

OVERVIEW OF SWINE SECTOR:

FARMING, LEGISLATION AND MARKET OPPORTUNITIES



AFROHUN
Advancing One Health
ETHIOPIA

VETERINARY CAPACITY BUILDING
in the context of the «One Health»

Con il contributo della  **Regione Emilia-Romagna**

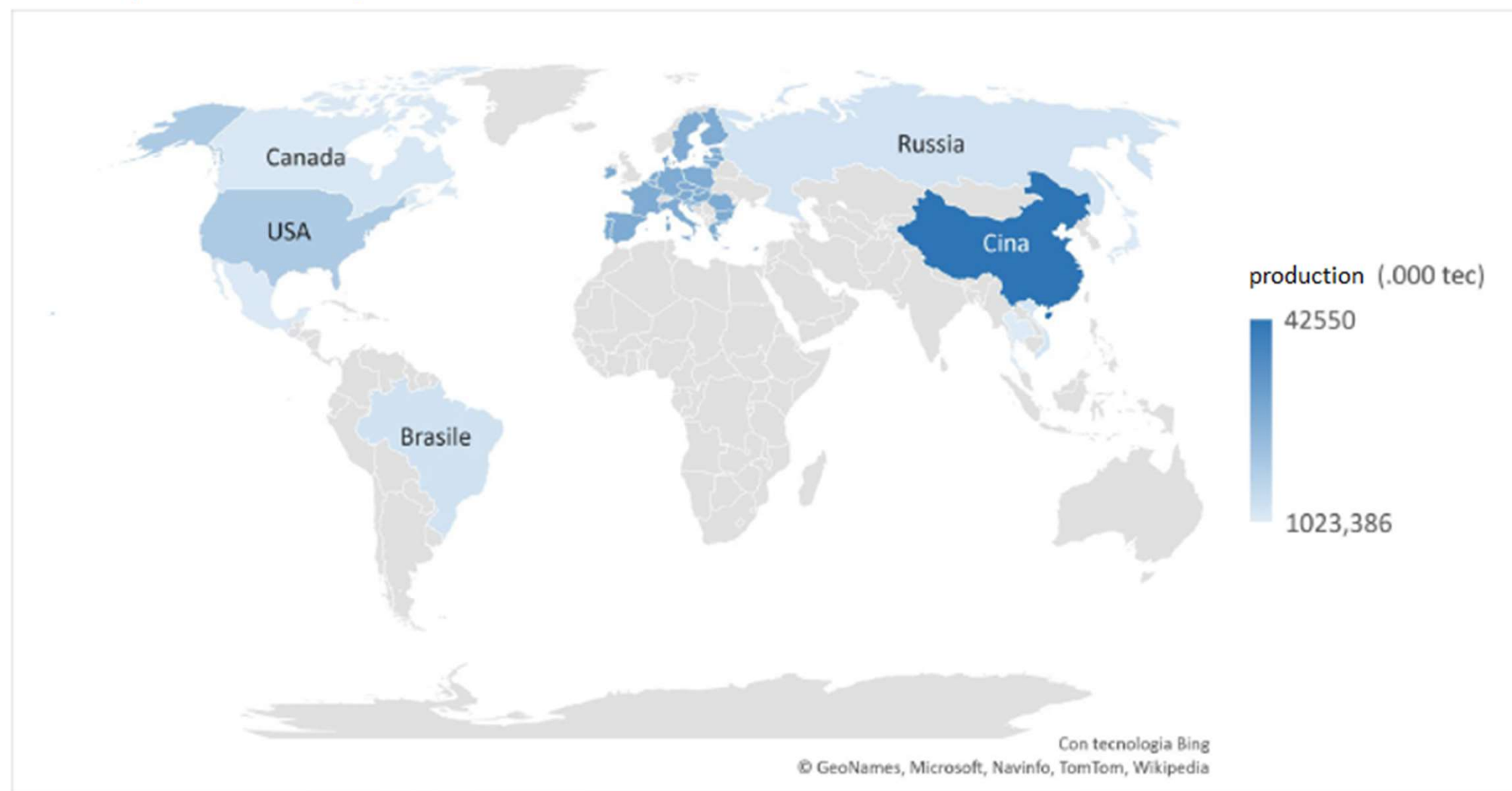


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SWINE FARMING IN THE WORLD: NUMBERS

- 96,7 million tons of total pork meat production in 2020 decreasing from 102 millions of 2019 (due to PSA in china and Covid-19 pandemic)
- First meat producer and consumer in the world is China with 36,3 million tons in 2020 (-14,6% less than 2019)
- The second producer is EU 23,271 million tons in 2020 (+1,2% more than 2019)
- Followed by USA, Canada, Mexico, Brasil, Vietnam, Russia and South Corea

main producers of pork meat in 2019



Fonte: OECD/FAO (2020), OECD-FAO Agricultural Outlook 2020-2029

World scenario of pork meat at 2029 for the main mondial producers (millions of tons)

	Production			Consumption			Import			Export		
	2015	2019	2029	2015	2019	2029	2015	2019	2029	2015	2019	2029
Cina	56,6	42,6	57,0	57,3	44,8	58,3	0,9	2,4	1,5	0,3	0,2	0,2
European Union	22,6	23,3	22,6	19,5	19,3	19,2	0,1	0,2	0,2	3,2	4,2	3,5
USA	11,0	12,4	12,8	9,3	10,1	10,6	0,7	0,6	0,6	2,3	2,9	2,9
Brasil	3,7	4,0	4,5	3,2	3,5	3,8	0,0	0,0	0,0	0,5	0,5	0,6
Russia	3,1	3,9	4,0	3,4	3,8	4,0	0,3	0,1	0,1	0,0	0,1	0,1
Vietnam	3,5	3,2	4,3	3,6	3,2	4,4	0,1	0,1	0,1	0,0	0,0	0,0
Canada	2,0	2,1	2,2	0,8	0,8	0,8	0,2	0,3	0,3	1,4	1,6	1,7
Mexico	1,3	1,6	1,9	2,0	2,4	2,7	0,7	0,9	1,0	0,1	0,2	0,2
Japan	1,3	1,3	1,1	2,5	2,6	2,5	1,2	1,3	1,4	0,0	0,0	0,0

Fonte: OECD/FAO (2020), OECD-FAO Agricultural Outlook 2020-2029 (dati 2019 provvisori)

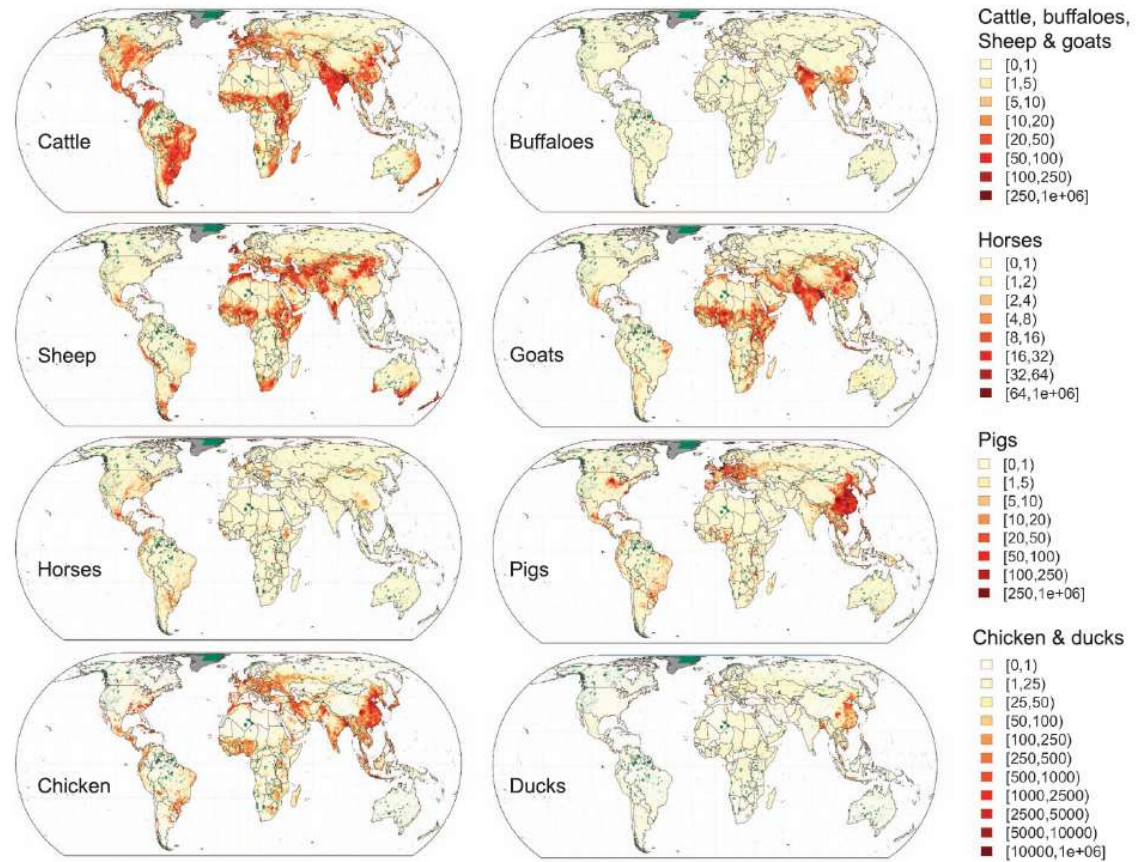
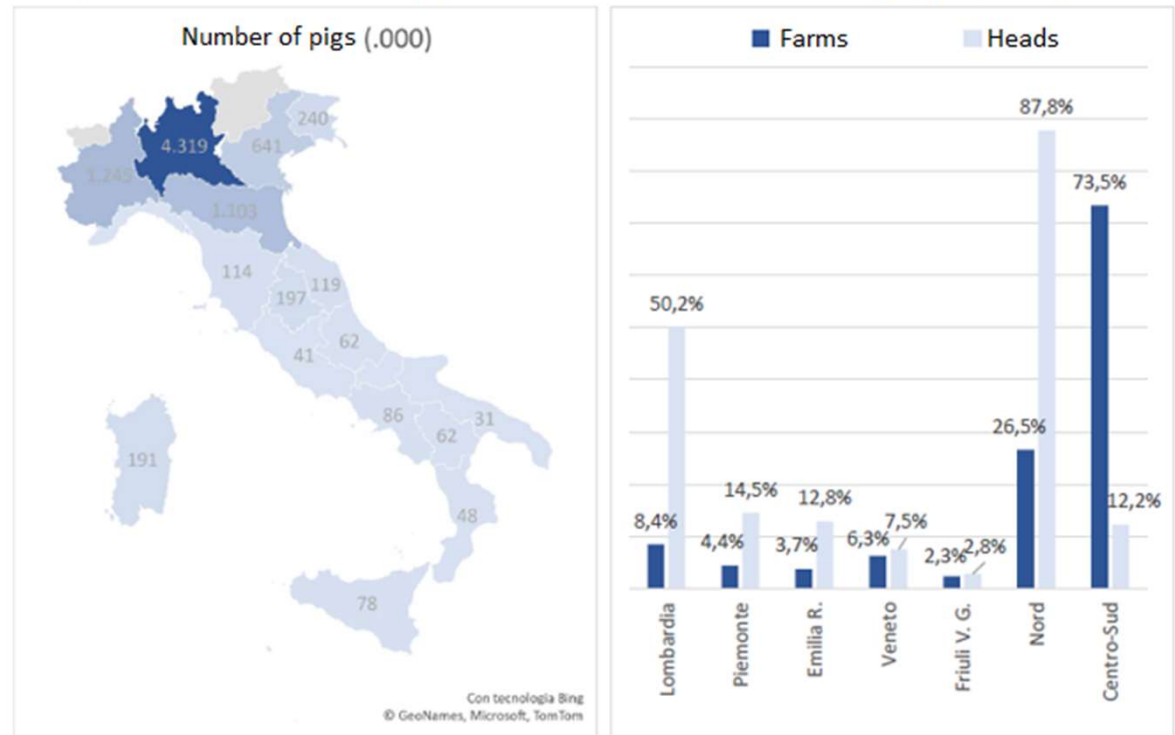


Figure 5. Overview of the Gridded Livestock of the World (GLW 3) data sets for cattle, buffaloes, sheep, goats, horses, pigs, chickens and ducks, based on the dasymetric model. Dark grey are areas considered unsuitable and dark green areas correspond to IUCN protected areas.

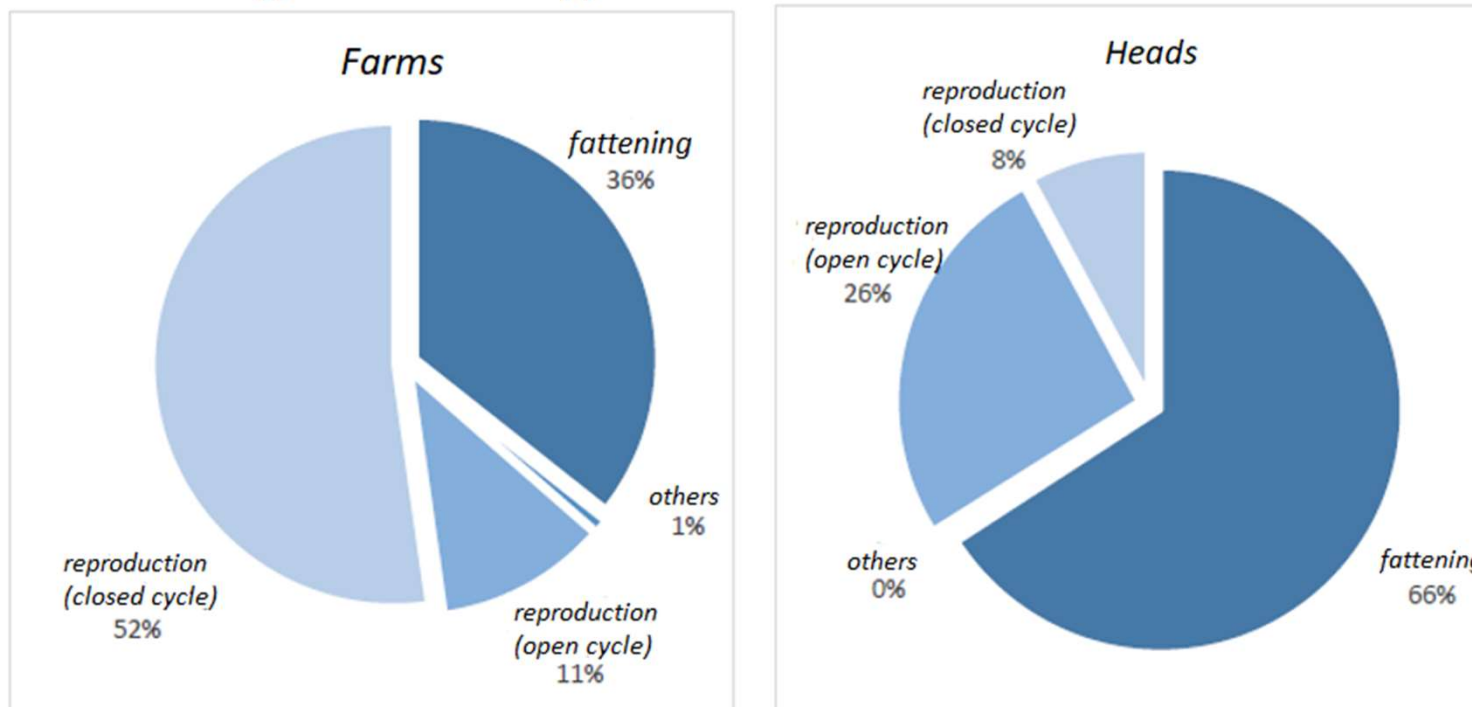
- PIG FARMING IN ITALY

Regional distribution of the pig herd and the number of herds (31/12/2019)



source: elaborazione RRR-Ismea su dati BDN-Anagrafe Nazionale Zootecnica (31/12/2019)

Distribution of farms and heads by production orientation



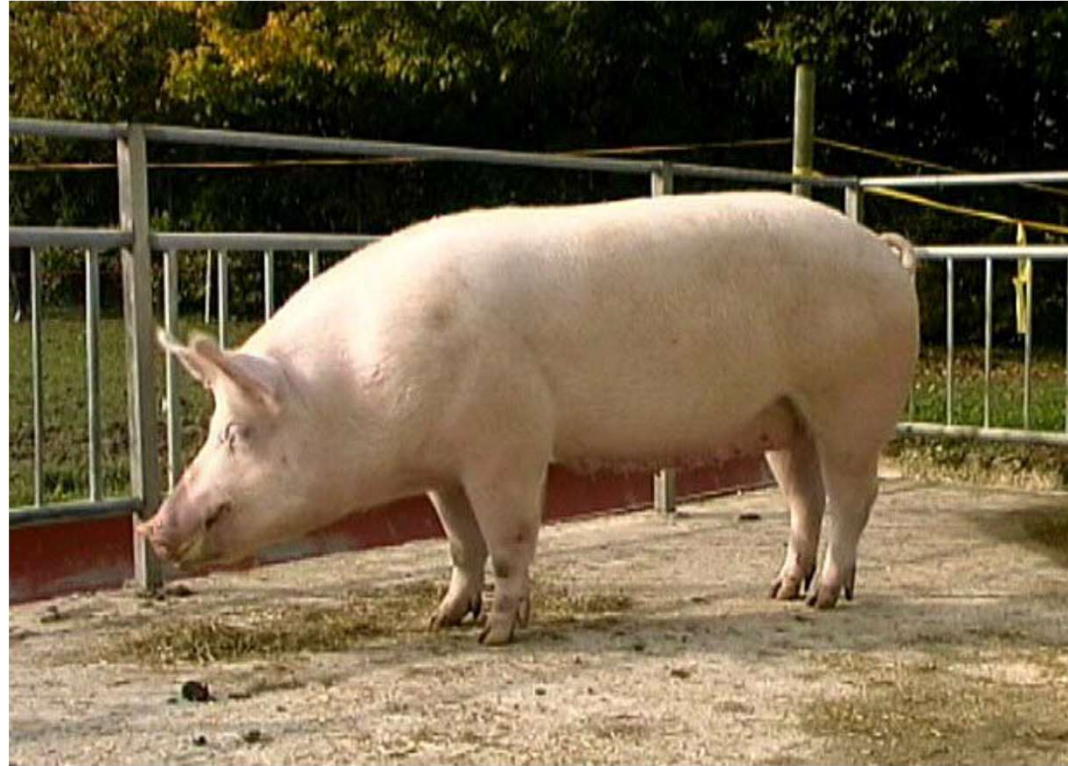
Source: elaborazione RRN-Ismea su dati BDN-Anagrafe Nazionale Zootecnica

Swine Terminology:
There are a number of terms that are unique to the swine industry.

- **Barrow:** Castrated male pigs intended for slaughter. Usually castrations are performed at a very young age (a few days old).
- **Boar:** Intact, sexually mature, male pigs intended for breeding purposes.
- **Farrowing:** The process of giving birth to a litter of piglets.
- **Nursing Pigs:** Pigs from birth until weaning and still nursing.
- **Piglet:** A newborn pig until it is weaned from a diet of milk to an all solid-feed ration.
- **Growing Pigs:** Barrows and gilts from approximately 25 to 30 kg to 50 kg.
- **Finishing Pigs:** Barrows and gilts from approximately 50 to 100 kg
- **Market Pigs:** Pigs that are marketed and slaughtered for pork production for 100 kg to final weight
- **Gilts:** Female pigs intended for slaughter or breeding purposes that have not yet farrowed a litter.
- **Replacement Gilt:** Breeding female pigs that have not yet farrowed a litter; usually weigh 220 to 300 lbs (100 to 135 kg).
- **Sow:** A female pig that has had at least one litter of piglets.

PIG BREEDS

Large white



Breed of English origin and selection.

It excels in heavy pig production and good for the light one. Prolific and with excellent breastfeeding capacity. High growth rates, from 500 to 800 g per day and with high conversion rates. Pigs of this breed at 6 months can even exceed 100 kg and becomes 170/200 at one year. Good meat quality, right ratio between fat and meat. Very prolific breed

PIG BREEDS

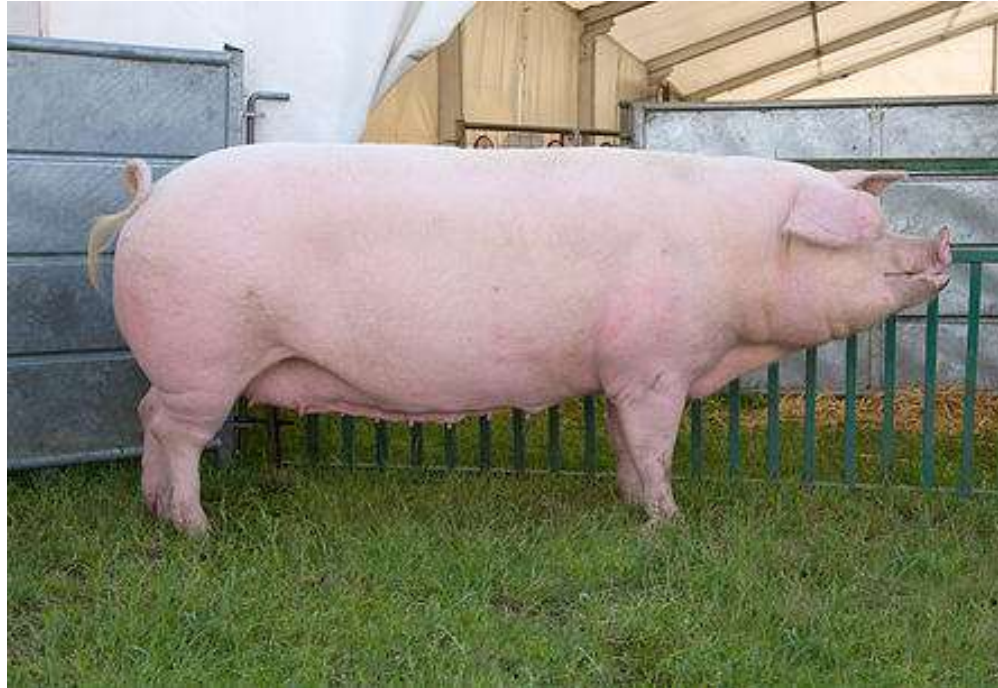
Hampshire



Breed originating from the United States. It is suitable for light pig production, but provides acidic meats, not very suitable for industrial processing. Used for crossing in the production of light pigs thanks to the high growth that shows in the first months of life. It adapts well to outdoor farming

PIG BREEDS

Landrace



Breed native to the British islands but selected in Denmark. Today it is one of the best breeds in absolute. For productivity it is comparable to the Large White, from which it is distinguished by its greater length (supernumerary dorsal vertebrae 15/16 instead of 13). High yield at the slaughterhouse, excellent both for the production of heavy pigs and for the production meat. Good prolificacy and high maternal aptitude.

PIG BREEDS

Duroc



Breed originating from the United States. Large size, it is capable of very strong daily growth (600-800 g), equal to those of the Large White and Landrace breed. High prolificacy and maternal aptitude. Used in Italy mainly as a boar for the cross in the production of heavy pork from a cured meat factory. In purity it has some defects that make it not very usable in farms industrial.

PIG BREEDS

Pietrain



Breed of Belgian selection. Hypertrophic pig, with masses very pronounced muscular which provide very high yields to the slaughterhouse, with light meats almost free of fat. Particularly suitable for light pig production. This breed is though characterized by a high susceptibility to stress, which determines alterations physiological masses muscular such from compromise the aptitude for processing into quality hams.

PIG FARMING

- TYPES OF BREEDING IN ITALY
- REPRODUCTION aimed at providing piglets to the next fattening phase and allowing replacement breeding animals at the end of their career;
- FATTENING for the production of pigs for slaughter, light or heavy depending on the destination (fresh meat or typical and non-typical seasoned cuts).
 - **LIGHT PIG** production of fresh meat for consumption (100/110 kg) –
 - **HEAVY PIG** 160/176 kg production of cured meats and hams, 70% of heavy pigs fall within the DOP

PIG FARMING

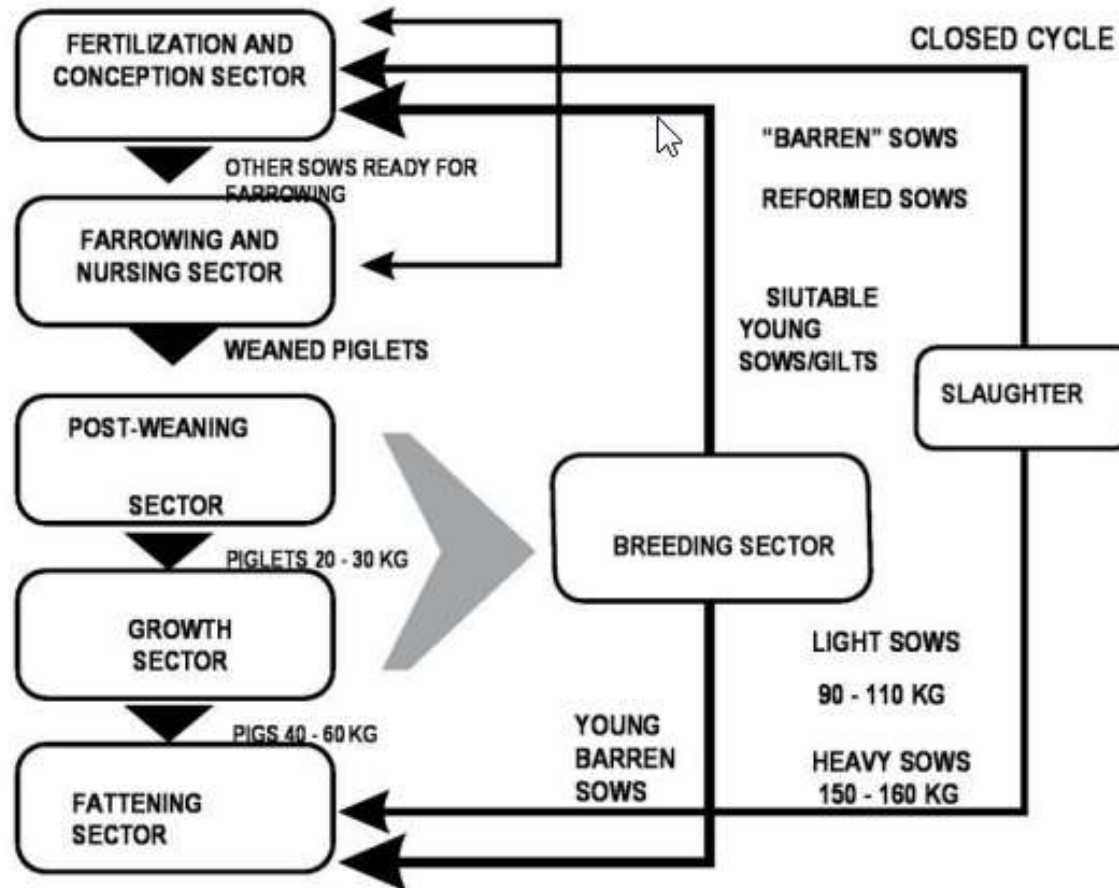
- OPEN CYCLE BREEDING if only one of the two phases is present, open cycle for reproduction or fattening either reproduction or fattening
- In open-cycle breeding farms (reproduction) – the final product is represented by piglets weighing about 30-40 kg intended for a subsequent stage of mating or fattening. The production cycle includes the following operations: reception of gilts; insemination (predominantly artificial), gestation and childbirth; breeding of fine piglets at the end of the weaning, shipping and fattening phase.
- In open-cycle breeding farms (fattening) – which represent 36 % of farms at national level with 66% of the total number of animals kept. The production cycle includes the arrival of piglets and the fattening phase up to the market.

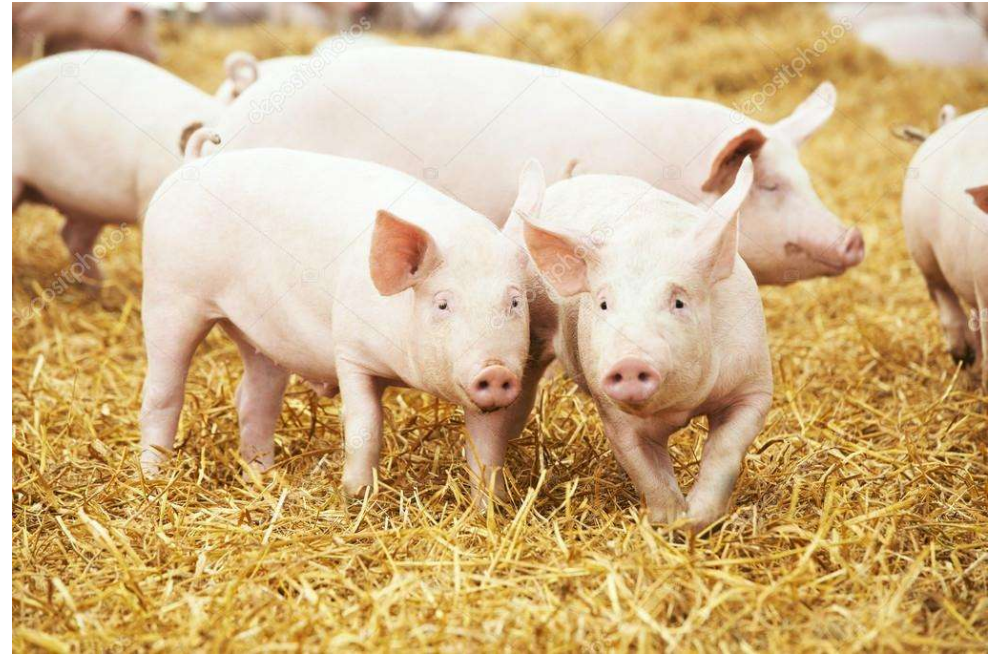
PIG FARMING

- CLOSED CYCLE BREEDING if both reproduction and fattening take place in the same farm.
- In closed-cycle breeding farms – which represent 52% of farms national with only 8% of number of bred animals – all the phases are represented, from reproduction to fattening. The final product is represented by pigs ready to slaughter up to a weight that can go from 100/110 kg for light pigs (fresh meat) up to 160/176 kg for heavy pigs (ham and traditional products).

TYPES OF PIGS REARED IN DIFFERENT TYPES OF BREEDING

Types of pigs present in a farm with a specific type of production	REPRODUCTION	FATTENING	CLOSED CYCLE
	Gilt/pregnant Sow	Growing pigs	Gilt/pregnant sow
	Gilt/sow with a litter	Finishing pigs	Gilt/sow with a litter
	Nursing pigs	Light pigs	Nursing pigs
	Growing pigs	Heavy pigs	Growing pigs
	boars		Finishing pigs
			Light pigs
			Heavy pigs
			boars











PIG FARMING

Gestation and
calving of sows

PIG FARMING

- BREEDING OF SOWS: Physiology of reproduction
- Puberty: 7-8 months
- Sexual cycle: duration 21 days;
- Heat: lasts about 60 hours;
- Ovulation: around the 40th hour of heat;
- Pregnancy: 114 days (3 m + 3 weeks + 3 days);
- Piglets weaned for farrowing: the average is 12.
- Weaned piglets/year: 24.

MAIN PATHOLOGIES

- **MEASELS**
- Infectious bacterial disease of pigs, caused by **eryspelothrix rhusiopathie**, characterized by sudden deaths, fever, skin rashes, arthritis and abortions.
- **Specific and sanitary prevention**
- Vaccines are successfully used. Vaccination is done to pre-vent measles at age above three months, so that the disease is kept under control, it is recommended to disinfect pig stalls.
- **Treatment**
- In affected pigs antibiotic therapy and anti-measles serum are successfully used.

MAIN PATHOLOGIES

- **CLASSIC PLAGUE**
- It is infectious viral contagious disease of pigs. This disease usually occurs through contact with affected animals. Pigs contract various diseases by contact, digestive or breathing routes, with their secretions and excretions. Vaccinations may transmit the disease, and pregnant sows may be carriers of this infection. However, vaccinating sows within the first 10 days of pregnancy increases the immunity and enables the birth of healthy piglets.
- **Clinical signs**
- High temperature of 41 degrees Celsius, diarrhea, and conjunctivitis with abnormal drainage, nausea, white color, and neurotic manifestations are indicators that may lead to suspecting the disease and administering the drug therapy. The disease may last 5-10 days.
- **Prophylaxis**
- It is based on the mandatory declaration of the disease, slaughter of all diseased and infected animals, in order not to spread the disease further. **Vaccination is done once a year.**

MAIN PATHOLOGIES

- **Aujeszky's disease (pseudorabies)** is a highly contagious, economically significant disease of pigs.
- This viral infection tends to cause central nervous system (CNS) signs in young animals, respiratory illness in older pigs, and reproductive losses in sows.
- Mortality rates in very young piglets can be high, although older animals typically recover. Recovered swine can carry the virus latently, and may resume shedding it at a later time.
- Other species can be infected when they contact infected pigs or eat raw porcine tissues, resulting in neurological signs that are usually fatal within a few days.

MAIN PATHOLOGIES

- **AFRICAN PLAGUE**
- African plague is a viral pig disease characterized by signs of hemorrhagic septicemia and death. This disease is similar to classical plague.
- **Clinical signs**
- It lasts for a period of 3 to 15 days, and is characterized by nose secretion, high temperature of up to 42 degrees, ano-rexia, abdominal digestive problems, and respiratory problems. These signs last from 24 to 48 hours and end with death. The treatment does not yield results, it is not curable.
- **Sanitary prophylaxis**
- It includes measures of a general nature to improve the sanitary conditions of pig farms, and to create adequate conditions for the marketing and industrialization of pig products. These are mandatory standard measures for all EU countries.

MAIN PATHOLOGIES

- **Swine vesicular disease (SVD)** is a viral disease of pigs that is characterized by the formation of vesicles and erosions on the hooves and around the mouth.
- The clinical signs can vary in severity, but the illness is short and not life-threatening. Its main significance is the strong resemblance to other vesicular diseases, particularly foot-and-mouth disease.
- Rapid differentiation of these two diseases is critical, as the introduction of foot-and-mouth disease could result in severe economic losses in disease-free regions.
- Swine vesicular disease can also cause economic losses from export restrictions.

NORMATIVE REFERENCES: EU FRAMEWORK FOR ANIMAL PROTECTION

1 - COUNCIL DIRECTIVE 98/58/EC of 20 July 1998 concerning the protection of animals kept for farming purposes

Article 3: Member States shall make provision to ensure that the owners or keepers take all reasonable steps to ensure the welfare of animals under their care and to ensure that those animals are not caused any unnecessary pain, suffering or injury

Article 10: Member States shall bring into force the laws, regulations and administrative provisions, including any sanctions, necessary to comply with this Directive not later than 31 December 1999, subject to any different decision taken by the Council in the light of the report referred to in Article 8. They shall forthwith inform the Commission thereof

1 - COUNCIL DIRECTIVE
98/58/EC of 20 July 1998
concerning the protection
of animals kept for
farming purposes

ANNEX

Staffing: sufficient staff with knowledge and professional competence

Inspection: be inspected at intervals sufficient to avoid any suffering (daily)

Record keeping: keep records of treatments and number of mortalities

Freedom of movement: NOT be restricted in such a way as to cause unnecessary suffering or injury

Buildings and accommodation: NO harmful materials, NO sharp edges, air-temperature-humidity, light

1 - COUNCIL DIRECTIVE
98/58/EC of 20 July 1998
concerning the
protection of animals
kept for farming purposes

Animals not kept in buildings: protection from adverse weather, predators and risks.

Automatic or mechanical equipment: essential for the health inspected at least once daily (ventilation backup system)

Feed, water and other substances:

- appropriate to their age and species
- sufficient quantity
- All animals must have access to a suitable water supply
- No other substance, with the exception of those given for therapeutic, or prophylactic purposes

Mutilations: specific provisions concerning mutilations

Breeding procedures: breeding procedures likely to cause suffering or injury must not be practised.

ITALIAN LEGISLATION: PROTECTION AT FARM

- Legislative Decree 26 March 2001, n. 146 Implementation of Directive 98/58 / EC relating to the protection of animals kept for farming purpose (Official Gazette no. 95 of 24.4.2001).
- Annex:
 - 19. It is forbidden to burn the tendons and cut wings for poultry and tails for bovine animals except for therapeutic purposes certificates. The cauterization of the corneal draft is allowed at the under three weeks of life. The cut of the beak must be carried out in the first days of life with the sole use of equipment that minimizes the suffering of animals. **Castration is allowed to maintain the quality of the products and traditional production practices provided that such operations are carried out before reaching maturity sexual by qualified personnel, minimizing any suffering for animals.** From 1 January 2004 it is prohibited the plucking of live birds. The practices referred to in this point are carried out under the supervision of the veterinarian of the company.

2. COUNCIL
DIRECTIVE
2008/120/EC of 18
December 2008
laying down
minimum standards
for the protection of
pigs

- Art 1: minimum standards for the protection of pigs confined for rearing and fattening
- Art 3: the unobstructed floor area available to each weaner or rearing pig kept in a group, excluding gilts after service and sows, must be at least

Live weight (kg)	m ²
Not more than 10	0,15
More than 10 but not more than 20	0,20
More than 20 but not more than 30	0,30
More than 30 but not more than 50	0,40
More than 50 but not more than 85	0,55
More than 85 but not more than 110	0,65
More than 110	1,00

2. COUNCIL
DIRECTIVE
2008/120/EC of 18
December 2008
laying down
minimum standards
for the protection of
pigs

- Member States shall ensure that sows and gilts are kept in groups during a period starting from four weeks after the service to one week before the expected time of farrowing.
- Member States shall ensure that sows and gilts kept in groups are fed using a system which ensures that each individual can obtain sufficient food even when competitors for the food are present.
- Member States shall ensure that all dry pregnant sows and gilts, in order to satisfy their hunger and given the need to chew, are given a sufficient quantity of bulky or high-fibre food as well as high-energy food.

2. COUNCIL
DIRECTIVE
2008/120/EC of 18
December 2008
laying down
minimum standards
for the protection of
pigs

- ANNEX I:
- noise levels as loud as 85 dBA shall be avoided. Constant or sudden noise shall be avoided
- at least 40 lux for a minimum period of eight hours per day

ACCOMODATION

3. The accommodation for pigs must be constructed in such a way as to allow the animals to:
 - have access to a lying area physically and thermally comfortable as well as adequately drained and clean which allows all the animals to lie at the same time,
 - rest and get up normally,
 - see other pigs; however, in the week before the expected farrowing time and during farrowing, sows and gilts can be kept out of the sight of conspecifics.

ACCOMODATION

4. Notwithstanding Article 3(5), pigs must have permanent access to a sufficient quantity of material to enable proper investigation and manipulation activities, such as straw, hay, wood, sawdust, mushroom compost, peat or a mixture of such, which does not compromise the health of the animals.
5. Floors must be smooth but not slippery so as to prevent injury to the pigs and so designed, constructed and maintained as not to cause injury or suffering to pigs. They must be suitable for the size and weight of the pigs and, if no litter is provided, form a rigid, even and stable surface.

FEEDING

6. All pigs must be fed at least once a day. Where pigs are fed in groups and not *ad libitum* or by an automatic system feeding the animals individually, each pig must have access to the food at the same time as the others in the group.
7. All pigs over two weeks of age must have permanent access to a sufficient quantity of fresh water.

MUTILATION

8. All procedures intended as an intervention carried out for other than therapeutic or diagnostic purposes or for the identification of the pigs in accordance with relevant legislation and resulting in damage to or the loss of a sensitive part of the body or the alteration of bone structure shall be prohibited with the following exceptions:

- a uniform reduction of corner teeth of piglets by grinding or clipping not later than the seventh day of life of the piglets leaving an intact smooth surface; boars' tusks may be reduced in length where necessary to prevent injuries to other animals or for safety reasons,
- docking of a part of the tail,

- castration of male pigs by other means than tearing of tissues,

- nose-ringing only when the animals are kept in outdoor husbandry systems and in compliance with national legislation.

Neither tail-docking nor reduction of corner teeth must be carried out routinely but only where there is evidence that injuries to sows' teats or to other pigs' ears or tails have occurred. Before carrying out these procedures, other measures shall be taken to prevent tail-biting and other vices, taking into account environment and stocking densities. For this reason inadequate environmental conditions or management systems must be changed.

COMMISSION
RECOMMENDATION (EU)
2016/336 of 8 March 2016
on the application of Council
Directive 2008/120/EC laying
down minimum standards for
the
protection of pigs as regards
measures to reduce the need
for tail-docking

- Council Directive 2008/120/EC (1) requires Member States to ensure that tail-docking is not carried out routinely
- to prevent tail-biting, an aberrant behaviour
- before carrying out tail-docking other measures are to be taken to prevent tail-biting
- pigs have permanent access to a sufficient quantity of material to enable proper investigation and manipulation activities (**enrichment materials**)

ENRICHMENT MATERIALS

a) Edible — so that pigs can eat or smell them, preferably with some nutritional benefits;

(b) Chewable — so that pigs can bite them;

(c) Investigable — so that pigs can investigate them;

(d) Manipulable — so that pigs can change their location, appearance or structure.

ENRICHMENT MATERIALS

a) optimal materials — materials possessing all the characteristics listed in paragraphs 4 and 5 and therefore such materials can be used alone;

(b) suboptimal materials — materials possessing most of the characteristics listed in paragraphs 4 and 5 and therefore such materials should be used in combination with other materials;

(c) materials of marginal interest — materials providing distraction for pigs which should not be considered as fulfilling their essential needs and therefore optimal or suboptimal materials should also be provided.

LEGISLATION:
PROTECTION AT
TRANSPORT



LEGISLATION: PROTECTION AT TRANSPORT

- COUNCIL REGULATION (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations

General conditions for the transport of animals

No person shall transport animals or cause animals to be transported in a way likely to cause injury or undue suffering to them.

In addition, the following conditions shall be complied with:

- (a) all necessary arrangements have been made in advance to minimise the length of the journey and meet animals' needs during the journey;
- (b) the animals are fit for the journey;
- (c) the means of transport are designed, constructed, maintained and operated so as to avoid injury and suffering and ensure the safety of the animals;
- (d) the loading and unloading facilities are adequately designed, constructed, maintained and operated so as to avoid injury and suffering and ensure the safety of the animals;
- (e) the personnel handling animals are trained or competent as appropriate for this purpose and carry out their tasks without using violence or any method likely to cause unnecessary fear, injury or suffering;
- (f) the transport is carried out without delay to the place of destination and the welfare conditions of the animals are regularly checked and appropriately maintained;
- (g) sufficient floor area and height is provided for the animals, appropriate to their size and the intended journey;
- (h) water, feed and rest are offered to the animals at suitable intervals and are appropriate in quality and quantity to their species and size.

COUNCIL REGULATION (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations

Article 4 Transport documentation

- (a) their origin and their ownership;
- (b) their place of departure;
- (c) the date and time of departure;
- (d) their intended place of destination;
- (e) the expected duration of the intended journey.
- The transporter shall make the documentation provided for in paragraph 1 available to the competent authority upon request.
- MODELLO IV

COUNCIL REGULATION (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations

Art 6 transporters:

- No person shall act as a transporter unless he holds an authorisation issued by a competent authority
- Transporters shall entrust the handling of the animals to personnel who have received training on the relevant provisions of Annexes I and II

COUNCIL REGULATION (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations

ANNEX I FITNESS FOR TRANSPORT

- 1. No animal shall be transported unless it is fit for the intended journey, and all animals shall be transported in conditions guaranteed not to cause them injury or unnecessary suffering.
- 2. Animals that are injured or that present physiological weaknesses or pathological processes shall not be considered fit for transport and in particular if:
 - (a) they are unable to move independently without pain or to walk unassisted;
 - (b) they present a severe open wound, or prolapse;
 - (c) they are pregnant females for whom 90 % or more of the expected gestation period has already passed, or females who have given birth in the previous week;
 - (d) they are new-born mammals in which the navel has not completely healed;
 - (e) they are pigs of less than three weeks, lambs of less than one week and calves of less than ten days of age, unless they are transported less than 100 km;
 - (f) they are dogs and cats of less than eight weeks of age, unless they are accompanied by their mother;
 - (g) they are cervine animals in velvet.

COUNCIL REGULATION (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations

MEANS OF TRANSPORT

- 1. **Provisions for all means of transport**
- 1.1. Means of transport, containers and their fittings shall be designed, constructed, maintained and operated so as to:
 - (a) avoid injury and suffering and to ensure the safety of the animals;
 - (b) protect the animals from inclement weather, extreme temperatures and adverse changes in climatic conditions;
 - (c) be cleaned and disinfected;
 - (d) prevent the animals escaping or falling out and be able to withstand the stresses of movements;
 - (e) ensure that air quality and quantity appropriate to the species transported can be maintained;
 - (f) provide access to the animals to allow them to be inspected and cared for;
 - (g) present a flooring surface that is anti-slip;
 - (h) present a flooring surface that minimises the leakage of urine or faeces;
 - (i) provide a means of lighting sufficient for inspection and care of the animals during transport.

COUNCIL REGULATION (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations

TRANSPORT PRACTICES: Loading, unloading and handling

- 1.3. Facilities for loading and unloading, including the flooring, shall be designed, constructed, maintained and operated so as to:
 - (a) prevent injury and suffering, surfaces shall not be slippery and lateral protections shall be provided;
 - (b) be cleaned and disinfected.
- 1.4. (a) Ramps shall not be steeper than an angle of 20 degrees, that is 36,4 % to the horizontal for pigs, calves and horses and an angle of 26 degrees 34 minutes, that is 50 % to the horizontal for sheep and cattle other than calves. Where the slope is steeper than 10 degrees, that is 17,6 % to the horizontal, ramps shall be fitted with a system, such as provided by foot battens, which ensure that the animals climb or go down without risks or difficulties;
 - (b) lifting platforms and upper floors shall have safety barriers so as to prevent animals falling or escaping during loading and unloading operations.

COUNCIL
REGULATION
(EC) No 1/2005
of 22 December
2004 on the
protection of
animals during
transport and
related
operations



COUNCIL REGULATION (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations

Handling

- 1.8. It shall be prohibited to:
 - (a) strike or kick the animals;
 - (b) apply pressure to any particularly sensitive part of the body in such a way as to cause them unnecessary pain or suffering;
 - (c) suspend the animals themselves by mechanical means;
 - (d) lift or drag the animals by head, ears, horns, legs, tail or fleece, or handle them in such a way as to cause them unnecessary pain or suffering;
 - (e) use prods or other implements with pointed ends;
 - (f) knowingly obstruct any animal which is being driven or led through any part where animals are handled.









COUNCIL
REGULATION
(EC) No
1099/2009 of 24
September 2009
on the
protection of
animals at the
time of killing

- This Regulation lays down rules for the killing of animals bred or kept for the production of food, wool, skin, fur or other products as well as the killing of animals for the purpose of depopulation and for related operations
- SHALL NOT APPLY:
- where animals are killed:
 - (i) during scientific experiments carried out under the supervision of a competent authority;
 - (ii) during hunting or recreational fishing activities;
 - (iii) during cultural or sporting events;
 - (b) to poultry, rabbits and hares slaughtered **outside of a slaughterhouse by their owner for his/her private domestic consumption.**



COUNCIL
REGULATION
(EC) No
1099/2009 of 24
September 2009
on the
protection of
animals at the
time of killing

Article 3 General requirements for killing and related operations

- 1. Animals shall be spared any avoidable pain, distress or suffering during their killing and related operations.
- 2. For the purposes of paragraph 1, business operators shall, in particular, take the necessary measures to ensure that animals:
 - (a) are provided with physical comfort and protection, in particular by being kept clean in adequate thermal conditions and prevented from falling or slipping;
 - (b) are protected from injury;
 - (c) are handled and housed taking into consideration their normal behaviour;
 - (d) do not show signs of avoidable pain or fear or exhibit abnormal behaviour;
 - (e) do not suffer from prolonged withdrawal of feed or water;
 - (f) are prevented from avoidable interaction with other animals that could harm their welfare.

Article 4 Stunning methods

- 1. Animals shall only be killed after stunning in accordance with the methods and specific requirements related to the application of those methods set out in Annex I. The loss of consciousness and sensibility shall be maintained until the death of the animal.

COUNCIL
REGULATION (EC)
No 1099/2009 of
24 September
2009
on the protection
of animals at the
time of killing

Article 7 Level and certificate of competence

- 1. Killing and related operations shall only be carried out by persons with the appropriate level of competence to do so without causing the animals any avoidable pain, distress or suffering.

Article 12 Imports from third countries .

- The health certificate accompanying meat imported from third countries shall be supplemented by an attestation certifying that requirements at least equivalent to those laid down in Chapters II and III of this Regulation have been met.

Article 17 Animal welfare officer

- 1. Business operators shall designate an animal welfare officer for each slaughterhouse to assist them in ensuring compliance with the rules laid down in this Regulation.
- 4. The animal welfare officer shall hold a certificate of competence as referred to in Article 21, issued for all the operations taking place in the slaughterhouses for which he or she is responsible.

STUNNING METHODS

- Mechanical methods
 - Penetrative captive bolt device
 - Non-penetrative captive bolt device
 - Firearm with free projectile
 - Maceration
 - Cervical dislocation
 - Percussive blow to the head

STUNNING METHODS

- Electrical methods
 - Head-only electrical stunning
 - Head-to-Body electrical stunning
 - Electrical waterbath

Table 1 — Minimum currents for head-only electrical stunning

Category of animals	Bovine animals of 6 months or older	Bovine animals less than 6 months	Animals of ovine and caprine species	Animals of porcine species	Chicken	Turkeys
Minimum current	1,28 A	1,25 A	1,00 A	1,30 A	240 mA	400 mA







STUNNING METHODS

- Controlled atmosphere methods
 - Carbon dioxide at high concentration
 - Carbon dioxide in two phases
 - Carbon dioxide associated with inert gases
 - Inert gases
 - Carbon monoxide (pure source)
 - Carbon monoxide associated with other gases
 - Low atmospheric pressure stunning
- Other methods
 - Lethal injection

SWINE FARMING IN THE WORLD: NUMBERS

- The European Union is the world's leading exporter of pork, with about 3.2 million tons - in 2019, however for the next decade a contraction is expected due to introduction of policies that impose more environmental constraints.
- USA is the world's second largest exporter with 2.9 million tons in 2019. Flows - commercial are mainly oriented towards China, Mexico, Japan, Canada, South Korea and Vietnam
- Canada is the world's third largest exporter with 1.6 million tons in 2019. About 70% of the - production is exported, thanks to an efficient supply chain, which makes the sector strongly - internationally competitive. Japan, USA and China are the main target markets.
- Brazil is the fourth largest producer and exporter in the world (respectively 4 and 0.5 million - tonnes in 2019). Domestic production is increasing to meet strong demand - foreign (especially china). In particular, in 2020 an increase in exports of the - 40%.
- Russia, thanks to the strong investments of recent years in the modernization and construction of large production units, has achieved self-sufficiency and imports have fallen. Until 2013 it was the first outlet market for Community productions.

SWINE FARMING IN THE WORLD: NUMBERS

- The pig population of the European Union (27 States members) in December 2020 showed an increase, rising to about 146.1 million heads from over 143.1 in the year previous (+2%).
- Among the countries with significant pig farming, they showed a trend positive Spain (+4.6%), whose pig fleet has confirmed the largest in Europe, France (+2.7%) Denmark (+5.2%) and Poland (+4.6%); showed a mild increase in Italy (+0.4%), Germany remained stable (-0.2%).

SWINE FARMING IN THE WORLD: NUMBERS

- During 2020 the pork production of the EU (after Brexit) recorded an increase of +1.2%, rising to 23.271 million tons from 22.996 in the previous year, driven by China's demand, so ASF on the one hand represented an advantage thanks to the increase in imports to China on the other a problem when in September 2020 it reached Germany.
- The pig population of the European Union in December 2020 showed an increase, rising to around 146.1 million head from over 143.1 in the previous year (+2%).
- Per capita consumption, considering the trend of the population, decreased by -2.6%, reaching 32.2 kg from 33.1 kg in the previous year.
- o Beyond these events, the medium- to long-term trend at the global level is that pork consumption, driven by the economic and demographic growth of developing countries, is increasing. It is estimated that 28% of the increase in world meat consumption by 2030 will be pork, a share lower only than that represented by poultry meat.

SWINE FARMING IN THE WORLD: NUMBERS

- In December 2020, the Italian pig herd consisted of 8.543 million head, a slight increase (+0.4%) compared to December 2019, when the size of pigs amounted to 8.510 million head.
- Over 32.000 farms 88% concentrated in the northern regions where there are fewer farms but more heads and in the south there are many small farms.
- The first producer is Lombardy with about 50% of the total production followed by Piedmont and Emilia Romagna
- To confirm the production specialization of the supply chain, over 90% of the slaughtered animals are fat pigs and, of these, about 80% are included in the protected circuit for the production of hams and other DOP cured meats; the remaining part of the offer is represented by piglets and light pigs for the production of porchetta or for fresh consumption.



thanks

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