

Measuring health



Determining the effects of interventions on health and disease susceptibility

Wageningen
Bioveterinary
Research

Safeguarding human and animal health through veterinary and biomedical research



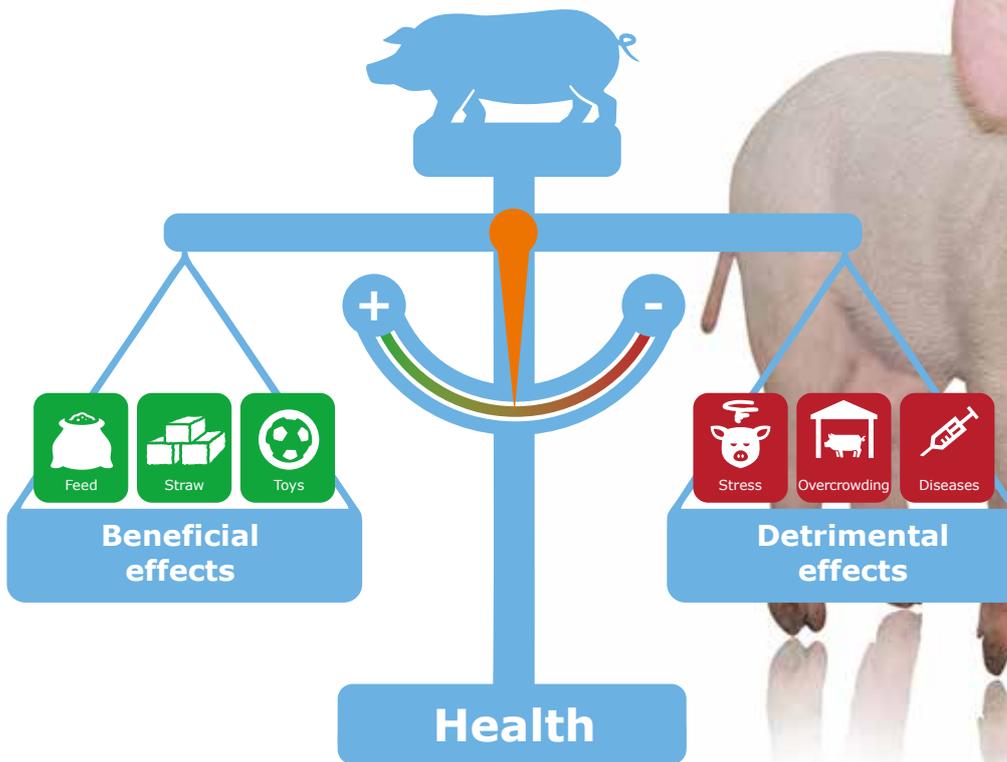
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Health and disease susceptibility are significantly influenced by housing conditions, nutrition and animal management. At Wageningen Bioveterinary Research, we are able to evaluate the effects of health-supporting interventions on the prevention of infectious diseases in experimental animal models. These models are based on infections due to low-pathogenic viral and/or bacterial pathogens. This provides the opportunity to assess and quantify the effects of health-supporting measures and to study the physiological and immunological mechanisms as well. The balance of beneficial and detrimental effects due to genetic selection, nutritional optimisation or improved farm management can therefore be evaluated with respect to immunity and general health. These models primarily target pig health but also offer possibilities for biomedical research.

Examples of interventions

Effect garlic on health

Using this model Wageningen Bioveterinary Research demonstrated the effects of garlic feeding on respiratory health in pigs. A beneficial, alleviating effect of garlic on the course and severity of a low pathogenic, gram-negative bacterial infection was shown.



Positive interventions lead to beneficial effects, Negative interventions lead to detrimental effects

Actinobacillus pleuropneumoniae is impaired by the garlic volatile allyl methyl sulfide (AMS) *in vitro* and in-feed garlic alleviates pleuropneumonia in a pig model

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Effect of environmental enrichment on early-life health

Newborn piglets were either housed in conventional fostering and weaning conditions or in enriched conditions. These pigs were then used in our viral/bacterial co-infection model to investigate the effects on infection and disease susceptibility. Our model showed that pigs reared in an enriched environment were better able to reduce virus load and disease manifestation after bacterial challenge. Immune responses, lung lesions and sickness behaviour of the piglets were clearly affected by housing conditions.

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