

Integrated production of tree biomass and piglets - Effect of paddock design on sow excretory behaviour



Andersen*, H.M-L, Kongsted, A.G. & Jakobsen, M.

Department of Agroecology, Faculty of Science and Technology, Blichers Alle 20, Aarhus University, P.O. Box 50, Tjele DK-8830 Denmark
*E-mail: Heidimai-lis.andersen@agro.au.dk

Implications

To achieve the most optimal environmental effect of implementing trees in farrowing paddocks, focus should be on location of feed trough and hut in relation to the trees.



Background and objectives

Pasture systems for organic pigs:

- Meet the animals' natural behaviour
 - Comply well with consumers' expectations
- But contain a high risk of nutrient losses.

Implementing trees in these systems, is suggested to

- Increase nutrient uptake across a longer growing season
- Provide tree biomass
- Be robust to the pigs rooting behaviour
- Provide shade and shelter for the animals

But the environmental effect depends on the pigs being motivated to excrete adjacent to the trees.

Objectives: To investigate the effect of spatial arrangements of poplar trees, hut and feed trough on lactating sows' excretory behaviour in a pasture-based system with integrated agroforestry

Preliminary results and discussion

- Defecation mainly occurred in the tree zone
- Urination was randomly distributed between the tree and grass zone
- Location of hut and feed affected the sows' choice of defecation area ($P < 0.05$)
- No effect of hut and feed location was found on the sows' choice of urination area ($P = 0.11$)

Our results indicate: Sows can be motivated to eliminate in the tree area if the hut is located nearby the trees and the feed trough in the opposite end. Locating both resources nearby the trees should be avoided (Figure 1).

Our results could not fully confirm the results found by Horsted et al. (2012), who reported that pigs prefer to eliminate in the tree zone. However, the elimination behaviour seems to be affected by the location of the feed and hut, which was also reported by Eriksen & Kristensen (2001) and Salomon et al. (2007).

Next step is to analyse whether the distribution of urine and faeces in the paddocks is related to resting and foraging behaviour.

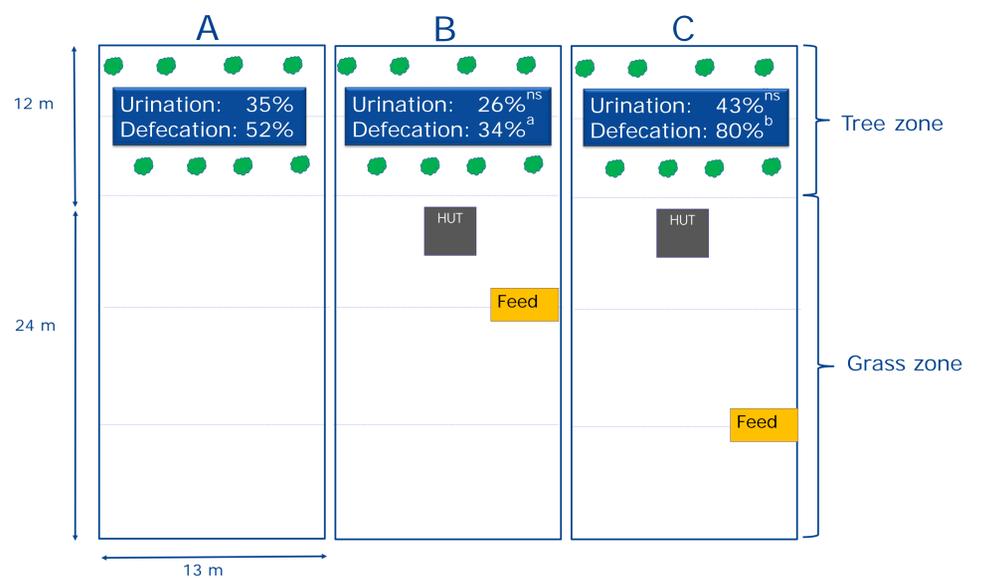


Figure 1. The average proportion of urination and defecation in the trees zone (A), and the paddock design with the lowest (B) and highest (C) urination and defecation in trees zone. The zone with trees constituted 34% of the total paddock area.



AGFORWARD: www.agforward.eu
pECOSYSTEM: <http://agro.au.dk/forskning/projekter/pecosystem>

Materials and methods

24 lactating sows, housed in individual farrowing paddocks with 4 rows of poplar trees

Treatments

- 3 different hut locations
- 2 different locations of feed troughs

Behavioural observations

- Urination and defecation (all occurrences)
- Activities in different paddock zones (scan sampling)