

Scientists change plants sunblock to grow more crops

19th November, 2016



Plant biologists have thought of a clever new way to increase the size of crops by as much as 20 per cent. They have genetically modified part of the mechanism in plants that is responsible for photosynthesis. Of course, photosynthesis is the most important chemical reaction in the world. It is the process where plants use sunlight to change carbon dioxide into oxygen. This means we can all breathe. The scientists have found a way for plants to use the energy they get from sunlight better, so they grow bigger and produce more food. Lead researcher Professor Stephen Long said his team is genetically modifying staple crops such as rice, wheat, maize and soybean – the world's biggest crops.

The scientists targeted the mechanism that plants use to protect themselves from damage when the Sun's rays are too strong. To prevent damage, plants turning their energy into heat, which disappears into the air. However, this heat-loss process continues even when clouds block the Sun. The scientists put extra copies of the heat-loss genes into modified plants. These additional copies speed up the heat-loss process so the plants can more quickly return to using energy to grow. Professor Long believes this could help the world's food needs. He said if he could get 20 per cent more food from crops, "that would greatly [reduce] what we see as the future pressure on food supply".

Sources: *ScienceMag.org / the-scientist.com / sciencedaily.com*

Writing

We should stop the world population growing. Discuss.

Chat

Talk about these words from the article.

plant / biologists / genetically modified / mechanism / chemical / reaction / sunlight / protect / damage / energy / heat / process / grow / food / future / pressure / supply

True / False

- a) Biologists have created a better sunblock from plants and crops. T / F
- b) Photosynthesis is the process that converts oxygen to carbon dioxide. T / F
- c) Scientists found a better way for plants to use energy to grow. T / F
- d) Scientists said they had genetically modified stable crops. T / F
- e) Plants cannot protect themselves from the sun's strong rays. T / F
- f) Plants turn their energy to heat even when it is cloudy. T / F
- g) Scientists added genes to plants so they could use energy to grow. T / F
- h) The scientists say their idea could help the world's food supply. T / F

Synonym Match

(The words in **bold** are from the news article.)

- | | |
|----------------------|---------------|
| 1. clever | a. extra |
| 2. mechanism | b. discovered |
| 3. change | c. harm |
| 4. found | d. thinks |
| 5. produce | e. smart |
| 6. damage | f. goes on |
| 7. continues | g. transform |
| 8. additional | h. cut |
| 9. believes | i. process |
| 10. reduce | j. grow |

Discussion – Student A

- a) What are the benefits of genetically modified food?
- b) What do you know about genes?
- c) What did the scientists do to make the crops bigger?
- d) Why are so many people in the world without food?
- e) What will happen if we cannot produce enough food?
- f) How would the world change if we were all vegetarian?
- g) What will the food supply be like in 50 years from now?
- h) What questions would you like to ask the researchers?

Phrase Match

- | | |
|--|------------------------|
| 1. Plant biologists have thought of a clever | a. and soybean |
| 2. increase the size of crops by as | b. get from sunlight |
| 3. chemical | c. needs |
| 4. use the energy they | d. from damage |
| 5. crops such as rice, wheat, maize | e. much as 20 per cent |
| 6. protect themselves | f. into heat |
| 7. the Sun's rays are too | g. new way |
| 8. plants turn their energy | h. on food supply |
| 9. this could help the world's food | i. reaction |
| 10. the future pressure | j. strong |

Discussion – Student B

- What do you know about photosynthesis?
- What do you think of genetically modifying plants and crops?
- What do you think about what you read?
- How important could this news be?
- Where do you get your energy from?
- Which staple food do you prefer, and why?
- What does sunlight do to you?
- What advice do you have for farmers?

Spelling

- Plant siloiogostb
- that is loserenibps for photosynthesis
- use the energy they get from higtlnus
- oepdcru more food
- epltsa crops
- rice, wteah, maize and soybean
- protect themselves from aamged
- this heat-loss crpsoes continues
- meodiidf plants
- litaniaodd copies
- that would greatly ueedcr what we see
- the future essreup on food supply

Answers – Synonym Match

1. e	2. i	3. g	4. b	5. j
6. c	7. f	8. a	9. d	10. h

Role Play

Role A – Overpopulation

You think overpopulation is the biggest danger to the world's food supply. Tell the others three reasons why. Tell them why their reasons aren't as bad. Also, tell the others which is the smallest danger of these (and why): climate change, over-eating or ageing workers.

Role B – Climate change

You think climate change is the biggest danger to the world's food supply. Tell the others three reasons why. Tell them why their reasons aren't as bad. Also, tell the others which is the smallest danger of these (and why): overpopulation, over-eating or ageing workers.

Role C – Over-eating

You think over-eating is the biggest danger to the world's food supply. Tell the others three reasons why. Tell them why their reasons aren't as bad. Also, tell the others which is the smallest danger of these (and why): climate change, overpopulation or ageing workers.

Role D – Ageing workers

You think workers getting older is the biggest danger to the world's food supply. Tell the others three reasons why. Tell them why their reasons aren't as bad. Also, tell the others which is the smallest danger of these (and why): climate change, over-eating or overpopulation.

Speaking – Food supply

Rank these with your partner. Put the biggest dangers to food supply at the top. Change partners often and share your rankings.

- | | |
|------------------------|--------------|
| • genetic modification | • overeating |
| • overpopulation | • drought |
| • climate change | • pests |
| • ageing workers | • war |

Answers – True False

a	F	b	F	c	T	d	F	e	F	f	T	g	T	h	T
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Answers to Phrase Match and Spelling are in the text.