

2019 Senior Dairy Quiz Bowl Questions

Round 01

Phase B 5 Questions Correct answers are worth 10 points each.

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1. Name the 4 primary classes of immunoglobulins in colostrum.

ANS: IgG - IgA - IgE - IgM

2. Name three of the five parts of a milking unit.

ANS: - Claw - Milk tube - Short air tube - Teat cup shell - Teat cup liner

3. Name the four categories and the points for those categories on the new 2009 PDCA Dairy Cow Unified Scorecard.

ANS: Frame-15 points, Dairy Strength-25 points, Rear feet and legs-20 points, Udder-40 points

4. What are the four phases of a fly's life cycle?

ANS: Egg - Pupa - Larvae - Adult

5. Name the two restaurants the National Dairy Check-off program has partnered with to boost cheese sales.

ANS: McDonald's and Domino's

Phase C

20 Questions

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1. The nitrogen concentration in which part of the alfalfa plant rises during drought conditions?

- a) foliage b) root system c) stem

ANS: c) Stem

2. What is the name of the instrument used to puncture the rumen in cases of bloat?

ANS: Trocar

3. When a dairy animal is handled roughly such as with an electric prod, what specific hormone is released?

ANS: Cortisol

4. What hormone does Estrumate and Lutalyse release?

ANS: prostaglandin

5. Under CAFO and CNMP programs, how often do soil samples need to be taken and tested from each field?

- a) every 3 years b) every 2 years c) every 5 years

ANS: a) every 3 years

6. Budgets, balance sheets and cash flow projections are valuable and essential management tools but they do not tell the manager if the business is profitable. What is the only tool of farm business analysis that measures profitability?

ANS: Income Statement

7. How often are genomic evaluations for bulls released?

- a) once every 2 weeks b) once a month c) twice a year

ANS: b) once a month

8. What might your cows diet be lacking if your herd recently experienced a drop in butterfat?

ANS: Effective fiber

9. To prevent spoilage on a trench silo, what is the minimum amount of silage that should be removed each day?

- a) 2 inches b) 4 inches c) 6 inches

ANS: c) 6 inches

10. What is Roquefort cheese made from?

ANS: Sheep milk

11. What term describes when semen is thawed and then subjected to cool temperatures before reaching the cow?

ANS: Cold shock

12. What is the name of the only smooth muscle cells in the udder that oxytocin interacts with?

- a) Epithelial cells b) Myoepithelial cells c) Alveoli cells

ANS: b) Myoepithelial cells

13. Why is it a good management practice to rotate between different herbicides used on your fields?

ANS: To reduce weed resistance

14. What is the BioPRYN blood test used to test for?

- a) Mastitis b) Nitrate toxicity c) Pregnancy d) Dystocia

ANS: c) Pregnancy

15. In 2012 what pest infestation moved across NY State destroying fields of crops and last infested NY in 2008?

ANS: Army worms

16. Researchers are looking at earlier starting points for management intervention and new cost effective ways to cool cows with the creation of THI. What does THI stand for?

ANS: Temperature Humidity Index

17. What is the term on a farm balance sheet that describes something you owe?

a) liability b) asset c) equity

ANS: a) liability

18. What is it called when the blood flow to the teat slows in an effort to protect the teat in cold weather and the teat forms a callous?

ANS: Hyperkeratosis

19. The loss of water from the soil surface as well as water used by the plant during transpiration is known as what?

ANS: Evapotranspiration

20. What is the highest grade of butter sold in the United States?

a) U.S Grade 1 b) U.S Grade A c) U.S Grade AA

ANS: c) U.S Grade AA

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1. How many calories are in one cup of 2% milk?

- a) 120 calories b) 95 calories c) 143 calories

ANS: a) 120 calories

2. What is the name of the new social media program created through dairy producers checkoff dollars that allow producers to tell their story firsthand through the power of the web?

ANS: MyDairy

3. Calcium Glutamate is an intravenous injection for immediate and temporary treatment of what?

- a) Nitrate toxicity b) Dystocia c) Milk Fever

ANS: c) Milk Fever

4. How many inches deep should a footbath solution be to ensure adequate coverage of the foot area?

- a) 1-3 inches b) 4-6 inches c) 3-5 inches

ANS: b) 4-6 inches

5. What is the name of the funnel shaped portion of the oviduct into which the ovum is released?

ANS: Infundibulum

6. Give three of the four methods in which pregnancy can be determined in dairy cattle.

ANS: Rectal palpation - Urine test - Blood testing – Ultrasound

7. What two nutrients are important for cows and crops, but need to be monitored to keep them from building up in the soil?

ANS: Phosphorus and Potassium

8. What are 4 advantages of making baleage?

ANS: Low cost per bale to make - Lower capital investment than conventional silage storage - High quality feed can be made because of quicker harvesting practices - Lower harvest and storage losses - Less weather damage - Individually wrapped bales can be easier to move with the right equipment - Feeding doesn't require specialized equipment - Excess can be sold for money - Small amounts of forage can be ensiled at a time

9. What are the 4 elements present in all proteins?

ANS: Carbon - Hydrogen - Oxygen - Nitrogen

10. Name 3 options available for genomic testing?

ANS: - 3K - 6K - 9K - 50K - 77K - 800K

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Round 02

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1. What does the acronym FSIS stand for?

ANS: Food Safety Inspection Service

2. Name 4 breeds of dairy cattle and give their country of origin.

ANS: Ayrshire-Scotland, Brown Swiss-Switzerland, Guernsey-Isle of Guernsey, Holstein-Holland or the Netherlands, Jersey-Isle of Jersey, Milking Shorthorn-England

3. Name the four phases of a standard milking equipment cleaning protocol.

ANS: Pre-rinse, Chlorinated alkaline (detergent) cleaning, Acid rinse, Sanitization (Not Backflush)

4. Name the 3 major Volatile Fatty Acids produced by the rumen.

ANS: - Acetic Acid - Butyric Acid - Propionic Acid

5. Name 3 female reproduction hormones.

ANS: - GnRH - FSH - LH - Prostaglandin - Progesterone - Estrogen

Phase C

20 Questions

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1. The fermentation of starch results in the production of what in the rumen?

ANS: Propionate

2. Pregnancy testing using an ELIZA test looks for the presence of PSPB. What does PSPB stand for?

ANS: Pregnancy Specific Protein B

3. If a dairy herd's conception rate is 50 %, and the heat detection rate is 50%, what is the pregnancy rate (PR)?

a) 30% b) 25% c) 50%

ANS: b) 25%

4. Name the disease in dairy cattle that is caused by mycobacterium paratuberculosis.

ANS: Johnes disease

5. In the area of genomics, what is a SNP (pronounce snip)?

ANS: A genetic variation in DNA

6. 10% of pregnancies diagnosed at 30 days since conception will be lost before a full term delivery. If the fetus dies and is expelled after 42d since conception it is called an abortion. What do we call it when it's lost before 42 days?

ANS: Embryonic death

7. What type of crop shields the soil to reduce erosion, adds organic matter, and capture nutrients otherwise lost by runoff?

- a) annual b) cover crop c) perennials winter shield

ANS: b) cover crop

8. Lifetime net merit is an index used to rank both bulls and females. How many traits does it include?

- a) 5 traits b) 7 traits c) 10 traits d) 9 traits

ANS: d) 9 traits

9. What distinct type of ruminal acidosis is generally characterized by a rumen pH range between 5.0 to 5.5?

ANS: Subacute ruminal acidosis (SARA)

10. What is the name of the gelatin-like structure surrounding the embryo that is composed of proteins?

ANS: Zona pellucida

11. What color is nitric acid?

- a) colorless b) white c) black d) light gray

ANS: a) colorless

12. At what age is a cow more likely to develop ketosis?

- a) 1st calf heifer b) aged cow c) 2nd calf heifer d) newborn

ANS: b) aged cow

13. Which rear udder trait is measured horizontally across the top of the milk secreting tissue where the udder attaches to the body wall?

- a) udder tilt b) rear udder width c) udder cleft d) rear udder height

ANS: b) rear udder width

14. An electrical current greater than one-half volt resulting from improper grounding that can shocks cows is known as what?

ANS: Stray voltage

15. The area of transition between the skin and the hoof of the cow is called what?

ANS: Coronary band

16. What is the name of the high energy, low protein feed that is a good source of calcium and a by-product of cheese making?

ANS: Whey

17. What is a factor that influences the amount of water consumed by dairy cattle?

a) calving ease b) udder cleft c) water temperature

ANS: c) water temperature

18. Which bovine stomach compartment is highly acidic?

a) Omasum b) Abomasum c) Rumen

ANS: b) Abomasum

19. What is the inflammation of the uterine lining called?

ANS: Endometritis

20. Dairy cows typically reach their mature weight in which lactation?

a) third b) first c) second

ANS: a) third

Bonus Questions Each bonus question is worth 20 points.

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1. What is the name of the genetic recessive trait known as syndactylism?

ANS: Mule foot

2. Once every how many years is it recommended that all crop fields be sampled for soil pH and fertility?

a) 6 months to a year b) 1 to 2 years c) 2 to 3 years d) 3 to 4 years

ANS: d) 3 to 4 years

3. A serving of milk is 8 ounces. How many servings are there in a gallon of milk?

ANS: 16 servings

4. What country is home to the most milking cows in the world?

a) India b) USA c) Canada d) Brazil

ANS: a) India

5. How long and at what temperature should colostrum be pasteurized?

a) 120 degrees F for 30 minutes b) 140 degrees F for 45 minutes
c) 140 degrees F for 30 minutes d) 120 degrees F for 45 minutes

ANS: c) 140 degrees for 30 minutes

6. What two primary purposes does forestripping prior to unit attachment serve?

ANS: detection of abnormal milk, stimulation or improve milk quality

7. What are the two primary drivers of yield and nutritional variability seen within corn silage hybrids?

ANS: temperature and moisture

8. Some of the increase in butter consumption is due to a shift in consumer preferences away from what?

ANS: processed foods, artificial ingredients, trans fats, or low-density lipoprotein

9. Vaginitis can be caused by what infectious agent?

ANS: Mycoplasma or ureaplasma

10. Name 4 organisms that can cause scours in young calves.

ANS: Cryptosporidium, E. coli, Salmonella, Rotavirus, Corona virus, Coccidia

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Round 03

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1. Name 3 recommended protein sources for milk replacer

ANS: Casein, dried skim milk, dried whey, dried whey product, dried whey protein concentrate, modified wheat protein, protein modified soy flour, soy protein concentrate, soy protein isolate

2. For business planning for a farm operation, a SWOT analysis is an important part. What does SWOT stand for?

ANS: Strengths, weaknesses, opportunities, threats

3. Name the 4 minerals that are found in a DCAD (Dietary Cation-anion difference) ration.

ANS: - Sodium (NA) - Potassium (K) - Chloride (CL) - Sulfur (S)

4. The net merit index includes 9 traits. Name 4 of them.

ANS: - Protein lbs. - Fat lbs. - Productive life - Somatic cell score - Daughter pregnancy rate - Udder composite - Feet and legs composite - Body size - Calving ability

5. Name 4 factors that can cause variation in conception rates on a dairy.

ANS: Heat detection - Nutrition - Cow health - Semen handling - Breeding technique - Cow genetics - Service bull genetics - Environmental factors

Phase C

20 Questions

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1. The bacteria *Moraxella bovis* causes what disease in dairy cattle?

ANS: Pinkeye

2. What acid is produced from silage that has undergone normal fermentation and is characterized by a green-brown color and a slightly sweet odor?

ANS: Lactic acid

3. How is net worth or equity calculated?

ANS: Total assets minus total liabilities

4. What yogurt manufacturer pledged to no longer accept milk from cows fed grains from genetically modified organisms, with a goal of full implementation by 2018?

a) Dannon b) Oikos c) Chobani

ANS: a) Dannon

5. A deficiency of which vitamin in the lactating cow's diet causes an oxidized flavor in their milk?

a) Vitamin C b) Vitamin K c) Vitamin D d) Vitamin E

ANS: d) Vitamin E

6. What is the first organ to receive blood from the small intestines?

ANS: liver

7. What feed additive is added at harvest to stimulate fermentation and reduce dry matter loss?

ANS: Silage Bacterial Inoculants

8. What is the term for the protrusion of the bowel or other organs through a weak area in the muscle or wall of the body cavity?

ANS: hernia

9. Where in the digestive system are inert fats broken down?

a) Large intestine b) cecum c) Small intestine d) Colon

ANS: c) small intestine

10. This index is used to determine cow comfort by measuring the number of cows lying down. What is this?

ANS: Stall Usage Index

11. What does NADC stand for?

ANS: National Animal Disease Center

12. How many days are there in the life cycle of a fly to grow from an egg to an adult?

a) 3 days b) 6 days c) 10 days d) 15 days

ANS: c) 10 days

13. What dairy product must contain a minimum of 80% fat?

a) yogurt b) butter c) cheese d) whole milk

ANS: b) butter

14. Name the most common grain fed to dairy cows in the United States.

ANS: Corn

15. What breed of dairy cattle has the longest gestation period?

ANS: Brown Swiss

16. What is the process of determining where genes are located on individual chromosomes?

ANS: Gene mapping

17. What is ropy milk?

ANS: Contains strings of white blood cells

18. What component causes the yellow color in milk from certain breeds of dairy cattle?

ANS: Beta carotene

19. Legume roots are a host for which type of nitrogen-fixing bacteria?

ANS: Rhizobia

20. What term describes an animal that has 2 alleles at a given locus that are different?

a) homozygous b) heterozygous

ANS: b) heterozygous

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1. What is the common name for traumatic reticuloperitonitis?

ANS: Hardware disease

2. Name 4 commonly used methods for identifying calves.

ANS: Tattoo - Ear tag - Freeze branding - Photo -Sketch

3. In what year was the World Dairy Expo founded and the host for the first show?

a) 1967 b) 1976 c) 1957 d) 1988

ANS: a) 1967

4. What does the acronym BTMC stand for?

ANS: Bulk Tank Milk Culture

5. Name 3 methods of dehorning calves.

ANS: electric dehorner, caustic paste, scoops, tube dehorner, gouge, saw

6. What percentage of a calf's stomach is the rumen and what percentage of the cow's stomach is rumen?

a) 20%; 55% b) 25%; 80% c) 40%; 85%

ANS: b) 25%; 80%

7. What does the term antiodactyl mean?

ANS: split hoof

8. Give 4 examples of a farm's assets.

ANS: Cows, Land, Equipment, Tractors, Buildings, Cash, Feed, Lumber, Stocks and bonds, Co-op Equity

9. When talking about genetics, what is the difference between an allele and a locus?

ANS: A locus is the position that a given gene occupies on a chromosome. - An allele is any of the alternative forms of a gene that may occur at a given locus.

10. Name the two major environmental factors that impact the amount of heat stress a dairy cow undergoes.

ANS: temperature and humidity

2019 Senior Dairy Quiz Bowl Questions

Round 04

Phase B

5 Questions

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1. What are 3 symptoms of Acute mastitis?

ANS: High fever - Thin watery milk - Hot quarter - Swollen quarter

2. Name 3 signs of Mycoplasma bovis infection

ANS: Inner ear infection - Discharge from eyes and nose - Increase respiration - Fever - Arthritis - Mastitis - Frequent hacking cough

3. The USDA calculates a national sire summary 4 times per year. In which months is this summary prepared?

ANS: February, May, August, November

4. Name three tools a dairy producer can use to diagnose mastitis.

ANS: CMT plate Culturing Electrical conductivity, Minnesota Easy culture system, Strip cup, Minimum inhibitory concentration, SCC

5. Mastitis has an effect on milk composition. Name components that decrease in concentration in mastitic milk.

ANS: Lactose - Total proteins - Casein - Solids not fat - Total solids - Fats - Calcium - Phosphorus - Potassium

Phase C

20 Questions

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1. What class of milk does butter belong to?

- a) Class III b) Class II c) Class I d) Class IV

ANS: d) Class IV

2. Which one of the following diseases is caused by clostridium bacteria: fatty liver, nitrate poisoning, blackleg or ketosis?

ANS: blackleg

3. What is the name of the plant component within the neutral detergent fiber fraction which is indigestible?

ANS: Lignin

4. What is the name for the feed material found in the small intestine of a dairy cow?

ANS: Chyme

5. What is the standard length of a DHIA record?

- a) 300 days b) 305 days c) 350 days d) 325 days

ANS: b) 305 days

6. What is the scientific name for the disease known as circling disease?

ANS: Listeriosis

7. Manure digesters can convert which gas into electricity?

ANS: Methane

8. What is the name of a cost that does not change with the level of output, such as insurance and taxes?

ANS: Fixed cost

9. Which U.S state has the most organic dairy cows?

- a) New York b) California c) Wisconsin

ANS: b) California

10. The fetal component of the placental attachment is called what?

ANS: Cotyledons

11. How many pounds per cubic feet should forage be packed in a bunker silo?

- a) 35 lbs per cubic feet b) 45 lbs per cubic feet c) 50 lbs per cubic feet

ANS: c) 50 lbs per cubic feet

12. Greek-style yogurt uses how much more milk than traditional style yogurt?

- a) double b) 4 times c) 3 times

ANS: c) 3 times

13. What year was sexed semen made available commercially?

- a) 2003 b) 2007 c) 2010

ANS: a) 2003

14. Ultraviolet radiation is used to do what to raw milk?

ANS: Pasteurization

15. What is the recommended temperature, in degrees Fahrenheit, when testing colostrum for quality?

- a) 68 degrees F b) 72 degrees F c) 74 degrees F d) 76 degrees F

ANS: b) 72 degrees F

16. What is the name given to mineral elements that have a positive charge?

ANS: Cation

17. What element must be absent in order for effective fermentation to occur in a silage pile?

- a) carbon b) oxygen c) nitrogen d) phosphorus

ANS: b) oxygen

18. What type of organism causes cryptosporidium?

- a) protozoa b) virus c) bacteria

ANS: a) protozoa

19. What is the term that describes the amount of income that occurs after feed cost are calculated?

ANS: Income over feed cost

20. What is the name of the major artery that supplies blood to the udder?

ANS: External pudic artery

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1. Which countries are the three largest suppliers in the global dairy export market?

ANS: New Zealand - United States - European Union

2. Name the 3 sections of the small intestine.

ANS: Duodenum - Jejunum - Ileum

3. On a milking machine, if the milk to rest pulsation ratio is set at 60:40, what percent of the time is the inflation open?

a) 40% b) 60%

ANS: b) 60%

4. What is genetics?

ANS: Study of heredity and biological variation

5. What milk component content is determined using the milk cryoscope test?

ANS: Water

6. Which type trait has the highest heritability in a dairy cow breeding program?

ANS: Stature

7. White muscle disease can be caused by shortages of what vitamin & mineral?

ANS: Vitamin E and Selenium

8. In a higher producing, early lactation dairy cow, what happens to her body weight when she enters a negative energy balance phase?

a) Increases b) Neutral c) Decreases

ANS: c) Decreases

9. If the composting environment is correct, approximately how many months will it take to decompose a mature dairy cow carcass?

a) 4 to 6 months b) 6 to 8 months c) 8 to 10 months

ANS: b) 6 to 8 months

10. Name 3 metabolic diseases.

ANS: Milk fever, ketosis, displaced abomasum, retained placenta, laminitis

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Round 05

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1. Name 4 management procedures you can institute on your dairy to minimize the spread of BLV, Bovine Leucosis Virus.

ANS: - Freeze colostrum - Only feed colostrum from test negative dams - Use needles only once - Dehorn with burning verses cutting - Disinfect tattoo devices, hoof knives, etc. or anything that is used between animals that may transfer blood cells from one animal to the next - Use one rectal sleeve per animal - Test for positive animals and don't feed their milk or colostrum to other calves - Have a good ectoparasite control program

2. Name 4 things that are commonly reported on a forage analysis.

ANS: Dry matter - Crude protein - Soluble protein - Total digestible nutrients - Net energy of lactation - Acid detergent fiber - Neutral detergent fiber - Ash

3. Name three major supports to the cow's udder.

ANS: Median suspensory ligament, Lateral suspensory ligament, Skin

4. Name 2 things that can happen to a lactating cow that is overfed a diet high in starch and low in NDF.

ANS: - Low rumen pH - Reduced fiber digestion - Milk fat depression

5. Name 3 buffers commonly used in a dairy ration

ANS: - Limestone - Magnesium oxide - Sodium bicarbonate - Sodium bentonite

Phase C

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1. What does ERPA stand for?

ANS: Estimated Relative Producing Ability

2. Corn gluten meal is highest in which amino acid?

a) Threonine b) Arginine c) Valine d) Methionine

ANS: d) Methionine

3. Red nose is another name for what viral infection?

a) BVD b) IBR c) Brucellosis d) Leptospirosis

AS: b) IBR

4. The Bt gene that has been inserted into corn in the process called transgenic protects the corn plant from what?

ANS: European Corn Borer

5. What is the structure that holds the uterus and ovaries in their proper position?

ANS: Broad ligament

6. One of the different forms of milk that is being fed to calves is called acidified milk. Why is the milk acidified?

ANS: To slow down/ stop bacterial growth and kill disease pathogens

7. Allowing alfalfa to grow in the field past a typical cutting schedule improves yield but will reduce quality. During which cutting does relative feed value decline the most rapidly?

a) 1st cutting b) 2nd cutting c) 3rd cutting

ANS: a) 1st cutting

8. How many days does it normally take cows to adjust to a new group environment?

- a) 1 to 3 days b) 3 to 5 days c) 5 to 7 days

ANS: b) 3 to 5 days

9. What is the name of the enzyme that breaks down cellulose?

ANS: Cellulase

10. How many pounds are in a hundred weight of milk?

- a) 50 lbs b) 75 lbs c) 100 lbs

ANS: c) 100 lbs

11. In managing dairy nutrition, feed changes should be made gradually to allow growth of what structure in the digestive system?

ANS: Rumen papillae

12. What is the name of the new tagline that Milk Processor Education Program has launched?

ANS: Milk Life

13. What is fortification?

ANS: The process by which vitamins are added to milk

14. Which nutrients are classified as either water soluble or fat soluble?

- a) Carbohydrates b) vitamins c) minerals

ANS: b) vitamins

15. What fast-food chain is looking at how its suppliers can cut down on methane produced from cow flatulence?

- a) McDonald's b) Burger King c) Wendy's

ANS: a) McDonald's

16. A diet rich in milk actually can help shield against what common human stomach problem?

ANS: Ulcers

17. How many inches of lunging space does a large cow require to rise with reasonable comfort?

- a) 10-20 inches b) 20-30 inches c) 30-40 inches d) 40-50 inches

ANS: c) 30-40 inches

18. What is a more common name for erythrocytes?

- a) Red blood cells b) white blood cells c) leukocytes

ANS: a) Red blood cells

19. Which professional sports league is partnering with the dairy check-off to promote child nutrition and fitness?

ANS: National Football League (NFL)

20. What happens to the phosphorous that a cow consumes that is above the NRC requirements for her?

ANS: Excreted through manure

Bonus Questions Each bonus question is worth 20 points.

Bonus questions may be earned in the toss-up round. To receive a bonus question, 3 different team members must correctly answer the toss-up questions. Bonus questions are not passed to the other team, nor are points deducted for an incomplete or incorrect answer to the question. Bonus question will be asked whenever 3 team members have answered toss-up questions correctly with the count kept individually for both teams within a match. Eligibility for bonus questions does not carry over to another match. The answers must come from the team captain but assistance can come from the other team members. Only the number or answers required by the bonus question will be accepted. Example: If the bonus has a four-part answer - the first four answers given by the team will be accepted. Answers to a bonus question must start within 20 seconds and be completed within 60 seconds.

1. Which of the following is the name of the organization that is charged with evaluating genetic traits of dairy cattle?

- a) World Dairy Expo b) Animal Improvement Programs Laboratory
c) Dairy Business Association d) Dairy Herd Improvement Association

ANS: b) Animal Improvement Programs Laboratory

2. What is the name of the hormone produced by the pituitary that is known as the milk formation hormone?

- a) Prolactin b) Progesterone c) Follicle Stimulating Hormone

ANS: a) Prolactin

3. Where is the place or time to apply bacteria inoculants to silage?

ANS: At the chopper during chopping

4. In farm business management and economics, heifers account for what percentage of the total farm expenses on many dairy operations?

- a) 5-10% b) 10-15% c) 15-20% d) 20-25%

ANS: c) 15-20%

5. What hormone is responsible for the aggressive behavior in bulls?

ANS: Testosterone

6. According to Smarter Lunchroom Movement, it is recommended that white milk accounts for what amount of drinks displayed in school lunchroom coolers?

- a) One-half b) one-third c) one-fourth d) one-fifth

ANS: b) one-third

7. When comparing fertility in groups of dairy cows and heifers, which group is usually most fertile?

ANS: Heifers

8. The acid detergent fiber content of a high producing cow's ration should be what percentage?

- a) 16-20% b) 18-21% c) 20-23% d) 24-26%

ANS: b) 18-21%

9. New farm technology has been developed to protect bunker silos in the form of OTR plastics. What does OTR stand for?

ANS: Oxygen Transmission Rates

10. In reference to dairy cattle genetics, which one of the following describes the term for reliability

- a) the accuracy of a genetic valuation b) the predictability of a genetic valuation
c) the marketability of a genetic valuation

ANS: a) the accuracy of a genetic valuation