

*Curriculum Vitae*

**RUURD T. ZIJLSTRA**

Department of Agricultural, Food and Nutritional Science  
University of Alberta  
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**EMPLOYMENT**

2004 – PRESENT      University of Alberta, Dept. of Agricultural, Food and Nutritional Science  
2011 – PRESENT      Professor  
2015 – PRESENT      Chair  
2009 – 2015          Division Director (Animal Science)  
2004 – 2011          Associate Professor/Feed Industry Research Chair,

1998 – 2011          University of Saskatchewan  
Adjunct Professor, Dept. of Animal & Poultry Science

1998 – 2004          Prairie Swine Centre Inc.  
Research Scientist - Nutrition

1996 – 1998          Prairie Swine Centre Inc.  
Research Associate - Nutrition

1992 – 1996          University of Illinois  
Research Assistant, Dept. of Animal Science

**EDUCATION**

1996    Doctor of Philosophy (Ph.D.)  
         Major: Animal Science  
         University of Illinois, Urbana-Champaign, Illinois

1991    Ingenieur (Ir.)  
         Major: Animal Science  
         Agricultural University Wageningen, The Netherlands

1986    Bachelor (Ing.)  
         Major: Animal Science  
         Agricultural College, Dronten, The Netherlands

**PROFESSIONAL ASSOCIATIONS**

**Memberships**

American Society of Animal Science  
1996 – PRESENT      Member  
1992 – 1996          Student Member



## **HONOURS AND AWARDS**

- 2012 Canadian Society of Animal Science – Excellence in Nutrition and Meat Sciences
- 2010 Faculty of Agricultural, Life & Environmental Sciences. Teacher of the Year
- 1996 American Institute of Nutrition Graduate Student Research Award
- 1996 Graduate College On-Campus Dissertation Research Grant
- 1995 Graduate College Thesis/Project Grant
- 1995 Graduate College Conference Travel Support Grant
- 1994 Graduate College Conference Travel Support Grant
- 1994 Fullbright Professional Enhancement Grant
- 1993 American Feed Industry Association Scholarship
- 1992 Fullbright Graduate Student Grant

## **VISITING SCIENTISTS, SCHOLAR AND STUDENTS SUPERVISED**

- 3. Dusel, G. 2012-2013. Visiting Professor, Univ. Bingen, Germany.
- 2. Sauer, N. 2010. Present position, Post-doctoral fellow, Univ. Hohenheim, Hohenheim, Germany.
- 1. Clowes, E.J., Ph.D. 2003. Present position: Pork Systems Specialist, Alberta Agriculture, Food and Rural Development, Edmonton, AB.

## **POST-DOCTORAL STUDENTS AND RESEARCH ASSOCIATES SUPERVISED**

- 13. Wang, L. Ph.D. Feedstuff evaluation for swine.
- 12. Woyengo, T., Ph.D. Enzyme technology to enhance co-product quality for pigs.
- 11. Nasir, Z., Ph.D. Enzyme technology to enhance co-product quality for pigs.
- 10. Landero, J., Ph.D. Feedstuff evaluation for swine.
- 9. Woodward, A. D. Ph.D. small intestine perfusion model in pigs.
- 8. Yanez, J., PhD. 2010-2012. Feedstuff evaluation for swine.
- 7. Jha, R., PhD. 2009-2012. Fermentation characteristics of feedstuffs for swine.
- 6. Metzler-Zebeli, B., Ph.D. 2008-2010. Impact of fermentation characteristics of NSP sources on digestive physiology in pigs. Co-supervised together with Dr. Gänzle. Research Scientist. Dummersdorf, Germany
- 5. Htoo, J., Ph.D. 2006-2007. Impact of feed processing on nutrient availability of flax in swine. Present position: Evonik Degussa Corp., Germany
- 4. Owusu-Asiedu, A., Ph.D. 2002-2003. Present position: Research Scientist, Danisco Animal Nutrition., Milwaukee, WI.
- 3. Ekpe, E.D., Ph.D. 2000-2002. Present position: Assistant Professor, University of Arkansas at Pine Bluff, Pine Bluff, AR.
- 2. Cooper, D.R., M.Sc. 2000-2001. Present position: Medical Representative, Leo Pharma Inc., Thornhill, ON.

1. Nyachoti, C.M., Ph.D. 1999-2000. Present position: Associate Professor, University of Manitoba, Winnipeg, MB.

### **GRADUATE STUDENT THESES (CO-)SUPERVISED**

17. Wang, L. 2014. In vitro digestibility and NIRS to predict feed quality. PhD. Thesis. University of Alberta, Edmonton, AB. xxx pages.
17. Berendt, K. D. 2014. Starch nutrition in cats. M.Sc. Thesis. University of Alberta, Edmonton, AB. xxx pages.
16. Shrestha, D. 2012. Effects of supplemented NSP-degrading enzymes on nutrient digestibility of diets containing co-products fed to grower pigs. M.Sc. Thesis. University of Alberta, Edmonton, AB. 192 pages.
15. Kandel, K. 2011. Nutritional characterization of wheat distillers dried grains with solubles in grower-finisher pigs. M.Sc. thesis. University of Alberta, Edmonton, AB. 130 pages.
14. Regmi, P. R. 2011. Role of starch physico-chemical properties in the kinetics of nutrient absorption, endocrine profile, and intestinal health in swine. Ph.D. thesis. University of Alberta, Edmonton, AB. 242 pages.
13. Landero, J. 2010. Comportamiento productivo y digestibilidad de nutrientes en cerdos destetados alimentados con pasta de canola (Growth performance and nutrient digestibility in weaned pigs fed canola meal). PhD. thesis. Instituto de Ciencias Agrícolas, Universidad Autónoma de Baja California, Mexicali, Mexico. 87 pages. Co-supervised.
12. Hooda, S. 2010. The role of functional properties of dietary fibre in the control of nutrient flow and intestinal health. Ph.D. thesis. Univ of Alberta. 242 pages. Supervised.
11. Seneviratne, R. 2009. Nutritional characterization of canola co-products for swine. M.Sc. Thesis, University of Alberta, Edmonton, AB. Thesis accepted.
10. Elaho, P. 2007-2008. M.Sc. Thesis, University of Alberta, Edmonton, AB. Program discontinued.
9. Gunawardena, C. 2009. Nutritional value of starch and protein fractions from zero-tannin faba beans. M.Sc. Thesis, University of Alberta, Edmonton AB. Thesis accepted.
8. Walkey, D. 2008. The effect of multi/interdisciplinary research and collaboration on the technological patent value of biofuel patents. M.Sc. Thesis, University of Alberta, Edmonton, AB. Thesis accepted.
7. Oatway, L. A. 2008. The calibration of near infrared spectroscopy for feed quality in barley. M.Sc. Thesis, University of Alberta, Edmonton AB. Thesis accepted.
6. Nortey, T. N. 2007. The use of wheat by-products in swine diets. Ph.D. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.
5. Widyaratne, G. P. 2005. The nutritional value of wheat distiller's grain for pigs. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.
4. Rodgers, N. T., 200x. Effect of phase feeding on nitrogen excretion patterns of grower pigs. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. Program discontinued.
3. Casano, M. N. 2002. Effect of diet composition and feeding level on digestible energy measurements of barley fed to swine. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.
2. Oryschak, M. A. 2002. Effect of low-cost processing on nutrient excretion of grower pigs. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.

1. Zervas, S. 2001. Effect of dietary protein level and fibre on nitrogen excretion patterns in swine. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.

### **GRADUATE STUDENT COMMITTEES (incomplete)**

12. Monang, B. 200x. Ph.D. Thesis, University of Alberta, Edmonton, AB. In progress.
11. Malik, G. 200x. Ph.D. Thesis, University of Saskatchewan, Saskatoon, SK. In progress.
10. Schafer, T.C. 200x. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. In progress.
8. Willing, B. 2007. The effect of microbes on the proliferation of intestinal epithelial cells in the gnotobiotic pig. Ph.D. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.
7. Smith, L. 2006. Effect of flax seed and fractions thereof on intestinal microbial ecology in the pig. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.
6. Oresanya, T. 2005. Comparison of energy systems for weaned pigs. Ph.D. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.
5. Payeur, M. 2003. Effect of oil sprinkling and diet manipulation on gas emissions from swine buildings. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.
4. Shaw, M.I. 2002. Effect of level and source of nitrogen and minerals on water utilisation patterns in growing pigs. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.
3. Levesque, C.L. 2002. Effect of weaning and dietary DE content on performance of pigs to 56 d of age. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.
2. White, L. 2002. Effect of Endotoxin Challenge on Insulin-Like Growth Factor (IGF)-I, IGF Binding Proteins, and Acute Phase Response in the Fed and Fasted Pig. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.
1. Cooper, D.R., 2000. Determining the Threonine Requirement of the High-Producing Lactating Sow. M.Sc. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.

### **UNDERGRADUATE STUDENT THESIS SUPERVISED**

1. Lowe, A.M. 1999. Reduction of phosphorus in swine manure using nutrient management. B.S.A. Thesis, University of Saskatchewan, Saskatoon, SK. Thesis accepted.

### **TEACHING RECORD**

2015-2016	AN SC 464	Companion Animal Nutrition	Main Instructor
	AFNS 569	Advanced Animal Metabolism	Co-Instructor
2014-2015	AN SC 462	Swine Nutrition	Instructor
	6-month sabbatical leave		
2013-2014	AN SC 462	Swine Nutrition	Instructor
	AN SC 464	Companion Animal Nutrition	Instructor
2012-2013	AN SC 462	Swine Nutrition	Instructor
	AN SC 464	Companion Animal Nutrition	Main Instructor
2011-2012	AN SC 462	Swine Nutrition	Instructor

	AN SC 464	Companion Animal Nutrition	Main Instructor
2010-2011	AN SC 462	Swine Nutrition	Instructor
	AN SC 464	Companion Animal Nutrition	Instructor
2009-2010	AN SC 462	Swine Nutrition	Instructor
	AN SC 464	Companion Animal Nutrition	Main Instructor
	AFNS 560	Advanced Feed Science and Technology	Main Instructor
2008-2009	AN SC 462	Swine Nutrition	Instructor
	AFNS 569	Advanced Animal Metabolism	Co-Instructor
2007-2008	AN SC 462	Swine Nutrition	Instructor
	AFNS 560	Advanced Feed Science and Technology	Main Instructor
2006-2007	AN SC 462	Swine Nutrition	Instructor
2005-2006	AN SC 462	Swine Nutrition	Main Instructor
2004-2005	AN SC 462	Swine Nutrition	6 lectures
2004-2005	AN SC 463	Poultry Nutrition	1 lecture
2004-2005	AN SC 800.3	Advanced Protein and Amino Acid Nutrition	2 lectures
2003-2004	AN SC 820.3	Animal Energetics	Co-instructor
2002-2003	AN SC 800.3	Advanced Protein and Amino Acid Nutrition	5 lectures
2001-2002	AN SC 820.3	Animal Energetics	50%
2000-2001	AN SC 800.3	Advanced Protein and Amino Acid Nutrition	5 lectures
1999-2000	AN SC 820.3	Animal Energetics	50%
1998-1999	AN SC 800.3	Advanced Protein and Amino Acid Nutrition	5 lectures
	AN SC 898.3	Special Topics	33%
1997-1998	AN SC 820.3	Animal Energetics	15%
1996-1997	AN SC 800.3	Advanced Protein and Amino Acid Nutrition	3 lectures

### **SUMMARY OF PUBLICATIONS, LECTURES, and GRANTS**

Books	1
Book Chapters	9
Refereed Journal Articles	141
Abstracts for Scientific Conferences	188
Conference Proceedings	51
Trade Magazines	24
Research Reports	71
Abstracts for Seminars and Symposia	112
Invited Lectures	116

## BOOKS

1. Zijlstra, R.T. 1996. Physiological Responses of the Small Intestine to Nutritional Factors and Rotavirus Infection Afflicting Young Pigs. Ph.D. Thesis. University of Illinois, Urbana-Champaign, IL.

## REFEREED BOOK CHAPTERS

11. Wang, L. F., and R. T. Zijlstra. 2017. Prediction of bioavailable nutrients and energy. Pages xxx–xxx in Feed Evaluation Science. Moughan et al., (Resubmitted 2017 Feb 6).
10. Zijlstra, R. T., and E. Beltranena. 2017. Co-products in swine nutrition and feed formulation. Pages xxx–xxx in Sustainable Nutrition in Pigs and Poultry. Verstegen et al., (Submitted 2015 Apr 5).
9. Zijlstra, R. T., and E. Beltranena. 2013. Alternative feedstuffs in swine diets. Pages 229–253 in Sustainable Swine Nutrition. L. Chiba, ed. John Wiley & Sons, Hoboken, NJ.
8. Shurson, G. C., R. T. Zijlstra, B. J. Kerr, and H. H. Stein. 2012. Feeding biofuels co-products to pigs. Pages 175–207 in Opportunities and Challenges in Utilizing Co-products of the Biofuel Industry as Livestock Feed. FAO, Rome, Italy.
7. Zijlstra, R. T., S. Tibble, and T. A. T. G. van Kempen. 2009. Feed manufacturing technology and feed intake in young pigs. Pages 275–290 in Voluntary Feed Intake in Pigs. D. Torrallardona and E. Roura, eds. Wageningen Academic Publishers, Wageningen, The Netherlands.
6. Zijlstra, R. T., and E. Beltranena. 2009. Variability of quality in biofuel co-products. Pages 313–326 in Recent Advances in Animal Nutrition - 2008. P. C. Garnsworthy and J. Wiseman, eds. Nottingham Academic Press, Nottingham, UK.
5. Patience, J. F., P. Leterme, A. D. Beaulieu, and R. T. Zijlstra. 2007. Utilization in swine diets of distillers dried grains with solubles derived from corn or wheat used in ethanol production. Pages 89–102 in Biofuels: implications for the feed industry, J. Doppenberg and P. van der Aar, eds. Wageningen Academic Press, Wageningen, The Netherlands.
4. Zijlstra, R. T., and R. L. Payne. 2007. Net energy system for pigs. Pages 80–90 in Manipulating Pig Production XI, J. E. Patterson and J. A. Barker, eds. Australasian Pig Science Association, Werribee, Vic, Australia.
3. Zijlstra, R. T., and E. Beltranena. 2007. New frontier in processing: ingredient fractionation. Pages 216–222 in Manipulating Pig Production XI. J. E. Patterson and J. A. Barker, eds. Australasian Pig Science Association, Werribee, Vic, Australia.
2. Clark, O. G., S. Moehn, J. Price, Y. Zhang, W. Sauer, B. Morin, J. Feddes, J. Leonard, J. K. A. Atakora, R. T. Zijlstra, I. Edeogu, and R. O. Ball. 2005. Chapter 15. Mitigating environmental pollution through pig diet manipulation. Pages 295–316 in Climate Change and Managed Ecosystems, J. S. Bhatti, R. Lal, M. J. Apps, and M. A. Price, eds. CRC Press, Boca Raton, FL.
1. Patience, J. F., and R.T. Zijlstra. 2001. Sodium, potassium, chloride, magnesium and sulfur in swine nutrition. Pages 213–227 in Swine Nutrition, A. J. Lewis, L. L. Southern, eds. CRC Press, Boca Raton, FL.

## REFEREED JOURNAL ARTICLES

141. Zhou, X., E. Beltranena, and R. T. Zijlstra. 2017. Apparent and true ileal and total tract digestibility of fat in canola press-cake or canola oil, endogenous fat loss, and effects of increasing dietary fat on amino acid and energy digestibility in growing pigs. J. Anim. Sci. (Accepted 2017 Mar 26; E-2016-0757R2).

140. Woyengo, T. A., E. Beltranena, and R. T. Zijlstra. 2017. Effect of anti-nutritional factors of oilseed co-products on feed intake of pigs and poultry. *Anim. Feed Sci. Technol.* doi: <http://dx.doi.org/10.1016/j.anifeedsci.2016.05.006>.
139. Fohse, J. M., J. Gao, T. Vasanthan, M. Izydorczyk, A. D. Beattie, and R. T. Zijlstra. 2017. Effect of whole grain fiber composition on site of nutrient digestion, standardized ileal digestibility of amino acids, and whole body energy utilization in grower pigs. *J. Nutr.* 147:29–36.
138. Wang, L. F., E. Beltranena, and R. T. Zijlstra. 2017. Diet nutrient digestibility and growth performance of weaned pigs fed *Brassica napus* canola meal varying in nutritive quality. *Anim. Feed Sci. Technol.* 223:90–98.
137. de Vries, S., W. J. J. Gerrits, M. A. Kabel, T. Vasanthan, and R. T. Zijlstra. 2016.  $\beta$ -Glucans and resistant starch alter the fermentation of recalcitrant fibers in growing pigs. *PLoS One* 11 (12): e0167624.
136. Le, M. H. A., S. Galle, Y. Yang, J. L. Landero, E. Beltranena, M. G. Gänzle, and R. T. Zijlstra. 2016. Effects of feeding fermented wheat with *Lactobacillus reuteri* on gut morphology, intestinal fermentation, nutrient digestibility, and growth performance in weaned pigs. *J. Anim. Sci.* 94:4677–4687.
135. Fohse, J. M., T. Vasanthan, M. Izydorczyk, A. D. Beattie, and R. T. Zijlstra. 2016. Cereal grain composition alters nutrient digestibility and growth performance regardless of protein quality in pigs. *J. Anim. Sci.* 94(Suppl. 3): 279–282.
134. Woyengo, T. A., J.E. Sánchez, J. Yáñez, E. Beltranena, M. Cervantes, A. Morales, and R.T. Zijlstra. 2016. Nutrient digestibility of canola co-products for grower pigs. *Anim. Feed Sci. Technol.* 222:7–16.
133. Woyengo, T. A., R. Patterson, B. A. Slominski, E. Beltranena, and R. T. Zijlstra. 2016. Nutritive value of cold-pressed camelina cake and nutrient utilization of broiler chickens fed cold-pressed camelina cake-containing diets supplemented with multi-carbohydrase. *Poult. Sci.* 95:2314–2321.
132. Fohse, J. M., R. T. Zijlstra, and B. P. Willing. 2016. The role of gut microbiota in the health and disease of pigs. *Animal Frontiers* 6(3):30–36.
131. Zhou, X., E. Beltranena, and R. T. Zijlstra. 2016. Effect of feeding wheat- or barley-based diets with low or and high nutrient density on nutrient digestibility and growth performance in weaned pigs. *Anim. Feed Sci. Technol.* 218:93–99.
130. Wang, L. F., E. Beltranena, and R. T. Zijlstra. 2016. Diet nutrient digestibility and growth performance of weaned pigs fed wheat dried distillers grains with solubles (DDGS). *Anim. Feed Sci. Technol.* 218:26–32.
129. Woyengo, T. A., R. Jha, E. Beltranena, and R. T. Zijlstra. 2016. In vitro digestion and fermentation characteristics of canola co-products simulate their digestion in the pig intestine. *Animal* 10:911–918.
128. Zhou, X., E. Beltranena, and R. T. Zijlstra. 2016. Effects of feeding canola press-cake on diet nutrient digestibility and growth performance of weaned pigs. *Anim. Feed. Sci. Technol.* 211:208–215.
127. Wang, L.F., E. Beltranena, and R. T. Zijlstra. 2016. Diet nutrient digestibility and growth performance of weaned pigs fed sugar beet pulp. *Anim. Feed. Sci. Technol.* 211:145–152.
126. Dugan, M. E.R., P. Vahmani, T. D. Turner, C. Mapiye, M. Juarez, N. Prieto, A. D. Beaulieu, R. T. Zijlstra, J. F. Patience, and J. L. Aalhus. 2015. Pork as a source of omega-3 (n-3) fatty acids. *J. Clin. Med.* 4, 1999–2011.



125. Nasir, Z., L. F. Wang, M. G. Young, M. L. Swift, E. Beltranena, and R.T. Zijlstra. 2015. The effect of feeding barley on diet nutrient digestibility and growth performance of starter pigs. *Anim. Feed Sci. Technol.* 210:287–294.
124. Woyengo, T. A., J. E. Sánchez, J. L. Yáñez, M. Cervantes, B. A. Araiza, and R. T. Zijlstra. 2015. Nutritional value of whey permeate and egg products in ileal-cannulated grower pigs. *Anim. Feed. Sci. Technol.* 210:209–216.
123. Fohse, J. M., M. G. Gänzle, P. R. Regmi, T. A. T. G. van Kempen, and R. T. Zijlstra. 2015. High amylose starch with low in vitro digestibility stimulates hindgut fermentation and has a bifidogenic effect in weaned pigs. *J. Nutr.* 145:2464–2470.
122. Prieto, N., M. L. Swift, S. T. Summerfelt, M. Juárez, R. T. Zijlstra, and J. L. Aalhus. 2015. A feasibility study on the use of near infrared spectroscopy for the authentication of deputed salmon fillets. *Food Anal. Methods* 8:2660–2664.
121. Prieto, N., M. Juárez, I. L. Larsen, Ó. López-Campos, R. T. Zijlstra, and J. L. Aalhus. 2015. Rapid discrimination of enhanced quality pork by visible and near infrared spectroscopy. *Meat Sci.* 110:76–84.
120. Yang, Y. X. Zhao, M. H. A. Le, R. T. Zijlstra, and M. Gänzle. 2015. Reutericyclin producing *Lactobacillus reuteri* modulates development of fecal microbiota in weanling pigs. *Front. Microbiol., section Food Microbiology* 6:762. doi: 10.3389/fmicb.2015.00762.
119. Yang, Y., S. Galle, M. H. A. Le, R. T. Zijlstra, and M. G. Gänzle. 2015. Effect of feed fermentation with reuteran- and levan-producing *Lactobacillus reuteri* on enterotoxigenic *Escherichia coli* in weanling pigs. *Appl. Environ. Microbiol.* 81:5743–5752.
118. Garcia, H., L. F. Wang, J. L. Landero, E. Beltranena, M. Cervantes, A. Morales, and R. T. Zijlstra. 2015. Effect of feeding wheat millrun on diet nutrient digestibility and growth performance in starter pigs. *Anim. Feed Sci. Technol.* 207:283–288.
117. Morales, A., H. García, N. Arce, R. T. Zijlstra, B. A. Araiza, and M. Cervantes. 2015. Effect of L-lysine on expression of selected genes, serum concentration of amino acids, muscle growth and performance of growing pigs. *J. Anim. Physiol. Anim. Nutr.* 99:701–709.
116. Jha, R., T. A. Woyengo, J. Li, M. R. Bedford, T. Vasanthan, and R. T. Zijlstra. 2015. Enzymes enhance degradation of the fiber-starch-protein matrix of distillers dried grains with solubles as revealed by a porcine in vitro fermentation model and microscopy. *J. Anim. Sci.* 93:1039–1051.
115. Zhou, X., R. T. Zijlstra, and E. Beltranena. 2015. Nutrient digestibility of solvent-extracted *B. napus* and *B. juncea* canola meals and their air-classified fractions fed to ileal-cannulated grower pigs. *J. Anim. Sci.* 93:217–228.
114. Smit, M. N., R. W. Seneviratne, M. G. Young, G. Lanz, R. T. Zijlstra, and E. Beltranena. 2014. Feeding *Brassica juncea* or *Brassica napus* canola meal at increasing dietary inclusions to growing-finishing gilts and barrows. *Anim. Feed Sci. Technol.* 198:176–185.
113. Landero, J. L., L. F. Wang, E. Beltranena, and R. T. Zijlstra. 2014. Diet nutrient digestibility and growth performance of weaned pigs fed field pea. *Anim. Feed Sci. Technol.* 198:295–303.
112. Nasir, Z., J. Broz, and R. T. Zijlstra. 2014. Supplementation of a wheat-based diet low in phosphorus with microbial 6-phytase expressed in *Aspergillus oryzae* increases digestibility and plasma phosphorus in lactating sows. *Anim. Feed Sci. Technol.* 198:263–270.
111. Chen, X. Y., A. Woodward, R. T. Zijlstra, and M. G. Gänzle. 2014. Exopolysaccharide synthesised by *Lactobacillus reuteri* protect against enterotoxigenic *Escherichia coli* in piglets. *Appl. Environ. Microbiol.* 80: 5752–5760.

110. Gutierrez, N. A., N. V. L. Serão, B. J. Kerr, R. T. Zijlstra, and J. F. Patience. 2014. Relationships among dietary fiber components and the digestibility of energy, dietary fiber, and amino acids, and energy content of 9 corn co-products fed to growing pigs. *J. Anim. Sci.* 92:4505–4517.
109. Wang, L. F., M. L. Swift, and R. T. Zijlstra. 2014. A non-calibration spectroscopic method to estimate ether extract and fatty acid digestibility of feed and its validation with flaxseed and field pea in pigs. *J. Anim. Sci.* 92:4531–4539.
108. Woyengo, T. A., J. Yáñez, M. G. Young, G. Lanz, E. Beltranena, and R. T. Zijlstra. 2014. Nutritional value of green full-fat canola seed fed to growing-finishing pigs. *J. Anim. Sci.* 92:3449–3459.
107. Yáñez, J. L., E. Beltranena, and R. T. Zijlstra. 2014. Dry fractionation creates fractions of wheat distillers dried grains and solubles with highly digestible nutrient content for grower pigs. *J. Anim. Sci.* 92:3416–3425.
106. Prieto, N., Ó. López-Campos, R. T. Zijlstra, B. Uttaro, and J. L. Aalhus. 2014. Discrimination of beef dark cutters using visible and near infrared reflectance spectroscopy. *Can. J. Anim. Sci.* 94:445–454.
105. Zhou, X., M. G. Young, V. Zamora, R. T. Zijlstra, and E. Beltranena. 2014. Feeding increasing dietary inclusion of extruded *Brassica juncea* expeller-pressed cake on growth performance, carcass characteristics, and jowl fatty acid profile of growing-finishing pigs. *Can. J. Anim. Sci.* 94:331–342.
104. Le, M. H. A., J. L. Landero, E. Beltranena, R. T. Zijlstra. 2014. The effect of feeding increasing inclusion of extruded *Brassica juncea* canola expeller on growth performance and nutrient digestibility in weaned pigs. *Anim. Feed Sci. Technol.* 192:73–80.
103. Woyengo, T. A., E. Beltranena, and R. T. Zijlstra. 2014. Controlling feed cost by including alternative ingredients into pig diets: A review. *J. Anim. Sci.* 92:1293–1305.
102. Li, J., T. Vasanthan, J. Gao, S. Naguleswaran, R. T. Zijlstra, and D. C. Bressler. 2014. Resistant starch escaped from ethanol production: Evidence from confocal laser scanning microscopy of DDGS. *Cereal Chem.* 91:130–138.
101. Smit, M. N., R. W. Seneviratne, M. G. Young, G. Lanz, R. T. Zijlstra, and E. Beltranena. 2014. Feeding increasing inclusions of canola meal with distillers dried grains and solubles to growing-finishing pigs. *Anim. Feed Sci. Technol.* 189:107–116.
100. Woyengo, T. A., R. Jha, E. Beltranena, A. Pharazyn, and R. T. Zijlstra. 2014. Nutrient digestibility of lentil and regular and low-oligosaccharide full-fat soybean fed to grower pigs. *J. Anim. Sci.* 92:229–237.
99. Turner, T. D., C. Mapiye, J. L. Aalhus, A. D. Beaulieu, J. F. Patience, R. T. Zijlstra, and M. E. R. Dugan. 2014. Flaxseed fed pork: n-3 fatty acid enrichment and contribution to dietary recommendations. *Meat Sci.* 96:541–547.
98. Grageola, F., J. L. Landero, E. Beltranena, M. Cervantes, A. Araiza, R. T. Zijlstra. 2013. Energy and amino acid digestibility of expeller-pressed canola meal and cold-pressed canola cake in ileal-cannulated finishing pigs. *Anim. Feed Sci. Technol.* 186:169–176.
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23. Payeur, M., S. P. Lemay, R. T. Zijlstra, S. Godbout, L. Chénard, R. Joncas, J. F. Bernier, E. M. Barber, and A. Marquis. 2002. A low protein diet combined with oil sprinkling for reduced odour and gas emissions of pig barns. *Advances in Pork Production, Proc. 2002 Banff Pork Seminar, Vol. 13, Abstr. 10.*
22. Levesque, C. L., J. F. Patience, E. Beltranena, R. T. Zijlstra, and A. Van Kessel. 2001. Response to site of weaning (on vs. off) and dietary energy content on performance of weaned pigs. *Advances in Pork Production, Proc. 2001 Banff Pork Seminar, Vol. 12, Abstr. 41.*
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19. Zervas, S., and R. T. Zijlstra. 2001. Effect of crude protein level and fiber sources on nitrogen excretion patterns in grower pigs. *Advances in Pork Production, Proc. 2001 Banff Pork Seminar, Vol. 12, Abstr. 17.*
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17. Zijlstra, R. T., B. K. Sloan, and J. F. Patience. 2000. Effect of supplemental enzyme with low, medium, and high DE content. 2000 Saskatchewan Pork Industry Symposium, November 14-16, Saskatoon, SK. pp 152.

16. Levesque, C., J. Patience, E. Beltranena, and R. Zijlstra. Response of conventional and segregated early-weaned pigs to three levels of dietary energy. 2000 Saskatchewan Pork Industry Symposium, November 14-16, Saskatoon, SK. pp 153.
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14. Zervas, S., and R. T. Zijlstra. 2000. Effect of crude protein and crude fiber on nitrogen excretion patterns in growing pigs. 2000 Saskatchewan Pork Industry Symposium, November 14-16, Saskatoon, SK. pp 155.
13. Cooper, D. R., J. F. Patience, R. T. Zijlstra, and M. Rademacher. 2000. Threonine requirements of high-producing lactating sows. 2000 Saskatchewan Pork Industry Symposium, November 14-16, Saskatoon, SK. pp 148.
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11. Zijlstra, R. T., J. F. Patience, and P. H. Simmins. 2000. Effect of enzyme supplementation to wheat-canola meal diets on performance and nitrogen balance of grower pigs. *Advances in Pork Production, Proc. 2000 Banff Pork Seminar, Vol. 11, Abstr. 13.*
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9. Zervas, S., and R. T. Zijlstra. 2000. Effect of crude protein and crude fiber on nitrogen excretion patterns in growing pigs. *Advances in Pork Production, Proc. 2000 Banff Pork Seminar, Vol. 11, Abstr. 14.*
8. Cooper, D. R., J. F. Patience, and R. T. Zijlstra. 2000. Threonine requirement of high-producing lactating sows. *Advances in Pork Production, Proc. 2000 Banff Pork Seminar, Vol. 11, Abstr. 12.*
7. Nyachoti, C. M., J. F. Patience, R. T. Zijlstra, D. Gillis, R. D. Boyd, and J. Usry. 2000. Response of grower-finisher pigs to declining energy intake at constant or proportional daily amino acid intake levels. *Advances in Pork Production, Proc. 2000 Banff Pork Seminar, Vol. 11, Abstr. 17.*
6. Zijlstra, R. T., J. F. Patience, S. L. Fairbairn, D. A. Gillis, and D. L. Whittington. 1999. Variation in the digestible energy content of field peas for grower pigs. 1999 Saskatchewan Pork Industry Symposium, November 17-19, Saskatoon, SK.
5. Zijlstra, R. T., S. Li, and J. F. Patience. 1999. Effect of enzyme supplementation of wheat-canola meal diets on growth performance and nutrient digestibility in weaned pigs. 1999 Saskatchewan Pork Industry Symposium, November 17-19, Saskatoon, SK.
4. Nyachoti, C. M., J. F. Patience, R. T. Zijlstra, D. Gillis, R. D. Boyd, and J. Usry. 1999. Response of grower-finisher pigs to declining energy intake at constant or proportional daily amino acid intake levels. 1999 Saskatchewan Pork Industry Symposium, November 17-19, Saskatoon, SK.
3. Fairbairn, S. L., J. F. Patience, H. L. Classen, and R. T. Zijlstra. 1999. The energy content of barley fed to growing pigs: characterizing the nature of its variability and developing prediction equations for its estimation. *Advances in Pork Production, Proc. 1999 Banff Pork Seminar, Vol. 10, Abstr. 34.*
2. Zijlstra, R. T., J. F. Patience, S. L. Fairbairn, D. A. Gillis, and D. L. Whittington. 1999. Variation in the digestible energy content of field peas for grower pigs. *Advances in Pork Production, Proc. 1999 Banff Pork Seminar, Vol. 10, Abstr. 33.*



1. Zijlstra, R. T., S. Li, and J. F. Patience. 1999. Effect of enzyme supplementation of wheat-canola meal diets on growth performance and nutrient digestibility in weaned pigs. *Advances in Pork Production, Proc. 1999 Banff Pork Seminar, Vol. 10, Abstr. 32.*

## INVITED LECTURES

140. Zijlstra, R. T. 2017. The role of barley to support growth and intestinal health in pigs. June 27, 8th Canadian Barley Symposium and the 22nd North American Barley Researchers Workshop, Winnipeg, MB, Canada.
139. Zijlstra, R. T. 2017. Characterization, processing, and use by swine of canola co-products. June 13, VICTAM Feed Processing Conference, Cologne, Germany.
138. Zijlstra, R. T. 2017. Starch properties affect its kinetics of digestion and thereby digestive physiology in pigs. Apr 23, Experimental Animal RIS Forum: Hot Topic and Business Meeting, Experimental Biology, Chicago, IL, USA.
137. Zijlstra, R. T. 2017. The role of fiber in swine nutrition. Mar 24, Retirement Colloquium for Prof. Rainer Mosenthin, Hohenheim University, Germany.
136. Zijlstra, R. T. 2017. Broad overview of animal science – Dep. of Agricultural, Food and Nutritional Science at the University of Alberta. Feb 28, Nanjing Agricultural University, Nanjing, China (40 people).
135. Zijlstra, R. T. 2017. Alternative feedstuffs in feeding programs for nursery pigs. Feb 27, Zhejiang University, Hongzhou, China (80 people).
134. Zijlstra, R. T. 2017. New insight into feeding barley to pigs. FarmTech. Jan 31 and Feb 1, Edmonton, AB, Canada (presented twice; 50 and 25 people).
133. Zijlstra, R. T. 2017. Feeding canola co-products to nursery pigs. BPS pre-conference Canolamazing seminar. Canola Council of Canada. Jan 10, Banff, AB, Canada (50 people).
132. Zijlstra, R. T. 2016. Swine nutrition facility and research overview at University of Alberta. Oct 18, ADM, Decatur, IL, USA (20 people).
131. Zijlstra, R. T. 2016. Dietary fiber and starch as prebiotics in swine diets. VII Congreso del Colegio Latinoamericano de Nutrición Animal CLANA. Oct 11, Cancun, Mexico (175 people).
130. Zijlstra, R. T. 2016. Dietary fiber and starch, digestive physiology, and metabolic health. ASAS/ASN Joint Symposium: Gut Microbiota, Diet and Health. Jul 19, Salt Lake City, UT (400 people).
129. Zijlstra, R. T. 2016. Impact of cereal carbohydrates on digestive physiology and gut health. 13th International Hydrocolloids Conference, May 19, Guelph, ON, Canada (50 people).
128. Zijlstra, R. T. 2016. Use of dietary carbohydrates as prebiotic in swine diets. Symp. Nonruminant Nutrition, Midwestern Sectional ADSA-ASAS Mtg. Mar 14-16, Des Moines, IA, USA [200 people].
127. Zijlstra, R. T. 2016. Co-product and carbohydrate digestion and use in pigs. Mar 8, Zhejiang University, Hongzhou, China (80 people).
126. Zijlstra, R.T. 2016. Alternative feedstuffs and feeding programs for nursery pigs. Banff Pork Seminar. Jan 13 and Jan 14, Banff, AB [presented twice; 200 and 50 people].
125. Zijlstra, R.T. 2015. Nutritional value of fibrous ingredients in swine nutrition. AMENA conference, Oct 21, Puerto Vallarta, Mexico (100 people)

124. Zijlstra, R.T. 2015. Animal and in vitro digestion models for estimates of value of energy and energy-yielding nutrients. Companion Animal Symposium – Bioenergetics of pet food. ADSA-ASAS Joint Annual Meeting. Jul 12–24, Orlando, FL (100 people).
123. Zijlstra, R.T. 2015. Starch properties affect its kinetics of digestion and thereby digestive physiology in pigs. Aarhus Univ., Tjele, Mar 25, Denmark (20 people).
122. Zijlstra, R.T. 2014. Research highlights A: Swine models and carbohydrate nutrition in pigs and Research highlights B: Co-products and feed additives Evonik, Dec 15, Hanau, Germany (xx people)
121. Zijlstra, R.T. 2014. Perspectives on co-product and carbohydrate digestion and use in pigs. De Heus, Dec 3, Ede, The Netherlands (20 people).
120. Zijlstra, R.T. 2014. Characterization, technologies, and feed additives to manage the risk of dietary inclusion of co-products in swine diets. DSM Nutritional Products. Dec 1, Kaiseraugst, Switzerland (10 people)
119. Zijlstra, R. T. 2014. University, industry, and government partnerships in innovation. Pet Food Assoc. of Canada. Nov 14, Banff, AB. (90 people).
118. Zijlstra, R. T. 2014. Opportunities and challenges with the use of carbohydrase and protease enzymes in swine formulations. Nutreco, Nov 7, Boxmeer, The Netherlands (10 people)
117. Zijlstra, R. T. 2014. Opportunities and challenges of alternative feedstuffs in a modern swine feeding program. Western Nutrition Conference, Sep 24 & 25, Edmonton, AB (100 people).
116. Zijlstra, R.T. 2014. Starch properties affect its kinetics of digestion and thereby digestive physiology in pigs. Department of Animal Nutrition, Wageningen University Research. Sep 8, Wageningen, The Netherlands (40 people).
115. Zijlstra, R. T. 2014. Opportunities and challenges with the use of carbohydrase and protease enzymes in swine formulations. ADSA-ASAS Joint Annual Meeting. Jul 20–24, Kansas City, MO (200 people).
114. Zijlstra, R. T. 2014. Characterization and feed technologies to manage the risk of dietary inclusion of co-products and additives, Centre québécois de valorisation des biotechnologies - Centre de développement du porc du Québec, Jun 17, Drummondville, QC (100 people).
113. Zijlstra, R. T. 2014. Starch nutrition and feedstuff research in pigs. Agriculture and Agri-Food Canada, Jun 16, Lennoxville, QC (20 people).
113. Schumann, B., and R. T. Zijlstra. 2014. Improving feed efficiency [Co-presentation]. 14th London Swine Conference. Mar 27, London, ON (40 people).
112. Zijlstra, R. T. 2014. High fiber swine diets. 14th London Swine Conference. Mar 27, London, ON (200 people).
111. Zijlstra, R. T. 2014. Alternative energy & protein sources, what's limiting, what's new and where research is taking us. Livestock Research Innovation Corporation, Feb 27, Guelph, ON, Canada (60 people).
110. Zijlstra, R. T. 2014. Inclusion of dietary co-products: impact on performance & bottom line. Swine Innovation Porc, Feb. 18, Stratford, ON, Canada (100 people, including on line).
109. Zijlstra, R. T. 2013. Vision for a modern swine feeding programme: challenges and opportunities. Provimi Conference. Nov. 14, Barcelona, Spain (100 people).

108. Zijlstra, R. T. 2013. Use of milk replacers to achieve the growth potential of piglets. Provimi Conference. Nov. 14, Barcelona, Spain (100 people).
107. Zijlstra, R. T. 2013. Inclusion of dietary co-products. Impact on performance & bottom line. Swine Innovation Porc. Sep 19, Edmonton, AB (20 people).
106. Zijlstra, R. T. 2013. Controlling feed cost by including alternative ingredients into swine diets. ADSA-ASAS Joint Annual Meeting. Jul 8–12, Indianapolis, IN (300 people).
107. Zijlstra, R. T. 2013. Starch properties affect their kinetics of digestion and thereby digestive physiology in pigs. 10th Starch Digestion Consortium Workshop. Apr 21, Boston, MA (20 people)
106. Zijlstra, R. T. 2013. Inclusion of dietary co-products: Impact on performance & bottom line. 2013 Alberta Pork Producer Meeting. Apr 9, Red Deer, AB (30 people).
105. Zijlstra, R. T. 2013. Impact of nontraditional ingredients and diets on pig health and performance. American Association of Swine Veterinarians. 44th AASV Ann. Mtg. Seminar #6, Feeding Group-housed sows and the growing herd efficiently. Mar 3, San Diego, CA. [60 people]
104. Zijlstra, R. T. 2012. Calibration equations – value of good calibration equations: What to calibrate for, and why? NIRS workshop. Nov 14 (Lethbridge, AB) and Nov 15 (Lacombe, AB) [presented twice; 80 and 80 people].
103. Beaulieu, A. D., and R. T. Zijlstra. 2012. Feeding low starch diets to swine. ADSA-AMPA-ASAS-CSAS-WSASAS Joint Meeting. July 15–19, Phoenix, AZ (co-presentation; 200 people).
102. Zijlstra, R. T. 2012. Keynote speaker: Starch and fiber properties affect their kinetics of digestion and thereby digestive physiology in pigs. 12th Int. Symp. on Digestive Physiology in Pigs. May 29–Jun 1, Keystone, CO, USA [420 people].
101. Zijlstra, R. T. 2012. Swine Nutrition (-Related) Animal and Laboratory Facilities and Research Overview at University of Alberta. Provimi North America, Apr 24, Brookville, OH [10 people].
100. Zijlstra, R. T. 2012. Opportunities for flax seed and fractions in the swine industry. Canadian Flax Research Workshop. Feb 21, Banff, AB [70 people].
99. Zijlstra, R. T. 2012. Novel swine feeding programs to enhance competitiveness and pork differentiation: feedstuffs and carbohydrates. Banff Pork Seminar. Jan 18 and Jan 19, Banff, AB [presented twice; 100 and 50 people].
98. Zijlstra, R.T. 2012. Swine nutrition animal and laboratory facilities at University of Alberta (Jan 4) and Swine nutrition research overview at University of Alberta (Jan 5). North Central Coordinating Committee (NCCC) on Swine Nutrition (NCCC042). Orlando, FL [25 people, US academic swine nutritionists].
97. Zijlstra, R.T. 2011 Update on AFNS programs and swine nutrition research. Alberta Branch of the Animal Nutrition Association of Canada. Nov 24, Edmonton, AB [30 people].
96. Zijlstra, R. T. 2011. Recent findings on NSP enzymes in pig nutrition. DSM Nutritional Products Marketing Division, Nov 15, St. Malo, France [50 people], Nov 17, Bremen, Germany [50 people], Birmingham, UK [35 people].
95. Zijlstra, R. T. 2011. Swine Research and Technology Centre. Canadian Centre for Swine Improvement – Genetics Committee Mtg. Oct 18, Edmonton, AB [25 people].
94. Zijlstra, R. T. 2011. Update of swine research with canola meal at the University of Alberta. Canola Council of Canada AAFC-cluster meeting. Sep 15, Edmonton, AB [20 people].

93. Zijlstra, R. T. 2011. Recent advances in fibre nutrition of pigs. 47th Eastern Nutr. Conf. May 11-12, Montreal, QC [150 people].
92. Zijlstra, R. T. 2011. Future of NSP-degrading enzymes to improve nutrient utilization of co-products in pigs. Apr 5, DSM Nutritional Products Global Headquarters, Basel, Switzerland. [50 people]
91. Zijlstra R. T. 2011. Evaluating the nutrient quality of co-product feedstuffs. Symp. Nonruminant Nutrition, Quantifying Feed Ingredient Quality. Midwestern Sectional ADSA-ASAS Mtg. Mar 14-16, Des Moines, IA, USA [200 people]
90. Zijlstra, R. T. 2010. Rapid methods for prediction of energy values of feedstuffs for pigs. 31st Western Nutr. Conf. Sep 21-23, Saskatoon, SK [100 people].
89. Zijlstra, R. T. 2010. Wheat DDGS in Pigs. DDGS Workshop at Western Nutr. Conf. Sep 23, Saskatoon, SK [50 people].
88. Zijlstra, R. T. 2010. Evaluation and use of co-products from the biofuel industry in pigs. Symp. EAAP Ann. Mtg. Aug 22-22, Heraklion, Greece [100 people].
87. Zijlstra, R. T. 2010. In vitro techniques to describe energy digestibility and kinetics of carbohydrate degradation of feedstuffs in swine. Porcicultura Tropical 2010. IV Seminario Internacional May 25-28, La Habana, Cuba [50 people].
86. Zijlstra, R. T. 2010. Feeding for profit vs. feeding to requirements. Apr 29-30. Swine Breeding Management Workshop. Edmonton, AB [40 people].
85. Zijlstra, R. T. 2009. Net energy and unique effects of peas. Pulse Canada Feed Pea Workshop: Creating New Opportunities for Feed Peas. Winnipeg, MB [30 people].
84. Zijlstra, R. T. 2009. Regaining Competitiveness – Alternative, Extruded Feedstuffs for Swine. Power of Extrusion Workshop. Nutrition Council. Winnipeg, MB [50 people].
83. Zijlstra, R. T. 2009. Rapid methods for the evaluation of feed quality of Canadian grains for swine nutrition. Sep 22. Grain Research Laboratory and Canadian International Grains Institute, Winnipeg, MB. [30 people]
82. Zijlstra, R. T. 2009. NSPases and Phytase for Alternative Feed Ingredients. Symp. Nonruminant Nutrition. ADSA-ASAS Annual Mtg. Jul 12-16, Montreal, QB, Canada. [150 people]
81. Zijlstra, R. T. 2009. New Developments in Feedstuffs for Animal Nutrition. Nutreco Boardroom Session, Noordwijk aan Zee, The Netherlands [10 people]
80. Zijlstra, R. T. 2009. Importance of energy in swine nutrition. Nutrition Roundtable. Feb 5. Swine Graphics Enterprises. Johnston, IA, USA [16 people].
79. Zijlstra, R. T. 2009. Synergies of barley bio-refining with the livestock industry. Jan. 29. Farm Tech, Edmonton, Alberta [200 people]
78. Zijlstra, R. T. 2009. Regaining Competitiveness – Alternative Feedstuffs for Swine. Banff Pork Seminar. Jan 21 and Jan 22 [50 and 50 people].
77. Zijlstra, R. T. 2008. Regaining Competitiveness – Alternative Feedstuffs for Swine. Alberta Pork Regional Meetings. Nov 10, Grand Prairie; Nov 13, Red Deer; Nov 14 Fort Saskatchewan [25, 100, and 70 people]
76. Zijlstra, R. T. 2008. Latest monogastric nutrition research findings from Canada. Feedworks. Coolum 2008 Nutrition Workshop. Nov 6-7. Coolum, QLD, Australia [70 people]
75. Zijlstra, R. T. 2008. Practical Application of the Net Energy System in Swine Nutrition. Pre-conference Coolum 2008 Nutrition Workshop. Nov 5. Coolum, QLD, Australia [60 people]

74. Zijlstra, R. T. 2008. Variability of quality in biofuel co-products. 42nd University of Nottingham Feed Conference. Sep 3-4, Nottingham, UK. [70 people]
73. Zijlstra, R. T. 2008. Practical application of the net energy system in swine nutrition. Symp. Nonruminant Nutrition: Energy Systems and Alternative Energy Ingredients for Swine. ADSA-ASAS Annual Mtg. Jul 7-11, Indianapolis, IN. [200 people]
72. Zijlstra, R. T. 2008. Net energy concepts. Friesen Livestock July Customer Meeting. July 2, Medicine Hat, AB; July 3, Lethbridge, AB. [50 people]
71. Zijlstra, R. T. 2008. Placing a proper nutritional value on corn and soy bean meal alternatives. Kemin Pre-conference at the World Pork Expo. Jun 4, Des Moines, IA. [50 people]
70. Zijlstra, R.T. 2008. Using bio-fuel by-products in feed. ANAC Provincial Meeting, Mar 12, Red Deer, Alberta. [40 people].
69. Zijlstra, R. T. 2008. Using bio-fuel by-products in feed. Feed mill workshop, Feb 20, Nova Scotia Agricultural College, Truro, Nova Scotia. [45 people].
68. Zijlstra, R. T. 2007. Alternate Feeds Due to High Prices. Hog Days, Brandon, MB. December 5-6, 2007 [30 people].
67. Zijlstra, R. T. 2007. New frontier in processing: ingredient fractionation. Australasian Pig Science Association meeting, Brisbane, Australia. November 25-28, 2007 [270 people].
66. Zijlstra, R. T. 2007. Net energy system for pigs. Australasian Pig Science Association meeting, Brisbane, Australia. November 25-28, 2007 [300 people].
65. Zijlstra, R. T. 2007. Application of enzymes to improve digestion of high fiber ingredients. 2007 Carolina Swine Nutrition Conference. Raleigh, NC, USA. November 13, 2007. [100 people]
64. Zijlstra, R.T. 2007. Characterization and use of wheat dried distiller's grains plus solubles (DDGS) in swine diets. Provimi Conference, Lisbon, Portugal. October 17-19. [50 people]
63. Zijlstra, R.T. 2007. A new look at the starch fraction in swine diets. Provimi Conference, Lisbon, Portugal. October 17-19. [50 people]
62. Zijlstra, R. T. 2007. Implications of feeding high dietary inclusion levels of canola meal. Saskatoon, SK. September 27. [50 people]
61. Zijlstra, R. T. 2007. The use of wheat DDGS in swine diets. Western Nutrition Conference, Saskatoon, SK. September 25-27, 2007. [125 people]
60. Zijlstra, R.T. 2007. Update on Feed Research Activities: Feed Quality Evaluation/NIRS, Feedstuffs, and Fiber. Animal Nutrition Association of Canada. Saskatoon. September 25, 2007. [50 people]
59. Zijlstra, R. T. 2007. Practical aspects of implementing an NE system for swine. Minnesota Nutrition Conference. Minneapolis, MN, USA. September 18-19. [150 people]
58. Zijlstra, R. T. 2007. Rapid methods for estimation of energy values of feedstuffs for pigs. Commemoration of Xu Zhenying's Centenary & International Symposium on Animal Science and Technology. Harbin, China. August 19-21. [300 people]
57. Zijlstra, R. T. 2007. Latest developments in alternative feedstuffs for pigs: Manitoba Swine Seminar, Winnipeg MB. January 31 & February 1. [150 people]
56. Zijlstra, R. T. 2007. Opportunities for Co-Product Utilization in Western Canada. Banff Pork Seminar, Banff, AB. January 17-18. [2 x 40 people]

55. Zijlstra, R. T. 2007. Overview of proposed feed quality evaluation/NIRS project. Alberta-ANAC Board of Directors. Strathmore, AB. January 15 [10 people]
54. Zijlstra, R. T. 2006. Potential Use of Wheat DDGS in Livestock Diets. Informa Economics - 10th Annual Canadian Fall Outlook Conference, Calgary, AB. November 30 and December 1, 2006. [200 people]
53. Zijlstra, R. T. 2006. The use of distiller's grain in swine diets: On-Farm Feedmill Management Workshop. June 22, Edmonton, AB; June 23, Brooks, AB. [75 people]
52. Zijlstra, R. T. 2006. Rapid methods for estimation of energy values of feeds for pigs. Pre-symposium Net energy systems for growing and fattening pigs. Digestive Physiology in Pigs, Vejle, Denmark. May 24, 2006. [50 people]
51. Zijlstra, R. T. 2006. Practical application of the NE system in swine. Degussa Pre-Symposium at the 2006 Banff Pork Seminar, Banff, AB. January 17, 2006. [4 people]
50. Zijlstra, R. T. 2005. The importance of carbohydrate fractions and their effects on performance in pigs. DSM Nutritional Products, Guelph, ON. November 30, 2005. [30 people]
49. Zijlstra, R. T. 2005. Grain quality and alternative ingredients. Nutrition Partners, Airdrie, AB. November 2. [40 people]
48. Zijlstra, R. T. 2005. The importance of a robust feed evaluation system for the production, trading, and utilization of feed grains. 26th Western Nutrition Conference, Calgary, AB. September 21-23. [200 people]
47. Zijlstra, R. T. 2005. The use for field peas in swine diets. Japan VIP Feed Buyers Program of the Canadian International Grains Institute, Edmonton, AB. July 28. [6 people]
46. Zijlstra, R. T. 2005. Grain and Pulse Processing: The Importance of Grinding and Quality Control of Particle Size. On-Farm Feedmill Management Workshop. June 22, Barrhead, AB; June 23, Olds, AB; June 24, Lethbridge, AB. [75 people]
45. Zijlstra, R. T. 2005. Development of a robust feed evaluation system to support the trading and utilization of feed grains. Novus International, St. Louis, MO. June 20. [40 people]
44. Zijlstra, R. T. 2005. Fine-Tuning Feed Costs Using Alternative Feed Ingredients. 2005 Prairie Swine Centre Inc. Focus on the Future Conf., Winnipeg, MB. March 8-9. [100 people]
43. Zijlstra, R. T. 2005. Hog feeding strategies for maximizing growth efficiency and reducing manure nutrient output. Atlantic Canada Hog Feeding Strategies Workshop. Moncton, NB. February 22 and February 23. [80 people]
42. Zijlstra, R. T. 2004. Feed processing and quality control. Chinese Delegation from the Ministry of Agriculture on HACCP & Feed Security Administration. Edmonton, AB. December 6, 2004.
41. Zijlstra, R. T. 2004. Practical Application of Enzyme Supplementation in Swine. Carolina Swine Nutrition Conference, Raleigh, NC. October 26-27.
40. Zijlstra, R. T. 2004. Ingredient fractionation: the worth of sum of parts versus the whole for animal nutrition. 25th Western Nutrition Conference, Saskatoon, SK. September 28-30.
39. Zijlstra, R. T. 2004. The use for field peas in swine diets. Korea VIP Feed Buyers Program of the Canadian International Grains Institute, Saskatoon, SK. July 23.
38. Zijlstra, R. T. 2004. Update low-quality grains project. Animal Nutrition Association of Canada – Saskatchewan Division meeting, Waskesiu, SK. June 3.

37. Zijlstra, R. T. 2004. Exploring opportunities in using alternative feedstuffs. 2004 Prairie Swine Centre Inc. Focus on the Future Conf., Red Deer, AB. March 30-31.
36. Zijlstra, R. T. 2004. The impact of nutrition on reducing the impact of the swine industry on the environment. Manitoba Swine Seminar, Winnipeg, MB. January 28-29.
35. Zijlstra, R. T. 2004. Variation in ingredient quality for pigs. Danisco Animal Nutrition Banff Pork Seminar Pre-conference, Banff, AB. January 20.
34. Zijlstra, R. T. 2003. The potential for peas in swine diets. Processing for Profit: a Conference for Western Canadian Pulse Processors. Saskatchewan Agriculture, Food and Rural Revitalization, Saskatoon, SK. December 3.
33. Zijlstra, R. T. 2003. Impact on nutrition on greenhouse gas emissions from non-ruminants. 24th Western Nutrition Conference, Winnipeg, MB. September 10-11.
32. Zijlstra, R. T. 2003. Variation in feed quality of barley for pigs. 3rd Canadian Barley Symposium, Barley Development Council. Red Deer, AB. June 19-20.
31. Zijlstra, R. T. 2003. Addressing variation in feed quality: what to do when feed quality declines. 2003 Prairie Swine Centre Inc. Focus on the Future Conf., Saskatoon, SK. March 25-26.
30. Zijlstra, R. T. 2002. Variation in feed quality. Special Open House. Grain Quality and Swine Diets: Issues and Solutions for the 2002 Crop. Saskatoon, SK. December 3.
29. Zijlstra, R. T. 2002. Addressing variation in ingredient quality: what to do when feed quality declines. PSCI-FeedRite meetings. November 26, Swift Current, SK; November 27, Saskatoon, SK.
28. Zijlstra, R. T. 2002. Maximizing net income: feeding in a cost price squeeze. Alberta Pork Regional Information Mtg. November 12, Westlock, AB; November 13, Red Deer, AB; November 14, Lethbridge, AB.
27. Zijlstra, R. T. 2002. Maximize net income and Feeding to reduce nitrogen and phosphorus excretion. Quality Pork Links IX; Making the Most of a New Situation. Montana Pork Producers Council producer educational session, Great Falls, MT. October 10.
26. Zijlstra, R. T. 2002. Selected topics in Feed Ingredient Research. China – Canada Feed Pulse Program of the Canadian International Grains Institute, Saskatoon, SK. August 15.
25. Zijlstra, R. T. 2002. Canadian data wheat quality: Prairie Swine Centre experiences. Danisco Wheat Quality Workshop, Quebec, QC. July 21.
24. Zijlstra, R. T. 2002. Module D: Feed Strategies: using dietary and management strategies to reduce the nutrient excretion of swine and poultry. Manure Management Stewardship Curriculum – Annual Agricultural Institute of Canada Conference, Saskatoon, SK. July 15-17.
23. Zijlstra, R. T. 2002. Update on ingredient and nutrient management research at Prairie Swine Centre. Federated Co-op Swine Nutrition Group Meeting, Saskatoon, SK. May 16.
22. Zijlstra, R. T. 2002. Importance of understanding ingredient quality. Finnfeeds Swine Seminar, Helsinki, Finland. April 10-12.
21. Zijlstra, R. T. 2002. Diet manipulation to reduce nutrient content in swine manure. 2002 Prairie Swine Centre Inc. Focus on the Future Conf., Winnipeg, MB. February 19-20.
20. Zijlstra, R. T. 2002. Characterization of the nutritional value of western Canadian feed ingredients for pigs. Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK. February 11.

19. Zijlstra, R. T. 2001. Processing ingredients and the use of enzymes to enhance performance and profit. PSCI and Sask Pork/Manitoba Pork Focus on Feeding Mtg. December 11, Saskatoon, SK; December 13, Swift Current, SK; December 18, Winnipeg, MB and Portage la Prairie, MB.
18. Zijlstra, R. T. 2001. Processing ingredients and the use of feed additives to enhance performance and profit. 3rd Annual Swine Technology Workshop, Red Deer, AB. October 31.
17. Zijlstra, R. T. 2001. Selected topics in Feed Ingredient Research. Mexico – Canada Feed Ingredient Program of the Canadian International Grains Institute, Saskatoon, SK. October 19.
16. Zijlstra, R. T. 2001. Variation in nutritional value of western Canadian feed ingredients for pigs. 22nd Western Nutr. Conf., Saskatoon, SK. September 24-26.
15. Zijlstra, R. T. 2001. Effect of supplemental enzyme in barley with low, medium, and high DE content fed to grower pigs & Effect of particle size and enzyme supplementation on nitrogen and phosphorus excretion of grower pigs. Standard Nutrition's Swine Mtg. April 24, Viking, AB; April 25, Lethbridge, AB; April 26, Great Falls, MT.
14. Zijlstra, R. T. 2001. Diet manipulation to reduce nutrient content in swine manure. 2001 Prairie Swine Centre Inc. Focus on the Future Conf., Red Deer, AB. February 21-22.
13. Zijlstra, R.T., and G. Belanger. 2000. Feed formulation to manage nutrient excretion. Saskatchewan Pork Industry Symposium, Saskatoon, SK. November 14-16.
12. Zijlstra, R. T. 2000. Update nutrition research at Prairie Swine Centre. Nutrition Open House. Prairie Swine Centre Inc., Saskatoon, SK. December 5.
11. Zijlstra, R. T. 2000. Characterising and manipulating energy content of ingredients. 2000 Prairie Swine Centre Inc. Focus on the Future Conference, Saskatoon, SK. March 28-29.
10. Zijlstra, R. T. 2000. Diet formulation, least-cost diet formulation, and water quality. Saskatchewan Agriculture & Food – Pork Central Introduction to Swine Nutrition Workshop. February 2 (Saskatoon, SK) and 16 (Swift Current, SK), and March 17 (Yorkton, SK).
9. Zijlstra, R. T. 2000. Feed evaluation and feed intake. 2000 Banff Pork Seminar, Banff, AB. January 19-21.
8. Zijlstra, R. T. 2000. Evaluation of ingredient quality for pigs. Finnfeeds Banff Nutrition Meeting, Banff, AB. January 18.
7. Zijlstra, R. T. 1999. Update Nutrition Research at Prairie Swine Centre. Nutrition Open House. Prairie Swine Centre Inc., Saskatoon, SK. December 7.
6. Zijlstra, R. T. 1999. Selected topics in Feed Ingredient Research. Latin America – Canada Feed Ingredient Program of the Canadian International Grains Institute, Saskatoon, SK. August 27.
5. Zijlstra, R. T. 1999. Selected Topics in Swine Feed Ingredient Research. Department of Animal and Poultry Science, University of Saskatchewan, Saskatoon, SK. March 29.
4. Zijlstra, R. T. 1998. Measurements to predict swine digestible energy DE of barley. Alberta Barley Commission Research Committee Meeting, Red Deer, AB. December 2.
3. Zijlstra, R. T. 1998. Measurements to predict swine DE of barley. 2nd Feed Grain Quality Conf., Edmonton, AB. November 8-10.
2. Zijlstra, R. T. 1998. Selected topics in Feed Ingredient Research. Philippines – Canada Feed Ingredient Program of the Canadian International Grains Institute, Saskatoon, SK. July 10.
1. Zijlstra, R. T. 1998. Growing our protein – new field pea research. 1998 Prairie Swine Centre Inc. Satellite Conf., Saskatoon, SK. February 17.



