

Study Guide for Unit 25: Agriculture: Meat Production (CAFOs)

Assignment 25A

Getting Sick from Meat & Antibiotics

Read Unit 23 (CAFOs) *Meat and Our Health* and *Problems with CAFOs: Animal & Human Health*.

1. Where do the harmful bacteria in meat from cattle typically come from? How or where does the meat become contaminated?
 2. True or false? "Cooking meat to a high enough temperature will kill bacteria in meat like ground hamburger, and prevent you from getting sick from consuming the meat."
 3. Which is more likely to get you sick, hamburger or steak? Why?
 42. True or false? "Cattle in CAFOs are given antibiotics to make them grow faster, even when they are not sick."
 43. What percentage of the antibiotics that we use in the United States are given to cattle instead of used to treat humans who are sick?
 44. How can bacteria who make us sick become resistant to our antibiotics (medicines) due to their use in CAFOs?
 45. True or false? "In the United States, more antibiotics are given to cattle each year than to treat humans who are sick."
 46. Which meat is more likely to be contaminated with fecal bacteria which can make us sick, cattle raised in CAFOs or raised in pastures? Why?
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Assignment 25B

Demand for Meat & Changing Our Diet

Read Unit 25 (CAFOs) from *It is not healthy to eat too much meat, especially red meat and processed meats* and *Demand for Meat Will Continue to Grow*.

4. True or false? “As people become wealthier, they tend to eat more meat in their diet.”
5. True or false? “People in developed (wealthier, more affluent) countries eat MORE meat per person on average than people in developing countries.”
6. Why is the demand for meat likely to increase in the future? In other words, why will people want to buy even more meat than they do now?
7. True or false? “In the United States, the average person eats an unhealthy amount of meat.”
8. What kinds of diseases are associated with eating too much meat?
9. True or false? “People who eat more of some kinds of meat (beef, pork, lamb) than other people are more likely to die than the people who eat less of these kinds of meat.”
10. True or false? “In developing countries, there are many people who do not get enough protein, and need to eat at least a little more meat or other protein rich food to be healthy.”
11. True or false? “Meat contains essential proteins that our bodies need to be healthy. However, we can also get these proteins by eating the right plant-based foods.”
12. Can you get the same amount of essential proteins by eating EQUAL AMOUNTS of meat and plants? Or does one have more than the other?
13. About what percentage of the energy available to producers (like plants) do primary consumers (trophic level 1, herbivores like cattle) receive when they eat them?
14. What happens to the energy that is not transferred from the producer (plant) to the primary consumer (cattle)? Why don't the cattle get it?
15. About what percentage of the energy available to producers (like plants) do secondary consumers (trophic level 2, like humans who eat cattle) receive when they eat the herbivores (trophic level 1, like cattle)?
16. About what percentage of the energy available to producers (like plants) would consumers like humans receive if they ate the producers (plants) instead of the primary consumers (cattle)?
17. Suppose that we stopped consuming meat (everyone became vegetarian). Based on the previous analysis, could we feed the world's population if it goes from the current 7+ billion people to the projected 10 or 11 billion people with our existing farmland?

18. Suppose groups of the animals listed below are all fed the same amount of food. Which would produce the LEAST amount of food (in the form of meat) for us to eat? In other words, which animal is the least efficient source of food?

Cattle (cows), Chickens, Goats, Pigs, Sheep, Turkey

19. Consider the list above. Which kind of animal uses the most land (including land to produce food for them) and water to raise them, and produce the most greenhouse gasses?

20. What does “eating lower on the food chain” mean?

21. Which of the following changes in diet allow us to grow more FOOD for people to eat, improve our health the most, and reduce our ecological footprint (how much land is used to sustain us)?

- eating more meat and fewer plant-based foods OR eating less meat and more plant-based foods
- eating more animals raised in CAFOs than raised in pastures OR only eating animals raised on grasslands in pastures

Assignment 25C

Concentrated Animal Feeding Operations (CAFOs)

Read Unit 25 (CAFOs) from *Concentrated Animal Feeding Operations* to *On the Way to a CAFO*.

22. What are conditions like in concentrated animal feeding operations (CAFOs)?

23. True or false? “Most cattle are born in concentrated animal feeding operations (CAFOs) and spend their entire lives in them.”

24. About what percentage of the cropland in the United States is used to grow food for livestock?

25. True or false? “Most of the cropland in the United States is used to grow food for the animals we eat, not to feed humans directly.”

26. Where do cattle grow faster, in CAFOs or when grazing in pastures? Why?

27. About how much of the meat we eat comes from CAFOs?

28. True or false? “Concentrated animal feeding operations (CAFOs) produce so much meat that they make meat much less expensive: hamburgers can be cheaper than fruits and vegetables.”

29. If we stopped growing animals in CAFOs and only raised them in pastures or other similar situations, would we be able to produce as much meat as we do now?

30. True or false? “Some grasslands are poor for farming crops, and raising animals is the best or only way to get these lands to produce food for us.”

Assignment 25D

Water Use, Water Pollution, Animal Waste (Manure), Air Pollution, and Greenhouse Gas Emissions

Read Unit 25 (CAFOs) from *Benefits of CAFOs: Better for the environment? and CAFOs, Local Communities, and External Costs*.

31. True or false? “Raising cattle in CAFOs uses a lot MORE water than raising them on pastures.”

32. What are the TWO main uses of all the water that is used to raise cattle?

33. How do CAFOs cause water pollution? In other words, what are the 2 major kinds of water pollutants CAFOs often release into nearby ecosystems, and how and why do they typically get released into nearby ecosystems?

34. True or false? “Large CAFOs create more animal waste (fecal matter) than large cities create human waste.”

35. How is the manure (animal waste, fecal matter) of CAFOs handled? How is the manure treated before it is released into the environment?

36. What air pollutants are released in significant quantities by CAFOs?

37. True or false? “Chemicals that evaporate from lagoons and land covered with manure can be released by CAFOs in large enough quantities to irritate and inflame eyes, lungs, and skin of workers and people living nearby.”

38. True or false? “Dust coming from CAFOs can contain tiny particles of manure.”

39. True or false? “Dust coming from CAFO can make it difficult for workers and people living nearby to breathe.”

40. How do livestock and raising livestock lead to there being more greenhouse gases in the atmosphere?

41. True or false? “Livestock and the ways in which we grow food for them and dispose of their wastes are one of the major sources of greenhouse gases in the atmosphere which are warming the Earth, as much or more than transportation.”

Assignment 25E

Sustainability

Read Unit 25 (CAFOs) from *Problems with CAFOs: wastes (manure) to Other Options: Putting animals out to pasture and polyculture farms.*

47. Why are CAFOs an example of a LOCALLY unsustainable system?

48. What is a polyculture?

49. What are the environmental advantages of polycultures?

Assignment 25F

The U.S. Federal Government and Food Production and Food Regulation

Read Unit 25 (CAFOs) *CAFOs, Local Communities, and External Cost*, and from *Our laws support producing meat on CAFOs* until the end of the Unit.

50. Which of the following goals should governments prioritize when regulating food and food production? In other words, which do citizen’s demand come first in most countries?

- Food Safety
- Food Security: everyone has enough nutritious food to eat

- Jobs: People need to earn enough money to support themselves and their families
- Protect the Environment

51. True or false? “More government support goes to larger producers of meat like CAFOs and tends to support making more meat and making meat less expensive.”

52. True or false? “Operators of CAFOs can get government subsidies to buy the food for their animals more cheaply.”

53. What is probably the biggest benefit that CAFOs get from the U.S. government?

54. If we buy meat that comes from CAFOs, what kinds of external costs might be imposed on local communities where the CAFOs are located?

55. If we buy meat that comes from CAFOs, who pays most of external costs of CAFOs?

56. If we pass laws that require CAFOs to address their external costs, what will happen to the price and availability of meat? In other words, what would happen if CAFOs were required to treat their manure-filled water waste as highly as human waste is treated in wastewater (sewage) treatment plants?