Agricultural University of Tirana
Faculty of Agriculture
and Environment

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Faculty of Agriculture
and Veterinary Sciences

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Department of Agrochemistry
and Soil Sciences

Corvinus University of Budapest
Department of Ecological
and Sustainable Production

University of Sarajevo
Faculty of Agriculture
and Food Sciences

Research Institute of
Organic Agriculture
Switzerland

Joint Bachelor Course on Organic Agriculture 2014

Organic Animal Husbandry (3): Organic Pigs

Authors: Anna Bieber (anna.bieber@fibl.org) , Barbara Früh (barbara.frueh@fibl.org)

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Organic Pigs: Figures

- 2011: 0.9 million organic pigs
- largest producers:
  1. Germany (173 138 heads), 2.Denmark (171 229 heads) and 3. France (165 518 heads).
- organic pig sector still holds very minor share in the EU pig market: it is much more important in the EU-15 (0.6% of the sector) than in the EU-N12 (0.1% of the sector)

(Source: European Union (2013))

Standards

- Organic standards require animals to be kept with outdoor access
- Outdoor runs in European countries vary:
  - From concrete and slatted floors to deep litter and open to fully covered by a roof
  - Private regulations define even stricter rules, e.g. Soil Association (UK): organic pigs to be kept on pasture

Foto: C. Simantke in Früh (2011)

Principles of organic pig farming

- Prevention through best practice: How is it done?
  - regulation recomments use of traditional breeds, adapted to local conditions
  - meet the animal´s natural requirements with regard to:
    - Social behaviour
    - Feeding
    - Locomotion
    - Comfort behaviour etc.
  - In case animals get ill, cure them in order to avoid suffering (alternative therapies with proofed efficiency are fist choice)

Breeds used in organic farming in Europe

- Regulation recomments use of traditional breeds, adapted to local conditions
- Problems with these breeds:
  - often less productive
  - give progeny with poorer feed efficiency
  - Accumulate more fat (lower % of lean meat)
- incentive to use the higher yielding breeds as in conventional farming

Breeds used in organic farms	
Austria, Switzerland	Mostly conventional breeds used; sow: Large White x Landrace; boar: Pietrain (in Austria), Large White (in Switzerland); few exceptions using Duroc, Schwäbisch Hällisch or crosses of both
Denmark	Mostly conventional breeds; sow: Danish Landrace x Yorkshire, boar: Duroc
Germany, France	Mostly conventional breeds; Germany: sow: German Landrace x German Large White; boar: Pietrain or Hampshire x Duroc France: sow: Large White x Landrace, boar: Pietrain
Italy	50 % conventional breeds; sow: Large White, Landrace and Duroc (and hybrids), 50 % local breeds like Mora Romagnola and Cinta Senese
Sweden	Mostly conventional breeds; sow: Swedish Landrace x Yorkshire, boar: Duroc or Hampshire
United Kingdom	Small farms often use traditional breeds. Large farms generally use special outdoor lines that were developed for the conventional outdoor sector.

Früh (2011)

Origin

- Natural habitat of wild boars: forest

Requirements resulting from origin:

- cover
- feeding and resting areas
- need to wallow

Consequences:

- provision of different activity areas
- facilitate climatic stimulus

Social behaviour

Characteristics:

- wild sows live in family groups
- high synchronicity of behaviour patterns
- hierarchical social structures

Consequences:

- group housing
- keep sows in family groups
- well structured pens
- enough space

Sexual Behaviour

Characteristics:

- marked mating behaviour
- synchronised suckling and oestrus

Consequences:

- natural mating
- keep bores near to sows in order to stimulate oestrus

Foto: M. Holinger, 2012

Mother-offspring relationship

Characteristics:

- isolated farrowing
- construction of a farrowing nest
- weaning period lasts several weeks

Foto: Simantke

Consequences:

- individual farrowing pens
- no fixation of the sows
- make nest material available (straw)
- weaning at 6 weeks of age at the earliest

Activity pattern

Characteristics:

- pigs are diurnal
- two peaks of activity: early morning & evening
- periods of feeding and rest tend to be synchronised

Consequences:

- provision with daylight
- feeding pigs at least twice a day

Exploratory behaviour

Charcteristics:

- pronounced exploratory behaviour → 70% of actively spend day time
- pigs use the discs of their snouts for sniffing, searching and rooting

Consequences:

- rich environment
- rooting material

Foto: J. Baumgartner

Locomotion behaviour

Characteristics:

- active animals with quick moves (walk, galopp)
- during periods of activity most of the time is spent looking for food

Foto: M. Holinger, 2014

Consequences:

- run area
- wide spaced housing
- outdoor housing
- pasturing
- good quality of floors (sure-footed, abrasion of hooves)

Foto: M. Holinger, 2013

Food intake behaviour

Characteristics:

- pigs are omnivors
- pronounced search and rooting for food (70% of the active time)
- food competitors
- Sucking water intake

Consequences:

- provision of roughage and materials with high occupational value
- several feeding events per day
- seperate and spacious feeding places
- provision of bowl drinkers

Foto: M. Holinger, 2013

Resting behaviour

Characteristics

- approx. 80% of 24 hours
- resting period is synchronised
- main resting time: at midday & at night
- lying position depends on weather conditions: cold→ huddling, nest construction

  warm/hot→ lying in the shadow
- protected place

Consequences

- enough space
- structured pens
- provision of bedding material

Excretion behaviour

Requirement

› pigs have natural habit of defecating always in the same area, they seperate excreation from lying areas

Consequences

› establish seperated excretion and lying areas

› Try to avoid wet area near drinking water (incentive to defecate)

Comfort behaviour

Characteristics

- need to scrub
- pigs have very few sweet glands (only at the tip of the snout), no thick hair cover and fat deposition for insulation

Consequences

- provide installations where pigs can scrub (e.g. brushes, trees)
- warm weather: provision of pig wallows
- cold weather: group keeping so that pigs can huddle to keep warm, provide straw/ huts

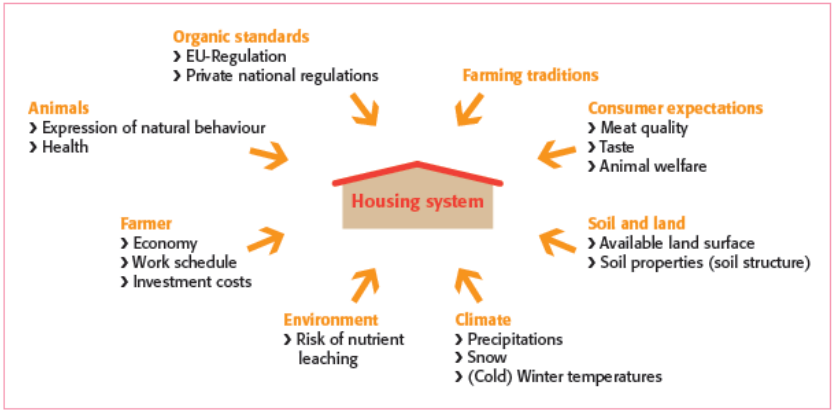
Foto: J. Baumgartner

Husbandry systems for organic pigs

- Three major organic pig husbandry systems

1. Indoor housing
2. Outdoor housing
3. Mixed housing

Factors determining the husbandry system



Früh et al. 2011

Indoor housing

- Pigs housed mainly indoors with access to a concrete outside run (e.g. Austria, Germany, Switzerland)
- wide range of barn types: from heated building with artificial ventilation to uninsulated barns with open front
- **Challenges:**
- provision of a pen that allows sows and piglets to express natural behaviour
- provision of individual temperatured zones for sows, piglets, weaners and fatteners depending on their individual requirement

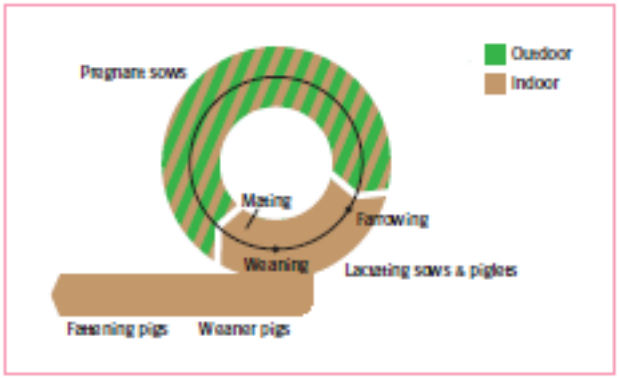


Foto: https://www.uni-hohenheim.de/uploads/pics/Neuer_Sauenstall_Liegebereich__9__1824x1368.jpg

Indoor housing: Pros and Cons

Advantages

- suited for areas with harsh climatic conditions in winter
- moderate land need
- efficient monitoring of animals possible
- little negative environmental effect from manure (if distributed properly)

Disadvantages

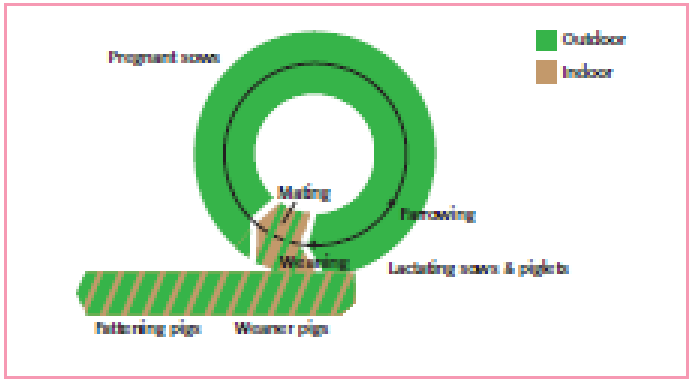
- high costs (building, energy, equipment)
- does not satisfy consumer expectations of organic
- restricts natural animal behaviour
- high animal density increases risk of disease infections
- limited production flexiblity concerning amount of sows and fatteners that can be kept
- high requirements on hygiene management due to pigs of different ages
- oral iron preparations or injections for piglets shortly after birth to prevent anaemia

Outdoor Housing

- sows housed outdoors all year round with huts or natural shelter (e.g. Denmark, Italy, UK)
- mixed with: weaning and fattening pigs are kept inside

Challenges:

- organisation of pasture rotation to maintain vegetation cover
- ensure biosecurity
- identify and treat health problems
- organise in a way to keep work load low



Outdoor housing systems allow pigs to express their natural behaviour at comparatevely low investment costs.

Foto: B. Früh in Früh (2011)

Outdoor housing: Pros and Cons

Advantages

- little or no building costs
- meets consumer expectations
- better expressions of natural animal behaviour possible with positive effect on health & welfare
- low animal density and good air quality possible positive health effect
- access to natural light
- efficient use of manure if husbandry integrated into crop rotation
- vegetation and soil provide significant quantity of minerals & vitamins to the animals (especially iron for piglets!)

Disadvantages

- risk of nitrogen leaching due to excessive stocking density of 15 sows/ ha *a on outdoor areas
- management logistics during cold and wet climates can be laborious
- reduced biosecurity (contact to wildlife disease reservoirs and to soil with potential risk to take in parasites)
- greater difficulty to identy and treat sick animals
- supervision around birth is more challenging when lactating sows are outdoors
- young piglets may be subject to predation by ravens, foxes or even badgers

Performance of conventional indoor and outdoor breeding herding in the UK

	Outdoor	Indoor
Sow mortality (%)	3.1	3.9
Replacement rate (%)	45.8	47.7
Conception rate (%)	82.2	81.6
Litters per sow and year	2.19	2.25
Liveborn piglets per litter	10.9	11.4
Stillborn piglets per litter	0.5	0.6
Morality of piglets born alive (%)	12.3	13.0
Pigs weaned/sow*a	20.9	22.4

BPEX, 2008

Outdoor:

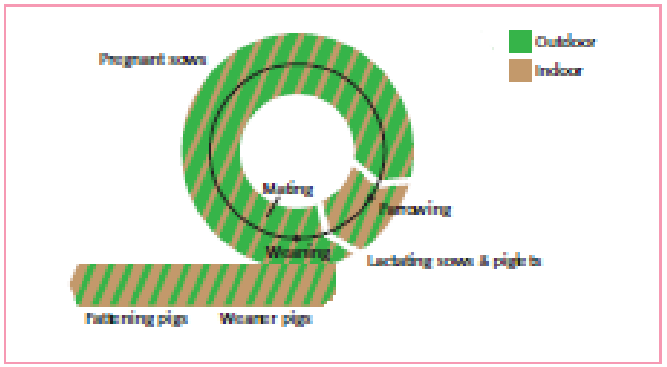
- sligthly better health→ reflected by mortaliy and replacement rate
- poorer reproductive performance → reflected by litters/ sow*a, litter size (but not conception rate)
- forrowing & post farrowing disorders might be slightly reduced→ reflected by stillborn piglets, piglets survival to weaning, although the latter might also reflect the difference in initial litter size

Mixed Housing Systems

- combination of indoor & outdoor housing systems (e.g. France, Sweden)
- allow to combine advantages of both systems
- practicability depends on:
  - climatic conditions
  - historic development
  - farm specific conditions

Sows:

- on pasture during pregnancy or group suckling
- indoors in individual pens for forrowing and within 10 days are moved to group pen in a barn or group on pasture with huts



Weaners and fatteners:

- usually kept in barn in large group pens with concrete outdoor run
- in summer: access to a pasture or moved to huts on pasture

Mixed housing systems: Pros and Cons

Advantages

- indoor farrowing facilitates supervision on newborn piglets and sows arround farrowing
- moving sows and piglets in group pens (outdoor) within 10 days pp → stimulus for the sow and cooler environment = feed intake↑→ beneficial for milk production
- keeping pigs in huts during summer has hygienic advantages, as it makes it easier to clean the barn and keep pens empty for some weeks

Disadvantages

- moving sows from outdoor to an indoor farrowing pen may create climatic stress for the sow
- lactating sows in groups require mobile facilities to feed them individually

Summary Pigs

- Organic pig production represents a minor part of the whole pig production
- Germany and Denmark have the highest number of organic pigs
- Production features vary greatly between countries in the EU
- Most striking difference to be found in the housing systems:
  - UK: organic pigs can be outdoors on pasture for their whole life
  - Germany: most organic pigs are always indoors with access to an outdoor run
- Organic pig farming aims at meeting the wide range of natural requirements of the animals , e.g. with regard to their activity pattern, social behaviour, comfort behaviour etc.

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Acknowledgement

This lesson was prepared within the project „Advancing training and teaching of organic agriculture in South-East Europe (Albania, Bosnia and Herzegovina, Kosovo, Bulgaria and Hungary)“ , funded by the Swiss National Science Foundation (SNFS) within the SCOPES program 2009-2012 (project No. IZ74Z0_137328).