Project AGRI-TRANS:
Transparency in agricultural vocational training

European standards using the example of livestock farming (pig farming)
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GD Bildung und Kultur

Programm für lebenslanges Lernen

Vocational qualification	**Intensive pig production**
Vocational group:	Agriculture
Level	2
Code	AGA002_2
Version	5
Status	published

General qualification

Being able to carry out activities in intensive pig production and keeping, and to efficiently produce piglets, young pigs and fattening pigs; knowledge and application of criteria for keeping the animals healthy, implementation of industrial protection measures, environmental protection criteria and food hygiene.

Competence units

UC0004_2:	working in breeding gilts, breeding boars and piglets (phase 1);
UC0005_2:	working with young pigs and fattening pigs (phases 2 and 3);
UC0006_2:	installation and maintenance of appliances, machines and equipment for pig production

Work context

Fields of work

The work can be carried out in employment or self-employment, in large-scale, medium-sized or small companies. They can be divided into

- agricultural production facilities;
- pig production facilities;
- service facilities for animal breeding;
- marketing facilities for semen/sperm, feedstuff, drugs, materials for this type of production, etc.;
- independent slaughter facilities;
- cooperatives;
- agricultural processing companies.

Production sector

Belongs to pig production and related services

Related vocations and work places

worker qualified for working at pig farms;

workers qualified for agricultural production;
expert for artificial insemination;
agricultural foreman (non-university higher education)

Practical training at the companies (Formación Asociada) (360 hours)

Training modules

MF0004_2: breeding of gilts, breeding boars and piglets (150 h)
MF0005_2: breeding of young pig and fattening pigs (120 h)
MF0006_2: installations, machines and equipment for pig breeding (90 h)

Competence unit 1	**Working in breeding gilts, breeding boars and piglets**
LEVEL	2
CODE	UC0004_2

Work activities and criteria for doing them

RP 1: working with gilts for their adaptation and preparation for being a mother sow in accordance with the respective standards and procedures;
CR 1.1 During quarantine the gilts are controlled for preventing the introduction of diseases and ensuring their adaptation to the breeding farm;
CR 1.2 The indicators for sexual maturity are controlled for keeping them on a normal level;
CR 1.3 Synchronisation of the rutting season for sows that have not been pregnant before so that covering and farrowing can be done in groups and within short periods;
CR 1.4 Controlled feeding of sows that have not been pregnant before for optimising their physical state, maximising ovulation and increasing their productivity;
CR 1.5 Special hygiene programme for gilts (vaccinations and veterinary treatment) for ensuring good hygiene for the final products.

RP 2: Observing and monitoring the phases of reproduction for ensuring pregnancy
CR 2.1 Proper care for sows for optimising the period between weaning and covering;
CR 2.2 Systematic and regular identification of rutting periods so that covering can be done at the most appropriate time, pregnancy can be ensured and productivity of the sows is being optimised;
CR 2.3 Natural covering or artificial insemination of the sows by an appropriate method and at the optimum time for reproduction;
CR 2.4 After they have farrowed for maximising ovulation appropriate feeding of sows between weaning and covering;
CR 2.5 Removal of sows from breeding depending upon their age and reduction of productivity.

RP 3: Monitoring pregnancy for ensuring maximum number of piglets farrowed and surviving;
CR 3.1 Pregnancy of the sows is identified by means of suitable diagnostics and respective instruments;
CR 3.2 Monitoring of mother sows during pregnancy for discovering irregularities like recurring rutting, no pregnancy or miscarriages;
CR 3.3 Pregnant mother sows are kept in groups or single depending upon the phase of pregnancy and the applicable regulations;
CR 3.4 Environmental factors, available space, etc. are controlled for ensuring the welfare of the pregnant sows during all phases of pregnancy;
CR 3.5 Feeding of the pregnant sows in line with the nutritional demands in each phase of pregnancy for ensuring most appropriate feeding at all times;

CR 3.6 Ongoing monitoring of the mother sows' health for maximising their productivity;
CR 3.7 The pregnant mother sows undergo a preventive treatment (vaccinations and treatments) in line with the specifications for each phase.

RP 4: Activities during farrowing for ensuring a maximum number of healthy piglets with reasonable weight
CR 4.1 One week before farrowing the pregnant sows are brought to special sties for adapting to them.
CR 4.2 During farrowing the sows are continually monitored - from the appearance of the piglets until the placenta has been completely discharged.
CR 4.3 During the entire lactation period the sows are monitored – especially their physical and health status (teats, feed intake, defecating).
CR 4.4 As long as the sows are lactating they get additional feed and water rations to satisfy their needs during this phase so that milk production is maximised.
CR 4.5 Control of the environmental factors like temperature and ventilation of the stable for enhancing the mother sows' welfare and productivity;
CR 4.6 The piglets are subject to a preventive veterinary programme at the place of production in line with the regulations applicable for this phase.

RP 5: Handling of the piglets during the suckling period for ensuring good weight gain and increasing the survival rate
CR 5.1 During the first 24 hours after farrowing the piglets physical and health state is monitored (vitality, absence of deformations, state of the umbilical cord).
CR 5.2 The newly born piglets are monitored to find if they are fed properly (number and quality of the teats) for ensuring that first suckling works well. During the first 24 hours the decision is made whether the piglets stay with the mother sow or are moved.
CR 5.3 The piglets of each farrow are individually marked, their canine teeth are extracted, the tails docked and they may be neutered.
CR 5.4 Their core temperature is checked for increasing the survival rate.
CR 5.5 For intensifying production the piglets are weaned in line with the applicable regulations.
CR 5.6 The piglets are subject to a special, preventive veterinary programme for that life phase.

RP 6: Handling of the breeding boars during rutting, natural insemination and recovery of semen for optimising the breeding productivity.
CR 6.1 The boars are kept in boxes with suitable size and equipment - separately from the sows.
CR 6.2 The boars are taken to the sows as appropriate to identify the sows' rutting period.
CR 6.3 Natural insemination is done with the appropriate technique, at the correct time and with suitable frequency for ensuring pregnancy and achieving an optimum use of the breeding boars' reproductive potential.
CR 6.4 The boars are suitably developed in line with the applicable methods and regulations for achieving an optimum production of semen.
CR 6.5 Recovery of semen and taking semen samples is carried out with suitable methods in line with the animals' physical state, their willingness to be handled and with adherence to the hygiene regulations.
CR 6.6 The equipment and instruments for recovery semen, treating it and carrying out artificial insemination are kept and treated in line with the hygiene regulations.
CR 6.7 The boars are fed and their health is controlled in line with the applicable programmes.

Work context

Means of production
Feeding troughs for concentrated feed, water troughs or taps, enclosures, wheelbarrows and transport troughs, programme for covering/insemination, equipment for handling the animals, enclosures for recovery semen, equipment for storing semen, mobile refrigerators, catheters and catheter tips, pipettes, semen, instruments for handling and injecting semen, vaginal speculum, ultrasound unit, other equipment for identifying a pregnancy, ventilation system, thermometer, infrared lamps, UV-lamps, heating mats for piglets, heating units, thermostats and equipment for temperature and ventilation control, feedstuff/dry feed, feedstuff silos, automatic installations for feedstuff distribution, feedstuff stores, fresh feed, synthetic milk, feedstuff additives (minerals, vitamins), preservatives, straw, saw dust, wood shavings, animals at various ages, stables for pigs. Equipment and material for marking and identification, drugs, equipment for vaccinations and injections, refrigerators and equipment for storing drugs, office material, filing cards (computer software for pig production management).

Products and results
Replacement animals (newly arrived), culls, boars, piglets for further breeding and fattening, piglets for slaughtering, fattening pigs

Information produced and used
Instructions of use for various pieces of equipment and substances, descriptions for identifying diseases (general or specific), lists of mother sows, tables of lactation periods, overviews and reports for comparing production targets and actual production (reproduction cycles, farrows, number of piglets, lactation periods); health programme, used drugs and administrative records; stocks, etc.; register of waiting times before slaughtering; datasheets concerning feedstuff composition; datasheets for nutritional needs of pigs in relation with their life phase; internal records about work execution/progress, work instructions, production phases and individual steps of work; diagrams for production control, counting, number of piglets (total, life and dead piglets born per farrow), number of piglets at weaning time, number of piglets surviving up to weaning, number of days between weaning and next insemination; table of piglets born and weaned per sow and year for the location; diagrams for controlling environmental factors.

COMPETENCE UNIT 2 **Working in breeding pigs for further breeding and for fattening (phases 2 and 3)**
LEVEL 2
CODE UC0005_2

Work activities and criteria for doing them

RP 1: Handling of piglets after weaning for checking their health state and ensuring productivity in line with the previously defined criteria.
CR 1.1 After they were born the piglets are checked for their state of health to prevent the introduction of diseases and ensure their adaptation.
CR 1.2 Homogeneous groups of animals are formed according to the piglets' sex, size and the available space. The required minimum space per animal must be guarantied.
CR 1.3 The environmental factors in the stables where the breeding animals are kept have to be controlled for optimising their state of health and productivity.
CR 1.4 The feedstuff rations are dealt out to the breeding pigs in accordance with feeding schedules. Suitable measures are taken, controlled and recorded to ensure that each animal is regularly taking in the maximum amount of feed.
CR 1.5 The animals that grow slowest or are diseased are identified and/or separated from the others for treating them as suitable.

RP 2: Handling and control of fattening pigs for ensuring their health and good production results
CR 2.1 Upon entry into this phase of the production cycle the fattening animals are examined for their state of health, for preventing the spreading of diseases and ensuring their proper adaptation.
CR 2.2 Homogeneous groups of animals are formed according to the piglets' sex, size and the available space. The required minimum space per animal must be guarantied.
CR 2.3 The environmental factors in the stables where the breeding animals are kept, the feed and water supply systems are being controlled for optimising their state of health and productivity.
CR 2.4 Diseased animals are identified on the basis of specific signs, symptoms and changes of previously defined parameters.
CR 2.5 The diseased animals are identified and suitable measures are taken for their recovery or removal from the group.

RP 3: Ensuring hygienic conditions of the production facility by means of preventive veterinary measures
´CR 3.1 Vaccinations, pest control and other preventive measures are implemented in accordance with a defined schedule for ensuring a good health status and achieving the production targets.
CR 3.2 Defined drugs are administered as prescribed, taking into account the instructions and the period before slaughtering during which drug must not be administered.
CR 3.3 Any treatment of diseased animals is registered in the corresponding tables.
CR 3.4 Drugs are stored and preserved as required by the applicable regulations.
CR 3.5 The prescriptions, bills of delivery, invoices and registration tables as well as information on the effective period are stored as required in the regulations for veterinary products.

Work context

Means of production

Feeding troughs and dispensers for concentrated feed. Troughs or dispensers for water. Enclosures,

wheelbarrows and transport troughs. Ventilation system, thermometers, infrared lamps, heating units, thermostats and equipment for temperature and ventilation control, feedstuff, dry feed, feed silos, installations for automatic feed distribution, feedstuff containers, feed additives (minerals, vitamins). Material for preparing the floor: straw, sawdust, wood shavings. Animals of various ages, stables for pigs, equipment and material for marking and identification, drugs, equipment for vaccinations and injections, refrigerators and equipment for storing drugs, office material, filing cards (computer software for pig production management).

Products and results

Replacement animals (newly arrived), piglets for further breeding and fattening, fattening pigs

Information produced and used

Operating instructions for various pieces of equipment and instruction for use of substances; recording and processing of information on the transitional period and on the fattening period; generation of lists and reports on the transitional period and on the fattening period; health programme, types of drugs, administration, utilisation and storage of drugs; register of waiting times before slaughtering; instructions for how to produce special feed mixes; overview cards showing the nutritional needs of pigs in relation to the production phase; internal reports about production activities, instructions for work, descriptions of production phases and individual work activities; diagrams for assessing production.

COMPETENCE UNIT 3 **Installation and maintenance of appliances, machines and equipment for pig production**

LEVEL 2
CODE UC0006_2

Work activities and criteria for doing them

RP 1: Installation of appliances and equipment for animal breeding, using appropriate tools and following the operating instructions for installation
CR 1.1 The workplace is prepared with suitable machines, appliances and tools taking into account the suitability for production.
CR 1.2 The basic installations are made in accordance with the technical instructions.
CR 1.3 The systems are checked regularly for identifying changes of functioning and any irregularities.
CR 1.4 Minor defects and failures of the systems are repaired by appropriately replacing damaged or worn parts.
CR 1.5 Installation of appliances and equipment is done with adherence to industrial safety regulations.

RP 2: Maintenance of installations in accordance with applicable technical requirements and regulations.
CR 2.1 Rooms and installations are cleaned and disinfected by suitable methods for keeping them free of organic residue and preparing them for future use.
CR 2.2 The rooms are regularly treated with suitable pest control products and in line with the applicable regulations for keeping them of insects and rodents.
CR 2.3 Equipment for cleaning, disinfection and pest control is used and maintained in line with the instructions and applicable regulations.
CR 2.4 The approved products for cleaning, disinfection and pest control are used in the recommended dosage and in adherence to the applicable regulations.
CR 2.5 Control of the state of repair and proper functioning of electrical installations, water supply systems and air-conditioning systems;
CR 2.6 Regular control of environmental factors in the rooms and re-adjustment if required so that they fulfil the needs of the animals and are in line with the applicable regulations;
CR 2.7 Storage and/or removal of any residues and waste recycling is done at suitable places and in accordance with industrial safety and environmental protection regulations.

RP 3: Maintenance and control of machines and equipment for keeping them in perfect state and avoiding disturbances of production
CR 3.1 Machines and equipment are checked and maintained in accordance with manuals and applicable regulations.
CR 3.2 Machines and equipment are checked in the intervals stated in the manuals.
CR 3.3 Simple defects and failures of machines and equipment are repaired with suitable methods and appropriate spare parts.
CR 3.4 Machines, equipment, accessories and tools are chosen in accordance with the intended purpose. Any interruption of processes and waiting periods should be avoided.
CR 3.5 Tractors and equipment are coupled and used as required by the intended activity. Attention is to be paid to their correct functioning, handling, precision and sequence of activities.
CR 3.6 After they were used machines, equipment, accessories and tools are cleaned and properly stored at their appropriate places until the next use.
CR 3.7 Machines and equipment are maintained and adjusted in accordance with applicable industrial safety and environmental protection regulations.

RP 4: Adherence to industrial safety regulations while staying inside production facilities and when handling machines, equipment, accessories and tools so as not to endanger ones safety and that of others.
CR 4.1 Everybody must be aware of the risks involved in handling installations, machines, accessories and tools, take safety precautions and adhere to industrial safety and hygiene regulations.
CR 4.2 While staying inside production facilities and handling machines, equipment, appliances, accessories and tools the prescribed safety measures must be taken.
CR 4.3 The safety equipment required for the work in hand is used correctly.
CR 4.4 Safety regulations and protection measures applicable for working with machines, equipment, accessories and tools must be adhered to.
CR 4.5 Safety measures required for processing products and materials must always be adhered to.
CR 4.6 In case of any accidents first aid measures and treatment must be administered as soon as possible.
CR 4.7 The first aid kit must be equipped and updated regularly so that it is ready for use at any time.

Work context

Means of production
Powered machines for cleaning, loading and unloading, transporting raw materials and animals, feeding, recovering and storing products; instruments for repairing machines and equipment; workbenches, mobile storage containers, tool kits, drills, hydraulic presses, grease guns, compressors, containers for fuels and lubricants; machines, equipment and installations for animal farming.

Products and results
Setting and adjusting; maintenance and handling of machines, equipment, accessories and tools taking into account the needs of the animals and of production; installation of minor appliances and systems; maintenance of appliances and equipment.

Information produced and used
Instructions of use; manuals for machines and equipment, work instructions, information regarding the possibilities of utilising and limits of performance of machines; technical manuals for maintenance of machines and installations for animal farming; industrial safety regulations, transport regulations, regulations for environmentally friendly production.

TRAINING MODULE 1	**Breeding of gilts, breeding boars and piglets**
LEVEL	2
CODE	MF00004_2
Allocated Competence units	Working with breeding sows, breeding boars and piglets (phase 1);
Number of hours	150

Abilities and assessment criteria

C1: Description of the criteria that must be adhered to for achieving maximum success in feeding mother sows, breeding boars and piglets

CE 1.1 Ability to determine the volume of water required for each group of pigs depending upon the production phase and the number of pigs in the group;
CE 1.2 Ability to determine the total volume of water for drinking required at a farm depending upon the production phase and the number of pigs per group;
CE 1.3 Ability to identify the various types of feedstuff that are needed for feeding the pigs in the various phases of production;
CE 1.4 Ability to determine the composition and amount of feed required for the various groups of animals in defined production phases (for given examples);
CE 1.5 Ability to produce a plan for feed distribution in accordance with the animals' development phase;
CE 1.6 Ability to state what information is needed for controlling a feed distribution plan.

C2: Ability to name hygiene measures that must be implemented for gilts, breeding boars and piglets for achieving optimum production output;
CE 2.1 Ability to describe measures for cleanliness and hygiene before animals arrive at a new production facility for preventing the introduction and spreading of diseases;
CE 2.2 Ability to identify in a graph the various parts of a pig for carrying out various types of treatment:
CE 2.3 Ability to set up a preventive hygiene programme for a production facility (for a given example)

- preventive measures
- indoor and outdoor pest control
- vaccination schedule
- other required programmes;

CE 2.4 Ability to name the most important signs and symptoms of certain diseases and describing necessary preventive measures and/or possible treatments;
CE 2.5 Ability to state which information must be acquired for completing the records for electronic data processing like those for monitoring hygiene measures at a production facility.

C3: Ability to explain what must be observed in handling gilts, breeding boars and piglets for achieving an optimum output;
CE 3.1 Ability to describe the various methods that can be used for synchronising the onset of the first rutting periods for gilts for arranging groups for insemination and optimising production;
CE 3.2 Ability to state the factors that influence the length of the period between weaning and covering for optimising production;
CE 3.3 Ability to describe the handling and to mention items that must be observed during pregnancy;
CE 3.4 Ability to state the guidelines for handling piglets during the suckling period and weaning to be followed for optimising production;
CE 3.5 Ability to state the number of young pigs for a production facility, according to which system they are recorded, how groups are to be arranged depending upon the available stables;
CE 3.6 Ability to name environmental factors and their limits for the animals' welfare and for increasing production;
CE 3.7 Ability to name the criteria for excluding breeding animals from the breeding activities based on the productivity indicators.

C4: Ability to state the measures that are necessary for determining the onset of rutting, covering, pregnancy, farrowing, placental stage and lactation for optimising the reproductive behaviour of the breeding animals;
CE 4.1 Ability to describe the various methods for determining the onset of rutting and the optimum time for covering/insemination;
CE 4.2 Ability to name the physical and behavioural indicators for the onset of rutting in sows

and which of them is the most reliable;
CE 4.3 Ability to describe the individual actions in artificial insemination for achieving maximum effectiveness;
CE 4.4 Ability to name the various methods to identify pregnancy;
CE 4.5 Ability to produce work instructions for the treatment of sows after farrowing;
CE 4.6 Ability to recognise the moment when farrowing starts on the basis of observing changes in the behaviour of the mother sow and to name characteristic signs;
CE 4.7 Ability to name the irregularities that can most frequently occur during farrowing and placental stage;
CE 4.8 Ability to explain which special measures must be taken in treating the mother sow immediately after farrowing and during lactation.

C 5: Ability to name measures that must be taken during farrowing, first suckling (intake of colostrum) and suckling of the piglets for ensuring a high survival rate and optimum growth of the piglets;
CE 5.1 Ability to describe the special measures that must be taken for newly farrowed piglets;
CE 5.2 Ability to name the preconditions and necessary measures for intake of colostrum (first suckling) as well as the correct approach in placing the piglets with the mother sows;
CE 5.3 Ability to describe special works like extraction of the canines, docking of tails and/or neutering in accordance with the applicable guidelines;
CE 5.4 Ability to determine which measures must be taken for young animals to minimise health risks;
CE 5.5 Ability to name the measures that must be taken for ensuring the survival of a farrow in case the mother sow dies.

C 6: Ability to describe the measures taken in boars to optimise reproduction;
CE 6.1 Ability to explain the guidelines for handling boars during the rutting period;
CE 6.2 Ability to name the factors to be taken into account when preparing boars for semen recovery;
CE 6.3 Ability to determine how often a boar should be used for covering or artificial insemination for optimising his reproductive potential;
CE 6.4 Ability to describe the preconditions that must be fulfilled in the semen recovery chamber and at the recovery bank for a successful semen recovery;
CE 6.5 Ability to describe the correct actions for semen recovery in the recovery chamber;
CE 6.6 Ability to state the individual steps for producing semen samples;
CE 6.7 Ability to determine how a boar must be fed taking into account his age and physical state.

Abilities that must be acquired for deployment at a workplace
C1 Those for determining the requirements for feeding and feed distribution;
C3 those for measures that must be taken for young animals, breeding boars and piglets, taking into account profitability and overall production;
C4 and C5 those for the reproduction process, farrowing and the suckling phase concerning the productivity indicators;
C6 those for the handling of boars taking into account the productivity factors.

Contents:

Pig breeding
most important pig varieties
physical characteristics
features of pig breeding

Basics of feeding in intensive farming
Nutritional properties of the feedstuffs;
types of feed for young animals, breeding animals and piglets;
systems and guidelines for feedstuffs for young animals, breeding animals and piglets;
properties and significance of water in feeding young animals, breeding animals and piglets;
computing the demand; water disinfection.

Basics concerning the physiology of pigs
Appearance;
basics of the digestive system: naming the main parts of the digestive system;
digestion and ability to digest feedstuffs for young animals, breeding animals and piglets;
basic knowledge of the respiratory system and of the cardiovascular system, of the locomotor system and of the skin.

Activities for preventing diseases in young animals, breeding animals and piglets
Hygiene and cleaning activities for young animals, breeding animals and piglets;
implementation of vaccination programmes and internal and external pest control for young animals, breeding animals and piglets;
preventive measures for young animals arriving at a production facility;
preconditions for taking samples.

Activities for treating diseases in young animals, breeding animals and piglets
Examination and observation of diseased animals;
treatment of diseases.

The reproduction cycle of mother sows
Basics concerning the reproductive system;
basic information about the reproductive organs;
sexual maturity: factors that regulate it;
duration and characteristics of the fertility cycle;
rutting and ovulation;
most frequently occurring irregularities of ovulation;
synchronising the onset of the rutting period;
methods for detecting the onset of the rutting period:

- time and method of insemination: natural covering or artificial insemination advantages and disadvantages

Methods of artificial insemination;

- preparation of the sow for covering;
- reasons for infertility and sterility;
- handling after covering/insemination

Pregnancy:

- early detection of pregnancy method
- observation and measures during pregnancy
- treatment before farrowing

farrowing:
Signs and symptoms for the onset of delivery;
stages of farrowing;
complications during farrowing;
placental stage;
suckling stage

- anatomy of the mammary ridge, number of functioning teats and irregularities;
- duration of suckling stage;

- special measures during suckling stage;
- measures for weaning.

Piglets
Birth;
behaviour of suckling piglets and appearance at birth;
special measures to be taken for newly farrowed piglets;
identification, marking and registration;
first suckling (intake of colostrum);
guidelines for placing piglets with mother sows;
special activities in handling piglets;
extraction of canines;
docking of tails;
neutering´;
weaning;
diseases in piglets.

The reproduction cycle of boars
Basics concerning the reproductive system;
basic information about the reproductive organs; factors that influence fertility;
treatment of boars;
reproductive behaviour of boars;
the room for semen recovery;
preparation of semen recovery in the recovery room;
production of semen samples.

Organisation of work and routines for young animals, breeding animals and piglets

Use of special administrative software

Applicable guidelines on European, state, regional and local levels related to this module

Training environment

Rooms and installations:
stable for pregnant animals (45 m^2)
laboratory for analyses (45 m^2)
stables for pigs (250 m^2) (separate facilities, not necessarily within the training premises)
Farm: 2 hectares (independent area, not necessarily within the training premises)

Professional qualification required for trainers/teachers

1. Knowledge of theory and practice in breeding gilts, breeding boars and piglets and the relevant techniques; The above must be proven by either of the items given below:
   - academic training as specialised engineer or in another field with a degree of higher education that is related to the vocation;
   - at least 3 years of work experience in a field of work that requires the qualifications that belong to this module;
2. certified qualification as teacher in accordance with the guidelines issued by the relevant authorities.

TRAINING MODULE 2	**Breeding of young and fattening pigs**
LEVEL	2
CODE	MF00005_2
Allocated Competence units	Working with young pigs and fattening pigs (phases 2 and 3);
Number of hours	120

Abilities and assessment criteria

C1: Ability to carry out works related to arrival of pigs at new production location and arranging groups of pigs in line with applicable rules;
CE 1.1 Ability to describe the various production systems;
CE 1.2 Ability to state and describe the various works to be done upon arrival of the pigs for improving the production output;
CE 1.3 Ability to describe the works for preparing the installations and facilities for the newly arriving pigs;
CE 1.4 Ability to state which conditions the facilities must offer for optimising the production output;
CE 1.5 Ability to state the regulations that apply for the various activities.

C2: Ability to determine the animals' state of health by means of controlling the environmental factors of the production facility and feeding;
CE 2.1 Ability to identify the various body parts of the animals in a drawing or other form of presentation;
CE 2.2 Ability to describe typical physical and behavioural features that indicate a correctly functioning respiratory, digestive and locomotor system and of the skin;
CE 2.3 Ability to state patterns of behaviour that are typical for changes in the animals' welfare;
CE 2.4 Ability to state the conditions required for wellbeing – in particular temperature and ventilation – for each phase of the production process and any actions that must be taken in case deviations occur;
CE 2.5 Ability to identify the various types of feedstuff and other needs in each production phase as well as frequencies and methods of feeding;
CE 2.6 Ability to compute the speed of growth of a group on the basis of the weight if the amount of feed taken in during a defined period is known;
CE 2.7 Ability to analyse the situations in which the appearance of the animals (individuals and groups) is changing in correspondence with the environmental factors and/or feeding and to draw conclusions from the analysis result.

C3: Ability to detect possible changes of the state of health of individual animals or all animals at a production location by observing signs, symptoms and defined parameters and to take measures for overcoming the situation;
CE 3.1 Ability to identify individual signs and symptoms that indicate changes of the state of health;
CE 3.2 Ability to detect deviations from the planned production process or behavioural alterations in the animals that might be signs for an oncoming disease in the group;
CE 3.3 Ability to describe methods for taking samples for diagnosing diseases;
CE 3.4 Ability to name various drugs and the correct method to apply them in line with veterinary regulations (injection, external, mixed with feed or water).

C4: Ability to carry out the necessary preventive health programme works at the production location with the required skill and suitable means;
CE 4.1 Ability to state preventive measures for controlling external parasites (scabies, flees, etc.) and internal parasites (tape worms in the intestines, worms in the lungs);

CE 4.2 Ability to state preventive measures to be taken to ensure that newly arriving animals adapt well to the new production location and develop well;
CE 4.3 Ability to state the various types of vaccines and vaccination programmes that are required in this phase;
CE 4.4 Ability to carry out the health programme measures with the necessary skill and adherence to the hygiene regulations.

C5: Control of the health care measures taken and correct storage of drugs by means of the registration systems;
CE 5.1 Identify the animals that were treated for entering them in the treatment register;
CE 5.2 Ability to describe how drugs should be stored to avoid their deterioration;
CE 5.3 Ability to name suitable instruments that are required for administering drugs;
CE 5.4 Ability to correctly interpret drug prescriptions for applying and storing them correctly;
CE 5.5 Ability to state which fields must be filled when registering a treatment with drugs.

Abilities that must be acquired for deployment at a workplace
C1 Those for taking preventive measures upon arrival of new animals at a production location;
C2 those for determining the correlations between environmental factors and/or feeding, the appearance of the animals and their wellbeing;
C3 those for detecting symptoms that indicate a change of the health status.

Contents:

Basics of feeding in intensive pig farming (II)
Types of feedstuff for young pigs and fattening pigs;
determining the nutritional demand, computing the rations, defining feedstuff mixes;
systems and guidelines for allocating feedstuffs for young animals and fattening pigs;
properties and significance of water in feeding young animals and fattening pigs; computing the demand; drinking water disinfection.

Basics of the anatomy of young pigs and fattening pigs
Basics of the digestive system: digestion and digestibility of feedstuff for young pigs and fattening pigs.

Preventive health care measures for young pigs and fattening pigs
Hygiene and veterinary measures for young pigs and fattening pigs;
implementation of vaccination programmes and pest control in young pigs and fattening pigs;
preventive measures upon arrival of new animals at a production facility;
preconditions for taking samples.

Measures for treating diseases in young pigs and fattening pigs
Examination and observation of diseased animals;
implementing veterinary treatments.

Handling of piglets after weaning (young pigs) and of fattening pigs
Works upon arrival of the animals and arrangement of groups;
adaptation and control of environmental factors in the facilities;
applicable regulations.

Diseases of the digestive and respiratory system in weaned young pigs and fattening pigs
Other diseases in weaned young pigs and fattening pigs
of the cardiovascular system,
of the locomotor system,
of the skin.

Drugs for breeding and fattening pigs
Instruments and application;
periods when application is prohibited;
waste/disposal.

Impairment of the animals' wellbeing: stress
Biting of tails and ears among fattening pigs

Control and registration list for breeding and fattening pigs

Organisation of work and routines for breeding and fattening pigs

Use of specialised software

Applicable regulations on European, state, regional (autonomous regions) and local levels related to this module

Training context:

Rooms and facilities:
stable for pregnant mother sows (45m²);
examination laboratory (45m²);
stable for pigs (250m²) (separate facility, not necessarily within the training premises);
pig farm: area 2 ha (separate facility, not necessarily within the training premises).

Qualification profile of the trainers/teachers:

1. Theoretical knowledge and practical abilities (proven by either of the items below) in working with young and fattening pigs:
   - academic training as specialised engineer or in another field with a degree of higher education that is related to the vocation;
   - at least 3 years of work experience in a field of work that requires the qualifications that belong to this module;
2. certified qualification as teacher in accordance with the guidelines issued by the relevant authorities.

TRAINING MODULE 3	**Installations, machines and equipment for animal farming**
LEVEL	2
CODE	MF00006_2
Allocated Competence units	Installation and maintenance of appliances, machines and equipment for pig production
Number of hours	90

Abilities and assessment criteria

C1: Works for preparation, cleaning, disinfection, pest control and adaptation of the facilities and animal breeding installations, for fulfilling the requirements and correctly disposing of waste and using by-products;

CE 1.1 Ability to explain the purpose and functioning as well as control and monitoring of systems;

CE 1.2 Ability to state and describe measures to be taken before the arrival of animals at a new production location (all indoor and outdoor systems);

CE 1.3 Ability to name suitable equipment and tools for cleaning, disinfection, pest control as well as adaptation and to explain the instructions for use;

CE 1.4 Ability to state measures for disposing of slurry, manure and dead animals and explain these measures;

CE 1.5 Ability to name safety measures for the animals at the production locations, measures for industrial safety, environmental protection and feedstuff hygiene that influence adaptation in the facilities;

CE 1.6 For an existing or virtual installation:

- preparation of the commissioning of the individual systems;
- starting and stopping the systems;
- monitoring of the correct functioning of the controls;
- doing the works for cleaning, disinfection, pest control and adaptation at the correct times and in a suitable manner;
- application of the personal protection measures;
- correct handling of the installations.

C2: Doing first degree (utilisation) installation and maintenance works of equipment for animal production with appropriate skill;

CE 2.1 Ability to explain the purpose and functioning as well as the control of the equipment at the production location;

CE 2.2 Ability to describe the individual components of the equipment;

CE 2.3 Ability to explain the components of the auxiliary systems and their maintenance: electrical installations, water supply, ventilation, heating, air-conditioning;

CE 2.4 Ability to describe processes, materials and tools for erecting small systems;

CE 2.5 Ability to explain the most important maintenance works taking into account the operating instructions;

CE 2.6 Ability to describe the required temperatures, ventilation and air-conditioning parameters for the individual rooms of the production location;

CE 2.7 Ability to recognise which maintenance works must be done by specialists;

CE 2.8 Ability to state industrial safety measures that must be taken for the maintenance works;

CE 2.9 For an existing or virtual electrical installation, water supply, ventilation, heating or air-conditioning systems:

- ability to carry out repair and maintenance works;
- fitting and dismantling simple electrical components (lamps, sockets, switches, fuses);
- fitting and dismantling pipes, valves, filters and other simple components in water and heating systems;

- connecting and cutting electricity cables;
- Stopping and starting the respective systems.

CE 2.10 For an existing or virtual assembly of a small system or appliance:

- preparing the site, using suitable machines, tools and instruments;
- fitting and dismantling of simple components of the system;
- checking the functioning of the system after assembly;
- ability to carry out the above mentioned works with good quality and adherence to the industrial safety and environmental protection regulations.

C3: Operating and adjusting the machines while adhering the industrial safety regulations for achieving reasonable results;
CE 3.1 Ability to describe how the machine is to be adjusted;
CE 3.2 Ability to describe the various adjustment works for each function of the machine in accordance with the manufacturer's instructions;
CE 3.3 Ability to describe the various adjustment and control actions for each application;
CE 3.4 Ability to state which precautions must be taken when using the machines and appliances for self-protection and/or avoiding risks for others;
CE 3.5 Ability to state the industrial safety measures that influence the handling of the machine;
CE 3.6 For an existing or virtual case:

- identify the elements for adjustment and state their functions;
- ability to determine the parameters for each work activity (speed, adjustments, work phase, number of repetitions);
- safe handling of tractors in accordance with the work process and required quality;
- ability to compute the output, yield and efficiency of machines and appliances.

C4: Safe and correct execution of maintenance works during use; basic repairs and simple adjustment works at machines and appliances by means of instruments and materials;
CE 4.1 Ability to describe the most important maintenance works and the intervals for their implementation; ability to correctly interpret information and instructions;
CE 4.2 Ability to describe instruments and tools that are needed to the first level maintenance works and simple repairs;
CE 4.3 Ability to explain the most important features of appliances, spare parts and materials that are used in maintenance (oils, filters, fuels, transmission belts, conveyor belts);
CE 4.4 Ability to name preventive industrial safety measures that influence the maintenance works for machines and equipment;
CE 4.5 For an existing and/or virtual machine or appliance with given technical data and instructions for use:

- ability to describe the required first level maintenance works;
- ability to name the tools required for the maintenance works;
- ability to properly handle the selected tools;
- ability to decide for which repairs the services of specialists are required;
- ability to register maintenance works that were done and observed incidents and on that basis to compute the interval for repeating the works;
- ability to apply industrial safety regulations;
- ability to dispose of residues and/or waste in line with the industrial safety and environmental protection regulations.

C5: Ability to implement industrial safety regulations for the installation and handling of machines and equipment in accordance with the respective work situation and in an environmentally friendly manner
CE 5.1 Ability to explain safety and health regulations that must be fulfilled by the installations, machines and equipment and to describe their correct handling;

CE 5.2 Ability to identify the impact made on the environment when operating the installations, machines and equipment;
CE 5.3 Ability to explain the importance of the environmental protection measures;
CE 5.4 Ability to recognise the most frequently occurring factors that create risks when working in/with the installations, machines and equipment, analyse their causes and assess their consequences;
CE 5.5 Ability to describe the properties and use of protective clothing and personal safety equipment for the various works;
CE 5.6 knowing the safety regulations and measures that are required for the safe handling of installations, machines and equipment at the production location as well as knowing the hygiene and environmental protection regulations.

Abilities that must be acquired for deployment at a workplace
C1 Those for carrying out works for cleaning, disinfection, pest control, rodent control and preparation of the facility for animal breeding;
C2 those for the assembly and maintenance of installations for animal breeding;
C3 those for the operation of the various machines and special equipment for animal breeding;
C4 those for the maintenance of the various machines and special equipment for animal breeding.
Other abilities:
Ability to adapt to the organisational structure of the employing company and to integrate into the teams;
ability to understand and carry out instructions and take responsibility for the works in hand; efficient coordination with the other involved persons;
ability to get used to the work schedule of the employing company and achieving the daily work targets;
respect at any time the colleagues, instructions and regulations.

Contents

1. Components and preparing the installations for animal production
Types of systems and facilities for animal production; storage facilities; systems for preparing and distributing solid and/or liquid feed; environmental conditions in the stables: humidity, temperature, ventilation, heating, cooling and lighting; automatic systems for controlling these factors; facilities for storing and preserving other supplies; other installations and tools.

2. Components, maintenance and simple repair of the water and electricity supply systems, of the heating, ventilation and air-conditioning systems
Water supply system: storage tanks, distribution system, drinking troughs/taps, pumps, disinfection unit, etc; electrical installations for animal farming; installations for heating, ventilation and air-conditioning; auxiliary installations.

3. Equipment for cleaning, disinfection, insect and rodent control, processing and waste disposal
Equipment, appliances and tools for cleaning and disinfection; properties, components, adjustment and maintenance; equipment for insect and rodent control; properties, components, adjustment and maintenance; installations for processing and disposal of animal, chemical and compostable waste; disposal of waste from animal farming: waste disposal systems and environmental impacts caused by them; receipt, cleaning and disinfection of animal transport vehicles; related regulations.

4. Safe use of the installations and systems
Risks and how to avoid accidents and damage when using the installations; protective systems and personal protective equipment; handling and storage of poisonous and dangerous substances; fuels

and flammable substances; handling, storage of, and accounting for drugs; handling, storage of, and accounting for waste, by-products, etc.; protection of the environment when operating the installations; related regulations.

5. Machines and equipment for animal farming, basic maintenance and simple repairs
Machines and equipment required for animal farming: types, components, setting and adjustment; basic maintenance of machines and equipment; simple repairs of machines and equipment; tools for maintenance and simple repairs of machines and equipment; lubricants: properties, classification and application; fuels: properties, types; other materials.

6. Safe use of the machines and equipment; first aid and emergencies at the production location
Risks and avoiding accidents and damage when operating machines and equipment; protective installations at/in machines and equipment; protection of the environment when operating machines and equipment; hygiene and personal safety when operating machines and equipment; industrial safety and environmental protection regulations

Training context

Rooms and installations:
Multi-purpose room with at least 2 m^2 per trainee;
laboratory for analyses (45 m^2);
stables for pigs (250 m^2) per species (separate facilities, not necessarily within the training premises);
Farm: area at least 2 hectares (independent area, not necessarily within the training premises);
workshop, 90 m^2

Professional qualification required for trainers/teachers

1. Good knowledge of and skills in operating and maintaining the installations, machines and equipment for animal production; the above must be proven by either of the items given below:
   - academic training as specialised engineer or in another field with a degree of higher education; qualification as instructor/teacher in accordance with the guidelines issued by the decision makers for the respective vocation;
   - at least 3 years of work experience in a field of work that requires the qualifications that belong to this module;
2. certified qualification as teacher in accordance with the guidelines issued by the relevant authorities.