

EFFECT OF WINTER GESTATION ENERGY LEVEL ON SOW PRODUCTIVITY

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SUMMARY

Sow winter gestation energy levels are being evaluated in a long term study to identify the energy regime that interacts most favorably with the environment, farrowing production, and rebreeding performance. Performance longevity is an important criteria with respect to profitability. Therefore, project objectives focus on wintering production over four years because the information obtained will be inferred to the environments of subsequent years.

Data generated during the 1994-95 winter are shown in [table 1](#). The discussion that follows, and data presented are provided as a project update only, since the data is too limited for comment.

INTRODUCTION

High-producing, genetically lean sows farrow and nurse more pigs, produce more milk and, consequently, have higher nutritional requirements than less prolific sows. Accessing energy requirements for lactation are difficult due to the confounding effects of one reproductive cycle on another.

Energy consumption during gestation affects voluntary energy consumption during lactation and, ultimately, the

rebreeding period following lactation. Maintaining a proper gestational energy balance that keeps sows in desirable body condition is essential. Overfeeding energy during gestation causes sows to have reduced appetites during lactation resulting in weight loss. Insufficient energy during gestation does not prepare sows adequately for lactation. Sows that enter the farrowing room thin are unable to nurse litters larger than seven pigs and gain weight simultaneously. Inability of thin sows to gain weight during lactation results in extended weaning to rebreeding intervals.

The objective of this investigation is to determine winter gestation energy levels that will optimize sow farrowing body condition, minimize lactation weight loss, and improve rebreeding performance of sows gestated in outdoor facilities and managed in an All In/All Out management system.

MATERIALS AND METHODS

This is a long term study encompassing four winters. Pig Improvement Company (PIC), Camborough 15 sows are being managed in an All In/All Out continuous group farrowing management system. Each winter, within this continuous flow production system, two farrowing groups that have been previously assigned to three gestation energy levels [Low, Medium (Control), and High], in lifetime herd assignments, are being used to address the project's objectives. Due to the projects long term design, breeding group integrity is being strictly maintained. Females are not culled for production reasons, but, when culled for management reasons, are being replaced with gilts of similar type in lifetime assignments.

Pregnant sows are housed in outdoor dirt gestation pens (32' x 150') equipped with automatic frost-free waterers, portable steel shelters, constructed from discarded 400 barrel oilfield tanks, and bedded with straw. The respective energy levels are being fed once daily in individual feeding stalls. Due to the seasonal nature of the investigation, the time period of evaluation is from November through March. During non-recording seasons, those groups being studied will receive the control energy level.

Body condition scores are being taken visually at the beginning and end of gestation, within 12 hrs. after farrowing, and at weaning. Sows in all treatments are moved to farrowing crates 2 to 3 days prior to farrowing (based on breeding date) and fed the same gestation diet offered outside. At farrowing, feed is withheld for the first 24 hours.

Beginning with an initial offering of 6 pounds (3 lbs. morning and evening), the sows are brought up to full feed by daily increases of 1 pound/head/day until the twice daily offerings are not completely consumed. Nutrient specifications of the lactation diet are 18.5% crude protein, .75% lysine, 1.0% calcium, .95% phosphorous, and 5% added vegetable oil.

Pigs in the study are being weaned at three weeks of age without access to creep feed. Piglets will have access to sow feed, but consumption is anticipated to be negligible. At weaning, sows are weighed, condition scored, and placed in a common breeding pen with access to a self-fed post-lactation breeding diet, and handmated using multiple sire breeding in a fourteen-day breeding period. Sows are mated morning and evening, in attended matings, until they will no longer stand for service.

Gestational data being recorded include: beginning and ending gestation weight and condition score. Farrowing data include: parity, sow weight and condition score, lactation days, feed/head, and condition score at weaning. Farrowing performance records include: pigs born alive, pigs weaned, litter birth weight, litter wean weight. Rebreeding performance will be monitored based on days to effective service (pregnancy) using Pigtales sow performance data. Data will be analyzed using a model that includes gestation energy level, animal within gestation energy level, parity, parity x gestation energy level interaction, and error (SAS, 1988). When appropriate, sow weight will be used as a covariate.

RESULTS AND DISCUSSION

The first two gestation groups were wintered between November and March 1994-95. Due to the long term nature of the project, and limited data to date, it is inappropriate to make comparative remarks at this writing. This information is being made available as a report of progress to date. As more gestation groups are added to the database, strength and year to year variation will become apparent. Year to year winter variation is an important part of this study since conclusions and implications will be inferred to the environments of future years.

Table 1. Gestation, Farrowing and Rebreeding Response: Winter 1994-95.	
ITEM	ENERGY LEVELS

	CONTROL	LOW ENERGY	HIGH ENERGY
Gestation Energy Kcal, ME/Day	7868	6681	8682
No. Sows	12	10	10
Parity	1.8	2.0	1.9
Sow weight change			
Gestation Starting Wt.	405	436	412
Prefarrowing Wt.	470	502	489
Postfarrowing Wt.	441	460	453
Sow Wean Wt.	427	438	441
Lactation Wt. Change	-14	-22	-12
Lactation Feed Consumption			
Lactation Days	22.8	22.5	22.7
Lactation Feed/Head	329	316	324
Lactation Feed/Head/Day	14.4	14.0	14.3
Sow Condition Score			
Farrowing	2.88	2.94	2.92

Condition			
Weaning Condition	2.77	2.78	2.78
Condition	-.11	-.16	-.14
Farrowing Performance			
Pigs Born Alive	11.2	11.7	11
Pigs Weaned	9.5	10.3	10.4
Litter Birth Wt.	36	39.3	41.1
Litter Wean Wt.	144.2	153.9	155.5
Litter Gain	108.2	114.6	114.4
ADG/pig	.49	.50	.48
Rebreeding Performance			
Days to Effective Ser.	12.8	4.3	15.7

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