

2022 Regional Senior 4-H

Dairy Quiz Bowl Contest

Senior Packet 1, Phase A

- 1) Alfalfa or silages that are ensiled with too much moisture results in the formation of an undesirable organic acid that has a strong odor. What is the name of this acid?
 - Butyric Acid
- 2) Drought stressed forages often will contain toxic levels of what substance?
 - Nitrates
- 3) In which part of the digestive system are the immunoglobulins in colostrum absorbed in a newborn calf?
 - Small intestine
- 4) What mineral does planting ryegrass help remove from the soil?
 - Phosphorus

Senior Packet 1, Phase B

- 1) Obesity, stress, and diseases are all contributing factors for the post calving cow to mobilize fat at high levels and lead to an accumulation in the liver. When the liver is saturated with fat the cow begins to develop other related disorders. Name 3 of these such disorders.

Ketosis

DA

Mastitis

Metritis

Fatty liver (DHM, 6/19, pg. 17)

- 2) Name the two general classes of probiotics.

Fungi

Bacteria

- 3) If a dairy herd's conception rate is 50%, and the heat detection rate is 40%, what is the pregnancy rate?

20%

- 4) What two departments are responsible for issuing the dietary guidelines?

Department of Health and Human Services

United State Department of Agriculture

Senior Packet 1, Phase C

- 1) Legislation requires that homebuyers who move within one mile of farms be informed that agriculture can be noisy, smelly, and dusty and that farmers have what right?

Right to Farm

- 2) What term is used to describe a function of the total time a cow spends eating per day

Feed intake (HD, pg. 347)

- 3) Many dairy producers are breeding their cows and heifers to beef bulls with low EPD's for calving ease. What does EPD stand for?

Expected Progeny Differences

- 4) What is the term for inflammation of the uterus?

Metritis

- 5) What crop process allows rumen bacteria to fully utilize starch in corn silage?

Kernel processing

- 6) Some farms are transitioning to an IBAMS system for milking. What does IBAMS stand for?

Individual Box automated milking system (Progressive Dairyman, 1/1/19, pg. 26)

- 7) There is a degree of mobilization of fat in the post-calving cow that is a normal process. This fat mobilization is measured by the amount of what in the blood.

Non-esterified fatty acids (NEFA's) (DHM, 6/19, pg. 16)

- 8) Corn harvested for silage should be at what percent dry matter to ensure good digestibility and facilitate good packing and quality fermentation?

32% to 36 % (DHM, 6/18, pg. 12)

- 9) If there is visible mold on silage it is usually a good indicator that what is present?

Mycotoxins

- 10) Regarding crops, what does SCS stand for?

Soil Conservation Service

- 11) Foliar diseases which reduce a plant's photosynthetic capacity affect which part of the plant?

Leaf

12) What does soil porosity refer to? (HD, page 209)

Space between soil particles

13) The general recommendation for Holstein calves weighing about 90 pounds is to feed how many quarts of colostrum within four hours of birth?

4 quarts

14) What is one of the most prevalent hoof diseases in freestall barns due to the wet and dirty conditions surrounding the feet of many of the cows in these facilities?

Digital Dermatitis (foot rot) or hairy warts (DHM, 10/18, pg. 35)

15) Which reproductive condition is a result of the fetal membranes remaining within the uterus for an extended period after calving?

Retained placenta or retained fetal membrane

16) In the month after weaning, daily hay intake should be limited to what amount? (HD 20, page 448)

0.5 to 1 pound

Senior Packet 1, Bonus Question

- 1) Regarding farm business management, one of the major categories of cost is fixed costs. Name 3 of the 5 five fixed costs referred to by the acronym DIRT?

Depreciation

Interest

Repair (also accept Rent)

Taxes

Insurance

- 2) What 3 things does a bull's NAAB code tell you about the bull?

What bull stud

What breed

The bull's number

- 3) There is a laundry list of common mastitis bacteria on the farm. Name 2 common gram- positive mastitis causing bacteria and name 1-gram negative common mastitis causing bacteria.

Gram positive: Strep agalactiae, staph aureus, Staph species, strep species

Gram negative: E-coli, Klebsiella, Citrobacter, Enterobacter, Serratia, pseudomonas (DHM, pg. 32, 1/2019)

- 4) Ideally, high quality alfalfa should contain what percentage of crude protein, acid detergent fiber and neutral detergent fiber?

20 % crude protein

30 % Acid detergent fiber

40 % Neutral detergent fiber

Senior Packet 2, Phase A

- 1) Field drying hay means that it is at risk of being rained on. What plant component is most impacted in this scenario as it is easily leached from forage?

Plant sugar

- 2) Following feed costs and capital recovery of machinery and equipment, what cost category has consistently ranked third in operating cost per hundredweight of milk sold?

Labor costs

- 3) Through what process is carbon dioxide taken from the atmosphere and fixed as carbohydrates in plant material?

Photosynthesis

- 4) *What is the name given to the mineral elements that have a negative charge?*

Anions

Senior Packet 2, Phase B

- 1) Good soil pH is the cornerstone of a sound soil fertility program and growing good crops. A couple of the main forages grown on dairy farms are corn and alfalfa which grow ideally at different soil pH. What is the target pH level for corn and alfalfa?

Corn, 6.0 pH

Alfalfa, 6.8 pH (DeKalb Silage Guide)

- 2) As your dairy business gets more complicated and or bigger, written contracts need to replace oral agreements. A heifer raising contract between a dairy producer and a heifer raising professional is a prime example of a written contract to benefit both parties. Name 4 key critical areas that should be covered in the dairy producer/heifer grower contract.

Contract start and renewal date

Death, injuries, and poor doers (this would define the difference between death and injury via natural incidence vs. death or injury due to neglect)

Vaccination and testing requirements

Breeding program

Animal health (Determine what, if any, part of the animal health is included in the base fee)

Payment terms

Communication and site visits (Spell out how often the dairy producer will visit the heifer-raising site)

Contract cancellation (determine ahead of time the procedure to follow if either party wants to terminate the contract)

- 3) Name 4 of the 6 health traits that were incorporated into Holstein Sire evaluations in April 2018.

Hypocalcemia

Displaced abomasum

Ketosis

Mastitis

Metritis

Retained placenta DHM, 2/18, pg. 15)

4) *In addition to IgGs, what are the two other immunoglobulin categories that make up measurable percentages of the total immunoglobulins in colostrum? Page 74.*

IgA

IgM

Senior Packet 2, Phase C

- 1) What is formed when glucose and galactose are combined?
Lactose
- 2) In reference to crop management, what does GDD stand for?
Growing degree days
- 3) What Mycoplasma species is highly contagious and the most common cause of mastitis among its species? Page 290.
Mycoplasma bovis
- 4) What cow comfort index measures the number of cows in contact with a stall that are not lying down in the stall?
Stall standing index
- 5) Milk is composed of about what percent of lactose?
4 to 5%
- 6) What is the term used to describe the death of a calf within the first 24 to 48 hours after delivery?
Stillbirth
- 7) *What does the acronym CSPS stand for around corn silage?*
Corn Silage Processing Score (DHM, 6/18, pg. 12)
- 8) What part of the corn kernel is broken when processing corn silage?
Pericarp
- 9) What milk quality indicator gauges the udder infection statistics of the herd and indicates the potential loss of production due to mastitis?
BTSCC (Bulk tank somatic cell count) DHM, 3/18, pg. 19)
- 10) Non-GMO rations can contain GMO ingredients if they make up less than what percent of the diet? Page 624.
5 %
- 11) What type of compaction occurs below the tillage pan and has the most serious, long-term impact? Page 726.
Subsoil compaction
- 12) What disease in cattle is treated by twenty-three percent calcium administered intravenously?

Milk fever, post parturient hypocalcemia, or parturient paresis

13) What piece of farm equipment is used to narrow the swath for a baler or chopper and to move the wetter material at the bottom of the windrow through the outside?

Rake or merger

14) What color are healthy alfalfa roots?

White

15) Pollination of alfalfa seed depends on what insect?

Bee

16) A calf does not have the ability to produce its own antibodies until they are how old?

2 to 3 weeks old

Senior Packet 2, Bonus Questions

- 1) Dairy cows that have twins have a higher incidence of health issues. Name 3 of them.

Ketosis

Retained placenta

Stillbirth

Metritis

Milk Fever

Mastitis

- 2) A portion of cattle who survive Salmonella Dublin can become carriers for life and shed the bacteria intermittently. Name 3 avenues the bacteria can be shed.

Feces

Colostrum

Milk

Semen (DHM, pg. 30, 1/2019)

Saliva

Blood

- 3) Name 3 of the 4 phases of a standard milking equipment cleaning protocol/

Pre-rinse

Chlorinated Alkaline cleaning

Acid rinse

Sanitation/washing

- 4) Name 3 economic losses that a dairy producer can suffer due to clinical mastitis.

Added labor

Discarded milk

Antibiotic treatment

Culling

Death

Production loss

Veterinary cost (DHM, 10/18, pg. 27)

Senior Packet 3, Phase A

- 1) What is another term for bypass protein that excludes unavailable or heat-damaged protein?

Protected protein, rumen undegraded protein or undegraded intake protein

- 2) Routine soil sampling for fields requires how many core samples per field?

10-15 (Progressive Farmer, 10/1/19, p38)

- 3) What is the name of the disease that decreases the capacity of epithelial cells to produce milk or destroys epithelial cells altogether?

Mastitis (DHM, 2/18, pg. 18)

- 4) When applying a foamer or cleaner to calf pens and trailers, in minutes, how long should the detergent be left to soak?

10 to 15 minutes (HD, pg. 493)

Senior Packet 3, Phase B

- 1) In the area of farm business management, what are the two figures needed to calculate feed efficiency per cow on a dairy farm.
 - Pounds of milk produced per cow per day
 - Pounds of dry matter fed per cow per day
- 2) Dystocia is hard on the calf, the cow and the people who are providing assistance. Regarding maternity and fresh cow management on the dairy, give 3 positive management practices that should be used to assist with dystocia at any time.
 - Proper training
 - Optimal restraining of the animal
 - Proper cleaning of the cow
 - Use of lubricant
 - Use of obstetric gloves
 - Clean equipment
 - Separate animals from group housing
- 3) Mange is contagious and tends to occur in dairy cattle housed in proximity, especially during what 2 seasons?
 - Fall
 - Winter
- 4) In the area of measuring forage quality and digestibility what does TTNDFD stand for?
 - Total Tract Neutral Detergent Fiber Digestibility (DHM, 6/19, pg. 22)

Senior Packet 3, Phase C

- 1) Most inoculants aim at improving the production of what acid, which is the most effective silage acid? (Page 18)
Lactic acid
- 2) What nutrient will a fertilizer containing potash supply?
Potassium
- 3) What is it called when something is put on a cow's hoof that is used to improve healing by removing the pressure from the affected foot?
Hoof block (DHM, 7/18, pg. 14)
- 4) Most AI organizations recommend that inseminators should place semen in this section of the reproductive tract?
Uterine body
- 5) What toxin is a common problem usually associated with feeding large amounts of cottonseed?
Gossypol
- 6) When cows are resting, we expect to see at least what percent of them chewing their cuds?
58-62 % (HD)
- 7) Regarding stall design, the space a cow occupies when she is lying down or the space from her knee to her tail is called what?
Cow's imprint length
- 8) What is the name of the hormone that enables the cervix to soften and stretch in preparation for calving?
Relaxin
- 9) When referring to ventilation, what does ACH stand for?
Air changes per hour (HD, pg. 315)
- 10) The SPC test is used to measure the number of mesophilic organisms in milk to determine whether state regulatory standards are met. What do the initials SPC stand for?
Standard Plate Count

11) When using Presynch before starting a cow on the Ovsynch program, the cow receives 2 injections of what hormone?

Prostaglandin

12) This measurement of energy in feedstuffs is defined as the total energy in a feedstuff minus the energy lost in feces.

Digestible energy (Virginia materials)

13) The continuously changing of weight load is often the burden of the rear legs and causes lameness to occur most frequently where on the foot?

Outside claw (Identifying and Preventing Causes of Lameness in Your Dairy Herd)

14) Which ketone body is the most sensitive to indicate clinical and subclinical ketosis?

Beta hydroxybutyrate (BHBA)

15) The speed of maturity and the stage of maturity at harvest affects what measure of forage quality?

NDF digestibility (DHM, 6/19, Pg. 22)

16) *What is known to produce all the structure of the hoof in dairy cattle?*

Corium

Senior Packet 3, Bonus Questions

- 1) If your farm purchased 100 pounds of 20-15-25 fertilizer, how many pounds of Potassium, Nitrogen and Phosphorus would be in it?
 - 20-pound nitrogen
 - 15 pounds of phosphorus
 - 25 pounds of Potassium
- 2) *Name 3 of the 5 primary indicators of milk quality on the dairy farm.*
 - Standard plate count (SPC)
 - Somatic Cell Count or Bulk tank somatic cell count (BTSCC)
 - Laboratory Pasteurization Count (LPC)
 - Coliform Count (CC)
 - Preliminary Incubation Count (PIC) (DHM, 3/2018, pg. 19)
 - Cryoscope
- 3) Name three minerals that, if fed in increased levels to your pre-fresh and or dry cows, can lead to increased incidences of milk fever.
 - Potassium
 - Calcium
 - Phosphorus
 - Sodium
- 4) In order to accurately calculate the dry matter intake per cow per day there are five key numbers needed to make these calculations. Name 3 of the 5 key numbers needed.
 - Weight of feed offered
 - Dry matter percentage of feed offered
 - Weight of feed refused
 - Dry matter percentage of feed refused
 - Number of animals fed with feed offered

Senior Packet 4, Phase A

- 1) Which nutrient is known to help in transportation of nutrients, regulate temperature, involved in most biochemical reactions, and gives body shape or form?

Water

- 2) Where is a partial mixed ration (PMR) fed? (Hoards, page 625)

Farms using an automatic milking system

- 3) *What role do Koster testers perform? (Hoards, Page 244)*

Help determine forage moisture

- 4) The milk line in a kernel is an indication of starch deposition in the kernel. As sugars are converted into starch and deposited in the kernel, does the milk line increase, or decrease?

The milk line increases (DHM, 6/18, pg. 12)

Senior Packet 4, Phase B

1) In order name the 4 steps for proper washing of calf feeding equipment

Step 1: Rinse feeding equipment with *warm* water

Step 2: Scrub feeding equipment with soap and *warm* water

Step 3: Rinse with an acid in **hot** water to sanitize

Step 4: Leave feeding equipment separated to dry

2) Give 3 clinical signs of mycotoxins in dairy cattle.

Lower milk production

Butterfat is low

Somatic Cell counts are increased

Fertility is decreased

Reduced feed intake

3) In the area of calf management, what does the acronym FPT stand for and what is the cause of this happening?

Failure of passive transfer

Happens when the calf does not receive adequate antibodies from the colostrum at birth

4) What USDA agency monitors the slaughter of cull cows for antibiotic residue?

Food Safety Inspection Service

Senior Packet 4, Phase C

- 1) Which component of corn silage makes the greatest contribution to the feed's total digestible nutrients? (Hoards, page 2)
Starch
- 2) In what season is bunching of cows most common?
Summer
- 3) What is the name of the section of the cows back located between the rump and the chine called?
Loin
- 4) The number one driver of yogurt purchases is what?
Flavor
- 5) *When using the Brix scale to determine colostrum quality, it should read what number or higher for good quality colostrum?*
22
- 6) What is another name for any feed constituent that functions in the support of life?
Nutrient
- 7) What is the three-word term used in dairy management that is defined by the amount of time between calving and insemination?
Voluntary waiting period
- 8) After a dietary change, in days, how long does it take for a cow's dry matter intake to adjust? (Hoards, page 215)
7 to 14 days
- 9) What is the name of a molecule that will speed up a chemical reaction?
Enzyme
- 10) Before a calf is weaned, it should be consuming at least how many pounds of feed each day? (Hoard's, page 47)
2.2 POUNDS
- 11) When reading bull proofs, what does the acronym PTA stand for?
Predicted Transmitting Ability
- 12) Energy loss in the digestive track is mainly in the form of what?
Manure

13) When exposed to sunlight, which vitamin can be synthesized by the skin?

Vitamin D

14) What type of milk is defined as the milk from the second through fourth milking's after calving? (Hoard's, page 271)

Transition milk

15) Calves start to use body energy to cool themselves at what environmental temperature in degrees Fahrenheit. (Hoard's, page 390)

78 F

16) Flush water to clean barn alleyways should flow at a rate of how many feet per second? (Hoard's, page 643)

At least 5 ft per second

Senior Packet 4, Bonus Questions

- 1) Give three of the four methods in which pregnancy can be determined in dairy cattle.

Rectal palpation

Urine test

Blood testing

Ultrasound

- 2) On a forage analysis name 3 things you could look at to check the fiber value in the feed.

NDF

ADF

Crude Fiber

- 3) Pedometers are used to monitor a cow's physical activity for heat detection. On what 3 body parts can pedometers be located?

Leg

Ear

Neck

- 4) *Name three of the five steps recommended by AGCO (Your Agriculture Company) that you would do to your harvesting equipment to winterize it and make sure it is ready for spring.*

Empty tanks

Adequately lubricate, oil

Repair damage, replace parts

Maintain and clean, wash

Proper storage of equipment

Change oil

Fill reservoirs

Senior Packet 5, Phase A

- 1) Plastics used for covering forage can be evaluated by OTR. What does OTR stand for? (Hoard's, Page 325)

Oxygen Transmission Rate

- 2) *Cryptosporidiosis (Crypto)* affects which part of the digestive system?

Small intestine

- 3) What percentage of ova are in a mature cow's ovaries when she is born?

%100

- 4) To help correct or prevent the build-up of acid in the cow's stomach, what would the dairyman most likely feed to the cows?

Buffer (sodium bicarbonate)

Senior Packet 5, Phase B

- 1) When evaluating heifer housing, name 4 specific expectations we would want to see in our facilities.

Ensure each heifer has a resting space of 30 sq. ft.

Limit pens to eight heifers or less during transition

Adequate ventilation

Allow each heifer 18 inches of bunk space

Easy access to fresh water

Heifer handling in stress-free to both people and animals

Adequate stall size

Appropriate neck rail height (DHM, 3/08, pg. 30)

- 2) When discussing calf bedding, what is meant by nesting?

The bedding should be deep enough so that the calf can nestle into it and to

trap warm air to reduce heat loss and legs are not visible (HD, 2/10/08, pg. 86)

- 3) Foot problems can have a big impact on a dairy: name 4 things that can be affected by cows with foot problems.

Increase cost of trimming

Increased vet bill/medication costs

Decreased dry matter intakes

Decreased milk production

Trouble with heat detection

Increase in injuries

Increase in cull rates

Decrease in body condition

Decrease in locomotion

- 4) What are 2 ways you can identify BVD in your herd?

Bulk Tank PCR test

Blood Sample

Ear notches (HD's 11/07, pg. 770)

Senior Packet 5, Phase C

- 1) Body energy and nutrient reserves can be replenished with most ease during which stage of lactation?
Late lactation
- 2) The use of gypsum bedding increases the production of what gas in the manure system.
Hydrogen Sulfide
- 3) Cows can derive about what percentage of their amino acid needs from rumen microbial synthesis. Page 364.
65%
- 4) Give the complete proper name for “mad cow disease”?
Bovine Spongiform Encephalopathy
- 5) Milk contains how many essential nutrients? Page 304.
13
- 6) Coliform mastitis is the most prevalent form of clinical mastitis in the United States. What is the main bacterium that is causing these infections?
E-coli (HD's 2/10/08, pg. 106)
- 7) What kind of organism causes bovine leukosis?
A Virus (HD's, 11/07)
- 8) Which nutrient, found in most fertilizers, increases nodulation in alfalfa?
Phosphorous
- 9) In the area of dairy nutrition, what does the acronym NSC stand for?
Nonstructural carbohydrates
- 10) How many calories are in one cup of 2% reduced fat milk?
120 calories
- 11) A deficiency of this vitamin in the ration can cause an oxidized flavor to develop in milk. What is the name of this vitamin?
Vitamin E (VA study materials)
- 12) What was the top yogurt-producing state in 2020? Page 459.
New York

13) Calcium Glutamate is an intravenous injection for immediate and temporary treatment of what?

Milk Fever

14) In the dairy cow's reproductive tract, where does fertilization of the ova take place?

Oviduct

15) What is the name of the document that established the standards for Grade A milk?

Pasteurized Milk Ordinance (PMO)

16) The massaging action on the teats is controlled by which milking machine component.

Pulsator

Senior Packet 5, Bonus Questions

- 1) Name 3 common mistakes that can occur with the milking system that will have a negative impact on milk quality.

Insufficient pipeline wash temperature

Slow cooling

Insufficient tank washing temperature

Bulk tank blend temperature too high

Forgetting to switch on the cooler (HD's, 1/08)

- 2) *What are the 3 main functions of the cervix in the dairy cow?*

Protective barrier in the open cow

Pathway for viable sperm in the open cow

Protective barrier during pregnancy

- 3) Name 3 methods of dehorning calves on your farm.

Caustic paste

Electric or Gas burning dehorner

Gouging or scooping the horns

Saw or Horn Clipper

- 4) When evaluating conditions for manure runoff, there are five high risk manure spreading conditions that should be considered before you spread. Name three of them.

Weather, wet ground, slope, buildings nearby, water sources

Field geology

Type of manure

Application method

Field conditions

Location of drain tiles ditches, etc. (HD, 06/08, p.14)

Senior Packet 6, Phase A

1) In what compartment of the dairy cows stomach are there papillae to increase the absorptive surface area?

Rumen

2) What technology destroys 90% of the BST found in milk?

Pasteurization

3) *What is it called when a cow's uterus turns inside out and protrudes from the vulva after calving?*

Prolapsed uterus

4) *Class II encompasses what type of dairy foods? Page 142.*

Soft products

Senior Packet 6, Phase B

1) What are the two main sections that the uterus is broken up into?

Uterine body

Uterine horns

2) Protein can be classified in two categories, RDP, and RUP. What do the letters stand for and where are they broken down in the cow?

RDP-Rumen Degradable protein

RUP- Rumen Undegradable protein

RDP is broken down in the rumen and RUP is broken down in the small intestine

3) GnRH causes the release of what two hormones in the dairy cow.

LH

FSH

4) Once we find the sick cows in our herd, we then need to determine what to do with them. Performing a physical exam on a sick cow can help to determine what we might do to treat them. Name four pieces of equipment you would need to have to perform a physical exam.

Thermometer

Stethoscope

Urine ketone strips

Milk ketone test strips

Rectal sleeves and lube

Cultural vials for milk, manure

Blood tubes and needles

CMT plate and solution (DHM, 3/08, pg. 54)

Senior Packet 6, Phase C

- 1) What organ secretes a digestive enzyme into the small intestine?
Pancreas
- 2) What financial figure are we calculating when we subtract total liabilities from total assets?
Net Worth or equity
- 3) What is the most common NPN (non-protein nitrogen) source fed to dairy cows?
Urea
- 4) How many carbon atoms are in a glucose molecule?
6
- 5) *Where are the muscular rings found in the reproductive tract of a dairy cow?*
Cervix
- 6) *The rectum, colon and what else make up the hindgut of the digestive system?*
Cecum
- 7) What is the ultimate factor affecting forage quality?
Maturity
- 8) What vitamin is produced by the rumen microbes?
Vitamin B
- 9) What is the best way to provide passive immunity to newborn calves?
Feeding adequate amount of colostrum
- 10) *The formation of which volatile fatty acid is a result of fermentation of starch in the rumen.*
Propionate
- 11) What would be the advantage of adding potassium sorbate to refrigerated colostrum?
It is a food preservative that reduces bacterial growth or to keep it fresh
- 12) Certain types of bacteria can form what kind of cell structure that are resistant to heat and sanitizers? Page 211.
Endospores
- 13) Subclinical rumen acidosis occurs when the rumen pH drops below what level?
Page 217.

5.8

14) What is the name of the process where legume plants like alfalfa and clover convert atmospheric nitrogen into nitrogenous compounds that are useful to the plants?

Nitrogen fixation

15) What are anthelmintic used for in dairy cattle?

Kill internal parasites or deworming

16) What is defined as a response of an animal to a stimulus when it is associated with a negative situation?

Stress

Senior Packet 6, Team Bonus

- 1) In the Margin Protection program, what three commodities or feeds are used to help calculate the national average feed cost?

Corn

Soybean Meal/Soybean

Alfalfa hay

- 2) Due to the national ban on tail docking, what are three tail maintenance strategies farmers can use?

Electric clippers

Scissors

Utility cutters

Power tail trimmer

Tail tie ups

- 3) If a cow has udder sores which are those smelly sores between a cow's hind leg and her udder, what the three main steps in caring for those udder sores?

Clean the infected area with warm water

Dry it with a clean towel

Apply a talc or cornstarch base powder (DHM, 8/06, pg. 12)

- 4) Name at least three factors that can help determine a herd's conception rate.

Heat detection accuracy, nutrition, footing, breed, season

Cow fertility, age at first breeding

Semen fertility

Technician competency (Virginia Study materials, pg. 18)

Senior Packet 7, Phase A

- 1) The genetic trait Productive Life is a prediction of an animal's what compared to the average cow? (Hoard's, Page 646)

How many months the cow will remain in the herd

- 2) In growing reduced lignin alfalfa, how long are growers able to extend the cutting interval?

1 week

- 3) What hormone does Estrumate and Lutalyse release?

Prostaglandin

- 4) When a dairy animal is managed roughly and experiences electric prod use, what specific hormone is released?

Cortisol

Senior Packet 7, Phase B

1) Name four feeds that are considered high in energy for a cow's diet.

Corn silage

Steam-flaked Corn

Small grain silage

Beet pulp

Barley

Sorghum

Citrus pulp

Bakery waste

Cottonseed

Soy (World of Dairy Cattle Nutrition, pg. 11)

2) What are the two main structures on the Ovaries?

Follicle

Corpus Luteum or CL

3) What does it mean if a cow is described as having a positive energy balance and what happens to the extra energy?

She is eating more energy than she is using. It becomes fat.

4) When a cow belches, what two gases are released into the air?

Carbon dioxide (CO₂)

Methane

Senior Packet 7, Phase C

- 1) Define feed efficiency in terms of milk production.
Pounds of milk per pound of dry matter intake
- 2) On the average, cows drink how many gallons of water a day?
25-50 gallons
- 3) What is the common name of the dairy cattle disease hyperketonemia? Page 391.
Ketosis
- 4) When culturing milk samples, MacConkey's medium supports the growth of what kind of organisms? (Hoard's, Page 25)
Gram negative
- 5) Regarding genetics, the locations on a chromosome that is associated with a gene is known as what?
Loci
- 6) Which of the following was a new trait introduced in the December 2020 genetic evaluations? (Hoard's, Page 348)
Feed saved
- 7) In the area of crop and field work, a rut is considered anything deeper than how many inches?
3 inches
- 8) What is the name of the viral disease that causes inflammation of the brain and eventual death and can be transmitted to humans by a bite or scratch?
Rabies
- 9) Which compartment of the cow's stomach secretes pepsin which starts protein digestion and hydrochloric acid which kills bacteria?
Abomasum
- 10) What should be the minimum speed air in the cow resting area to avoid heat stress? (Hoard's, Page 419)
2.25 mph
- 11) For every 1% decrease in Crude protein, how many pounds of manure are decreased?
2 pounds

12) The uniform distribution of cycles throughout the year for dairy cattle defines them to be what?

Polyestrous

13) What acid will most likely be produced during fermentation if the moisture of hay silage reaches over 70%,?

Butyric acid

14) What is the process of germ cell formation?

Meiosis

15) What term describes as a process in which established alfalfa plants produce chemicals that escape into the soil and reduce establishment and growth of new alfalfa?

Autotoxicity

16) At what SCC level will a CMT begin to show a positive quarter?

Above 400,000

17) Name the device that registers the motion of cows and indicates increased activity levels when they are in heat.

Pedometer

Senior Packet 7, Team Bonus

- 1) The Food and Drug Administration has classified all animal medications into 3 major categories. Name the 3 categories that medications are classified as.

Over-the counter (OTC)

Prescription

Extra-label-use drug

- 2) Name 3 sources of Klebsiella mastitis.

Udder surface

Feces

Bedding

Manure on legs

Alley ways

Pools of standing water infected with feces

- 3) Name 3 of the 5 stages of the reproductive process in cattle.

Ovulation

Insemination

Fertilization

Gestation

Parturition

- 4) What are the three ways that Bovine Leukosis can be spread to non-infected animals?

Use of common needles for injections

Use of common Palpation sleeves

Feeding colostrum from infected cows to newborn calves

Use of tattooing equipment without disinfecting

Use of dehorning equipment without disinfecting

Biting or blood sucking insects

Fecal if doing rectal exams

Senior Packet 8, Phase A

1) Excessive rates of pneumonia in dairy herds are not typically due to cold weather or drafts, but often due to what?

Inadequate ventilation

2) *Propionic acid absorbed from the rumen is converted to glucose in what organ of the cow?*

Liver (HD, pg. 125)

3) Reproductive hormones should be administered through an 18-gauge or smaller needle that is how many inches long? Page 526.

1.5 inches

4) What technique in the use of Dry Cow Treatment and the use of Internal Teat Sealants is a best management practice to minimizing bacterial entry into the gland and doesn't stretch the sphincter or remove the keratin?

Partial insertion

Senior Packet 8, Phase B

1) List 4 positive things a manure digester can do for a farm.

Produce Biogas

Reduce Farm Odors

Make electricity

Reduce farm waste

Create a sale of carbon credits

Methane production

Sell compost for landscaping

Makes a Bedding source

Heat water

Spreading liquids will produce less Nitrogen on fields

2) Name 4 metabolic diseases in dairy cattle.

Milk fever

Ketosis

Displaced abomasum

Retained placenta

Laminitis (VA study materials)

3) What are the two most prevalent protozoal diseases in young calves? (Page 103)

Coccidiosis

Cryptosporidiosis

4) Name 4 sources of environmental bacteria in dairy herds.

Mud

Soil

Water

Feces

Bedding

Dust

Air

Feed

Equipment

Senior Packet 8, Phase C

- 1) In a robot barn, there should be a crossover alley every how many stalls? (Hoard's, Page 57)
20 to 30
- 2) What location should be the highest priority for placing fans to alleviate heat stress? (Hoard's, Page 298)
Over the lying area
- 3) What vitamin is needed so the blood can clot after an injury?
Vitamin K
- 4) What is the process called whereby milk is heated to a high temperature for a specific period of time and kills bacteria?
Pasteurization
- 5) The fermentation of starch results in the production of what in the rumen.
Propionate
- 6) What element must be absent in order for effective fermentation to occur in a silage pile?
Oxygen
- 7) In which trimester of pregnancy does the developing calf place the greatest nutritional demand on the cow?
Last or 3rd trimester
- 8) What do we call the poison produced by microorganisms that kill cells?
Toxins
- 9) When calculating somatic cell counts, what cells are being calculated?
White blood cells
- 10) What term is used to describe cattle with high "proviral loads" and represent the greatest infectious threat to their herd mates? Page 629.
Super-shedder
- 11) How many teeth does a cow have in the upper front of her mouth?
None
- 12) A2A2 genetics are becoming more important in cattle breeding. A2 is the common form of beta casein which is part of which major milk component?

Milk proteins

13) What is the term used to describe the mating of two animals that are related to each other?

Inbreeding (HD, 10/19, pg. 620)

14) What is the name for the milk quality indicator that estimates the number of bacteria present in the milk that originate from manure or a contaminated environment.

Coliform Counts

15) A deficiency of iodine in a dairy cow's diet can lead to what problem?

Goiter or decreased fertility

16) What term describes the combination of cull rate and mortality rate to help determine the number of replacement animals needed on an operation? (Page 140)

Herd turnover rate

Senior Packet 8, Bonus Questions

- 1) Name three minerals that, if fed in increased levels to your pre-fresh and or dry cows, can lead to increased incidences of milk fever.

Potassium, calcium, and phosphorus

- 2) Name 3 of the most important relocation decision factors for new dairies.

Availability of water

Availability of land for manure handling

Availability of land for feed production

Average mailbox price for milk

Quality of fresh water

Complexity of laws governing nutrient regulations

Labor source available

Location to urban areas

Type of land base-soil

Facilities

- 3) What 3 breeds have their breed association headquarters in Ohio?

Ayrshire

Guernsey

Jersey

- 4) Name the 3 parts of the small intestine in the dairy cow.

Duodenum

Jejunum

Ileum

2022 NY State Senior Dairy Bowl Extra questions

- 1) An animal mortality compost pile should be a minimum of how many feet away from the nearest water source.

200 feet (Hoards Dairyman)

- 2) What is the legal limit for bacterial counts in raw milk in the U.S.?

100,000 cfu (colony forming units)/ml

- 3) What is the name of the environmental, unicellular, colorless, chlorophyll-lacking alga that thrives in moist, humid environments with ample organic matter and when it gains access to the mammary gland it causes a mastitis that resists all treatment therapies?

Prototheca

- 4) What is the term for the process in which sperm undergo a change in the female reproductive tract, enabling them to penetrate and fertilize the ovum?

Capacitation

- 5) What is the name for the category of mastitis in which there is not a detectable change in the udder itself and no observable abnormalities of the milk?

Subclinical

- 6) What is dystocia?

Difficult or obstructed calving

- 7) What term is used to describe taking a young animal off milk as the main source of nutrition?

Weaning

- 8) What vitamin plays a role in the coagulation of blood?

Vitamin K

- 9) What is the iron building protein found in milk that has anti-microbial activity?

Lactoferrin

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

Pregnancy Specific Protein B

11) What metabolic disorder is characterized by decreased appetite accompanied by a high-pitched tympanic resonance heard by listening with a stethoscope and tapping on the left abdominal wall?

Left displaced abomasum or LDA

12) When washing milking equipment and milk lines, hot water should still be at what temperature by the time it has run through the system?

120°F

13) The parotid, submaxillary, buccal, and palatine are what type of gland?

Salivary glands

14) Rotating between different herbicides used on your fields is a good management practice because it reduces what?

Weed Resistance

15) Which phase of ensiling occurs after the silage is chopped but is prior to sealing the silo?

Aerobic phase

16) Where is GnRH secreted from in the dairy cow?

Hypothalamus

17) What characteristic of legumes allows them to tolerate dry conditions better than many forages??

Taproot

18) In reference to dairy cattle reproduction, what is the name of the blister-like structure on the ovary that contains the egg before ovulation?

Follicle

19) In what year were genomic evaluations introduced? (Page 273)

2009

20) What is the term used to describe the period of increased growth rate that follows a growth restriction imposed earlier in a heifer's life?

Compensatory Growth

21) If a Canadian heifer weighs 380 Kg, what would she weigh in pounds?

836 pounds (380 x 2.2)

22) Name 4 of the 6 primary indicators of milk quality on the dairy farm.

Standard plate count (SPC)

Somatic Cell Count or Bulk tank somatic cell count (BTSCC)

Laboratory Pasteurization Count (LPC)

Coliform Count (CC)

Preliminary Incubation Count (PIC) (DHM, 3/2018, pg. 19)

Cryoscope

23) If you were performing routine fresh cow exams, name 4 things you would do.

Take temperature

Pulse and respiration

Listen for DA

Check for ketosis

Check for mastitis

Listen for rumen turns

Check dehydration and body condition

Check for lameness

Rectal palpation to check manure

Rectal palpation to check for metritis

24) The National Dairy Check-off program has partnered with what three restaurants to boost cheese sales?

McDonald's

Domino's

Taco Bell