

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

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1. 1. How much fat is found in skim milk?

ANS: Less than 0.5%

2. At what point in the lactation curve does peak milk production occur?

ANS: 45 days

3. What is the name of the major ligament found in the udder?

ANS: Median suspensory ligament

4. Which substance is found in the greatest amount in corn grain?

ANS: Starch

5. Milk should be cooled in the bulk tank and held at what temperature?

ANS: Below 40 degrees

Phase C

20 Questions

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1. **How do milk components compare between the beginning and end of lactation?**

ANS: Protein and fat are lower in the beginning

2. **How soon after calving should cows be rebred?**

ANS: 45-60 days

3. **What is the major stomach compartment in a newborn calf?**

ANS: Abomasum

4. **Which area of North Carolina contains the fewest dairy cows?**

ANS: Coastal plains

5. **How long is a typical estrus cycle in a dairy cow?**

ANS: 21 days

6. **What disease occurs 1-2 months post calving and results in an acetone odor in milk and urine?**

ANS: Ketosis

7. **Milk contains what percent dry matter?**

ANS: 11-13%

8. **What percentage of dairy cows in the United States are infected with BLV?**

ANS: Roughly 33%

9. **Name two major sources of energy for newborn calves.**

ANS: Lactose and fat

**10. A good milk replacer will contain how much protein?**

ANS: 20-22%

**11. Bloat in dairy cattle is usually caused by what type of feed?**

ANS: Fresh legumes/grass

**12. What is the common name for the foot condition laminitis?**

ANS: Founder

**13. Name the two amino acids that are limiting for milk protein synthesis.**

ANS: Methionine and lysine

**14. The freezing point of milk is used to determine the presence of what contaminant?**

ANS: Added water

**15. Vitamin E is in close association with what mineral?**

ANS: Selenium

**16. What is the name of the bacterial infection that can result in blindness and is thought to be spread by flies?**

ANS: Pinkeye

**17. What is the primary mode of heat loss when cattle are under sprinklers and fans?**

ANS: Evaporative cooling

**18. In dairy cattle rations, as the ADF level increases, energy:**

ANS: Decreases

**19. Where is the site of fertilization in dairy cows?**

ANS: Oviduct

**20. Which breed has milk with the highest butterfat content?**

ANS :Jersey

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**1. What is a major source of protein found in dairy cow rations?**

ANS: Soybean meal

**2. What is the name of the hormone measured in milk to determine if a cow is pregnant?**

ANS: Progesterone

**3. What are the 5 steps for mastitis prevention, according to the National Mastitis Council?**

ANS: Cull chronic cows, culture, dip all teats, use equipment properly, dry treat cows

**4. A well-bred heifer would ideally calve at what age?**

ANS: 22-24 months

**5. Which genetic recessive defect is characterized as causing death in calves during the neonatal period?**

ANS: Bovine leukocyte adhesion deficiency (BLAD)

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1. What are the two most common types of intestinal parasites?

ANS: Roundworm and Lungworm

2. **Write this down:** A cow is consuming 90 pounds of actual (as-fed) pounds of a total mixed ration (TMR) each day. This TMR contains 50% dry matter. How many pounds of dry matter is the cow consuming per day?

ANS: 45 pounds of dry matter

Calculation: 90 pounds of actual (as-fed) TMR X 50% dry matter = 45 pounds of dry matter

3. What is the primary cause of death in calves with scours?

ANS: Dehydration

4. What is the name of the acid formed in the cheese-making process?

ANS: Lactic acid

5. What is the preferable range for a cow's body condition score?

ANS: 3.0-3.5 (3 to 4 acceptable)

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1. In what year was the American Dairy Science Association founded?

ANS: 1940

2. Where is the All-American Dairy Show held each year?

ANS: Harrisburg, Pennsylvania

3. Which breed's milk is characterized by a golden color?

ANS: Guernsey

4. Which chemical element is critical for the establishment of legumes?

ANS: Phosphorus

5. Name the four phases of silage fermentation.

ANS: Aerobic, anaerobic, stable, feeding

6. What are two signs of heat damage in haylage?

ANS: Burnt odor and dark color

7. Which variety of corn has a lower lignin concentration, which increases digestibility?

ANS: Brown midrib varieties

8. What percentage of ADF should be in a high-producing cow's ration?

ANS: 18-21%

9. Name two commonly used buffers in rations.

ANS: Limestone, sodium bicarbonate, sodium bentonite, magnesium oxide

**10. How many teeth does a mature dairy cow have?**

ANS: 32

**11. What is one reason why a producer would add molasses to a ration?**

ANS: Palatability, reduce dustiness

**12. What is the name of the hormone that can reduce milk ejection if a cow is upset or stressed?**

ANS: Adrenaline or epinephrine

**13. Name three different types of milking parlors.**

ANS: Herringbone, parallel, parabone, rotary, side opening

**14. Which anatomical structure is the cow's first defense against mastitis?**

ANS: Streak canal

**15. What is the legal limit for SCC in raw milk?**

ANS: 750K

**16. Name three coliform types.**

ANS: E. coli, enterobacter, klebsiella

**17. What period of milk production is the most effective time to treat mastitis?**

ANS: Drying off

**18. What percent of milk is water?**

ANS: Roughly 88%

**19. What are the two simple sugars that make up lactose?**

ANS: Glucose and galactose

**20. What vitamin is added to milk at processing time?**

ANS: Vitamin D

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**1. What is the lowest classification score a Jersey cow can receive and still receive a classification rating of desirable?**

ANS: 70

**2. What is the ideal rumen pH?**

ANS: 6.2-6.8

**3. What is the name of the by-product from cheese, that is a good feed source?**

ANS: Whey

**4. Which gland produces oxytocin?**

ANS: Pituitary gland

**5. Is the gene for polledness dominant, recessive, or codominant?**

ANS: Dominant

2018 Senior Dairy Quiz Bowl Questions

Round 03

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1. What is the name of the process used to break up fat globules in milk?

ANS: Homogenization

2. What is another term used for a cow's hip and pelvic bones?

ANS: Hooks and pins

3. In freestall barns, what is the best single measure of cow comfort?

ANS: Stall Use Index (also acceptable: stall use, cows lying in stalls, no perching, etc)

4. What type of molecule is lactose?

ANS: Sugar

5. When designing a comprehensive nutrient management plan, the first step is what?

ANS: Determine how much waste is produced

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1. How much saliva does a cow produce on a daily basis?

- a) 10-30 quarts
- b) 30-50 quarts
- c) 50-80 quarts
- d) 80-100 quarts

ANS: c

2. Name a foot problem that is directly affected by genetics.

ANS: Mulefoot (more than 2 toes); Corkscrew claws, laminitis

3. What is the term for when the rumen drops below pH 5.9?

ANS: Acidotic

4. Which vitamin plays a role in the coagulation of blood?

ANS: Vitamin K

5. What is the name of the enzyme needed by humans in order to digest lactose?

ANS: Lactase

6. How many pounds of milk does it take to make a pound of butter?

ANS: 21.2

7. What is the most common treatment for foot rot?

ANS: Copper sulfate

8. Where did Mad Cow Disease originate?

ANS: The United Kingdom

**9. Name two types of cheeses that are made from animals other than cows.**

ANS: Feta, roquefort

**10. What month is National Grilled Cheese month?**

ANS: April

**11. What condition is characterized by a cow's inability to belch?**

ANS: Bloat

**12. Which fast food chain uses the most milk?**

ANS: McDonald's

**13. What are the two phases of the estrus cycle?**

ANS: Luteal and follicular

**14. When do we start feeding cows a "transition diet"?**

- a) 2 months after calving
- b) In late lactation just before drying off
- c) 2-3 weeks before calving

ANS: C

**15. What is a "silent heat"?**

ANS: Where physical signs of heat are difficult to detect

**16. Milk fever is most common in which breed?**

ANS: Jersey

**17. What is the primary substance that maintains rumen pH?**

ANS: Saliva

**18. How long is a cow's gestation period?**

ANS: Roughly 282 days

**19. Which breed of cattle have the longest gestation period?**

ANS: Brown Swiss

**20. \_\_\_\_\_ tend to be high in drought stressed forages.**

ANS: Nitrates

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**1. Which of the following diseases cannot be transmitted to humans?**

- b) Leptospirosis
- c) Brucellosis
- d) Vibriosis

ANS: c

**6. What year did the Hoard's Dairyman judging contest begin?**

ANS: 1951

**7. AJCC stands for what organization?**

ANS: American Jersey Cattle Club

**8. True or False: Clinical mastitis is more common than subclinical mastitis**

ANS: False

**9. What percentage of all dairy cattle hoof lesions occur in the rear limbs?**

ANS: 94-96%

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**1. A dairy calf should be delivered about how many minutes after its nose appears?**

ANS: 30-40 minutes

**2. Name two ways you can detect mastitis at the cow side?**

ANS: CMT, Strip Cup, visual inspection

**3. Name 3 of the components of milk.**

ANS: Fat, protein, water, lactose, vitamins, minerals.

**4. What do the letters PI stand for in terms of milk testing?**

ANS: Preliminary incubation

**5. What is the name of the stomach compartment that is affected by Hardware's Disease?**

ANS: Reticulum

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1. What month is National Ice Cream month?

ANS: July

2. What condition causes part of the stomach to move positions and twist, causing severe digestive problems?

ANS: Displaced abomasum

3. Which vitamin can be used to prevent ketosis?

ANS: Niacin

4. What does DHIA stand for?

ANS: Dairy Herd Information Association

5. What is the proper name for Mad Cow Disease?

ANS: Bovine spongiform encephalopathy

6. How many pounds of milk does it take to make a pound of cheese?

ANS: 10

7. What is the most popular variety of cheese in the United States?

ANS: Mozzarella

8. What is the top dairy state in America?

ANS: California

9. How many kilocalories of energy are provided by one gram of fat?

ANS: 9

**10. What is the term for the condition involving the ovaries when the cow comes into heat every few days?**

ANS: Cystic

**11. What bacteria causes "circling disease"?**

ANS: Listeria

**12. Where are immunoglobulins in colostrum absorbed in the newborn calf?**

ANS: Small intestine

**13. What is the Koster tester used to determine?**

ANS: Dry matter

**14. Who invented the continuous centrifugal cream separator in 1878?**

ANS: Gustav de Laval

**15. Immediately after birth, a calf's navel should be dipped in what solution?**

ANS: Iodine

**16. In a human diet, what does RDA stand for?**

ANS: Recommended Daily Allowance

**17. What is the term for when a cow fails to come into heat?**

ANS: Anestrus

**18. What is the name of the structure through which the fetus receives all of its nutrients?**

ANS: Placenta

**19. What molecules are classified as either essential or nonessential?**

ANS: Amino acids

**20. Where does the majority of flavor defects in milk originate?**

- a) On the farm
- b) In the transport truck
- c) In the processing plant

ANS: A

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**1. Name the two most common types of milk proteins.**

ANS: Casein and Whey

**2. The PCDA Uniform Score Card for Fitting and Showmanship allots how many points for showing the animal?**

ANS: 50

**3. The highest percentage of difficult births is expected to occur during which season?**

ANS: Winter

**4. What does UHT refer to when processing milk?**

ANS: Ultra high temperature

**5. From which side of the animal should you lead when moving in the show ring?**

ANS: Left

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1. What is the common name for parturient paresis?

ANS: Milk fever

2. Name the three main volatile fatty acids.

ANS: Acetic, butyric, propionic acids

3. Name 3 of the 4 parts that make up the Total Performance Index (TPI)

ANS: PTA Protein; PTA Fat; PTA Type; Udder composite

4. What do the letters MUN stand for?

ANS: Milk urea nitrogen

5. Grass tetany is associated with a deficiency of what mineral?

ANS: Magnesium

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**1. Immunoglobulins are classified as what type of molecule?**

ANS: Proteins

**2. What milk component is the most important in determining the amount of cheese one gets from a pound of milk?**

ANS: Protein

**3. What is another name for Bang's Disease?**

ANS: Brucellosis

**4. What anatomical structure on a cow corresponds to the wrist of a human?**

ANS: Pastern

**5. Give 3 reasons why ventilation of a barn is important.**

ANS: Remove moisture from the building; Fresh air for animals; Remove excess heat; Remove odors and gases from animal waste

**6. Which compound in plants is a component of cell walls and is not digested or absorbed by ruminants?**

ANS: Lignin

**7. Which parent determines the sex of the calf?**

ANS: Sire

**8. What does PTA Type stand for when talking about a sire summary?**

ANS: Predicted transmitting ability for type

**9. What is the common name for diarrhea in calves?**

ANS: Scours

**10. Who is the current United States Secretary of Agriculture?**

ANS: Sonny Perdue

**11. Moldy grain will most likely be contaminated with what?**

ANS: Mycotoxins

**12. How many days after a cow calves is her milk considered acceptable for human consumption?**

ANS: 3

**13. What would you use an anthelmintic for?**

ANS: To control intestinal parasites

**14. Who perfected the test for fat content of milk in 1890?**

ANS: S.M. Babcock

**15. Gossypol is a chemical compound found in some feeds that has been found to be toxic to livestock. What common feed ingredient contains gossypol?**

ANS: Cottonseed meal or whole cottonseed

**16. What is a pH of less than 7 considered to be?**

ANS: Acidic

**17. Which of the following is a calcium supplement?**

- a) Salt
- b) Limestone
- c) Water

ANS: B

**18. Research has shown what as the major carrier of Staph. Aureus infections?**

ANS: Horn flies

**19. What do the letters BST stand for?**

ANS: Bovine somatotropin

**20. What is the most common grain fed to dairy cattle?**

ANS: Corn

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**1. True or False: Sour colostrum will contain more acids than fresh colostrum.**

ANS: True

**2. True or False: Milk fever is caused by high blood calcium.**

ANS: False

**3. What do the letters NDF and ADF stand for in the ration analysis?**

ANS: Neutral Detergent Fiber and Acid Detergent Fiber

**4. What is the major carbohydrate found in milk?**

ANS: Lactose

**5. True or False: Cream contains more fat than whole milk.**

ANS: True

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1. What is the term used to describe an infected uterus?

ANS: Metritis

2. What disease is caused by *Mycobacterium paratuberculosis*?

ANS: Johne's Disease

3. On the Dairy Cow Unified Scorecard, what category makes up 40% of the scorecard?

ANS: Udder

4. What are the top three milk producing counties in North Carolina?

ANS: Iredell, Randolph, Yadkin

5. Which trait evaluation system serves as the basis of all modern dairy cattle type classification systems?

ANS: Linear type traits

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1. A “bypass” protein is a protein source that avoids breakdown in which part of the digestive system?

ANS: Rumen

2. What are the four fat-soluble vitamins?

ANS: A,D,E,K

3. What percent of a cow’s genes come from her dam?

ANS: 50%

4. Why is potassium carbonate sprayed on hay?

ANS: To reduce drying time

5. Which two diseases cause the greatest losses in young calves?

ANS: Pneumonia and scours

6. What does the term “homeothermic” mean?

ANS: Body temperature is maintained nearly constant at all times

7. True or False: Conception rate generally rises in the summer.

ANS: False

8. True or False: Calves should generally receive milk or milk replacer at a rate of 8-10% of their body weight.

ANS: True

9. Lipases break down which milk component?

ANS: Fat

**10. What digestive secretions are produced by the ruminant forestomach?**

ANS: None

**11. Who sets the milk support price?**

ANS: Secretary of Agriculture

**12. In which frost-damaged forage crop does prussic acid develop?**

ANS: Sorghum, sudan grass

**13. A pendulous udder is one that**

- a) Hangs close to the ground
- b) Hangs close to the body
- c) Is small compared to other cows'

ANS: a

**14. When did the USDA begin evaluating the genetic merit of sires?**

ANS: 1935

**15. What does RHA stand for?**

ANS: Rolling Herd Average

**16. Which of the following is not a legume?**

- a) Soybeans
- b) Lespedeza
- c) Red clover
- d) Triticale

ANS: D

**17. Progesterone is secreted by the \_\_\_\_\_?**

ANS: Corpus Letuem (or CL)

**18. What is the most common bacterium that causes chronic mastitis?**

ANS: Staph aureus

**19. What does BRSV stand for?**

ANS: Bovine respiratory syncytial virus

**20. When entering the show ring with your dairy animal, which direction should you walk?**

ANS: Clockwise

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1. **Name 3 of the components of a comprehensive nutrient management plan**
  - a. Manure storage capacity, soil nutrient concentrations, manure nutrient concentrations, manure spreading/injection rates
2. **Cheese is classified by consistency. What are the 4 classes?**
  - a. Soft, semi-soft, hard, very hard
3. **Name 4 elements used to calculate DCAD**
  - a. Sodium, potassium, sulfur, chlorine
4. **Name 3 diseases that can cause abortions in dairy cows.**
  - a. Brucellosis, Vibriosis (Campylobacteriosis), IBR, Chalmyida, leptospirosis, listeriosis, neospora, trichomoniasis

## 2018 Senior Dairy Quiz Bowl Questions

## Round 07

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

Only the team being asked the questions is to be in the room. Each team will be asked these 5 questions. Answers are to be given by a team captain, but assistance may come from any team member. A question may be repeated only once. Answers must be started within 20 seconds. Partial credit may be given at the discretion of the judges. After one team has been questioned, the other team will enter the contest room and be asked the same 5 questions.

1. **Name the 3 basic requirements of good calf housing.**  
ANS: Dry floor; clean environment; Free from drafts
2. **The PGH award honors herds with high genetic value. First given in 1991, it recognizes the top 500 herds for average TPI levels. What do the initials PGH stand for?**  
ANS: Progressive Genetics Herd
3. **Name 4 organisms that can cause scours in young calves.**  
ANS: Cryptosporidium, E. coli, Salmonella, Rotavirus, Corona virus, Coccidia
4. **Name 3 undesirable genetic recessive traits found in dairy cattle.**  
ANS: Bulldog; Dwarfism; Hairless; Imperfect skin; Mulefoot; Pink tooth; Prolonged gestation; Limber leg; Rectovaginal constriction; Weaver; DUMPS; BLAD
5. **If a herd's conception rate is 50%, what percentage of the cows should be pregnant after 2 services?**  
a. 25%      b. 50%      c. 75%      d. 100%  
ANS: c. 75%

Both teams are in the room for Phase C. The first contestant to signal will answer the question within 5 seconds after being acknowledged by the moderator. Failure to do so will cost that team 10 points. Any contestant answering a question without being acknowledged by the moderator will lose 10 points. If an answer is incorrect, members of the other team will have the opportunity to answer the question without having it reread except for true/false, either or and yes or no type questions. If an answer is given in these types of questions, the question will be replaced with a tie breaker question, and given to the other team. No points are deducted for giving an incorrect answer. Team members are not allowed to discuss the answers in this phase. No partial credit is available in Phase C, except for bonus questions. If neither team can offer an answer to the question within 10 seconds, the moderator will give the answer and the question will be dropped but neither team will forfeit points.

1. What dairy expense is the most notable difference in costs between high-profit and low-profit organic herds?

ANS: Labor (HD 2016)

2. Animals have excellent memories for both good and bad experiences. What is the term given to a scary or negative experience called?

ANS: Fear memory

3. Even when there are no clinical signs, a cow's milk production begins to decline when its somatic cell count is greater than how many cell/mL?

ANS: 100,000 cell/mL

4. What are the primary sources of exposure to environmental pathogens that cause mastitis in cows?

ANS: Moisture and manure

5. Name the two most dangerous lethal gases that may accumulate in an upright silo and can easily be recognized by their irritating odor and color.

ANS: Nitrogen Dioxide and nitrogen tetroxide

6. The recommended location for the milk line in a milking parlor is: high line, low line, main line, or by line?

ANS: Low line

7. Define stray voltage or current?

ANS: Electrical current greater than one-half volt, resulting from improper grounding that shocks cows

**8. Name 3 advantages of using free stalls over loose housing.**

ANS: Less bedding required; Less labor for cleaning; Cows stay cleaner; Fewer teat and udder injuries; Eliminates mud; Works well with mechanized feeding; Less space required per cow; Waste handling more easily mechanized

**9. PDCA endorses a Show Ring Code of Ethics. Name 3 violations.**

ANS: Misrepresenting the age and/or milking status of the animal; Treating an animal internally or externally with a substance to improve conformation; Surgery or insertion of foreign matter to improve conformation; Criticizing or interfering with the judge or show management

**10. What is an ATO and what is it used for?**

ANS: Automatic Takeoff Units; Used for removing the milking machine

**11. How should the body condition of a cow change during the dry period?**

ANS: Should remain constant at about 3.5 to 4

**12. Name 3 methods by which horn flies and face flies can be controlled on dairy cattle.**

ANS: Ear tags or strips with insecticide; Feed additives; Sprays; Dusts; Backrubbers

**13. Little Miss Muffet sat on her tuffet, eating her curds and whey. How many pounds of cheese are produced from 10 pounds of milk?**

ANS: 1 Pound

**14. Nearly 43% of all milk produced in the U.S. is made into Class I products while 36% is made into class III products. What products make up Class III?**

ANS: Cheese; Butter; Milk powder

**15. T/F More frequent milking is a good practice when treating a cow with mastitis.**

ANS: True

**16. T/F The California Mastitis Test (CMT) identifies the type of organism that is causing the mastitis.**

ANS: False

**17. Which of the following temperatures is the most desired temperature for milk in the farm bulk tank: 18 degrees F, 28 degrees F, 38 degrees F, or 48 degrees F?**

ANS: 38 degrees Fahrenheit

**18. Which of the following states has the highest percentage of cows on DHI?  
California, Minnesota, New York, or Wisconsin**

ANS: California

**19. The dairy cow is didactyl. What does this term mean?**

ANS: Two toes on each foot

**20. You purchased a ton of 8-12-10 fertilizer. How many pounds of potassium are in the fertilizer?**

ANS: 200 Pounds

**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. What gas with the chemical structure CH<sub>4</sub> is produced in the rumen?**

ANS: methane

**2. Which amino acid is highest in corn gluten meal?**

ANS: methionine

**3. What is the approximate percentage of dairy calves born in the U.S. that are bulls ?**

a) 42%      b) 52%      c)62%

ANS: c) 52%