

Virginia 4-H Dairy Quiz Bowl Team Study Materials

Section 1 - Definitions

- *Abortion* - premature expulsion of a fetus.
- *Acetonemia* - condition in dairy cattle when there is an accumulation of ketones in the body; also called ketosis.
- *Acidic* - a substance that has a low pH (below 7.0).
- *Acidosis* - metabolic disorder that often occurs when a dairy cow eats too much grain.
- *Acute mastitis* - udder inflammation characterized by sudden onset, redness, swelling, hardness, pain, grossly abnormal milk, and reduced milk yield.
- *Adrenaline (epinephrine)* - hormone that can interfere with milk ejection when a cow becomes frightened or upset.
- *Alkaline* - a substance that has a high pH (above 7.0).
- *Alveoli* - secretory cells in the mammary gland that are arranged in grape-like structures.
- *Amino acids* - the building blocks of true proteins.
- *Animal Model* - current genetic method for evaluating bulls and cows.
- *Animal rights activist* - person who believes that an animal's life has the same value as a human's life and has the goal of eliminating all systems that involve the use of animals by humans.
- *Anion* - a negatively charged ion or particle.
- *Annual* - plants that are seeded each year and whose growth are completed in one crop year.
- *Antibiotic* - chemical agent given to animals that kills or stops growth of bacteria.
- *Antibodies* - proteins synthesized by organs of the cow's immune system that aid in the elimination of foreign substances such as microorganisms.
- *Ash* - the mineral matter present in feed.
- *Backflushing* - a system for sanitizing teat cup liners between milkings.
- *Baleage* - wrapped, round bales of silage.
- *Balling gun* - an instrument used to give an animal a pill.
- *Benchmarking* - pinpointing those areas in your business which are going great and those areas where improvements are needed.
- *Best Management Practices (BMP)* - practices that protect water quality while improving profitability of the farm.
- *Biosecurity* - management practices that protect the herd from the entry of new diseases and minimize the spread and/or adverse effects of diseases in the herd.
- *Bloat* - condition when a cow cannot belch; may occur in cows grazing rapidly growing legumes.
- *Buffer* - any substance that can reduce changes in pH when an acid or alkali is added.
- *Buffer strips* - areas of grassland installed between cropland or feedlots and waterways to take up nutrients and prevent nutrients from running off into water.
- *By-pass protein* - a protein that passes through the rumen of a ruminant animal and is unchanged by microbes.
- *Calorie* - unit of measure of energy in a feed; amount of energy required to raise 1 gram of water 1°C.
- *Cation* - a positively charged ion or particle.
- *Chronic mastitis* - udder inflammation that continues over a long period of time, with progressive development of scar tissue and simultaneous reduction in milk yield.
- *Clinical mastitis* - udder inflammation characterized by visible abnormalities in the udder or milk.
- *Coccidiocide* - anti-coccidial drug that kills coccidia as they migrate through the intestine, interrupting the organism's life cycle.
- *Coccidiosis* - disease in calves that is also very common in poultry and is characterized by chronic diarrhea.
- *Coccidiostat* - anti-coccidial drug that inhibits the living organism's growth and development, preventing them from reproducing.
- *Cold calf housing* - housing in which temperature varies with the outside temperature.
- *Colostrimeter* - a device used to measure the antibodies in colostrum.
- *Colostrum* - milk that is secreted during the first two to three days after calving.
- *Conjugated linoleic acid* - fatty acid in milk that has been found to have anticarcinogenic effects.
- *Contagious (microorganisms)* - bacteria growing in the udder that are spread from cow to cow.
- *Corpus luteum* - temporary gland that forms on the ovary after the egg is released; also called "yellow body."
- *Cost-share* - Financial incentive from the state or federal government to the farmer to help pay for equipment or practices that reduce pollution.
- *Crude protein* - total protein in a feed.
- *Cryoscope* - instrument used to test the freezing point of milk to determine if water has been added.

Virginia 4-H Dairy Quiz Bowl Team Study Materials

Section 1 - Definitions

- *Cryptorchidism* - condition when the testes fail to descend from the abdomen into the scrotum.
- *Cud* - feed that a cow has regurgitated and is being re-chewed.
- *Dairy-L* - electronic dairy discussion group on the Internet.
- *Data Collection Rating (DCR)* - indicator (developed by USDA AIPL) of the amount of information included in a production record and the resulting accuracy level when compared to production records with either less or more information.
- *Degradable intake protein* – protein or nitrogen that is degraded in the rumen by microorganisms and incorporated into microbial protein or freed as ammonia.
- *Digestible energy* – the total energy in a feedstuff minus the energy lost in feces.
- *Displaced abomasum* – a condition where the abomasum moves positions inside the body cavity and twists, causing severe digestive problems.
- *Dry matter* – the portion of a feed that remains after water has been removed by drying in an oven.
- *Embryo transfer* - process of removing a fertilized egg from a donor cow and transferring it to another cow or heifer.
- *Environmental (microorganisms)* - bacteria growing in the cows' environment that contact the udder and teats causing infection.
- *Enzyme* – a protein that acts as a catalyst in starting or speeding up specific chemical reactions.
- *Eructation* – belching of gas by ruminant animals as a natural way for releasing gases produced during the fermentation process.
- *Estimated Relative Conception Rate (ERCR)* - measure of a bull's conception rate relative to other service sires.
- *Estrogen* – a hormone produced by the follicle necessary for behavioral estrus.
- *Fat cow syndrome* - disease when a cow gains too much weight during late lactation or the dry period.
- *Fat free milk* - may be labeled "fat free," "nonfat," or "skim" milk; contains 0 grams of fat and 80 calories per cup.
- *Fatty acids* – the building blocks of fats and lipids.
- *Fertilization* - the process of joining an egg and a sperm.
- *Forage* - the vegetative portion of plants in a fresh, dried, or ensiled state that is fed to livestock.
- *Foremilk* - the first streams of milk stripped from the udder prior to milking.
- *Forestrip* - process by which the first few streams of milk are removed from the teat prior to milking to observe for abnormalities and to flush the teat canal.
- *Freemartin* - a sterile heifer born twin to a bull.
- *Gene* - basic unit of inheritance.
- *Gestation* - the period of pregnancy.
- *Green chop* - forages harvested (cut and chopped) in the field and fed directly to livestock.
- *Groundwater* - Water in the soil. The water in drinking water wells is from groundwater. Groundwater may resurface in a brook, stream, or pond.
- *Hardware disease* - general term used to describe a situation where a piece of metal has been swallowed and then collects in and/or pierces the reticulum.
- *Hay* – dried forage (grasses, alfalfa, clovers) used for feeding farm animals.
- *Hazard Analysis of Critical Control Points (HACCP)* - system of quality control that identifies where mistakes often occur.
- *Heritability* - measure of the percent of all differences between animals for a single trait that can be transmitted to offspring.
- *Infection* - the presence of microorganisms growing in the udder.
- *Inflammation* - a condition in which the cow's body seeks to eliminate or neutralize invading microorganisms and repair damaged tissue.
- *Ingest* – to eat or to take in through the mouth.
- *INTERBULL* - name of the International Bull Evaluation Service based in Uppsala, Sweden.
- *Internet* – worldwide network that uses phone lines to connect thousands of university, government, business, and personal computers.
- *Intramammary infection* - presence in the udder of microorganisms that multiply there.
- *Involution* - process by which udder tissue reverts to a non-milk-producing state after drying off; process where the uterus returns to normal size after calving.

Virginia 4-H Dairy Quiz Bowl Team Study Materials

Section 1 - Definitions

- *Keratin* - a waxy substance produced by cells lining the teat canal that serves as a plug between milkings and aids in reducing penetration by microorganisms.
- *Lactase* - enzyme needed by humans to digest milk sugar.
- *Lactation* - period of time when a cow is in milk.
- *Lactose* - milk sugar that gives milk its sweet flavor; glucose and galactose are the two simple sugars that make up lactose.
- *Lactose intolerance* - condition when a person cannot metabolize (break down) milk sugar.
- *Leaching*: - Movement of nitrate (a nitrogen containing compounds) through soils to groundwater.
- *Let-down* - a process through which milk is squeezed out of milk-producing tissue by the action of the hormone, oxytocin.
- *Leukocyte* - white blood cell.
- *Liner slip* - condition whereby a teat cup slides down the surface of the teat, often accompanied by a squawk, caused by improper liner design, cluster weight, vacuum fluctuations, or milking wet teats.
- *Lipase* - an enzyme that breaks down butterfat, leading to rancidity of milk.
- *Lipid* - any one of a group of organic substances that are insoluble in water though soluble in alcohol, ether, chloroform, and other fat solvents, and have a greasy feel.
- *Lowfat milk* - 1% fat milk; contains 2.5 grams of fat and 100 calories per cup.
- *Macrominerals* - minerals that are required by the body in relatively large quantities.
- *Mailbox Milk Price* - price for milk of average composition and is a weighted average for the market; it accounts for all payments received for milk including performance bonuses and premiums, and all deductions such as promotion, hauling, capital retains, and cooperative dues.
- *Mastication* - chewing.
- *Mastitis* - inflammation of the udder, most commonly caused by infecting microorganisms.
- *Median suspensory ligament* - the major support of the udder which divides the mammary gland into a left and a right half when viewed from the rear.
- *Microminerals* - minerals that are required by the body in relatively small quantities.
- *Milk stone* - milk-mineral deposit on milk handling equipment.
- *Milking unit* - an assembly consisting of shells, inflation, claw, air and milk tubes, and pulsator.
- *Myoepithelium* - contractile tissue that forces milk out of the alveoli.
- *Net energy* - the actual amount of energy the body can use for growth, lactation, reproduction, and body maintenance.
- *Nonfiber carbohydrates* - the highly digestible carbohydrate fraction of feeds consisting of starch, sugar, and pectin.
- *Non-point source* - usually refers to pollution (nutrients, chemicals, toxins or pathogens that contaminate ground or surface water). NPS pollution originates from multiple and diffuse sources which are not readily identified. Most farms, agricultural cropland, and suburban lawns receiving fertilizer are all examples of non-point sources of nutrient pollution.
- *Nutrient management plan* - a plan for the land application of manure and fertilizer to meet crop needs.
- *Nutrients* - any chemical substance that provides nourishment to the body.
- *Ovulation* - the process of releasing an egg from the follicle on the ovary.
- *Oxytocin* - hormone that causes milk let-down.
- *Palatability* - the taste or likability of a feedstuff.
- *Parturition* - the act of giving birth.
- *Pasteurization* - milk process that destroys any disease-producing bacteria that might be present in raw milk, increases the shelf-life of milk by substantially reducing the total bacteria population, and destroys lipase and other natural milk enzymes which might cause off-flavor in milk during refrigerated storage.
- *Pathogen* - any microorganism that causes disease.
- *Pedigree* - a record of ancestry.
- *Peracute mastitis* - a form of udder inflammation with systemic involvement that includes depression, rapid pulse, dehydration, and diarrhea.
- *Phagocytosis* - the process by which white blood cells engulf microorganisms.
- *Physiology* - the branch of biology that deals with the process, activities, and phenomena of life and living organisms.
- *Polled* - an animal born without horns.

Virginia 4-H Dairy Quiz Bowl Team Study Materials

Section 1 - Definitions

- *Positive energy balance* – when the amount of energy taken into the body is greater than the amount of energy required by the body.
- *Predicted Transmitting Ability (PTA)* - the measurement of how much of an animal's superiority will be transmitted to an offspring.
- *Production Type Index (PTI)* - genetic index used by color breeds. Although there are differences from breed to breed on what is included in the index, the same name is used across breeds.
- *Progesterone* - a hormone produced by the corpus luteum that is necessary for the maintenance of pregnancy.
- *Prolactin* - pituitary hormone that is critical in the initiation and maintenance of lactation.
- *Psychrophilic* - cold loving.
- *Psychrotrophic* - cold tolerant.
- *Pulsation rate* - number of times per minute that the pulsator opens and closes.
- *Pulsation ratio* - the amount of time a pulsator creates vacuum to open the liner compared with the amount of time it admits air to collapse the liner.
- *Pulsator* - part of the milking system that causes the alternate vacuum pressure between the teat cup shell and liner.
- *Purebred* - a dairy animal whose sire and dam are registered or who are eligible to be registered in a herdbook.
- *Raw milk* - milk as it comes from the cow prior to processing.
- *Recipient* - animal that received a fertilized egg from a donor.
- *Reduced fat milk* - 2% fat milk; contains 5 grams of fat and 120 calories per cup.
- *Relative feed value (RFV)* – combines digestibility and intake estimates into one number for an easy and effective way to identify and market quality hay. RFV is expressed as a percent compared to full bloom alfalfa at 100 percent RFV.
- *Reliability* - indicator of the accuracy of genetic evaluations.
- *Rennet* - enzyme used to coagulate milk when making cheese.
- *Residual milk* - milk remaining in the mammary gland following completion of milking.
- *Retained placenta* - condition when the fetal membranes remain attached to the maternal caruncles within the uterus for an extended period of time after calving.
- *Ropy milk* - milk that contains strings of mastitis.
- *Rumination* – process in ruminants when semi-liquid ingesta is regurgitated into the esophagus, re-chewed, and re-swallowed for further digestion.
- *Runoff* - Movement of nutrients across the surface of soils to surface water (streams, rivers, ponds).
- *Saturated fatty acids* – a completely hydrogenated fat, each carbon atom is associated with the maximum number of hydrogen atoms; there are no double bonds.
- *Soil and Water Conservation District (SWCD)* - a local board that defines priority watersheds, approves conservation plans, and distributes cost share funds to farmers for implementation of BMP's.
- *Somatic cell count* - indicator of the extent of subclinical mastitis present in a cow's udder or number of leukocytes present.
- *Somatic cells* - includes mainly white blood cells that move into the udder during inflammation, and a small percentage of epithelial cells from milk producing tissues.
- *Spontaneous recovery* - the ability of a cow to cure herself of an udder infection without the aid of antibiotics or other drugs.
- *Standardization* - process at the dairy plant that assures that milk and dairy products will be uniform in protein and fat content.
- *Standard Plate Count* - test that measures bacterial content of raw milk to monitor milk quality.
- *Straw* - thin cylinder in which frozen semen is preserved.
- *Stray voltage* - small electric currents that flow through the electrical grounded-neutral system and which pass through a cow's body and adversely affect her behavior and performance.
- *Streak canal* - the opening in the end of the teat.
- *Strutting* - condition when the teats point out too much.
- *Subacute clinical mastitis* - a form of udder inflammation that is mildly clinical where symptoms include clots or flakes in milk.
- *Subclinical mastitis* - mastitis in which there is no detectable change in the udder itself and no observable abnormality of the milk.
- *Supernumerary teats* – extra teats

Virginia 4-H Dairy Quiz Bowl Team Study Materials

Section 1 - Definitions

- *Superovulation* - process that involves treating a cow with a hormone to increase the number of eggs produced.
- *Surface water* - Water in any exposed body of water - includes streams, rivers, ponds, lakes, and oceans.
- *Testosterone* - male hormone that is produced by the interstitial cells of the testes.
- *Total mixed ration* – a blend of all feedstuffs (forages and grains) in one feed.
- *Toxin* - a poison produced by microorganisms that kills cells.
- *Trocar* - an instrument used to puncture the rumen in cases of bloat.
- *Type Production Index (TPI)* - genetic index used by the Holstein breed that is determined by placing emphasis on production and type.
- *Udder edema* - condition that exists when an excessive amount of lymph accumulates between the skin and secretory tissue of the udder.
- *Umbilical hernia* - condition when a loop of intestine protrudes from the navel.
- *Undulant fever* - human equivalent of brucellosis that can be contracted by drinking raw milk contaminated by brucellosis.
- *Unsaturated fat* – a fat having one or more double bonds, not completely hydrogenated.
- *Vacuum regulator or controller* - part of the milking system that prevents the vacuum level from exceeding a prescribed level.
- *Warm calf housing* – housing in which environmental temperature is controlled.
- *Weaning* – the act of taking a young animal off of milk as the main source of nutrition.
- *Whey* - the fluid by-product of cheese making.
- *Whole milk* - milk that contains 8 grams of fat and 150 calories per cup.
- *Worker Protection Standard* - name of the Environmental Protection Agency program designed to protect the nation's agricultural workers from pesticides.
- *Zoonoses* – diseases and infections that are transmitted between vertebrate animals and human beings.
- *Zygote* - fertilized egg