put the words into different categories.

**7. GM:** Brainstorm a list of fruit and vegetables. Write down how each could be genetically modified. Share your ideas with your partner(s). Would you eat the genetically modified food you discussed?

## BEFORE READING / LISTENING

**1. TRUE / FALSE:** Look at the article's headline and guess whether these sentences are true (T) or false (F):

- |  |       |
|--|-------|
| a. Scuba divers can soon eat a new type of underwater rice.              | T / F |
| b. Rice plants usually die if they are under water for more than a week. | T / F |
| c. Asian rice farmers lose a billion dollars a year due to floods.       | T / F |
| d. Rice production must rise 300 percent in the next 20 years.           | T / F |
| e. Scientists made water-resistant rice plants fifty years ago.          | T / F |
| f. There are hundreds of kinds of water-resistant rice.                  | T / F |
| g. The new gene will help farmers have better harvests.                  | T / F |
| h. The new discovery will get more people talking about GM food.         | T / F |

**2. SYNONYM MATCH:** Match the following synonyms from the article:

- |              |            |
|--------------|------------|
| a. allow     | certain    |
| b. regions   | happens    |
| c. annually  | acceptance |
| d. occurs    | discussion |
| e. staple    | yearly     |
| f. develop   | basic      |
| g. tolerance | grow       |
| h. varieties | let        |
| i. sure      | types      |
| j. debate    | areas      |

**3. PHRASE MATCH:** Match the following phrases from the article (sometimes more than one combination is possible):

- |   |  |
|---|--|
| a. a gene that will allow               | have been published                    |
| b. Plants under water for longer than a | diet                                   |
| c. crops will last longer in            | commercially profitable rice           |
| d. bumper                               | to the debate                          |
| e. staple                               | rice to survive longer                 |
| f. Their findings                       | supply for poor farmers                |
| g. scientists had been trying           | harvests                               |
| h. breed underwater tolerance into      | week receive so little oxygen they die |
| i. a better food                        | for 50 years                           |
| j. The discovery is sure to add         | regions that are regularly flooded     |

## WHILE READING / LISTENING

**GAP FILL:** Put the words in the column on the right into the gaps in the text.

### Scientists discover gene to waterproof rice

Scientists have found a \_\_\_\_\_ that will allow rice to survive longer in rice paddies that are under water. Plants under water for \_\_\_\_\_ than a week receive so little oxygen they die. The scientists hope their \_\_\_\_\_ will mean the crops will last longer in regions that are \_\_\_\_\_ flooded. Rice growers in parts of Asia lose an \_\_\_\_\_ \$US one billion annually to floods. They hope a new, stronger type of rice will reduce the financial \_\_\_\_\_ that occurs in typhoon and monsoon seasons. They also hope they will get \_\_\_\_\_ harvests. This is good news for the millions of people who suffer from food \_\_\_\_\_ because of heavy rains. Rice production must increase by 30 per cent over the next 20 years for a billion people to receive their staple diet.

*regularly*  
*bumper*  
*longer*  
*estimated*  
*shortages*  
*gene*  
*damage*  
*discovery*

The research is from \_\_\_\_\_ from the University of California and the International Rice Research Institute. Their findings have been \_\_\_\_\_ in the science journal Nature. Dr David Mackill, one of the researchers, said scientists had been \_\_\_\_\_ for 50 years to develop a breed of rice that can live under water. He explained that: "Attempts to \_\_\_\_\_ [underwater] tolerance into commercially [profitable] rice failed to \_\_\_\_\_ successful varieties." Another team member, Dr Pamela Ronald, said she hoped that the research would \_\_\_\_\_ to new rice varieties that would mean a better food \_\_\_\_\_ for poor farmers and their families. The discovery is sure to \_\_\_\_\_ to the debate on the need for genetically modified rice.

*trying*  
*lead*  
*published*  
*generate*  
*add*  
*teams*  
*supply*  
*breed*

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## LISTENING

Listen and fill in the spaces.

### Scientists discover gene to waterproof rice

Scientists have found a gene that \_\_\_\_\_ rice to survive longer in rice paddies that are under water. Plants under water for longer than a week receive \_\_\_\_\_ oxygen they die. The scientists hope their discovery will mean the crops \_\_\_\_\_ longer in regions that are regularly flooded. Rice growers in parts of Asia lose an estimated \$US one billion \_\_\_\_\_ floods. They hope a new, stronger type of rice will reduce the financial damage \_\_\_\_\_ in typhoon and monsoon seasons. They also hope they will get bumper harvests. This is good news for the millions of people who \_\_\_\_\_ food shortages because of heavy rains. Rice production must increase by 30 per cent over the next 20 years for a billion people to receive their \_\_\_\_\_.

The research is \_\_\_\_\_ from the University of California and the International Rice Research Institute. Their \_\_\_\_\_ been published in the science journal Nature. Dr David Mackill, one of the researchers, said scientists \_\_\_\_\_ trying for 50 years to develop a breed of rice that can live under water. He explained that: "\_\_\_\_\_ breed [underwater] tolerance into commercially [profitable] rice failed to generate successful \_\_\_\_\_." Another team member, Dr Pamela Ronald, said she hoped that the research would \_\_\_\_\_ new rice varieties that would mean a better food supply for poor farmers and their families. The discovery is sure \_\_\_\_\_ the debate on the need for genetically modified rice.

## AFTER READING / LISTENING

**1. WORD SEARCH:** Look in your dictionaries / computer to find collocates, other meanings, information, synonyms ... for the words **'under'** and **'water'**.

- Share your findings with your partners.
- Make questions using the words you found.
- Ask your partner / group your questions.

**2. ARTICLE QUESTIONS:** Look back at the article and write down some questions you would like to ask the class about the text.

- Share your questions with other classmates / groups.
- Ask your partner / group your questions.

**3. GAP FILL:** In pairs / groups, compare your answers to this exercise. Check your answers. Talk about the words from the activity. Were they new, interesting, worth learning...?

**4. VOCABULARY:** Circle any words you do not understand. In groups, pool unknown words and use dictionaries to find their meanings.

**5. STUDENT "RICE" SURVEY:** In pairs / groups, write down questions about rice and genetically modified food.

- Ask other classmates your questions and note down their answers.
- Go back to your original partner / group and compare your findings.
- Make mini-presentations to other groups on your findings.

**6. TEST EACH OTHER:** Look at the words below. With your partner, try to recall exactly how these were used in the text:

- |           |             |
|-----------|-------------|
| • gene    | • institute |
| • oxygen  | • journal   |
| • billion | • breed     |
| • seasons | • failed    |
| • bumper  | • supply    |
| • diet    | • add       |

## DISCUSSION

### STUDENT A's QUESTIONS (Do not show these to student B)

- a. Did the headline make you want to read the article?
- b. Did anything in the article surprise you?
- c. What do you think of the idea of GM rice?
- d. Do you think GM food can be a good thing?
- e. What are the arguments for and against GM food?
- f. What do you think Asian farmers will think about the new discovery?
- g. Are you a big rice lover?
- h. Don't you think GM rice is good if it helps feed millions of people who might have no food?
- i. What question would you like to ask a scientist who creates GM food?
- j. What do you think his/her answer would be?

### STUDENT B's QUESTIONS (Do not show these to student A)

- a. Did you like reading this article?
- b. What do you think about what you read?
- c. Do you think the new discovery is an important one?
- d. What role does rice play in your life?
- e. What is the best way to cook rice?
- f. How would you adapt if your staple food suddenly disappeared?
- g. What side effects of the new rice do you think there could be in local eco-system?
- h. If you were a rice plant, would you like to be genetically modified to be able to live longer under water?
- i. Should rice be baked in milk and sugar, with perhaps cinnamon, raisins or even strawberry jam added, as with British rice pudding?
- j. Did you like this discussion?

**AFTER DISCUSSION:** Join another partner / group and tell them what you talked about.

- a. What was the most interesting thing you heard?
- b. Was there a question you didn't like?
- c. Was there something you totally disagreed with?
- d. What did you like talking about?
- e. Which was the most difficult question?



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## SPEAKING

**GM FOOD:** With your partner(s), create the advertisements for these new products:

Chicken eggs with four times more protein	
Strawberries that are ten times tastier	
Beef that has zero fat content	
Spinach that cures baldness in men	
Tomatoes the size of soccer balls	
Milk that helps you relax and sleep longer	

Change partners and exchange your ideas. Decide on who has the best adverts.

**2-MINUTE RICE DEBATES:** Face each other in pairs and engage in these fun 2-minute debates. Students A take the first argument, students B the second. Change partners often.

- a. Rice is better than bread. vs. Bread is better than rice.
- b. Brown rice is nicest. vs. White rice is nicest.
- c. American rice is tastiest. vs. Indian / Thai / Japanese rice is tastiest.
- d. Boiled rice is best. vs. Fried rice is best.
- e. Rice pudding (rice baked in milk and sugar) is delicious. Vs. That sounds disgusting.
- f. Boiled rice is great for breakfast. vs. Boiled rice is best for dinner.
- g. Rice is more useful than potatoes. vs. Potatoes are ten times more useful.
- h. Rice is boring. vs. You must be joking.
- i. Sticky rice is best. vs. Real rice is best.

## **HOMEWORK**

**1. VOCABULARY EXTENSION:** Choose several of the words from the text. Use a dictionary or Google's search field (or another search engine) to build up more associations / collocations of each word.

**2. INTERNET:** Search the Internet and find more information about rice. Talk about what you discover with your partner(s) in the next lesson.

**3. STAPLE FOOD:** Research staple foods from around the world. Show where different staples are grown around the world and the different ways they are used.

**4. LETTER:** Write a letter to the scientists who found the gene for the water resistant rice. Tell them what you think of their discovery. Ask them three questions. Read your letter to your classmates in the next lesson. Your partner(s) will answer your questions. Which letter did you like best and why?

## ANSWERS

### TRUE / FALSE:

- a. F      b. T      c. T      d. F      e. F      f. F      g. T      h. T

### SYNONYM MATCH:

- |              |            |
|--------------|------------|
| a. allow     | let        |
| b. regions   | areas      |
| c. annually  | yearly     |
| d. occurs    | happens    |
| e. staple    | basic      |
| f. develop   | grow       |
| g. tolerance | acceptance |
| h. varieties | types      |
| i. sure      | certain    |
| j. debate    | discussion |

### PHRASE MATCH:

- |   |  |
|---|--|
| a. a gene that will allow               | rice to survive longer                 |
| b. Plants under water for longer than a | week receive so little oxygen they die |
| c. crops will last longer in            | regions that are regularly flooded     |
| d. bumper                               | harvests                               |
| e. staple                               | diet                                   |
| f. Their findings                       | have been published                    |
| g. scientists had been trying           | for 50 years                           |
| h. breed underwater tolerance into      | commercially profitable rice           |
| i. a better food                        | supply for poor farmers                |
| j. The discovery is sure to add         | to the debate                          |

### GAP FILL:

#### Scientists discover gene to waterproof rice

Scientists have found a **gene** that will allow rice to survive longer in rice paddies that are under water. Plants under water for **longer** than a week receive so little oxygen they die. The scientists hope their **discovery** will mean the crops will last longer in regions that are **regularly** flooded. Rice growers in parts of Asia lose an **estimated** \$US one billion annually to floods. They hope a new, stronger type of rice will reduce the financial **damage** that occurs in typhoon and monsoon seasons. They also hope they will get **bumper** harvests. This is good news for the millions of people who suffer from food **shortages** because of heavy rains. Rice production must increase by 30 per cent over the next 20 years for a billion people to receive their staple diet.

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