

Research and user experience of using PAP in livestock feed

In September 2021, the European Union partially lifted the feed ban for PAP (Processed Animal Protein). Allowing the use of poultry PAP in pig feed and porcine PAP in poultry feed, intra-species consumption remains prohibited. The use of both types of PAP has been permitted in aquaculture since 2017. To avoid possible cross-contamination, there are strict rules for collection, processing and transport. Results from new scientific research and user experience are now available and are very promising.

Poultry PAP in pig feed

- Higher acceptance and growth compared to soy-based feed
- Improved health and behaviour

Research took place at the Teaching and Experimental Farm Köllitsch of the Saxon State Ministry for Energy, Climate Protection, Environment and Agriculture (Lehr- und Versuchsgut Köllitsch des Sächsischen Staatsministeriums für Energie, Klimaschutz, Umwelt und Landwirtschaft). The researchers E. Meyer and P. Olschewski fed 592 piglets with poultry and fish meal in four consecutive experimental runs in two breeding apartments. The animals were individually weighed at the beginning, day 7 and at the end (day 35). The test feed was supplied after day 7 for four weeks.

In the feed 14% HP soy (44% XP) was replaced by 10% poultry meal (65% XP) and 4% grain (2% wheat & 2% barley). The composition of the feed was optimised to guarantee the same energy and lysine content.

The results between the poultry PAP and soy control feed do not show a significant difference in daily weight gain and only a slightly increased feed uptake for poultry meal. According to the researchers' observations the piglets accepted the poultry PAP feed more easily. They speculate that piglets favour the "Umami" taste of the poultry PAP which has been described in previous literature.

The piglets in the poultry PAP group showed better physical development and finally better health. Poultry PAP fed piglets developed significantly less diarrhoea. The research team concluded that this is due to increased gut health. In their subjective rating, the researchers found reduced restlessness and aggressiveness in the PAP group. Uneasy behaviour happened in the control group nearly twice as often as in the poultry PAP fed group. It is assumed that better gut health hence a better immune system positively reduced inflammation which would promote aggressive behaviour.

In their final statement Meyer and Olschewski concluded that poultry meal as highly valuable protein resource led to higher feed acceptance and growth, less diarrhoea and positive (quieter) behaviour (less tail biting and necroses). Using PAP in feed could play an important role in animal welfare and raising pigs with intact tails.

Literature reference:

Meyer, E. & Olschewski, P. (2023). Untersuchungen zum Einsatz tierischen Proteins in der Ferkelaufzucht. Forum angewandte Forschung, 09./10.05.2023, No.38. [View online](#).

Porcine PAP in poultry feed

- Improved feather quality
- Lower mortality

At the 2024 EFPPRA Congress, poultry nutritionist Jeffrey de Rooij of [AgruniekRijnvallei](#) (AR) presented results from feeding tests of porcine PAP in layer feed. AR have refurbished a feed plant to comply with the strict rules for using pig PAP in poultry feed. To support this investment, AR investigated the impact of pig PAP in poultry feed. The feeding tests were conducted in the Poultry Innovation Lab (2 groups of 500 brown hens) and in-practice (2 groups of 30.000 brown hens).

The tests at Poultry Innovation Lab Aeres (conducted in cooperation with Wageningen University) compared a regular diet without PAPs with a high inclusion (7,5 %) PAP diet in hens 27 to 64 weeks of age. Performance and

welfare parameters were monitored. The score of wounds related to cannibalism were significantly reduced for the PAP diet and feather quality increased. In total, mortality was one third lower compared to the control group.

Chart 1: Wounds, related to cannibalism (Poultry Innovation Lab Aeres)

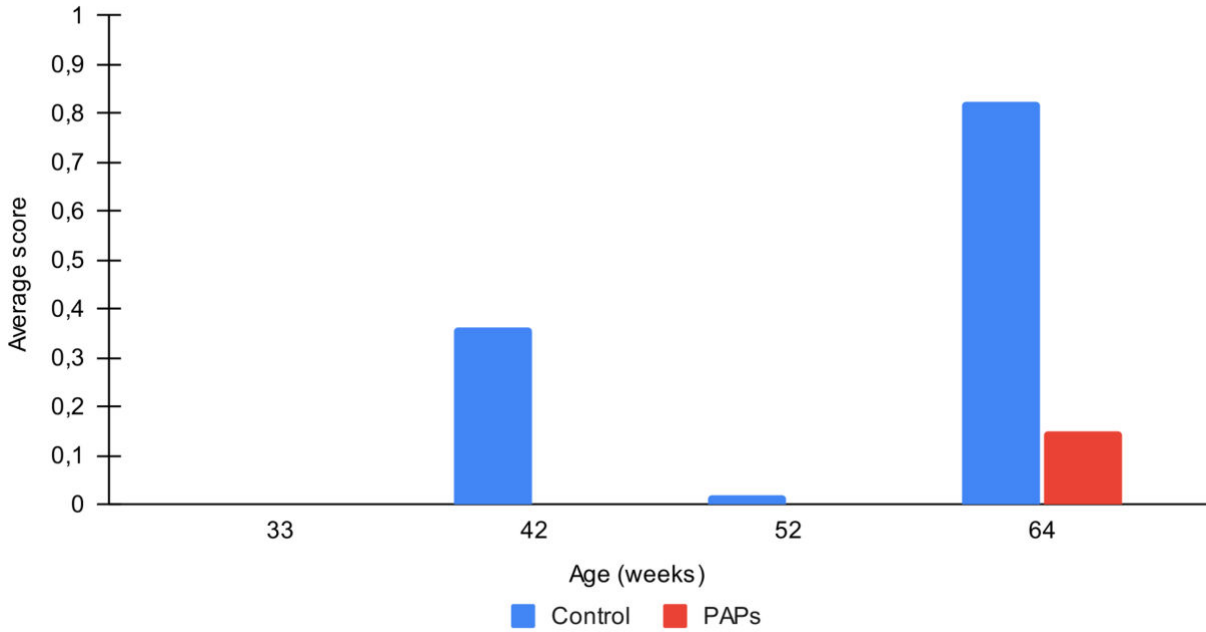


Chart 2: Feather quality (Poultry Innovation Lab Aeres)

- A higher bar means more damage to feathers

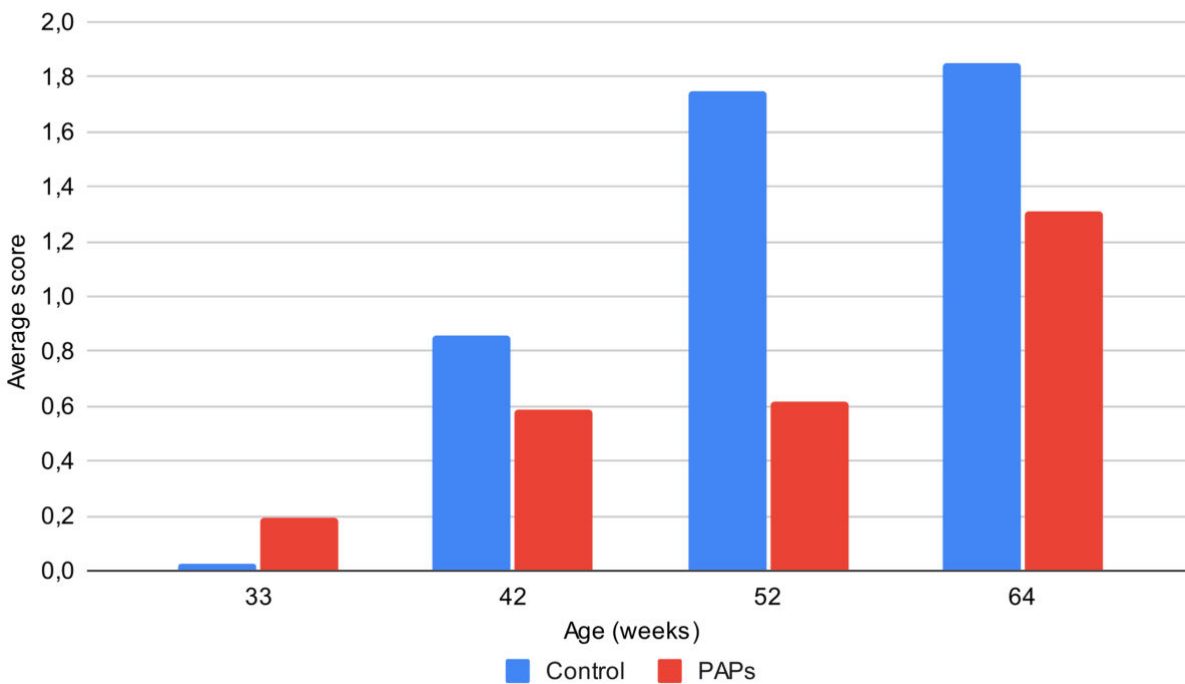
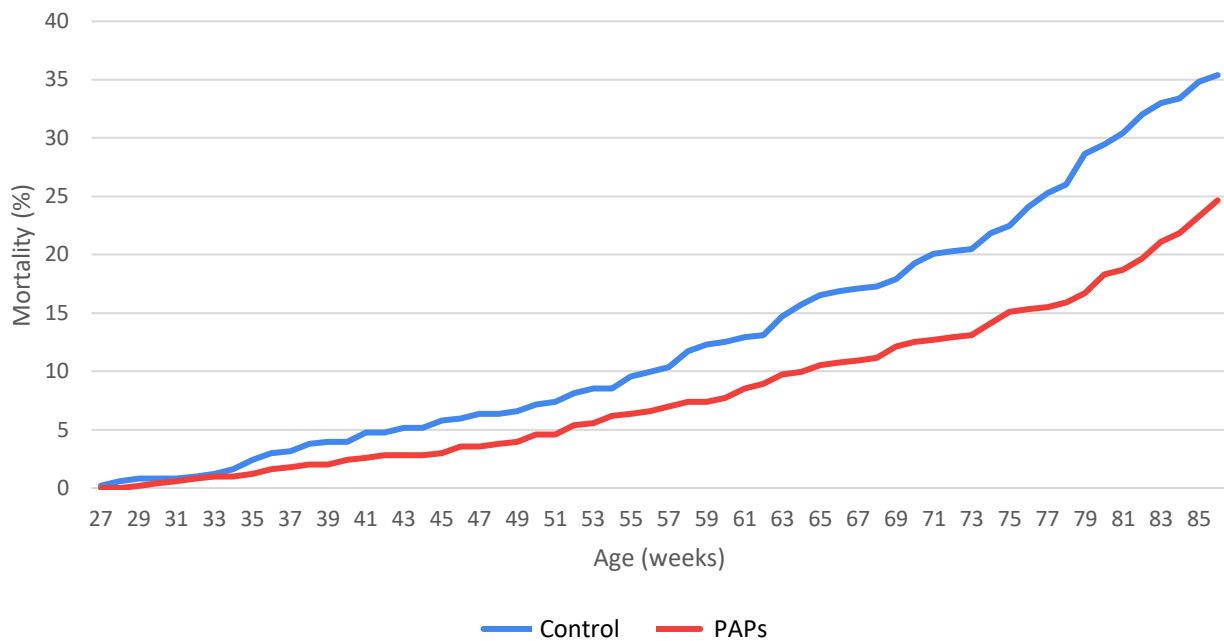
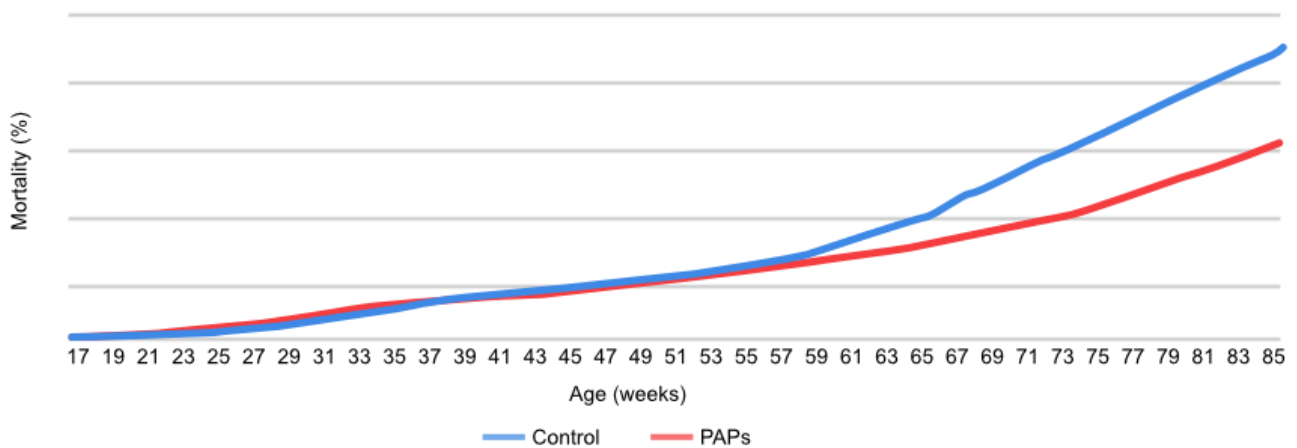


Chart 3: Cumulative mortality (Poultry Innovation Lab Aeres)



The in-practice tests compared a feed without PAP with a diet containing 3,5 % PAP with hens from 53 to 85 weeks of age. Both groups showed no difference in production parameters but – as in the Lab test – mortality was lower in the PAP group. The mortality in the non-PAP control group was 50% higher than in the PAP fed group.

Chart 4: Cumulative Mortality (In-practice feeding test)



During the in-practice tests, the customer made the following observations:

- Decreased water intake, which resulted in lower faecal moisture and better litter quality.
- Lower feed intake; possibly an indication of a better fulfilment of the animal’s requirements.
- Reduced mortality and better behavioural aspects; possibly – as in the Lab-tests – a sign of reduced cannibalism.
- Reduced use of feed additives supporting gut health.

Based on the results, Jeffrey de Rooij stated that production parameters can be maintained with feed containing PAP while, diets with PAP show reduced mortality, lower cannibalism and better feather quality. It is assumed that this is based on improved gut health. He concluded that “Processed animal Proteins are able to lower the carbon footprint of animal feed while improving welfare in layers.”