

## Evaluating Akey crumb/mash program vs. Akey pellet program vs. competitor pellet program on the performance of nursery pigs

Pelleting starter diets has been shown to improve feed conversion 4-6% due to increases in digestibility and decreases in feed wastage compared to pigs fed mash diets. However, improvements in feed conversion may not be large enough to offset pelleting costs. A crumb/mash diet can be a viable alternative for many producers, especially for farms that experience flowability problems in feeders when providing mash diets. The crumble portion of the diet contains all the specialty ingredients that tend to flow poorly in mash form (i.e. milk, by-products, and animal protein products, etc.). These ingredients are mixed together, pelleted, and then crumbled to improve flowability. This product is provided in a pac and is mixed with corn, SBM, fat, monocalcium phosphate, limestone and salt to make a complete crumb/mash prestarter feed. The main objective of the trial was to evaluate the impact of diet form (pellet vs. crumble/mash) on pig performance. Another objective of the trial was to compare the Akey programs to a competitor's pellet program.

The trial was conducted at the Akey nursery research facility. Pigs (22 to 23 pigs/pen, 12 pens/treatment) were weaned at 19 days of age and provided ad libitum access to feed and water during the trial. All complete diets, except the Akey-Pre 11 and the competitor prestarter pellet were toll manufactured at a commercial feed mill. The dietary treatment structure and budgets are shown in Table 1.

Table 1. Dietary treatments and feed budgets

<b>Light Pigs (less than 10 lbs)<sup>a</sup></b>		
<b>A</b>	<b>B</b>	<b>C</b>
Pre-11 pellet (2.5 lbs)	Pre-11 pellet (2.5 lbs)	Competitor Prestarter pellet (2.5 lbs)
<b>Medium Pigs (between 10-12 lbs)<sup>a</sup></b>		
Pre-11 pellet (1.5 lbs)	Pre-11 pellet (1.5 lbs)	Competitor Prestarter pellet (1.5 lbs)
<b>Heavy Pigs (greater than 12 lbs)</b>		
12/15 pellet (2.5 lbs)	12/15 crumb/mash (2.5 lbs)	Competitor Phase 2 pellet (6.67 lbs)
15/25 pellet (13 lbs)	15/25 mash (13 lbs)	Competitor Phase 3 pellet (5 lbs)

<sup>a</sup>. Light and medium pigs switched to same diets and budgets as heavy pigs following consumption of the Pre-11 or Competitor Prestarter pellet budgets

During phase 1 (9 days) pigs fed the Akey pellet diets had similar ADG and ADFI compared to pigs fed the Akey crumb/mash diet (Figure 1A). Pigs fed the competitor pellets had a lower ADG and ADFI compared to pigs fed the Akey pellets. As expected, feed conversion was increased 6.3% when feed was provided in a mash rather than pellet form (Figure 1B). No differences were detected in feed conversion between pigs fed the Akey pellets compared to pigs fed the competitor pellets. Pigs fed either the Akey pellet or crumb/mash diets had similar feed costs per lb of gain (Figure 1C). However, pigs fed the competitor pellets had a 13% increase in cost per lb of gain compared to pigs fed the Akey pellet program.

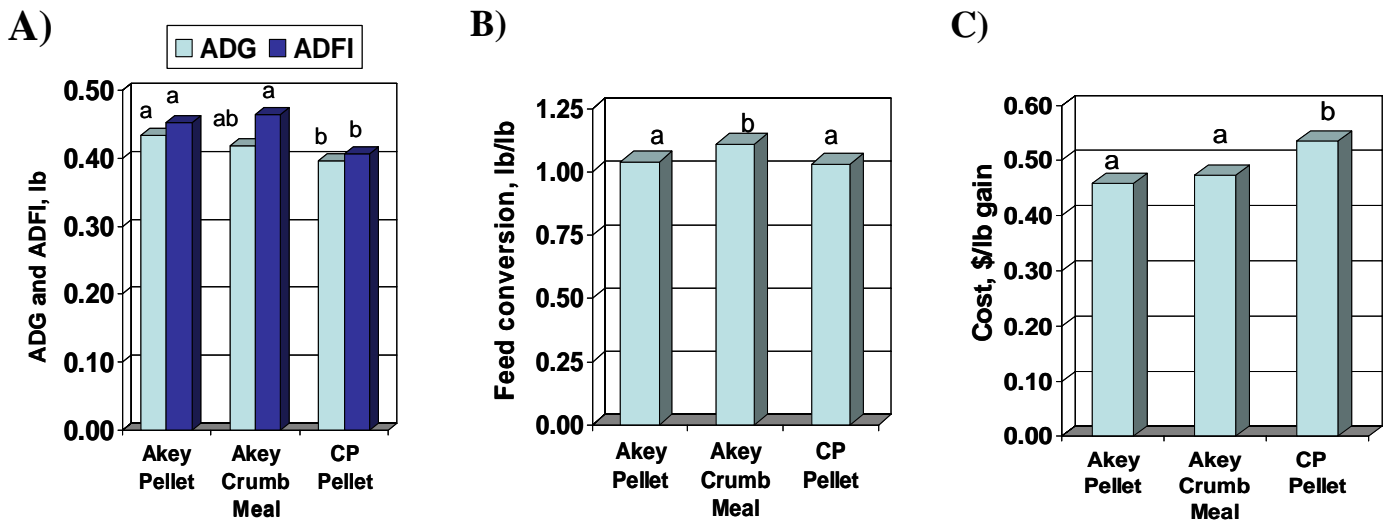


Figure. 1. A) The effect of diet on ADG and ADFI d 0-9 post-weaning. B) The effect of dietary treatments on feed conversion. C) The effect of diet on cost/lb of gain. Columns with different superscripts differ,  $P < 0.05$ . CP Pellet refers to competitor pellet program.

From d 9-21 post-weaning, pigs fed the Akey pellet diet had a similar ADG to pigs fed the Akey mash diet. However, ADFI and feed conversion were increased 7.2 and 3.9% respectively in pigs fed the Akey mash diet compared to pigs fed the Akey pellet diet (Figure 2A). However, in spite of the poorer feed conversion in pigs fed the mash diet, cost per lb of gain was actually \$0.03 lower for pigs fed the Akey mash diet compared to pigs fed the Akey pellet diets (Figure 2B and 2C). Pigs fed the Akey pellets had a higher ADG, ADFI, final BW, and improved feed conversion compared to pigs fed the competitor pellet diet. Additionally, pigs fed the Akey pellets had a \$0.035 lower cost per lb of gain than pigs fed the competitor pellet diets.

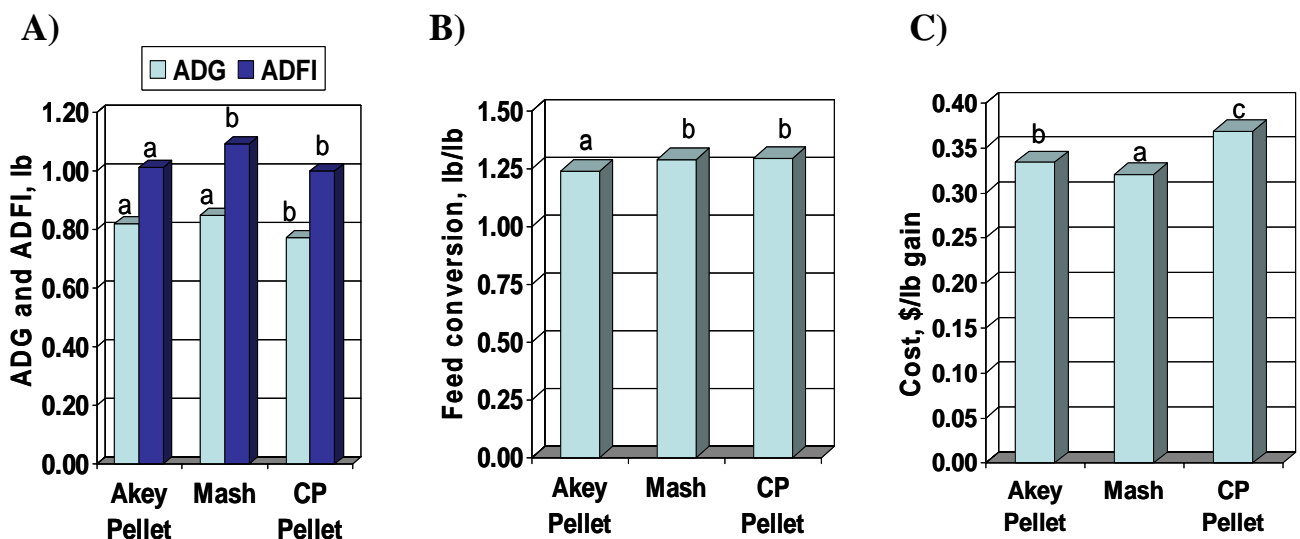


Figure. 2. A) The effect of diet on ADG and ADFI d 9-21 post-weaning. B) The effect of dietary treatments on feed conversion. C) The effect of diet on cost/lb of gain. Columns with different superscripts differ,  $P < 0.05$ . CP Pellet refers to competitors pellet program.

Over the first 21 d post-weaning, pigs fed the Akey pellet program had similar ADG to pigs fed the Akey mash program. However, pigs fed the competitor pellet program had a lower ADG compared to pigs fed either of the Akey programs. Feed intake was 6.4% higher for pig fed the Akey mash program compared to pigs fed the Akey pelleted diets. Pigs fed the competitor pellets had a 4% lower ADFI compared to pigs fed the Akey pelleted diets. Final BW was similar between pigs fed either the Akey pellet or mash diets (Figure 3A). Pigs fed the competitor pellet diets were 0.97 lb lighter than pigs fed the Akey pellet diets. As expected, pigs fed the Akey mash diets had a 4.8% higher feed conversion compared to pigs fed the Akey pellet diets. However, pigs fed the competitor pellet diets had a 3.2% poorer feed conversion compared to pigs fed the Akey pellet diets (Figure 3B). Overall cost/lb of gain was similar for pigs fed either the Akey mash or the Akey pellet programs. Cost was 12% greater for the competitor pellet program than either Akey program (Figure 3C). The Akey 15/25 pellet was \$35/ton higher than the Akey mash diet, but \$10/ton lower than the competitor's phase 2 and 3 pellets.

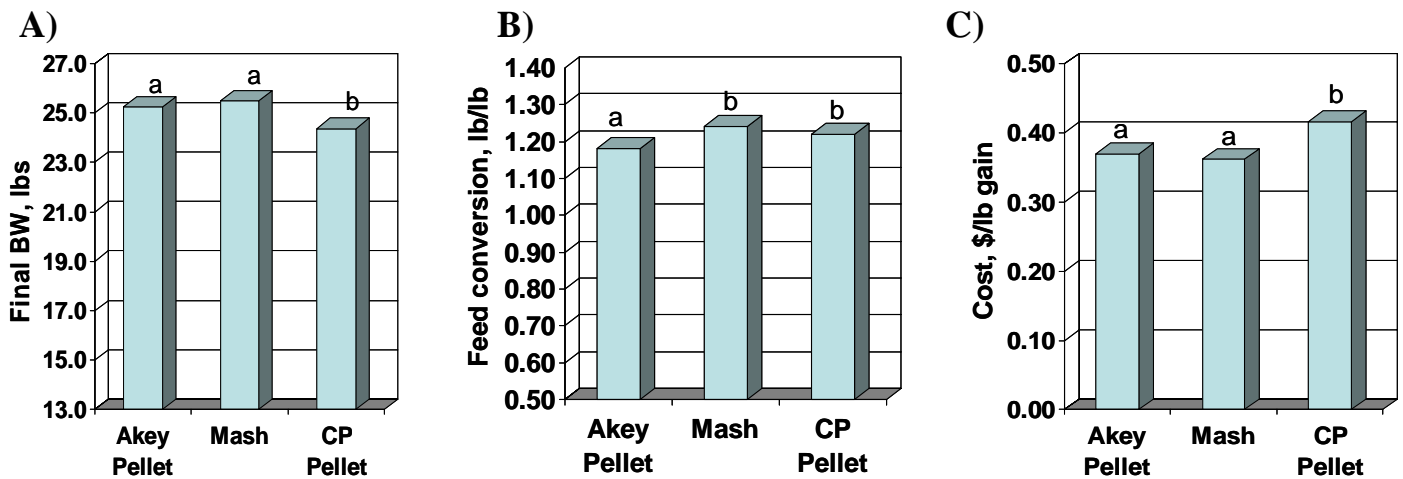


Figure 3. A) The effect of diet on ADG and ADFI during day 0-21 post-weaning. B) The effect of diet on feed conversion, and C) The effect of diet on cost/ lb of gain. Columns with different superscripts differ,  $P < 0.05$ . CP Pellet refers to competitor pellet program.

Feeding a crumb/mash diet program to pigs from weaning (19 d) to 25 lbs BW resulted in equivalent ADG as pigs fed a pelleted diet. While pigs fed the Akey pellet program had improved feed conversion compared to pigs fed the Akey mash program, cost/lb of gain was similar between the two programs due to the higher costs for the pelleted vs. mash diets. It is important to note that corn and SBM costs were held constant for both the pellet and the mash diets since they were produced at the same feed mill. Further savings may be achieved with the mash/crumble depending on differences between mill/producer prices for those ingredients. Crumb/mash diets can be fed in place of pelleted diets without incurring a loss in weight gain, and lower costs of mash diets can off-set the higher feed conversion that is a result of not pelleting the complete diet.

The Akey pellet program resulted in 6.4% higher ADG, 4% higher ADFI, 0.88 lb heavier final BW, and 3.3% improved feed conversion during the 21 d period compared to the competitor pellet program. Feed cost per lb of gain was 12.6% lower for pigs fed either the Akey pellet or mash program compared to the competitor program, resulting in a savings of \$0.27/ pig. This study validates that Akey nursery programs continue to provide high quality nutrition at a low cost to our customers.