



ERASMUS+

EDUTRAINING DIGITAL LIVESTOCK

Dictionary



DEAR PARTICIPANTS

over the coming pages you will find a dictionary style list of most important key terms that are essential for your PLF profession.

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Our content is updated periodically and you can send suggestions for new terms directly on our webplatform **<https://www.edutrainingdigitallivestock.org/>**

We thank you for your interest and wish you all the best !

EDUTRAINING DIGITAL LIVESTOCK

A

Accelerometer - record movement system in a three-dimensional pattern and provide information for several animal behaviors such as resting, grazing, ruminating, or moving. They can also contribute to welfare assessment, lameness detection, or mating score measurement.

Acoustic signals - collect system by a microphone mounted on the foreheads of sheep resulted in an accurate estimation of feed intake, while acoustic and pressure sensors placed on the head of the animal make possible the discrimination between grazing and ruminating, since jaw movements can be classified into chew, bite, or chew-bite events.

AEROBIC Containing free oxygen or requiring free oxygen e. g. aerobic bacteria.

Aged Ram - Male, not castrated over five years old (Name will vary between different regions)

AG R- Environmental Schemes - Schemes to encourage environmentally friendly farm practices

AI - Artificial intelligence

AI Artificial Insemination - Impregnating an animal by artificial means and not by natural breeding.

AIT - Animal identification and traceability

AMS automatic milking system.

ANAEROBIC Containing no free oxygen (or not requiring free oxygen such as anaerobic bacteria) or chemically bound oxygen such as nitrates (NO₃).

Animal welfare is a multidisciplinary field of study that encompasses scientific, ethical, economic, cultural, social, religious, and political dimensions.

ANIMAL IDENTIFICATION SYSTEM

means the inclusion and linking of components such as identification of establishments or owners, the persons responsible for the animals, movements and other records with animal identification.

ANIMAL TRACEABILITY

means the ability to follow an animal or group of animals during all stages of its life.

ANIMAL WELFARE

means the physical and mental state of an animal in relation to the conditions in which it lives and dies.

ANTIMICROBIAL AGENT - means a naturally occurring, semi-synthetic or synthetic substance that exhibits antimicrobial activity (kill or inhibit the growth of microorganisms) at concentrations attainable in vivo. Anthelmintics and substances classed as disinfectants or antiseptics are excluded from this definition.

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APIARY - Means a beehive or group of beehives whose management allows them to be considered as a single epidemiological unit.

ATS - Animal traceability solutions

AUTOMATICALLY CONTROLLED NATURAL VENTILATION (ACNV) - Ventilation of a building through openings or vents in the sides or roof that are opened and closed by electrically driven motors in response to sensors in the building.

B

BARN - A general name for a farm building used for housing livestock, storing machinery or crops.

Barren - Cow which has been mated but is not in calf.

Barren battery cage (laying hens)- A cage used to house several laying hens, usually providing space equivalent to less than an A4 sheet of paper per hen. Barren battery cages are prohibited by EU legislation although they are common in other parts of the world.

Barren Gilt - Cow which has been mated but is not in calf.

BATTERY CAGE HOUSE-A closed building with forced ventilation and with or without a lighting system for **LAYING HENS**. Birds are kept in tiered cages, usually made of steel wire, arranged in long rows. After 2012 conventional cages will be banned in EU member states. After 2012 only enriched cages are allowed.

Beak-trimming: removal of part of the beak (laying hens, parent broilers and turkeys) using a hot blade, secateurs or an infra-red beam. In the EU no more than a third of the beak may be removed. Infra-red method is encouraged when beak trimming cannot be avoided.

BBC - banning battery cages for egg production in the poultry sector.

BEEF Cattle Scheme - Headage payment made on beef calves in Scotland to support the supply and quality of Scotch beef and the environment.

BELT SEPARATOR MECHANICAL SEPARATOR in which Slurry is fed onto a perforated, moving belt and squeezed between rollers.

BIOSECURITY - means a set of management and physical measures designed to reduce the risk of introduction, establishment and spread of animal diseases, infections or infestations to, from and within an animal population.

BIOSECURITY PLAN - Means a plan that identifies potential pathways for the introduction and spread of disease in a zone or compartment, and describes the measures which are being or will be applied to mitigate the disease risks, if applicable, in accordance with the recommendations in the Terrestrial Code.

Bipstimulant - Infections that can be transmitted between animals and humans.

Boar - Pigs - male

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Broiler chickens: chickens reared for meat production.

Broiler Poultry - Intensively reared slaughtered at 6 – 7 weeks.

Bull Beef - Cattle An entire animal raised for beef.

Bull Cattle - Uncastrated male over 2 years old.

Butterfat - Cattle - The fatty substance found in milk from which comes cream and butter. Used as measure of the quality of milk.

Bullock Cattle - Feeding/Fattening – Castrated male being fed for slaughter.

Bullock /Stirk - Cattle - Castrated male.

C

Cake - Cattle - Cattle food compressed into slabs.

Calf - Cattle - Uncastrated male up to 1 year old.

Calvin Interval - Cattle - Period between one calving and the next, usually 375 days.

CAP - The Common Agricultural Policy of the EU that underpins agriculture throughout Europe.

CATTLE Passport - Compulsory identification document for all cattle to enable the recording of births, deaths, imports and the whereabouts of animals.

CHEMICAL SCRUBBER A trickling filter for the removal pollutants from liquids by means of chemical binding to a liquid with specific chemical properties (e. g. pH value obtained by addition of an acid or a base).

Chilling (piglets): common cause of young piglet mortality, both indoors and outdoors. Chilled piglets can die of hypothermia and are also more vulnerable to crushing and infection in the first few weeks of life.

CHOPPER PUMP A pump with the added feature of a cutting or shredding action to reduce suspended trash to pumpable size.

CIT Complex, Individual and Time-variant

Close confinement: provision of very limited space, severely restricting the animal's movement and expression of natural behaviours. Example: cages and crates.

CLOSE Herd - One where replacements are bred within the herd and not brought in from outside.

CLOSED HOUSE* An ANIMAL HOUSE with artificial (e. g. MECHANICAL VENTILATION) rather than NATURAL VENTILATION.

CO2 Carbon dioxide

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CH4 - Methane

CNN - Convolutional neural network

Colostrum: first milk rich in immune factors, secreted by the mammary gland of female mammals a few days before and after the birth of their young.

CROP RESIDUES Organic residues remaining after the harvesting above and below ground and processing of a crop.

Crossbreed - Crossbred: Animal produced by crossing two breeds.

Crossbreeding - Mating animals from different breeds to utilise hybrid vigour (heterosis), breed complimentary and characteristics.

Crushing (piglets): during farrowing, piglets are at risk of being crushed by the sow, especially when she changes position or is restless. Crushing is a major cause of piglet mortality prior to weaning.

Cubicles - Method of housing cattle in groups with provision for individual stalls.

Culling: culling refers to the removal of animals from the group by euthanasia, sale for slaughter or disposal of animals that died on farm. Recording culling and reasons for culling is important to improve animal health and welfare on farm.

D

Dam - Mother cow of a particular calf.

DEP Litter - Poultry - Housing system containing large groups of birds on a bedding of, for example, wood shavings.

Dehorning: removal of the horns of adult animals by cutting or sawing. Disbudding is a particular dehorning method where horn buds are removed in young animals (calves, kids) using a hot iron or chemical cauterisation.

DLT - distributed ledger technology.

Doe - reproducing female rabbit

Dung - Farmyard manure.

E

EID - Electronic identification systems, such as ear tags, ruminal boluses, and subcutaneous transponders are the applications that are more frequently used, since they are mandatory in the European Union (EU).

Enriched cages (laying hens) - A cage used to house several laying hens, usually providing 750 cm² per hen (which is just over an A4 sheet of paper per hen) and with some form of enrichment (perch, nest box, scratching area).

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Environmental enrichment: material that is provided to an animal to encourage natural behaviours such as foraging, pecking, scratching and perching. For pigs this includes manipulable materials such as straw, hay, wood, sawdust, mushroom compost, peat or a mixture of such, to enable proper investigatory behaviour (rooting). For laying hens and broilers this includes perches, straw bales, pecking substrates and friable litter

EXHAUST VENTILATION MECHANICAL VENTILATION of a building by running fans in the walls or roof so that fresh air is drawn in through openings or vents.

F

FAO Food and Agriculture Organization of the United Nations

farm-to-fork traceability by strengthening animal disease control and prevention

Farrowing crate: a metal cage used to confine a single sow during farrowing (period around parturition) and lactation. The crate is designed to obstruct transition between lying and standing to avoid the risk of the sow crushing her piglets. It severely restricts the movement of the sow which is unable to turn around or engage properly with her piglets.

Failure to thrive: A suckling pig with no obvious clinical diseases, but which, within seven days of weaning, is not eating, is depressed, may display abnormal behaviours such as chewing or chomping behaviour, and which becomes progressively debilitated within 2-3 weeks of weaning.

FEEDLOT A concentrated, confined livestock operation outdoors wherein the LIVESTOCK are fed at the place of confinement and crop production is not sustained.

Floying Herd - A herd where replacement stock is frequently bought in from outside.

Flock - A group of animals.

Flock monitoring - techniques to increase the profit-ability of their business.

FMD Foot-and-mouth Disease - Infections that can be transmitted between animals and humans.

G

Gestation crate (also called sow stall): a narrow metal crate used to individually confine sows for their 16 week pregnancy, without sufficient room for them to turn around. In the EU and in some US states, sow stalls are now partially banned; sows can only be housed in stalls during the first 4 weeks of their pregnancy and during the week prior to giving birth. The period from egg fertilisation to birth, varies with species:

Cattle – 9 months

Sheep – 5 months

Pigs – 4 months

GIS Geographic information system

GMO Genetically Modified Organisms - An organism that has been altered in a way that does not occur by natural mating or development.

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GPRS General Packet Radio Service

GPS Global Positioning System - GPS systems provide data related to animal movement and spatial distribution in pasture, but the relatively high cost of application hinders its regular use in small ruminants. Moreover, a GPS system coupled with a thermistor below the vulva could also provide information regarding urination frequency and consequently liquid and nitrogen emissions and their spatial distribution patterns by recording urination events as ambient temperature changes. However, concerns are frequently raised regarding energy supply—battery lifespan in the field, lack of wireless data transmission and the accuracy, interpretation, and contribution of these measurements to the decision-making process.

GSM Global System for Mobile Communications.

GUI Graphical User Interface - screen displayed all the information collected in a digital format utilizing the Google Maps software.

H

HACCP - Hazard Analysis Critical Control Point (HACCP). This is a quality assurance program that identifies risk factors (critical points) to reduce them to an absolute minimum.

HERD - Means a number of animals of one kind kept together under human control or a congregation of gregarious wild animals. A herd is usually regarded as an epidemiological unit.

Higher welfare assurance scheme: a certification scheme with a specific focus on farm animal welfare standards, including requirements for, for example: environmental enrichment, bedding, more generous space allowance, humane slaughter and restrictions on mutilations and transport times.

Higher welfare indoor system: an indoor production system providing the animals with environmental enrichment, natural light, comfortable resting places (bedding / perches) and increased space allowance.

HGP - HGP: Hormone growth promotant, which is used to stimulate growth and improve feed conversion in cattle above what they would normally be able to do.

Hogget: Castrated male and female sheep with no 'ram like' characteristics and up to two permanent teeth.

I

ICT Information and communications technology.

ICT4Ag Information and communications technology for agriculture.

IT-PLF Innovative technologies PLF that simplify flock management based on on-animal sensors are also employed and include global positioning systems (GPS), accelerometers, gyroscopes and social activity loggers that can provide data regarding several behavioural parameters, health, and welfare status.

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Injurious pecking: harmful pecking behaviour in poultry, which includes feather pecking, vent pecking (pecking damages to the cloaca) and cannibalism.

INSULATION * The prevention of passage of heat in or out of e. g. a LIVESTOCK building by incorporating non-heat conducting material into the walls and roof.

IoT- Digital technologies, like internet of things (IoT),

IRT - infrared thermography

ITS- Identification and Tracking Systems

IVR - Interactive Voice Response

lwt: Liveweight – the weight of a live animal. Generally refers to price quotes (eg ¢/kg lwt) where the price for the animal is quoted per kilogram for the live animal.

L

LAN - Local Area Network

Leg culls - Birds which are picked up by stockmen on farm and culled before they reach the severe lameness category (gait scores 4 or 5).

LiDAR - Light Detection and Ranging

Livestock density index - Measures the stock of animals (cattle, sheep, goats, equidae, pigs, poultry and rabbits) converted in livestock units (LSUs) per hectare of utilised agricultural area (UAA).

Long distance transport - Any transport of a live animal that exceeds 8 hours, from loading to unloading; welfare has been shown to decrease significantly across species in journeys lasting more than 8 hours.

LOOSE HOUSING - Animals have free access over the whole area of the building or pen. It is common for a deep layer of BEDDING (usually straw) to be spread over the floor that is removed from the building, typically once or twice per winter, as Farmyard manure. A concrete floor, which is cleaned more frequently by scraping, may be provided in the area where the animals stand to feed and/or drink.

M

Manipulable materials (pigs) - Substrates which encourage natural behaviours such as chewing, rooting and exploration, which pigs have an inherent motivation to carry out.

Mastitis - Painful inflammation of the breast or udder tissue in mammals, commonly affecting dairy animals.

MICROORGANISM Living organisms of microscopic or sub-microscopic size. Include bacteria, algae, fungi and viruses, although the latter are not considered as living organisms.

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Milking Parlour-Related Technologies - The latter technology in combination with mid-infrared spectroscopy can also be applied for the measurement of milk coagulation properties and acidit

ML - Machine Learning

Mulesing (sheep): removal of skin from the hind-quarters, in sheep breeds with excess folds of skin on their rumps in order to prevent flystrike, often without adequate pain relief.

Mutilation - A painful procedure that interferes with the bone structure or sensitive tissues of an animal. These procedures, often carried without adequate pain relief, may be done to prevent abnormal or unwanted behaviours (e.g. tail biting in pigs, injurious pecking in laying hens), to improve meat quality (e.g. castration), or to ease handling (e.g. dehorning).

N

N₂ Nitrogen gas

N₂O - Nitrous oxide

National farm assurance scheme - A certification scheme that ensures certain standards of safety and quality are met, often including some animal welfare standards similar to the legislative requirements of the market(s) in which they operate.

NH₃ - AMMONIA

NH₄⁺ AMMONIUM

NLIS - National Livestock Identification System.

NLRS: National Livestock Reporting Service.

NNB - Neural-network-based monitoring model to emulate different rotating states of an accelerometer implanted on the collar

NO₃ NITRATE

NO NITRIC OXIDE

NO_x Nitrogen oxides, usually N₂O, NO

NVZ Nitrate Vulnerable Zones

O

O₂ Oxygen gas

On-Animal Sensors Wearable sensors such as tri-axial accelerometer loggers, GPS systems, microphones, acoustic and pressure sensors are applied on each animal and collect data referring to body position, locomotion, temperature, estrus detection, etc.

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OPEN CLIMATE HOUSE - An ANIMAL HOUSE with NATURAL VENTILATION only.

Organophosphates (OP) - Chemicals used in sheep dips that were alleged to have caused health problems for operatives. No firm proof has yet emerged.

P

Pathogens - MICROORGANISMS that can cause disease in humans, animals and plants. Pathogens include bacteria, viruses and parasites and, in agriculture, can be found in MANURE, SEWAGE SLUDGE etc.

P2O5 Phosphate - Often used to express amount or concentration of P in FERTILISER.

Pedigree - Pure bred animal registered with the breed society.

PLF Precision Livestock Farming - Using PLF to monitor drinking and feeding behaviors and gastrointestinal health could help provide additional support to minimize the experience of survival-related negative affects such as thirst, hunger or gastrointestinal pain.

PRESSURE VENTILATION - Mechanical ventilation of a building through the use of fans to blow fresh air into the building.

Q

QUALITATIVE RISK ASSESSMENT - Means an assessment where the outputs on the likelihood of the outcome or the magnitude of the consequences are expressed in qualitative terms such as 'high', 'medium', 'low' or 'negligible'.

QUANTITATIVE RISK ASSESSMENT- means an assessment where the outputs of the risk assessment are expressed numerically.

QUARANTINE STATION - Means an establishment under the control of the Veterinary Authority where animals are maintained in isolation with no direct or indirect contact with other animals, to ensure that there is no transmission of specified pathogenic agents outside the establishment while the animals are undergoing observation for a specified length of time and, if appropriate, testing or treatment.

R

Red tag - A tail tag on a cow at physical market (store or prime) that is in calf more than four months.

Replacement rate - annual percentage of breeding animals which leave the herd and are replaced.

RFID Radio frequency identification - In pigs, RFID ear tags are used as part of electronic feeding systems

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Routine mutilations - The mutilation of all animals done at herd/flock level rather than individual level. Procedures carried in a preventive manner before a problem occurs and without trying to identify the underlying issues (such as inappropriate housing, feeding, handling) making the mutilation necessary.

S

SCRUBBER - An end of pipe installation for removing chemical or microbial pollutants from the exhaust air of a FORCE VENTILATED animal building, e. g. from a POULTRY or PIG building. A CHEMICAL SCRUBBER may, for example, use a spray of acid solution to trap and remove ammonia. A bioscrubber may, for example, use water containing MICROORGANISM to trap and break down organic compounds responsible for Odour. Also termed air purifying system or air treatment system.

SEMI-TIED STALLS - As above except DAIRY COWS are released to walk to a milking parlour or to be fed. Often most of the feed is served in front of the stalls.

SD - card Secure Digital card

SMART AGRICULTURE - Smart Agriculture, which is based on cloud computing and IoT, where a central computer manages and controls internet-based machines and workers, enhancing production and life quality through more comprehensive and dynamic ways.

SMS - Short Message Service

Spaying (sows) - Neutering of non breeding gilts (female pigs destined to meat consumption) by surgical extraction of the ovaries and oviduct, generally without anaesthesia or analgesia. This practice is still carried out on free-range herds in places such as Sicily, Tuscany or parts of Spain, especially where there are wild boars.

STUBBLE The part of the crop left in the field, i. e. roots and uncut part of plants above ground after harvesting e. g. CEREALS.

STUNNING - Means any mechanical, electrical, chemical or other procedure that causes immediate loss of consciousness before slaughter, the loss of consciousness lasts until death from the slaughter process; in the absence of slaughter, the procedure would allow the animal to recover consciousness.

SUBMERSIBLE PUMP A motor/pump combination designed to be placed entirely below the surface of the liquid to be pumped.

T

Tail docking- Removal of part of the tail (usually up to two-thirds) using a hot docking iron, sharp cutter (pigs) or tight rubber ring (lambs, cattle). Tail docking is usually done to reduce the risk of tail biting (pigs) or to ease handling and hygiene and health management (cattle, lambs). Routine tail docking is prohibited in the EU (but carried out on most farms).

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Teeth reduction (pigs) - Teeth clipping and teeth grinding: removal of the sharp ends of the needle teeth of the piglets to reduce damage to the sows' teats during suckling and to other piglets. Teeth clipping is the reduction (cutting) of a piglet's 8 sharp needle teeth shortly after birth using sharp clippers or pliers. Teeth grinding is another common form of teeth reduction where the piglet's teeth are reduced using a grinder. Routine teeth reduction (clipping or grinding) is prohibited in the EU (but carried out on most farms).

Tethering - Tying of an animal (usually grazing animals such as cattle and goats, but also sows) to a fixed point; tethering prevents an animal from carrying out its normal behaviour. Tethering is no longer permitted in the EU for calves and sows.

Thinning (broilers) - Removal of part of a poultry flock for slaughter prior to the slaughter of the entire flock. This causes stress in the flock and is often used to facilitate stocking at higher densities.

U

Unmanned aerial vehicles - can offer a feasible solution for the monitoring of small ruminants in pasture-based systems.

V

VACUUM PUMP - A pump that removes air from a container to create a vacuum. Force pumps of many types are used for vacuum pumps including rotary pumps and piston pumps.

VF Virtual fencing (VF)- It is another commercial application introduced as an alternative grazing management method. VF system consists of a collar equipped with audio signal reproduction mounted on every animal and a GPS-based virtual fence created in various locations within the limits of the grazing area.

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Veal crate - A pen or box to confine a single dairy calf; calves are often tethered in these systems and do not have adequate space to turn around. Veal crates are now prohibited in the EU and in some US states.

VENTILATION RATE - This is usually expressed as the volume flow of air (m³/h) through the whole LIVESTOCK building or per ANIMAL PLACE.

W

Wayleave - Pure bred animal registered with the breed society.

WAN Wide Area Network.

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Wi-Fi Wireless networking technology

WLAN - Wireless Local Area Network

WoW walk-over weighing - system for individual body weight estimation and supplement intake. WoW platforms require the isolation and the immobilization of the animal in a passage corridor that is closed by the operator when each animal enters

WSN Wireless Sensor Network - a Cloud platform which processes the collected data, and a digital user interface. The WSN refers to the GPS sensors attached to the collars and transfers position data using 3G/4G cellular communication transmission

V

Zoonoses - Infections that can be transmitted between animals and humans.

