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THE EFFECTS OF DIETARY FATTY ACIDS ON PASSIVE IMMUNITY AND PERFORMANCE PARAMETERS IN WEANING PIGLETS

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Weaning is one of the most stressful events in a pig's life; during which they encounter a multitude of intestinal, immunological and social challenges which interfere with gut development and growth performance, previously controlled using growth-promoting antibiotics. However; an EU-wide ban prohibiting their use began in 2006, directing research towards developing safe alternatives. Studies indicate that fatty acids are efficient immunomodulators and exert a positive effect on animal performance. This research aims to investigate the strategic use of fatty acids as a natural alternative to antibiotics, in order to create a sustainable feed product with advantages to animal welfare as well as industry.

80 pregnant sows were fed either a standard diet + *fatty acids* or standard diet only. Colostrum samples were used to measure immunoglobulin profile whilst piglet sera samples were analysed for IgG to test if enhanced immunity was transferred during nursing. The second part of this study identified whether any positive changes were reflected in piglet performance.

IgA and IgM colostrum concentrations were significantly higher ($P < 0.05$) in sows fed supplemented diets whilst IgG, although not significant, was also higher. Sera IgG was significantly higher in piglets born to sows on the supplemented diet. In regards to performance, piglets born to treated sows showed significantly improved feed conversion ratios and weight gain.

These results suggest that colostrum produced by fatty acid supplemented sows was of a higher nutritional value and provided a greater level of immune protection to piglets. This resulted in improved piglet performance, indicating that the enhanced composition of the colostrum is both nutritional and beneficial to piglets. It is thought that the pathway for improving milk quality involves promoting a healthier gut through controlling the balance of microflora. This then allows the animal to maximise feed efficiency, thus improving immune status and body condition.

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