

Effect of Feed Budget and Weaning Weight on the Performance of Nursery Pigs

To control feed costs, it is important to follow the proper feed budget. Over-feeding more expensive prestarter feeds can result in higher feed cost without improving performance. Conversely, underfeeding prestarter feeds can result in nutritional deficiencies that reduce performance. Two primary factors determine how much nursery feed to budget: wean age and weaning weight. Many producers assume heavy pigs do not need as much phase 1 feed as lighter pigs, because they assume heavier pigs are older. The objectives of this trial were to 1) determine if heavier pigs at weaning can be fed a lower budget of complex pre-starter diets and 2) if lighter pigs would benefit from additional amounts of complex pre-starter diets when weaning age was similar (17 to 19 d of age). Feed budgets and weight blocks are shown in Table 1. Pigs weighing <12 lbs at weaning were given additional feed while pigs >12 lbs were provided less feed than the standard budget of a feed program designed for pigs ranging from 12-15 lbs, 15-20 lbs, and 20-25 lbs of bodyweight.

Table 1. Budget (lbs/pig) by weight block

Weight range	<12 lbs		12-15 lbs		15-20 lbs		20-25 lbs	
	Standard	Altered	Standard	Altered	Standard	Altered	Standard	Altered
Block	-----Feed, lbs/pig-----							
Light ^a (<10 lbs)	2	2	3	4	6	7	7	8
Light/Med ^b (10-12 lbs)	1	1	3	3.5	6	6.5	7	7.5
Med/Heavy ^b (12-14 lbs)	-	-	3	2.5	6	5.5	7	6.5
Heavy ^a (>14 lbs)	-	-	3	2	6	5	7	6

^a n = 176 pigs/treatment

^b n = 353 pigs/treatment

During the trial, pigs were weighed on day 7, 14, upon completion of the 20/25 budget, and day 41. After 14 days, med/heavy and heavy pigs fed the reduced budget had lower daily gain (ADG; P<0.10) and feed intake (ADFI; P<0.05) compared to pigs fed the standard budget (Figure 1). Feeding the light and light/med pigs additional feed had no effect (P>0.10) on ADFI or ADG through 14 days (Figure 1A and 1B). Due to the various budget scenarios, pigs completed the 20/25 budget on different days. Light, light/med, med/heavy, and heavy pigs consumed the standard feed budget in 23, 21, 20, and 19 days, respectively. Pigs fed the altered feed budgets consumed them in 25, 23, 20, and 18 days for the light, light/med, med/heavy, and heavy blocks, respectively. As expected, light and light/med pigs fed more of the early nursery feeds took 2 days longer to consume it, resulting in greater ADFI (P<0.05) and final body weight (BW; P<0.01) with similar ADG (P>0.10) compared to pigs fed the standard budget.

However, med/heavy took the same number of days to consume the lower budget as pigs fed the standard budget. Therefore, med/heavy pigs fed the reduced budget had lower ADFI ($P<0.01$), ADG ($P<0.01$), and final BW ($P<0.05$) at the end of the 20 day period. Heavy pigs consumed the reduced budget 1 day sooner and had lower ($P<0.01$) ADG, ADFI, and final BW compared to heavy pigs fed the standard budget (Figure 2A and 2B). Surprisingly, feed cost/lb gain was not different ($P>0.10$) between pigs fed either the standard or altered budgets within weight blocks through completion of the 20/25 phase.

Figure 1. Effect of feed budget and weight block on A) ADFI and B) ADG from weaning to 14 days. Significant differences between treatment groups within block are shown on the top of the graph above each weight block.

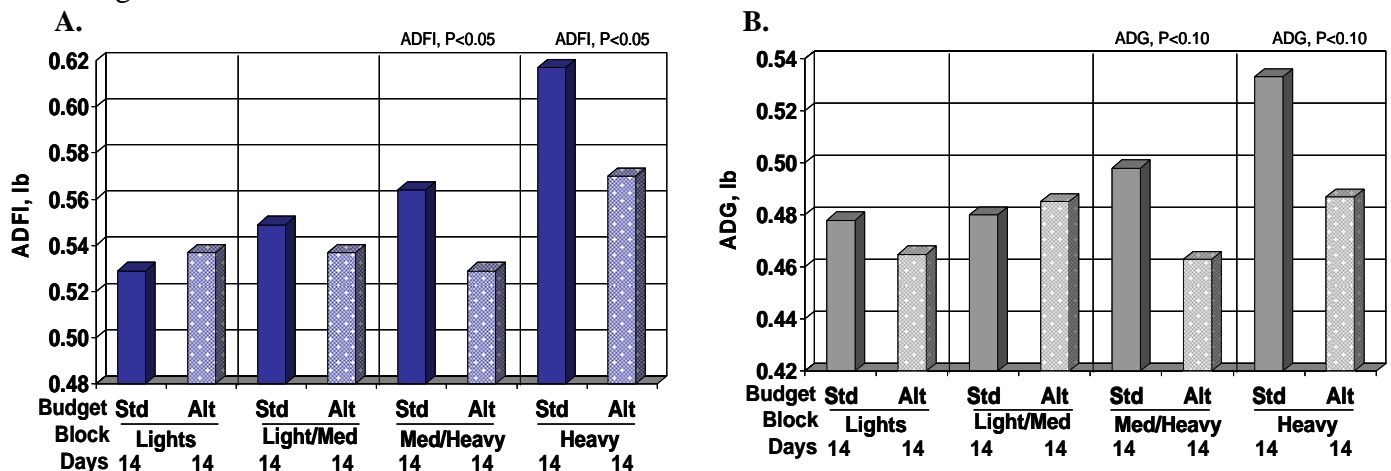
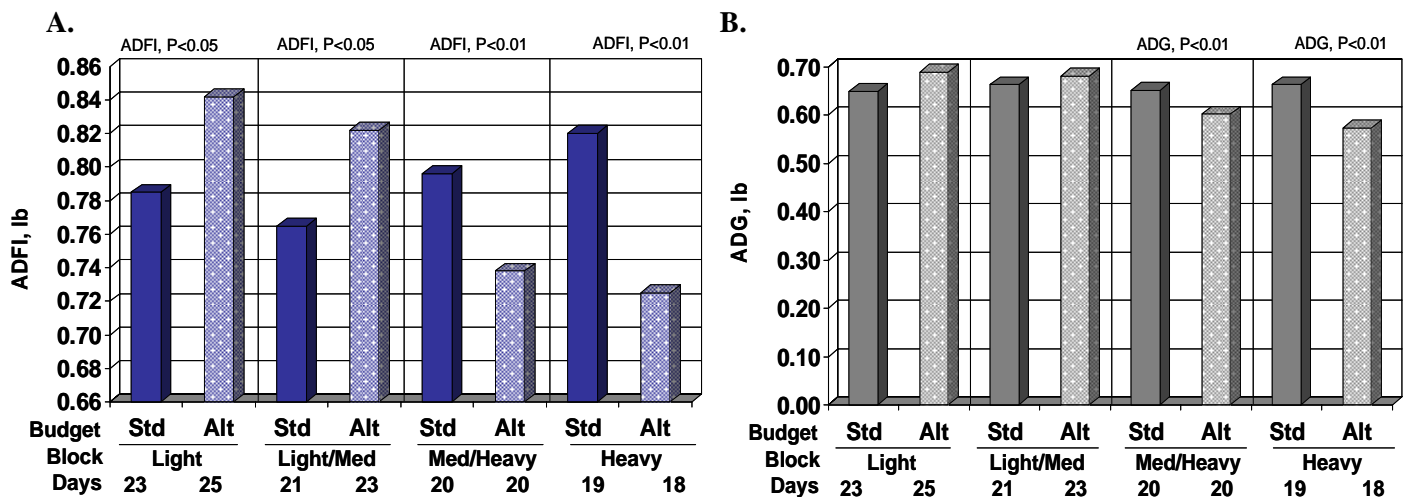


Figure 2. Effect of feed budget and weight block on A) ADFI and B) ADG from weaning to completion of the 20/25 feed budget. Significant differences between treatment groups within block are shown on the top of the graph above each weight block.



Overall, daily gain and feed efficiency were not different ($P>0.10$) between pigs fed standard or altered budgets within block, but pigs in the med/heavy block fed the altered fed budget had a lower ($P<0.10$) ADFI compared to pigs fed the standard budget (Figure 3A and 3B). In spite of BW differences as great as 2.4 lbs/pig between pigs fed either standard or altered budgets through phase 3, BW at the end of the 41 day trial was not different within weight block (Figure 4A). However, pigs in both the med/heavy and heavy blocks fed reduced feed budgets ended the trial 1.5 and 1.4 lbs lighter, respectively, than pigs fed standard budgets. While this difference was not statistically significant, it does have practical

implications. Cost/kg gain was also not different ($P>0.10$) between pigs fed the standard or altered budgets within block (Figure 4B). Pig performance and final BW increased linearly ($P<0.05$) as weaning weight of the block increased. Body weight differences between the blocks were twice as high at the end of the trial as they were at weaning, indicating light pigs at weaning fall further behind heavy pigs throughout the nursery period.

Figure 3. Effect of feed budget and weight block on overall A) ADFI and B) ADG. Significant differences between treatment groups within block are shown on the top of the graph above each weight block.

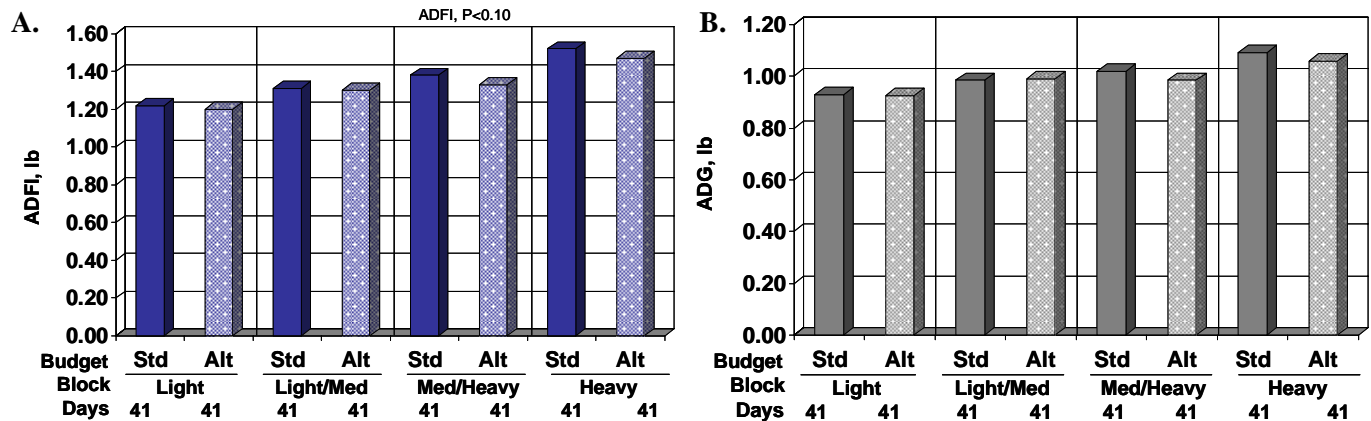
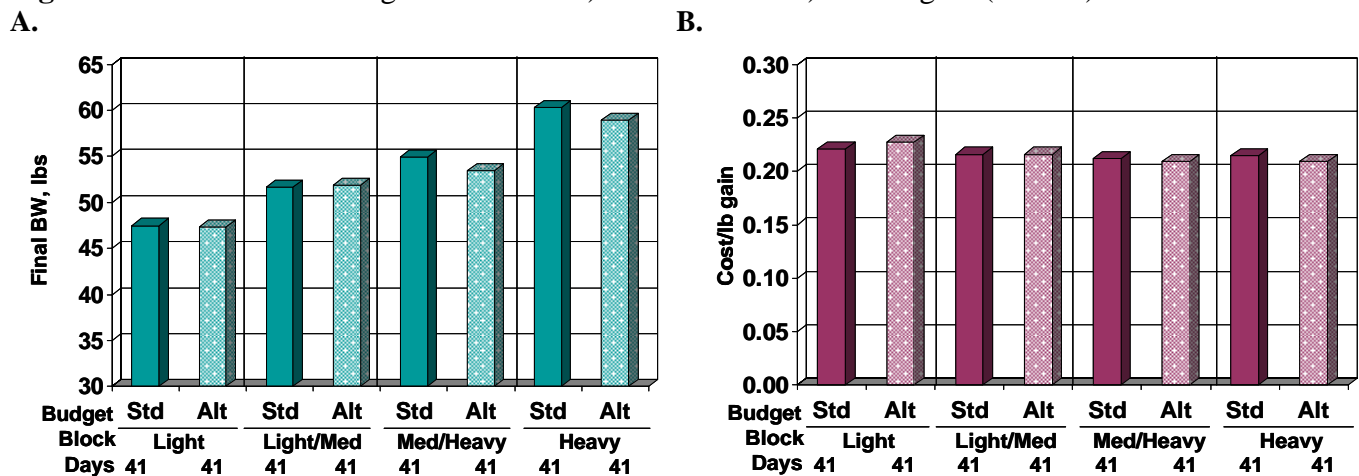


Figure 4. Effect of feed budget on overall A) final BW and B) cost/lb gain ($P>0.10$).



Results from this trial suggest we hurt performance of heavier pigs at weaning when we feed them less pounds of the prestarter and starter diets, especially to 25 lbs BW. Even though heavier pigs at weaning had statistically similar performance overall regardless of early phase budgets, we ended with a 1.5 lb lighter pig when we fed less pounds of the early nursery feeds. We did not improve overall performance of light pigs at weaning by feeding them more pounds of the complex prestarter diets.. However, we did not increase feed cost/lb gain by feeding more prestarter and starter feed to the lighter pigs. Overall, these data suggest that increasing the budget of light pigs may not improve performance and decreasing the budget of heavy pigs will decrease ADG from weaning to 25 lbs.