



The Sask Pork Chair in Environmental Engineering for the Pork Industry at the University of Saskatchewan

Claude Laguë, P.Eng., Ph.D.^{1,2}

¹Professor and Chair Holder, Department of Agricultural & Bioresource Engineering, University of Saskatchewan, 57 Campus Drive, Saskatoon, SK., S7N 5A9

²Adjunct Research Scientist – Engineering, Prairie Swine Centre Inc., P.O. Box 21057, 2105-8th Street East, Saskatoon, SK, S7H 5N9;



The Message

The Sask Pork Chair in Environmental Engineering for the Pork Industry (the Chair) was established at the University of Saskatchewan (U. of S.) in January 2000. The Chair is a fixed term (2000 – 2003), **industry-funded** (Sask Pork and Prairie Swine Centre Inc. (PSCI)) faculty position in **Agricultural Engineering** at the U. of S. and at PSCI and it provides the **swine industry** and the **research community** with additional expertise and resources to address manure management engineering issues.



To focus on global balances of manure components (mineral, organic, water) and on the interactions that exist between them taking into account the **value** of the products and the **efficiency** and the **economics** of the processes.

To address environmental and societal (nuisances) issues.

To conduct collaborative R&D work:

- ✓ with other researchers at U. of S. and other universities (agriculture, engineering, environment, health);
- ✓ with industry (producers, PAMI, PSCI, equipment manufacturers, livestock associations and organizations);
- ✓ with government (local, provincial, federal).

To use existing research infrastructure and equipment:

- ✓ **PSCI's Floral site**: manure characterization and handling, treatment, odour emissions;
- ✓ **PSC Elstow Research Farm**: manure characterization and handling (at the pen level), storage, handling, long distance transportation, land application, treatment, odour emissions;
- ✓ **Prairie Agricultural Machinery Institute (PAMI)**: handling and land application equipment, fabrication capabilities;
- ✓ **U. of S.**: manure analyses and characterization, nutrient sensing, development of sensors and controls.
- ✓ **Other organizations**

Introduction

- ✓ **Environmental issues**, including manure management, are critical for the continuous development and growth of the pork industry;
- ✓ **Urgent research and development (R&D) needs** on the engineering of manure management strategies and systems;
- ✓ The Chair is a **response** of the industry and of the research community to these needs.

Responsibilities of the Chair

- ♦ To establish a **strategic research program** on manure management engineering;
- ♦ To initiate and develop **collaborations** with industry, academia and government;
- ♦ To act as a **research focal point** within the three Prairie Provinces and as a **key technical resource** on manure management engineering issues for the benefit of the swine industry and of the general public;
- ♦ To **supervise graduate students** that are completing manure management engineering research;
- ♦ To **teach** modules related to manure management engineering within senior undergraduate and graduate courses, and,
- ♦ To report to an **Advisory Board** (industry, academia, government) for feedback and directions.

Research Program

To provide engineering solutions for optimizing the use of manure as a resource in the Prairies:

- ✓ As a source of nutrients (N, P, K, S and others) for crops;
- ✓ As a source of organic matter (C) for soils;
- ✓ As a source of energy (C);
- ✓ As a source of water for crops and soils;
- ✓ As a source of water for in-barn uses (ex. flushing);
- ✓ Combinations of the above.

To focus on the complete manure management chain:

- ✓ In-barn handling and storage;
- ✓ Storage;
- ✓ Agitation and emptying of storage facilities
- ✓ Handling and transportation;
- ✓ Land application;
- ✓ Treatment and value-added processing.



Conclusion

The Sask Pork Chair in Environmental Engineering for the Pork Industry is committed to make significant contributions to the engineering of manure management systems that optimize the use of manure as a valuable resource.



Acknowledgements

Funding for the Sask Pork Chair in Environmental Engineering for the Pork Industry is provided by Sask Pork and Prairie Swine Centre Inc.