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In This Edition

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Saskatchewan Agriculture and Food

15th Anniversary of Prairie Swine Centre

Advisory Board Established 1989
L-R Front: Dr. David Fraser, Dr. John Patience, Dave Price, and Dr. Al Theede
L-R: Back: Vic Pouteaux, Dennis Hodgkinson, Garth Larson, Don Lidster, and Dr. Harold Fast

Lee Whittington, B.Sc., MBA

What is innovation? Courage and confidence meeting a good idea.

When pork producers in Saskatchewan met with officials at the University of Saskatchewan in 1987, it was to discuss a innovative approach to research. The industry would provide funding and support the Centre, the University would create a new entity that would operate at arms length to the university allowing the autonomy necessary to pursue an industry mandate. This unique arrangement allowed current assets to be maximized and new buildings and equipment to be put in place at Prairie Swine Centre. The new corporate structure allowed federal and provincial money to come to the Centre and allow the building of a proposed grower-finisher expansion.

This new corporate entity "Prairie Swine Centre Inc." would provide a structure where the industry could invest directly in the long-term vision and research program. This involvement included a long-term financial commitment that could be used to attract scientists and managers with a passion

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Impact of Swine Sulphur Intake from Drinking Water on Odour and Gaseous Emissions and Manure Nutrients

Bernardo Predicala, Ph.D. and
John Patience Ph.D.

This study was conducted to determine if high levels of sulphate in the drinking water results in an increase in odour and gaseous emissions from the barn or affects other swine manure properties. Sulphur intake is of particular concern because out of the 10 most odourous components of swine odour identified so far, six were found to contain sulphur. These odour components are produced mainly from anaerobic breakdown of unutilized nutrients excreted by pigs into the manure.

Drinking water can contribute significantly to sulphur intake of pigs. One major source is the sulphate content in water supplies, which has been found to exceed 1600 mg/L in certain geographic areas. Studies showed that pigs offered water with increased sulphate levels (up to 1800 mg/L) had increased prevalence of non-pathogenic diarrhea, although growth performance was rarely impaired. However, no one has assessed the impact of poor water quality on air emissions and swine manure properties.

Peak H_2S levels obtained when pits were emptied were significantly affected by the level of sulphur in the water

The overall goal of this study was to determine the effect of varying sulphur in drinking water on odour and gaseous emissions and on manure properties. The specific objectives were to determine:

1. if elevated levels of sulphur in the drinking water affect manure nutrient composition, odour and gaseous emissions, and pig performance, and
2. at what level of sulphate in water should water treatment be considered to mitigate adverse environmental effects.

Four water treatments were compared:

- Treatment 1: Normal water (low-sulphate content)
- Treatment 2: 600 mg/L sulphate water
- Treatment 3: 1200 mg/L sulphate water
- Treatment 4: 1800 mg/L sulphate water

The waters containing elevated sulphate were formulated to reflect the composition of water observed on commercial farms experiencing high mineral levels in their drinking water.

For each replicate, a total of 240 finishing pigs with an initial weight of about 40 kg were distributed equally among four all-in-all-out rooms fitted with 6 pens and partially slatted floors. The experiment ran for 8 weeks and was repeated five times to provide solid statistic validity. Thus, by the end of the experiment, four rooms and 300 pigs had been evaluated on each treatment.

The 2-ft deep manure pits in these rooms were emptied every 2 wks. To evaluate the effect of the treatments on manure properties and gaseous emissions from manure under long-term storage, 30 L (6.5 gallons) manure samples were collected from each room just before emptying the pits, starting on Wk 2 and continuing through week 8. The manure sample was transferred into a 205-L (45 gallon) barrel (one for each room), and stored for an additional 5 wks to simulate longer-term manure storage.

The parameters monitored included:

1. water (sulphate, total dissolved solids, magnesium, sodium, bicarbonate)
2. feed (protein, moisture, P, K, Ca, Mg, Na, and S)
3. gas (ammonia, carbon dioxide, H_2S) and odour emissions
4. manure nutrient composition (total N, total solids, P, K, S, Na)
5. room temperature, relative humidity, ventilation rates
6. manure pit pH and temperature
7. water use per room
8. average daily gain.

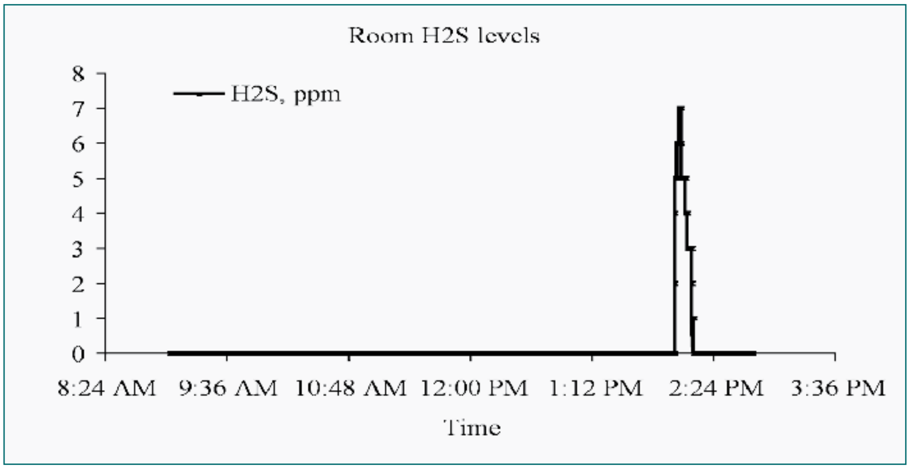

Figure 1. Typical H_2S levels monitored in a treatment room, showing no detectable values throughout most of the day, except during the plug-pulling event (indicated by the spike in H_2S levels).

The average water sulphate levels and room conditions are summarized in Table 1. As can be seen, the actual levels of sulphate in the water were very close to the desired values. The other measures of the room environment assure us that any differences observed in pig performance or environmental conditions was due to the water treatment and not differences, for example, in ventilation rate or room temperature or room humidity.

The levels of ammonia (NH_3) and carbon dioxide (CO_2) in each room were monitored continuously during each replicate; the weekly average concentration and emission levels are shown in Table 2. The NH_3 and CO_2 levels were not markedly different between the different treatments; statistical tests showed no significant ($p>0.05$) impact of the sulphate levels in the water on the concentrations and emissions of these gases (NH_3 and CO_2) from the treatment rooms.

Initial day-long monitoring of hydrogen sulphide (H_2S) levels in each room using a direct-reading H_2S monitoring instrument showed that the H_2S levels in the treatment rooms were typically below the detection limit of the monitoring instrument used (<1 ppm H_2S); thus, for the remainder of the study, day-long monitoring of H_2S levels was done mainly to confirm this observation. However, on the day that the manure pit-plug was pulled to clear the manure from the pits (every two weeks), the H_2S monitor showed measurable H_2S levels during the approximately 15-min period in which the manure slurry was flowing out of the pit. A typical plot of the H_2S levels during the plug-pulling day is shown in Figure 1; a similar pattern was observed in all of the rooms.

Monitoring of H_2S levels conducted during the days that the pit-plugs were pulled in each room showed that the average peak H_2S values were significantly ($p<0.01$) affected by the treatment. The peak H_2S levels in the treatment rooms that received high-sulphate water (1200 and 1800 ppm) tended to be higher than in the low-sulphate rooms (Control and 600 ppm). During the individual replicates, the maximum peak H_2S values measured during pit-plug pulling in the treatment rooms provided with drinking water with 1200 and 1800 ppm sulphate were 288 and 134 ppm H_2S, respectively; these spikes occurred for only a short period of time and the high levels dissipated to less than 10 ppm in less than 10 min. Nevertheless, these observations would appear to indicate that high-sulphate levels in drinking water could contribute to the generation of high H_2S levels during manure clearing operations; if not conducted properly, this could potentially lead to exposure of barn workers and pigs to elevated H_2S levels.

The mean odour concentration and emission values and the corresponding hedonic tone score (a measure of odour "offensiveness") for the samples are summarized in Table 3. Odour concentration and emissions were not affected by the water treatment. Data on odour is inherently variable, and while there appear to

Impact of swine sulphur intake... cont'd on page 4

Table 1. Average water sulphate levels, ventilation rate, temperature, and relative humidity in the treatment rooms throughout the study.

	Drinking water sulphate (ppm)			Room ventilation rate (L/s)		Room air temperature(°C)		Room relative humidity (%)	
Treatment	Mean	SE	n	Mean[a]	SE	Mean[a]	SE	Mean[a]	SE
1 (Control)	84.5	1.8	14	1667.2	193.0	18.5	0.6	55.0	1.0
2 (600 ppm)	658.5	37.6	15	1760.0	169.8	18.8	0.6	53.8	0.9
3 (1200 ppm)	1210.0	109.8	15	1953.1	189.8	18.8	0.6	54.5	1.0
4 (1800 ppm)	1674.2	157.3	15	1585.0	171.1	18.8	0.5	54.5	0.9

[a] – *Treatment mean values not significantly different (p>0.05)*

Table 2. Average weekly gas (NH_3 and CO_2) concentration and emission levels from the treatment rooms during the replicates.

	Ammonia concentration (ppm)			Ammonia emission rate (g/hr)			Carbon dioxide concentration (ppm)			Carbon dioxide emission rate (g/hr)		
Treatment	Mean[a]	n	SE	Mean[a]	n	SE	Mean[a]	n	SE	Mean[a]	n	SE
1 (Control)	9.9	40	0.5	12.1	38	2.0	728.6	40	36.4	1880.1	39	154.4
2 (600 ppm)	10.7	40	0.6	13.4	40	1.5	769.6	40	44.9	2052.3	40	69.4
3 (1200 ppm)	10.0	40	0.4	12.5	38	1.6	740.8	40	38.0	2077.7	38	93.3
4 (1800 ppm)	9.7	40	0.4	9.8	37	1.4	735.0	40	36.1	1896.5	37	108.9

[a] – *Treatment mean values not significantly different (p>0.05)*

Table 3. Mean odour levels (in Odour Units (OU) per m³) and hedonic tone score for samples from the treatment rooms and barrels used to simulate long-term storage.

	Room odour concentration (OU/m³)			Room odour hedonic tone score			Room odour emission rate (OU/s)			Barrel odour concentration (OU/m³)			Barrel odour hedonic tone score		
Treatment	Mean	SE	n	Mean	SE	n	Mean	SE	n	Mean	SE	n	Mean	SE	n
1 (Control)	3,141	751	15	2.5	0.14	15	8,443	2,814	13	10,555	2,050	13	2.3	0.16	13
2 (600 ppm)	2,133	369	15	2.4	0.12	15	4,259	952	15	10,132	2,005	13	2.4	0.18	13
3 (1200 ppm)	3,639	913	15	2.2	0.13	15	9,723	3,172	14	13,222	2,444	13	2.2	0.22	13
4 (1800 ppm)	1,995	511	15	2.3	0.12	15	2,435	538	13	9,644	2,109	13	2.1	0.13	13

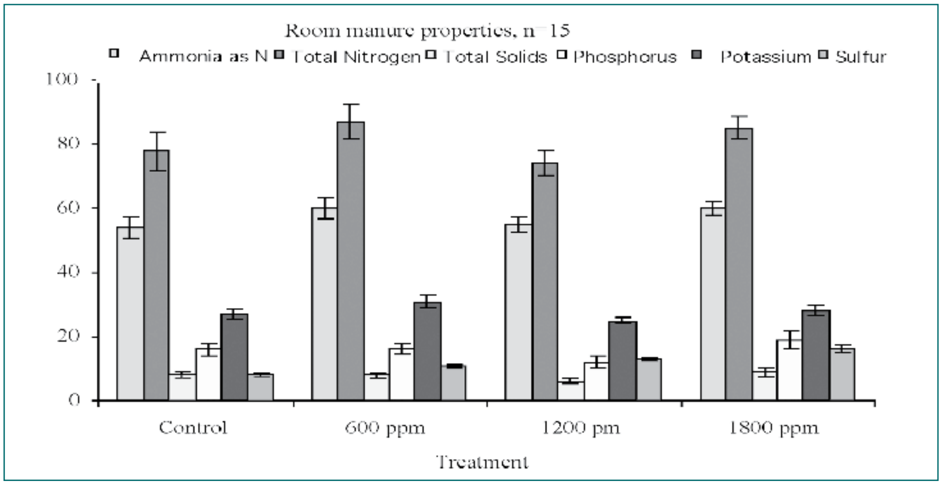

Figure 2. Nutrient properties of manure in the pits of the treatment rooms (each bar, n=15).

Impact of swine sulphur intake.. cont'd from page 3

be differences among treatments, they are not statistically significant. In any event, because the lowest values numerically came from rooms on the highest sulphate levels in the water, we can comfortably conclude that high sulphate water does not result in increased odour emissions from a pig barn.

Analysis of manure samples collected from the manure pit of each room and from the barrels used to simulate longer-term manure storage showed no significant ($p>0.05$) effect of water treatment on total Nitrogen, Ammonia-N, Total Solids or Phosphorus in the room manure samples, but there were significant ($p<0.05$) effects on Potassium and Sulphur levels. A relationship between drinking water sulphate levels and sulphate levels in the manure is obviously no surprise, as shown in Figures 2 and 3.

Interestingly, comparison of nutrient levels in the barrel manure samples showed significant ($p<0.05$) differences between treatments for all nutrients tested. Manure samples from the treatment rooms with sulphate added to the drinking water tended to have (on the average) about 10% higher nutrient levels relative to the control samples (excluding S and Na which had 50% more than the control due to the treatment).

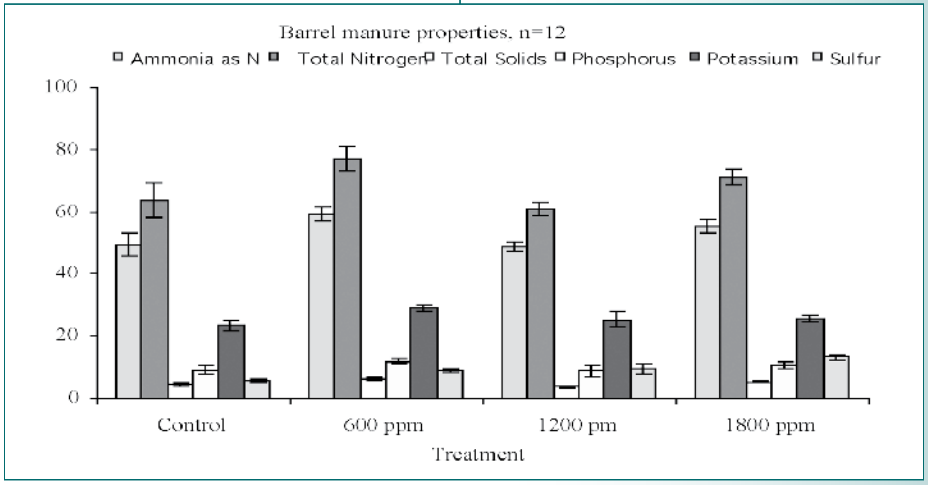

Figure 3. Nutrient properties of manure from the barrels used to simulate long-term storage (n=12).

Thus, it would appear that high-sulphate drinking water may result in better retention of nutrients in stored manure.

Pig performance was not adversely affected by high levels of sulphate in the pig's drinking water. During the study, no notable incidence of scouring or diarrhea was observed. For all replicates, the average daily gain ranged between 0.86 to 1.12 kg/day.

In summary, supplying pigs with high-sulphate drinking water (up to 1800 ppm) had no adverse impact on the levels of certain gases (NH_3 and CO_2) and on odour emissions. No measurable impact on levels of H_2S gas was observed when manure was undisturbed. However, high-sulphate drinking water could potentially lead to generation of higher H_2S gas levels when manure slurry is agitated, such as during pit-plug pulling.

The Bottom Line

Elevated levels of sulphate in the drinking water had no adverse impact on manure nutrient composition, odour and gas (NH_3 and CO_2) emissions or on the performance of grower-finisher pigs. Thus, water containing up to 1600 to 1800 ppm sulphate can be used for growing and finishing pigs with no concern for animal performance or for odour or gas emissions from the barn. However, we suggest one caution. When using high-sulphate drinking water, the potential exists for higher H_2S spikes during manure handling operations. Appropriate measures should be taken to protect animal and worker health and safety. While water quality may impact other aspects of barn siting, growout pig performance and odour and gas emissions should not be a concern.

Winter 1993 — Dr. Patience accepts a gift of a hand carved pig from Dr. David Fraser at the occasion of PSC Grand Opening

15th Anniversay ... cont'd from page 1

for near-market research. Often referred to as an "experiment", the new corporation soon proved that a near-market approach to research management could produce practical results of benefit to an industry that was poised to grow rapidly. The new corporate structure was also capable of addressing common needs in the industry and soon welcomed both Alberta Pork and Manitoba Pork as program funding agencies.

Program funding was another innovation that was right for the time. By developing a multi-disciplinary approach to research, the complex challenges of pig production could be addressed. For example, the disciplines of nutrition, behaviour and barn engineering combined with management procedures. The approach soon yielded solutions to practical questions such as floor space usage in grower-finisher, number of diets and point at which diet changes should be made for optimum financial return and even how to maximize throughput in hot weather conditions.

Today it is easy to point to any of a dozen of research results or management recommendations that can improve revenues or reduce costs in excess of $15 per pig marketed. The Centre's first website was developed in 1995 and provided the equivalent of not much more than 10 pages of information. Today the research projects completed are measured in dozens and the website has been supplemented with information from other relevant institutions to provide over 3,500 on-line research and management summaries that contribute to the operation of commercial farms in the areas of nutrition, environment, animal wellbeing, energy efficiency and a broad range of production information that contributes to lowering the cost of production.

The changing times have meant some changing faces at the centre growing from 13 to 53 staff and students over the years. A few photos of staff and industry people from the early days of the Centre are included with this article and on the website. We will be featuring these "flash-backs" throughout the next few issues of Centred on Swine. When the Centre was in its first full year of operation (1992-93), Dr. Harold Fast was Chairman of the newly formed Board of Directors. In his Chairman's Report he noted the new Centre with its newly completed grower-finisher unit had begun a new experiment every 9.5 days. The objective of reducing the cost of production by $2 per pig had already been surpassed with a total of $3 per pig in improvements established the first year.

These early successes supported that first business plan. The business plan had been revised three times, each time expanding capacity, or capability to serve the industry.

In addition to the pork producers, the provincial government through the Agricultural Development Fund (ADF) has supported the Centre continuously throughout the intervening years. To all of these early supporters; the pork producers of Saskatchewan, Alberta and Manitoba, the University of Saskatchewan and the province through ADF, we extend a heartfelt thank you for your leadership and vision in taking a risk to do things differently. That innovative step has allowed the Prairie Swine Centre to become one of the world leaders in developing original, practical information pork producers can use every day to improve their businesses.

The changing times have meant some changing faces at the centre growing from 13 to 53 staff and students over the years.
Executive Management Team 1995.
L-R Front: Dr. John Patience, Lee Whittington
L-R Back: Dr. Harold Gonyou, Brian Andries, Dr. Yuanhui Zhang

Effect of Ractopamine in Finishing Swine Diets on Growth Performance, Carcass Measurements and Pork Quality

Part 2. Carcass composition and meat quality*

A.D. Beaulieu, Ph.D.[1], J.F. Patience, Ph.D.[1], P. Shand, Ph.D.[2], and Z. Pietrasik, Ph.D.[2]

[1] Prairie Swine Centre

[2] Dept. of Applied Microbiology and Food Science, University of Saskatchewan

Ractopamine hydrochloride increases protein synthesis at the expense of fat synthesis within muscle tissue. Increased protein synthesis results in increased muscle size, thus increased lean yield. However, this is achieved through increased size of individual muscle fibres which may affect the eating quality of pork. The limited research on this subject, primarily conducted at inclusion levels of 10 mg/kg or higher, suggested that ractopamine had no effect on the colour, firmness, marbling or juiciness and flavour of pork. However, the effect of ractopamine was inconsistent for some quality traits, especially concerning changes in meat tenderness. Ractopamine has recently been registered for use in Canada under the brand name of Paylean®, at a suggested inclusion level of 5 mg/kg (5 ppm). Since the acceptance of pork by the consumer is critical to the industry's success, it is important to understand if and what impact ractopamine has on eating quality of pork.

The experiment used two dietary treatments: a control finishing diet (control) or a similar diet supplemented with 0.025% Paylean® (Elanco Animal Health, Guelph, ON; RAC) equivalent to 5 mg ractopamine/kg (Table 1). The control diet was typical of that used by the commercial pig industry for finishing pigs and the ractopamine diet was formulated to contain 1.00% total lysine compared to 0.75% in the control. A total of 531 pigs began the trial at 85 kg bodyweight and were marketed when they reached a minimum live weight of 116 kg. Carcass data was obtained from all animals at the slaughter plant, while the detailed meat quality measurements utilized a subset of 64. Full details of the diets and animal management were described in Centred on Swine Volume 13 Number 3.

We obtained carcass data from 530 animals and detailed meat quality data from 64. From each of these 64 animals; 11 chops (2.54 cm thick) were cut from the loin. Samples were vacuum-packed and stored for a minimum of 48 hr (some analyses were done on samples stored for various periods of time, the data shown is averaged over these time points). A rib portion of the loin was injected with a salt/sodium tripolyphosphate solution (enhanced) prior to storage for 48 hr and further determinations. The objective colour readings were performed using an instrument specifically designed for this purpose (Hunter Lab Miniscan XE); the subjective colour and marbling scores were determined by three University of Saskatchewan trained staff. The sensory evaluation was performed by 11 trained panellists. They evaluated 1.27 cm^2 samples of meat following cooking to an internal temperature of 70ºC. Samples were scored using a 8-point scale for the various criteria measured. A score of 1 implies that the sample was very tough or undesirable while a score of 8 means very desirable and tender.

Table 1 describes the carcass parameters. Feeding 5 mg per kg of ractopamine for an average of 26 days before market had

Growth performance was discussed in Volume 13 Number 3 of Centred on Swine.

Table 1. The effect of 5 mg ractopamine per kg[a] on the carcass parameters of pigs[b]

	Control	Ractopamine	P values[c]
Dressed wt., kg			
Males	94.22	94.06	
Females	94.46	94.74	
Average	94.34	94.40	NS
Dressing percent, %			
Males	79.2	79.4	
Females	80.2	80.4	
Average	79.7	79.9	G
Backfat thickness, mm			
Males	20.32	18.48	
Females	15.83	15.64	
Average	18.08	17.06	TxG[d]
Loin thickness, mm			
Males	67.06	69.74	
Females	69.45	71.83	
Average	68.26	70.79	T, G
Lean yield, %			
Males	59.23	61.07	
Females	62.27	62.47	
Average	60.75	61.77	T, G, TxG
Carcass index			
Males	108.57	110.15	
Females	111.34	110.99	
Average	109.96	110.57	G, TxG
Carcass premium, $			
Males	2.14	1.85	
Females	1.14	0.84	
Average	1.64	1.34	G
Carcass value, $			
Males	118.30	119.35	
Females	119.24	118.82	
Average	118.77	119.08	NS

[a] Paylean® at 0.025 % of the diet (250 grams per tonne).

[b] n=531 pigs housed in 32 pens marketed when they reached a minimum of 116 kg.

[c] NS, non-significant (P > 0.05), G, T, TxG, effect of gender, treatment or treatment by gender interactions, respectively (P < 0.05).

[d] P= 0.07

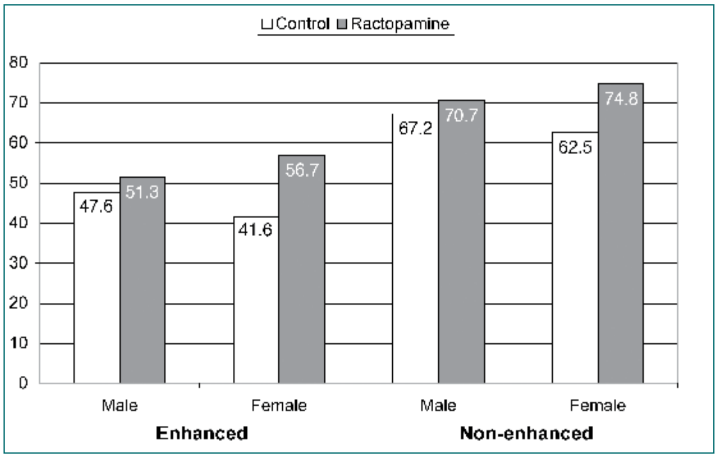

Figure 1. The effect of 5 mg ractopamine per kg on the Warner-Bratzler shear forec of enhanced and non-enhanced loins. A lower value indicates improved tenderness. Treatment. P<0.05. Gender P>0.05.

Feeding 5 mg per kg ractopamine for 28 days had no effect on dressing percent, carcass index and carcass value. There was also no effect on eating quality of pork.

no effect on dressed weight, dressing percent, carcass index, carcass premium, or carcass value (P > 0.05). Backfat thickness decreased from 18.1 to 17.1 mm, and loin thickness increased from 68.3 to 70.8 mm in the ractopamine fed pigs (P < 0.05). The change in backfat was primarily due to results in the barrows. Gilts were less responsive. Ractopamine increased estimated lean yield by one percentage point (P < 0.01), however carcass index, and carcass value were unaffected (P > 0.05). This effect on carcass premiums and overall carcass value is expected to vary by farm and the premium policy employed at the time. In our situation, carcass premiums were reduced from $3.50 to $0.50 when loins exceeded 70 mm.

Tables 2 and 3, and Figure 1 describe the results for meat quality obtained from 64 pigs. Purge, or drip loss, was unaffected by ractopamine feeding (P > 0.05). The instrumental color readings indicated that feeding ractopamine resulted in chops which were lighter in colour (Table 2. a* and b*, P < 0.05). This has been shown by others and it may be due to lower amounts of oxymyoglobin in the muscle or because of hypertrophy of the muscle fibre. However, these colour changes were not detected using subjective scoring systems by staff members (visual colour score, P > 0.05). Table 2 describes the results using the Canadian system. Similar results were obtained when the chops were evaluated using Japanese and American scoring systems (data not shown). Subjective marbling scores were similar between treatment (P > 0.05). Chemical analysis of the pork chops confirmed this measurement (data not shown).

The results from the panel evaluation of the cooked pork chops are described in Table 3. Scoring used a 1 to 8 point system, where 8 refers to extremely juicy, tender or tasty and 1 refers to extremely dry, tough, and non-desirable. The table presents the values from the enhanced chops only. Values from the non-enhanced chops are lower, but treatment differences are comparable. Feeding ractopamine had no effect on perceived amounts of connective tissue, juiciness, pork flavour, intensity or desirability, saltiness or overall acceptability (P > 0.05). Perceived overall tenderness was reduced (P < 0.05); a result confirmed by the instrumental measurement of shear force (Figure 1). The Warner-Bratzler shear force (WBSF) was increased with ractopamine, especially in the female pigs (treatment by gender effect, P < 0.05). A higher WBSF value indicates greater force required to cut the meat. Overall acceptability, however, was unaffected by feeding ractopamine (Table 3, P > 0.05) indicating that the effects on tenderness do not affect overall eating quality of the product.

The Bottom Line

Supplementing the diet of finishing swine with 5 mg/kg ractopamine (Paylean®) increases loin thickness at the expense of backfat. This has no discernable effect on the eating quality of the pork.

Table 2. The effect of 5 mg ractopamine per kg[a] on loin quality characteristics[b]

	Control	Ractopamine	P values[c]
Purge loss, % 48 hrs	6.73	6.21	G[d]
Colour			
L* (lightness)	54.47	54.13	G
a* (redness or greenness)	8.19	7.43	T, G
b* (yellowness or blueness)	13.93	13.10	T, G
Visual color score, Canadian	2.7	2.7	NS
Marbling	1.8	1.8	G

[a] Paylean® at 0.025 % of the diet (250 grams per tonne).
[b] n=64
[c] NS, non-significant (P > 0.05), G, T, TxG, effect of gender, treatment or treatment by gender interactions, respectively (P < 0.05).
[d] For all parameters, higher values were observed for males.

Table 3. The effect of 5 mg ractopamine per kg[a] on sensory attributes of pork loin[bc]

	Control	Ractopamine	P values[d]
Overall tenderness	6.8	6.5	T
Amount of connective tissue	6.4	6.3	NS
Juiciness	6.5	6.3	NS
Pork flavour intensity	6.2	6.2	NS
Flavour desirability	6.2	6.2	NS
Saltiness	5.3	5.2	NS
Overall acceptability	6.2	6.1	NS

[a] Paylean® at 0.025 % of the diet (250 grams per tonne).
[b] Determined by taste panel evaluation. Intensity based on an 8-point scale (8=extremely tender, juicy, intense, desirable flavour and very acceptable, 1=extremely tough, dry, bland and non-desirable).
[c] Values shown are for enhanced loins. Values for non-enhanced loins were lower, but treatment differences were similar (ie. lack of treatment and gender effects for all parameters except tenderness).
[d] NS, non-significant (P > 0.05), T, effect of treatment (P < 0.05).

Personal Profile

Rajesh Jha

Rajesh Jha comes from a rural area of Nepal, where subsistence livestock farming is part of lifestyle as well as a means of livelihood. In 1996, he completed his Bachelor degree in Veterinary Science & Animal Husbandry from Tribhuvan University, Nepal. He applied his professional knowledge for the betterment of livestock farming communities in Nepal by working in the Department of Livestock Services for 8 years. Later, he went to the Netherlands, where he completed his M.Sc. (Animal Science) from Wageningen University in 2006 with specialization in monogastric nutrition. As part of his Masters degree, he worked at Riddet Centre, Massey University, New Zealand. He came to Canada along with his wife Rekha and two lovely children - son Ranjan and daughter Roshani.

Rajesh joined the Department of Animal & Poultry Science of the University of Saskatchewan as a Ph.D. student in September 2006 and is working at Prairie Swine Centre under the supervision of Dr. Pascal Leterme. He is looking for "alternative ingredients as functional feeds in pig nutrition". Rajesh will evaluate the functional properties of different varieties of barley, oats and peas. This will be done by characterizing the fermentation kinetics of the non-starch polysaccharides and their effect on the gut microflora.

Jenny Marriott

Jenny Marriott was born and raised in Kingston, ON, a city of approximately 120 000 people, located halfway between Toronto and Montreal. When she was young, Jenny developed a love of animals, in particular horses. In an attempt to persuade their daughter that horses are big and scary, and to dissuade her from having anything to do with them, Jenny's parents bought her first riding lesson when she was nine years old. Their plan didn't work quite like they'd intended, as from then on, she was hooked.

Having decided that she wanted an animal-related career, Jenny attended the University of Guelph following graduation from high school. She graduated with a Bachelor of Science in Animal Biology in 2006. When she started at Guelph, Jenny thought that she wanted to transfer to the Ontario Veterinary College as soon as possible. As part of OVC's application process, applicants are asked to write an essay explaining why they want to be a vet. Jenny found this essay a lot harder to write than she anticipated, and when written, a better title would have been: Why I Want to Study Animal Nutrition.

In consequence, Jenny decided to pursue further studies in animal nutrition. She and her beloved cat, Ainsleigh, moved to Saskatoon at the end of August, 2006 for Jenny to pursue a Masters' degree under the supervision of Dr. John Patience. Her project involves the development of a novel, non-invasive technique for the determination of true sulphur amino acid requirements and bioavailability, based on total urinary sulphate excretion.

Coming Events

Swine Technology Workshop
October 23-24, 2007
Red Deer, Alberta

Saskatchewan Pork Industry Symposium
November 14-15, 2007
Saskatoon, Saskatchewan

Manitoba Hog Days
December 5-6, 2007
Brandon, Manitoba

Banff Pork Seminar
January 15-18, 2008
Banff, Alberta

Manitoba Swine Seminar
January 30-31, 2008
Winnipeg, Manitoba

Alberta Pork Congress
March 12-13, 2008
Red Deer, Alberta

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