

Claude Laguë, P.Eng., Ph.D.

Sask Pork Chair in Environmental Engineering for the Pork Industry

On January 1, 2000, Dr. Claude Laguë, P.Eng. became the first person to hold the Sask Pork Chair in Environmental Engineering for the Pork Industry. Dr. Laguë holds the joint positions of Professor & Chair holder in the Department of Agricultural & Bioresource Engineering of the University of Saskatchewan and he is also an Adjunct Research Scientist in Engineering at Prairie Swine Centre Inc. Born and raised on a dairy and grain farm in Farnham, Québec, Dr. Laguë obtained B.Sc.A. and M.Sc. degrees from Université Laval and a Ph.D. from the University of California – Davis all in Agricultural Engineering. Between 1982 and 1985, he worked as a Project Engineer for a major agricultural engineering consulting firm in Québec. Dr. Laguë held a faculty position in Agricultural Engineering at

Université Laval from 1989 to 1999 where he also assumed the duties of Department Head and of Associate Dean for Research. While at Laval, his teaching and research interests focused on the engineering of agricultural machinery and equipment. Dr. Laguë is a registered Professional Engineer in Québec and Saskatchewan. He is also a member of the Canadian Society of Agricultural Engineering (CSAE/SCGR), of the American Society of Agricultural Engineers (ASAE), of the Society of Automotive Engineers (SAE) and of the American Society for Engineering Education (ASEE). In 1998, he received the "Young Engineer of the Year Award" from CSAE/SCGR.



Dr. Claude Laguë

Research program

The primary objective of the Sask Pork Chair position is to develop and to conduct an enhanced program of engineering research on manure management engineering that is strategic, increases profitability, minimizes negative environmental impacts, makes maximum use of existing infrastructure and is collaborative.

Another important responsibility of the Chair is to act as a key technical resource on manure management for both the pork industry and the general public. Dr. Laguë is planning on using a systems engineering approach to address manure management challenges and opportunities in livestock production. Such an approach involves the
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Program funding provided by



Graduate Student Profile

Matt Oryschak was born in Saskatoon, but moved with his family to Calgary in 1986 where he did the majority of his schooling. Although a city-dweller his whole life, he gained an interest in agriculture while spending time at his aunt and uncle's purebred Red Angus farm, north of Saskatoon. After his high school graduation in 1994, he attended the University of British Columbia in Vancouver, earning his B.Sc. (Ag) honors degree, majoring in Animal Science from the Faculty of Agricultural Sciences in 1998. During the summers throughout his B.Sc. degree, he worked as an assistant herdsman at a purebred Hereford ranch south of Calgary. He then returned to Saskatoon in July of 1998 to begin his M.Sc. research under the guidance of Dr.



Matt Oryschak

Ruurd Zijlstra. For his M.Sc. research, Matt is studying the effect of particle size and enzyme supplementation on nutrient excretion in grower pigs. With the expected expansion of the hog industry in the western provinces in the near future, successfully managing the nutrient output from intensive hog operations will be key in ensuring the sustainability and long-term viability of the industry. Investigating practical means of reducing nitrogen and phosphorus excretion should prove beneficial to the individual producer towards achieving this goal. Matt studied the effect of particle size and enzyme supplementation on nitrogen and phosphorus excretion of growing pigs by comparing three particle sizes (400; 700; and 850 μ m,) and four

enzyme treatments (control; β -glucanase/xylanase; phytase, and a combination of the two enzymes) for a total of twelve treatments. Diets (70% barley, 25% peas) were formulated to contain 3250 kcal/kg, 1.6 g digestible Lys/Mcal and 0.12% available P, and were fed in wet mash form. Sixty pigs were housed in metabolism pens to obtain five observations per treatment.

The Bottom Line

Results suggested that particle size had a greater effect on nitrogen excretion, while phytase supplementation affected phosphorus excretion. Also, particle size and enzyme supplementation did not appear to interact for total nitrogen or phosphorus excretion.

Matt is currently finishing the statistical analyses for his experiments and hopes to defend his thesis in the spring of 2001.

Symeon Zervas was born in Arta, Greece, where he did the majority of his schooling. After his graduation in 1989, he attended the Aristotle University of Salonica, earning his B.Sc. degree in Agriculture with a major in Animal Science in 1995. His interest in the swine industry stems from his days growing up working on his father's hog farm. In 1998, Symeon decided to pursue a Master's degree in Animal Science and moved to Saskatoon to work under the guidance of Dr. Ruurd Zijlstra at the Prairie Swine Centre/University of Saskatchewan.



Symeon Zervas

For his M.Sc. research, Symeon is studying the effect of crude protein and crude fiber on nitrogen excretion in pigs. Successful nutrient management is


important for sustainable pork production. Nitrogen is of major concern because of its impact on inside and outside barn environment.

The objectives of Symeon's experiments were (1) to study the effect of dietary protein and fiber on nitrogen excretion patterns and (2) to relate plasma urea nitrogen to urinary nitrogen excretion. Three levels of protein and two levels of fiber were tested with 42 grower pigs. Diets (wheat, barley, soybean meal and oat-hulls as a crude fiber source) were formulated to 3250 kcal DE/kg and 2.18 gDlys/Mcal, supplemented with synthetic amino acids to maintain a similar content of digestible amino acids. Pigs were housed in confinement-type metabolism crates for 19 days. On day 10 or 11, catheters

were installed by cranial vena cava venipuncture. Feces and urine were collected from day 15 to 19. Five blood samples were collected in two-hour intervals on days 16 and 19.

The Bottom Line

Symeon found that reduction of dietary protein is an effective means of reducing nitrogen excretion, especially urinary nitrogen. However, further research is required to maintain protein deposition. Development of a model to predict urinary nitrogen excretion and nitrogen status from plasma urea nitrogen concentrations might allow successful implementation of nutrient management strategies under commercial farm conditions.

Symeon is currently working on the final statistical analysis for this data and hopes to defend his thesis in the spring of 2001. 

Two-Airspace Building Design For Reducing Odour and Gas Emissions From Pig Farms

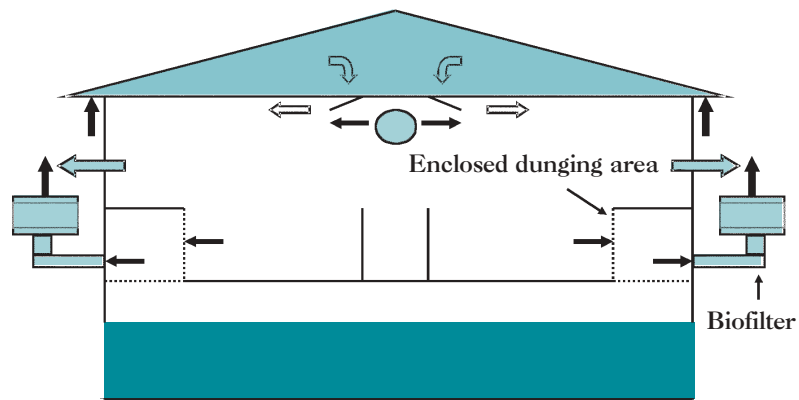
S.P. Lemay¹, H.W. Gonyou¹, J. Feddes², E.M. Barber³ and R. Coleman⁴

Air quality in the barn and in its vicinity

Odour and gas emissions from swine operations can be a nuisance to nearby residents. In Canada, most pig barns have outside manure storage resulting in two odour sources on the farm: the building and the storage facility. By keeping the manure inside the building, the nuisance sources would be reduced from two to one. A two-airspace building concept where pigs would dung in an enclosed dunging area (EDA) above the slats could result in an improvement of the barn air quality as the odour and gases from dunging and the manure itself would be contained in the EDA. By extracting part of the ventilation rate through the EDA and treating this air with a biofilter, the overall emissions from a swine operation could be reduced.



The EDA design implemented at PSCI



Schematic of the two-airspace building design

Objectives

The objectives of the project were:

- To construct an EDA that will:
 - be consistently used by the pigs.
 - minimize odour/gas transfer to the pig/worker airspace.
- To observe the pig behaviour in a pen equipped with an EDA.
 - To design and test 4 types of opening for the EDA (no door, solid door, strip curtain and air curtain).
 - To construct and evaluate a two-airspace ventilation system.
 - To investigate the use of biofiltration for

odour removal from EDAs.

- To measure odour and gas emissions from a feeder barn provided with EDAs and biofilters.

This project was conducted at two locations: at Prairie Swine Centre (PSCI) for the engineering development of the EDA concept and pig behaviour analysis and at the University of Alberta for the development of the biofilter and its implementation with the EDA. This article summarizes the work completed at PSCI.

The development of the two-airspace concept

The EDA design was established through different steps to analyze the different components of the new concept and their impact on the pigs.

- Air containment tests were performed in laboratory at University of Saskatchewan to verify the potential of the EDAs for gas containment.

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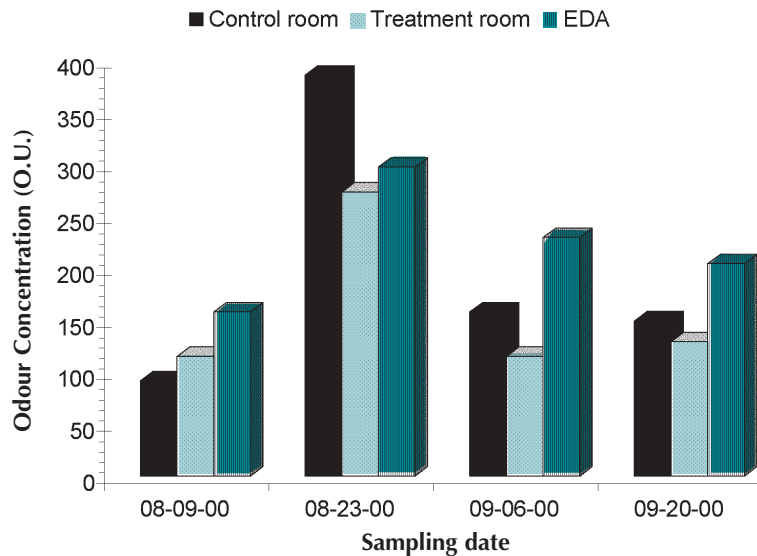
- Behavioural studies of the pigs using open EDAs were conducted at PSCI.
 - Engineering modifications to the EDA design were implemented to help control pig dunging behaviour and to reduce gas containments.
- The most promising EDA was selected based on thorough in-barn testing at PSCI and was equipped with:
- a full strip curtain that covered the whole width of the pen greatly improved pig usage of the EDA and cleanliness of the pens;
 - bars were laid on the slats and intermittent water sprinkling used for a few days to discourage pigs from sleeping in the EDA.

Results

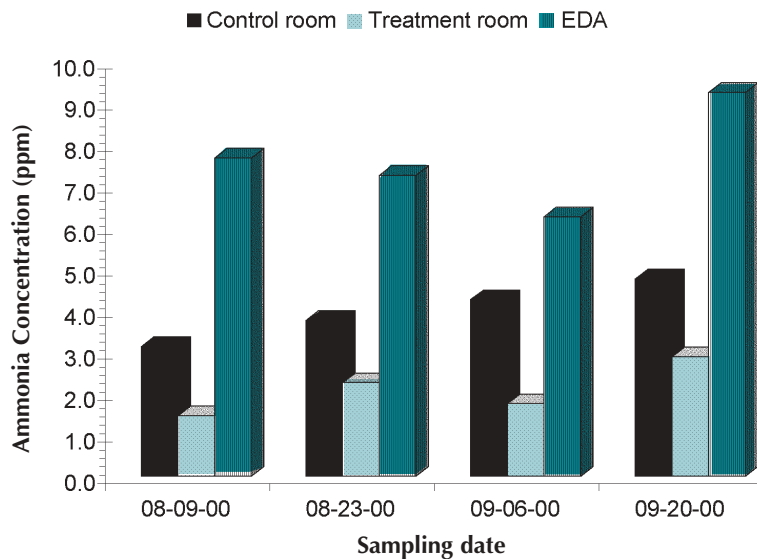
The figures show the impact of the two-air-space concept on odour and ammonia concentrations of a conventional grower-finisher room (control room) and a similar room equipped with EDAs (treatment room). Air samples were taken in the middle of the rooms and inside the EDA. Over the four sampling periods, odour concentration measurements showed a 20% reduction in the treatment room compared to the control room. No consistent differences were measured inside the EDA over the study period. The ammonia concentration was reduced by 40% in the treatment room compared to the control room. However, the concentration in the EDA was more than double what was measured in the treatment room which shows a good gas containment by the two-air-space concept. No consistent differences were observed for the hedonic tone of the odour or the carbon dioxide concentrations.

The Bottom Line

Odour and ammonia concentrations are reduced with the full curtain EDA that was developed for the two air-space building design:



Odour concentration measured with the full curtain EDA (PSCI)



Ammonia concentration measured with the full curtain EDA (PSCI)

- 20 and 40% reductions were measured for odour and ammonia, respectively;
 - No difference was observed on the hedonic tone and the carbon dioxide concentrations.
- Further steps have to be completed on this project:
- A full data analysis of the pig behaviour and odour and gas measurements on the results obtained at PSCI;
 - The experiment continues with a room equipped with EDAs and biofilters at the University of Alberta

Acknowledgements

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² University of Alberta, Edmonton, AL;

³ University of Saskatchewan, Saskatoon, SK;

⁴ Alberta Research Council, Vegreville, AL.

Motivating Employees

Mary Petersen, B.Ed.

There have been volumes written about motivating employees and as a manager you may wonder exactly what your role is in this motivational process. You are the link between the organization and the employee and your role is to ensure that employees are meeting the organizational goals. This does not happen by chance, but where do you begin?

A good place to start is by getting to know your staff. Each employee is an individual and has different needs. A number of things motivate employees to work. Wages will often attract an employee to work in your organization, but wages are not the sole motivational factor for employee retention. There are a number of other factors which come into play such as job satisfaction, social interaction, working conditions, job security, proximity to home and personal growth. For example, the young woman working in the farrowing room, may enjoy her job because she loves to work with baby animals. The fellow in the grow/finish barn may like to work alone. The teenager, who just started, may like working close to home as he is saving money to go to college. It is the manager's role to determine which factors motivate an individual employee.

Motivation is something that comes from within each individual. As a manager you cannot motivate someone, but you can provide the employment climate conducive for each employee so that he/she will motivate themselves. Talk to your employees and as you get to know them you will know what their individual needs are that motivate them to get up and come to work each day.

A manager must recognize that the power of his organization is the people employed in it. Your role is to tap into that power. The tap will open if your organization looks for positive things to praise. Rather than look for things that are wrong, a manager should look for

things that are right and give honest praise to his/her employees. Praise immediately. Don't wait! There are times when you must look hard to find something good to praise. Some young people at their first job need to be praised if they come to work on time each day. Look for little things as well as large. Praising your staff is a way to express your feelings - good feelings. Be creative in your praise, vary your methods. A verbal, "Good job!" could be varied with a sincere smile and a nod. You may offer your praise at a staff meeting. You may wish to ask an employee for input into a decision especially if the decision affects him. Can you imagine how good this makes the employee feel?


Watch your own body language. If you have a positive attitude, it will reflect on your entire demeanor which includes your facial expression, your walk, your stance, your gestures. Any work environment is more enjoyable when you are surrounded by happy people with positive attitudes. Smiles are free. Do you know where your smile is? Remember that you, as the manager, set the tone!

Every manager should occasionally let down his guard, roll up his sleeves and get dirty with the rest of the employees. A manager who shows that

he/she is really like everyone else and shows that he/she is not afraid of dirty work will gain the respect of his/her employees. Imagine if the manager helps the employees get the job done so that everyone can leave a half hour early on a Friday.

Develop and implement a good orientation for new employees. Your investment with an employee starts immediately. Ensure that he/she knows the organizational goals, the policies and his/her own duties. Remember to be patient and be prepared to repeat your instructions.

Take Home Message

Your employees have different learning styles and you may have to vary your method of instruction. Some employees can be told and they will remember. Others have to write down the instructions or have written instruction to follow. Still others will need to be shown and then do it themselves. A good manager will allow for these different learning styles and vary his/her methods of instruction accordingly. Motivating employees is not magical, it is a matter of building good relationships with your people. Remember, people are your organization's most valuable asset! 

Management Training for the Swine Industry

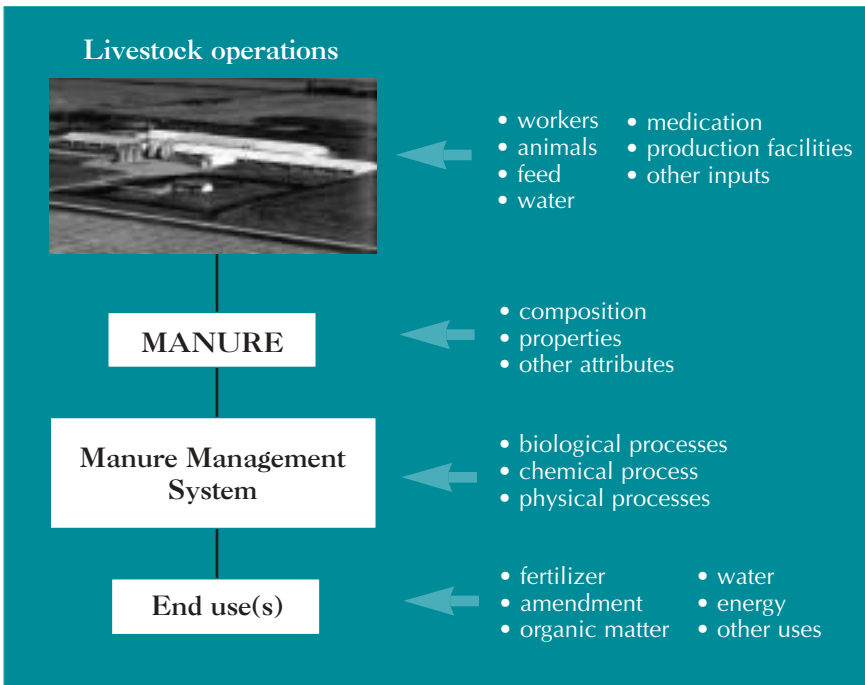
Alberta Schedule	
Date	Course
January 10	Managing Piglet Feeding
February 6 & 7	Herd Health
March 27	Grow-Finish Feeding
April 24 & 25	Being an Effective Manager
May 15 & 16	Environmental Management
June 12	Conflict Resolution

Delivery Location : Olds College
To register call: 1-800-661-6537

Saskatchewan Schedule	
Date	Course
January 9 & 10	Issues in Agricultural Management (Hog Barn Safety and developing Positive Employee Relations)
February 13	Managing Piglet Feeding
March 20	Budgeting
April 17 & 18	Environmental Management
May 8	Conflict Resolution
June 19	Grow/Finish Feeding

Delivery Location: Watrous, SK
To register call: 1-306-946-2094

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Schematic of a complete manure management system

complete characterization of manure management systems in terms of inputs, internal processes and outputs or end uses (see figure). It also requires the identification of selection criteria (agronomic, economic, environmental,

social, technical) and the assessment of their relative importance for the design or selection of optimal manure management systems adapted to the specific needs of individual livestock operations. 🐷

Introducing

The Prairie Swine Centre would like to introduce Charlotte O'Keefe. The staff at PSCI feel it is their good fortune that Charlotte joined them on Sept 5 as secretary/receptionist. Charlotte and her husband, Rod, moved to Saskatoon from Winnipeg in June 1999 when Rod accepted the position of Operation Manager at N Yankee Transfer. They have two daughters, who remained in Winnipeg. Even though Charlotte misses her daughters she phones them each evening and has brought two adorable cats into her household.



Charlotte O'Keefe

organizational skills, professionalism and warm, easy-going personality makes her popular with staff and visitors. She has a wonderful sense of humor that she enjoys sharing with everyone.

Charlotte's hobbies are cross-stitching, cooking and walking. She and her

husband have traveled to Hawaii, Vegas, Mexico and various parts of the US and Canada. They also traveled to Europe on their 25th Anniversary. The European holiday and the Mexican holidays were the most enjoyable and memorable in Charlotte's opinion.

The next time you phone the Swine Centre, you will hear Charlotte's pleasant voice greeting you. 🐷

Charlotte brings to the Centre twelve years of experience as an administrative assistant with a telecommunications company. Charlotte's excellent

Coming Events

Banff Seminar

Banff, Alberta

January 23 - 26, 2001

For more information call
Ruth Ball (780) 492-3236
e-mail: bps@afns.ualberta.ca

Manitoba Swine Seminar

International Inn, Winnipeg, Manitoba

January 31 & February 1, 2001

For more information call
Ian Seddon (204) 945-0353
e-mail: iseddon@agr.gov.mb.ca

Focus on the Future Conference 2001

Red Deer, Alberta

February 20 & 21

For more information call
Ken Engle (306) 667-7446
e-mail: englek@sask.usask.ca

23 Annual Sask Pork Expo

Saskatoon, Sask

March 6 & 7, 2001

Trade Centre, Saskatoon
Prairieland Exhibition Park

Show Hours:

Tue. March 6, 11am - 5pm
Wed. March 7, 10am - 5pm

Trade Show & Information Sessions

For more information call

Wendy Hayes
933-5078(phone) 933-7352 (fax)
whayes@agr.gov.sk.ca

Alberta Pork Congress

Red Deer, Alberta

March 14 - 17, 2001

For more information call
Darryl Ulledal (403) 346-2282



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