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Redefining the Optimal Marketing Core

Ken Engele, BSA

Recently there has been a lot of attention paid to marketing within the core. On most grading grids within western Canada the core is approximately 85-100 (dressed) kgs. This range is quite often the weight categories where the highest index and weight premiums are possible for individual carcasses. While percent in core and sort loss are important factors to monitor, they don't tell the entire story when it comes to determining where the greatest profit potential is within a particular grading grid. Figure 1 displays the sort loss across various weight classes using the 85-89.99 kg weight class as the base for the comparison. Based on the information provided, it is quite apparent the 90-99.9 kg weight class continually provided a greater income potential. It is also apparent all weight classes less than 85 kgs or greater than 105 kgs would significantly reduce income potential (as seen by the negative lines for these weight classes). When comparing the 100-104.9 kg weight class to the 85-89.99 kg weight class, we can see that it was out performed throughout the first 19 weeks, provided approximately the same return between weeks 19 to 31, and provided greater return

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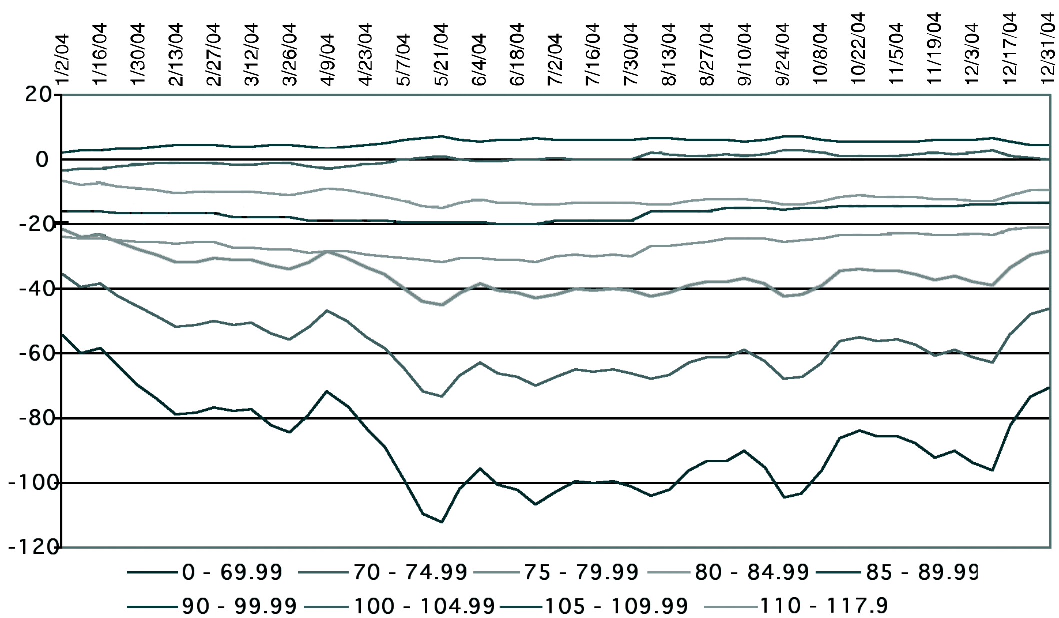

Figure 1. Relative Sort Loss for Individual Weight Classes

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Table 1.

Weight Class	1	2	3	4	5	6	7	8	9	10
Weight Range	0 - 69.99	70 - 74.99	75 - 79.99	80 - 84.99	85 - 89.99	90 - 99.99	100 - 104.99	105 - 109.99	110 - 117.9	118 - 999.99
Hogs	4	4	23	186	1169	4820	240	39	13	
Percent	0.1%	0.1%	0.4%	2.9%	18.0%	74.2%	3.7%	0.6%	0.2%	
Avg. Wt.	64.2	73.9	77.9	83.2	88.3	93.9	101.8	107.2	112.2	
Avg. Index	50.00	75.00	91.96	107.54	112.34	111.84	103.50	90.64	83.08	
Avg Premiums	1.38	2.06	1.78	1.97	2.12	2.29	2.34	1.94	2.35	

throughout the rest of the year. The relationship between these two weight categories is largely dependant on hog and feed price fluctuations throughout the year.

Table 1 summarizes the marketing data from PSC Elstow Research farm for the first six months of 2004. We can see over this time they have achieved over 92% in core. Core was previously defined as 85-99.99 kgs, while 92% in core is an important measure, does this distribution provide the greatest income potential to the operation?

We can take direction from the data presented in Figure 1. The line representing the 90-99.9 kg weight class always represented the greatest margin over feed cost throughout the time period studied. Therefore one could realistically expect to increase income potential by marketing more hogs within this weight range. In short, we are trying to calculate an optimal marketing weight for a particular distribution.

Margin Over Feed Cost

In order to calculate the optimal marketing weight we first need to calculate the margin over feed cost (MOFC) for individual weight categories over a period of time. Figure 2 summarizes the MOFC for individual weight categories for selected dates throughout 2004. The data shows the 90-99.9 kg weight class consistently provides the best return throughout the entire year, while the next best return varies throughout the year depending on the particular combination of feed and hog prices.

To demonstrate the importance of MOFC lets turn our attention to Figure 1. The MOFC averaged 102.34 and 99.84 on May 28 and November 25 respectively, a mere 2.5% decrease. Meanwhile hog prices fluctuated more than 13% ($177.30ckg – May, to $151.70ckg – November) and feed prices fluctuated by 29% ($173mt – May, to $123mt – November) throughout the same time period. MOFC is very important due to its ability to take all variables into account, and provide a factor that is comparable across time periods.

Rethinking Core

Core has been often associated with a particular weight range where the greatest index or premiums could be achieved for a specific distribution. What happens if we re-think core, and match it to the corresponding weight range(s) where the greatest MOFC can be achieved. How will this change in how we look at core reflect overall profitability? How will this impact your optimal marketing weight?

Calculating Your Optimal Marketing Weight

This can be accomplished by increasing the average weight of your current distribution, until the point is reached where you start to experience a diminishing margin over feed cost (MOFC). Table 1 outlines the base scenario: average marketing weight of 92.9 kgs, average index of 111.2, and 92% of the hogs are marketed in core. Figure 3 shows the impact of increasing the average carcass weight by one-kilogram intervals up to 99.9 kgs, for two different time periods. The revenue generated from the base scenario (92.9

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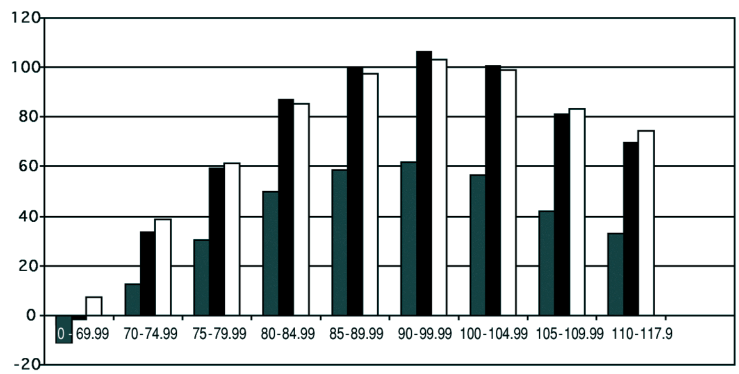

Figure 2. Margin Over Feed Cost by Weight Category

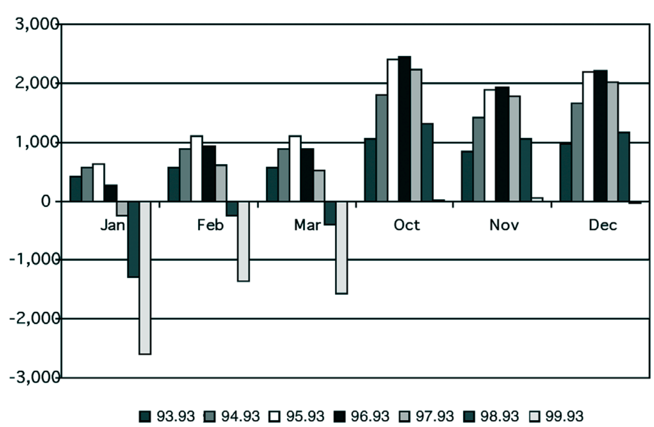

Figure 3. Change in Margin Over Feed Cost for Selected Time Periods

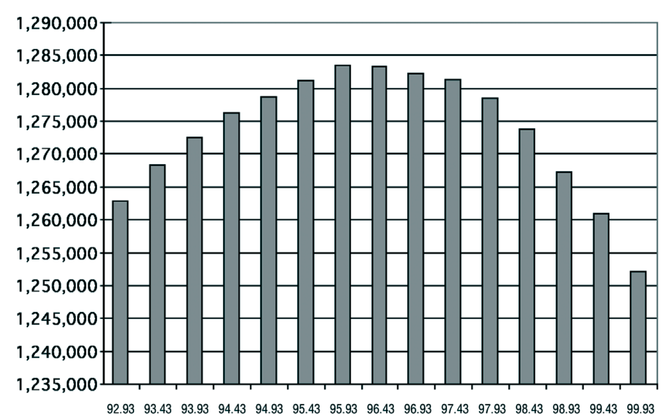

Figure 4. Annual Contribution to Margin Over Feed Costs

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kg average weight) is indexed to zero. Therefore if we increase average carcass weight to 95.9 kg (with the same distribution) we would increase MOFC by $630, $1,110 and $1,098 for January, February and March respectively, or $0.48, $1.05 and $1.04 per hog marketed. In fact, for the period of January – March, increasing our average marketing weight anywhere between 93.9-96.9 kgs we would increase our MOFC, maximizing it at 95.9 kgs.

Examining the October – December time frame, we could increase MOFC by increasing average carcass weight (with the same distribution) from 93.9-98.9 kgs, maximizing MOFC at a 96.9 kg carcass weight. This translates into an additional $1.85, $1.84, and $1.64 for October, November, and December respectively, when compared to an average marketing weight of 92.9 kgs. It is important to reiterate, the ideal marketing weight is constantly changing, largely based on hog and feed price fluctuations throughout the year. Therefore the weight at which MOFC is maximized is also changing.

Figure 4 shows the total contribution to MOFC at various average carcass weights for 2004. Increasing average carcass weight from 92.9 kgs to 95.9-96.4 kgs results in an additional $20,000 ($1.50/hog marketed) contributed to the bottom line of the operation. While at a 92.9 kg carcass weight we achieved 92% in core, a 95.9 kg carcass weight produces only 78% in core, but contributes more financially.

For this particular distribution the MOFC is maximized between 90-99.9 kgs. Therefore the more hogs marketed within this weight range the greater the economic benefit to the operation. In fact, if we could fine-tune in-barn management procedures to achieve 85% in core, with core defined where we maximize MOFC (90-99.9 kgs), we would have the potential of increasing marketing revenue in excess of $4.00/hog marketed, or $55,000 annually in our 600 sow barn.

The Bottom Line

The ultimate of any marketing plan is to find the ideal marketing weight for a particular distribution of hogs. A Marketing plan that works effectively within a particular grading grid system can generate anywhere from $0.50-$4.00 per hog marketed if 'core' is redefined at the weight range where margin over feed costs are maximized.

Winter/Spring Barn Practices

Brian Andries, B.Sc.

The variation in temperature changes starting late fall and progressing into the winter months requires strategies dealing with ventilating pig barns in our cold climate regions. Ventilation deals with bringing in fresh air to meet heating and cooling requirements. Cooling during spring and summer months does not require the expenditure of extra energy to heat an entire facility, as in the winter months. There are two main challenges when considering optimum control to ensure proper conditions for both animals and people working in confinement operations. The most important deals with maintaining a healthy environment and the second in conserving energy and keeping costs down to operate the facility. To meet these challenges we need to ensure that we are operating an energy efficient building and effectively controlling a somewhat complex ventilation system to minimize energy loss.

Cold climate ventilation dictates that animals are required to be housed in confinement. Animals housed in close quarters during the winter months produce heat, moisture, and gas. Heat is a result of both the metabolic process resulting in growth of the animal as well as the production of heat from equipment and lights. Moisture results from respiration of animals as well as water spillage from drinkers and evaporation from manure. Gases are emitted from manure storage and dirty pens while dust is a result of dander, dried fecal material and feed. To ensure an adequate environment for both animals and people working in barns, all of these contaminants have to be diluted and removed from this confined space. Ventilation is used to balance temperature, humidity and gas and dust concentration.

When consideration is given to conserving energy in relation to achieving an optimum environment during the winter months we should first consider the concept of heat transfer and loss through the walls ceiling and floor of the facility. We need to ensure that the facility is properly maintained to rectify any chance of heat loss through exterior doors or windows. Seal exterior doors with weather stripping and ensure cracks in walls are also sealed. As well, the insulation values of our building materials need to be monitored to ensure that they have not been compromised by rodent infestation. At least 30% of all heat loss in a facility is through the building envelope.

Part of maintaining a good environment in the barn is to ensure that ventilation controllers are set to ensure proper ventilation rates required to remove moisture, gas and other contaminants from the air space inside the barn. Ventilation rate is also a component of the setpoint temperature and insulation factor of the building itself. A balance needs to be found between the removal of contaminants and moisture, while maintaining a room temperature close to the set point ensuring minimal loss of heat expelled to the outside. Ventilation accounts for close to 70% of the heat loss from a facility over the colder months of the year.

Ensuring proper management and maintenance procedures as well as good husbandry practices to maximize optimum environmental conditions in the barn will assist in decreasing ventilation rates and in doing so conserve energy. Repair of all leaking water lines and nipple drinkers will ensure reduced moisture levels in the facility. Reducing humidity levels from

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Evaluation of a Manure Pit Scraper System for Controlling Hydrogen Sulfide Gas in Swine Barns

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Summary

A manure pit scraper system was installed in a swine grower-finisher room and used to remove manure daily from the manure pit. Preliminary measurements showed that H_2S levels in the scraper room were lower by an average of 80 to 96% compared to measurements in a similar room operated under typical conditions. Additionally, maximum H2S concentration in the scraper room did not exceed the 15-ppm ceiling occupational exposure limit (OEL) while in the control room, the ceiling OEL value was exceeded three times out of eight measurements. Ammonia emissions in the scraper room were about 44% higher compared to the control grower-finisher room. However, the average ammonia concentration in the scraper room was only about 3 ppm higher than in the control room and peak concentrations were well below the 25-ppm 8-hr OEL value for ammonia.

Introduction

Hydrogen sulfide (H_2S) gas in swine barns is produced by the anaerobic degradation of liquid manure. Exposure to H_2S can have detrimental effects on both workers and swine, especially at excessively high levels (CHEMINFO, 2000). Most of the H_2S produced by anaerobic bacteria in manure pits remains dissolved in the liquid manure as long as the manure is not agitated. Results from a research project performed by Prairie Swine Centre (PSC) strongly suggest that workers are at risk of H_2S exposure while performing manure management tasks in the barn, such as pulling manure pit plugs. Out of 138 plug pulling events monitored in different barn sections, 114 events (83%) generated H_2S concentrations higher than the short-term exposure limit (STEL) value of 15 ppm (or time-weighted average concentration not to be exceeded during a 15 min exposure period, specified by Saskatchewan Occupational Health and Safety, 1996) at the worker level over the pit area. Monitoring performed during emptying of manure pits also showed that the highest H_2S concentrations measured were not necessarily restricted to the vicinity of the plug but may occur elsewhere in the room above the manure channel.

An increasing number of workers in specialized pig operations now spend more time inside the barns on a continuous basis. In some cases workers may be assigned to specific tasks related to manure management that can significantly increase their exposure to H_2S (e.g., crews assigned to power washing and pulling manure pit plugs, or those assigned to operation and maintenance of in-barn manure handling equipment). Economical and practical preventative measures need to be implemented to help ensure that the H_2S levels do not reach hazardous concentrations in swine barns to protect the health and safety of both workers and animals. A retrofit system for shallow pit in-barn manure channels to allow for more frequent and complete removal of manure from the production rooms has the potential to reduce H_2S production and emission.

Project Objectives

The overall goal of this project was to develop systems that will prevent or reduce worker exposure to high H_2S concentrations during manure handling in swine buildings. Specifically, this study aimed to develop a manure pit scraper system that will remove swine manure from the barn on a daily basis, and evaluate the impact of the system on H_2S concentrations and other air quality parameters in the barn. Ultimately, the goal was to develop a system that can be retrofitted into existing barns with liquid manure handling systems.

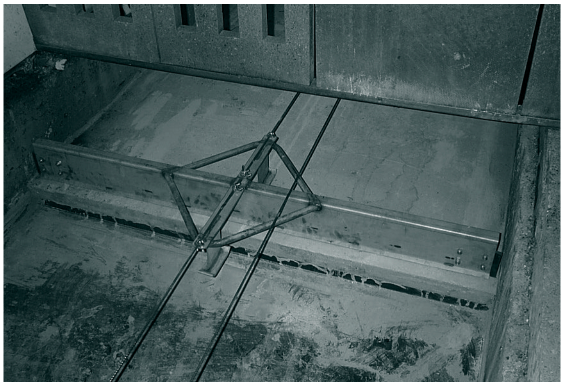
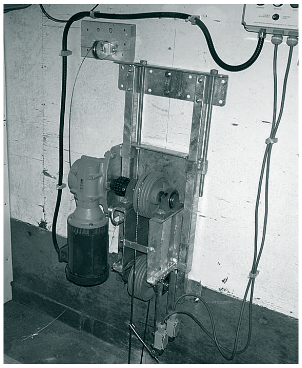


Figure 1. Scraper blade that was pulled over the false flooring. The manure pit has two drains, one at each end, through which the scraped manure was drained to the sewer line.

Methodology

Grower-finisher room set-up

Two commercial grower-finisher rooms at the PSC barn were used over two production cycles. Each room had partially slatted floors and was 14.2 m long, 5.4 m wide, with a 3.0 m ceiling. Three fans provided ventilation air by pulling outdoor air from the barn attic and into each room through six ceiling inlets. A forced air recirculation duct was located on one side of the room near the ceiling, and a 17.6 kW natural gas heater provided supplemental heat. The two rooms contained six pens each and were mirror images of each other. Each pen was 2.0 m wide and 4.2 m long (1/3 slatted), and had a nipple drinker and a dry feeder connected to an automatic feeding system. For this experiment, one pen remained empty throughout the trial and the other pens had 14 pigs each, for a total of 70 pigs per room. The empty pen was used to gain access to the scraper system to make adjustments as part of a separate experiment. Pigs entered the rooms at about 21.5 kg, remained in the rooms for about 12 weeks, and attained an average weight of about 96.5 kg at the end of each trial. The pigs were weighed at the beginning of each trial and sorted to ensure that the difference in the total starting weight for the two rooms was within ±1.0 kg. Pigs were fed ad libitum with commercial mash diets for grower-finisher pigs.



(a)

(b)

Figure 2. Components of the scraper system including the (a) electric motor, controls, and (b) pulley system used to pull the scraper blade in both directions.

In one of the rooms (Experimental), the manure scraper system was installed and operated daily, while the other room (Control) was operated normally, i.e., manure was allowed to accumulate in the pits and the pit plugs were pulled on a predetermined schedule.

Scraper set-up

The manure scraper system was assembled and installed in the manure pit of the experimental (scraper) room. The main components of the scraper system were obtained from a commercially-available system manufactured in Québec, where such systems are used in some swine operations and in other livestock (dairy) industries (Figs. 1 & 2). The manure channel in the room was 14.2 m long, 1.8 m wide and 0.6 m deep, with a pit drain at each end. To ensure complete drainage of the manure when the scraper was operated, a false floor was laid on the manure channel bottom surface to raise the manure pit floor by 0.25 m at one end, which gradually sloped down to 0.20 m on the other end. The scraper blade, which can be operated in both directions, ran over the false floor surface (Fig. 1), although it did not cover the entire length of the manure channel. It stopped at about 1.1 m from one drain on one end and about 1.6 m from the drain on the other end, thus leaving an area around the drain where manure accumulated. Two manure tubs were built out of mild steel and one was placed at each end of the false floor. All sides of this tub were sloped toward the pit drain (with a pit plug) at its center, to ensure complete drainage of manure into the drain hole when the plug was pulled and to prevent retention of any manure from which H_2S could be produced (Fig. 3).

The scraper system was operated daily, dropping the solids from the false flooring into the accumulation pit, after which the plug was immediately pulled to let the manure drain as a slurry mixture.

Data Collection

The room air quality and H_2S concentrations in the experimental (scraper) room were compared to an identical room with conventional plugs (control) over two production cycles. Four one-week periods were monitored over each production cycle: weeks 4, 6, 8 and 10, which comprised one trial. The pit plug in the control room was pulled in the middle of each of the one-week monitored periods. The schedule of monitoring was set to coincide with normal plug pulling schedules in the rooms, which allowed for manure to accumulate initially over a 4-week period while the pigs were small, while subsequent tests were done after every two weeks to account for larger manure production as the pigs grew larger. For each scraping and pulling event during the monitored week, two H_2S monitors (Model Pac III, with XS EC 1000 ppm H_2S sensor, Draeger, Lübeck, Germany) were installed in each room: one over the middle of the manure pit (middle pen) and another directly above the plug, both approximately 1 m off the floor. The H_2S monitors, which recorded H_2S readings at 10-sec sampling intervals, were started five minutes before pulling the plug. Preliminary tests were done to determine the length of time that the pit drains need to remain open for the slurry to drain completely (10 min), since leaving the drain open longer than necessary could allow a back draft of H_2S to the room from the sewer line. After the plug was replaced, the monitor continued collecting data for another 5 min to obtain H_2S measurements both before and after the pulling event.

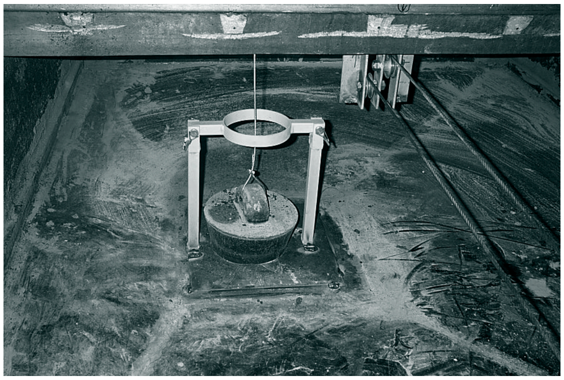


Figure 3. Pit drain with a pit plug located in the middle of the accumulation tub. At each end of the pit, a sloping tub was installed to facilitate clearing the scraped manure into the pit drain.

In the experimental room, the scraper system was operated daily and the pit plug was remotely pulled daily as well. The H_2S monitors were operated in similar manner as in the control room: monitors were started five minutes before scraping the channel, plug was pulled after scraping and the plugs remained open for 10 min, the plug was replaced, and the monitor continued collecting data for another 5 min after replacing the plug.

The air quality in both rooms was measured on a continuous basis during the monitored week. Ammonia concentrations were measured at the inlet and outlet of both rooms using a sampling manifold system attached to an ammonia analyser.

Preliminary results

Summary of trials

Two trials were completed from March 8 to August 27, 2004, corresponding to two production cycles. Table 1 summarises the weekly average values for temperature and relative humidity in the two rooms. Outdoor ambient conditions during the first three weeks of Trial 1 were cold, thus the ventilation rates in both rooms were lower compared to the rest of the trials. In general, nearly similar conditions were maintained in both rooms throughout the trials, as can be observed from the close mean values for temperature, RH and ventilation rates measured in the two rooms (Table 1).

Ammonia emissions

Table 2 summarizes the weekly average ammonia concentrations and the calculated average ammonia emission rate for the two rooms. Significant levels of ammonia were measured in the incoming inlet air for both rooms; this was attributed to possible recirculation of air exhausted from the fans into the supply air coming into the barn as well as from possible back draft of ammonia from adjacent rooms into the barn attic.

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In terms of ammonia emission, calculation of the percent reduction in the corresponding values (control vs. scraper) showed an average reduction of –44%, indicating that ammonia emissions were higher in the scraper room compared to the control room (Table 2).

It is well documented that scraper systems can promote ammonia emissions by leaving a film of excreta at the bottom of the channel. In this regard, data is being concurrently collected from the set-up as part of a related study to determine the effectiveness of maintaining a layer of standing water at the bottom of the manure channel to control these emissions. Results of this study will be reported after all the trials are completed.

From a health and safety perspective, the increase in ammonia production rate in the scraper room did not compromise the worker safety. The average ammonia concentration in the scraper room was no more than 3 ppm higher than in the control room, with a maximum concentration of 22.6 ppm measured during Week 2 of Trial 2 (17.1 ppm in the control room). Compared to 25 ppm concentration normally used for the 8-hr occupational exposure limit (OEL) for ammonia (Alberta Occupational Health and Safety Code, 2003), the scraper room concentrations were still lower than this limit value, despite the presence of ammonia in the incoming air.

Table 1. Summary of weekly average values for temperature, relative humidity and ventilation rates measured in the experimental (scraper) and control rooms.

	Monitored week dates	Average room temperature (ºC)		Average relative humidity (%)		Average ventilation rate (L/s)	
		Scraper	Control	Scraper	Control	Scraper	Control
Trial 1	Mar8-12	18.3	18.3	48.5	N/A	768	808
	Mar22-26	16.4	16.3	52.2	51.5	881	859
	Apr5-9	15.5	16.2	43.5	43.8	1661	2111
	Apr19-23	16.1	16.4	37.9	36.6	2310	2382
Trial 2	Jun28-Jul2	23.1	23.9	47.2	49.5	3035	2938
	Jul19-23	22.8	23.4	63.1	63.0	3230	3208
	Aug9-13	19.6	21.8	58.9	59.0	3022	2858
	Aug23-27	17.7	17.3	62.1	63.4	3039	2689
	Average	18.7	19.2	51.7	52.4	2243	2232
	SD	2.9	3.3	9.1	10.1	1015	926

N/A – data not available, instrument malfunction

Table 2. Summary of weekly average values for ammonia measured in the experimental (scraper) and control rooms.

	Monitored week dates	Exhaust concentration (ppm)		Inlet concentration (ppm)		Average emission (g/hr)		Emission reduction
		Scraper	Control	Scraper	Control	Scraper	Control	(%)
Trial 1	Mar8-12	10.6	7.9	3.2	3.3	13.3	8.7	-54
	Mar22-26	14.1	12.8	5.3	5.3	16.2	13.3	-21
	Apr5-9	13.1	11.7	6.6	6.6	20.9	23.4	11
	Apr19-23	7.9	7.1	3.4	3.4	22.8	19.8	-15
Trial 2	Jun28-Jul2	8.0	7.3	5.9	5.9	15.3	9.6	-59
	Jul19-23	11.7	10.6	7.7	7.7	32.3	23.2	-39
	Aug9-13	12.4	10.1	7.3	7.3	37.6	19.6	-92
	Aug23-27	13.0	10.9	7.3	7.3	41.9	23.3	-80
	Average	11.3	9.8	5.8	5.9	25.0	17.6	-44
	SD	2.3	2.1	1.8	1.7	10.9	6.2	34

Hydrogen Sulfide Concentrations

During each monitored week, the H_2S concentrations were measured in each room during the 15-min period that the scraper system was operated in the experimental room. However, initial results from the control room showed that measurable H_2S readings were detected only during the day that the pit plug in the room was actually pulled, while no (zero) detectable H_2S was measured in the room during days in which the pit plug was not pulled. Thus, in subsequent weeks, the H_2S levels were monitored in the control room only during the day that the pit plug was pulled in that room. Table 3 summarises the maximum H_2S concentrations measured at the two locations in the two rooms during the day that the pit plug was pulled in the control room. The H_2S monitors were placed at two locations: over the pit plug area, and at the middle of the pit (middle pen), both at about 1 m height.

Table 3. Summary of maximum H_2S concentration (ppm) measured in the experimental (scraper) and control rooms.

		Control		Scraper	
	Date	Over plug	Middle pen	Over plug	Middle pen
Trial 1	10-Mar-04	4.0	2.0	0.0	0.0
	24-Mar-04	0.0	0.0	0.0	0.0
	7-Apr-04	9.0	0.0	11.0	7.0
	21-Apr-04	12.0	4.0	0.0	0.0
Trial 2	30-Jun-04	12.0	2.0	0.0	0.0
	21-Jul-04	95.0	N/A	6.0	N/A
	11-Aug-04	40.0	30.0	2.0	0.0
	25-Aug-04	30.0	10.0	1.0	2.0
	Average	25.3	6.9	2.5	1.3
	SD	31.2	10.8	4.0	2.6

N/A – data not available, instrument malfunction

Comparison of the corresponding values between the two rooms showed that the maximum H_2S concentrations were lower in the scraper room by an average of 80% over the plug area and by an average of 96% over the middle pen. From a health and safety point of view, the maximum H_2S levels in the control room exceeded the 15-ppm ceiling OEL value (Alberta Occupational Health and Safety Code, 2003) on three occasions during the two trials, while no peak H_2S readings were higher than this limit value in the scraper room. The ceiling OEL is the maximum concentration of a biological or chemical agent to which a worker may be exposed at any time, i.e., no worker must be exposed to any levels above this limit for any period of time.

Similarly, the 15-min TWA values were calculated for both rooms on the same monitored days and summarized in Table 4. Comparison of the values between the two rooms showed that

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Table 4. Summary of 15-min TWA values for H_2S (ppm) measured from the experimental (scraper) and control rooms.

		Control		Scraper	
	Date	Over plug	Middle pen	Over plug	Middle pen
Trial 1	10-Mar-04	1.11	0.16	0.00	0.00
	24-Mar-04	0.00	0.00	0.00	0.00
	7-Apr-04	0.00	0.00	0.92	0.64
	21-Apr-04	1.59	1.03	0.00	0.00
Trial 2	30-Jun-04	2.09	0.10	0.00	0.00
	21-Jul-04	19.42	0.00	0.34	0.00
	11-Aug-04	0.02	1.42	0.02	0.00
	25-Aug-04	5.64	3.25	0.01	0.16
	Average	3.73	0.75	0.16	0.10
	SD	6.61	1.15	0.33	0.23

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the scraper room had 15-min TWA values lower by an average of 83% over the plug area and by an average of 99% over the middle pen. Furthermore, the 15-min TWA values for the scraper room were generally less than 1 ppm and did not exceed the short-term exposure limit (STEL) value of 15 ppm H_2S during the two trials. The corresponding values in the control room had an average of about 3.7 ppm, with one measurement exceeding the STEL value. Although on few occasions the H_2S readings in the scraper room were actually higher than that in the control room, these preliminary comparisons suggest general effectiveness of the scraper system in reducing H_2S concentrations, and consequently reducing the risk of H_2S exposure of workers as well.

The Bottom Line

Scrapers installed in the pit under the slats increased ammonia concentrations in the air. This may be mitigated through use of water film, and this is under investigation.

Acknowledgements

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the evaporation of urine and fecal material can be accomplished by ensuring proper dunging patterns are maintained by properly monitoring inlets and recirculation ducts as well as regular cleaning of pens. Clean pens will also reduce the level of ammonia in the room. Ammonia is produced by the decomposition of nitrogenous compounds in feces and urine on solid surfaces. At the time of manure removal from the room hydrogen sulfide is released and only at this time should the ventilation rate be increased to reduce hydrogen sulfide levels. Dust levels can be reduced in a facility by minimizing feed handling and disturbance and by avoiding disturbing the pigs. Proper safety equipment should also be available to staff including dust masks, eye and hearing protection.

Regular maintenance on ventilation equipment is important to ensure proper ventilation rates are maintained during the winter months. All fans need to be cleaned and function properly. As cold season arrives proper fan covers should be installed on all stages of fans not utilized during the winter months. These covers should be maintained so that they maintain their insulation value and do not allow the back drafting of cold air into the facility. All fan hoods should be mounted to ensure wind protection for exhaust fans so that wind pressure against the fan will not cut off the fan air delivery. Air inlet adjustment is also very important to the ventilation system during the heating season. The opening size should comply with the minimum ventilation rate to ensure more cold air is not entering the room requiring excess heating. Inlet opening controls and actuators should be monitored to ensure proper functioning at all times. Heaters should also be checked and serviced regularly. Corrosion of relay contact points is very common and the pilot of gas heaters should be kept clean.

The Bottom Line

After a ventilation system is designed it is very important to ensure the proper management of the system. It is recommended to draw up procedures for all seasons to ensure that the ventilation system can be properly monitored on the following basis:

- setpoint temperatures
- minimum ventilation rates during heating seasons
- fan scheduling
- air inlet adjustment
- moisture control
- odour and dust control

Tips for Saving Water

Water is an essential nutrient in pork production. Research reveals how we can manage this resource for best results and minimal cost.

1. **Do a water audit.** Wasted water costs money to pump and to dispose of in slurry. The average usage is 78L per sow (farrow to finish farm), however actual usage has been reported as low as 65L/sow and as high as 120L/sow, a variation of as much as 50% from the mean! See water usage table in Pork Production Reference Guide 2000, pg 30.

This and other water saving tips are located in our latest fact sheet or visit our booth at the Western Canadain Livestock Expo or on line at **www.pririeswine.ca.**

Personal Profile

Megan Strawford

Megan was born and raised in a small suburb just west of Battleford, Saskatchewan. Growing up Megan always wanted to work with animals and came to the University of Saskatchewan with intentions of becoming a vet. After volunteering at the vet clinic back home, she decided that is not what she wanted to do for a living and began examining the other options that a degree in Animal Science would offer. The summer before convocation, Megan was employed with Quadra, and worked in barns located in Cando and Strasborg, Saskatchewan. Her time with Quadra allowed her to gained valuable experience and insight into the farrowing, nursery and grow finish areas of production. This was also Megan's first experience working with livestock and discovered her life's passion in working with pigs.

In the spring of 2003, Megan graduated from the University of Saskatchewan with a Bachelor of Science in Agriculture, majoring in Animal Science. After graduation, Megan began working at the Prairie Swine Centre as a summer student for the Ethology group lead by Dr. Harold Gonyou. The opportunity arose for Megan to continue her education at the University of Saskatchewan and she began working on her Master of Science in Animal Science specializing in the field of Animal Behaviour and Welfare under the guidance of Dr. Gonyou at the Prairie Swine Centre.

Megan's study focuses on the behaviour and productivity problems associated with regrouping sows into an Electronic Sow Feeding System. When sows enter group housing following breeding, there is the potential for loss of productivity due to stress. Aggression and other social disruptions that occur after regrouping are what lead to the sows becoming stressed. The goal of Megan's study was to determine how specific social factors like: stage of gestation, familiarity with pen mates and parity can relate to the sows behaviour and productivity. At this time, Megan's research has found that younger, unfamiliar and post-implantation sows appear to be under more stress during the week of regrouping, based on entry order into the feeder and where the sows rest in the pen.

Deborah Ehmann

The Pork Interpretive Gallery is a perfect place to showcase the latest technology and research providing information to the industry and the general public with confidence and timeliness. The potential for the Gallery is unlimited. I am thrilled to be able to capture the attention of people from around the world by delivering new and innovative ideas and information that can positively impact the pork industry.

I have spent my career working in the agricultural industry and am eager to participate in an organization with such foresight.

My background is Business Administration, Signed English Interpretation and Rural Counseling. I am presently working on a degree in Governance, Law and Management.

I have been very active in the Credit Union system and am presently a member of the Action Committee on the Rural Economy (ACRE).

My home community is Davidson. I grew up on a family farm and have actively owned and operated a mixed farm operation.

I am married and have three grown children with super partners.

We are in the mist of renovations at the Pork Interpretive Gallery (P.I.G.) The new flooring is being installed and will be a nice finishing touch to the Gallery. Tours of the gallery will resume April 16, 2005. Just give me a call and I will arrange a tour for your organization. 1-866-PIG-TOUR (774-8687).

A new 'Youth Safety' and pig safety materials are currently under development for the Pork Interpretive Gallery. P.I.G. is a very happening place so 'stay tuned'. I would not want to see you miss out. This year's research results will be reflected in the new information that will be introduced in the days and weeks to come.

I am working with a great team of people and am looking forward to meeting all those who have a vision for the swine industry and have supported the Pork Interpretive Gallery.

Coming Events

Western Canadian Livestock Expo

April 21-22, 2005

Saskatoon, Saskatchewan

Growing the Industry Conference

June 27-29, 2005

Saskatoon, Saskatchewan

Saskatchewan Pork Symposium

November 8-10, 2005

Saskatoon, Sasaktchewan

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