

## WATER CONSERVATION

### Water and Food

#### Multiple Choice Quiz Handout

1. How much water does it take to produce your favorite foods? Rank the following foods, from least to most water consumed, in terms of the gallons of water needed to produce one pound.
  - A. Lettuce
  - B. Pork
  - C. Chicken
  - D. Apples
  - E. Beef
  
2. Depending on environmental conditions and the type of animal, producing a pound of meat requires anywhere from 420 to around 5,000 gallons of water. Which of the following are true about water consumed for meat?
  - A. It takes between 2.5 to 15 pounds of grain to produce one pound of beef.
  - B. It takes more water to produce a pound of pork than it does a pound of chicken.
  - C. Half of all water used in the U.S. goes to raising livestock.
  - D. The Ogallala Aquifer, which lies below the Great Plains, the heart of our livestock region, took half a million years to accumulate. As its level drops 1 to 3 feet per year and it replenishes itself with just .5 to 3 inches a year, it is thought the Ogallala will be depleted within the next 40 years.



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3. Americans have always been a leading consumer of meat, but since 1950, per capita consumption of meat has evolved. In light of this, which of the following statements is/are true?
- A. We consumed more than four times the chicken in 2007 than we did in 1950.
  - B. U.S. beef consumption has fallen 25 percent since 1970.
  - C. Altogether, the U.S. consumes less meat now than it did during the “steak and potato” years during the 1950s and 1960s.
  - D. The rise of vegetarianism in the late 1990s meant a sharp drop off in U.S. meat consumption.
4. Speaking about our carbon and water “footprints,” Lester Brown, president of the Earth Policy Institute, compares the standard, carnivorous American diet to that of a sport utility vehicle (SUV) and the vegetarian diet to that of an efficient Toyota Prius hybrid compact. Which one response accounts for how he arrives at this conclusion:
- A. People who drive SUVs are more likely to eat meat and people who drive Priuses are more likely to be vegetarians.
  - B. According to a recent poll, SUVs were 14 times more likely to frequent fast-food drive-through windows than compact hybrids, like the Toyota Prius.
  - C. The ratio of water, fertilizer, and fuel consumed with a meat-heavy diet compared to a less carbon-intensive diet, Brown figures, is 4:1. This is roughly the difference between the “footprints” of a hybrid that gets 48 miles per gallon and a SUV that gets 12.
  - D. The typical SUV is more rugged than a Prius and lasts longer; equally, a meat-rich diet makes for stronger people who have more endurance. Vegetarian diets often lead to anemia and compromised endurance.



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5. Eighty percent of water in the U.S. is in the East, yet 80 percent of water use in the U.S. occurs in the West. From the list below, choose two factors that allow the West to be such a dominant agricultural region, despite its relative lack of rainfall.
- A. Transportation: Our nation's 143,000 miles of freight railroad tracks and 50,000 miles of superhighway are the conduits that allow our produce to be shipped an average of 1,500 miles before it reaches our shelves.
  - B. Status: In terms of social status, farming is low on the list. As the East has traditionally been the academic center of the country, with a far higher proportion of white-collar jobs, farming is simply not as acceptable in the social hierarchy.
  - C. Land: Our nation's history has seen some general constants: things head west, and when they do, they get bigger. Such is the case with farms, especially the massive agribusiness farms that receive heavy government subsidies.
  - D. Genetically Modified Crops: Modified corn, soy, rice, and wheat, as well as other major crops, have been engineered to withstand longer and more drastic drought conditions. Not only can these new strains thrive with less rain, they also require less fertilizer.
6. In 1922, 20 million acre-feet of Colorado River water flowed unimpeded into the Gulf of California; but during a four-year stretch beginning in 1999, the average flow was only 7 million acre-feet. Beyond drought, which of the following factors contributed to this low flow?
- A. Increased livestock production
  - B. Water diversions to growing cities
  - C. White water raft businesses on the Colorado River
  - D. Colder water temperatures downstream of hydropower dams



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7. Which of the following show symptoms of water's subsidence?
- A. Houses that sit on land that was once permanently frozen, but now is thawing, are starting to sink and lean over.
  - B. Oceanside houses that once sold for more than \$10 million are going down in price as people fear rising water levels.
  - C. A miles-long crack in the land, ranging from 1 to 100 feet in width developed near land that had been heavily pumped for groundwater.
  - D. A large area of land keeps sinking about an inch every year. It's in an area where water is being heavily pumped for gas and oil extraction.
8. Which of the following offer(s) justification of farm subsidies?
- E. Without subsidies, many farmers would be out of work.
  - F. Without subsidies, U.S. agricultural production would be less stable, forcing us to be at the mercy of foreign markets.
  - G. Without subsidies, the already diminishing career of farming would attract even fewer workers.
  - H. Without subsidies, consumers would pay considerably more for their groceries.
9. Which of the following reveal(s) a potential downside of subsidies?
- A. Food costs less.
  - B. Farmers whose water bills are subsidized pay considerably less for their water.
  - C. Ninety percent of the subsidies go to four crops: corn, soy, wheat, and rice.
  - D. Production subsidies to U.S. farmers have traditionally allowed them to export cotton at low prices.



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#### Answer Key: Multiple Choice Quiz

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- D. Apples
- E. Beef

**Answer:**

- 1. A. Lettuce: 23 gallons to produce 1 pound
- 2. D. Apples: 49 gallons to produce 1 pound
- 3. C. Chicken: 815 gallons to produce 1 pound
- 4. B. Pork: 1630 gallons to produce 1 pound
- 5. E. Beef: 5214 gallons to produce 1 pound

2. Depending on environmental conditions and the type of animal, producing a pound of meat requires anywhere from 420 to around 5,000 gallons of water. Which of the following are true about water consumed for meat?

- A. It takes between 2.5 to 15 pounds of grain to produce one pound of beef.
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year and it replenishes itself with just 0.5 to 3 inches a year, it is thought the Ogallala will be depleted within the next 40 years.

**Answer:**

- A, B, D are True

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- D. The rise of vegetarianism in the late 1990s meant a sharp drop off in U.S. meat consumption.

**Answer:**

- A is True

4. Speaking about our carbon and water "footprints," Lester Brown, president of the Earth Policy Institute, compares the standard, carnivorous American diet to that of a sport utility vehicle (SUV) and the vegetarian diet to that of an efficient Toyota Prius hybrid compact. Which one response accounts for how he arrives at this conclusion:

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**Answer:**

- C

5. Eighty percent of water in the U.S. is in the East, yet 80 percent of water use in the U.S. occurs in the West. From the list below, choose two factors that allow the West to be such a dominant agricultural region, despite its relative lack of rainfall.

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- D. Genetically Modified Crops: Modified corn, soy, rice, and wheat, as well as other major crops, have been engineered to withstand longer and more drastic drought conditions. Not only can these new strains thrive with less rain, they also require less fertilizer.

**Answer:**

- Both A and C



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6. In 1922, 20 million acre-feet of Colorado River water flowed unimpeded into the Gulf of California; but during a four-year stretch beginning in 1999, the average flow was only 7 million acre-feet. Beyond drought, which of the following factors contributed to this low flow?

- A. Increased livestock production
- B. Water diversions to growing cities
- C. White water raft businesses on the Colorado River
- D. Colder water temperatures downstream of hydropower dams

**Answer:**

- Both A and B

7. Which of the following show symptoms of water's subsidence?

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- B. Oceanside houses that once sold for more than \$10 million are going down in price as people fear rising water levels.
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**Answer:**

- Both C and D



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- A. Without subsidies, many farmers would be out of work.
- B. Without subsidies, U.S. agricultural production would be less stable, forcing us to be at the mercy of foreign markets.
- C. Without subsidies, the already diminishing career of farming would attract even fewer workers.
- D. Without subsidies, consumers would pay considerably more for their groceries.

**Answer:**

- All offer justifications for farm subsidies

9. Which of the following reveal(s) a potential downside of subsidies?

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- C. Ninety percent of the subsidies go to four crops: corn, soy, wheat, and rice.
- D. Production subsidies to U.S. farmers have traditionally allowed them to export cotton at low prices.

**Answer:**

- Both B and C

