Book of Abstracts

of the 76th Annual Meeting of the European Federation of Animal Science

EAX · EVT · FEZ · EAAP · EUROPA

Book of Abstracts No. 39 (2025)
Innsbruck, Austria
25 - 29 August, 2025

Book of Abstracts of the 76th Annual Meeting of The European Federation of Animal Science

EAAP

European Federation of Animal Science

The European Federation of Animal Science wishes to express its appreciation to the Ministero dell'agricoltura, della sovranità alimentare e delle foreste (Italy) and the Associazione Italiana Allevatori (Italy)
for their valuable support of its activities.

Book of Abstracts of the 76th Annual Meeting of The European Federation of Animal Science

Innsbruck, Austria, 25st – 29th August , 2025

EAAP
Via G. Tomassetti 3 A/1
Rome (Italy)
www.eaap.org
eaap@eaap.org

ISBN: 979-12-210-6769-9

First published, 2025

Exposure to ammonia and particles: how to prevent and protect workers in pig farms from respiratory risks?

N. Guingand[1], S. Lagadec[2], C. Depoudent[2], J. Kerdoncuff[2], D. Bellanger[3], L. Leroux[3], P. Lecorguille[4], C. Delaqueze[4], V. Legall[4]
[1] Ifip, bd du Trieux, 35740 PACE, France, [2] Chambre d'agriculture de Bretagne, rue Maurice Lannou, 35042 RENNES, France, [3] Chambre d'agriculture des Pays de la Loire, rue André Brouard, 49105 ANGERS, France, [4] MSA, rue d'Enghien, 75010 PARIS, France

People working in pig farms are exposed to concentrations of ammonia (NH3) and particles that can cause respiratory problems such as coughing, asthma or bronchitis. To limit this, two categories of measures can be implemented: the preventive one aimed at reducing the concentrations of pollutants in the air and the protective one to protect workers. The lack of information on these measures prevents their implantation on the ground. The objectives of this study are (1) to identify the preventive measures applicable in farms and the protective measures available on the market and (2) to evaluate them (effectiveness, ease of implementation, cost). The preventive measures were identified via a review of the scientific literature (102 references) and surveys of 13 breeders and employees. The protective measures available on the market were identified by carrying out research with the main suppliers of respiratory protection masks and through discussions with MSA preventers. The means of prevention and protection best suited to pig farms were selected using a multi-criteria grid and the opinion of breeders. At the end, 60 preventive measures have been identified (human: 9, organizational: 23, technical: 28). Eighteen protective measures have been selected and evaluated in breeding conditions: Technical sheets have been written per measure (preventive and protective ones) including its principle, an associated price range as well as all of the evaluation criteria identified. Opinions of breeders and the experts of the project have been integrated to these sheets. The availability of these technical sheets to pig farmers should help provide them the necessary information to encourage them to better integrate air quality and occupational exposure in their working conditions. The next step of the project is the development of a smartphone application allowing farmers to assess the air quality in their buildings and find appropriate prevention and protective solutions.

Pig growth, body composition and nutrient balance with local protein sources no mineral phosphate, but with amino acid and phytase supply

P. Lin[1,2], M. Tretola[1], L. Pinotti[2], G. Bee[1], P. Schlegel[1]
[1] Agroscope, Tioleyre, 1725 Posieux, Switzerland, [2] University of Milan, Via dell'Università, 26900 Lodi, Italy

Formulating diets for growing pigs that are low in protein (CP) and phosphorus (P), with minimal use of imported protein-rich feedstuffs and mineral phosphates (MP), while meeting digestible amino acid (dAA) and phosphorus (dP) requirements, is a challenge for sustainable pig production. This study formulated grower (40 kg) and finisher (60 kg) diets using local protein sources and no MP and evaluated effects on growth, body composition and nutrient balance. Forty-eight Swiss Large White pigs (12 blocks of four female or castrated male littermates) were housed in one pen and assigned to 4 iso-energetic ad libitum fed diets: Control (C), N-, P- and NP-. In N-, soybean meal was replaced with more rapeseed cake, protein beans and with five additional limiting synthetic AA to minimize CP, while maintaining dAA levels as in C. In P-, MP was removed and Ca:dP was maintained as in C by adjusting CaCO3. Diet NP- combined both N- and P-. All diets included 500 FTU/kg of microbial phytase. Compared to C, N- diets contained 3% (grower) and 0% (finisher) soybean meal with 140 g/kg (-10%) and 116 g/kg (-15%) CP; P- diets had 3.4 g/kg (-20%) and 3.0 g/kg (-22%) P. Daily individual feed intake and BW at the start, diet change, and end were recorded. Nutrient excretion was calculated by subtracting nutrient intake from body accretion, determined via dual X-ray absorptiometry at the start, diet change, and end. Statistics included sex, N and P effects and their interactions. No interactions between N- and P- were observed ($P>0.05$). Overall, growth performance remained unaffected. Body composition remained unchanged across diets, except for reduced ($P<0.001$) bone mineral content and density (-8% at diet change, -6% at end) in P-. N and P excretion were reduced ($P<0.01$) in grower and finisher periods by N- and P-, respectively, leading to overall reductions of 20% N and 25% P. These findings show that formulating diets without imported protein sources and MP successfully minimized N and P excretion while maintaining growth and lean tissue composition. Further research is needed to optimize microbial phytase supply in MP-free diets to mitigate bone demineralization.