

Growth Rate and Feed Intake of Purebred Berkshire Pigs Housed in Hoop Buildings in Iowa

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Summary and Implications

Berkshire pigs make up the majority of the niche market pig population, and although niche pork production has increased across Iowa and the United States and demand continues for high quality pork there remains a lack of production standards for niche pork producers to benchmark their performance against. The Berkshire pigs in our previous studies grew faster and were more efficient in feed conversion than expected. Therefore the objective of this study was to replicate our earlier work, and add to the database of niche pork production.

For this group of Berkshire pigs, growth rate was better than earlier research reports, but less than our previous trial. Feed conversions (feed-to-gain) were also better than earlier research but similar to last year's report. Barrows grew faster and consumed more feed, but gilts were more efficient converting feed to gain. Although seasonal feed intakes differ for both sexes, growth rates were similar within gilts and barrows.

Introduction

A Certified Berkshire program continues to lead niche pork production markets based on its meat quality advantage over commodity-based pork. This economic incentive is especially valuable for smaller, more traditional pork producers. The disadvantages of these Berkshire pigs are fatter carcasses, slower gains, and less efficient feed conversion compared to commodity pork production. Consequently these pigs are often a better fit for less intensive or lower cost facilities production type systems.

Most Berkshire pork niche production systems require access to bedding and limit the use of antibiotics and feeding of animal-proteins in feeds. In Iowa, producers of Berkshire pork often raise their pigs in existing older bedded barns or hoop barns because this type of system matches the housing requirements of their markets. Housing influences the thermal environment that pigs experience and thus influences growth rate and nutritional requirements of growing pigs.

Better understanding of feed intakes, growth rates and lean and fat deposition are needed for these unique purebred pigs. Establishing parameters for each of these benchmarks would enable nutritionists to more closely match diet formulations with needs of growing pigs. Precisely matching the nutrient profile of diets with nutritional needs of growing pigs is needed to reduce excretion of nutrients into the environment. Delivering the correct nutrient profile to support growth and development while avoiding delivery of excess nutrients will also help minimize feed costs. The starting point for developing a precise nutrition program for Berkshire pork is to accurately know the feed intake and growth rate of purebred Berkshire pigs from weaning until market weight. Better characterizing how purebred Berkshire pigs eat and grow in bedded hoop barns will enable more accurate feed formulation for this type of pig raised in bedded systems. The purpose of this project is to characterize typical growth and feed intake of purebred Berkshire pigs in bedded hoop barns in Iowa.

Materials and Methods

The study was conducted at the Iowa State University Western Research Farm. This was a repeat of our first two trials with Berkshire pigs. Pigs were placed in the winter and summer months in order to include the environmental extremes of Iowa's climate. In each trial 36 Berkshire feeder pigs (18 gilts and 18 barrows) were purchased and housed in bedded mini-hoop barns at the ISU Western Research Farm, Castana, IA.

The targeted weight range was from 50 to 270 pounds of live weight. Due to the variation in size and weight, pigs were allotted by sex and weight (light, medium, and heavy) of six pigs per pens; two pens per hoop. The incoming weights varied from 45 to 86 lb (average = 61) and 35 to 65 lb (average = 51) for Trial 3 and 4, respectively. Gilts and barrows of similar weights were housed in one of three mini-hoops which were divided in two for 12 pigs per hoop. Pigs were fed ad libitum a six phase feeding program of corn-soybean meal-based diets that met or exceeded amino acid requirements. Weight breaks for diet changes were 90, 135, 180, and 225 lb average pen weight. At 21 day intervals pigs were weighed and feed consumption recorded until pens averaged 270 ± 5 lb to characterize growth and intakes. Indoor and outdoor temperatures were recorded during each trial period.

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Results and Discussion

Table 1 summarizes the growth performance of the two trials (3-winter; 4-summer) and weight by sex pen grouping. Barrows grew faster (117 versus 128 days; average of Trials 3 & 4) and were heavier than gilts in both trials averaging 274 versus 269 lb, barrows and gilts respectively. Gilts consumed less feed (5.48 lb/d) than barrows (6.28 lb). Overall both barrows and gilts consumed more feed per day during the winter than summer; barrows 6.51 vs 6.05 lb/d and gilts: 5.76 vs 5.20 lb/d, respectively. Gilts were more efficient in converting feed to gain (3.23 vs 3.42), but grew slower than barrows; 1.70 vs 1.84 lb/d, respectively. Growth rates were similar for between seasons for both barrow and gilts. In comparison of this performance data with the previous work (Lean Growth Trial, NPPC, 2000), this group of Berkshires grew considerably faster and were marketed at heavier weights.

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Table 1. Growth performance of Berkshire

Trial	Wt-Sex*	Initial Wt	Final wt	Days on Feed	ADFI	ADG	F:G
3	Lt-G	46	256	132	5.29	1.59	3.32
	Lt-B	54	271	116	6.41	1.86	3.44
	Md-G	51	273	132	5.45	1.68	3.25
	Md-B	66	272	110	6.76	1.87	3.61
	Hy-G	70	274	110	6.56	1.85	3.54
	Hy-B	80	272	110	6.35	1.74	3.64
4	Lt-G	43	270	133	5.24	1.71	3.07
	Lt-B	42	275	127	6.19	1.83	3.38
	Md-G	50	269	133	5.15	1.65	3.13
	Md-B	52	279	119	6.11	1.91	3.20
	Hy-G	56	271	127	5.22	1.69	3.08
	Hy-B	60	274	119	5.86	1.80	3.25
3	G	55	267	125	5.76	1.71	3.37
	B	67	272	112	6.51	1.83	3.56
4	G	50	270	131	5.20	1.68	3.09
	B	51	276	122	6.05	1.85	3.28
Overall	Trial 3	61	270	118	6.14	1.77	3.47
	Trial 4	50	273	126	5.63	1.77	3.18
	Gilts	53	269	128	5.48	1.70	3.23
	Barrows	59	274	117	6.28	1.84	3.42
	All pigs	56	271	122	5.88	1.77	3.32

* Lt= light, Md= medium, Hy = heavy weight; G = gilts; B = barrows;