



Australasian Pork Research Institute Ltd APRIL

PROJECT SUMMARY

Project Number and Title: A3A-105 Evaluation of phase feeding compared to a single diet strategy

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Aims and Objectives:

Previous APRIL funded research (3A-103) indicated advantages in feeding a single diet throughout the growing-finishing period, compared to a traditional phase-feeding approach. The current experiment was commissioned by APRIL to further investigate the potential of a single diet strategy, in a large commercial environment, using pigs from a different genetic background (i.e., PrimeGro™ Genetics).

Experimental design (if applicable):

The experiment compared growth performance, carcass measurements and profitability of a three-diet phase feeding program compared to three single diet feeding programs in immunocastrated male and female pigs. The phase feeding program used an early grower diet from 10 to 13 weeks of age (EG; 14.0 MJ DE and 0.75 g SID Lysine per MJ DE), a late grower diet from 14 to 16 weeks of age (LG; 13.8 MJ DE and 0.65 g SID lysine per MJ DE), and a finisher diet from 16 weeks of age to sale (FIN; 13.5 MJ DE and 0.62 g SID lysine per MJ DE). The average age for sale (22 weeks age) was similar among the treatments. The pigs in the other three feeding programs received a single diet (either EG, LG or FIN) from 10 weeks of age until slaughter. There were 10 male pens and 10 female pens (45 pigs per pen) in each feeding program.

Key Findings:

Over the entire experiment period (10 weeks of age to sale), pigs in the EG group and phase-feeding group both had greater ($P < 0.05$) ADG than pigs in the FIN group. The ADG of EG, LG and phase-feeding groups were not significantly different. The pigs in the EG group had a better (all $P < 0.05$) FCR than the other groups (that were not different in FCR).

Pigs in the EG group and phase-feeding group had a greater HSCW than the FIN group (both $P < 0.05$). Carcass backfat thickness at the P2 site was not affected by the feeding programs unless HSCW (75.0 kg) was used as a covariate, such that pigs in the EG group had a lower backfat thickness than the phase feeding and LG groups (both $P < 0.05$).

Feeding programs impacted profitability. Over all pigs (combined immunocastrated males and females), use of a single-diet finisher feed (FIN) had the lowest feed cost/kg liveweight gain (\$0.85/kg) followed by the phase feeding (\$0.86/kg), single diet late grower (LG) and single diet early grower (EG) (\$ 0.88 and \$0.91/kg liveweight) diets. For immunocastrated male pigs, the single diet FIN had the lowest feed cost/kg liveweight gain (\$0.83/kg) followed by the single LG, phase feeding and single EG (\$0.84, \$0.85 and \$0.88/kg) diets. For female pigs, the single diet FIN and phase feeding diets had the lowest feed cost/kg liveweight gain (\$0.88/kg) followed by the single LG and single EG (\$0.92 and \$0.95/kg) diets.

However, when calculated as net profit/pig over the entire experimental cohort, for combined sexes and female pigs, use of a phase feeding program was most profitable. However, for male pigs, use of a single EG diet was most profitable.

Applications to Industry:

The current research provides large scale, commercial data that:

- Supports the use of phase feeding three diets to female pigs between 25 and 100 kg liveweight and where split sex feeding is not practical.
- Supports the use of a single grower specification diet (specification targeting between 14 MJ DE and 0.75 g SID lysine/MJ DE and 13.75 MJ DE and 0.65 g SID lysine/MJ DE) being fed to immunocastrated male pigs.

However, the economic evaluation conducted in this study depends on two factors that change over time:

1. Feed ingredient prices – particularly the cost of dietary energy and protein.
2. Prevailing carcass grids and price penalties for being outside weight and backfat depth specifications.

This research suggests that using an appropriately formulated and fed single diet in the grow-finish phase can be practically applied by the Australasian pork industry. However, it is critical for each producer to consider the abovementioned factors when assessing the feasibility of adopting the use of such a feeding strategy.

Furthermore, this research was conducted in commercial/conventional shedding, and it is recommended that a similar study is conducted in deep-litter/eco-shed housing where intakes are higher and carcasses grade fatter.