

## ALVIN CENIZA ALVARADO

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Prairie Swine Centre Inc.  
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2105 8<sup>th</sup> St. East, Saskatoon  
Saskatchewan, Canada S7H 5N9  
Office phone: +1 (639) 398-2555

## EDUCATION

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- On-going      **Ph.D. in Biological Engineering, University of Saskatchewan, Canada**
- 2011            **M.Sc. in Agricultural and Bioresource Engineering, University of Saskatchewan, Canada**  
Thesis Title: Control of hydrogen sulphide, ammonia and odour emissions from swine barns using zinc oxide nanoparticles
- 2005            **B.Sc. in Agricultural Engineering, Visayas State University, Philippines**  
*Cum Laude*  
Thesis Title: Geomorphologic characterization and discharge determination of Pagbanganan river watershed.

## PROFESSIONAL EXPERIENCE

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### RESEARCH

#### Prairie Swine Centre Inc., Saskatoon, SK, Canada

2020-2024      **Research Officer – Engineering**

##### Responsibilities:

- Performed day-to-day management and supervision of research staff and the research activities conducted within the Engineering program
- Mentored and supervised more than 10 highly qualified personnel (i.e., 2 Postdocs, 5 graduates students, 7 research technicians, 3 undergraduate students)
- Fostered international collaborations with Xavier University – Ateneo de Cagayan (Project title: Mitigating mycotoxin contamination in feed grains using nanotechnology) and Central Luzon State University (Project title: Development of rapid test kits for detection of Porcine Endemic Diarrhea virus)
- Developed research work plans and designed experimental protocols according to project needs, ensuring that projects are completed on schedule and within budget
- Managed the setting up and carrying out of experiments according to proper research methods and procedures
- Monitored and reviewed data collected during the course of the project to ensure scientific integrity and validity of the data set
- Managed, analyzed and interpreted research results and prepared drafts of reports and other publications

- Assisted in the development of more than 10 research proposals for grant applications
- Published scientific papers in technical journals, magazines and conference proceedings
- Performed administrative, record-keeping and financial reporting tasks related to managing project resources including personnel, budget, and materials and equipment

#### **Xavier University – Ateneo de Cagayan, Philippines**

2021-2022      **Visiting Scientist** (in collaboration with Prairie Swine Centre Inc.)

##### **Responsibilities:**

- Worked on a research project on mitigating mycotoxin contamination in feed grains using nanotechnology
- Developed research protocol and experimental set-up
- Mentored and supervised more than 5 research staff

#### **Prairie Swine Centre Inc., Saskatoon, SK, Canada**

2011-2017      **Research Assistant - Engineering**

##### **Responsibilities:**

- Implemented air quality monitoring program including monitoring of particulate matter, odor, noise greenhouse gases and other criteria contaminants in swine production facilities
- Acquired significant experience in the installation, operation, and maintenance of data logging systems and monitoring equipment for gases, particulate matter, noise, microorganisms, temperature, relative humidity and ventilation rates
- Managed and analyzed large data sets in MS Excel and other statistical packages (SAS and SPSS)
- Prepared reports for various funding agencies and research partners; published scientific papers in technical journals, magazines and conference proceedings; presented findings in academic and industry conferences
- Assisted in the development of more than 15 research proposals for funding
- Managed project resources including budget, personnel (research technicians, graduate and summer students), and associated materials and equipment

## **INDUSTRY**

#### **Environmental Resources Management (ERM) Consultants Canada Ltd., Saskatoon, SK, Canada**

2020-2021      **Scientist and Consultant II – Air Quality** (Part-time)

2017-2020      **Scientist and Consultant II – Air Quality** (Full-time)

##### **Responsibilities:**

- Led the implementation of air quality, meteorology and noise monitoring programs at a proposed Potash mine
- Managed more than 10 subcontractors and other junior staff
- Extensively involved in equipment installation, audit and maintenance, calibration and Quality Assurance/Quality Control (QA/QC) for several ambient air monitoring stations

- Lead author for air quality, noise and meteorology reports for various clients across Canada, US and Australia
- Extensively involved in data management and QA/QC
- Assisted other environmental monitoring programs such as environmental impact assessment, GHG reporting, water quality, groundwater monitoring, wildlife management, among others
- Assisted in the preparation of project proposals

## INSTRUCTION

### Visayas State University, Baybay City, Leyte, Philippines

2006-2009

#### Instructor

##### Responsibilities:

- Taught undergraduate courses such as algebra, trigonometry, physics, calculus, food engineering
- Designed and developed teaching and laboratory manuals, exam questions and assignments using MS Word and Excel
- Spearheaded academic activities (quiz bowls, tutorials and social gatherings) involving students, faculty and staff

## ACADEMIC & PROFESSIONAL HONORS

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2022-2025	Canada Graduate Scholarship – Doctoral Program (Highest-scored Doctoral Applicant), Natural Science and Engineering Research Council of Canada (NSERC); Value - \$105,000
2024	Environmental Protection Innovator Award, 2024 Bayanihan Gawad Parangal Canada, Bayanihan Community Services Canada, Inc., Canada
2024	Best Oral Presentation, 2024 Canadian Society for Bioengineering Annual Conference
2021-2024	Dean's Scholarship, University of Saskatchewan; Value - \$66,000
2013	Best Graduate Thesis Award, Canadian Society for Bioengineering
2011	Dr. R.O. Ball Young Scientist Award, Banff Park Seminar, Canada
2011	University of Saskatchewan Graduate Scholarship, University of Saskatchewan
2009	ABE Devolved Scholarship, Department of Agricultural and Bioresource Engineering, University of Saskatchewan; Value - \$7,013
2005	First Place, Agricultural Engineer Licensure Examination, Professional Regulation Commission and Board of Agricultural Engineers, Philippines
2005	<i>Cum Laude</i> , Bachelor of Science in Agricultural Engineering, Visayas State University, Philippines
2005	Civil Service Eligibility (Presidential Decree # 907), Civil Service Commission, Philippines

## PROFESSIONAL ACTIVITIES

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### AFFILIATIONS

Member	American Society of Agricultural and Biological Engineers (ASABE)
Member	Canadian Society for Bioengineering (CSBE)

Member                      International Commission of Agricultural and Biosystems Engineering (CIGR)

## JOURNAL PEER-REVIEW

Peer-reviewer            Transactions of the ASABE  
Applied Engineering in Agriculture  
Annals of Work Exposures and Health

## CONSULTING

2018-2020                Environmental Impact Assessment, Highland Valley Copper Mine, Teck Resources Ltd., Canada

2017-2020                Implementation of air quality, meteorology and noise monitoring programs, Jansen Potash Projects, BHP Billiton, Canada.

2017-2020                Management and review of meteorology data, KSM Project, Seabridge Gold Inc., Canada

2017-2020                Management and review of meteorology data, Galore Creek Project, Galore Creek Mining Corp., Canada

2017-2020                Management and review of meteorology data, Brucejack Project, Pretium Resources Inc., Canada

## PUBLICATIONS

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### JOURNALS (PEER-REVIEWED)

Accepted/ Published

1. **Alvarado, A.**, Chekabab, S., Predicala, B. and Korber, D. 2022. Impact of raised without antibiotics measures on antimicrobial resistance and prevalence of pathogens in sow barns. *Antibiotics*. 11 (9): 1221. <https://doi.org/10.3390/antibiotics11091221>. [Indexed in Web of Science and Scopus]
2. **Alvarado, A.** and Predicala, B. 2022. Control measures for airborne ammonia and respirable dust exposure in swine barns. *International Journal of Environmental Health Research*. 32(9):2083-2097. <https://doi.org/10.1080/09603123.2021.1942437> [Indexed in Web of Science and Scopus]
3. Chekabab, S., Lawrence, J.R., **Alvarado, A.**, Predicala, B. and Korber, D.R. 2021. Piglet gut and in-barn manure from farms on a Raised Without Antibiotics program display a reduced antimicrobial resistance but an increased prevalence of pathogens. *Antibiotics*. 10(10): 1152. <https://doi.org/10.3390/antibiotics10101152> [Indexed in Web of Science and Scopus]
4. **Alvarado, A.**, Cabahug, J. and Predicala, B. 2021. ATP bioluminescence method as a rapid tool for assessment of cleanliness of commercial animal transport trailers. *Canadian Biosystems Engineering/Le génie des biosystèmes au Canada* 62: 5.1-5.7. <https://doi.org/10.7451/CBE.2020.62.5.1> [Indexed in Web of Science and Scopus]
5. Kpogo, A., Jose, J., Panisson, J., Agyekum, A., Predicala, B., **Alvarado, A.**, Agnew, J., Sprenger, C., and Beaulieu, D. 2021. Greenhouse gases and performance of growing pigs fed wheat-based diets containing wheat millrun and a multi-carbohydrase enzyme. *Journal of Animal Science* 99:10. <https://doi.org/10.1093/jas/skab213> [Indexed in Web of Science and Scopus]

6. Chekabab, S., Lawrence, J.R., **Alvarado, A.**, Predicala, B. and Korber, D.R. 2020. A health metadata-based management approach for comparative analysis of high-throughput genetic sequences for quantifying AMR reduction in Canadian hog barns. *Computational and Structural Biotechnology Journal*. 18: 2629-2638. <https://doi.org/10.1016/j.csbj.2020.09.012> [Indexed in Web of Science and Scopus]
7. **Alvarado, A.** and Predicala, B. 2019. Occupational exposure risk for swine workers in confined housing facilities. *Journal of Agricultural Safety and Health*. 25(1): 37-50. <https://doi.org/10.13031/jash.12990> [Indexed in Web of Science and Scopus]
8. **Alvarado, A.** and Predicala, B. 2017. Control of gas and odour levels in swine facilities using filters with zinc oxide nanoparticles. *Transactions of the ASABE*. 60(3): 943-956. <https://doi.org/10.13031/trans.12010> [Indexed in Web of Science and Scopus]
9. **Alvarado, A.**, Predicala, B. and Asis, D. 2015. Mixing nanoparticles with swine manure to reduce hydrogen sulfide and ammonia emissions. *International Journal of Environmental Science and Technology*. 12:893-904. <https://doi.org/10.1007/s13762-013-0474-y> [Indexed in Web of Science and Scopus]
10. Predicala, B. and **Alvarado, A.** 2014. Alternatives for animal drinking and barn cleaning to reduce water use in swine facilities. *Canadian Biosystems Engineering Journal*. 56: 5.7-5.15. <http://dx.doi.org/10.7451/CBE.2014.56.5.7> [Indexed in Web of Science and Scopus]

#### Submitted

1. Baguindoc, M., **Alvarado, A.**, Korber, D. and Predicala, B. 2024. Control of pathogens in pig production facilities using alternative disinfection strategies. *Applied Engineering in Agriculture*. Submitted.

### CONFERENCES/TECHNICAL PRESENTATIONS

1. **Alvarado, A.**, Baguindoc, M., Kirychuk, S. and Predicala, B. 2024. Protecting pigs against airborne transmissible diseases during transport using an air-filtered trailer. Paper No. 201. 2024 CSBE-SCGAB AGM and Technical Conference. Winnipeg, Manitoba, Canada. 7-10 July 2024.
2. Matuba, N., **Alvarado, A.** and Predicala, B. 2024. Optimizing environmental temperature requirements of pigs to reduce energy use in swine production. Paper No. 212. 2024 CSBE-SCGAB AGM and Technical Conference. Winnipeg, Manitoba, Canada. 7-10 July 2024.
3. **Alvarado, A.**, A. Asok, D. Obaob, M. Mosqueda, H. Rabanes, D. Beaulieu, and Predicala, B. 2023. Nanotechnology treatment for decontamination of deoxynivalenol (DON) in wheat grains. Saskatchewan Pork Industry Symposium. Saskatoon, SK. 7-8 November 2023.
4. **Alvarado, A.**, Baguindoc, M. and Predicala, B. 2023. Development of a mechanically ventilated transport trailer fitted with air filtration system to enhance biosecurity and animal welfare during transport. Paper No. 206. 2023 CSBE-SCGAB AGM and Technical Conference. Lethbridge, Alberta, Canada. 23-26 July 2023.
5. **Alvarado, A.** 2022. Supporting the Canadian Pork Industry through Research: the Prairie Swine Centre Story. Invited presentation at XUCA Online Webinar hosted by Xavier University - Ateneo de Cagayan, Cagayan de Oro City, Philippines. 17 January 2022.
6. Predicala, B., **Alvarado, A.**, Chekabab, S., and Korber, D. 2022. Impact of antibiotic-free production practices on the prevalence of pathogens and emergence of antimicrobial resistance in pig barns. The XX CIGR World Congress 2022. Kyoto International Conference Centre, Kyoto, Japan. 07 December.

7. **Alvarado, A.**, Asok, A., Obaob, D.V., Mosqueda, M.R., Rabanes, H., Beaulieu, D., Predicala, B. 2022. Application of nanotechnology for mitigation of deoxynivalenol (DON) contamination in wheat grains. Paper No. 241. 2022 CSBE-SCGAB AGM and Technical Conference. Charlottetown, Prince Edward Island, Canada. 24-27 July 2022.
8. Cabahug, J., **Alvarado, A.**, Kirychuk, S. and Predicala, B. 2021. Development of an air-filtered trailer for enhanced biosecurity and welfare during transport. In *Proceedings of the 5<sup>th</sup> International Conference of the International Commission of Agricultural and Biosystems Engineering (CIGR)*. Quebec City, Canada. 11-14 May 2021.
9. **Alvarado, A.**, Predicala, B., Baah, R. and Cabahug, J. 2017. Impact of re-designing ventilation system of gestation barns converted from stalls to group sow housing system. Paper No. CSBE17-160. 2017 CSBE/SCGAB Annual Conference. Winnipeg, MB. 6-10 August.
10. **Alvarado, A.**, Predicala, B., Cabahug, J. and Kirychuk, S. 2017. Design and evaluation of a prototype mechanically ventilated swine transport trailer with air filtration system. Technical presentation at the 2017 CSBE/SCGAB Annual Conference. Winnipeg, MB. 6-10 August
11. Cabahug, J., **Alvarado, A.** and Predicala, B. 2016. Rapid assessment of cleanliness of commercial hog transport trailers using ATP bioluminescence method. Paper No. 2461774. 2016 ASABE Annual International Meeting. Orlando, Florida. 17-20 July.
12. Predicala, B. and **Alvarado, A.** 2016. Computer simulation and in-barn evaluation of modified ventilation system in sow gestation barn converted to group housing. Paper No. CSBE16-54. 2016 CSBE/SCGAB Annual Conference. Halifax, NS. 3-6 July.
13. Predicala, B. and **Alvarado, A.** 2015. Preferred environmental temperature of group-housed sows fed with high heat-increment diets. In *Proceedings of the International Symposium on Animal Environment & Welfare*. Rongchang, Chongqing, China. 23-26 October 2015. pp 11-17.
14. Predicala, B. and **Alvarado, A.** 2015. Re-design of ventilation system of a newly-converted grouped sow housing facility using computer simulation. In *Proceedings of the International Symposium on Animal Environment & Welfare*. Rongchang, Chongqing, China. 23-26 October 2015. pp. 133-140.
15. Predicala, B., **Alvarado, A.**, Brown, J. and Beaulieu, D. 2015. Determination of temperature requirements of group-housed sows fed high fiber diets to reduce energy costs. Paper No. 152190880. 2015 ASABE Annual International Meeting, New Orleans, LA. 28 July 2015.
16. Predicala, B., **A. Alvarado** and L. Dominguez. 2014. Evaluation of a ground source heat pump system for heating and cooling a swine production barn. In *Proceedings International Conference of Agricultural Engineering*. Zurich, Switzerland. 6-10 July.
17. **Alvarado, A.** and B. Predicala. 2014. Effect of nanoparticles on gas emissions and growth and transmission of microorganisms in swine production facilities. Paper No.: 141913472. 2014 ASABE and CSBE/SCGAB Annual International Meeting. Montreal, Quebec. July 13-16, 2014.
18. Predicala, B., **Alvarado, A.**, and Whittington, L. 2014. Benchmarking and standardization of swine production systems. In *Proceedings of the 33<sup>rd</sup> Annual Centralia Swine Research Update*. Ontario, Canada. 9-July.



19. Predicala, B., **A. Alvarado** and L. Dominguez. 2014. Evaluation of a ground source heat pump system for heating and cooling a swine production barn. Paper No. C0674. AgEng 2014 – International Conference of Agricultural Engineering, Zurich, Switzerland. July 6-10, 2014.
20. Martel, M., Predicala, B. and **Alvarado, A.** 2014. Pilot-scale evaluation of potential measures for biocontainment of swine barns. Paper No.: 141913754. 2014 ASABE and CSBE/SCGAB Annual International Meeting. Montreal, Quebec. July 13-16, 2014.
21. **Alvarado, A.** and Predicala, B. 2013. Benchmarking water use and developing strategies for water conservation in swine production operations. Paper No.: CSBE 13-084. CSBE/SCGAB Annual Conference, Saskatoon, SK, Canada. 7-10 July 2013.
22. **Alvarado, A.** and Predicala, B. 2013. Control of growth of disease-causing microorganisms and greenhouse gas emissions from swine operations using zinc oxide nanoparticles. Paper No.: CSBE 13-082. CSBE/SCGAB Annual Conference, Saskatoon, SK, Canada. 7-10 July 2013.
23. Dominguez, L., Predicala, B. and **Alvarado, A.** 2013. Evaluation of heat exchanger, ground source heat pump, and conventional heating systems in swine grow-finish rooms. IRHACE – Journal for the New Zealand Refrigeration, Heating, Ventilation & Airconditioning Industries. Auckland, New Zealand. pp.24-27.
24. Girard, M., Predicala, B., Belzile, M., **Alvarado, A.**, Lemay, S.P. and Godbout, S. 2013. Innovative air treatment unit for swine exhaust air – commercial-scale tests. CSBE/SCGAB Paper No. CSBE13-115. CSBE/ SCGAB Annual Conference, Saskatoon, SK. 7-10 July 2013.
25. Predicala, B. and **Alvarado, A.** 2013. Assessment of occupational exposure risk of workers to dust, gases and noise in swine grow-finish facilities. Paper No. 131620731. ASABE Annual International Meeting, Kansas City, Missouri. 21-24 July 2013.
26. Predicala, B., **Alvarado, A.**, and Jin, Y. 2013. Alternatives for animal drinking and barn cleaning to reduce water use in swine production operations. Paper No. 131620720. ASABE Annual International Meeting, Kansas City, Missouri. 21-24 July 2013.
27. Predicala, B., **Alvarado, A.**, Girard, M., Belzile, M., Lemay, S.P. and Feddes, J. 2013. Effectiveness of an innovative air cleaning system for reducing ammonia, dust and odor emissions from swine barns. Paper No. 131620703. ASABE Annual International Meeting, Kansas City, Missouri. 21-24 July 2013.
28. Predicala, B. and **Alvarado, A.** 2013. Reducing water consumption in swine barns: alternatives for animal drinking and barn cleaning. In *Proceedings of the 32<sup>nd</sup> Annual Centralia Swine Research Update*. Ontario, Canada. 20 January.
29. Predicala, B., **Alvarado, A.** and Asis, D. 2012. Use of zinc oxide nanoparticles to control hydrogen sulphide, ammonia and odour emissions from pig barns. Paper No. ILES12-1507. Presented at the 9th International Livestock Environment Symposium. American Society of Agricultural and Biological Engineers. Valencia, Spain. July 8-12, 2012.
30. Predicala, B., Jin, Y., Richards, E. and **Alvarado, A.** 2012. Evaluation of water use and potential water conservation strategies in swine barns. In *Proceedings of the 31<sup>st</sup> Annual Centralia Swine Research Update*. Ontario, Canada. 25 January.
31. **Alvarado, A.** and Predicala, B. 2011. Reducing gas emissions from swine barns using zinc oxide nanoparticles. *Advances in Pork Production*, 22: 2.

32. **Alvarado, A.** and Predicala, B. 2011. Controlling gas and odour emissions from swine facilities using zinc oxide nanoparticles. Paper No.: CSBE 11-303. CSBE/SCGAB Annual Conference, Winnipeg, MB, Canada. 10-13 July 2011.
33. Predicala, B., Dominguez, L., **Alvarado, A.**, Price, J. and Jin, Y. 2011. Comparative evaluation of radiant and forced convection heaters in grow-finish swine rooms. Paper No. CSBE 11408. 2011 CSBE/SCGAB Annual Conference, Winnipeg, MB, Canada., 10-13 July 2011.
34. **Alvarado, A.**, Predicala, B. and Asis, D. 2010. Evaluation of the effectiveness of zinc oxide nanoparticles in reducing gas emissions from swine manure. Paper No. 561. Proc. of the International Conference on Nanotechnology: Fundamentals and Applications. Ottawa, Canada., 4-6 August 2010.
35. **Alvarado, A.** and Predicala, B. 2010. Room-scale study of the effectiveness of zinc oxide nanoparticles in reducing gas emissions from swine manure. Paper No.: MBSK10-201. ASABE/CSBE North Central Conference, Saskatoon, SK, Canada., 7-9 October 2010.
36. **Alvarado, A.** and Predicala, B. 2010. Effectiveness of zinc oxide nanoparticles in reducing gaseous emissions from swine manure. 2010 ASABE International Symposium on Air Quality and Manure Management for Agriculture, Dallas, Texas, 13-16 September 2010.
37. **Alvarado, A.**, Navia, E., Predicala, B., Moreno, L., Dominguez, L., and Price, J. 2009. Comparative evaluation of infrared and forced-air heating systems for hog barns. ASABE Section Meeting Paper No.: SD09-202. North Central 2009 ASABE/CSBE Conference. Brookings, South Dakota. September 17-19, 2009.

## MAGAZINES

1. **Alvarado, A.**, Baguindoc, M., Guevarra, A. and Predicala, B. 2022. Design criteria for enhancing cleanability and welfare characteristics of pig transport trailers. Centred on Swine. Prairie Swine Centre. Saskatoon, SK. Vol. 29, No.2, pp. 1-5.
2. Predicala, B., and **Alvarado, A.** 2021. Enhancing biosecurity and welfare of pigs during transport. Centred on Swine. Prairie Swine Centre. Saskatoon, SK. Vol. 28, No.1, pp. 4-5.
3. Predicala, B., **Alvarado, A.**, Cabahug, J., and Kirychuk, S. 2020. Engineering a better ride. National Hog Farmer. January 10, 2020. <https://www.nationalhogfarmer.com/animal-health/engineering-better-ride>.
4. Predicala, B., **Alvarado, A.**, and Baah, R. 2019. Technology provides extra eye on hogs. National Hog Farmer. January 9, 2019. <https://www.nationalhogfarmer.com/animal-welfare/technologyprovides-extra-eye-hogs>.
5. Predicala, B., Cabahug, J., **Alvarado, A.**, and Baah, R. 2019. Mitigation of accelerated deterioration of pig buildings. Canadian Hog Journal. June 3, 2019. <https://canadianhogjournal.com/2019/06/03/mitigation-of-accelerated-deterioration-of-pigbuildings/>
6. **Alvarado, A.** and Predicala, B. 2015. Assessing daily exposure risk of pig barn workers to airborne contaminants. Centred on Swine. Prairie Swine Centre. Saskatoon, SK. pp. 10-11.
7. Predicala, B., **Alvarado, A.**, and Korber, D. 2015. Nanoparticles show promise in sanitation. National Hog Farmer. December 2015. pp. 24-25.



8. Strawford, M., Predicala, B.Z., Whittington, L., **Alvarado, A.**, Korber, D., and Vidovic, S. 2014. Nanoparticles show promise as biosecurity tool. National Hog Farmer.
9. **Alvarado, A.**, Predicala, B. and Jin, Y. 2012. Developing strategies for water conservation for producers. Centred on Swine. Prairie Swine Centre. Saskatoon, SK. 17(2):6-7.

## REPORTS

1. **Alvarado, A.**, Predicala, B., and Beaulieu, D. 2023. Application of nanotechnology for mitigation of DON in wheat grains. 2023 PSC Annual Report. Prairie Swine Centre. Saskatoon, SK.
2. Predicala, B., Sapaden, M., **Alvarado, A.**, Baguindoc, M. and Kirychuk, S. 2023. Road and disease-challenge tests with a modified prototype livestock trailer. 2023 PSC Annual Report. Prairie Swine Centre. Saskatoon, SK.
3. Predicala, B., **Alvarado, A.**, Domingo, J., Guevarra, A. and Brown, J. 2022. Design criteria for cleanability, worker safety and welfare characteristics of pig transport trailers. 2022 PSC Annual Report. Prairie Swine Centre. Saskatoon, SK.
4. Predicala, B., Chekabab, S., **Alvarado, A.**, Korber, D. and Lawrence, J. 2021. Assessing the impact of intervention measures for reducing antibiotic use. 2021 PSC Annual Report. Prairie Swine Centre. Saskatoon, SK.
5. Predicala, B., **A. Alvarado**, R. Baah, J. Brown, and J. Cabahug. 2017. Re-designing ventilation system of gestation barns converted from stalls to group sow housing system to reduce cost of production. A Final Report submitted to Saskatchewan Ministry of Agriculture.
6. Predicala, B., D. Korber, P. Medihala and **A. Alvarado**. 2018. Investigation of nanoparticle-based methods to control Porcine Epidemic Diarrhea (PED) virus. 2018 PSC Annual Report. Prairie Swine Centre. Saskatoon, SK.
7. Predicala, B.Z., **A.C. Alvarado**, A.D. Beaulieu, and J.A. Brown. 2014. Can group-housed sows be raised at lower temperatures to reduce barn heating costs? 2013 Annual Research Report. Prairie Swine Centre. Saskatoon, SK. pp. 23-24.
8. Predicala, B. and **A. Alvarado**. 2013. Assessment of occupational exposure risk of swine production facility workers. Project#AB1101. Final report submitted to Agriculture and Food Council of Alberta.
9. Predicala, B. and **A. Alvarado**. 2014. Design and development of an emergency biocontainment system to isolate swine facilities following an outbreak of transmissible airborne diseases. Project P35-C. Final report submitted to Agriculture Council of Saskatchewan Inc.
10. Predicala, B. and **A. Alvarado**. 2014. Development of an air-filtration system for animal transport vehicles to prevent airborne transmission of diseases in swine. Project P25-C. Final report submitted to Agriculture Council of Saskatchewan Inc.
11. Predicala, B. and **A. Alvarado**. 2014. Novel application of nanotechnology for controlling growth and transmission of disease-causing microorganisms in livestock operations. Project#20110244. Final report submitted to Saskatchewan Ministry of Agriculture.
12. Predicala, B., **A. Alvarado** and L. Dominguez. 2014. Evaluation of a geothermal system for swine production. Project#20110211. Final report submitted to Saskatchewan Ministry of Agriculture.

13. Predicala, B., **A. Alvarado**, D. Korber, J. Lawrence, S. Vidovic, and J. Elder. 2013. Use of nanoparticles to control greenhouse gas emissions and bioaerosols from livestock operations. Project#AB1103. Final report submitted to Agriculture and Food Council of Alberta.
14. Whittington, D.L., B. Predicala, **A. Alvarado**, F. Pouliot, R. MacDonald, J. Agnew, H. Huffman, F. Kains. 2013. Development of Standards for Swine Production Systems. CSRD project #1011. Final report submitted to Canadian Swine Research and Development Council.
15. Predicala, B., **A. Alvarado**, D. Korber, J. Lawrence, S. Vidovic, and J. Elder. 2013. Use of nanoparticles to control greenhouse gas emissions and bioaerosols from livestock operations. Project#AB1103. Final report submitted to Agriculture and Food Council of Alberta.

## POSTER PRESENTATIONS

1. **Alvarado, A.**, A. Asok, D. Obaob, M. Mosqueda, H. Rabanes, D. Beaulieu, and Predicala, B. 2023. Nanotechnology treatment for decontamination of deoxynivalenol (DON) in wheat grains. Poster presented at the Saskatchewan Pork Industry Symposium. Saskatoon, SK. 7-8 November 2023.
2. Cabahug, J., Predicala, B., **Alvarado, A.** and Kirychuk, S. 2017. Evaluation of a prototype animal transport trailer. Poster presented at the Saskatchewan Pork Industry Symposium. Saskatoon, SK. 14-15 November.
3. Predicala, B.Z. and **Alvarado, A.**. 2015. Development of an alternative temperature management system for group-housed sows to reduce heating costs. Poster presented at the 2015 Banff Pork Seminar. January 20-22, 2015. Banff, AB.
4. Predicala, B.Z. and **Alvarado, A.** 2014. Development of an alternative temperature management system for group-housed sows to reduce heating costs. Poster presented at the Saskatchewan Pork Industry Symposium. November 18-19, 2014. Saskatoon, SK.
5. **Alvarado, A.**, B. Predicala., M. Girard, M. Belzile, S. Lemay and J. Feddes. 2013. Effectiveness of an innovative air cleaning system for reducing ammonia, dust and odour emissions from swine barns. Poster presented at the Banff Pork Seminar, Banff, AB.
6. Predicala, B., **Alvarado, A.** and Jin, Y. 2013. Alternatives for animal drinking and barn cleaning to reduce water use in swine production operations. Poster presented at the ASABE Annual International Meeting, Kansas City, Missouri. 21-24 July 2013.
7. **Alvarado, A.** and Predicala, B. 2011. Reducing gaseous emissions from swine barns using zinc oxide nanoparticles. Poster presented at the Banff Pork Seminar. Banff, Alberta, Canada, 18-21 January 2011.
8. **Alvarado, A.** and Predicala, B. 2010. Effectiveness of zinc oxide nanoparticles in reducing gaseous emissions from swine manure. Poster presented at the 2010 ASABE International Symposium on Air Quality and Manure Management for Agriculture, Dallas, Texas, 13-16 September 2010.
9. **Alvarado, A.** and Predicala, B. 2010. Effectiveness of zinc oxide nanoparticles in reducing gaseous emissions from swine manure. Poster presented at the 2010 Saskatchewan Pork Industry Symposium, Saskatoon, SK, Canada, 23-24 November 2010.

## TRAININGS

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2024	Workplace Hazardous Materials Information System (WHMIS) Training, University of Saskatchewan
2024	Laboratory Safety for Lab Workers Training, University of Saskatchewan
2021	Training course on Computational Fluid Dynamics (CFD) using ANSYS Fluent, Shailesh Gupta, USA
2021	Biosafety Training, University of Saskatchewan
2017	Training course on Continuous Air Monitoring System (CAMS), ERM Consultants Canada Ltd.
2017	Transportation of Dangerous Goods Training, YOW Canada Inc.
2016	Everything DiSC: Work of Leaders Training, Morris Interactive, Canada
2011	Practice Your Presentation Skills, Mitacs, Canada
2009	Online Experimental Animal User Training for Farm Animals, University of Saskatchewan
2009	H <sub>2</sub> S Awareness Workshop, Shannon Laroche and Prairie Swine Centre Inc., Canada
2009	Low Stress Pig Handling Workshop and Exam, DNL Farms Ltd., Canada