Innovation

Innovative farming in Denmark: mobile wagons with fenced pasture area

Description

This farmer has designed a mobile system for weaners and growing-finishing pigs. It consists of three movable wagons with a fenced pasture area. Depending on the season and pig size, the wagons are moved together with the fences 1–2 times a day using a tractor, providing new pasture areas for the pigs. The wagons have solid floors of wood with straw bedding. To allow extra ventilation during warm weather, roof vents and windows with curtains on the sides are present. A ramp provides access to the pasture area. It is possible to create small separate areas in the wagons, e.g. for sick animals.

Each wagon contains on average 150 pigs with access to a 180 m² pasture area. The pigs have access to the pasture day and night, all year round.

All wagons contain a feeding area including a water source, but only in wagons for growing-finishing pigs there is a weight sorting system in combination with the feeding area. Water comes from an intermediate bulk container (using approximately 15,000 litres/year). Power is supplied to each wagon using a diesel generator. A camera pointed at the pasture area connected to a tablet in the tractor helps to ensure that no pig is hurt when moving the wagon and fence.

Pasture management

There is a three-year rotational period for each pasture area. In between pigs, pasture areas are cultivated. Vegetation scores were performed at each visit. Even with new grass available once or twice a day, the vegetation cover was only 10-20 % for weaners during autumn/winter and 40-70 % during spring/summer. For finishers, there was an average of 50 % cover in all seasons. However, each pasture area is only used for one day as the wagons are moved continuously – 1 time per day in autumn/ winter and 2 times a day in spring/summer. Consequently, the damage to the sward is limited.



Farm portrait

Location Northern Jutland, Denmark Topography Flat Farmland 100 ha: 76 ha arable land Size of pig herd 1,300 weaners and growing-finishing pigs Farming system • Weaners: 1 mobile wagon with access to pasture.

• Growing-finishing pigs: 2 mobile wagons with access to pasture.







Inside the mobile wagons, there is an automatic feeder for growing-finishing pigs powered by a generator attached to the wagon.

Animal welfare

Daily, free access to fresh grass supports high animal welfare from a behavioural point of view. No negative behavioural manipulation of other pigs or materials were detected.

No major welfare issues were found on the farm. A few runts were occasionally seen in the wagon with weaners, but diarrhoea, tail and ear lesions or short tails could not be detected. For finisher pigs, ocular discharge, short tails and lameness were the main issues, but no diarrhoea, eye inflammation, tail or ear lesions were found.

Sunburns could be found among both weaners and finishers, mainly on ears, but not that often on the body. At least one hernia in growing-finishing pigs in each wagon was detected.



With an on average 1 pig per 1.2 m² pasture results in a quick opening of the swat. Therefore, the pasture area is moved 1 to 2 times daily.

Environmental impact and productivity

- Moving the wagons daily results in pigs being on the same pasture area for short periods (halfday). This has several advantages; dispersing the manure on a larger pasture area, lowering parasite pressure, reducing the risk of nutrient leaching, and allowing for faster vegetation regrowth.
- The pigs are mainly defecating outdoors, and the indoor areas stay more or less clean. New bedding is provided each day, and soiled bedding is removed. Hygiene scores on the farm show no indoor areas being more than 50 % soiled.
- Productivity data of the farm is shown in table 2.

Age group	Welfare parameter	Assessment during project period	
Weaners	Runts	Only a few	
Weaners	Ear lesions, tail lesions, short tails, diarrhoea	Not detected	
Weaners	Manipulation of other animals or equipment	Not detected	
Growing-finishing pigs	Ocular discharge	6 out of 8 examined pens, only a few animals / pen	
Growing-finishing pigs	Short tails	3 out of 8 examined pens, only a few animals / pen	
Growing-finishing pigs	Lameness	3 out of 8 examined pens, only a few animals / pen	
Growing-finishing pigs	Diarrhoea, ear lesions, tail lesions	Not detected	
Growing-finishing pigs	Hernia	On average 1/150 Pigs	
All	Sunburns on ears and body	Mainly on the Ears, in 1/3 of the Pigs	

Table 1: Welfare assessment

Table 2: Productivity

Productivity	Weaners	Growing-finishers
Average daily weight gain [g / day]	620	892
Average feed conversion rate [kg / kg gain]	-	2.9

Labour and cost

- The farm has no full-time employees besides the farmer, but he has help on some weekends and holidays.
- A critical task in this system is to move the wagons each day. This is done by tractor. The system does not have a burdensome work- load, but challenges with the generators supplying power for the weight sorting systems have been very time-consuming.
- The farmer has a range of new ideas to implement in the future, like changing the power supply to solar power cells, changing the weight sorting system to manual weighing and cultivating crops, like radish, on the pasture areas for the pigs to supplement their daily ration.

Take away lessons

- This system satisfies future expectations of consumers on animal welfare, having pigs on fresh grass while at the same time mitigating the environmental impact from organic pig production.
- The price for housing one pig in this mobile system is more or less equal to housing a pig indoors with an outdoor run.
- Building a mobile system of this size is a very challenging task, and it has been an instructive experience. To build these mobile wagons, the farmer formed a cooperation with a company that puts his ideas into practice. The developmental and improvement process is still ongoing.

Further Information

ICROFS (2021): Innovative pasture systems from Denmark and Italy. Video. International Center for Research in Organic Food Systems ICROFS, Tjele. Available in English: www.youtube.com [Link].

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Research Institute of Organic Agriculture FiBL, Switzerland Ackerstrasse 113, Postfach 219, CH-5070 Frick Phone +41 62 865 72 72, info.suisse@fibl.org, www.fibl.org

Author: Rikke Thomson (CFF, DK) Contact: RIKTH@frilandsdyr.dk

Revision: Rennie Eppenstein, Sophie Thanner (both FiBL, CH) Proofreading: Lauren Dietemann, Andreas Basler (both FiBL, CH) Editors: Rennie Eppenstein, Sophie Thanner (both FiBL, CH) Layout: Brigitta Maurer, Sandra Walti (both FiBL, CH) Photos: Line Dinesen Jense (CFF, DK) p. 1, Hans Henrik Thomsen (Purple Farm, DK) p. 2 (1), Rikke Thomson (CFF, DK) p. 2 (2) Permalinks: orgprints.org → power, projects.au.dk → power 1. Edition 2022 © FiBL

POWER

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