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Blood products as sustainable ingredients in livestock nutrition: Protein source and alternative to antibiotics

Sustainable livestock production embraces a broad concept of balancing environmental, economic and societal aspects of meeting the growing global food demand on the long run. Matching dietary nutrient levels to the animal's requirements and use of ingredients that maximize bioavailability reduce both the upstream and downstream environmental cost of meat production. To this aspect, properly processed blood products can correct amino acid deficiencies in vegetable-based proteins. Their high protein digestibility and low phosphorus content further reduce nitrogen and phosphorus load in manure. Yet, notwithstanding its nutritional value, the main benefit of dietary animal plasma is likely its content in bio-active glycoproteins. Immunoglobins and other plasma glycoproteins improve gut health through which feed efficiency is improved and antibiotics use can be reduced. The latter is of paramount importance seen the emergence of bacteria that become increasingly ever more resistant to antibiotic treatment. Restrictions on antibiotics use in farm-animals are thus obviously necessary for the long run. Regrettably, this may have a negative impact on animal welfare and productivity on the short run. Therefore, efficient alternatives are crucial. Currently in Europe, non-ruminant blood products are only allowed in mono-gastric food-producing animals. Hemoglobin is primarily used in fish farming where it can partially replace fishmeal. Besides fishmeal being a limited natural resource, its carbon footprint per kg protein is 44% to 74% higher compared to hemoglobin. Spray-dried plasma is primarily used in milk replacers and early post-weaning piglet diets as natural alternative to milk-borne functional glycoproteins and as a high-quality protein source.

Biography

Kalmar I D holds a degree in Veterinary Medicine and in laboratory Animal Sciences. She completed a PhD in Veterinary Medicine on the topic of nutrition and feeding behavior of pet birds, and performed Postdoctoral studies in immunology at Ghent University. She completed a second PhD in the field of nutrition related metabolic diseases in broilers, obtained at the department of Animal Sciences of Wageningen University. She is the senior veterinary scientist at VEOS group, a producer of animal-based food and feed ingredients with focus on plasma proteins. She has published over 30 papers in reputable journals.

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