Meat Science Notesheet C. Kohn, Waterford WI

Name: Hour Date:

Date Assignment is due: Why late? Score: + ✓ -
 Day of Week Date If your project was late, describe why**Directions**: Use the accompanying PowerPoint (*available online*) to complete this sheet. This sheet will be due upon the completion of the PowerPoint in class. These assignments are graded on a +/✓/- scale.

1. Meat is primarily the of animal that is used for food.
2. What is tissue?
3. Tissues are made from , and are made from
4. What are three factors that determine the quality of meat?
5. The ultimate goal of any meat producer is to provide a
6. In the space below, write the formulas for ADG and WDA

ADG:

WDA:
7. If a pig gained 100 lbs. in 50 days, what would be it’s ADG? Show your work below.
8. If a steer was born at 100 lbs. and grew to 900 lbs. over 400 days, what would be its WDA? Show your work.
9. Summarize how the prenatal growth of muscle tissue is different from the postnatal growth of tissue:
10. T or F: in most meat animals, muscle growth after birth is due to cell division with not changes in cell size.
11. Draw a sigmoid growth curve in the space to the right.
Be sure to label the following:
	1. Birth
	2. Point of Inflection
	3. Maturity
	4. Puberty
	5. Market Weight
	6. Also draw a second, slower growth curve
	7. A third growth curve for a castrated male
12. **Look at the second graph on the right. How would a cut of meat be different if the animal was harvested at the point of inflection instead of the point of maturity? Use the information provided in this graph in your response.
13. Why does the amount of fat on the animal’s carcass matter? Include the definition of *marbling* in your response.
14. How does castration affect the production of meat and why is this practice common in the US?
15. Anabolic implants are
16. Why are anabolic implants used?
17. The steroids found in anabolic implants mimic
18. T or F: the meat of animals that had an anabolic implant has far higher levels of hormones than animals without.

Explain:
19. Typically implants contain to promote the growth of the animal.
20. Beta-agonists stimulate the bodies of cattle and pigs to
21. When are beta-agonists most commonly used?

	1. Why?
22. Why might an animal treated with a beta-agonist have a reduced impact on the environment?
23. Why is there such a major difference between the live weight of the animal and the weight of the carcass?
24. Dressing percentage refers to the
25. What is the formula for cutting yield?
26. What is the formula for cutting loss?
27. A pig weighed 250 lbs. prior to slaughter. It had a dressing percentage of 70% and a cutting yield of 75%. Based on this information, how much meat was obtained from this animal? Show your answer and work below.
28. If you purchased a 1200 lb. steer, how much could you expect the carcass to weigh?

How many pounds of meat could you get from this carcass? What would be the cutting

losses from this animal? Show your work below.
29. If you purchased a 250 lb. pig, how much could you expect the carcass to weigh?

How many pounds of meat could you get from this carcass? What would be the cutting

losses from this animal? Show your work below.
30. Summarize the regulation of the meat industry today compared to regulations of the meat industry in the early 1900s. Be sure to address the following: *Armour meat packing, Spanish-American War, The Jungle, T. Roosevelt.*
31. *Summarize the function and purpose of each of the following:*
Pure Food and Drug Act

Meat Inspection Act

Wholesome Meat Act of 1967

Humane Slaughter Act

Humane Methods of Slaughter Act (HMSA)

1. What is adulterated meat, and what conditions would result in meat being labeled as adulterated?
2. What are six aspects of meat inspection that are performed by USDA officials?
3. Besides ensuring that animals are unconscious and unable to sense pain, what are 5 other requirements of HMSA?
4. T or F: there are no exceptions to HMSA. \_\_\_\_ Explain:
5. is the agency within the USDA that ensures that all meat and

egg products are
6. Slaughter facilities are inspected for
7. T or F: if FSIS officials are not present, a facility that sells across a state/national border cannot operate.
8. What is necessary for a facility to receive a federal inspection?
9. T or F: the FSIS will inspect most of the carcasses in a plant that has received a Grant of Inspection.

Explain:
10. What would happen if an FSIS official decided to suspend their inspection?

Why would they do this?
11. Summarize what occurs during the antemortem inspection:

Summarize what occurs during the postmortem inspection:
12. T or F: The FSIS is not involved with facilities that are state-inspected only. \_\_\_ Explain:
13. T or F: You need to wash off the federal inspection label before eating the meat.
14. T or F: It is a federal requirement for meat to be graded by the USDA. \_\_\_ Explain:
15. Summarize the differences between a Prime, Choice, and Select grade for beef:
16. How is pork graded?
17. How is poultry graded?
18. Meat consists of three kinds of tissue:
19. T or F: Meat is considered a complete protein because it is entirely made of essential proteins with no nonessential proteins.
20. What is the difference between an essential amino acid and a nonessential amino acid?
21. Why is marbling important for meat quality?
22. T or F: The cuts of meat with the highest fat content are most commonly used as steaks.
23. What is the Maillard Reaction and how does it affect meat flavor and quality?
24. How can fermentation affect the quality of meat?

Why is marbling important for meat quality?
25. T or F: meat is the same thing as muscle. \_\_\_
26. How does muscle become meat?
27. Summarize the role that each of the following play in the conversion of muscle to meat:

Loss of blood circulation:

Anaerobic Glycolysis:

Glycogen:

Lactic Acid:

pH:

Calcium:

Rigor Mortis:
28. How does rigor mortis affect the tenderness of the meat?
29. What three factors most determine the tenderness of a cut of meat?
30. In the space below, draw a bundle of muscle fibers, a myofibril, and a sarcomere. Label each of these items.
31. In the space below, draw a sarcomere showing the actin, myosin, and Z-disk. Label each of these items.
32. How do actin and myosin work together to cause a muscle contraction?
33. What role(s) does ATP play in this process?
34. What role(s) does calcium play in this process?
35. What are the three most important concepts that a meat producer must understand to produce a safe, healthy, humanely-produced product for a reasonably profitable price?
36. To be as valuable as possible to a consumer, a cut of meat must…

Unit Wrap-up C. Kohn, Agricultural Sciences - Waterford WI

1. What is a topic or concept from this unit that you found to be more challenging? Write or describe below:

In the space below, create a mnemonic, rhyme, analogy, or other strategy to help you remember this particular concept:
2. What is a 2nd topic or concept from this unit that you found to be more challenging? Write or describe below:

In the space below, create a mnemonic, rhyme, analogy, or other strategy to help you remember this particular concept:
3. What is a 3rd topic or concept from this unit that you found to be more challenging? Write or describe below:

In the space below, create a mnemonic, rhyme, analogy, or other strategy to help you remember this particular concept:
4. What is a 4th topic or concept from this unit that you found to be more challenging? Write or describe below:

In the space below, create a mnemonic, rhyme, analogy, or other strategy to help you remember this particular concept:
5. Make a list of at least 6 topics that you should review and learn in-depth prior to a quiz: