

## **2009 VIRGINIA HOLSTEIN**

### **STUDY QUESTIONS FOR**

### **HOLSTEIN JEOPARDY**

***Information with an \*are for junior contestants; all other information is for Intermediate and Senior level contestants***

### **ABBREVIATIONS**

\*ADA – American Dairy Science Association  
 ADF – acid detergent fiber  
 ADSA – American Dairy Science Association  
 ADV – acid degree value (used to test rancidity of milk)  
 AFACT – American Farmers for the Advancement and Conservation of Technology  
 AFHK – Action For Healthy Kids  
 \*A.I. – artificial insemination  
 AIPL – Animal Improvement Programs Laboratory (works with USDA to produce sire summaries)

\*BAA – breed age average (Holstein)  
 BD – body depth (Holstein classification)  
 BLAD – Bovine Leukocyte Adhesion Deficiency (recessive trait in Holsteins)  
 BLV – Bovine Leukosis Virus  
 BMP – Best Management Practice  
 BRSV – Bovine Respiratory Syncytial Virus  
 \*BSE – Bovine Spongiform Encephalopathy (also known as Mad Cow Disease)  
 BST – Bovine somatotrophin (sold under name of Posilac)  
 BTC – bulk tank culture  
 BTMC – bulk tank milk culture  
 BTSCC - bulk tank somatic cell count  
 Bun – blood urea nitrogen  
 \*BVD – Bovine Viral Diarrhea (reproductive disease that causes abortions and is similar to AIDS in humans)

CCC- Commodity Credit Corporation (government department that administers the majority of government payments to farmers)  
 \*CEO – Chief Executive Officer (not the same as President)  
 \*CFO – Chief Financial Officer\Treasurer  
 CF – crude fiber  
 CFM – cubic feet per minute  
 CFU – colony forming units  
 CL – corpus luteum  
 CLA – conjugated linoleic acid

CME – Chicago Mercantile Exchange  
 CID – Cattle Identification Database  
 \*CIP – cleaned in place  
 CM\$ - cheese merit dollars  
 \*COOL – country of origin labeling  
 \*CP – crude protein  
 CR – conception rate  
 \*CWT – Cooperatives Working Together  
 \*CMT – California Mastitis Test  
 \*CTPI – cow type performance index  
 CVM – Complex Vertebral Malformation  
 CWT – abbreviation for 100 pounds of milk  
 CWT – Cooperatives Working Together  
 \*DA – displace abomasum  
 %DBH – percent difficult birth heifers  
 DCE – Daughter Calving Ease  
 DCHA – Dairy Calf & Heifer Association  
 \*DE – digestible energy  
 DEIP – Dairy Export Incentive Program  
 DFA – Dairy Farmers of America (largest milk cooperative in USA)  
 DF – dairy form (classification)  
 \*DHI – Dairy Herd Improvement  
 \*DHIR – Dairy Herd Improvement Registry  
 \*DIM – days in milk  
 DFM – direct fed microbials  
 DJM – Distinguished Junior Member (Holstein youth contest)  
 \*DM – dry matter (what you get when all water is removed from a feed)  
 DMI – Dairy Management Incorporated  
 DMI – dry matter intake  
 DNA – Deoxyribonucleic Acid  
 \*DOM – Dam of Merit (Holstein recognition for a cow)  
 DPR – daughter pregnancy rate  
 DRINC – Dairy Research Incorporated  
 DRPC – Dairy Records Processing Center  
 DSG – distillers' grains  
 DUMPS – Deficiency of Uridine Monophosphate Synthase

\*EASY – Electronic Application System (software program to register Holsteins)  
 \*ECM – Energy Corrected Milk  
 ELISA – Enzyme Linked Immunosorbent Assay (serum test for Johne's disease)  
 EPA – Environmental Protection Agency  
 ERRCR – estimated relative conception rate  
 ERPA – estimate relative producing ability  
 \*ET – embryo transfer  
 \*ETA – estimated transmitting ability  
 \*ETN – embryo transfer nuclear (clone)  
 \*EX – Excellent (classification)

\*F – Fair (classification)  
 FA – foot angle (classification)  
 \*FAIR – Farm Animal Identification Records)  
 \*FCM – fat corrected milk

\*FDA – Food and Drug Administration (regulates drugs used in humans and animals)

FLC – feet & legs composite (bull proof)

FM\$ – fluid merit index

FU – fore udder attachment (classification)

\*GMD – Gold Medal Dam

\*GMS – Gold Medal Sire

GnRH – gonadotropin releasing hormone

\*G+ – Good Plus (classification)

\*G – Good (classification)

GGE – Greenhouse Gas Emissions

HACCP – Hazard Analysis of Critical Control Points

HDR – heat detection rate

HTST – high temperature, short time (pasteurization method)

\*IBR – Infectious Bovine Rhinotracheitis (also known as red nose)

IDF – International Dairy Federation

IDFA – International Dairy Foods Association

IM – intramuscular (method of drug injection)

IMS – Interstate Milk Shippers

IMM – intrammary

IPM – Integrated Pest Management

\*IV – intravenous

MACE – Multiple-trait Across Country Evaluations

MAP – mycobacterium Paratuberculosis (bacteria that causes Johne's Disease)

ME – metabolizable energy

ME – mature equivalent (milk production)

MF – mule foot, also known as syndactylism

MILC – Milk Income Loss Contract

MLV = modified live virus (type of vaccine)

MOET – Multiple Ovulations, Embryo Transfer

MUN – milk urea nitrogen

\*N – nitrogen

\*NAAB – National Association of Animal Breeders

NDB – National Dairy Board

\*NDC – National Dairy Council

\*NDF – neutral detergent fiber

NDPRB – National Dairy Promotion and Research Board

NE – net energy

NFDM – non-fat dry milk

NH3 – ammonia

\*NHWSO – National Holstein Women's Scholarship Organization

\*NM – net merit (bull proofs)

\*NMC – National Mastitis Council

\*NMPF – National Milk Producers Federation (administers CWT program)

NRC – National Research Council (researches animal nutrition and makes recommendations)

\*P – poor (classification)

\*PBR – Progressive Breeders Award (Holstein award to outstanding herds)

\*PDCA – Purebred Dairy Cattle Association

PCDART – Personal Computer Direct Access to Records by Telephone

PGF – prostaglandin, causes CL to regress or die

PI – preliminary incubation (milk test)

PI3 – parainfluenza three

PL – productive life

\*PMO – Pasteurized Milk Ordinance (regulates quality of milk sold in USA)

PR – pregnancy rate

\*PTA – Predicted Transmitted Ability

PUN – Plasma Urea Nitrogen

RA – rump angle (classification)

RDA – Recommended Daily Allowance

RDP – rumen degradable protein

\*Rel. – reliability (level of accuracy of PTA)

\*RFID – Radio Frequency Identification

RFV – Relative Feed Value

RFQ – Relative Feed Quality

\*%RHA – percent Registered Holstein Ancestry

\*RIP – record in progress

RNA – ribonucleic acid

RT – recessive tested

RUP – rumen undegradable protein

RWDCA – Red and White Dairy Cattle Association

\*SB – stillbirth

\*SCC – somatic cell count

\*SCS – somatic cell score

\*SCE – Sire Calving Ease (bull proof)

\*SMV – slow moving vehicle

\*SNF – solids not fat

SOP – Standard Operating Procedure

SNP – single nucleotide polymorphism – differences that exist between pairs of chromosomes individual nucleic acids that are bound in Sequence to DNA

SPC – standard plate count (milk quality test)

Su – subcutaneous ( injection given in loose folds of neck)

\*TDN – total digestible nutrients

TLC – theoretical length of cut (field crops)

\*TMR – total mixed ration

\*TPI – total performance index

\*UDIA – United Dairy Industry Association

UHT – ultra high temperature (milk pasteurization method)

\*USDA – United States Department of Agriculture

\*UDIA – United Dairy Industry Association

USDEC – United States Dairy Export Council

\*WDE – World Dairy Expo

\*WMT – Wisconsin Mastitis Test

\*YDLI – Young Dairy Leaders Institute

## TERMS

\*2-04 365 2X 21,500 3.2 688 3.0 645 – cow was fresh at 2 years 4 months (28 months); 305 day record, milked two times a day, produced 21,500 pounds of milk, produced 688 pounds fat; 3.2% milk fat; 645 pounds of protein; 3.0 % protein

\*305 – standard length of lactation

\*16% - amount of nitrogen in protein

\*Abomasum- true stomach, enzyme and acid secreting portion of the stomach

\*Abortion – premature expulsion of the fetus

Acetic acid – short term fatty acid produced in the rumen and important in fat synthesis

Acetonemia – another name for ketosis

Acidic – having a pH below 7

Acidosis – fermentative disorder of the rumen; involves the rumen pH falling below 5.5, very acidic

Acidification – process where Ph of milk fed to calves is lowered to between 4.0 and 4.5 so that preserved milk can be available at ambient temperatures for the calves throughout the day

Active Immunity – immunity given to animals by vaccines which involves the cow making antibodies for herself

Alfatoxin – toxic compound often found in drought stressed corn, regulated by FDA, carcinogenic substance (means it can cause cancer)

Alkaline – having a pH above 7

Alveoli – milk secretory cells in the mammary gland arranged in grape-like structures

\*Amino acids – basic structural units of protein; 22 know; two types: essential and non-essential; 10 are essential; 2 limiting amino acids are lysine and methionine

Anaerobic – living or functioning without oxygen present

Anemia – deficiency of the mineral iron

Anergy – when false negative occurs in a tuberculin test because animal's immune system is overwhelmed by infection

Anestrous – absence of a heat period

\*Antibiotic – drugs that kill microbes or prevent their growth

Antibodies – proteins synthesized by organs in the cow's immune system that aid in the elimination of foreign substances such as microorganisms

Antibiotic Resistance – ability of microbes to overcome effects of antibiotics and continue to survive and grow

Antipyretic – medication used to reduce a fever or elevated body temperature

Artiodactyls – animal that has even number of toes (cows, swine, came, deer)

Aspiration pneumonia - condition when calves drink too fast and some of the fluid enters the lungs instead of the digestive tract?

Backflushing – cluster milk machine sanitation method

Bacteria – microscopic plants

\*Balanced ration – ration which furnishes all the nutrients in the proper amounts and proportions to properly nourish an animal for 24 hours

\*Balling gun – device used to give an animal a pill or magnet

Bile – secretion from the liver, stored in the gall bladder

Biohydrogenation – process where rumen microbes convert essential fatty acids to non-essential fatty acids by saturating them with hydrogen atoms

\*Biosecurity – measures taken to keep disease or contamination off your farm

Biotechnology – study and application of genetic and biochemical information processes to create novel or modified products or processes

\*Blind quarter – mammary gland that permanently does not secrete milk

\*Bloat – accumulation of gas in the rumen; disease where a cow can't belch

\*Bolus – solid mass of feedstuff which a ruminant regurgitates to remasticate or chew again

\*Branding – only permanent method of animal ID

Brachyspina – genetic defect in Holsteins; shares similarities with CVM, genetic code is "BY"

Brucellosis – disease also known as contagious abortion

\*Bull – a male bovine

Butyric acid – short chained fatty acid produced in the rumen and is used in milk fat synthesis

\*Carbohydrates – class of nutrients; made up of hydrogen, oxygen, carbon

Carnivore – animals that derive their nutrition from other animals

Carotene – precursor of Vitamin A

\*Casein – primary protein in milk

Cash Flow Statement – type of financial statement where actual dollars paid to your for producing a product minus the cost of producing the product

\*Chine – part of the back that lies between the withers and middle of the back

\*Churning – process that turns cream into butter

\*Chromosomes – structures within the nucleus that contains the genes

\*Chyme – feed material found in the small intestine

Circling disease – another name for listeria; affects the brain and causes cattle to walk in circles

\*Cloven hoof – hoof that is divided into two parts

Colostrometer – device that measures the specific gravity of colostrum

\*Colostrum – milk from a just fresh cow

\*Committee cow – Holstein cow that is eligible to be scored 95 or above, committee of 3 classifiers must score cow

Compartmental syndrome – occurs in the down cow when the in-activity of the muscle fibers combine with the weight of the cow on a hard services makes the muscles swell

Corn Picker - Excel computer spreadsheet program that calculates a partial budget for the effect of a change in corn hybrids by comparing one hybrid with another

Corn Stover – stalk of corn after the ear has been removed

\*Contagious abortion – brucellosis

Corpus luteum – yellow body; CL secretes progesterone

\*Crude protein – total protein in feed

Cryptocochidism – condition where the testes fail to descend from the abdomen into the scrotum

\*Cud – feed bolus that a cow brings up from the rumen and is swallowed for re-chewing

Dairy efficiency – pounds of milk per pound of dry matter intake; measure of the cow's ability to convert feed to milk

\*Days open – number of days from calving to conception

Digestible energy – total energy in the feedstuff minus the energy lost in the feces

Diuretic – medication that causes the loss of body fluid; used to treat udder edema

\*Disease – a change in the normal state of the body or one or more of its organs, which disturbs the proper performance of body functions

\*Displaced abomasum – condition where stomach twists to one side; usually the left 90% of the time

Distiller's grains - by-product of ethanol production

Drug Withdrawal Time- time that milk from a cow or meat from an animal treated with antibiotics must not be sent for human consumption

\*Dystocia – difficult calving

\*Dual purpose – cattle used for both meat and milk

e. coli coliform – environmental bacteria that causes mastitis; cannot be treated with antibiotics

easement – legally binding agreement which gives one landowner the right to use the land of another

\*Edema – accumulation of fluids between the cells of the mammary gland tissue just under the skin

Embryonic – period of gestation from conception to Day 42

Endometritis – term that describes the inflammation of the inner surface of the uterus

Epitaxis – process in purebred breeds where genes on different chromosome locations can interact to enhance a trait such as milk production

\*Eructation – belching of gas by ruminant animals

\*Esophagus – tube leading from the mouth to the rumen

\*Estrogen – ovarian hormone that assists in the development of the uterus, at its height in estrus, produced by follicle on the ovary; primary female sex hormone

\*Estrus – another name for a female bovine being in heat  
Escutcheon – where the rear udder attachment joints the udder

External Pudic Artery – major artery that supplies blood to the udder

\*Fats – most concentrated source of energy a dairy animal's diet; one of main group of nutrients

Feed efficiency – pounds of milk produced per pound of dry matter consumed, also known as dairy efficiency

\*Fertility – ability to produce young

Fetal period – time that usually begins 42 days after conception and lasts until the end of gestation

\*Fever – elevation of the normal core body temperature of an animal

Follicular – most common type of ovarian cyst

\*Forestripping – best method to detect abnormal milk; best method to stimulate milk letdown

Founder – another name for lactic acidosis

Fraternal twins – 2 calves born to the same cow resulting from 2 eggs; can or cannot be the same sex

Fructose – sugar found in the semen

Generational interval – time between a parent's birth and the birth of its offspring

\*Genetics - study of the transmission of genetic material from one generation to the next using a model with certain assumptions

\*Genome – genetic makeup of an organism

\*Genomics – study of genetic makeup of an organism

Gland cistern – where major ducts of the mammary gland drain into

Glucose – simple sugar in lactose; lactose is the sugar that gives milk its sweet taste

\*Goiter - deficiency of trace mineral iodine

Grass tetany – metabolic disorder associated with lack of magnesium, occurs most in cows on pasture

\*Green navel – umbilical cord is not dried up yet; usually means calf is only a few hours old

\*Gross energy – total energy in a feedstuff

\*Herbicide – chemical used to control weeds

Herbivore – animals that derive their nutrition from plants, bovines are herbivores

\*Herdmates – daughters of other bulls in a herd when compared to daughter of just one bull

Heritability – proportion of superiority or inferiority that parent will transmit to offspring

Herringbone parlor – most widely used type of milking parlor in the U.S.

Heterotrophic – bacteria that need carbon and nitrogen to grow

Homogenization – breaking up the fat globules in milk to prevent the cream from rising to the top

Honeycomb – another name for the reticulum

Hyperkeratosis – teat end calluses

Hypernatremia – salt poisoning, too much salt in system

\*Hypothermia – low body temperature

Hypoglycemia – abnormal drop in blood sugar

Hypoxemia – low blood oxygen levels

\*Identical twins – 2 calves born to the same cow resulting from one egg; always the same sex

Illuminum Bovine 50 Beadchip – used to test bovine genome; measures DNA markers

Inflammation – reaction to tissue injury and loss of function

Infundibulum – funnel shaped opening of the oviduct

Inguinal nerve – nerve that send branches to the teats

\*Involution – process of the uterus and mammary gland return to normal after calving

\*Jugular – vein in the neck that vet draws blood from or puts fluid in

\*Keratin – sticky substance that lines the teat canal and helps to prevent bacterial penetration

\*Keratoconjunctivitis – another name for pink eye

\*Ketosis – nutritional disorder where blood ketone levels are high and blood sugar levels are low; another name for Acetonemia

\*Lactose – another name for milk sugar, accounts for the sweet taste in milk

Lactobacillus acidophilus – bacteria used to make sweet acidophilus milk

Lignin – indigestible component of forages

\*Liquid nitrogen – substance in which semen is stored

Listeria – also known as circling disease

Live vaccine – vaccine consisting of live antibodies

Locomotion – the cow's use of the feet and legs, length and direction of the step

Mailbox price – name given to the actual price dairy operators receive for their milk

Make allowance – amount that it costs to turn milk into various dairy products

\*Mammal – animal that produces milk and suckles its young

\*Manyplies – another name for the omasum

Mange – condition caused by mites where small crusty scales form on tail head, udder and thighs

Mating – process of assigning previously selected bull to make with cows/heifers

Mature equivalent – term that is an attempt to correct milk production for age

Median suspensory ligament – support structure that divides the udder in half lengthwise

Metabolic disorder – condition which occurs when problems occur in any metabolic function in the body

Meiosis – process whereby sperm and egg are created

\*Metritis – infection of the uterus

\*Macro minerals – minerals that are needed in the greatest quantity in the body

\*Micro minerals – minerals that are needed in the least quantity in the body

Microbials – compounds that kill or suppress the multiplication or growth of bacteria, includes antibiotics

Make allowance – term that describes the amount of money it takes to turn raw milk into dairy products

\*Milking parlors – most popular milking setup in the U.S.

\*Milk fever – disease that usually occurs right after calving, lack of calcium

Milk to feed ratio – calculation that is a measure of the amount of feed that can be purchased with the revenue from 1 pound of milk

\*Mycotoxin – molds, poisons made by mold fungi

Myoepithelium – contractile tissue that forces milk out of the alveoli

Microbes – tiny living organisms found in the rumen

Milk Ring Test – test used to identify brucellosis

\*Milk stone – mineral deposits on milking equipment

Natural resistance – strength of the body to fend off the pathogens that are always with an animal or human

Natural ventilation – type of cooling system that uses the environment around the barn to keep it cool inside

Net energy – total amount of energy the body can use for growth, lactation, reproduction, body maintenance

Net Merit – difference in expected profit as compared with the average genetic merit of cows within the breed born in the year 2000

Nutraceutical – term that describes nutrient and non-nutrient compounds in food that have health benefits to humans

Neospora – reproductive disease that is a protozoal infection and infected dogs are usually the cause of the infection because dogs are a carrier of the bacteria

\*Nutrient – substance in food or feedstuffs which are essential for well being of man or animal

\*Omasum – third stomach, also known as the manyplies, function is to squeeze water out of feed

\*Omnivore – animals that derive their nutrition from both plants and animals

\*Ovary – primary female organ of reproduction, produces ova, produces hormones estrogen and progesterone

\*Oxytocin – hormone responsible for milk let-down

Parallel parlor – type of milking parlor on a raised surface, cows are turned so their rear udders face the milkers

Papillae – finger like projections in the lining of the rumen and intestine that aid in absorption

\*Parlor – most popular milking setup in the U.S.

Passive immunity – type of immunity when a donor animal makes antibodies that are given to another animal

Pathogen – any microorganism (s) that cause disease

\*Paunch – another name for the rumen

\*Pedigree – record of an animal's ancestry

Perching – where cow stands with front feet in the stall and rear feet in the alley

Peristalsis – muscular movements that help move feed down the esophagus

pH – the degree of acidity or alkalinity of a solution

photoperiod – have given to duration of light that an animal is exposed to in a day

physiology – branch of biology that deals with the processes, activities of life and living organisms

pickled colostrum – colostrum that has been allowed to ferment

\*pink eye – disease of the eye caused by the bacterium moraxella bovis -

\*polled – animal born without horns, dominant genetic trait

Pre-Cooler – heat exchanger that uses well water as a coolant (cool milk in bulk tank)

Pregnancy rate – percentage of cows that become pregnant out of the number of cows that should have been inseminated during a given period of time

Psychotropic - name given to bacteria that grow at cold temperatures

\*progeny – offspring of an animal

\*progesterone – primary hormone in the maintenance of pregnancy; cow will have high levels of progesterone if she is pregnant

prolactin – hormone that initiates lactation

prostaglandins – compounds which help regulate or control heat periods

psychotropic bacteria – bacteria in milk that grows at colder temperatures and affects flavor

\*pulsator- part of the milk machine that causes the alternate vacuum pressure between the cup shell and liner

pregnancy rate – percentage of cows that become pregnant out of the number of cows that should have been inseminated during a given period of time

propionic acid- name of the acid that is used as silage preservative

protein solubility – ability of protein in feed to dissolve in a liquid

pyometra – accumulation of pus and fluid in the uterus

\*RB51 – brucellosis calfhood vaccine currently that is most commonly used in the U.S.

\*Red nose – respiratory disease also known as IBR, infectious bovine Rhinotracheitis

Regurgitation – process of bringing food back up the esophagus during rumination

Remastication – process of chewing the food again during rumination

\*Reliability – amount of confidence you can place in an animal's PTA; highest level of reliability is 99%; measures the accuracy of a cow or a bull's proof

\*Residual milk – milk remaining in the mammary gland following completion of milking; usually is 4 to 8 ounces

\*Reticulum – second stomach compartment; also known as the honeycomb; located closest to the heart; hardware disease occurs here

Robotic milking system – milking system that requires no human labor

Rotary milking parlor – sometimes called a carousel parlor because it is in constant motion

\*Rumen – largest stomach compartment; can hold 30 to 50 gallons; also called fermentation vat

Rumen acidosis – fermentative disorder of the rumen where the pH falls below 5.5 and the rumen becomes very acidic

Rumen degraded protein – protein that is degraded in the rumen by microorganisms and incorporated into microbial protein or freed as ammonia

Rumen undegradable protein – protein that passes through the rumen unchanged by microbes, also known as by-pass protein

\*Ruminating – cow is chewing her cud

Rumenocentesis – long needle is inserted into the rumen to obtain a sample of rumen fluid to measure rumen pH

\*Saliva – cow's natural buffer; produced in the mouth

\*Scours – diarrhea in calves

Sediment tester – used to test for the amount of foreign particles in milk

\*Selenium – trace or micro mineral; lack causes white muscle disease; selenium and Vitamin E can help prevent mastitis

Small intestine – extends from abomasum to large intestine; divided into 3 parts: duodenum, jejunum, ileum

\*Solids-not-fat – three components of SNF are protein, lactose, minerals

Spontaneous recovery – name given to a case of mastitis that goes away without treatment

Staph aureus – species of bacteria most likely the cause of contagious mastitis

\*Straw – how semen is packaged

Streptococcus – most common type of bacteria that causes mastitis

Stifle – joint nearest the body on the hind leg

Starch – type of carbohydrate found mainly in plant seeds and other plant parts

\*Steak canal – opening at the end of the teat

\*Strip plate – used to detect clinical mastitis; milk is squirted and observed before attaching unit

Stocking density – calculated by dividing the number of cows you have by the number of stalls/headlocks

\*Stillbirth – calf that dies within the first 24 hours of birth

\*Strutting – when the teats stick out too much on the side; usually means poor median suspensory ligament

Subcutaneous abdominal vein – another name for the milk veins

\*Supernumerary teats – extra teats on a dairy heifer

Tandem milking parlor – parlor where cows are lined up head to tail

Teat cistern – cavity located just above streak canal; cavity of the teat into which milk drains from the gland and into which milk is removed during the milking process

Telstar Red – Holstein born red but turns black

Testosterone – male hormone

Testes – primary male reproductive organ where male hormone testosterone is produced

\*Tie stall barn – cow housing system where each cow has her own stall

Toe ulcer – rupture at the point of the pedal bone

\*Total mixed ration – mixture of all feed (forages, minerals, grains) all blended together and fed free choice

Top dressing – putting a feed concentrate or feed on top of silage at feeding time

Toxin – name of a poison produced by microorganisms that kills cells

Transgenic animal – term given to an animal that has a new gene inserted into its genome at the single-cell stage

\*True stomach – abomasum

Trust – legal entity that allows you to hold and manage assets

Tunnel ventilation – cooling system that uses big fans on one end of the barn and pulls air through the opposite end

\*Udder edema – excessive amount of lymph that accumulates in the udder between the skin and the secretory tissue

Undulant Fever – human disease caused from drinking raw milk contaminated with brucellosis or from a cow that has Bang's Disease

\*Umbilical hernia – when abdominal wall at the calf's navel does not close properly after birth

Uterine prolapse – cow's uterus turns inside out and protrudes from the vulva after calving

Uterine edema – fluid build up in the uterus

Uterus – organ in which the embryo develops

Vaccination – derived from the Latin word vacca, which means cow. Substance injected into the body to help strengthen the immunity of that body to invasion by a disease

Ventilation – measure used in most barns to control moisture levels

Villi – thread like projects on the inside wall of the small intestine that increases absorptive surface area

\*Weaning – act of taking a young animal off milk as the main source of nutrition

White line disease – separating of the white line area between sole and hoof wall

White muscle disease – disease in calves that usually attack heart muscle; lack of mineral selenium

\*Wing shoulder – condition where the shoulder separates from the side of the cow and juts out at the elbow

\*"X" – indicates extreme production record

\*X – male sex chromosome

\*Y – female sex chromosome

Zoonoses – diseases and infections that are transmitted between vertebrate animals and humans

Zygote – fertilized egg

## DATES

1613 – first importation of Dutch cattle to the United States

\*1852 – Winthrop Chenery of Massachusetts establishes Holstein herd (first permanent establishment)

\*1885 – first year that HOARD'S DAIRYMAN was published

\*1885 – (May 25, 1885) year that Holstein Association was organized in Buffalo, NY

1903 – Holstein headquarters moved to Vermont

\*1904 – first Holstein World published (January 1, 1904)

\*1905 – Importation of Holsteins stopped because of hoof & mouth disease

1919 – First 4-H Dairy Judging Contest held

\*1922 – first Distinguished Junior Member Contest

1922 – "True Type" Holstein cow developed

1922 – first All American contest held

\*1929 – first Holstein classification

1937 – first All American Popular Judging Contest held

\*1939 – June Dairy Month becomes official theme of month long promotion of milk & dairy products

\*1939 – first Progressive Breeders Registry Award given

1950 – Holstein Association requires that all A. I. bulls be blood typed before entering service

1951 – first Junior All American contest held

1951 – Land O' Lakes introduces first commercial milk replacer

\*1963 – Linden Dictator Wimble Wimpy becomes first Holstein to score EX-97

1966 – Holstein enacts Code of Show Ring Ethics

\*1967 – first year that 3 national shows were held (Eastern, Central, Western)

1969 – all Red & Whites are permitted to be registered in separate herd book

1969 – Holstein permits off color animals to be registered in herdbook but must have "OC" suffix

1971 – Red & whites registered in same herdbook as black and whites

\*1974 – first registered Holstein to have ET as suffix, Rockalli Son of Bova ET

1974 – Zeldenrust Fond Memory becomes first Holstein bull to score EX-97

1976 – Holstein uses TPI formula

\*1980 – first Holstein Quiz Bowl Contest held in Nashville, TN

\*1989 – Holstein Association creates Holstein Foundation

1991 – Central National Holstein Show becomes International Holstein Show  
 1994 – Holstein Friesian Association changes its name to Holstein Association USA, Inc.  
 1994 – first YDLI (Young Dairy Leaders Institute) held in Florida  
 1995 – first European Holstein embryos imported to the U.S.  
 1999 – National FAIR (Farm Animal Identification Registration) begins  
 1999 – animals entering U.S. from Canada must be born after March 1, 1999  
 \*2000 – first Jeopardy, Public Speaking, and Scrapbook contests held in Columbus, Ohio  
 \*2003 – CWT program begins  
 \*2002 – Holstein Complete started  
 2003 – HOLSTEIN PULSE first published  
 \*2004 – first Young Distinguished Junior Member contest  
 2008 – first digital scrapbook contest held

## **IMPORTANT HOLSTEIN ANIMALS**

### **HOLSTEIN COWS**

Pauline Beauty Johanna Dekol – first Holstein female to be scored Excellent  
 \*Linden Dictator Wimble Wimpy – first Holstein female to b3 scored Excellent 97 (scored in 1963)  
Triune Papoose Piebe – only Holstein female to be a six time winner in the All American contest  
 \*Miss Ivanhoe Scranton – first Holstein cow to be scored EX-6E  
C Lauduc Broker Mandy – her clone was first sold for public auction at 2006 World Dairy Class for \$82,000  
 \*Dowager – Holstein cow to have first record for complete year by Holstein Association, 12,681.5 in 365 days  
Changeling – first Holstein cow to give over 100 pounds of milk in one day a produce a daughter who also gave over 100 pounds of milk in one day  
 \*Brookview Tony Charity – EX 97; only Holstein cow named Supreme Champion 4 times at WDE  
 \*Brookview Tony Charity – Holstein female that was the first to be Grand Champion of all 3 national Holstein shows in one year  
Brookview Tony Charity – purchased in 1085 Canadian dispersal for \$ 1.45 million

Zeldenrust Pontiac Korndyke – first Holstein cow to produce over 300,000 lbs. of milk in a lifetime  
Nowerland Ideal Pride Bette – first Holstein cow to produce over 400,000 lbs. of milk in a lifetime  
 \*Allendairy Glamorous Ivy – first Holstein cow to sell for over \$ 1 million  
 \*C Glenridge Citation Roxy – Queen of the Breed I in 1986  
 \*C Glenridge Citation Roxy – Queen of the Breed II in 2004  
 \*C Glenridge Citation Roxy – first Holstein cow to have 10 Excellent daughters  
Breezewood Patsy Bar Pontiac – first Holstein cow to produce over 2,000 lbs. of fat in a single lactation  
Breezewood Patsy Bar Pontiac – first Holstein cow to produce over 15,000 lbs. fat in a lifetime  
Rainyridge Tony Beauty – in 1999 was oldest cow to be named Supreme Champion at WDE  
Nelson Estimate Liz 2 ETN- first ETN (clone) to be named All American  
Krull Broker Elegance – first Holstein to have 3 daughters scored EX-95  
Nowerland Ideal Pride Bette – first Holstein cow to exceed 400,000 lbs of milk in a lifetime  
 \*Mowry Prince Corrine – first Holstein to produce over 50,000 lbs. of milk in a single lactation  
Bell-JR Rosabel ET – first Holstein to produce over 60,000 lbs. of milk in a single lactation  
Beecher Arlinda Ellen – first Holstein to produce over 1500 pounds of fat in a single lactation  
Kortus Mark Priscilla – first Holstein cow to make two 50,000 pound milk records  
Koepke K0017229-1660 – U.S. Holstein that is lifetime milk production leader with 458,600 lbs. milk  
 \*Muranda Oscar Lucinda ET – Holstein cow that holds record for most milk produced in a single lactation, 67,914 lbs of milk in 365 days milked 2x  
Astrahoe Storm R Roberta – first Holstein to complete 14 generations Excellent  
Windrift Countess Nora – first Holstein cow and first cow to be named Supreme Champion at WDE  
Tora Triple Threat Lulu – youngest Holstein cow to be scored EX-96  
Comestar Laurie Sheik – Canadian Holstein cow that is the dam of 4 sons who have produced over 1 million units of semen (Comestar Lee, Comestar Outside, Comestar Leader, Comestar Lheros)  
Comestar Laurie Sheik – Canadian Holstein cow that over 40% of all Holsteins in Canada are her descendants  
 \*KHW Regiment Apple – Red – first Red & White Holstein to sell for \$1 million

KHW regiment Apple – Red – highest selling Holstein animal in 2008

MS Bayless Champ Flipper ET (EX-91) 4 year old; national butterfat production leader with 3,705 lbs of butterfat in 365 days

Castledon Emperor Donfloss 4 – world record milk production, United Kingdom

Lavender Ruby Redrose – Red – first Red and White Holstein to be Supreme Champion WDE in 2006

Skagvale Precious Elie Gay – first Holstein cow to complete 8 generations of Excellent cows that carry the same prefix  
Windrift Countess Nora – first Holstein cow to be Supreme Champion of WDE

Goma Ja Madlyn – first Grand Champion Holstein at WDE to be owned & exhibited by Junior member

Tybach Elevation Twinkie – only Holstein female to be named Grand Champion at 3 national Holstein shows

Miss Ivanhoe Scranton - first Holstein to be “6E”

Krull Broker Elegance – first Holstein cow to have 3 daughters score EX-95

#### IMPORTANT HOLSTEIN MALES

Calbrett-I H H Champion - First third generation sire in the world to produce over 1 million units of semen

\*Zeldenrust Fond Memory – first non A. I. Holstein bull to be scored EX-97

\*Ocean View Dixiecrat – first A.I. Holstein bull to be scored EX-97

Hanoverhill Starbuck – Holstein bull that has sired the most All American winners

North Star Gelschecola Champion – fist Holstein bull to be named Gold Medal Sire

Fatal (French bull) – first Holstein bull offered to U.S. breeders that was less than 100% RHA

King Bessie Senator – only Holstein male to be named All American in every class

ABC Reflection Sovereign – first Holstein sire to have 3 milking All American daughters

\*Fisher Place Mandingo – first Holstein bull to produce over 1 million units of semen

Romandale Reflection Marquis – Holstein bull known as the “biggest bull moose to every come out of Canada”

Rosafe Citation R – Holstein bull who is credited with the popularity and increased demand for Red & White Holsteins

Wisconsin Admiral Burke Lad – Holstein bull that sired every All-American Get of Sire for 6 years from 1947-1952; from Pabst Farm

Regancrest Dundee ET – Holstein bull featured in October 2008 HOLSTEIN WORLD

Regancrest Elton Durham ET and Braedale Goldwyn – Holstein bulls that tied with 13 AA nominations each in 2008 contest

Braedale Goldwyn – sire of the most AA winners in 2008 (5 AA winners)

Lexvold Luke Hershel – Holstein bull that has sired the most clones

\*Rockalli Son of Bova ET – first Holstein registered with ET as suffix, born in 1974, went into A.I. in 1977;

Son of Round Oak Rag Apple Elevation

Starstuck J-Paradox2-Red-ETN – first cloned bull to be commercially A.I. marketed

Comestar Lee, Comestar Outside, Comestar Leader,

Comestar Lheros – all are sons of Comestar Laurie Shiek

and all have produced over 1 million units of semen

Comestar Lheros – first Canadian bull to be scored EX-97

#### PEOPLE [ Dairy & Agriculture ]

Jerry Kozak - CEO NMPF (National Milk Producers Federation)

Tom Gallagher – CEO DMI (Dairy Management, inc.)

Del. Colin Peterson (MN) – Chairman U.S. House of Representatives Agriculture Committee

Sen. Tom Harkin (Iowa) – Chairman of U.S. Senate Agriculture Committee

Connie Tipton – President & CEO of IDFA (International Dairy Foods Association)

Tom Vilsack - Secretary of Agriculture (former Gov. of Iowa)

Lucinda Williams – Chairman National Beef Board (dairy producer)

Nicole & Stephanie Stout – Executive Managers RWDC (Red & White Dairy Cattle Association)

Seth Johnson – Exec. Secretary American Guernsey Association

Neal Smith – Exec. Secretary American Jersey Association

Dave Kendall – Executive Secretary Milking Shorthorn Association

Dave Kendall – Executive Secretary American Brown Swiss Association

William Weeks – organized aAa (Animal Analysis Association)

Steve Larson – Managing Editor HOARD’S DAIRYMAN

Brian Knox – President HOARD’S DAIRYMAN

Mark Clarke – General Manager, WDE

Mike Holschbach - President, WDE

Dr. Dave Selner – Executive Director National Dairy Shrine

Kevin Stiles – President National Dairy Shrine

Corey Geiger – President-elect National Dairy Shrine; Associate Editor HOARD’S DAIRYMAN

Horace Backus – known as “Dean of Holstein Pedigree Experts”; wrote Seed Stock V about Pabst Farms

Jim Tillison – CEO of CWT

Bart Hanson – President Dairy Calf & Heifer Association (DCHA)

William Weeks – organized aAa (Animal Analysis Associates) breeding guide

Gordon Doak – President of NAAB \ National Association of Animal Breeders

Thomas Quaife – Editor DAIRY HERD MANAGEMENT

Liz Doornick – co-chair of AFACT (American Farmers for the Advancement and Conservation of Technology)

S. M. Babcock – developed the method to test for percentage of butterfat in milk

#### **PEOPLE [ Holstein Association related ]**

\*John Meyer – CEO & Executive Secretary Holstein Association USA

\*Larry Tande – President Holstein Association USA (from MN)

\*Chuck Worden – Vice-President Holstein Association USA

Barbara Casna – Treasurer Holstein Association USA

Lindsey Worden – Editor “HOLSTEIN PULSE”; Communications Manager Holstein Association

Joel Hastings – Publisher “HOLSTEIN WORLD”; President of DairyBusiness (organization that publishes HW)

\*Kelli Dunklee – Program Specialist, Holstein Foundation

Jodi Hoynoski – Program Manager, Holstein Foundation

John Meyer – Administrator, Holstein Foundation

\*Winthrop Chenery – credited with first permanent establishment in U.S. in Massachusetts, 1852

Theron Yeomans – first Executive Secretary of Holstein Association

\*Thomas B. Wales – first President of Holstein Association

JoAnn Hartman – first woman to serve as President of Holstein Association

Marurice Prescott – former Editor & Publisher of HOLSTEIN WORLD who came up with the idea of AA contest

Judi Collinsworth – former Exec. Director of Member and Industry Relations of Holstein Association who has award named in her honor that recognizes Outstanding Junior Holstein exhibitor at national Junior Holstein Shows

Karen Knutsen – Editor HOLSTEIN WORLD

Joel Hastings – Publisher HOLSTEIN WORLD

Solomon Hoxie – responsible for the idea of production testing, with inspection and production requirements in the Dutch Friesian Herd Book

*\*There are 12 members of JAC: 4 youth; 4 adult volunteers; 3 members of Board of Directors of Holstein Association and Kelli Dunklee*

Patsy Gifford – first woman to classify animals for Holstein Association

#### **THE GOLD STANDARD**

\*Proteins from what source are considered the “gold standard for use in milk replacers?

A. milk proteins

\*Type of calf housing that is considered the “gold standard” for pre-weaned calves?

A. outside calf hutches

\*What is the “gold standard” for accurate genetic evaluations?

A. progeny test programs

\*When testing for Johne’s disease what method is considered the “gold standard”?

A. fecal culture test

\*What type of bedding is considered as the “gold standard” as it does not support bacterial growth?

A. sand

\*What is the “gold standard” for determining what nutrients that your crops need?

A. laboratory soil testing

\*What is the “gold standard” for determining what species of bacteria is causing a specific case of mastitis?

A. laboratory milk culture

\*What is considered as the “gold standard” of genomic scanning procedures?

A. Illumina’s Bovine 50K SNP assay

### **ALSO KNOWN AS**

\*Rumen – first stomach compartment

\*Rumen – also known as fermentation vat

\*Rumen – largest stomach compartment

\*Reticulum – also known as honeycomb

\*Reticulum – stomach compartment closest to the heart

\*Reticulum – stomach compartment where hardware collects

Traumatic Gastritis – also known as hardware disease

Hardware disease – also known as traumatic gastritis

\*Omasum – also known as manyplies

\*Omasum – compartment that squeezes the water out of feed

\*Abomasum – known as the “true stomach”

Bloat – also known as ruminal tympany

Ketosis – also known as Acetonemia

Mycotoxins – also known as molds (fungus)

Displaced abomasum – also known as twisted stomach

BSE (Bovine Spongiform Encephalopathy) – also known as Mad Cow Disease

Brucellosis – also known as Bang’s Disease

Dystocia – also known as calving difficulty

Fibropapillomatosis – also known as warts

Laminitis – also known as founder

Listeriosis – also known as “circling” disease

Digital dermatitis – also known as “hairy heel” warts

Parturient Paresis – also known as milk fever

Lactic Acidosis – also known as engorgement toxemia

Infectious Bovine Rhinotracheitis (IBR) – also known as “red nose”

Dystocia – also known as calving difficulty

Paratuberculosis – also known as Johne’s Disease

Pododermatitis – also known as foot rot

Keratonconjunctivitis – also known as pink eye

### **FACTS ABOUT MILK & DAIRY PRODUCTS**

\*Number of pounds of 1 gallon of milk – 8.6 pounds

\*Percent of milk that is water – 87%

\*State with greatest number of dairy cows-California

\*State that produces greatest volume of milk – California

\*State that has the most dairy farms – Wisconsin

\*State that produces the most cheese – Wisconsin

\*State with highest average production per cow – Arizona

\*There are 4 classes of milk:

Class I – beverage milk

Class II – fluid cream products, yogurts, ice cream, cottage cheese

Class III – cream cheese, hard cheese

Class IV – butter, dried milk

### **NUMBERS**

\*4 – Number of bovine stomach compartments

\*4 – Number of times bull proofs will be published in 2010

\*12 – number of National Holstein Distinguished Junior Member Semi-Finalists

\*6 – Number of National Holstein Distinguished Junior Member Finalists

\*8 – Number of National YOUNG Holstein Distinguished Junior Member Finalists

\*15 – Number of classes in Junior All American Contest

\*17 – Number of classes in All American Contest

\*2 – number of animals in a Dam & Daughter entry

\*750,000 – maximum SCC permitted in Grade A milk

\*58” to 58 ½ “ – average height of a Holstein cow at the shoulders

\*27 – number of letters and/or numbers (including suffix) permitted in a registered Holstein’s name

\*\$ 15.00 – one time cost for national Junior Holstein membership

\*\$ 3.00 – yearly cost for Virginia Junior Holstein membership

\*21 – maximum age for National Junior Holstein membership

\*8.6 – number of pounds in one gallon of milk

\*32 – number of teeth that a mature dairy cow will have

\*100 – number of pounds of milk in a hundredweight

\*87% - percent of milk that is water

\*24 – number of ways a class of 4 animals may be placed

\*87% - minimum percent Registered Holstein Ancestry for an animal to be exhibited at a national Holstein Show

\*100 – BAA of a Holstein that equals the breed average for age and stage of lactation

\*21 – on the average there are 21 days between heat periods

- \*30 – number of seconds that pre-dip should remain on the teat before being wiped off
- \*60 seconds – number of seconds that should lapse between the start of udder preparation and attaching the milking unit; known as “lag time”
- \*12- number of times a year that “HOLSTEIN WORLD” is published
- \*1500 – number of pounds that the average Holstein cow weighs
- \*50% - percent of an animal’s genetic makeup that comes from each parent; 25% from each grandparent
- \*101 to 102 degrees F – average rectal temperature of a dairy calf
- \*101.5 – average rectal temperature of a dairy cow

## PDCA DAIRY COW JUDGING SCORECARD

*(newly revised in April 2009)*

### \*Frame – 15%

- Rump – 5 points
- Front End – 5 points
- Back\Loin – 2 points
- Stature – 2 points
- Breed Characteristics – 1 point

### \*Dairy Strength – 25% (combination of former Dairy Character & Body Capacity)

- Ribs – 8 points
- Chest – 6 points
- Barrel – 4 points
- Thighs – 2 points
- Neck – 2 points
- Withers – 2 points
- Skin – 1 point

### \*Rear Feet and Legs – 20%

- Movement – 5 points
- Rear Legs, Side View – 3 points
- Rear Legs, Rear View – 3 points
- Feet – 3 points
- Thurl Position – 2 points
- Hocks – 2 points
- Bone – 1 point
- Pastern – 1 point

### \*Udder – 40%

- Udder Depth – 10 points
- Rear Udder – 9 points
- Teat Placement – 5 points
- Udder Cleft – 5 points
- Fore Udder – 5 points
- Teats – 3 points
- Udder Balance & Texture – 3 points

## HOLSTEIN CLASSIFICATION

\*Final classification score for Holsteins is broken down into 6 categories:

- Excellent (E) – 90-100 points
- Very Good (V) – 85-89 points
- Good Plus (+) – 80-84 points
- Good (G) – 75-79 points
- Fair (F) – 65-74 points
- Poor (P) – 50-64 points

\*5 major classification breakdowns for Holsteins:

- Front End\Capacity – 20%
- Dairy Strength – 20%
- Rump – 5%
- Feet & Legs – 15%
- Udder – 40%

\*Lowest possible classification score – 50 points

\*Highest possible classification score – 100 points

\*Highest classification score received to date – 97 points

In or after a Holstein cow’s fifth birthday her classification score cannot be lowered.

In order for a Holstein cow to be scored 90 points or above she must have calved normally (full term pregnancy) for the second time and had one completed lactation (she could be less than 3 years of age)

In order for a Holstein cow to be scored 95 point or above she must be evaluated by a committee of 3 classifiers; she becomes a “committee cow”

When a Holstein cow is scored in classification she will receive a BAA (Breed Age Average) score. BAA is based on the cow’s classification score and her age and stage of lactation. 100 is the average BAA of a Holstein for age and stage of lactation. A cow that is above 100 is above average for her age and stage of lactation and below 100 she is below average for her age and stage of lactation. 10% of the lowest scoring cows in a herd classification are not included when calculating BAA score for the herd.

SET \ Sire Evaluation Type – classification of Holstein females at the request of an A.I. organization