

## 2019 Junior Dairy Quiz Bowl Questions

## Round 01

5 Questions

Correct answers are worth 10 points each.

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**1. Name 3 elements commonly found in a dairy cow's ration.**

ANS: calcium, magnesium, potassium, sodium

**2. Name the stomach compartments in a ruminant animal.**

ANS: rumen, reticulum, omasum, abomasum

**3. Name 3 different areas on the farm that contribute waste to their nutrient management program.**

ANS: feeding area, housing or loafing area, holding pen, return alley, foot baths, milking parlor, run-off areas

**4. Name 3 metabolic diseases in dairy cattle.**

ANS: ketosis, milk fever, displaced abomasum, retained placenta, laminitis, grass tetany,

**5. What are 3 symptoms of clinical mastitis?**

ANS: flakes, clots, presence of blood, stringy milk, watery milk, swollen quarter, hot quarter, ropy milk – milk that contains strings of white blood cells

20 Questions

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1. What is the loose skin of the underside of the neck?

ANS: dewlap

1. What disease does the pathogen "Klebsiella" cause in lactating dairy cows?

ANS: mastitis

3. What is the maximum legal limit of somatic cells (cells/ml) that saleable milk can contain?

ANS: a) 750,000 cells/ml

4. Which of the following describes ovulation?

a) Parturition      b) milk ejection      c) release of an egg from a follicle      d) palpation

ANS: c) release of an egg from a follicle

5. What is the recommended month of age when a dairy heifer has her first calf?

ANS: 22 to 24 months (an answer in this range is acceptable)

6. What is the name of the small projections that line the wall of the small intestine that function to absorb nutrients?

ANS: villi

7. What is the on-farm tool used to indicate the antibody content of colostrum and is temperature sensitive?

ANS: Colostrometer

8. What is a dry cow?

ANS: a cow not producing milk

**9. In which compartment of the ruminant stomach is fermentation the primary digestive process?**

ANS: rumen

**10. Dry matter is the amount of feed left over after what is removed?**

ANS: water, moisture

**11. Name one vitamin that is fat soluble?**

ANS: Vitamin A,D,E,K

**12. What component makes up approximately 87% of milk?**

ANS: water

**13. In dairy cattle judging, what are you referring to when you describe this part as having a higher and wider attachment?**

ANS: rear udder

**14. What does “days to first service” refer to on a DHIA record?**

ANS: the number of days from calving until first breeding date

**15. Which of the following would provide additional fiber in a dairy ration?**

**a) Corn grain            b) barley grain            c) soybean meal            d) cottonseed hulls**

ANS: d) cottonseed hulls

**16. What toxin is produced by molds in feed?**

ANS: mycotoxins

**17. What class of milk is used for yogurt?**

ANS: Class II

**18. Which one of the following ranges is closest to the total ration crude protein requirement for early lactation cows:**

**a) 6 to 8%    b) 10 to 12%            c) 16 to 18%            d) 30 to 32%**

ANS: c) 16 to 18%

**19. What provides the calf with passive immunity?**

ANS: Immunoglobulins or antibodies (colostrum), IgG

**20. In calves, what is the name of the disease caused by a deficiency of Vitamin D?**

**a) salmonella            b) E. coli            c) Rickets**

ANS: c) rickets

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**1. Name 3 ways for testing pregnancy in cows.**

ANS: palpation, testing hormones in milk, testing hormones in blood, ultrasound

**2. Name 3 signs of estrus (heat) in dairy cattle.**

ANS: restlessness, bellowing, following and smelling other cows, mounting other cows, standing to be mounted, discharge of clear mucus from the vulva, swollen and red vulva

**3. Name the 3 main structures that provide support to the cow's udder.**

ANS: median suspensory ligament, lateral suspensory ligament, skin

**4. What are the 2 simple sugars that make up lactose?**

ANS: glucose and galactose

**5. Give 3 advantages of feeding a total mixed ration (TMR) to your cows.**

ANS: eliminated selective feeding, consistent ration, higher dry matter intake, free choice minerals not needed, higher milk production, lower percent fiber needed in ration, easier to balance precisely, fewer digestive upsets, can feed a variety of byproducts

**6. Carotene is the precursor for which vitamin?**

ANS: vitamin A

**7. What hormone causes the heifer or cow to come into heat?**

a) estrogen                      b) oxytocin                      c) progesterone                      d) testosterone

ANS: a) estrogen

**8. What is the term for an animal that is born without horns?**

a) crossbred    b) polled                      c) freemartin

ANS: b) polled

**9. In reference to digestion and metabolism, what is the term for the energy used up in consumption, digestion, and metabolism of a feed?**

ANS: heat increment

**10. Which of the following often happens to the milk fat test percentage (or the butterfat test) when the lactating dairy cow is fed low levels of effective fiber?**

- a) It increases      b) it decreases      c) it remains the same**

**ANS: b) it decreases**

## 2019 Junior Dairy Quiz Bowl Questions

## Round 02

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**1. Name 3 signs of milk fever.**

ANS: goes down, rapid heart rate, dilated eyes, below normal body temperature, cold ears, not eating

**2. Name 4 parts of the dairy cow's reproductive tract.**

ANS: cervix, ovaries, oviducts, uterus, vagina, vulva

**3. Name 2 ways that a pathogen can gain entry into a calf's body.**

ANS: mouth, navel, nose

**4. Name 4 diseases in dairy cattle with a color in their name.**

ANS: red water, red nose, black leg, blue tongue, white muscle, pink-eye, white heifer

**5. Write this down. How many pounds of protein are in one ton (2000 pounds) of dairy feed that contains 18% protein?**

ANS: 360 pounds

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1. How much does one gallon of whole milk weigh?

- a) 7.6 pounds                      b) 8.6 pounds                      c) 9.6 pounds                      d) 10.6 pounds

ANS: b) 8.6 pounds

2. Which of the following is an example of a mineral found in dairy cattle diets?

- a) Choline                      b) niacin                      c) phosphorus                      d) nitrogen

ANS: c) phosphorus

3. When a calf nurses, what diverts the milk into the abomasum?

ANS: the esophageal groove

4. What does DHIA stand for?

ANS: Dairy Herd Improvement Association

5. What is the name of the stomach disorder in which the cow's fourth stomach compartment twists out of normal position?

- a) Acidosis                      b) ketosis                      c) milk fever                      d) displaced abomasum

ANS: d) displaced abomasum

6. On a dairy ration printout, NE<sub>L</sub> and TDN refer to which of the following?

- a) Protein    b) energy    c) fiber

ANS: b) energy

7. What can be given to a dairy heifer to prevent "hardware disease"?

ANS: magnet

8. Approximately how many pounds of cheese can be made from 10 pounds of milk?

- a) 10                      b) 5                      c) 2                      d) 1

ANS: d) 1 pound

**9. What is the name of the muscle that keeps the teat end closed and helps prevent organisms from entering the udder?**

ANS: sphincter muscle

**10. During cold weather, what happens to the calf's energy requirement?**

a) It increases                      b) it decreases                      c) it stays the same

ANS: a) it increases

**11. What is another name for the calf's father?**

ANS: sire

**12. SPC is a measure of bacteria counts in milk. What do the letters SPC stand for?**

ANS: standard plate count

**13. What do we call the first streams of milk stripped from the udder prior to milking?**

ANS: foremilk

**14. What dairy breed is traditionally known for producing milk with the highest percentage of milk fat and milk protein?**

ANS: Jersey

**15. Which hormone is necessary for the maintenance of pregnancy in a dairy cow?**

ANS: progesterone

**16. How many servings of dairy products per day are recommended?**

ANS: 3 servings

**17. What section of North Carolina has the fewest number of dairy cows?**

a) Piedmont                      b) Coastal Plain                      c) Mountains

ANS: b) Coastal Plain

**18. Beef producers pay one dollar per head checkoff for each beef animal sold at market.**

**How much do dairy producers pay for each cull dairy cow that is sent to market?**

a) Nothing                      b) 25 cents                      c) 50 cents                      d) one dollar

ANS: d) one dollar

**19. What does the term "parturition" refer to in dairy cows?**

ANS: the act of calving or giving birth

**20. If the milk to rest pulsation ratio is set at 60:40, what percent of the time is the inflation closed?**

ANS: 40%



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**1. What are the two peak times of water consumption for a dairy cow?**

ANS: after milking, during feeding

**2. Name 3 factors a dairy manager may consider when grouping the milking herd.**

ANS: body condition, lactation number, reproductive status, production, stage of lactation, stall, availability of stalls, distance from milking facility/parlor

**3. Name 3 reasons a dairy cow may be culled from the herd.**

ANS: low production, mastitis, reproduction, udder, feed and legs, disease, injury, disposition

**4. What do the 4 Hs of 4-H stand for?**

ANS: head, hands, heart, health

**5. Name 2 items that are important for tractor safety.**

ANS: good tires, slow moving vehicle sign, seat belt, roll over protection bars, lights, PTO shield, sound protection, brakes, no riders

**6. An excess of calcium fed during the dry period can result in what metabolic disorder at freshening?**

ANS: milk fever

**7. What is the definition of a freemartin heifer?**

ANS: a sterile heifer that is born with a twin bull

**8. Name the county in North Carolina where the NCDA Piedmont Research Station is located.**

ANS: Rowan County

**9. Which of the following is the main reason newborn calves are kept separate from each other?**

**a) To reduce fighting                      b) to prevent transmission of disease**

**c) to reduce labor cost**

ANS: b) to prevent transmission of disease

**10. True/False. Because it is not organic in composition, sand is an excellent choice for bedding in free stalls.**

ANS: True

## 2019 Junior Dairy Quiz Bowl Questions

## Round 03

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**1. Name the two primary gases produced in the rumen**

ANS: methane and carbon dioxide

**2. List 3 sources of on-farm milk contamination?**

ANS: air (dust), antibiotics, dirt, equipment, feed, insects, interior of udder, water

**3. Give 3 reasons why over conditioning is undesirable in young dairy heifers.**

ANS: expensive, reduces subsequent calving conditions, overfeeding, produce poor quality colostrum

**4. What 2 types of cells are known as gametes?**

ANS: egg and sperm

**5. Name 3 types of silos.**

ANS: concrete stave, poured concrete, bunker, trench, plastic bag, oxygen-limiting, upright/tower

20 Questions

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1. A deficiency of selenium has been associated with what disease in calves?

ANS: white muscle disease

2. Which of the following describes morbidity rate?

a) The number of death losses                      b) the average daily gain of the animals

c) The number of sick animals in a certain period of time

ANS: c) the number of sick animals in a certain period of time

3. What is the feed component found in plant cell walls that is not digestible by the cow?

ANS: lignin

4. On the PDCA Dairy Judging Scorecard, in which category is the withers?

ANS: Dairy character

5. Which season of the year is consumer demand for dairy products typically the lowest?

ANS: summer

6. Which of the following is defined as the total energy content of a feed?

a) Net energy                      b) digestible energy                      c) gross energy

ANS: c) gross energy

7. Which of the following is the main component of adipose tissue?

a) Fat                      b) minerals                      c) carbohydrates                      d) protein

ANS: a) fat

8. Which of the six major dairy breeds originated in the United States?

ANS: none

**9. Which of the following is another name for a calf's mother?**

- a) Sire                      b) offspring                      c) dam                      d) progeny

ANS: c) dam

**10. What is meant by the term "weaning"?**

ANS: the act of stopping the feeding of milk

**11. In the ruminant digestive system, which of the following is the first section of the small intestine that is connected to the abomasum?**

- a) ileum                      b) colon                      c) jejunum                      d) duodenum

ANS: d) duodenum

**12. When using a Delvotest or Penzyme test to test milk from your bulk tank, what are you testing for?**

ANS: antibiotics

**13. What is the term used to describe a heifer that is too fat?**

ANS: overconditioned

**14. Name the two primary gases produced in the rumen**

ANS: methane and carbon dioxide

**15. What is the term for the process of turning cream into butter?**

ANS: churning

**16. What is the number one reason for culling a dairy cow in the U.S.?**

ANS: Reproduction or Mastitis

**17. Which of the four stomach compartments is often referred to as the honeycomb?**

ANS: reticulum

**18. How many seconds should pre-dip be left on before wiping off**

- a) 5 to 10                      b) 20 to 30                      c) 60 to 90                      d) 120 to 150

ANS: b) 20 to 30 seconds

**19. What is the proper site on the cow to administer intramuscular (IM) injections?**

ANS: neck

**20. Whey is a byproduct of what dairy food manufacturing process?**

ANS: cheese making

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**1. Name 3 volatile acids produced by microorganisms in the rumen that are absorbed through the rumen walls?**

ANS: acetate (acetic acid), butyrate (butyric acid), propionate (propionic acid)

**2. Name 3 symptoms of a cow suffering from hardware disease.**

ANS: cow suddenly goes off feed, drop in milk production, abnormal standing/posture, fever, no rumen movements, less manure output

**3. Name 2 class I dairy products?**

ANS: chocolate milk, whole milk, reduced fat milk, low fat milk, fat free milk

**4. Name 3 important points in selecting a calf as a project animal.**

ANS: age, breed, health, pedigree, conformation, cost, place to keep it and location, size

**5. What are 4 things that must be on a feed company label?**

ANS: ingredients list, nutrient analysis, how much to feed (and directions), any withdrawal times

**6. What term refers to milk left in the udder after a normal milking?**

ANS: residual milk

**7. Which of the following is classified as a legume?**

a) corn      b) fescue      c) triticale      d) alfalfa

ANS: d) alfalfa

**8. Blackleg is caused by which of the following?**

a) virus      b) fungus      c) bacterium

ANS: c) bacterium

**9. What is milk sugar called?**

ANS: lactose

**10. Which of the following breeds were last to begin using linear classification?**

**a) Ayrshire      b) Jersey      c) Holstein      d) Guernsey**

ANS: c) Holstein

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## Round 04

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1. List 2 reasons why straw is added to a dairy cow's feed ration.

ANS: increase fiber content, slow down digestion rate, lower ration feed cost, expand gut

2. Of the many minerals in milk, which is the hardest to replace if milk and dairy foods are not a part of the diet?

ANS: calcium

3. What is the primary reason for pasteurization of milk?

ANS: kill pathogens

4. If a cow has mastitis, should that cow be milked first or last?

ANS: last

5. What are the 3 critical factors in colostrum management?

ANS: quantity, quality, timing



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1. Your Veterinarian says that a cow is in the first trimester. What does that mean?

a) The first part of the dry period                      b) the first 3 months of pregnancy

c) the first 3 months of lactation

ANS: b) the first 3 months of pregnancy

2. In regards to total fiber, what is the best measurement?

ANS: NDF (neutral detergent fiber)

3. What flavor is added to cheese and butter to improve the taste?

ANS: salt

4. How many teeth does a mature dairy cow have?

ANS: 32

5. Which breed of dairy cows has the longest gestation period?

ANS: Brown Swiss

6. What is the solid portion of cheese called?

ANS: curd

7. Which mineral is used to build strong bones and teeth in conjunction with calcium?

ANS: phosphorus

8. What term is used to describe the act of giving birth?

a) Estrus                      b) lactation                      c) laminitis                      d) parturition

ANS: d) parturition

**9. Casein in milk is part of which nutrient?**

- a) lactose                      b) carbohydrate                      c) fat                      d) protein

ANS: d) protein

**10. What temperature should milk be held in the farm bulk tank?**

- a) 48 degrees F                      b) 30 degrees F                      c) 60 degrees F

ANS: b) 38 degrees F

**11. There is the most production loss on a herd from what type of mastitis; subclinical or clinical?**

ANS: subclinical

**12. During which month is National Agriculture Day celebrated?**

ANS: March

**13. Which breed of cows is affected by white heifer disease?**

ANS: milking shorthorns

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

ANS: 6.2 to 6.8 (within that range will be accepted)

**15. What vitamin is contained in green forage?**

ANS: Vitamin A

**16. What does anaerobic mean?**

ANS: without air

**17. Johne's disease affects what organ system?**

ANS: digestive

**18. Cottonseed hulls, brewers grains, and corn gluten feed are examples of:**

- a) forages                      b) nitrates                      c) by-product feeds

ANS: c) by-product feeds

**19. A deficiency of what mineral causes grass tetany?**

ANS: magnesium

**20. What is the name of the substance produced by the cow during the chewing process that helps to buffer the rumen?**

ANS: saliva

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**1. Name 2 internal parasites that can be found in dairy cattle.**

ANS: lung worms, round worms, stomach worms, liver flukes, coccidia

**2. A cow's day consists of 5 major activities. What are they?**

ANS: eating, lying down, standing, milking, drinking

**3. What 2 amino acids are considered to be first limiting or co-limiting for milk protein synthesis?**

ANS: methionine and lysine

**4. Name 3 pieces of information that should be written down by the trimmer when hoof trimming dairy cattle.**

ANS: cow's name/ID number, date lesion and treatment was applied, location of lesion, severity of lesion, follow-up treatment needed, foot that is treated or abnormal

**5. Name 3 of the major causes of calf scours.**

ANS: inadequate colostrum, poor quality colostrum, poor quality milk replacer, unsanitary calving conditions, overfeeding, overcrowding, inadequate ventilating

**6. What does BST stand for?**

ANS: Bovine Somatotropin

**7. What is used as the reference point to determine the height of the udder floor?**

ANS: hock

**8. What is the danger to a person who enters an upright silo too soon after filling with silage?**

ANS: toxic silo gases

**9. In the cow's reproductive tract, the cervix is characterized by rings of what?**

ANS: cartilage

**10. What do we call a paper that accompanies a purebred animal and certified his or her percentage?**

ANS: registration papers

## 2019 Junior Dairy Quiz Bowl Questions

## Round 05

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**1. What are 4 signs a calf is ill?**

ANS: poor appetite, cough, water manure, nasal discharge, drooping ears, dull eyes, lack of energy, elevated temperature

**2. Ear tattoos are recognized as the preferred method of permanent identification in 3 dairy cattle breeds. Name 2 of them.**

ANS: Brown Swiss, Jersey, Milking Shorthorn

**3. Name 3 of the organ systems found in the body.**

ANS: circulatory, respiratory, integumentary, nervous, digestive, endocrine, reproductive, skeletal, muscular

**4. Name 3 types of bedding typically used for dairy cattle.**

ANS: straw, sand, recycled manure solids, newspaper, sawdust, shavings, old hay, wood chips, almond hulls, feed by-products

**5. Name 3 of the major nutrients found in feedstuffs.**

ANS: carbohydrates, lipids (fat), protein, minerals, vitamins, water

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1. The normal body temperature of a dairy calf is:

ANS: 102.5 degrees F (accept 101.5 to 102.5)

2. What metabolic issue is the most common reason for down dairy cattle?

ANS: milk fever

3. A dairy calf should be delivered how many minutes after the nose appears?

ANS: 30 to 40 minutes

4. On average, healthy cows ruminate for how many minutes per day?

a) 30 to 70    b) 100-150    c) 200 to 300    d) 400 to 600

ANS: d) 400 to 600 minutes

5. Milk is composed of approximately what percent lactose?

ANS: 5%

6. Most cows will naturally form a mass after dry-off that blocks the teat canal and stops from entering the teat?

ANS: keratin plug

7. W. D. Hoard was the founder of Hoard's Dairyman magazine. He also became governor of what state?

a) North Carolina    b) California    c) New York    d) Wisconsin

ANS: Wisconsin

8. On the PDCA Dairy Cow Unified Score Card, how many points are assigned to the frame category?

a) 10    b) 15    c) 20    d) 40

ANS: b) 15

**9. What is the name of the test conducted on milk samples as a screening test for brucellosis?**

ANS: "ring" test

**10. In reference to dairy cows, what word is used to describe an infection of the uterus?**

a) Winter dysentery      b) metritis      c) mastitis      d) laminitis

ANS: b) metritis

**11. Where did the Ayrshire breed originate?**

ANS: Scotland (county of Ayr)

**12. A metabolic disorder that often occurs when a dairy cow eats too much grain refers to what?**

ANS: acidosis

**13. What is the location of the National Dairy Shrine?**

ANS: Fort Atkinson, Wisconsin

**14. How many pounds of whole milk does it take to make one pound of butter?**

ANS: 21.2 pounds

**15. What does "ET" stand for in dairy animals?**

ANS: embryo transfer

**16. Which hormone blocks milk let down?**

ANS: adrenaline or epinephrine

**17. Which month is national dairy month?**

ANS: June

**18. In the dairy cow, where would you find the Islet of Langerhans?**

ANS: Pancreas

**19. How many ounces are in one serving of milk?**

ANS: 8 oz

**20. What term refers to the infusion of antibiotics into the udder at the time of drying off?**

ANS: dry treating

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**1. Name the 4 stages of the estrus cycle.**

ANS: estrus, metestrus, diestrus, proestrus

**2. Name 3 infectious diseases of mature cows?**

ANS: bovine virus diarrhea (BVD), heel warts, Johne's, leptospirosis, mastitis, pneumonia, salmonella

**3. Give 3 of 5 things that would classify a herd as not being closed?**

ANS: cows bought or boarded, cows return after leaving farm; cattle pasture shares fence with cattle from another farm; bulls are bought, borrowed, or loaned; cows transported by someone else or in someone else's vehicle

**4. Name 3 factors that can cause pneumonia.**

ANS: bacteria, viruses, parasites, molds and yeast, foreign objects

**5. Give 3 reasons for a cow going lame.**

ANS: abscess, foot rot, infection, injury, soft sole syndrome, trimming too close

**6. Which disease stopped the importation of cattle from Europe in 1905?**

ANS: hoof and mouth disease

**7. What state leads the nation in milk production?**

ANS: California

**8. After a calf has just been born, what should you do that will help prevent "joint hill"?**

**a) dip the navel in a 7% tincture of iodine solution b) help the calf to stand up**

**c) dehorn the calf**

ANS: a) dip the calf's navel in a 7% tincture of iodine solution

**9. In reference to digestion and metabolism, what is the term for the energy used up in consumption, digestion, and metabolism of a feed?**

ANS: heat increment



**10. How many weeks is the normal estrus cycle in dairy cows?**

ANS: 3 weeks

## 2019 Junior Dairy Quiz Bowl Questions

## Round 06

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. Give 3 examples of a farm's assets.**

ANS: cows, land, equipment, tractors, buildings, cash, feed, lumber, stocks and bonds, co-op equity, employees

**2. Name 2 methods for reducing heat stress in cattle.**

ANS: shade, ventilation, sprinklers, fans, free-choice water

**3. Name 3 pieces of information that can be found on an animal's registration paper.**

ANS: name, registration number, ear tag number, birthdate, sire, dam, owner, breeder, grand sires and grand dams, gender, breed

**4. Name 2 methods of temporary identification.**

ANS: ear tag, neck chain, tail tag, brisket tag, leg band, paint brand, back tag

**5. What are 2 considerations for achieving adequate, effective cleaning of milking systems?**

ANS: time, temperature, concentration of cleaning solution, covers entire system

20 Questions

Correct answers are worth 15 points each.

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1. If a pH of 7 is neutral, what is a pH lower than 7 indicate?  
a) Acidic condition    b) basic condition    c) fever condition

ANS: a) acidic condition

2. True/False. There are 2 uterine horns in the reproductive tract of a dairy cow.

ANS: true

3. What year is chocolate milk invented?

ANS: 1919

4. How many gallons of water does a cow drink in a day?

ANS: 25 to 50 gallons

5. Which breed of dairy cattle is known for its "golden milk"?

ANS: Guernsey

6. Of all the costs associated with Mastitis, which has the greatest impact on the farmer?

- a) Veterinarian    b) Discarded Milk    c) Labor    d) Reduced Milk Production

ANS: d) reduced milk production

7. What is often added to dairy cattle rations to improve taste and decrease dustiness?

ANS: molasses

8. What dairy cattle breed originated in Netherlands and Germany then arrived in the US in 1852

- a) Milking Shorthorn    b) Holstein    c) Jersey    d) Brown Swiss

ANS: b) Holstein

**9. From which side of the animal should you lead an animal when showing?**

ANS: left side

**10. What are you trying to estimate when you measure the heart girth of a dairy heifer with a special tape?**

ANS: body weight

**11. What is the temperature of liquid nitrogen?**

ANS: -320 degrees F

**12. What does CMT stand for when talking about mastitis?**

ANS: California Mastitis Test

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

ANS: cover crop

**14. What is the term for removing the testes of a male animal?**

ANS: castration

**15. A plant that is seeded each year and whose growth cycle is completed in one year is called what?**

ANS: an annual plant

**16. Where is the material deposited when an injection is given IV?**

ANS: in the vein

**17. Which vitamin functions to coagulate blood?**

ANS: Vitamin K

**18. When looking at a dairy cow's production records, what does the term 3x mean?**

ANS: cow is milked 3 times daily

**19. As a plant gets older, what happens to its concentration of fiber in the plant?**

a) It increases      d) it decreases      c) it stays the same

ANS: a) it increases

**20. Are warts caused by:**

a) a fungus      b) a virus      c) bacteria

ANS: a virus

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**1. Name 3 basic requirements of good calf housing**

ANS: dry floor, clean environment, free from drafts

**2. Name 3 annual crops often used for grazing.**

ANS: rye, ryegrass, wheat, oats, barley, sorghum, annual clovers, sudan grass

**3. Name the 3 structural carbohydrates.**

ANS: cellulose, hemicellulose, lignin

**4. Give 3 reasons why dry matter intake would be overestimated.**

ANS: failure to account for feed refusal, inaccurate weights of feeds, overestimating body weight, ration miscalculations

**5. Name 3 trace minerals required by the dairy cow.**

ANS: iron, manganese, copper, zinc, cobalt, iodine, selenium

**6. What term is used to describe a calf that is born dead?**

ANS: stillborn

**7. At what age does a calf have a fully developed rumen?**

ANS: 4 months

**8. What is term for white blood cells and epithelial cells found in milk?**

ANS: somatic cells

**9. What mammal produces milk that is used for Romano cheese?**

ANS: Sheep

**10. Who invented the centrifugal cream separator?**

ANS: Dr. Gustaw Delaval

## 2019 Junior Dairy Quiz Bowl Questions

## Round 07

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. You are entering the showmanship ring at your county fair. Name 2 things that a showmanship judge may be looking for when reviewing you and your animal while you are in the ring.**

ANS: cleanliness; quality of clipping; animal condition; appearance of the exhibitor; grooming; how well the animal is led; posing of the animal; sportsmanship; poise, alertness, and attitude

**2. Name 2 functions of saliva.**

ANS: moistens food, lubricates food, acts as a buffer, provides a fluid base for many nutrients, provides the proper environment for bacterial growth

**3. One category of mastitis in dairy cattle is environmental mastitis. Name 3 possible sources of environmental bacteria that could cause this infection**

ANS: soil, water, bedding, feedstuffs, mud, feces

**4. Name 3 common off-flavors in milk.**

ANS: bitter, fruity, lacks freshness, rancid, fermented, high acid, oxidized, sour

**5. Name two ways a cow can return nutrients to the pastures while grazing?**

ANS: urine, manure

**20 Questions**

**Correct answers are worth 15 points each.**

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**1. What is a course textured grain fed to baby calves called that is necessary for rumen development?**

ANS: calf starter

**2. How many pounds are in a bushel of corn?**

ANS: 56 pounds

**3. Where is Follicle Stimulating Hormone, or FSH, produced?**

ANS: pituitary gland

**4. What are the building blocks of fats and lipids?**

ANS: fatty acids

**5. What is the name used to describe the class of chemicals used for weed control?**

ANS: herbicides

**6. What percent of fat is low fat milk?**

ANS: 1%

**7. What is the name of the tool that is filled with liquid solution that cows walk through and is used to prevent foot warts and foot rot?**

ANS: footbath

**8. During normal calving, what part of the calf is seen first?**

ANS: front feet

**9. Where is the World Dairy Expo held?**

ANS: Madison, WI

**10. Anaerobic manure digesters convert what gas into electricity?**

ANS: methane

**11. As a person's age increases, does his or her milk consumption tend to increase or decrease?**

ANS: decrease

**12. What part of the plant is responsible for the uptake of nutrients?**

ANS: roots

**13. Information about which side of the family is shown on the bottom half of the pedigree?**

ANS: Maternal side (dam or mother's ancestry)

**14. There are 9 kilocalories of energy provided in one gram of:**

a) protein                      b) carbohydrate                      c) fat                      d) water

ANS: c) fat

**14. Typical milking unit inflations should be replaced after approximately how many milkings?**

a) 100                      b) 500                      c) 800                      d) 1200

ANS: d) 1200

**15. What is the name for the tube that connects the mouth to the rumen?**

ANS: Esophagus

**16. Which vitamin functions to coagulate blood?**

ANS: Vitamin K

**17. When looking at a dairy cow's production records, what does the term 3x mean?**

ANS: cow is milked 3 times daily

**18. What does "RUP" stand for in reference to dairy cattle nutrition?**

ANS: rumen undegradable protein

**19. In reference to the dairy industry, what does ADSA stand for?**

ANS: American Dairy Science Association

**20. How many classes are featured each year in the Hoard's Dairyman Dairy Judging Contest?**

ANS: Five



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**1. Name 3 benefits of pelleting poor quality forage.**

ANS: increase consumption, increase rate of passage, decrease rumination time, decrease roughage value

**2. Name 3 types of microorganisms**

ANS: bacteria, yeast, molds, viruses, protozoa

**3. Name the 4 stages of a fly's life cycle.**

ANS: egg, larva, pupa, adult

**4. Name 3 reasons for which an animal can be disqualified from being shown in the ring.**

ANS: blind quarter, freemartin heifer, permanent lameness, tampering to conceal faults, total blindness

**5. Name 3 advantages of a 2-group dry cow system.**

ANS: less metabolic disease, improved feed intake postpartum, increased milk production

**6. What class of vitamins does niacin fall into?**

ANS: B vitamins

**7. In reference to dairy cattle, what does BVD stand for?**

ANS: Bovine Viral Diarrhea

**8. What is term for white blood cells and epithelial cells found in milk?**

ANS: somatic cells

**9. What are the tiny fingerlike projections that line the wall of the rumen wall?**

ANS: papillae

**10. Which nation leads the world in number of cows and water buffalo used for milk production?**

ANS: India

## 2019 Junior Dairy Quiz Bowl Questions

## Round 08

5 Questions

Correct answers are worth 10 points each.

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**1. A bag of 15-10-20 fertilizer contains what percent nitrogen?**

ANS: 15%

**2. Name 3 factors that could influence the amount of water consumed by a dairy cow.**

ANS: body size, environmental temperature, water temperature, water quality, relative humidity, diet, milk production

**3. Name 2 parts of a milking machine.**

ANS: pulsator, claw, vacuum pump, air tubes/hoses, milk tubes/hoses, inflations

**4. Name 3 methods or practices to use to help in reducing soil erosion.**

ANS: wind breaks, cover crops, strip cropping, contour cropping, terracing, grass waterways, reduced tillage, soil seeding, planting hedge rows

**5. What are two main functions of the large intestine?**

ANS: water absorption, storage of waste materials, excretion

20 Questions

Correct answers are worth 15 points each.

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1. What is the desired angle of a dairy cow's hoof?

ANS: 45 degrees

2. What is the name of the on-farm test that uses a white paddle and solution to detect subclinical mastitis?

ANS: California Mastitis Test (CMT)

3. Name a pathogen that can cause severe scours as a result of unsanitary conditions.

ANS: E. Coli, Salmonella

4. On a dairy animal, what is located between the dew claw and the hoof?

ANS: pastern

5. When cows are at rest, at least what % should be ruminating?

ANS: 60%

6. Your cow that is on legume pasture is showing physical signs of being very uncomfortable and her sides are bulging out. What is most likely her problem?

ANS: bloat

7. What is the most common milking parlor used today?

ANS: herringbone

8. In what year did the Jersey breed arrive in the USA?

ANS: 1815

9. True/Price. A preweaned calf should receive 20 to 25 percent of its bodyweight in milk or milk replacer daily.

ANS: False

**10. Vitamin C is also known as what?**

ANS: ascorbic acid

**11. A disease that is transmitted between vertebrate animals and humans is known as what type of disease?**

ANS: zoonotic or zoonoses

**12. True/False. The amount of mud that heifers must walk through to reach the feed bunk can affect their energy intake.**

ANS: true

**13. What class of milk includes milk in dried form and butter?**

ANS: class IV

**14. What nutrient is excreted in the urine of the cow when it is overfed?**

ANS: protein or urea or nitrogen

**15. What does the acronym GTPI stand for?**

ANS: Genomic Total Performance Index

**16. During the summer, Pink Eye is most prevalent due to what insect?**

ANS: face fly

**17. What is the name of the instrument used to give an animal a pill or bolus?**

ANS: Balling gun

**18. In an accelerated calf feeding program, what percent fat should milk replacer contain?**

ANS: 15 to 25%

**19. What is the name of a cow who receives a fertilized ovum from a donor cow?**

ANS: recipient

**20. What is the term that describes management practices that protect the herd from the entry of new diseases and minimize the spread and/or adverse effects of disease in the herd?**

ANS: biosecurity

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**1. Name 3 tests for mastitis.**

ANS: California mastitis test (CMT), Wisconsin mastitis test (WMT), somatic cell count (SCC), culture, strip cup or plate, catalase test, whiteside test, NaGase

**2. Name 3 types of flies that are commonly found around the dairy farm.**

ANS: housefly, stable fly, face fly, horn fly, heel fly, deer fly

**3. Give 3 advantages of grazing.**

ANS: exercise, less waste handling, no harvesting costs, no storage costs, utilize low cost feedstuffs

**4. What is the physiological function of rennin in the calf?**

ANS: coagulate milk proteins in the stomach

**5. Name 2 of the most common mastitis causing organisms.**

ANS: Streptococcus agalactia, Streptococcus dysgalactia, Streptococcus uberis, staphylococcus aureus, E. Coli, Klebsiella sp.

**6. What term describes the appearance and performance characteristics of an animal?**

ANS: phenotype

**7. What is the most important factor to consider in determining when to breed a heifer for the first time?**

ANS: body size

**8. True/False. Potassium levels are more concentrated in the leaves than in the stems of plants.**

ANS: false

**9. How old is a calf when it begins to chew its cud?**

ANS: 2 to 3 weeks old

**10. In the area of cattle reproduction, what does "IVF" stand for**

ANS: *In vitro* fertilization

## 2019 Junior Dairy Quiz Bowl Questions

## Round 09

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 3 organisms that live in the rumen**

ANS: bacteria, fungi, protozoa

**2. Name 2 byproduct feeds high in digestible fiber.**

ANS: citrus pulp, beet pulp, soy hulls, brewer's grains

**3. Name the 3 common names for the stages of a female dairy animal's life starting with birth.**

ANS: calf, heifer, cow

**4. Name 3 methods or practices to use to help in reducing soil erosion.**

ANS: wind breaks, cover crops, strip cropping, contour cropping, terracing, grass waterways, reduced tillage, soil seeding, planting hedge rows

**5. Name 2 methods for dehorning calves.**

ANS: paste, electric dehorner, gouge, Barnes type dehorner that cuts

20 Questions

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1. In a dairy cow, which occurs first during the lactation cycle, “peak milk production” or “peak feed intake”?

ANS: peak milk production

2. What do the initials **NDF** stand for?

ANS: neutral detergent fiber

3. What is the name of the test developed at the University of Wisconsin that measures the milk fat (or butterfat) content in milk?

ANS: Babcock test

4. Which of the following is the largest dairy milk marketing cooperative in the U.S.?

- a) Maryland and Virginia Milk Producers      c) Dairy Farmers of America (DFA)  
b) California Dairies                                      d) Land O’ Lakes

ANS: c) Dairy Farmers of America (DFA)

5. Calcitic limestone is a source of which mineral in dairy diets?

- a) Sodium                      b) Potassium                      c) Calcium                      d) Selenium

ANS: c) Calcium

6. DRMS is located in Raleigh. What does DRMS stand for?

ANS: Dairy Records Management Systems

7. True or False. An embryo with two X chromosomes will result in a female (heifer) calf?

ANS: True

8. What hormone is critical in the initiation and maintenance of lactation?

ANS: prolactin

**9. An infection of the lungs is called what?**

ANS: pneumonia

**10. What is the term that is used to describe animals that gave birth to live young and suckle their offspring after birth?**

ANS: mammals

**11. What are extra teats called?**

ANS: supernumerary teats

**12. What are the building blocks to proteins?**

ANS: amino acids

**13. What structure separates the udder into the right and left halves?**

ANS: median suspensory ligament

**14. Name the portion of the cow's back closest to the withers.**

ANS: chine

**15. When referring to milk, what does "SNF" stand for?**

ANS: solids not fat

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

ANS: the sire

**17. What can both the dairy cow and plants make from some form of nitrogen?**

ANS: protein

**18. Which breed organization was the first to register and transfer animals by computer data processing?**

ANS: American Guernsey Association

**19. What is the common name for keratoconjunctivitis?**

ANS: pink eye

**20. Of the following, which is a good source of fiber for a dairy cow's ration: long stemmed hay, cottonseed meal, or hominy?**

ANS: long stemmed hay



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**1. Name 3 organs affected by bovine leukemia virus (BLK)?**

ANS: heart, digestive organs, uterus, spinal cord

**2. Name 3 factors to consider when purchasing cropland.**

ANS: location, fertility and pH, soil type

**3. Name the 3 animals other than the cow that are used to produce milk for human consumption throughout the world.**

ANS: human, goat, sheep, camel, water buffalo, horse, yak, reindeer

**4. Name 3 methods of fly control.**

ANS: biological, chemical, cultural (management techniques)

**5. Name 3 medications (drugs) made from by-products of cows.**

ANS: insulin, epinephrine, estrogen, thrombin, heparin

**6. What term describes the appearance and performance characteristics of an animal?**

ANS: phenotype

**7. What is the most important factor to consider in determining when to breed a heifer for the first time?**

ANS: body size

**8. True/False. Potassium levels are more concentrated in the leaves than in the stems of plants.**

ANS: false

**9. How old is a calf when it begins to chew its cud?**

ANS: 2 to 3 weeks old

**10. In the area of cattle reproduction, what does "IVF" stand for**

ANS: *In vitro* fertilization

## 2019 Junior Dairy Quiz Bowl Questions

## Round 10

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 3 management practices a farmer should follow when a cow has mastitis.**

ANS: culture milk to determine infection type, treat with antibiotics, separate treated cow from string, dump milk or milk last, dry cow off, dry off infected quarter, quarter milk the cow, cull the infected cow

**2. What 3 things do bacteria need to grow in bedding?**

ANS: food (manure), heat (cow's body heat or environmental temperature), water (urine, leaked milk)

**3. What are the two most effective measures that can be used on the dairy farm to prevent new mastitis infections.**

ANS: teat dipping, dry cow antibiotic treatment

**4. Name the 4 components of the PDCA Dairy Cow Unified Scorecard**

ANS: frame, dairy strength, rear feed & legs, udder

**5. Name 3 legumes used for grazing or hay.**

ANS: alfalfa, clover, lespedeza, vetch, soybeans, peanuts, peas, birdsfoot trefoil

20 Questions

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1. Of the following, what is the measure of how well a cow turns feed into milk?

- a) Fat-corrected milk                      b) average daily gain                      c) feed efficiency

ANS: c) feed efficiency

2. What early lactation disorder results from too much mobilization of body fat and is also called acetoneemia?

ANS: ketosis

3. What is the name of the mechanism that stirs the milk in a bulk tank?

ANS: agitator

4. What is the most common cause of high bacteria counts in milk?

ANS: dirty equipment

5. What breed of dairy cattle has the undesirable recessive trait called weavers?

ANS: Brown Swiss

6. Adding which acid to a TMR will slow down the heating process while retarding the growth of yeast and molds?

- a) Butyric                                      b) Acetic                                      c) Propionic

ANS: c) Propionic

7. In regard to animal handling, where is the animal's blind spot?

ANS: directly behind the animal

8. A letter in a bull's stud code number tells you what about him?

ANS: his breed

**9. Leukocytes are also called:**

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

ANS: b) white blood cells

**10. What is the common term for mastication?**

ANS: chewing

**11. Water in the soil is known as what?**

ANS: groundwater

**12. What type of bedding should be used in cold weather so calves can nestle?**

ANS: straw

**13. What is the name of the mycotoxin, sometimes found in corn, that is of concern because it is carcinogenic and has the possibility of contaminating the human food supply?**

ANS: aflatoxin

**14. Where was the first dairy cooperative in the United States organized?**

ANS: Goshen, Connecticut

**15. What enzyme is necessary for the digestion of milk sugar?**

ANS: lactase

**16. Spell Guernsey.**

ANS: G-U-E-R-N-S-E-Y

**17. How many pairs of chromosomes are found in the body cell of a dairy cow?**

ANS: 30 pairs

**18. Calving ease summaries are calculated for which breed or breeds?**

ANS: Holstein

**19. Which of the following is the term for the sum total of all an individual organism's genes?**

- a) Organelle                      b) genome                      c) chromosome

ANS: b) genome

**20. In addition to milk and water, a calf with scours should be supplemented with what oral treatment to prevent dehydration?**

ANS: electrolytes

**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. Name 4 of the 10 essential amino acids.**

ANS: phenylalanine, valine, tryptophan, threonine, isoleucine, methionine, histidine, arginine, leucine, lysine

**2. Name 3 tests that milk plants use to determine the quality of raw milk.**

ANS: acid degree value, antibiotic test, flavor, freezing point, leukocyte or somatic cell count, preliminary incubation (PI) count, sediment test, standard plate count

**3. Cows having twins have higher incidence of health issues. Name 4 of them.**

ANS: stillbirth, retained placenta, metritis, ketosis, milk fever

**4. Name 3 signs that a cow is near the time of calving.**

ANS: udder full, vulva enlarged, mucus discharge, relaxation of ligaments at tail head, restlessness

**5. Name 3 reasons for breeding cows by artificial insemination.**

ANS: encourages more accurate breeding and calving records, improves fertility, helps prevent reproductive disease from spreading, increases safety for cattle and people

**6. What hormone is released by the pineal gland in response to longer day length?**

ANS: melatonin

**7. One linear point change in somatic cell count score results in a daily loss or gain of how many pounds of milk.**

ANS: 1.5 pounds

**8. What does the phrase "5-way" indicate when talking about a vaccine?**

ANS: vaccinate for 5 different organisms (strains)

**9. A 3-year-old Jersey cow received a classification score of 83. What is her classification rating?**

ANS: very good

**10. The letters NDB stand for what organization?**

ANS: National Dairy Board