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“Filling gaps and removing traps
for sustainable resource management”

Pig Production in Uganda - Adapting to Climate Change

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Abstract

Pigs are sensitive to heat stress as they lack functioning sweat glands and have small lungs, which reduce their ability to disseminate heat by panting. Moreover, there is limited attention to impacts of climate change on pigs in Uganda by stakeholders despite the potential vulnerability of pigs to heat stress. The objectives of the study were to i) determine the heat-stress status in pigs, ii) analyse factors influencing heat-stress, and iii) explore the heat-stress adaptation options in Lira District, Uganda. Data on heat-stress indicators was collected from a survey of 104 households and measuring 259 pigs in Ojwina (Urban) and Barr (Rural) sub-counties of Lira district. Heat-stress indicators included skin temperature ($ST=36.32^{\circ}\text{C}\pm 2^{\circ}\text{C}$), and rectal temperature ($RT=39.06^{\circ}\text{C}\pm 0.83^{\circ}\text{C}$). Ordinary Least Squares linear regression analysis assessed the factors influencing each of the heat-stress indicators. Adaptation options were explored during four gender dis-aggregated focus group discussions with 15 male and 16 female participants in total. The preferred adaptation options were analysed using the average preference rating. According to the farmers, 51.6% of the pigs were heat-stressed. The results showed that heat stress was influenced by the external temperature humidity index, pig management system, pig category, colour, heart girth, water quantity given, pig's body condition score and time of the day. The results showed that the most preferred adaptation options included constructing a high pig pen roof to facilitate easy air flow (Average Preference Rating = APR = 4.75); pouring water on the pigs (APR = 4.63); and allowing pigs to swim/wallow (APR=4.48). These heat stress adaptation options are suited to the local farm conditions in Lira and offer insight into appropriate techniques that could be applied elsewhere to improve livelihoods and food security. This study confirmed the importance of heat stress risk to pig production in Uganda, and more attention from stakeholders and policy makers is needed.

Keywords: Adaptation, climate change, heat stress, swine, Uganda