

1C-106: Reducing Aggression In Group-Housed Gestating Sows Through Manipulation Of Dietary Water Holding Capacity And Hind-Gut Fermentation Substrates To Control Gut Distension And Blood VFA Levels

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Aims and Objectives

There are a number of dietary sources that have potential to induce satiety in sows during gestation when they are restrictively fed. Dietary sources that have shown some satiating effects include Sugarbeet Pulp (SBP) Guar gum, Opticell[®] and Magnesium oxide.

The aim of this study was to investigate the ability of these dietary ingredients to induce satiety and thus change the physiological stress and behavioural responses of sows. The inclusion levels of the various ingredients investigated in this study were held at commercially viable levels and diets were isoenergetic to reduce for the energy dilution effects of fibrous ingredients.

Key Findings

There was no significant effect of dietary treatment on behavioural or heart rate measurements. The lack of behavioural responses to the dietary treatments was more likely due to the experimental model being used. The sows were housed in gestation stalls and the behavioural responses were examined over a short period of up to one week. Any subtle treatment effects may have been masked by abnormal behaviour of sows, typical of that observed in stalls.

Physiological data measured by blood glucose sampling showed significant effects of dietary inclusions on blood sugar levels. All four dietary inclusions used may play a role in stabilizing blood glucose levels but there appeared to be different modes of action of these individual dietary inclusions on digestion and absorption.

The most consistent behavioural response from this Project was that SBP appeared to have a positive effect on satiety, as inclusion of 20% SBP in a diet increased meal time and reduced voluntary feed intake to no more than 4 kg/day.

Application to Industry

As there were no consistent and positive effects on the behavioural response of sows to the dietary inclusions studied in this project, there is no immediate application of any of the dietary treatments to industry. However, the project was able to identify that future experiments examining dietary manipulations to improve satiety and reduce aggression amongst sows should be examined under group housing systems where the behavioural responses are more likely to be observed in these types of longer term studies.

In view of the positive effects of SBP on reducing voluntary feed intake, increasing meal time with an apparent improvement in satiety, the use of SBP and similar materials in diets should be further investigated during short term critical times, particularly when sows are mixed into groups.