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Saskatchewan Agriculture, Food and Rural Revitalization

Growth rate and age at first estrus: impact on managing the gilt pool.

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Identifying "select" (cyclic) gilts below market weight and achieving appropriate weights at first breeding are two essential features of efficient gilt management systems. To attain these two goals, early stimulation with boars to induce first estrus is an important management tool. However, for various reasons, producers delay inducing first estrus (puberty) until 180 to 240 days of age, even though replacement gilts reared under commercial conditions are quite capable of reaching market weight (115 - 120 kg) before 170 days of age. Retention of non-select gilts once they have reached market weight results in a financial penalty to the producer. Unnecessary delays in stimulating pubertal estrus and breeding gilts increases feed, barn space and labour costs and may cause welfare problems because of increased physical size of mature sows.

Therefore, the objective of this ongoing study is
1) to characterize the relationships between prepubertal growth rate and age at puberty in response to early boar stimulation, and fertility over three parties
2) to minimize non-productive days and financial loss to the producer and
3) to maximize sow lifetime productivity as gilts enter the breeding herd.

To address these objectives, an experiment involving approximately 500 prepubertal Camborough 22 and L42 gilts (PIC Canada Ltd) at approximately 100 days of age and 60 kg weight, is being conducted at PSC Floral Research Farm. All gilts have ad libitum access to feed and water, and are housed in pens of twenty. For pubertal stimulation, gilts receive approximately 20 minutes direct exposure to a mature epididimectomized boar daily, as a pen group, starting at 140 d of age. Gilts not exhibiting estrus by 180 days of age are considered non-pubertal.

Figure 1 illustrates the overall distribution of the age of the gilts that have reached puberty so far. Overall, out of 385 gilts, 63% of all gilts reached puberty within 30 days of simulation, 79% of gilts

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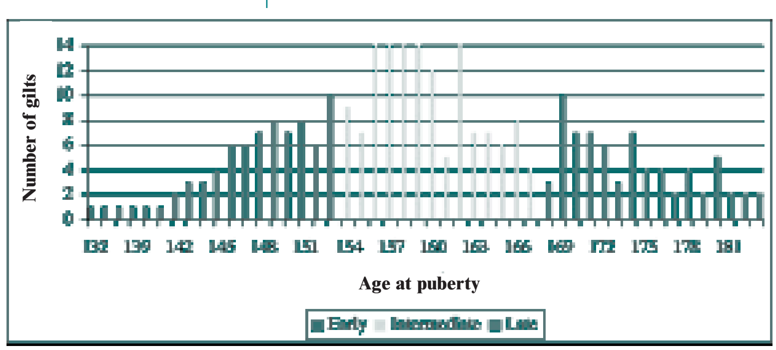

Figure 1. Distribution of gilts attaining puberty in response to direct contact with a boar

Variation in Ingredient Quality

Ruurd T. Zijlstra, John F. Patience and Ken Engele

Introduction

Ingredients vary substantially in quality. If we ignore variation in ingredient quality, the quality of finished feed may vary, and this may change feed intake or reduce growth performance. Ingredient quality is a nutritional and economic concern, especially quality differences that are related to energy intake or protein deposition. Despite efforts to relate physical characteristics (bushel weight) to quality, direct causes for changes in ingredient quality have consistently been changes in chemical composition. Thus, we should analyse chemical characteristics of ingredients on a regular basis. This is an investment to ensure predictable growth performance.

Variation in ingredient quality has become increasingly important for the pork industry because differences between actual and calculated quality of finished feed must be minimized to reach predictable performance. Diets must be formulated using least-cost diet formulation. Safety margins have been included to guarantee minimum levels of dietary nutrients, and these margins could be reduced if ingredient quality is monitored properly. Analyses or predictions of nutrients with the most impact on diet cost or performance (energy, amino acids) will be most effective to manage variation in ingredient quality, and may provide a high return on investment.

The definition of quality of feed ingredients has changed over time, and is now defined as digestible nutrient instead of total nutrient content. Most swine nutritionists in western Canada use digestible energy (DE) and digestible amino acids to describe ingredient quality.

Variation in DE content

The energy content of ingredients is described as DE content, which depends on gross energy content and digestibility of gross energy. Feed ingredients used in western Canada vary considerably in DE content (Table 1). Ranges in DE content have not been described to date for canola meal and soybean meal.

Corn. The DE content ranged 430 kcal/kg in east Canadian corn and ranged 300 kcal/kg in samples of regular and high-oil US corn. The DE content of corn grown in western Canada has not been determined to date and equations to predict DE have not been developed.

Barley. The DE content ranged 450 kcal/kg in western Canadian barley; variation in DE content was due to changes in energy digestibility. The DE content of barley could be predicted best by fibre, using DE (DM) = 3,918 – 92.8 x ADF (DM).

Wheat. The DE content ranged 630 kcal/kg in western Canadian wheat; variation in DE content was due to changes in energy digestibility. The DE content of wheat could be predicted best by fibre and protein, using DE (DM) = 3,584 + 38.3 x CP (DM) – 16.0 x NDF (DM).

Field peas. The DE content ranged 630 kcal/kg in western Canadian peas. The range in DE content was due to differences in energy digestibility, and appeared not to be related to changes in ADF or NDF. Accurate equations to predict DE content in western Canadian field peas have not been developed to date.

Variation in digestible amino acid content

The digestible amino acid content of ingredients depends on total amino acid content and amino acid digestibility. Protein content only explains part of the variation in total lysine content (28 to 69%). Analysis or prediction of total amino acid content is thus more useful than protein analysis. However, total amino acid analysis has limitations to accurately describe digestible amino acid content, and is thus less useful than direct prediction of digestible amino acid content. The protein and lysine content ranges substantially for ingredients in western Canada (Table 2), but prediction equations for digestible amino acid content have not been developed.

Corn. Amino acid digestibility has rarely been characterized in corn, probably because variation in amino acid content and digestibility will have only a small effect in the finished diet.

Barley and wheat. Ranges in amino acid digestibility have been described for covered barley and wheat. The variation in wheat protein content is greater than for corn and barley, because some wheat classes have been developed to have a low protein (CPS) or high protein (HRS) content. Digestible amino acid content has been related positively to protein content and negatively to fibre content.

Field peas. Protein and lysine content and amino acid digestibility vary substantially among field pea samples. Protein content was correlated positively to total amino acid content. Amino acid digestibility has been related negatively to fibre and positively to protein content.

Canola meal. The protein content ranged

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***Table 1.* Book-value and ranges in DE content and energy digestibility in feed ingredients.**

Ingredient	DE content (kcal/kg; 90% DM) Book-value	Range	Apparent total tract energy digestibility (%)
Corn	3,550	3,140 – 3,740	86.3 – 88.8
Barley	3,100	2,680 – 3,130	73.6 – 78.1
Wheat	3,425	3,020 – 3,640	80.3 – 88.0
Field peas	3,400	3,100 – 3,730	84.9 – 93.6

***Table 2.* Ranges in crude protein, lysine, and lysine digestibility in feed ingredients.**

Ingredient	Crude protein (%; 90% DM)	Total lysine (%; 90% DM)	Lysine digestibility (%)
Barley	8.4 – 16.4	0.35 – 0.41	64.9 – 79.0
Wheat	10.5 – 18.9	0.37 – 0.50	62.3 – 81.0
Field peas	16.7 – 25.5	1.40 – 1.79	78.7 – 85.2
Canola meal	31.8 – 39.2	1.92 – 2.15	68.3 – 76.7
Soybean meal	42.7 – 52.7	2.68 – 3.18	80.1 – 90.7

Continued from page 2

8.2%. However, better uniformity was obtained among samples collected from each plant, indicating that specific sourcing of ingredients might reduce variation in nutritional value of purchased canola meal. Processing conditions have a major impact on lysine content and digestibility, as measured in poultry. Amino acid digestibility has been correlated positively to protein content and negatively to fibre, suggesting that fibre in canola meal may interfere with protein digestion.

Soybean meal. Soybean meal produced in the US ranges more than 10% in crude protein coinciding with a 0.55% range in total lysine content. In the past, limited efforts were taken to explain the observed range in amino acid digestibility.

Economic Implications of Ingredient Quality

The economic implication of variation in ingredient quality was calculated for two scenarios.

First, a change in quality will change the economic value of ingredients. For field peas, a 5% change in digestible lysine (dLYS) or DE was calculated through for grower pigs. Lysine-HCl (78% dLYS; $2.45/kg) and canola oil (8,800 kcal DE/kg; $0.89/kg) were considered as purified sources of dLYS and DE. With a mean nutritional value of 1.25% dLYS and 3,400 kcal DE/kg, a 5% difference will be 0.63 kg dLYS in a tonne of field peas and 170 kcal DE in a of kg field peas. The economic value for the 5% difference is per tonne of field peas: (0.63/780)*$2,450 = $1.98/tonne for dLYS and (170/8,800)*$890 = $17.19/tonne for DE. The higher economic value for the change in DE compared to lysine verifies that the relative greatest cost-pressure is against DE with least-cost diet formulation.

Second, if changes in energy content are ignored, pig performance may be affected. An unaccounted reduction in diet DE content and thus DE intake may reduce gain if feed intake is not increased or reduce feed efficiency if feed intake is increased to maintain DE intake. The following estimates of costs were made using data from an energy intake study, for a 7% reduction in DE intake. Gain was reduced 70 g/d resulting in 8-kg lighter pigs at slaughter after 16 weeks in the grower-finisher barn. The loss of body weight at marketing would be valued at $10.56/pig sold, assuming a market price of $1.50/kg and an average index of 110. For a 7% increase in feed intake to compensate for reduced diet DE content, feed conversion may be increased by 0.2 kg feed/kg gain, which increased feed cost by $2.95/pig sold.

Table 3. **Book values for feed ingredients, and the economic impact of a 2% difference in moisture, DE and dLYS per tonne of ingredient and per B-train loaded with 42 tonne.**

	Corn	Barley	Wheat	Peas	Canola meal	Soybean meal
Book-values [1]						
Moisture, %	10	10	10	10	10	10
DE, kcal/kg	3,550	3,100	3,425	3,400	3,100	3,675
Protein	8.5	10.6	13.5	23.4	37.7	47.5
dLYS	0.17	0.27	0.29	1.25	1.60	2.70
Economic impact of 2% difference, $ Per tonne [2]						
Moisture	7.29	6.44	7.11	7.66	7.28	9.13
DE	7.18	6.27	6.93	6.88	6.27	7.43
dLYS	0.11	0.17	0.18	0.79	1.01	1.70
Economic impact of 2% difference, Per B-train, 42 tonne [3]						
Moisture	306	270	299	322	306	383
DE	302	263	291	289	263	312
dLYS	4	7	8	33	42	71

[1] Swine Nutrition Guide.

[2] Calculated using the assumption that a 2% difference would be compensated with canola oil for DE and with L-Lysine-HCL for dLYS. A 2% difference in moisture changes DE and dLYS.

[3] Economic impact per B-train should be compared to costs to analyse or predict moisture ($4), DE (barley, ADF + DM, $14; wheat , NDF + protein + DM, $26) or dLYS (barley, protein + DM, $16), and the expected variability in nutrient content.

Economic Impact of Ingredient Analyes

Prediction of DE and dLYS for each batch of received ingredients is clearly a challenge for on-farm mixing and in commercial feed mills. However, even small differences in moisture and DE content are worthwhile to know for all ingredients. Analyses of moisture content may be important for all ingredients, because a 2% difference in moisture content will change both DE and dLYS (Table 3). The likelihood of measuring a range of 2% is high and thus formed the basis to calculate an economic impact for ingredient quality. The economic impact was calculated using the assumption that a 2% difference would be compensated with canola oil for DE and with L-Lysine-HCL for dLYS. The DE content of an ingredient cannot be analysed in a simple manner, but can be predicted for some ingredients using prediction equations (see wheat and barley). Differences in protein content are only important economically for protein sources, but perhaps not for corn, barley and wheat. Finally, the decision for analyzing specific batches of received ingredients will probably depend on the return on investment for each analysis. Ingredients will likely be analysed per batch of received ingredients, which could be a B-train loaded with 42 tonne. For example for barley, spending $4 for a moisture analysis or $14 to predict DE content of barley does seem worthwhile, whereas spending $16 to predict dLYS does not. Spending money on protein and amino acid analyses seems only worthwhile for peas, canola meal, and soybean meal. However, the cost benefit ratio is much higher to predict DE for these protein sources,

The Bottom Line

The energy and amino acid content of ingredients used in western Canada varies. The range in DE content is related to changes in chemical characteristics. The range in digestible amino acid content is related to changes in fibre and amino acid content, and to processing procedures for by-products. Implementation of analytical procedures to predict DE or digestible amino acid content may effectively manage the existing variation in ingredient quality and give a high return on investment.

Survival Strategies:

Dealing with a Cash Crunch

Ken Engle, BSA

It looks like 1998 all over again. This time pork prices aren't $40/ckg but barley and wheat prices are in the sky, placing a strangle hold on profit margins. While profitability may temporarily be out of reach; how can we maximize our revenue during these tough times? One survival strategy is *FOCUS ON REDFEINING YOUR TARGET WEIGHT CATEGORY.*

> As feed prices rise and hog prices fall, your ideal marketing core becomes narrower.

Low feed grain prices and strong cash hog prices over the past two years have steadily increased live carcass weights. However, under current market conditions, it may be detrimental to finish hogs to heavier weights.

In order to determine your ideal selling category, detailed carcass information including average index, weight, bonus/discounts, and feed conversion needs to be collected for each weight class. We can then use these average figures to measure the return to feed across weight categories.

Using the information provided in Table 1, this producer over the first six months of the year, has an average dressed weight of 90.08 kgs. What happens to revenue, and feed cost if we reduced dressed weight to 87.42 kgs? This new target weight is defined by the average of all hogs marketed in the 85-89.9 kg weight category, where the greatest index and premiums are available.

First, lets examine the impact on feed costs. Table 2 demonstrates the effect of a change in feed cost/hog stimulated by a change in carcass weight (to 87.5 kgs) and diet cost. For example, any hogs marketed in the 100-104.99 kg (125-132 kg live weight) category consume an additional $8.14-$14.24 in feed when compared to the new target of 87.42 kgs (110 kgs live weight). Likewise, any hogs marketed within 75-79.99 kgs (94-101 kgs live weight) category consume $5.08-$8.89 less feed than hogs at the new target weight.

The second part of the equation is to determine the change in total revenue created by a shift in body weight (Table 3). Using the average weight, index and bonus/discount for each weight class, we can see up to $15.04/hog reduction in revenue by decreasing our target weight (column to the right of our chosen weight category). For hogs marketed lighter than the targeted weight, we can increase revenue up to $32.70/hog by increasing shipping weight, and bringing to the new target weight 85-89.9.

So what does this mean to the producer? By examining costs and revenue in this manner, producers can then determine their ideal selling weight. Currently barley and wheat are trading for approximately $160/mt and $180mt respectively, generating a finishing diet costing approximately $180/mt. Table 4 summarizes the return to feed across various weight classes and price levels, with a $180/mt finishing diet.

The first thing we notice, regardless of (cash hog) price, it is always beneficial to increase carcass weight in order to market within the 85-89.9 kg window. Second, the ideal shipping core is directly related with price, as indicated by the shaded area in Table 4. Looking at weight categories 95-99.9 kgs and 100-104.9 kgs, we can see that cash hog prices need to be greater than $100/ckg and $160/ckg respectively (at current feed prices) in order to generate a positive margin over feed. With cash hog price hovering around $80-$120/ckg, with current feed prices, this producer should be targeting an 85-99.9 kg shipping window. Beyond this weight range results in $1-$18/hog opportunity loss in revenue by not marketing within the core.

The Bottom Line

As feed prices rise, your ideal marketing core becomes narrower. Therefore, it is crucial for producers to develop their own ideal marketing core, based on their marketing performance. While at times pork production may not be profitable, we still can maximize revenue by marketing hogs in a smaller window. This type of analysis better prepares us to take full advantage of the market when prices recover.

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Table 1. Carcass Distribution by Weight Class

Weight Class	Feed Conv.	Lean Yield	Avg. Weight	Avg. Index	Weight Bonus	Loin Bonus
< 75	3.40	61.01	72.96	91.95	0.00	1.58
75-79.9	3.40	60.64	77.81	103.82	0.00	1.75
80-84.9	3.50	60.42	82.69	110.11	0.00	1.94
85-89.9	3.60	60.07	87.42	112.17	3.00	2.08
90-94.9	3.60	59.59	92.36	111.39	2.98	2.00
95-99.9	3.60	59.17	97.31	110.57	1.95	1.97
100-104.9	3.70	58.69	102.33	105.81	0.00	1.77
105-109.9	3.80	58.40	107.14	100.84	0.00	1.74
>110	3.80	58.26	112.25	95.82	0.00	1.62
AVG		59.78	90.08	108.86	1.57	1.93

Table 2. Feed Cost Variation

Diet Cost/mt	75 – 79.9	80 – 84.9	85 – 89.9	90 – 94.9	95 – 99.9	100 – 104.9	105 – 109.99
120	-5.08	-2.53	0	2.68	5.37	8.14	10.86
130	-5.50	-2.75	0	2.91	5.82	8.81	11.76
140	-5.92	-2.96	0	3.13	6.27	9.49	12.67
150	-6.35	-3.17	0	3.35	6.72	10.17	13.57
160	-6.77	-3.38	0	3.58	7.16	10.85	14.48
170	-7.19	-3.59	0	3.80	7.61	11.52	15.38
180	-7.62	-3.80	0	4.03	8.06	12.20	16.29
190	-8.04	-4.01	0	4.50	8.51	12.88	17.19
200	-8.46	-4.22	0	4.47	8.96	13.56	18.10
210	-8.89	-4.65	0	4.70	9.40	14.24	19.00

Table 3. Change in Revenue by Varying Bodyweight

Price /ckg	75 – 79.9	80 – 84.9	85 – 89.9	90 – 94.9	95 – 99.9	100 – 104.9	105 – 109.99
80.00	17.15	8.75	0	-3.75	-6.47	-4.65	-4.14
90.00	18.88	9.45	0	-4.24	-7.42	-5.65	-5.09
100.00	20.60	10.15	0	-4.72	-8.37	-6.65	-6.03
110.00	22.33	10.85	0	-5.20	-9.33	-7.65	-6.98
120.00	24.06	11.55	0	-5.68	-10.28	-8.65	-7.93
130.00	25.79	12.25	0	-6.16	-11.23	-9.65	-8.88
140.00	27.51	12.96	0	-6.64	-12.19	-10.64	-9.83
150.00	29.24	13.66	0	-7.13	-13.14	-11.64	-10.78
160.00	30.97	14.36	0	-7.61	-14.09	-12.64	-11.73
170.00	32.70	15.06	0	-8.09	-15.04	-13.64	-12.68

Table 4. Return over Feed Costs

Price /ckg	75 – 79.9	80 – 84.9	85 – 89.9	90 – 94.9	95 – 99.9	100 – 104.9	105 – 109.99
80.00	7.80	4.95	0	-0.27	-1.59	-7.34	-11.64
90.00	9.53	5.65	0	0.21	-0.64	-6.32	-10.64
100.00	11.26	6.35	0	0.69	0.31	-5.30	-9.64
110.00	12.99	7.05	0	1.17	1.27	-4.28	-8.64
120.00	14.71	7.75	0	1.66	2.22	-3.26	-7.64
130.00	16.44	8.45	0	2.14	3.17	-2.24	-6.64
140.00	18.17	9.15	0	2.62	4.13	-1.22	-5.64
150.00	19.90	9.85	0	3.10	5.08	-0.20	-4.64
160.00	21.62	10.56	0	3.58	6.03	0.83	-3.64
170.00	25.08	11.26	0	4.06	6.98	1.85	-2.65

Hog Market Update - September 5th, 2002

Brad Marceniuk, PAg., M.Sc., B.Sc.

Pork prices have fallen substantially across North America over the last 5 weeks. The 50% price drop has been lower and quicker than expected. This price drop has been caused by slaughter capacity constraints in Western Canada and the United States, along with increased meat supplies in storage.

United States and Canadian Hog Production and Slaughter

Hog slaughter in the United States for the week ending August 31st was 2.011 million hogs compared to 1.958 million hogs for the week ending August 24th and 1.894 million hogs for the week ending August 17th, 2002. Daily slaughter was up 6.3% in August, compared to 2001, and should have only increased by 3% based on the February 2002 pig crop estimates. The United States had been at slaughter capacity during August, with the weekly single shift slaughter capacity at about 1.95 - 2.0 million hogs per week. According to Ron Plain, based on the March to June 2002 pig crop numbers, slaughter numbers should increase by about 2% year over year from September to December 2002. The debate is whether the February pig crop was underestimated or was the August slaughter numbers a fluke due to hogs forward marketed and slower summer growth from heat stress. Will the next few months of slaughter numbers be underestimated also?

In Canada, hog slaughter has increased by 6.4% year over year to August 31, 2002. In Western Canada, hog slaughter has increased by 9.0% year over year. Federal and provincial weekly hog slaughter in Western Canada was 177,168 hogs for the week ending August 17th, 179,990 hogs for the week ending August 24th, and 180,475 hogs for the week ending August 31st. Hog slaughter for the last 4 weeks of August has increased by 12.8% in Western Canada for the same period in 2001. With the current weekly single shift slaughtering capacity of about 174 - 175,000 head in Western Canada, slaughter numbers have been above capacity in August.

Hogs marketed from Western Canada for January - March 2002 based on Statistics Canada pig flow numbers were 3,052,200, with 960,218 hogs exported live and 2,079,100 hogs slaughtered. During April - June 2002, there were 3,089,100 hogs in Western Canada marketed composed of 959,800 hogs exported live and 2,115,200 hogs slaughtered. Based on pigs born, estimated by Statistics Canada in table 1, the

July - September 2002 period should average 236,300 hogs marketed weekly in Western Canada, with about 167,100 hogs slaughtered, if historical weekly live exports of 69 - 70,000 hogs are maintained. The October - December 2002 period should average 241,800 hogs marketed weekly with about 172,600 hogs slaughtered, pending live exports. With farrowing intentions in table 1 for Western Canada increasing to 368,800 for July - September 2002 and 366,000 for October - December 2002, hogs slaughtered could reach 188,000 head in the 1st quarter of 2003 and 186,000 head for the 2nd quarter of 2003 pending live export numbers. Pressure on Western Canadian slaughtering facilities will increase in 2003 and could be magnified if live exports are reduced. Increased slaughtering capacity in Western Canada will be required by the fall of 2002 and into 2003.

Cold Storage

According to USDA Reports, total red meat, pork, and poultry supplies are up over 30%, or almost 600 million pounds from July 31, 2001. We are experiencing a meat glut with frozen poultry stocks up 33%, or almost 400 million pounds from 2001. Frozen pork stocks were up 40% and pork bellies up 22% from July 31, 2001 levels. In comparison, total red meat supplies, frozen pork, and frozen poultry supplies were just over 2 billion pounds on July 31, 1998, compared to over 2.5 billion pounds on July 31, 2002.

Table 1 **Sows Farrowing and Intentions, and Pigs Born for Western Canada**

	Sows Farrowing and Intentions Western Canada (thousand head)			Pigs Born Western Canada (thousand head)		
Quarter	2000	2001	2002	2000	2001	2002
Jan - Mar	297.0	323.3	347.0	3,029.6	3,311.6	3,555.6
Apr - June	300.5	336.3	354.7	3,072.5	3,446.3	3,637.9
July - Sept	308.3	346.1	(1) 368.8	3,164.5	3,556.5	
Oct - Dec	316.6	347.3	(1) 366.0	3,245.1	3,557.4	
Total	1,222.4	1,353.0	701.7	12,511.7	13,871.8	

(1) Estimated Farrowing Intentions

Source: Statistics Canada

The Bottom Line

Based on current future prices, profitability in the hog industry is not projected to return until the spring of 2003. Current market prices should slowly rebound later in 2002 if slaughter numbers come in line with expectations. If slaughter constraints in Canada and the United States continue to be a problem and cold storage stocks becomes a bigger issue, pork prices may remain lower longer, than initially estimated.

Continued from page 1

were pubertal within 40 days of stimulation and 21% of gilts were considered non-pubertal at 40 days of stimulation (Figure 1). Therefore, based on the results collected so far, we estimate that if early pubertal stimulation is used as a "selection" technique, 120% of breeding gilt requirements should enter the stimulation phase (expecting 20% not to cycle) to obtain the required number of gilts cycling within 40d.

Our results confirm that at commercially acceptable growth rates (0.55 – 0.80 kg/d) there is no relationship between growth rate (birth to 100 days of age) and age at puberty. As a consequence, inherent differences in age at puberty (Early, Intermediate, Late, Non-responders) affected days from first stimulation to first estrus or designation as non-select, and weight, backfat depth and growth rate at puberty (Table 1).

An important point that producers should consider is the weight of the gilts considered non-responders at 180 days of age. Overall, 21% of all gilts were considered non pubertal and 82% of these were above market weight (120 kg), thus resulting in a financial penalty to the producer if these gilts were to be removed as market animals.

The Bottom Line

These preliminary results indicate that:

1) if early pubertal stimulation is used as a "selection" technique, 120% of breeding requirements should enter the stimulation phase (expecting 20% not to cycle) to obtain the required number of gilts cycling within 40d,
2) with growth rates exceeding 0.7kg/d from birth to puberty, gilts would need to cycle by 171 days (31 days after start of stimulation at 140d) to be "selected" below market weight. 37% of all gilts failed to achieve this, and could potentially represent financial cost to the breeding unit
3) with weights and ages at puberty ranging from 75.8 - 151.4 kg and 132 - 190 d, respectively, management strategies must be developed to minimise the effect of this variability on lifetime performance.

We are now in the process of collecting data with respect to lifetime productivity and and developing a new protocol to finetune gilt management.

We would like to gratefully acknowledge the financial support of SaskPork and the Saskatchewan Agriculture, Food and Rural Revitalization, Agriculture Development Fund for this project.

Table 1. **Sows Farrowing and Intentions, and Pigs Born for Western Canada**

	Early	Intermediate	Late	Non-responders †
n	78.0	148.0	81.0	80.0
Pubertal Age *	148.2	159.6	175.1	-
Days from start of boar stimulation to Puberty	7.9	19.3	34.8	-
Weight at puberty	104.2	116.0	126.4	130.8
Backfat Depth at puberty	12.7	13.8	13.3	14.0
Growth Rate (birth to puberty)	0.689	0.709	0.715	0.731

† Average age of non-responders was 179.7 days at the time of removal from the experiment.
* Puberty is defined as the first day a gilt exhibits the standing reflex in the presence of a boar

Personal Profiles

Brian Rugg

The Prairie Swine Centre would like to introduce Brian Rugg. Brian is the Feedmill Manager for the PSC Elstow Research Farm. Brian was born and raised in the Saskatoon area and has experience in the agriculture industry. He earned his B.Sc. Agr. from the University of Saskatchewan majoring in Mechanized Agriculture. Brian brings to the Centre a broad perspective of the agricultural industry from his work experience in the potato industry, crop inspection and technical support, marketing and training for an agricultural machine manufacturing company.

As the Feedmill Manager, Brian is responsible for the daily operation of the mill including ingredient purchasing, administration and quality control. He considers his position with the Centre as an excellent opportunity to broaden his knowledge in the livestock and feed industry. It also allows him to be near the family farm at Elstow, SK. Brian is also an indoor and outdoor sports enthusiast.

Nicole Rodgers

Raised in Debert, Nova Scotia, and attended the Nova Scotia Agricultural College, Truro, NS where she completed her B.Sc. (Agr) degree. Looking for a change in scenery, Nicole came to Saskatoon to begin a Master's program at the University of Saskatchewan under the direction of Dr. Ruurd Zijlstra. Nicole is studying the effects of phase feeding and dietary crude protein level on nitrogen excretion by grower pigs. Nutrient management is key to sustainable agriculture and nitrogen is a nutrient that may have a negative impact on the environment if not managed properly. The objective of Nicole's study is to reduce nitrogen excretion of grower pigs by more closely meeting their amino acid requirement through reduced dietary crude protein and phase feeding.

Two dietary crude protein levels (21.5 and 19.5 %) were combined with three phase feeding programs (2 diets for 3 weeks each; 3 diets for 2 weeks each; 6 diets for 1 week each) and fed to 216 grower pigs. Pigs housed in metabolism crates were pair-fed to the performance pigs to measure nitrogen excretion in urine and faeces.

The Bottom Line

Preliminary results indicate that reducing dietary crude protein by 2 % leads to reduced urinary nitrogen excretion. The impact of phase feeding seemed less pronounced, possibly the amino acid requirements were not better met by increasing the number of diets fed during the grower period.

Nicole is currently finishing the interpretation of her data and hopes to defend her thesis in late 2002.

Coming Events

PSC Director's Lecture
October 24, 2002
Sheraton Cavalier, Saskatoon, Sask.

Sask Pork Symposium
November 12, 13 & 14, 2002
Saskatoon, Sask.

Sask Pork Annual Meeting
November 14, 2002
Saskatoon, Sask.

Hog & Poultry Days
December 4 & 5, 2002
Winnipeg Convention Centre, Winnipeg, MB
For more information contact:
Murray Smith (204) 945-0500
musmith@gov.mb.ca

Alberta Pork Annual Meeting
December 4 & 5, 2002
Coast Plaza Hotel, Calgary, Alta.

Banff Pork Seminar
January 14 – 16, 2003
Banff, Alberta

Focus on the Future Conference 2003
March 25 & 26, 2003
Saskatoon, Sask.

Sask Pork Expo
March 3 & 4, 2003
Saskatoon, Sask.

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