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The 2009 Allen D. Leman conference proceedings book is made possible by the generous support of **IDEXX**.

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Formatting
Tina Smith

CD-ROM
David Brown

Logo Design
Ruth Cronje, and Jan Swanson;
based on the original design by Dr. Robert Dunlop

Effect of PCV2 vaccine on carcass composition

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The effect of Circovirus vaccination on mortality rate and performance has been reported in studies that compare vaccinated pigs with non-vaccinated pigs under field conditions. There is a lack of information on the consequence of vaccination on carcass composition. Vaccinated pigs have been reported to exhibit an increase of 9.3% for average daily gain during the finishing period with a lower probability of being lightweight at the time of marketing (Horlen et al.; 2008). Feldmann et al. (2008) reported a finishing cull rate of 6.31% from non-vaccinated pigs compared to 1.68% for pigs vaccinated at 3 weeks of age and 0.86% for pigs vaccinated at 6 weeks of age; while 78.68% of non-vaccinated pigs were marketed into the primary market chain compared to 84.59% of pigs vaccinated at three weeks of age and 90.80% of pigs vaccinated at six weeks of age. In another study, the finishing cull rate was 5.61% for vaccinated pigs and 10.24% for non-vaccinated pigs. In addition, vaccinated pigs had heavier hot carcass weights and a greater loin muscle depth (King et al.; 2008). PCVAD has cost producers an average of $3-4 per pig with peak losses ranging up to $20 per pig (Gillespie, In Press). The objective of this study was to evaluate the effect of PCV2 vaccination on common carcass measurements that are used to determine market value of pigs.

The three hundred forty eight (348) pigs that were used in the trial were farrowed during one week in a herd with subclinical circovirus infection. They were weighed and ear tagged at two days prior to weaning to examine the influences of PCV2 vaccination on carcass composition. Pigs were matched in pairs by sex, weight and dam. Matched pairs of pigs were randomly allocated to vaccine and control groups. Vaccinated pigs received a Killed Baculovirus vector PCV2 vaccine at weaning and three weeks later.

At the conclusion of the nursery phase Control and Vaccinated groups did not show any significant difference in weight ($P<0.71$). There was no detrimental effect in nursery growth rate and mortality due to PCVAD since no lesions due to PCV2 were found during necropsy of all the dead pigs in the nursery phase. At 22 weeks of age a representative sample of 186 pigs were weighed and vaccinates were 4.54 kg heavier ($P<0.005$) than controls. At 24 weeks of age a second representative sample of 159 pigs were weighed and vaccinates were 7.23 kg heavier than controls ($P<0.0007$). The pigs that were necropsied evidenced a mild circovirus infection in finisher.

Average daily gain (ADG) from weaning until the end of nursery phase was not statistically different between both groups (308.4 g). The ADG from the end of nursery to 24 wk of age was significantly different between control (657.7g) and treatment (725.7g) pigs ($P<0.0002$). The ADG from weaning to 24 wks of age (overall ADG) was also statistically different between groups ($P<0.001$).The ADG for control pigs was 580.6 g while vaccinated pigs grew 630.5 g. There were 91% of vaccinated pigs that went to primary markets vs. 79% of the non-vaccinated pigs. Carcass composition was evaluated through carcass weight, fat depth, loin depth and lean %. There was no difference between vaccinated and non-vaccinated pigs in carcass weight when adjusted for age ($P<0.49$). Carcass fat depth ($P<0.85$), loin depth ($P<0.31$) and percent lean ($P<0.40$) were not statistically different between the two treatments.

We concluded that while PCV2 vaccination has a large impact on growth rate, there is no effect of PCV2 vaccination in this study on common carcass measurements that are used to determinate the market value of the pigs.