

Holy Cow!

By *Laura McClure*

Scientists say cattle "burps" are polluting the planet.

Everyone knows that belching is rude, but cows do it all the time—every 40 seconds, in fact! The noisy burst of gas is more than just bad manners. It's bad for the environment.

Each belch releases **methane**, a colorless, odorless gas. Methane is one of the gases that contribute to global warming, or the gradual increase in Earth's temperature. Scientists say a single cow releases up to 150 gallons of methane a day.

All that belching adds up, say scientists. Altogether, the 100 million cows in the United States are responsible for 20 percent of the nation's methane emissions.

Cows aren't trying to harm the environment—they just can't help it. The methane is made by billions of **microorganisms**, or tiny creatures, that live in cows' stomachs. The microorganisms help the animals digest hay and grass. The gas comes out when cows exhale.

VIP Animals

Bad belches haven't stopped cows from being in demand. Cattle and other livestock currently supply one-third of the world's protein. As Earth's population continues to grow, the market for cattle and other livestock is expected to increase quickly.

The United Nations predicts that demand for meat and milk will more than double by 2050. Meeting that increased demand will require more livestock. As a result, even more methane will be released into the atmosphere.

"Livestock's contribution to environmental problems is on a massive scale," U.N. officials wrote in a recent report. "The impact is so significant that it needs to be addressed with urgency."

A Cow 'Cure'

Scientists all over the world are trying to figure out ways to lower cows' methane production. They want to make sure that more cows doesn't mean more pollution.

German scientists have invented a pill that they say could improve cow digestion. The fist-sized pill would release new microorganisms into a cow's stomach. Early studies suggest the pill could help reduce overall methane emissions in Europe by 4 to 6 percent.

Other researchers are fiddling with cows' food. British scientists think cows should eat more natural sugar. Swiss researchers propose adding extra fat to cows' diets by mixing coconut or sunflower seeds into cattle feed. Some scientists are even trying garlic. Early results suggest that garlic may reduce methane, but it also gives cows bad breath and could give their milk an unusual flavor.

Bovine Benefits

Lowering cows' emissions could make a big difference to the planet's climate. The methane they produce is more than 20 times more harmful than **carbon dioxide**. Carbon dioxide is also a greenhouse gas.

The research on improving cows' digestion might have other benefits too. Jess Miner, an animal nutritionist at the University of Nebraska, says it could help the animals get more energy from their food. That would mean cows wouldn't have to eat as much. "We could produce more cows with the same amount of feed," Miner told *WR News*. "Agriculture will be made more efficient."

You can help protect Earth!

- 1. Get walking:** If you're not going far, walk or ride your bike. Cars burn fuel, producing greenhouse gases.
- 2. Cool off:** Put on a sweater instead of blasting the heat. Running a heater uses a lot of energy. In the summer, use a fan instead of an air conditioner.
- 3. Shop locally:** Look for foods and products made near your home, such as vegetables at a local farmers' market. Companies use a lot of fuel to ship products by plane or truck to faraway stores.

Name: _____ Date: _____

1. How much methane does a single cow release?

- A up to 100 gallons a day
- B up to 100 gallons a week
- C up to 150 gallons a day
- D up to 150 gallons a week

2. This passage describes the problem of cows polluting the planet. According to the passage, all of the following are solutions researchers have suggested EXCEPT

- A giving cows a pill to help digestion
- B adding extra fat into cattle feed
- C putting garlic into the cows' diet
- D feeding cows hay mixed with fruit

3. Which of these conclusions about cows is supported by the passage?

- A Cows are not an important part of the food chain.
- B Cows have a big impact on the planet's health.
- C Only certain types of cows are releasing methane.
- D The demand for cows will decrease after 2050.

4. Read the following sentences from the passage: "'We could produce more cows with the same amount of feed,' Miner told WR News. 'Agriculture will be made more efficient.'"

As used in the passage, the word **efficient** means

- A confusing
- B expensive
- C interesting
- D effective

5. The primary purpose of this passage is to describe

- A why cattle is in such high demand
- B how much methane cows release
- C what people can do to protect Earth
- D why cows are polluting the planet

6. According to the passage, how many cows are in the United States?

7. If everyone were to shop locally, what might the effect be on Earth? How do you know? Give an example from the text.

8. The question below is an incomplete sentence. Choose the answer that best completes the sentence.

Cattle may seem harmless, _____, the gas they release is harmful to the environment.

- A because
- B however
- C otherwise
- D since

9. Answer the following questions based on the sentence below.

The United Nations predicts that demand for meat and milk will more than double by 2050 because Earth's population is growing.

Who? the United Nations

(does) What? _____

When? _____

Why? _____

10. **Vocabulary Word:** emissions: something released into the air.

Use the vocabulary word in a sentence: _____

Teacher Guide & Answers

Passage Reading Level: Lexile 950

Featured Text Structure: Problem/Solution – the writer poses a problem and suggests possible solutions

Passage Summary: “Holy Cow” describes how cows are polluting the planet by releasing methane into the air. The passage also explains how researchers are trying to solve the problem.

1. How much methane does a single cow release?

- A up to 100 gallons a day
- B up to 100 gallons a week
- C **up to 150 gallons a day**
- D up to 150 gallons a week

2. This passage describes the problem of cows polluting the planet. According to the passage, all of the following are solutions researchers have suggested EXCEPT

- A giving cows a pill to help digestion
- B adding extra fat into cattle feed
- C putting garlic into the cows' diet
- D **feeding cows hay mixed with fruit**

3. Which of these conclusions about cows is supported by the passage?

- A Cows are not an important part of the food chain.
- B **Cows have a big impact on the planet's health.**
- C Only certain types of cows are releasing methane.
- D The demand for cows will decrease after 2050.

4. Read the following sentences from the passage: “‘We could produce more cows with the same amount of feed,’ Miner told WR News. ‘Agriculture will be made more efficient.’”

As used in the passage, the word **efficient** means

- A confusing
- B expensive
- C interesting
- D **effective**

5. The primary purpose of this passage is to describe

- A why cattle is in such high demand
- B how much methane cows release
- C what people can do to protect Earth
- D **why cows are polluting the planet**

6. According to the passage, how many cows are in the United States?

Suggested answer: According to the passage, 100 million cows are in the United States. [paragraph 3]

7. If everyone were to shop locally, what might the effect be on Earth? How do you know? Give an example from the text.

Suggested answer: If everyone were to shop locally, companies would use less fuel because they wouldn't need to ship as many products to far away stores. That would probably lower the amount of greenhouse gases. At the end of the text, the author writes that "cars burn fuel, producing greenhouse gases." [last section called "You can help protect Earth!"]

8. The question below is an incomplete sentence. Choose the answer that best completes the sentence.

Cattle may seem harmless, _____, the gas they release is harmful to the environment.

- A because
- B however**
- C otherwise
- D since

9. Answer the following questions based on the sentence below.

The United Nations predicts that demand for meat and milk will more than double by 2050 because Earth's population is growing.

Who? the United Nations

(does) What? **predicts that demand for meat and milk will more than double**

When? **by 2050**

Why? **because Earth's population is growing**

10. **Vocabulary Word:** emissions: something released into the air.

Use the vocabulary word in a sentence: answers may vary.