

Poultry Science Glossary

The Poultry Industry - Introduction and History

Broiler – a chicken raised for meat; the market chicken

Dual-purpose chicken – used for both meat and eggs

Further processed product – food item produced by forming meat and adding a covering

New York Dressed – a bird processed with only feathers and blood removed; entrails intact

Table egg industry – produces infertile eggs for the retail consumer

Value-added product – further processed to maximize consumer appeal.

Vertical Integration – control by a single company of most of all aspects of production

Home meal assembly products – poultry products used with other food items to prepare a meal

Branded product – a product identified with the company name. ex. Levi's. Coke

Home meal replacement products – poultry and food products designed to be a complete meal

FFA Opportunities in Poultry

AET - online record keeping system for agricultural experiences

Broiler - A chicken of either sex produced and used for meat purposes.

Career Development Event - an activity in which FFA members demonstrate skills in competition

Cock - mature male chicken, over a year of age

Cockerel - young male chicken, usually under a year old ([this is most certainly correct for the exhibition poultry side, but from a commercial perspective once the birds are light stimulated and are moved to the production house at about 21 weeks of age they are considered Cocks or roosters](#)) [Not sure how to clarify this point.](#)

Entrepreneurship - the process of getting into and operating one's own business

FFA - a national organization for students enrolled in agriculture education that promotes leadership, growth and career success

Flock - a group of birds

Hen - adult female chicken

Heritage Breed - older breeds of [large fowl](#) poultry less commonly raised in modern agriculture

Layer - hen raised for egg production

Placement - working for someone else ([not sure about this?](#))

Poult - young turkey

Proficiency Award - FFA award that recognizes members that have developed specialized skills that can apply to their future careers.

Pullet - young hen usually less than a year old ([this is most certainly correct for the exhibition poultry side, but from a commercial perspective once the birds are light stimulated and are moved to the production house at about 21 weeks of age they are considered hens](#)) [Not sure how to clarify this point.](#)

SAE Supervised Agricultural Experience – a project that agriculture students operate to gain hands-on experience

Breeds of Poultry

Capon - castrated male bird

Chick – newly hatched [bird/baby chicken](#)

Clutch – the number of eggs a hen lays in a row

Drake - male duck

Duck – female duck

Gaggle - group of geese
Gander - male goose
Gosling – young goose
Goose – female goose
Guinea – [African feathers](#) [African Fowl](#)
Rooster-mature male chicken
Tom-mature male turkey

Basic Poultry Anatomy

Air sacs – structures that [replace the diaphragm](#) ~~increase buoyancy~~ in the avian respiratory system
Integumentary - pertaining to the skin
Molting – [systematic](#) shedding of the feathers
Pterylae – ~~skin~~ tracts [in the skin](#) from which feathers originate

Poultry Genetics

Artificial incubator –used to hatch large numbers of offspring at the same time maximizing hatchability through precise control of [the](#) hatching environment to encourage embryonic growth.
Broiler – Breed or type of chicken used for commercial meat production. Historically, was a cross of the White Plymouth Rock and Cornish breeds.
Dual-purpose chicken – Chicken used for both meat and egg production. Prior to the 1950s and improved poultry breeding programs this was the only type of chicken available. Currently, commonly used in backyard flocks.
Heritability – the ability of measurable traits to be transferred from parents to offspring.
Hybrid vigor (heterosis) – Tendency of crossbred offspring to outperform their parents
Leghorn – Breed of chicken [used to create the birds](#) commonly used for commercial table egg production.
Layer – chickens used for egg production, typically a strain of the white Leghorn.
Selection pressure – Amount of pressure applied to each specific selection criteria.
Trap nest – Equipment used to keep hens on the nest until caretaker releases them, allows egg production to be closely monitored and accurate production records to be kept [by hen](#).

Poultry Reproduction

Albumen – Protein source for developing embryo.
Cuticle – waxy coating deposited on the egg during oviposition, protective function.
Chalazae – Cord-like structures found on both sides of yolk which anchor the yolk and prevent rotation.
Egg shell – Complex calcium carbonate structure that covers egg, protective function.
Estrogen – Female hormone that promotes development of female reproductive tract.
Follicle stimulating hormone (FSH) – Hormone produced by the pituitary gland that promotes growth of ovarian follicles in the female and sperm in the male.
Germinal disc (spot) – Site of fertilization on the ovum.
Infundibulum – Portion of oviduct that receives yolk from ovary, site of fertilization.
Inner/Outer shell membrane – Membrane immediately beneath shell which helps regulate air exchange, protective function.
Isthmus – Portion of the oviduct that produces shell membranes.
Luteinizing hormone (LH) – Gonadotrophic hormone produced by the pituitary gland that causes ovulation in female and testosterone secretion in male.
Magnum – Albumen secreting portion of the oviduct.

Ovarian follicle – Growth on the surface of the ovary that contains developing ovum or yolk.
(germinal disc in birds).

Ovulation – Rupture of ovarian follicles.

Oviduct – Avian female reproductive tract.

Stigma – Area on the follicle wall that is void of blood vessels where ovulation occurs.

Testicles – Paired male sex organs that produce sperm.

Uterus – Portion of the oviduct where egg shell synthesis occurs.

Vas deferens – Passageway for sperm from testicles to the cloaca, in birds also used for sperm maturation and storage.

Yolk membrane – Vitelline membrane, surrounds yolk, facilitative function, contains enzymes which help break down and release nutrients from the yolk for utilization by developing embryo.

Yolk – Lipid source for developing embryo, location of germinal disc.

Poultry Physiology and Health

Acquired immunity – Immunity to a disease from the maternal side by transmission of immunity through the yolk of the egg

Active immunity – Immunity to a disease developed by exposure to the disease or by receiving a vaccine for the disease

Acute disease – diseases that are sharp or severe in onset and effect on the animal

Antibodies – chemical substances, in circulating fluids, colostrums, and milk, that contributes to immunity against disease or infection

Bacteria – a class of single-celled ubiquitous organism which can be pathogenic

Biosecurity – Procedures designed to minimize disease transmission from outside and inside a production unit

Clinical disease – disease in which symptoms of the disease are expressed. Symptoms of that allow identification of the disease.

Chronic disease – a disease continuing over a long period of time or having gradual effect

Immunity – resistance to an infectious agent or antigen

Conduction – transfer of heat through a medium, warmth is passed to cooler particles by direct contact

Convection – Flow of heat through air or water

Direct cause of disease – exposure to, or contact with, pathogens or other substances that cause a decrease in animal health

Disease – state of being other than complete health

Fungi – group of plants without chlorophyll that reproduce by spores, includes molds which can cause animal health problems

Heat increment – Energy used up in the consumption, digestion, and metabolism of a feed

Health – state of being where physiological homeostasis is maintained, absence of disease

Homeothermic animal – animal that utilizes or dissipates energy to maintain body temperature

Homeostasis – maintenance of physiological stability even though environmental conditions may change

Infectious disease – caused by living organisms, which invade and multiply in or on the body and result in damage to the body

Insensible heat loss – heat loss that does not increase the temperature of surrounding environment

Morbidity – being affected by a disease, an animal that is showing clinical signs of disease

Mortality – animal that has died

Noninfectious disease

Passive immunity – immunity conferred to an animal through preformed antibodies received from an outside source. commonly passed from mother to offspring

Pathogen – microbial organism that causes disease

Pathogenicity – the capability of an organism to produce disease

Parasite – an organism that lives at the expense of a host organism. Generally must live on or in the host.

PPE

Protozoa – single-celled organisms that reproduce by fission, may be pathogenic

Predisposing cause of disease – any condition or state of health that confers a tendency and/or susceptibility to disease

Radiation – Exchange of heat between two objects that are not touching

Sensible heat loss – heat loss that does increase the temperature of surrounding environment, includes conduction, convection and radiation

Subclinical disease – no readily available disease symptoms exist.

Thermoneutral – an environment in which the temperature is stabilized with no heat transfer

Thermoregulatory mechanisms – Mechanisms involved with thermoregulation

Vaccine – A biological microorganism administered for the prevention of obtaining an infectious disease

Vaccination – The introduction of a vaccine into the body for the purpose of inducing immunity

Vasoconstriction – narrowing of the blood vessels, conserves body heat

Vasodilation – widening of blood vessels, used by animals to passively dissipate body heat

Virus – Complex protein material that is capable of causing disease which can be reproduced only inside host cell

Virulence – degree of pathogenicity

Poultry Feeding and Nutrition

Amino acid – building block of proteins composed of an amine portion (NH₂) a carboxylic acid portion (COOH), and a functional side chain. There are 20 naturally occurring amino acids which can be broken into two groups: non-essential and essential amino acids.

Ceca – two pouches where the small and large intestine join, some fermentation of feed occurs here.

Crop – pouch at the base of a chicken's esophagus that bulges after the bird has eaten, food is stored here prior to entering the digestive tract, allows bird to consume relatively large amount of feed rapidly and then move to another location to continue digestion.

Digestibility – ability to breakdown nutrients chemically and physically in the gastrointestinal tract preparatory to absorption; can also be an estimate of nutrient efficiency, and is defined by the amount of the nutrient absorbed that does not end up in excreta.

Essential amino acids – these amino acids not produced by the body, but are necessary for cell function, therefore it is essential that they are included in appropriate quantities in feedstuffs.

Esophagus – muscular membranous tube for the passage of food from the pharynx to the stomach.

Fat soluble vitamin – essential, fat-based vitamins absorbed and stored in the body that occur in nature in association with lipids.

Large intestine – portion of the intestine that extends from the ileum to the anus, actually very short in birds, water absorption occurs here.

Limiting amino acid – Amino acid in a diet that is the most deficient (without supplement) in a complete ration.

Meckel's Diverticulum – is a protuberance on the wall of the lower part of the intestine that is present at hatch, place where yolk residue was absorbed into the body.

Minerals – set of inorganic elements necessary for life, constituents of bones and teeth, also important for enzyme function, immunity and oxygen transport.

Monogastric animal – animals with a single stomach.

Non-essential amino acids – amino acids are produced by the body, that do not necessarily have to be included in feedstuffs.

Proventriculus – glandular stomach in birds which secretes digestive acids, just prior to the ventriculus (gizzard).

Small intestine – narrow, winding, upper part of the intestine where digestion is completed and nutrients are absorbed by the blood.

Triglyceride – compound composed of glycerol and three fatty acids, source of energy

Ventriculus – also known as the gizzard, mechanical stomach in birds, grinding mechanism for food digestion.

Vitamin – organic compound needed by the body in very small amounts, however, critical for many physiological processes such as Ca absorption and blood clotting.

Water soluble vitamin – essential, water-based vitamins not stored in the body and must be replaced daily.

Poultry Housing

Ambient temperature – Temperature of the surrounding environment

Ammonia – Nitrogen gas produced by the bacterial breakdown of protein in fecal matter.

Cross ventilation (~~natural ventilation~~) – ~~Using natural~~ Natural or mechanically induced air flow across the width of a house to exchange air in a poultry house.

De-caking – removing wet litter material from a house

Forced air ventilation – using fans to mechanically force air in to then and out of the house.

Litter – Bedding material used in poultry houses to dilute fecal material and provide cushioning for birds feet and breast; typically pine wood shavings or rice hulls

Relative humidity – Amount of moisture in the air compared to what the air can "hold" at that temperature.

Top-dressing – Adding a layer of clean litter on the top of used litter before placing a new flock.

Tunnel ventilation – fans placed at opposite end of the building from air inlets; negative air pressure pulls air from outside through the building length wise in the house and exhaust it through fans.

Windrowing – A long low ridge or line of poultry litter, hay, or similar crop designed to achieve the best conditions for drying or curing.

Broiler and Turkey Breeders

Artificial insemination - placing semen into the reproductive tract of a female

Broodiness - tendency of a hen 'sit tight on a to-nest; to behave as if she were in an attempt to naturally incubating ~~an~~ eggs.

Beak conditioning - trimming of the beak.

Comb dubbing - practice of removing the comb or parts of the comb; (and ~~the~~ wattles in game chickens).

Clutch length - complete set of eggs produced or incubated at one time by a single hen in consecutive days

Photorefractory - terminating reproduction prior to inclement conditions in autumn and winter

Photostimulation - providing the proper light stimulus to cue puberty.

Restrict feeding - managed controlling of feeding

Straight-run rearing - raising poultry that have not yet been sexed.

Sex-separate rearing - raising of either male or female chicks that have been sexed at the hatchery.

Toe clipping - removal of a bird's toes just behind the claw

Hatchery Management

Allantois – Embryonic membrane that plays a role in albumen metabolism and calcium absorption of developing chick. Also, the location of excretory product storage during incubation.

Amnion – Embryonic membrane that surrounds and protects embryo.

Chorion – Embryonic membrane that fuses with allantois and shell; produces the carbonic acid which aids in releasing the calcium from the shell for absorption by the chick. By releasing Ca it also weakens the shell which is beneficial for hatching.

Dry bulb temperature – ~~Actual~~ Temperature of the air measured by the ~~ordinary~~ thermometer

Embryo – Developing chick, from soon after fertilization to hatch

Hatchability – Measure of breeder and hatchery efficiency. Percentage of total eggs set ~~or fertile~~ eggs set that hatch.

True Fertility – Measure of breeder flock or inseminating crew performance. Indicates the number of eggs that are fertile at the point of oviposition.

Hatch of Fertile – Measure of hatchery efficiency. The percentage of chicks hatched from the total number of fertile eggs set.

Wet bulb temperature – Lowest temperature that can be obtained by evaporating water into the air at a constant pressure.

Commercial Broiler and Turkey Production

Brooding- raising young poultry under environmentally controlled conditions for the first few weeks of life.

Cool house brooding- raising poultry under controlled cool house conditions with warm areas provided for the chicks to find as needed.

Culling- to remove from a flock due to undesirable traits.

Feed conversion ratio-amount of feed needed to produce 1 pound of meat gain or dozen eggs produced.

Feed efficiency-measurement of feed intake per pound of weight gained.

Mortality- ~~the quality or state of being mortal~~ The loss of birds either during rearing or production

Shrinkage- loss in weight.

Stocking density- number of animals per unit of floor space

Warm house brooding-raising poultry under controlled warm house conditions where the entire area is warmed to the same temperature.

Processing

Air chilling - ~~less efficient~~ alternative chilling method preferred in Europe and Canada

Chopped and formed products – very small pieces are arranged into a specific shape

Carcass grading – using USDA standards to assign a degree of quality, this is voluntary

Electrical stunning – using electric current to make an animal ~~unconscious~~ insensible

Exsanguination – death occurs because of loss of blood

Fresh product – has never been below 26F

Frozen product – has been held below OF.

FSIS – (Federal Safety and Inspection Service)

Gas-CAS stunning – ~~using gas~~ use of CO2 or other inert gasses to replace oxygen to make an animal ~~unconscious~~ insensible

Hard chilled product – has been held from OF – 26F

Hard scald – a higher water temperature removes the waxy cuticle of the epidermis

HACCP – (Hazard Analysis and Critical Control Points), plan for monitoring food safety by setting potential points of cross contamination

Inspection – examination of a product to insure safety standards are met.

Marination – ~~soaking in~~infusion of flavoring to improve taste

Picker – machine with rubber projections used to remove feathers

Pinning – removing the protruding pinfeathers of poultry

Pathogen Reduction Act - sets limits for the number of harmful organisms on food products

Portioning – packaging in individual serving sizes

Scalding – using hot water to ~~denatures~~expand feather follicles ~~s~~proteins to allow easier picking

Singeing – using flames to remove tiny feathers

Soft scald – a lower water temperature retains the outer layer of the epidermis

USDA – United States Department of Agriculture, government agency that regulates aAgricultural and food products

Viscera – internal organs

Water chilling – ~~chilled in two phases moving toward cleaner water~~cold water submersion to reduce carcass temperature after inspection