

PhD Defence

Maternal and/ or post-weaning supplementation of hydrolyzed yeast as an alternative to pharmacological zinc oxide

Brenda Christensen

Date: Friday March 27, 2026 at 1:00 pm

The MSc Defence for Brenda Christensen has been scheduled for Friday March 27, 2026 at 1:00 pm. The defence will be held online via Teams and in room 141: <https://teams.microsoft.com/meet/2196391341106?p=IUwT4nkcWq212S7UIz>

Examining Chair: Dr. Jim Squires

Advisor: Dr. Lee-Anne Huber

Advisory Committee Member: Dr. Elijah Kiarie

Additional Member: Dr. David Huyben

External Examiner: Dr. Adam Moeser

Abstract:

The use of sustainable functional feed ingredients targeting nursery pigs is important as regulations restrict previously used feed additives including ZnO and antibiotics. Hydrolyzed yeast (HY) can affect pig performance through flavour, and the functional components (i.e., mannan oligosaccharides and β -glucans) which can also impact gut physiology, and microbiome. When fed to nursery pigs, HY improved pig body weight (BW), average daily gain (ADG), average daily feed intake (ADFI), and gain to feed (G:F), however these effects were delayed compared to ZnO. Improvements in growth during the acute phase of weaning (initial 5 days) can have lasting impacts on post-weaning growth, therefore dietary strategies that target the acute phase of weaning are desirable. Due to variability between HY products, inclusion levels in maternal diets needed to be evaluated. In this study, maternal diets were supplemented HY in either 0, 0.25, 0.50, 1.0, or 1.2% in late gestation and lactation. The inclusion of HY in maternal diets was provided with the aim of improving offspring growth prior to weaning to improve pig robustness after weaning. Offspring from primiparous sows fed HY at 0.25% had the greatest weaning BW and suckling ADG, however, offspring from HY 1.0% had greater d 1 immunoglobulin plasma concentrations. Therefore both 0.25 and 1.0% were selected to test lifetime growth performance differences in offspring. Offspring from primiparous sows fed HY at either 0.25 or 1.0% were heavier at weaning than the control offspring.

During the first week post-weaning M0.25-NY (maternal HY included at 0.25%, and nursery HY inclusion) and M1.0-N0 (maternal HY included at 1.0%, no HY in nursery diet) had the greatest BW. An increase in relative spleen weight at weaning (d 21) and four-days post-weaning (d 25) were observed in pigs reared on M025 sows, and on d 25 M0.25-NY had the greatest villus height (VH). Nursery yeast (NY) inclusion increased the jejunal tissue relative gene expression of Dectin-1, NOD-2 and Claudin-1 on d 25. Therefore, the acute phase of weaning can be improved when HY is supplied at 0.25% in the maternal diets of primiparous sows and subsequent nursery diets of offspring, however there were no lasting improvements on offspring growth after the nursery period in the absence of a disease challenge.