

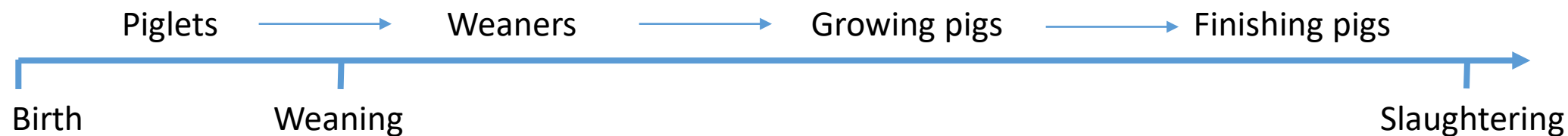
Pig welfare from birth to slaughter in sustainable concepts

A.G. Kongsted, C. Leeb, E. Merlot, R. Thomsen, E. Salomon, B. Früh, C. Wimmeler, A. Prunier, L. Canario, H. Vermeer, H. Spolder, H. M.-L. Andersen, L. Baldinger, K. Heidbuechel, L. Wahlund, L. Bark, D. Bochicchio, A. Jenni, M. Holinger, S. Moakes, R. Eppenstein

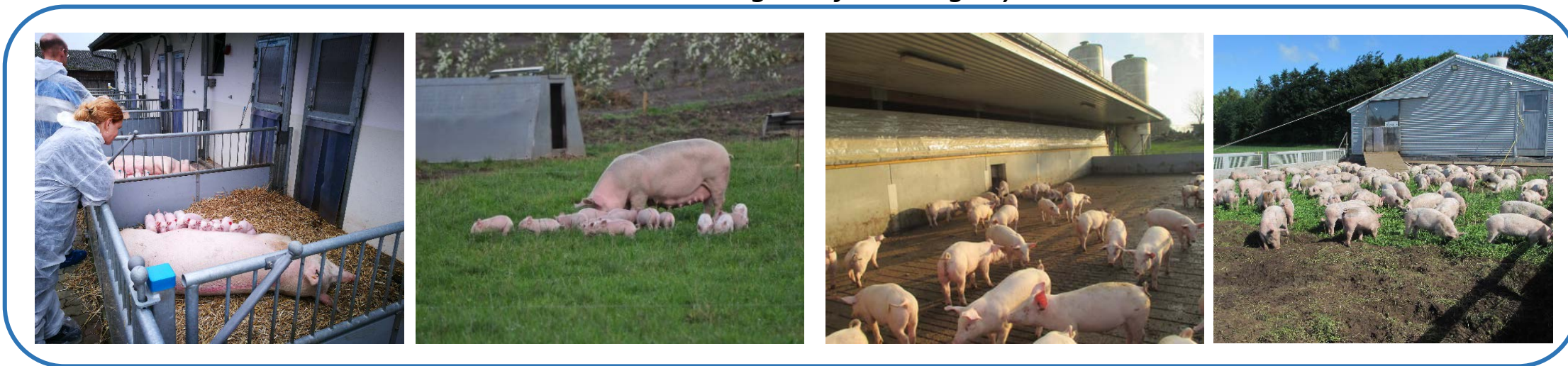
Aim

To support the development of a variety of **resilient** and **competitive** organic pig production systems across Europe with low **ecological footprints** and high **animal welfare**

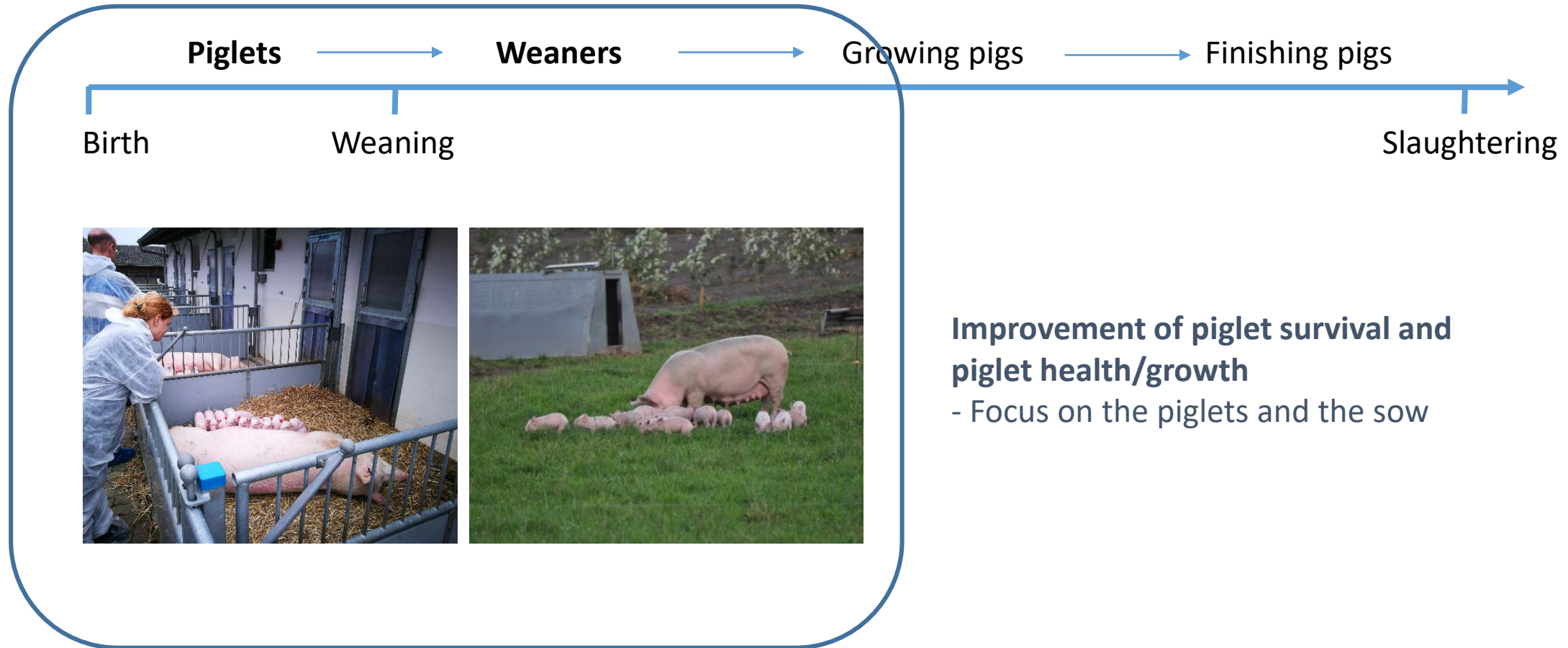
Focus – animal groups and systems



Combined housing and free-range systems



1. Piglets and weaners



Improvement of piglet survival and piglet health/growth
- Focus on the piglets and the sow

Innovations investigated

Piglet survival



Genetic selection



Farrowing pen size



Piglet nest design

Photos: S. Ferchaud (INRAE), H. Vermeer (WUR), K. Heidbüchel (TI-OL)

Innovations investigated Piglet health and growth



Iron status and injection alternatives



Forest litter probiotics



Extended lactation and lactational oestrus

Photos: E. Merlot (INRAE), D. Bochicchio (CREA-ZA), M. Hestbjerg (www.hestbjerg.dk)

Project findings – piglet health

Piglet iron status in organic indoor and free-range herds

- Piglets born on pasture do not need supplementary iron
- Iron status in general adequate, also in indoor herds using supplementary iron
- Alternatives to iron injections needed in indoor herds

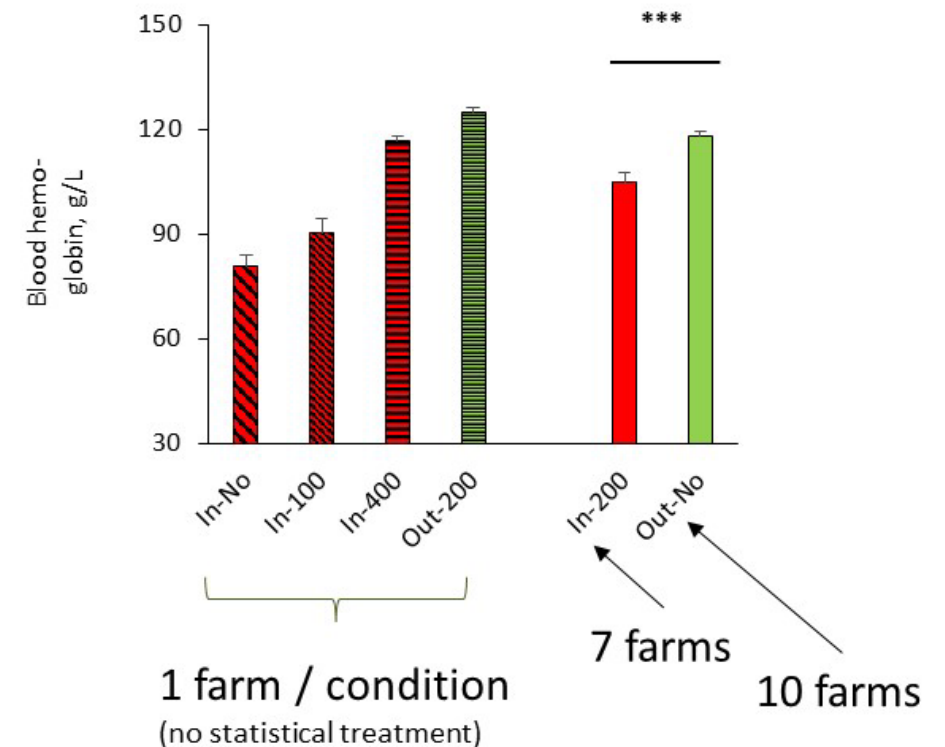


Photos: E. Merlot (INRAE),



05/03/2021

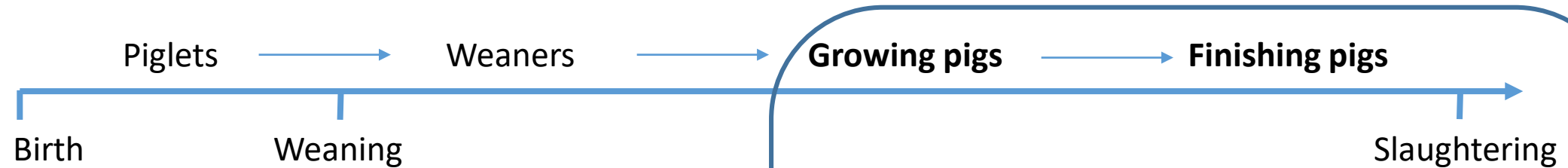
Proven Welfare and Resilience in organic pig production



Merlot et al., 2021 in prep



2. Growing/finishing pigs



Improvement of the pigs' possibility to perform natural behavior while improving pen hygiene ($\text{NH}_3 \downarrow$) in housing systems
- Focus on the outdoor run



Project findings – a review of the literature

How to design outdoor runs to fulfill the pig's behavioural needs/improve hygiene

- Introducing **additional resources** like rooting areas and showers may increase the attractiveness -> more pigs outside
- Good opportunities to divide the outdoor run into **different functional areas** for activities -> exploration, thermoregulation and elimination
- This may not only improve animal welfare but also **reduce risk of ammonia emission**

Review : Design matters - A legislative, ethological and environmental perspective on concrete outdoor runs for organic growing-finishing pigs

H.M. Vermeer^{1a}, C. Wimmer^{2a}, C. Leeb², E. Salomon³, H. M-L. Andersen⁴



Submitted to Animals January 2021

Outdoor run – Innovations investigated in experimental designs



Rooting area (soil)



Roughage



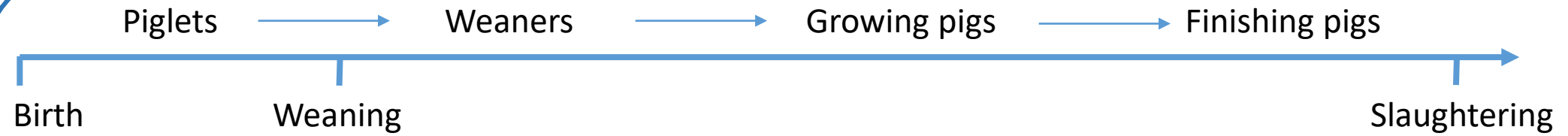
Shower



Daily scraping
Ammonia emission

Photos: L.D. Jensen (CFF), C. Wimmeler (BOKU), Eva Salomon (RISE)

3. Combined systems



Combined housing and free-range systems



Identification / evaluation of best practice / innovative concepts

Stakeholder inputs

120 stakeholders
across Europe

Housing

Large diversity in group size, roofing, provision of roughage etc. between countries!



Controlled housing climate, individual handling of pigs (fairly) easy, possible to collect manure for use in the crop rotation



Limited opportunity to perform natural behavior (e.g. rooting), poor hygiene/high risk of ammonia emission from outdoor runs, high investment costs

Free-ranging

Under pressure in many European countries

Robust animals, lower infection rates, good opportunities to perform natural behavior, low investment costs, high consumer acceptance

Heavy workload, (often) no premium price, risk of nutrient leaching, and concerns about biosecurity (ASF)

How to combine to have “the best of both worlds”?



POWER

Innovative concepts evaluated



DK (mobile concept)



CH (mobile concept)



I (agroforestry)

Photos: AG Kongsted (AU), B. Früh (FiBL), D. Bochicchio (CREA-ZA)

Overall assessment

On-farm data collection protocol

1. General information
2. Management
3. Productivity
4. Housing and manure
5. Labour & costs
6. Concentrate feed mixtures
7. On-farm feed production



GWP (CO₂)

Eutrophication

Acidification

Land use

Resilience

Gross margin

Management best practice herds

Values required for all highlighted fields (except remarks -> optional).

Dropdown menus in dark highlighted cells!

Questions marked in light green should be answered at each visit.

Questions marked in purple will be answered by the direct observations

Sows in service area

Service area located
Seasonal differences in housing
If YES, specify:
Average days in service area
Average group size
Feeding management
Feeding frequency per day
Feeding type
How often are the indoor areas being cleaned from manure?
How often are the outdoor runs being cleaned from manure?
Are sows scanned during pregnancy?
If YES at what time in the period?

Pregnant sows/management before farrowing

Pregnant sows kept
Seasonal differences in housing
If YES, specify:
Total area of paddock for pregnant sows
Size of paddock for pregnant sows in % of total area
No. of sows per group
Grass cover on paddocks of pregnant sows as % of total area
Other vegetation?
If YES % cover of total paddock area?
If YES specify
Paddock area is used for part of
Access to housing facilities on paddock area?
If YES describe kind of housing:
Feeding management
Feeding frequency per day
Feeding type
Access to roughage
If YES, type

Remarks

[0] (#/day) [m²] (#/day)

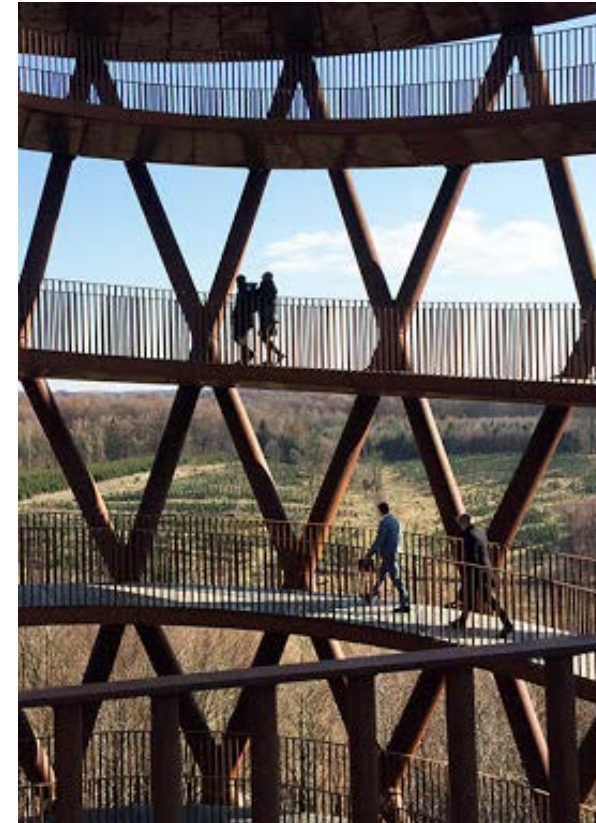
Glossary General information Management Productivity Housing & Manure Labour & costs Con

S. Moakes (FiBL)

Organic pig production

We need to keep on moving forward...

- To improve **intact** pigs' possibility to perform **natural behavior** in **sustainable** concepts
 - No castration/tail docking
 - Extended lactation
 - Pasture access - e.g. in mobile and agroforestry concepts
 - Local feed sources - not competing with human nutrition
- To increase **diversity** from farm to fork to meet diverse consumer segments
- To support the development of new organic systems and practices realising the **pig's organic potential/role**



<http://www.byensnetvaerk.dk/da-dk/arrangementer/2019/skovtårnet-ved-gissselfeld.aspx>

Thank you

Soon there will be a range of **fact sheets** available at the POWER project homepage

<https://projects.au.dk/coreorganiccofund/core-organic-cofund-projects/power/>



Acknowledgement: The financial support for this project are provided by transnational funding bodies, being partners of the H2020 ERA-net project, CORE Organic Cofund, and the cofund from the European Commission

Outdoor Run: Roughage – How to do it?

At a glance

Theme
Pigs

Farm Type
indoor housing with outdoor run, combined system

Production system
dry sows and fatteners

Welfare **Environment** **Cost**

Description

Roughage is an important ingredient of organic pig production. But how can you achieve the most benefit to the animal, appropriate pen hygiene and acceptable workload for the farmer?

Organic legislation requires possibilities for rooting in the open-air exercise area, which can be met by providing roughage in the outdoor run. The provision on the floor is easy to implement and corresponds to the pigs' natural behaviour. However, it risks considerable wastage and soiling of roughage and therefore requires frequent cleaning. Roughage in a rack remains clean for a longer time and is also well used by pigs. Racks filled with roughage on a daily basis in the outdoor run not only increase exploratory behaviour, but also motivate pigs going outdoors.

Legislation

- EU Regulation 2018/848 on organic production: "Exercise areas shall permit dunging and rooting by porcine animals. For the purposes of rooting, different substrates may be used."
- Possible substrates (specified on a national basis): Loose organic material on the floor (e.g. straw, hay, leaves, sawdust, spent husks) or roughage on the floor or in a rack, which after provision is not significantly soiled (Austria). Straw, soil, silage, green fodder and others (Denmark). Straw, earth or others; silage may be used as rooting material but its provision only in a trough is not sufficient (France). Straw, peat, bark, sand/earth or silage (Sweden). Natural materials, e.g. bean haulm, bracken or rushes, sawdust and wood shavings, sand and non-organic straw; you must not use peat (UK, Soil Association).

Relevance for Animal Welfare

Foto 1: Rack with cover mounted at the rear end of the outdoor run. © Power

Foto 2: Troughs underneath the rack reduce wastage and allow pigs rooting. © Power

Foto 3: Freestanding racks in the outdoor run provide better access in large groups. © Power