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The effects of housing grow-finish pigs in two different group sizes and at two floor space allocations

Harold W. Gonyou, Ph.D., and
Brandy Street, MSC

Past studies on small groups (10-40) of pigs have found a negative impact of crowding on productivity and welfare. Studies examining groups of greater than 40 pigs per pen have found setbacks in the growth rate of pigs soon after mixing. Research into the effects of crowding on grow-finish pigs housed in large groups is minimal, although it has been suggested that pigs housed in large groups may be able to use space more efficiently. This study was designed to assess the space requirements of both large and small groups, and the effects of space restriction on pig performance, behaviour, physiology, health and welfare.

For this study, space allowance was expressed using an allometric approach relating body weight (BW) to floor area, as determined by the equation: $k = \text{area}(m^2)/BW^{.667}$. Past research has indicated that, above k = 0.035, growth is normal. Below k = 0.035, space becomes restrictive and growth depression begins. Due to previously set animal

Continued on page 2

Figure 1. Photo of the (a) small uncrowded treatment, (b) the small crowded treatment, (c) the large uncrowded treatment and (d) the large crowded treatment during the final week of the study (avg. 94 kg BW).

(a)

(b)

(c)

(d)

Table 1. Initial and final body weight, coefficient of variation, gains, feed intake, and feed efficiency of grow-finish pigs housed in large or small groups and at crowded or uncrowded space allowances

	Treatments					P-value[a]		
	Small	Small	Large	Large		Space	Group	Space x
Item	Uncrowded	Crowded	Uncrowded	Crowded	SEM	Allowance	Size	Group Size
# Pigs/Experimental Unit	36	36	108	108	-	-	-	-
# Experimental Units/Block[b]	1	1	1	1	-	-	-	-
Space Allowance, m^2/pig	0.78	0.52	0.78	0.52				
Initial Body Weight[c], kg	38.01	38.02	36.55	36.97	0.37	NS	0.003	NS
Coefficient of Variation, %	16.73	16.65	15.73	16.81	0.84	NS	NS	NS
Final Body Weight, kg	96.21	93.95	93.10	91.29	0.57	0.002	< 0.0001	NS
Coefficient of Variation, %	11.79	11.07	10.76	11.45	0.50	NS	NS	NS
Gain, kg/day	1.098	1.049	1.055	1.016	0.020	0.02	0.04	NS
Feed Intake, kg/day	2.782	2.867	2.766	2.801	0.066	NS	NS	NS
Efficiency, kg gain/kg feed	0.4108	0.3781	0.3807	0.3613	0.0080	0.002	0.005	NS

a NS = no significant difference (P > 0.05)
b Two adjacent small pens (18 pigs/pen) were equivalent to one experimental unit; 8 blocks were tested
c Taken after a habituation period of three days for blocks 1, 2, 6, and 8, four days for blocks 3, 4, and 5, and ten days for block 7

Continued from page 1

care guidelines, the crowding treatment in the current study was terminated at k = 0.025 (approximately 94 kg BW at 0.52 m^2/pig (5.59 sq. ft./pig)).

Eight, 8-week blocks of 288 pigs were carried out. Group sizes were small (18 pigs) or large (108 pigs) and space allowances were crowded (0.52 m^2/pig (5.59 sq. ft./pig)) or uncrowded (0.78 m^2/pig (8.39 sq. ft./pig)), creating four treatment groups: small uncrowded, small crowded, large uncrowded and large crowded (Figure 1 a-d, respectively). Gains, feed intake, and feed efficiency were calculated on a weekly basis. Postural and feeding behaviour were assessed on a biweekly basis, as were injuries and salivary cortisol concentrations (indicative of acute stress). Adrenal gland (indicative of chronic stress) and carcass data were collected at slaughter. One wet/dry free choice feeder space was provided for every nine pigs. One environmental enrichment device was provided for every 18 pigs.

> "There was limited evidence that pigs in large groups were able to use the space more efficiently."

Barrows gained more than gilts (1.0644 vs. 1.0124 ± 0.0094 kg/d, P < 0.018) and had a higher fat depth at slaughter (20.57 vs. 18.022 ± 0.25 mm, P < 0.002). Gilts had a higher carcass index than barrows (114.01 vs. 111.95 ± 0.32, P = 0.011). There were no indications that one gender was more affected by large group housing or reduced space allowance than the other.

Overall, crowded pigs had a lower growth rate and a lower final body weight than uncrowded pigs (Table 1). Growth rate was depressed by 9.8% during the final week of the study. Pigs housed in large groups had a lower overall growth rate than pigs housed in small groups (Table 1). Among pigs housed in large groups, daily gain was most affected during the first two weeks, at which time it was depressed by 5.4 %. The difference in initial body weights (Table 1) of pigs housed in the large groups indicated that growth depression began within the first four days after group formation.

The first sign of growth depression in response to crowding occurred much sooner for pigs in large groups compared with pigs in small groups. In the large groups, the critical point (k value) at which crowding and growth depression began was k = 0.042 (43 kg BW), while k = 0.035 (57 kg BW) was the critical point for pigs housed in the small groups. However, the rate of depression in gains was more gradual for pigs in large groups. Growth was depressed by 0.5% for every 1% reduction in space below the critical point in the small groups, but growth was only depressed by 0.2% for every 1% reduction in space below the critical point in the large groups. Thus, by the final week of the trial, pigs in both large and small crowded groups had similar gains.

Overall, crowded pigs had a lower feed efficiency than uncrowded pigs (Table 1). Efficiency was depressed by 11% during the final week of the study. Crowded pigs ate fewer meals and spent less time eating overall, but feed intake did not differ from that of uncrowded pigs. This suggests that they were consuming feed at a faster rate than uncrowded pigs. The level of crowding did not affect injury scores or the severity of lameness, flank bites, tail bites, or leg lesions. Similarly, it did not affect the number of animals requiring medical treatment (antibiotics) or removal from the trial, or the level of acute or chronic stress experienced by the pigs.

Pigs housed in large groups ate fewer meals, but took longer to eat each meal, than pigs housed in small groups. Pigs housed in large groups also had a greater severity of lameness and leg injuries than pigs housed in small groups. Pigs housed in small groups spent more time sitting and lying on their sternum (chest), and less time lying on their side, than pigs housed in large groups. Group size did not affect stress levels, the number of animals requiring medical treatment, or the number of animals requiring removal from the trial.

Pigs in uncrowded small groups had the highest carcass lean yield while pigs in uncrowded large groups had the highest fat depth. Pigs in crowded large groups had the highest lameness scores.

The Bottom Line

Both crowding and large group housing were found to negatively affect pig performance. Pigs housed in large groups were affected by space restriction sooner than pigs in small groups although, the depression in growth was much more gradual for pigs housed in large groups. There was limited evidence, none of which was related to productivity, that pigs in large groups were able to use space more efficiently than pigs in small groups.

Acknowledgements

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Evaluation of Hydrogen Sulphide Monitoring Devices and a Spray Treatment Method to Reduce Worker Exposure in Swine Barns

Bernardo Predicala, Ph.D., Erin Cortus, Ph.D. Candidate and Robert Fengler, Engineering Research Technician

SUMMARY

The performance of commercial hydrogen sulphide (H_2S) monitoring devices was verified by comparing readings with a reference analytical method using a gas chromatograph. A spray treatment method was also evaluated for reducing worker exposure to H_2S. Results showed that the H_2S monitors yielded readings that were in close agreement with those from the reference method. Additionally, spraying with water was effective in reducing the levels of H_2S released from agitated manure, although an initial increase in H_2S levels was observed at the start of spray application. An additive mixed with spray water did not help in reducing H_2S levels.

INTRODUCTION

Hydrogen sulphide is a potentially hazardous gas produced by anaerobic degradation of liquid manure. A large proportion of H_2S gas produced by anaerobic bacteria in manure pits remains dissolved in the liquid slurry as long as the manure is not agitated. Results from a previous research study conducted at Prairie Swine Centre Inc., (PSCI) strongly suggest that workers may be at risk of H_2S exposure while performing manure management tasks in the barn, such as pulling pit plugs when clearing out manure pits. Economical and practical preventative measures are needed to help ensure that H_2S levels do not reach hazardous concentrations in swine barns in order to protect the health and safety of both workers and swine.

Various engineering control methods have been investigated at PSCI; one approach examined was the spraying of water-based liquid on the manure surface during agitation. Because H_2S is water soluble, the rationale for this method was to try to put back into solution the H_2S gas released during agitation, thereby reducing the airborne H_2S concentration. Additionally, a commercially-available H_2S monitoring instrument used in the preliminary studies on liquid spray effectiveness showed inconsistent readings when subjected to various conditions during spray application. Because similar types of H_2S monitors are used widely in the industry, it is imperative that these instruments were proven to provide reliable readings to safeguard worker safety.

Furthermore, a by-product from oilseeds processing was also tested as a chemical additive to the water-based liquid spray to enhance the treatment's effectiveness. The properties of this material have been found to be suitable for spraying on roadways to control road dust, thus the potential of this material for controlling airborne contaminants in swine barns was raised.

PROJECT OBJECTIVES

The overall goal of this research project was to assess H_2S monitoring and control methods used in swine barns in order to reduce risk of exposure of workers to H_2S, and to prevent its subsequent release to the environment. The specific aims of this project were to:

1. develop an instrumentation set-up and protocol for evaluating the performance of H_2S monitors, and
2. investigate the effectiveness of using water-based liquid spray, as well as a chemical additive, to prevent the occurrence of elevated H_2S levels during manure handling.

METHODOLOGY

Laboratory set-up

The laboratory set-up used in this study consisted of an enclosed system in which H_2S was released from agitation of swine manure and the spray treatment was applied (Fig. 1). The impact of spray treatment on H_2S levels was monitored by drawing air samples from the system during and after the spraying process. The H_2S levels in the sampled air was determined using H_2S monitors (Draeger PacIII), as well as a GC system, which served as the reference method.

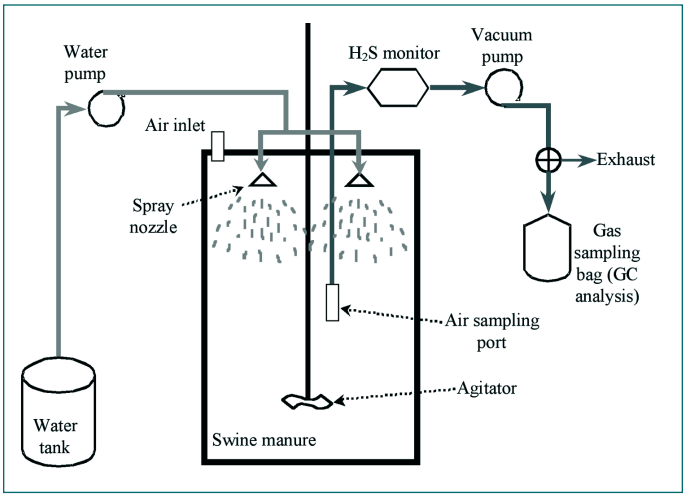

Figure 1. Schematic diagram of the laboratory set-up

A 170-L barrel was used as the enclosed chamber for the set-up; various treatment levels were replicated by preparing several barrels for

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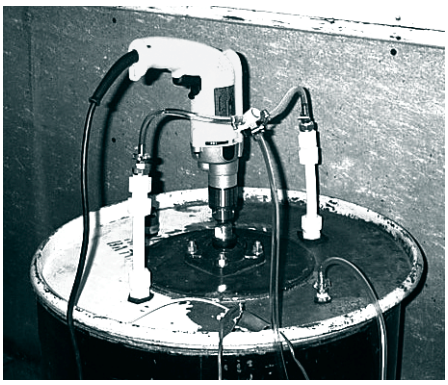

Figure 2. Modified barrel lid to allow agitation and spray, and sampling of headspace gases.

Continued from page 3

the tests. All components necessary for applying the spray treatment and collecting gas samples for H_2S monitoring were installed on one barrel lid (Fig. 2), which was transferred from barrel to barrel. Each barrel was filled up to 20-cm depth with manure collected from the manure pit of a grower-finisher swine room at PSCI. Clean tap water was added to each barrel to a depth of 60 cm. The barrels were sealed and stored for 2 weeks at ambient conditions before conducting any trial.

> "Commercial H_2S monitors showed they provided accurate measurement in the barn."

Gas chromatograph system

A gas chromatograph (5890 Series II Gas Chromatograph, Hewlett Packard) with flame photometric detector (GC-FPD) and capillary column was retrofitted according to the U.S. EPA Method 15 for determination of sulphides from stationary sources, for use as the reference measurement method for determining H_2S levels in this study. Each gas sample was analyzed at least four times.

Experimental approach

The general experimental approach was to apply the spray treatment in the manure barrels while simultaneously collecting data using the H_2S monitors and gas samples for analysis using the GC system. The performance of the H_2S monitors were verified by comparing the readings from the monitor with the reference values obtained from the GC analysis. The effectiveness of the spray treatment was evaluated by comparing the H_2S levels in the enclosed chamber during tests without spray (Control) and with the application of spray (Treatment). Treatment tests were conducted using water only, and with the chemical additive mixed with the water at varying dilution levels. Preliminary tests were conducted to determine the operational parameters used for the main set of tests for spray additive testing.

H_2S monitor verification

To verify the performance of the H_2S monitors, the H_2S levels during the tests were measured continuously using the H_2S monitors while gas samples were collected simultaneously in sample bags. Each barrel was agitated for 1 min. Each gas sample bag was filled in a 1-min duration. For treatment barrels, the spray commenced 2 min after agitation (after collecting the first bag, designated as t=0 for the test) and lasted for 10 min. Thus, the gas sample bags were collected before the test (before t = 0), and at t = 1, 5, and 10 min. The H_2S levels in the sample bags were analyzed using the GC and compared with the corresponding H_2S monitor readings.

Spray additive testing

Evaluation of the effectiveness of the water-based spray treatment was conducted by running tests with spraying of water only, and with water and additive. The H_2S levels in the headspace of the barrel, determined using the H_2S monitors and from GC analysis of bagged gas samples, were compared with that from tests without spray treatment. The spray duration and additive dilution levels used were determined from preliminary tests.

RESULTS

Preliminary tests

Results from preliminary tests showed that average H_2S levels in the Control barrels (no spray) was gradually reduced to about 57% of initial values at t = 5 min and down to about 28% at t = 10 min. This drastic reduction was attributed to continuous aspiration of the barrel headspace as the gas stream was extracted from the barrel to pass through the H_2S monitors and to fill the sample bags. Water spray durations of 1 and 5 min did not show significant reduction in H_2S levels

Table 1. Summary of H_2S values determined using the GC system and H_2S monitor.

	H_2S concentration (ppm)	
	GC method (reference)	H_2S monitor
Mean (n = 131)	341.2 [a]	345.7 [a]
Standard Error	19.3	20.0
Minimum	4.0	2.0
Maximum	905.2	985.0
95% Confidence interval	38.2	39.6

a - indicates no significant difference between means at _ = 0.05.

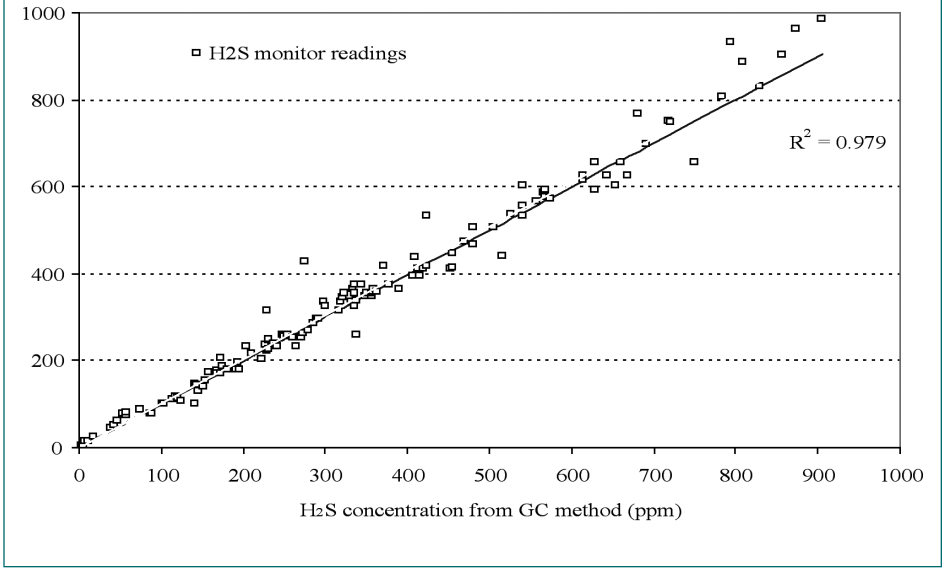

Figure 3. Plot of H_2S concentrations from the GC and the H2S monitor readings at varying concentration ranges. The solid line represents perfect agreement between readings from the two methods.

Table 1. Summary of H_2S values determined using the GC system and H2S monitor.

		GC H_2S concentration (ppm)				%Change (relative to t=0 values)		
Treatment		t = 0min	t = 1min	t = 5min	t = 10min	t = 1min	T = 5min	t = 10min
Control	Mean*	451.4	407.2	286.8	159.8	-12.0	-35.9	-64.6
(no spray)	SE	48.3	58.7	30.8	19.9	6.3	3.8	2.3
	n	9	9	9	9	9	9	9
Water	Mean	413.9	437.1	171.7	61.7	6.3	-56.5	-87.2
Only	SE	89.2	116.6	50.1	22.0	18.5	7.4	3.9
	n	9	9	11	10	7	9	9
25%	Mean	478.7	680.7	596.6	547.7	66.3	35.1	23.6
Additive	SE	68.6	104.5	103.3	134.9	30.8	29.4	34.0
	n	9.0	8.0	9.0	9.0	8.0	9.0	9.0
65%	Mean	311.7	403.5	334.6	374.4	33.2	-3.0	9.7
Additive	SE	37.8	50.5	90.6	114.3	13.7	16.2	30.8
	n	9	10	6	10	9	6	9

**combined replicates for each treatment from three trials, measured using the GC.*

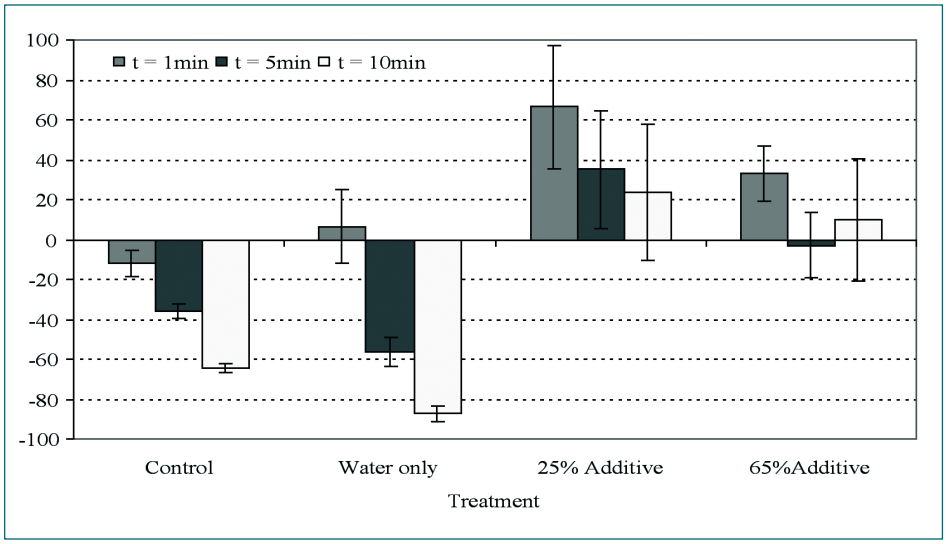

Figure 4. Average percent change in H_2S levels relative to initial concentration (at t=0) as influenced by the treatments applied. Each value is the average of at least 6 replicates; error bars represent Standard Error of the mean.

compared to the Control barrels. A 10-min spray showed consistent reduction to 49% and 13% (at t = 5 and 10 min, respectively), thus this spray duration was used in subsequent tests.

Use of pure (100%) additive did not pass through the spray nozzles because of its high viscosity. The solution was diluted progressively until a consistent spray pattern was attained (65%). This level was used as the maximum concentration of the spray additive in subsequent tests; a lower dilution level (25%) was also tested to determine if the additive would still be effective in reducing H_2S levels when used at a lower concentration.

Monitor performance verification

Summarized in Table 1 are the H_2S readings obtained from the bagged samples using the GC system and the H_2S monitor. Disregarding the values that exceeded the 1000-ppm limit of the monitor, a total of 131 paired readings were analyzed, with values ranging from 2 to 985 ppm H_2S. A paired t-test comparison showed no significant difference (P>0.05) between the GC values and the H_2S monitor readings. To determine if the performance of the H_2S monitor was affected by the concentration levels being measured, a plot of the H_2S monitor readings against the values from the GC (Fig. 3) yielded a R_2-value of 0.979 indicating close agreement between the values obtained from the two measurement methods. Comparison of mean readings at various concentration ranges (intervals of 100 ppm) also showed that the H_2S monitor yielded readings that were not significantly different (P>0.05) from those obtained from the GC method at all H_2S concentration ranges.

Spray and additive effectiveness

Three trials were completed to determine the effectiveness of the spray method for reducing the release of H_2S from agitated manure. For each trial, at least three barrels were assigned to each treatment. Results showed that spraying with water only caused an initial 6% increase in H_2S levels (at t = 1), followed by subsequent significant reduction in H_2S toward the end of the test (Table 2). The water spray treatment was consistently effective in all trials, reducing the H_2S levels by 87% relative to initial values, which is 23% lower than the Control tests (Fig. 4). A significant initial increase in H_2S levels was observed for spray treatments with chemical additive added at both dilution levels (65% and 25%); the cause for this spike is not yet clear at this time. However, the spray with additive treatment did not result in consistent subsequent reduction in H_2S levels at the latter part of the test.

The Bottom Line

The following conclusions can be drawn from this study:

1. the H_2S monitors showed values that were consistent with those indicated by the GC system, which was considered as the reference method in this study.
2. a water spray treatment could be effective in reducing the H_2S levels released from agitated manure. However, the spray application caused an initial rise in H_2S levels at the start of the spray treatment, followed by a significant reduction in H_2S levels as the treatment progressed.
3. the spray additive tested in this study caused a significant spike in H_2S levels when the spray was applied and did not help to reduce the H_2S levels for the remainder of the test.

ACKNOWLEDGEMENT

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A Review of Porcine Circovirus 2 Associated Diseases and Control

John C. S. Harding, DVM

Introduction

Since its discovery and characterization in western Canada in 1995, the significance and dissemination of post-weaning multisystemic wasting syndrome (PMWS) has grown and the syndrome is undoubtedly a serious issue in the global swine industry. More recently, there is a heightened interest in PMWS due to the explosive outbreaks in eastern Canada, particularly in Quebec and Ontario starting in late 2004.

PMWS is caused by Porcine Circovirus type 2 (PCV2), a small single stranded DNA virus. It is the only circovirus known to cause disease in mammals, but circoviruses cause numerous diseases in birds including chicken anemia virus and pssiticine beak and feather disease. By contrast, porcine circovirus type 1 (PCV1) does not cause disease in pigs, and is genetically and antigenically distinct from PCV2. In additional to PMWS of swine, PCV2 contributes to porcine respiratory disease complex (PRDC) and proliferative and necrotizing pneumonia (PNP). It has also been associated with several other conditions including humpy-back swine, porcine dermatitis and nephropathy syndrome (PDNS), congenital tremors (CT-AII), pre-natal myocarditis and reproductive failure. It is important to note that PCV2's involvement in these latter conditions has not been proven.

PCV2 infection is unmistakably necessary to cause PMWS (Krakowka et al., 2000; Kennedy et al., 2000; Bolin et al., 2001), yet the virus is ubiquitous and present in both diseased and healthy pig populations worldwide. Furthermore, serology collected from western and eastern Canadian farms in 1997/98 (Harding, 2000) demonstrated that PCV2 specific antibody levels among PMWS clinical and non-clinical herds were not significantly different. Clearly, the epidemiology and pathogenesis of the PCV2 associated diseases are complex and have challenged researchers, and made successful control programs challenging. However, there are several commercial vaccines awaiting Canadian registration that will substantially enhance on-farm control efforts.

Post weaning multisystemic wasting syndrome (PMWS)

There are several classic clinical signs of PMWS that form the basis of a preliminary clinical diagnosis. From most to least common these are enlarged lymph nodes, wasting, dyspnea, diarrhea, pallor, and jaundice (Harding et al., 1998a & 1998b; Cottrell et al., 1999; Harms, 1999a). While all of these signs will not be noted in a single pig, affected farms will be presented with the majority, if not all, over a period of time. Other clinical signs including coughing, fever, gastric ulceration, meningitis and sudden death have also been reported, but are less prevalent (Harms, 1999a; Wellenberg et al., 2000). Some may be caused in part or exacerbated by secondary infections, as PCV2 appears to be immunosuppressive.

The clinical signs of PMWS are traditionally restricted to the post-weaned aged groups, but particularly the late nursery and early grower stages, typically affecting pigs between 7 and 15 weeks of age (Harding et al., 1998b). Ironically, the 2004/05 Quebec outbreak appears to preferentially affect older finisher hogs; the reasons for which are not entirely clear. Before 2005, PMWS in North America caused low grade but persistent death losses. On rare occasion, severe epidemics resulting in substantially higher post-weaning mortality rates occurred. Persistent, high mortality has been noted commonly in Europe over the last decade. Ironically, it is likely that the same is happening at present in Canada after an 8-year period of quiescence. As such, I predict a slow progression of the severe clinical disease from eastern to western Canada, over the next 12-24 months. The reasons for the sudden explosive outbreaks in specific geographic regions are unknown. Current theories include the mutation of PCV2 into more virulent strain(s), the presence of a non-PCV2 but infective cofactor (Agent X), or changes in farm management that "trigger" the onset of disease. The latter is supported by the knowledge that certain vaccines adjuvants induce PMWS under experimental and some field conditions Allan et al, 2000).

The case fatality rate of clinically affected pigs is typically high, particularly in the early stages of the outbreak, but mortality can be lowered by the implementation of good management and therapeutic practices (Madec et al., 2000). Maintaining ideal pen density, age segregation and all-in-all-out pig flow with the timely removal of sick animals is widely recommended, as well as the review of vaccination usage plans. Preliminary in vitro studies on disinfectants demonstrate that many commonly used products are ineffective (Royer et al., 2000), which is consistent with our knowledge that other circoviruses are highly resistant to detergents and disinfectants.

Porcine Dermatitis and Nephropathy Syndrome (PDNS)

Porcine dermatitis and nephropathy syndrome is an immune-mediated vascular disease affecting the skin and kidney, originally described in the UK (Smith et al., 1993; White and Higgins, 1993). The most common clinical signs are the development of round or irregular shaped, red to purple skin lesions that coalesce to larger patches and plaques. The lesions are usually first noted in the hindquarters, limbs and abdomen but may progress to involve the thorax, flank or ears. Mildly affected animals may remain bright, alert and most often spontaneously recover. They do not generally have a fever. Severely affected animals may demonstrate lameness, fever, anorexia, or weight loss. Sudden death occurs but is rare. The characteristic lesion of PDNS is a systemic necrotizing vasculitis of the skin and kidneys. Grossly, the kidneys are enlarged, pale

and often covered with small petechial haemorrhages. Microscopic lesions are characteristic of a type 3 hypersensitivity, immune mediated disorder caused by the deposition of immune complexes in the vascular and glomerular capillary walls (Duran et al., 1997; Drolet et al., 1999).

PDNS affects nursery and grow-finish pigs and is generally sporadic (Thompson et al., 2000; Gresham et al., 2000). While a significant problem in Europe, PDNS is infrequent in Canada, but appears to be farm specific supporting the theory that PDNS is genetic-line dependent. There is a link between PDNS and PCV2; PCV2 antigen and/or nucleic acid has been found in the tissues of pigs with PDNS (Rosell et al., 2000) and has also been found associated with kidney lesions of affected pigs (Clark, unpublished). PDNS must be considered in the diagnostic investigation of pigs with skin and kidney lesions, especially skin diseases caused by Erysipelothrix rhusiopathiae and Actinobacillus suis.

Pre-natal Myocarditis and Reproductive Failure

The involvement of PCV2 in reproductive failure is most common in start up herds (Sanford, 2002), but is not a consistent finding in PMWS outbreaks. Following the original reports of PCV2 associated reproductive failure in 2 western Canadian herds in 1999 (West et al, 1999; O'Connor et al., 2001), similar reports have been made in Iowa, and western Europe (Ohlinger et al., 2000; Janke, 2000). Affected farms reported abortions, and elevated stillbirth and fetal mummification rates with variable amounts of PCV2 antigen present in fetal tissues, and in the cardiac lesions of affected piglets with myocarditis. PCV2 infection is also suspected in PMWS outbreaks of CDCD piglets (Jolie, et al., 2000; Harms et al., 1999b), further suggesting that vertical transmission is possible. Currently, scientists believe that reproductive disease associated with PCV2 is rare and that vertical transmission may not be a primary mechanism for disease dissemination. However, it has recently been reported that boars can shed PCV2 in semen for extended periods (McIntosh, 2005), and anecdotal field evidence supports a potential role of vertical transmission of PCV2 in some farms.

PCV2 Vaccines

At the time of writing, there are no licensed vaccines in the North American market, although several pharmaceutical companies have products in their pipeline. Public domain

Continued on page 8

On-Line Resource Known As The Disease Matrix - Extends the Work of Swine Tech Group to the Canadian Swine Industry

Lee Whittington, B.Sc., MBA and
Philip Willson, D.V.M., Ph.D.

INTRODUCTION

- The VIDO Swine Technical Group (VSTG) is comprised of people with expertise in many aspects of pork production. The group has previously published numerous practical production publications and has now developed an on-line database of information that focuses on economically important swine diseases.
- The ability to access new information is a key determinant in a successful business.
- This new internet-based information tool provides detailed information from credible sources including scientific journals, proceedings, and technical papers.
- Topics you will find in the DISEASE MATRIX include economically important diseases to the industry with six major areas of concern including understanding the disease, environmental controls, nutrition, pig management, prevention & treatment, and economics.
- Attendees at the Banff Pork Seminar 2006 received the first public access to this new information tool that can improve the speed and accuracy of pertinent information whether you are developing your disease management strategy, or dealing with a crisis when access to facts is critically important.

VISION

Linking knowledge to practical solutions

PURPOSE

- The purpose of the "Information and Technology Transfer Platform" is to provide a practical resource to the pork production industry to assist in identifying and implementing treatment, prevention, control of disease; improving productivity and managing health.
- This website is intended for use by primary producers. The presentation style, ease of understanding, low-jargon level all recognize the variation in disease experience that the pork producer, feed reps, genetics reps, pharmaceutical reps, veterinarians and veterinary students may have with regards to economically important swine diseases.
- The content will be a science-based information source of how to control swine disease by providing data, peer-reviewed articles, and photos of practical application, discussion and opinions of experts.
- This will translate science into practical management and demonstrate the inter-relation of a variety of aspects of disease control.
- VSTG will add to the value of the data by "vetting for relevance" and making comments about the application of the information to swine producers in Canada.
- This 'one-stop shop' for practical disease information can also serve as a link to health products suppliers by offering to host scientific information available from their research and development. This is an opportunity to provide links to others who provide similar relevant swine production information – with an appropriate fee.
- Web-based presentation only, no printed document will be produced at this time.

METHODOLOGY

- Information (data, peer-reviewed articles, photos of practical application, discussion and opinions of experts) will be critically evaluated for relevance prior to posting

FUNDING

- Alberta Livestock Industry Development Fund
- Human Resources Development Canada

Personal Profile

Donna Thomas

I became a part of the Prairie Swine Centre family on July 7, 2003 when I was offered the position of Accounting Technician. Having grown up on an acreage eight miles south of Saskatoon, with my parents and two sisters, I realized early in life how much I loved living and working in a rural setting.

After my husband convocated from the U of S in 1999 we ventured away from Saskatoon and settled in the much smaller community of Assiniboia, Saskatchewan. Shaun taught History at the local Comprehensive and I worked at the Southeast Regional College as an Administrative Assistant. After only three years Shaun accepted a position in Saskatoon as a History teacher at Evan Hardy Collegiate; we were on the move again, but we couldn't have been happier!

Upon our return home we took up residence in Clavet, "home is where the heart is" and Kendall began attending school at the local Composite, the same school that I attended and graduated from in 1992. Shaun was busy in his new position teaching and coaching and I set out to find an occupation that I would enjoy. For the first year I worked at Westcan Transport and then in 2003 was accepted into the PSCI family.

In 2004 a new addition was added to our family, a "bouncing baby boy" named Asher Douglas. Having worked just over a year at PSCI, I then took a year "off" to raise our son. I returned to PSCI in late September 2005.

Shaun and I keep extremely busy with our two children and our families' numerous extra curricular activities. Kendall is involved in basketball, soccer and piano. Asher is just plain busy as he continues to explore and learn; he is so much busier than his sister was! Shaun just finished his second degree in History and is now starting his Masters program at the U of S. As always, I am busy trying to keep everyone in order and on schedule while trying to find some quality time for myself. Thank goodness I can sneak away from Monday to Friday and enjoy my surroundings and colleges at PSCI.

Coming Events

Alberta Pork Congress
March 15-16, 2006
Red Deer, Alberta

Focus on the Future Conference
March 27-28, 2006
Saskatoon, Saskatchewan

Western Canadian Livestock Expo
April 19-20, 2006
Saskatoon, Saskatchewan

Continued from page 7

research documenting the efficacy of these experimental vaccines is limited, but the experimental and field research available is promising (Charreyre, 2005; Meng, 2005). The products under development are targeted at both the breeding herd, to enhance the passive immunity of piglets, and feeding herd, to initiate active immunity post-weaning. Both killed and attenuated live vaccines are under development. The use of autogenous vaccines has been suggested, however it is unlikely that autogenous PCV2 vaccines would be effective, and more importantly may not be safe, because PCV2 is difficult to grow in tissue culture, and is very resistant to inactivation.

Summary

Our understanding of the factors affecting the emergence and severity of PMWS on affected farms is lacking, as is a complete understanding of the epidemiology and potential triggering factors. The pattern of antibody development demonstrates that PCV2 actively circulates in farrow to finish farms in the early post-weaning stages (nursery, early grower) and that horizontal trans mission is significant. The presence of PCV2 antibody in non-clinical herds clearly indicates that PCV2 by itself is not capable of causing severe clinical disease yet PCV2 is absolutely required for PWMS infection. The potentiation of PMWS by co-infection with porcine parvovirus and PRRS virus has been proven experimentally (Krakowka et al., 2000; Kennedy et al., 2000; Harms et al., 2000) and is very likely a phenomenon in the field. Until vaccines are readily available in the Canadian industry, producers should enhance the biosecurity of their unit to minimize the risk of regional spread, and should limit the purchase of semen and/or live animals from countries and regions that have experienced epidemic outbreaks.

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Please send your cheque or money order to:

Lee Whittington, Managing Editor
Prairie Swine Centre Inc.
P.O. Box 21057, 2105 - 8th St. E.
Saskatoon, SK S7H 5N9 Canada

Tel: (306) 667-PIGS (7447)
Fax: (306) 955-2510
www.prairieswine.ca

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