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Future consequences of climate change for European pig production

Dr David Renaudeau, 46 years old, is a Senior Research Scientist in the PEGASE (Physiology, Environment, and Genetics for the Animal and Livestock Systems, F 3590 St Gilles) joint research unit between INRAE and AGROCAMPUS OUEST. Dr Renaudeau has 20 years expertise on swine nutrition and on the adaptation to thermal heat stress. He is conducting research programs aiming to better understand the mechanisms underlying heat adaptation in pigs and to propose innovative strategies for better coping with thermal heat stress. He is involved in national collaborative projects dealing with the production of modeling tools for evaluating the impacts of warming climate on the pig production sector.

Climate change is already a reality for livestock production but the effects have been examined mainly in ruminant species and less is known about the impacts and the vulnerability of the pig sector to climate warming, particularly from a European Union (EU) sector perspective. Therefore, the aim of this paper is to review the potential effects of climate change on EU pig production and forecast the future effects based on climate modelling. Based on evidence published in the literature, climate change may reduce EU pig productivity by indirectly reducing the availability of crops usually used in pig feeding, spreading the vector or pathogen to new locations and increased risk of cereals contamination with mycotoxins; and directly by heat stress and increasing disease susceptibility. Provision of realistic projections of climate change impacts on EU pig sector is a prerequisite to evaluate its vulnerability and propose effective adaptation strategies. Simulation modeling is the most powerful tool for predicting the effects of climate change on EU pork production. One of the main challenges for simulation modelling is to accurately account for direct and indirect effects but also to uncertainties in parameter values that would substantially increase the uncertainty estimates for model projections. The last part of the paper focuses on the main issues that still need to be overcome for developing a decision support tools for simulating the direct and indirect effect of climate change in pig farms.