Alex Bach

Research Professor

University of Lleida

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Current Position

Research professor. Department of Animal Science. University of Lleida. Since 2025.

Director of the Catalan Institute of Milk and Dairy Products (Institut de la Llet i els Productes Làctics de Catalunya). A non-profit organization aimed and disseminating and sharing scientific facts about milk (from its production to its consumption and its positive repercussions on consumers). Since 2024.

Education

Ph.D. in Animal Science, University of Minnesota, 1999

Master in Animal Science, University of Minnesota, 1996

Veterinary Medicine, Universitat Autònoma de Barcelona, 1994

Previous Scientific and Professional Activities

Founder of Dairy Information Technologies and lead scientist. *2020*
A company devoted to develop nutritional models for ruminants based on machine learning algorithms. The product algoMilk is now present in 9 countries.

Founder and Head of the Department of Ruminant Production of IRTA *2002-2016*
Founded and directed the Department of Ruminant Production of IRTA. The Department started with one researcher (myself), and at the end of 2015, it counted with 5 tenure researchers, 4 technicians, and a number of graduate students. The Department was self-sufficient (economically) since 2011 and during these 13 years produced more than 100 publications and captured more than 10 million euros in research fundings. At the end of 2016, resigned as Head of the Department.

Dairy Research and Product Manager of Cargill Spain *2001-2002*
Responsible for managing and designing products for dairy cows, ewes and goats for Spain.Also, responsible of training and provide technical support for the sales force of Spain. In addition, responsible for development of mathematical models to describe the metabolism of dairy ruminants.

Dairy Research Manager Agribrands Europe *1999-2001*
Responsible for the construction of equations and prediction models of nutritional value of raw materials, as well as developing models to describe animal requirements.Design of products and feeding programs for dairy cows, ewes and goats for Spain, Portugal, France, Italy, Hungary, and Turkey. Technical support for the countries mentioned above.

Laboratory Coordinator *1995-1999*
Coordinator of the Ruminant Nutrition Laboratory of the Department of Animal Science at the University of Minnesota.

Other Scientific Activities

- Member of the board of trustees of FEDNA (Fundación Española para el Desarrollo de la

Nutrición Animal) 2024-present.

- Member of the Life Science Panel of the European Research Council (ERC) for Consolidator Grants. 2023.
- Chair of the Animal Behavior and Well-Being Committee of the American Dairy Science Association. 2022.
- Member of the Life Science Panel of the European Research Council (ERC) for Starting Grants. 2021.
- Reviewer of the 8th Edition of the 'Nutrient Requirements of Dairy Cattle' published by the National Academy of Sciences. Engineering, and Medicine. 2021.
- Member of the Life Science Panel of the European Research Council (ERC) for Starting Grants. 2019.
- Member of the Animal Behavior and Well-Being Committee of the American Dairy Science Association. 2019-2022.
- Section Editor of the Journal of Dairy Science. 2019-2024.
- Member of the Scientific Direction of IRTA. 2016-2018.
- Member of the Scientific Committee for the International Conference on Production Diseases in Farm Animals (ICPD) 2017-2019.
- Member of the Life Science Panel of the European Research Council (ERC) for Starting Grants. 2017.
- Member of the International Agriculture Committee of the American Dairy Science Association. 2016-2017.
- Founder and Head of the Department of Ruminant Production of IRTA. 2002-2016.
- Editorial Board member of the Journal of Dairy Science. 2014-2018.
- Member of the Scientific Committee of ANEMBE (Asociación Nacional de Especialistas en Medicina Bovina de España). 2013-2017.
- Guest editor for a special issue 'Nutritional and Metabolic Health of Dairy Cows' in Animals (ISSN 2076-2615), Volume 5. 2015.
- Associate Editor of Animal Production Science. 2011-present.
- Board member of FEDNA (Fundación Española para el Desarrollo de la Nutrición Animal) 2007-present.
- Editorial Board member of the journal Animal Feed Science and Technology. 2006-2020.
- Member of the organizing committee of Eurovacum. 2006-2013.
- Committee member for the National Milk Producers Federation Richard M. Hoyt Award of the American Dairy Science Association. 2011-2013.
- Member of the scientific Panel of Feed Additives of the European Food Safety Authority (EFSA). 2012 and 2013.
- Consultant as ruminant nutritionist for the American Soybean Association. 2006-2013.
- Member of the Scientific External Review Working Group of theEuropean Food Safety Authority (EFSA). 2010 and 2011.

- Member of the Editorial Board of the magazine Formulación, Revista de Alimentación y Nutrición Animal. 2006-2017.
- Member of the Scientific Committee of ANEMBE (Asociación Nacional de Especialistas en Medicina Bovina de España). 2005-2010.
- Editorial Board member of the magazine Cría y Salud. 2005-2016.
- Member of the Animal Care Committee of IRTA. 2004-2016.
- Chair of the Ruminant Nutrition Committee of the American Dairy Science Association. 2011-2012.
- Member of the Ruminant Nutrition Committee of the American Dairy Science Association. 2009-2011.
- Chair of the International Agriculture Committee of the American Dairy Science Association. 2009-2010.
- Board member of ANEMBE (Asociación Nacional de Especialistas en Medicina Bovina de España). 2004-2008.
- President of the Scientific Committee of ANEMBE (Asociación Nacional de Especialistas en Medicina Bovina de España). 2005-2006.
- Scientific evaluator for NSERC, ANEP (Agencia Nacional de Evaluación y Prospectiva, Spanish Ministry), Agencia de Investigación Española (AEI,Spanish Ministry), Agencia de Calidad Andaluza (Andalusia), Xunta de Galicia (Galicia), AGAUR (Catalonia), the Science Foundation of Ireland, the Slovak Research and Development Agency (Slovak Republic), the Swiss National Science Foundation (Switzerland), the Romanian National Research Council (Romania), and the Natural Sciences and Engineering Research Council of Canada (Canada).
- Scientific reviewer for Journal of Animal Science, Journal of Dairy Science, Journal of Dairy Research, Journal of Food Science and Technology International, Animal, Italian Journal of Animal Science, British Journal of Nutrition, CAB Reviews, Canadian Journal of Animal Science, Journal of Animal Physiology and Animal Nutrition, Animal Production Science, Animal, Animals, Frontiers, Livestock Science, Research in Veterinary Science, Acta Agriculture Scandinavica (Section A: animal science), Applied Animal Science, Journal of Dairy Science Communications, BioMed Central Veterinary Medicine, Nature Scientific Reports, PLoS ONE, and Applied Animal Science.

Teaching and Workshops (outside University of Lleida)

- Master course on dairy production for the British Cattle Veterinary Association (On-line). November, 2023. UK.
- Fondazione Patrimonio Ca' Granda. Robotic feeding and management of dairy cattle. October 26th, 2022, Milano, Italy.
- Eight-hour Master course on dairy production for the British Cattle Veterinary Association (On-line). November 3rd and 17th, 2021. UK.
- Undegraduate course on calf management and nutrition (On-line). July-August 2021. Escola de Veterinária. Universidade Federal Minas Gerais, Brazil.
- Workshop on dairy economics and management. 2018. Total Dairy Seminar, July 4th, Stratford-upon-Avon, UK.
- Workshop on heifer rearing and management.2018. Total Dairy Seminar, July 5th, Stratford-upon-Avon, UK.
- Millora de la rendibilitat de les explotacions de vacum lleter. Monells, June 21th, 2016.

- Dairy Challenge: Innovative calf management and nutrition concepts. University of Guelph, ON, Canada. November, 16th, 2015.
- Organizer of a scientific colloquium on Dairy Science - The US and EU perspectives. IRTA, Caldes de Montbui, 21 October, 2015.
- Coordinator and main lecturer of *Fostering and improving dairy profits through nutrition and management*. Blanca, Hostalets de Tost, 20-23 April, 2015.
- Coordinator of the workshop entitled *Practical high-level dairy management*, Blanca, Hostalets de Tost, 13-14 January, 2015.
- Coordinator and main lecturer of *Mejora de los beneficios a través del manejo de datos*. Blanca, Hostalets de Tost, 18-20 November, 2014
- Organizer of a scientific colloquium on Genomics. Blanca, Hostalets de Tost, 28-29 October, 2014.
- Coordinator and main lecturer of*Fostering and improving dairy profits through nutrition and management*. Blanca, Hostalets de Tost, 20-24 October, 2014.
- Coordinator and main lecturer of *Introduction to dairy management: from concepts to implementation*. Blanca, Hostalets de Tost,1-2 October, 2014.
- Coordinator and main lecturer of *Advanced dairy management*. Blanca, Hostalets de Tost, 1-2 July, 2014.
- Coordinator of *Objective dairy management*. Blanca, Hostalets de Tost, 3-5 June, 2014.
- Millora de la rendibilitat de les explotaciones a través del maneig, nutrició, i valoració de les matèries primeres. Santa Coloma de Farners, February 27, 2014.
- Nutrición y manejo de la recría y de la vaca para optimizar la rentabilidad. Course for Veterinary Practitioners. San Francisco, Argentina, May 2012.
- Master in Ruminant Production (Nutrition, Management, and Welfare). Universitat Autònoma de Barcelona.October, 2011.
- Coordinator and main lecturer of *Curso de Post-grado en Alimentación del Vacuno Lechero*. 2011. A graduate level course for professional practitioners (Continuing education) offered by the *Universitat de Girona*.
- Workshop at Dutch Bovine Conference. Utrecht, The Netherlands. February, 2011.
- On-line course on Dairy Cattle Welfare offered by the Royal Academy of Veterinary Sciences of Spain. Available on-line since December, 2010. http://www.racveleche.es/
- Coordinator and main lecturer of *Curso de Post-grado en Alimentación del Vacuno Lechero*. 2009-2010. A graduate level course for professional practitioners (Continuing education) offered by the *Universitat de Girona*.
- Grupo de Desarrollo en Cow Comfort. Vitoria, October, 2009.
- Grupo de Desarrollo en Cow Comfort. Vic, April, 2008.
- Grupo de Desarrollo en Cow Comfort. Galicia, February, 2008.
- Lecturer in the 7th *Curs d'especialització sobre vaquí de llet*, organized by l'escola de capacitació agrària de Girona. Girona. February, 2008.
- Grupo de Desarrollo en Cow Comfort. Galicia, December, 2007.
- Grupo de Desarrollo en Cow Comfort. Santander, November, 2007.

- Grupo de Desarrollo en Cow Comfort. Lleida, May, 2007.
- Repercusiones del incremento de la producción de biocarburantes en la alimentación animal Jornadas sobre biocombustibles y alimentación animal. Ministerio de Agricultura, Pesca, y alimentación. Madrid, January, 2007.
- Master in Ruminant Production (Nutrition, Management, and Welfare). Universitat Autònoma de Barcelona. January, 2007.
- Management, nutrition, and objectives of dairy replacement heifers. Symposium of efficient production of ruminants. Dunboyne, Ireland. December, 2006.
- Manejo, nutrición, y objetivos de la recría del vacuno lechero. AFCA. Cantabria. December, 2006.
- Lecturer in the 5th *Curs d'especialització sobre vacúm de llet*, organized by l'escola de capacitació agrària de Girona. Girona. February, 2006.
- IV Jornadas de Especialización de Mouriscade. Diputación de Pontevedra. Lalín, October, 2005.
- Jornada Tècnica per a la innovació de les Explotacions de Vacum de Llet. DARP. Lleida, June, 2005.
- Acidosis en el vacuno lechero. Semana Verde de Silleda. June, 2005.
- Alternativas a la monensina en el engorde de terneros. Lleida. Organized by Cotècnica. June, 2005.
- Curso de Alimentación Práctica en Explotaciones Ganaderas. Organized by Instituto Asturiano de Administración Pública. May, 2005.
- Mineral nutrition of dairy cattle. Lisbon, Portugal. Organized by Alltech. May, 2005.
- Lecturer of a PhD course on Ruminant metabolism offered by the Universitat Autònoma de Barcelona. May, 2005.
- Cow comfort. Madrid. Organized by Cargill Animal Nutrition. May, 2005.
- Millora de la productivitat lletera: Alimentació, maneig i confort. Mercat del Ram. Vic, March, 2005.
- Jornadas Técnicas de Leche Pascual. Inversión de grasa y proteína en leche. Ventajas, inconvenientes, y perspectivas. Aranda de Duero. February, 2005.
- Lecturer in the 4th *Curs d'especialització sobre vacum de llet*, organized by l'escola de capacitació agrària de Girona. Girona. February, 2005.
- Jornadas de Vacuno Lechero: Cow Comfort. Os Irmandiños. Galicia, November, 2004.
- III Jornadas de Especializacióm de Mouriscade. Diputación de Pontevedra. Lalín, October, 2004.
- Lecturer of the fifth block of the Master in Dairy Science offered by the Univeristat Autònoma de Barcelona.October, 2004.
- III Curso de Especialización en Vacuno de Leche. Alltech. Barcelona and Madrid. September, 2004.
- Control de calidad de la semilla de soja integral: Métodos laboratoriales. V Jornadas Técnicas de EspecializaciónMadrid, May, 2004.

- Lecturer in the 2nd *Curs d'especialització sobre vaquí de llet*, organized by l'escola de capacitació agrària de Girona. Girona. November, 2003.
- Lecturer in the 2nd workshop on transition cows, and reproduction-nutrition interactions. November, 2003.
- II Jornada Professional de la carn de vedella. Seva. September, 2003.
- Jornada tècnica sobre blat de moro i userda. La Tallada de l'Empordà. August, 2003.
- Lecturer of the Master on beef nutrition and management of the Universitat Autònoma de Barcelona. 2003.
- Lecturer of a graduate course on dairy nutrition organized by ADIPREM. 2003
- Lecturer of a course on dairy nutrition organized by ASFAC. 2003.
- Lecturer of a PhD course on Ruminant metabolism offered by the Universitat Autònoma de Barcelona.May, 2003.
- Lecturer of two classes on Forage Quality at the Universitat de Lleida.February, 2003.
- Lecturer of the second block of the Master in Dairy Science for professional practitioners offered by the Universitat Autònoma de Barcelona. April 2003.
- Lecturer and coordinator of the nutrition block of the Master in Dairy Science offered by the Universitat Autònoma de Barcelona in January, 2003.
- Lecturer and co-organizer of a workshop on cow comfort held at the VII International congress organized in Madrid by ANEMBE on December, 2002.
- Lecturer of the courses of continuing education organized by the Universitat Autònoma de Barcelona on Technical Analysis of Dairy Enterprises. February-March, 2002.
- Lecturer of a PhD course entitled "Producción y Alimentación de Rumiantes Lecheros", offered by the Universitat Autònoma de Barcelona.January 2002, 2003, 2004.
- Co-organizer (in conjunction with the UAB) of a course on dairy cow nutrition using the Cornell model. 1998, 1999, 2000, and 2001.
- Certificate of *Preparing Future Faculty* program of the University of Minnesota to train future teaching staff. 1998-1999.

Theses Directed

Science in Agriculture Theses

1. Maria Vidal. 2015. Performance and health implications of stocking density in dairy replacement heifers. Universitat de Barcelona.
2. Ricard Martin. 2015. Hypocalcemia in dairy cows. Universitat de Girona.
3. Roberto Cocco. 2010. Rumen acidosis. Universita degli Studi di Sassari, Italy.
4. Anna Maria Puddu. April, 2010. Effect on feed sorting of adding plain or flavored water to a TMR for heifers. Universita degli Studi di Sassari, Italy.
5. Roger Latorre. July, 2008. Estudi de les coixeses a les vaques Frisones del Gironés. Universitat de Lleida.
6. Quar Molas. May, 2008. Repercussions d'un trànsit lliure sobre el consum i pauta d'ingestió del vaquí lleter amb un sistema de munyida robotitzada. Universitat de Girona. *Received the Award to the Best Science in Agriculture Thesis in 2008.*

7. Raimon Ripoll. June, 2007. Efecte de la suplementació de llevats (*Saccharomyces cerevisiae*) a la dieta ens els rendiments productius de xais de raí§a Lacaune. Universitat de Lleida.

8. Ibai Martínez. May, 2006. The effects of yeast on rumen pH. Universitat de Girona.

9. Albert Falgorona. September, 2005. Efecte de la grandària de la partícula sobre la separació dels aliments a l'estable en la ració unifeed de vacum de llet i la relació amb el percentatge de greix a la llet. Universitat de Girona.

10. Albert Anglada. September, 2003. Efecte de la longitud de partícula les racions d'alimentació de les vaques sobre la quantitat de greix a la llet. Universitat de Girona.

Master Theses

1. Mieke Van de Pas. 2015. Starch and fiber supply to young calves. University of Wageningen. (Co-director).

2. Gemma Araujo. 2012. Modulation of the metabolism of carbohydrates and animal performance of Holstein calves. Universitat Autònoma de Barcelona.

3. Cristina Yunta. 2012. Interactions among lying behavior, feeding behavior, and lameness in lactating dairy cows. Universitat Autònoma de Barcelona.

4. Carles Montoro. 2008. Defining palatability in calves. Universitat Autònoma de Barcelona.

5. Carlos Adelantado. 2005. Detection of *Ostertagia ostertagi* antibodies using an indirect ELISA on milk samples and its relationship with milk parameters in two different production systems. Universitat Autònoma de Barcelona.

6. Marta Terré. 2005. Optimum month of pregnancy to maximize average daily milk production in Holstein cows. Universitat Autònoma de Barcelona.

7. Cristina Iglesias. 2005. The effect of *Lactobacillus buchneri* on aerobic stability, fungal count, and mycotoxin concentrations of corn silages. Universitat Autònoma de Barcelona.

PhD Theses

1. Mariona Beltrán. On going.

2. Simone Silvestrelli. On going.

3. Cristina Yunta. 2015. Impact of prenatal and neonatal nutrition on metabolism and future performance in dairy heifers. Universitat Autònoma de Barcelona.

4. Gemma Araujo. 2015. Nutritional strategies to improve performance and health of Holstein calves. Universitat Autònoma de Barcelona.

5. Carlos Montoro. 2012. Influence of feed characteristics and sensorial perception on solid feed consumption of young calves around weaning. Universitat Autònoma de Barcelona. **This thesis received an 'Extraordinary Award' from the Graduate School of the University Autonomous of Barcelona**.

6. Marta Blanch. 2009. Estudio de la acidosis ruminal y nuevas estrategias de prevención. Universitat Autònoma de Barcelona. (Co-director).

7. Marta Terré. 2007. Enhanced-growth feeding programs for dairy calves: nutrition, management, and long-term effects. Universitat Autònoma de Barcelona.

PhD Thesis Committees

1. Leoni Martins. 2024. PennState, USA.

2. Robert Hyde. 2022. University of Nottingham, UK

3. Kuai Yu. 2020. Universitat Autònoma de Barcelona, Spain.
4. Mieke Van Eetvelde. 2020. University of Gent, Belgium.
5. Harma Berends. 2007. Wageningen, The Netherlands
6. Anne Offner. 2003. INRA-PG, France.
7. Sophie Rigout. 2002. INRA, France.

Patents

- Method for determining an optimized group feed composition, corresponding computer program, local and federated systems. Patent number: EP20382418.0 (2020).
- Method for increase milk production by ruminants. Patented by APC. Patent number US-14/853,69 (2017).
- Compositions and method for controlling infection in non-human mammals by apolipoprotein. Patented by Ceva. Patent number: EP13170932 (2013), which in 2014 went global (WO2014/195413).
- Use of hydrolyzed hemoglobin with high degree of hydrolysis to increase ruminal bacterial mass. Patented by APC. Patent number: P201131164 (2013) and US-14/131,098 (2016).
- Obtención de leche enriquecida en ácidos grasos omega-3 y acido linolénico conjugado a partir de la suplementación de la dieta del ganado con la combinación extrusionada de semilla de lino, salvado de trigo y harina de girasol. Patented by Lodyn, ICREA-IRTA, and CSIC. Patent number: P-200-802-822 (2008).
- Digital procedure to determine particle size distributions of forages and rations for ruminant animals. Patented by ICREA and IRTA. Patent number: P-200-301-450 (2003)
- Production of milk naturally enriched with omega-3 fatty acids. Patented by Cargill España. Patent number: P-200-302-149 (2002).

Invited Speeches at Congresses and Symposia

1. Integración de datos e IA: cómo mejorar la rentabilidad de las explotaciones a través del manejo y la nutrición. 2025. **Bach, A.** NurtriForum, April 9th, Lleida, Spain.
2. The role of buffers and alkalizers to improve rumen function and animal performance.2025. **Bach, A.** Florida Ruminant Nutrition Symposium. February 15th, 2025. Gainesville, Florida, USA.
3. Herramientas para la toma de decisiones en las explotaciones de leche. 2024. **Bach, A.** Seragro. November 15th, University of Lugo, Spain.
4. Keynote lecture: Precision feeding technologies and strategies to improve profits, health, and reproductive performance of dairy farms. 2024. **Bach, A.** 11th European Conference on Precision Livestock Farming. 9-12 September, Bologna, Italy.
5. Management of young animals: from calves to heifers to have the best performance. 2024. **Bach, A.** Association of Embryo Technology in Europe. September 4th, Brescia, Italy.
6. Invited Symposium: Probiotics (direct-fed microbials) and Feed Efficiency in Dairy Cows. 2024. **Bach, A.** Annual Meeting of the American Society of Animal Science, July 23rd, Calgary, Canada.
7. Nutrizione e gestione dei vitelli dalla nascita al post-svezzamento. 2024. **Bach, A.** XX Congress of the Mastitis Council Italy. May 11th, Reggio Emilia, Italy.

8. Maximizing profits by optimizing post-weaning nutrition of calves. 2024. **Bach, A.** Michigan Dairy Health Symposium. February 29th, Michigan, USA.

9. Setting the Stage: Rearing calves from birth to weaning. 2024. **Bach, A.** Michigan Dairy Health Symposium. February 29th, Michigan, USA.

10. Data management and key performance indicators to maximize profits and minimize environmental impact. 2024. **Bach, A.** Triennial Symposium of Progressive Dairy Operators. February 28th, Ontario, Canada.

11. Feeding and management of rearing calves during the first 120 of age. 2023. **Bach, A.** VIII FEDNA-ANEMBE Conference on Ruminant Nutrition. December 12th, Madrid, Spain.

12. Use of data for objective decision making on dairy farms. 2023. **Bach, A.** VIII FEDNA-ANEMBE Conference on Ruminant Nutrition. December 12th, Madrid, Spain.

13. Heifer rearing: Paving the road for a healthy, productive, and profitable life. 2023. **Bach, A.** British Cattle Veterinary Association Congress, 19th October, Teflord, UK.

14. Feeding and managing the dairy cow through transition. 2022. **Bach, A.** Belgium Buiatrics, University of Ghent. June 2nd Ghent, Belgium.

15. Associations between subclinical hypocalcemia and postparturient disease in dairy cattle. 2022. **Bach, A.** Dairy Seminar. June 2nd. Szolnok University, Hungary (given on-line).

16. Placing the veterinary at the center of the profit engine of a dairy herd. 2022. **Bach, A.** Belgium Buiatrics, University of Ghent. June 3rd Ghent, Belgium.

17. Marginal feed costs and profits when feeding groups of cows. 2021. **Bach, A.** Global Dairy Talks (by Southwest Nutrition Conference). 23rd April, USA (given on-line).

18. Improve dairy profitability through optimal dairy replacement strategies. 2021. **Bach, A.** Australian Association of Ruminant Nutrition. 21st April, Australia (given on-line).

19. Successful calf and heifer rearing management. 2021. **Bach, A.** 2nd International Herd Health and Management Congress. 17th May, Turkey (given on-line).

20. Key aspects of solid feed for calves from birth to post-weaning: Nutrients, physical forms, and quantity. 2021. **Bach, A.** Dairy Calf and Heifer Association Annual Conference. April, 9th. Appleton, Wisconsin, USA (given on-line).

21. Effects of Nutrition and Genetics on Fertility in Dairy Cows. 2021. **Bach, A.** Danish Cattle Veterinary Association. March 17th, Denmark (given on-line).

22. Understanding epigenetics in dairy cattle. 2021. **Bach, A.** Danish Cattle Veterinary Association. March 16th, Denmark (given on-line).

23. Advances in efficiency of growing dairy replacements. 2021. **Bach, A.**, J. Ahedo, and A. Kertz. 2021. ADSA-ARPAS Symposium: New Advances in Dairy Efficiency. January 28th. USA. (given-online)

24. Considering feed efficiency in heifers. 2020. **Bach, A.** Sivar. October 9th, Cremona, Italy. (given-online)

25. Optimization of rearing practices in dairy herds. 2020. **Bach, A.** Sivar. October 9th, Cremona, Italy. (given-online)

26. Calf growing: nutrition and management aspects before weaning. 2019. **Bach, A.**. Dairy Seminar Series 2019. Szolnok University. November 27th, Szolnok, Hungary.

27. Heifer growing: nutrition and management aspects after weaning. 2019. **Bach, A.** Dairy Seminar Series 2019. Szolnok University. November 27th, Szolnok, Hungary.

28. Plane of Nutrition in Early Life to Support Growth and Health During both Pre- and Post-weaning. 2019. **Bach, A.** Smart Calf conference. November 4th, Guelph, Ontario.

29. Manejo y nutrición de la recría del vacuno lechero. 2019. XIII Jornada Ganadera de Colombia. **Bach, A.** September 17th, Bogota, Colombia.

30. Decomposing efficiency of milk production and maximizing profit. 2019. **Bach, A.**, M. Terré, and M. Vidal. Annual Meeting of the American Dairy Science Association. June 25th, Cincinnati, OH, USA.

31. Rearing calves and heifers for maximum production and health. 2019. **Bach, A.** Four-State Dairy Nutrition and Management Conference. June 13th, Dubuque, IA, USA.

32. Successfully transitioning the dry cow from the end to the beginning of lactation. 2019. **Bach, A.** Four-State Dairy Nutrition and Management Conference. June 13th, Dubuque, IA, USA.

33. Interaction of nutrition and epigenetic effects in dairy cattle. 2019. **Bach, A.** 2019 ANAC Conference. May 16 th, Niagara Falls, ON. Canada.

34. El bienestar en el vacuno lechero. 2019. **Bach, A.** Nutriforum 2019. April 12th, Lleida.

35. Managing the dry cow. 2019. **Bach, A.** Sivar. March 13th, Cremona, Italy.

36. Calves and respiratory disease. 2019. **Bach, A.** Danish Cattle Conference, February 25th, Herning, Denmark.

37. Holding on the genetic potential of calves. 2019. **Bach, A.** Danish Cattle Conference, February 26th, Herning, Denmark.

38. The use of highly-lignified forage in dairy production. 2019. **Bach, A.** Third International Congress on Forage and fiber: The origin of milk. February 15th, Piacenza, Italy.

39. Effects of nutrition and genetics on fertility in dairy cows. 2019. **Bach, A.** IETS 45th Annual Conference. January 22, New Orleans, USA.

40. Raising the perfect heifer. 2019. **Bach, A.** International Dairy Symposium. Wageningen -UR. January 17th, Wageningen, The Netherlands.

41. Feeding and managing dairy replacements for optimal future productivity. 2018. **Bach, A.** Convegno Nazionale SIVAR. October, 24, Cremona, Italy.

42. Feeding management of cattle and rumen health: Risk factors. 2018. **Bach, A.** 10th International Symposium on the Nutrition of Herbivores. September 6th, Clermont-Ferrand, France.

43. Key considerations for weaning calves successfully. 2018. **Bach, A.** Total Dairy Seminar, July 4th, Stratford-upon-Avon, UK.

44. The 600-d race: Rearing heifers from weaning to calving. 2018. **Bach, A.** Total Dairy Seminar, July 5th, Stratford-upon-Avon, UK.

45. Setting the stage for the future: Managing and rearing during early life.2018. **Bach, A.** Western Canadian Dairy Seminar, March 8th, Red Deer, Alberta, Canada.

46. Adapting current practices for automatic milking systems: Pros and Cons. 2018. **Bach, A.** and V. Cabrera. Western Canadian Dairy Seminar, March 7th, Red Deer, Alberta, Canada.

47. Feeding and Managing the Dry Cow. 2018. **Bach, A.** Krakow University of Agriculture Dairy Seminar. March 15th Krakow, Poland

48. Key aspects for improving profitability of dairy herds. 2017. **Bach, A.** Nationaal Buitratrie Congres. 2nd December, Leuven, Belgium.

49. La conducta alimentaria en rumiantes: implicaciones prácticas. 2017. Devant, M. and **A. Bach**. 3rd FEDNA-ANEMBE Symposium November 6th, Madrid, Spain.

50. Nourishing calves: the long-term effects of early-life nutrition. 2017. **Bach, A.** LifeStart Symposium. 18th October, Boxmeer, The Netherlands.

51. Fetal programming and post-natal imprinting in dairy cattle. 2017. **Bach, A.** European Buiatrics Forum. October 5th, Bilbao, Spain.

52. Feeding strategies and economic returns in robotic milking systems. 2017. Cabrera, V. and **A. Bach**. Four-State Dairy Nutrition and Management Conference, June 14th, Dubuque, USA.

53. Optimizing dry-off of dairy cattle. 2017. **Bach, A.** Simposio Internacional Velactis debate detalhes da pecuaria de leite. May 26th, Atibaia, Brazil.

54. Manejo y rentabilidad de explotaciones lecheras. 2017. **Bach, A.** NutriForum. March 9th, Lleida, Spain.

55. Fra kalv til gromku-Strategiske valg i kvigeoppdrettet (Feeding and Managing Dairy Replacements for Optimal Future Productivity). 2016. **Bach, A.** Storfe. November 10th, Gardermoen, Norway.

56. Gestion de troupeaux et alimentation des géisses: Prenez des déisions écnomiques. 2016. **Bach, A.** 40th Symposium sure les bovine laitiers. October 27th, Quebec, Canada.

57. Sustainable feeding systems and performance. 2016. **Bach, A.** Ruminants and Environment. September 8th, Rolle, Switzerland.

58. **Invited Symposium.** Nutritional approaches in robotic herds. 2016. **Bach, A.** and V. Cabrera. American Dairy Science Association Annual Meeting, July 21st, Salt Lake City, UT, USA.

59. Total mixed rations and large dairy herds. 2016. **Bach, A.** Journées nationales des groupements techniques vétérinaires. May 20th, Nantes, France.

60. Feeding and managing dairy replacements for optimal future productivity. 2016. **Bach, A.** Eastern Nutrition Conference. May 11th, Guelph, Canada.

61. Feeding the dynamics of the dairy herd dynamically. 2016. **Bach, A.** and G. Penner. Eastern Nutrition Conference. May 12th, Guelph, Canada.

62. Managing and feeding the calf through transition. 2016. **Bach, A.** Large Dairy Herd Management Conference. May 4th, Oakbrook, IL, USA.

63. Nutritional management at dry-off. 2016. **Bach, A.** Annual Meeting of the Italian Mastistis Council. March 4th, Bologna, Italy.

64. Improving heifer rearing nutrition and management.2015. **Bach, A.** Dairy Nutrition Symposium. November 18th, Stratford, Ontario, Canada.

65. Is forage needed for calves. 2015. **Bach, A.**, and X. Suárez. Penn State Dairy Nutrition Workshop. November 11th, Grantville, Pennsylvania, USA.

66. Playing hide and seek with milk performance measures. 2015. **Bach, A.** Penn State Dairy Nutrition Workshop. November 11th, Grantville, Pennsylvania, USA.

67. La importancia del manejo alimentario en el cebo de terneros. 2015. M. Devant,**A. Bach**, A. Solé, B. Quintana, M. Verdú. ANEMBE-FEDNA, November 11th, Madrid, Spain.

68. Raising dairy replacements: The big picture. 2015. **Bach, A.**4th Cargill Animal Nutrition Seminar. June 10th, Noordwijk, The Netherlands.

69. Improving profitability of dairy herds: Key influential factors. 2015. **Bach, A.** Profitability, well-being, and biosafety on dairy farms. April 18th, Puys du Fou, France.

70. Feeding management in early life and physiological consequences. 2015 **Bach, A.**Workshop on rumen development and colonization and feeding management around weaning. March 18th, Málaga, Spain.

71. Feeding and care of young dairy replacements. 2015. **Bach, A.** Danish Cattle Conference. February 24th, Herning, Denmark.

72. Feeding and Managing Dairy Calves and Heifers. 2014. **Bach, A.** Healthy Calf Conference. December 1st and 2nd, Maxville, ON, Canada.

73. Precision technologies in European dairy farms in 2020. New farm measurement systems. 2014. **Bach, A.** European Holstein and Red Holstein Conference. 2020 Challenges for European Dairy Breeder, September, 25, Gijón, Spain.

74. The feed industry from a European perspective: Feed additives from non-antibiotic origin in growing and lactating cattle. 2014. **Bach, A.** Minnesota Nutrition Conference. Pages 89-108. September 18, Prior Lake, Minnesota, USA.

75. Feeding cows to nourish the dam and the calf. 2014. **Bach, A.**. Minnesota Nutrition Conference. Pages 147-160. September 18, Prior Lake, Minnesota, USA.

76. Raising dairy replacements: The big picture. 2014. **Bach, A.**. Nutrition, Health and Welfare of Calves Conference. September 1, Wageningen, The Netherlands.

77. Dairy calf and heifer rearing for optimum lifetime performance. **Bach, A.** 2014. 46th University of Nottingham Feed Conference. June 24, Loughborough, UK.

78. How to manage young cattle to ensure they reach their full milk production potential as dairy cows. **Bach, A.** 2014. IV International Veterinary Congress. April 9-11, Kazan, Republic of Tatarstan, Russia.

79. Management strategies for rearing dairy heifers successfully. **Bach, A.** 2014. Reproductive Management Symposium. March 19, Nice, France.

80. Nourishing cows for optimal reproductive performance. **Bach, A.** 2014. Reproductive Management Symposium. March 19, Nice, France.

81. Effective forage and starter feeding strategies for preweaned calves. **Bach, A.** 2014. Western Canadian Dairy Seminar. March 11-14. Red Deer, Alberta, Canada.

82. Precision feeding to increase feed efficiency. **Bach, A.** 2014. Western Canadian Dairy Seminar. March 11-14. Red Deer, Alberta, Canada.

83. Use of precision feeding technologies to optimize feed efficiency for milk production. **Bach, A.** 2013. Precision Dairy, June 26, Rochester, MN, USA.

84. Calf and heifer rearing: ensuring future profitability. **Bach, A.** 2013. Heifer rearing symposium. Agri-food and Bioscience Institute Hillsborough, June 13, Hillsborough, Northern Ireland.

85. Does the Physical Form of the Feeds Offered to Young Calves Make a Difference in Performance? **Bach, A.** 2013. 25th DISCOVER Conference on Food Animal Agriculture: New Developments in Immunity, Nutrition, and Management of the Preruminant Calf. May 31, Itasca, IL, USA.

86. Farm management through available data: increasing farm profitability thanks to the role of the vet. 2013. **Bach, A.** 15th International congress of SIVAR, May 8, Cremona, Italy.

87. Optimizing feeding and managing practices for young calves. 2013. **Bach, A.** Eastern Nutrition Conference. Quebec city, Canada. May 16th, Quebec, Canada.

88. Calf and heifer rearing for optimal milk production. 2013. **Bach, A.** Ontario Association of Bovine Practitioners. April 18th, Guelph, ON, Canada.

89. Improving sustainability in dairy herds. 2013. **Bach, A.** Ontario Association of Bovine Practitioners. April 18th, Guelph, ON, Canada.

90. Breeding management of dairy heifers. 2013. **Bach, A.** Consensus Conference on Breeding Protocols. February 22-23. Nice, France.

91. Feeding and managing heifers for optimal performance. 2013. **Bach, A.** North West Livestock Health and Welfare Conference, January 31. Preston, UK.

92. Key indicators for measuring cow performance. 2012. **Bach, A.** 15th Congress of the Asian-Australasian Association of Animal Production. November 27th.Bangkok, Thailand.

93. Key management practices to improve sustainability of dairy herds. 2012. **Bach, A.** Slovensko Bujatricno Drustvo. November 8, Dobrna, Slovenia.

94. Productive goals for rearing heifers. 2012. **Bach, A.** Slovensko Bujatricno Drustvo. November 8, Dobrna, Slovenia.

95. Nutrition and management of the dairy cow towards improved reproductive performance. 2012. **Bach, A.** Reproductive Management in Action. October 10-11th, Madrid.

96. Estrategias de manejo y nutrición para racionalizar los costes de producción en el vacuno lechero. 2012. **Bach, A.** XI Jornadas de Alimentación Animal, Diputación de Pontevedra. October 4, Lalín, Pontevedra.

97. Setting goals (and achieving them) for rearing heifers: future performance. 2012. **Bach, A.** 7th Large Herd Seminar, June 26, Bristol, UK.

98. Effective nutritional programs for rearing heifers. 2012. **Bach, A.** 7th Large Herd Seminar, June 27, Bristol, UK.

99. Managing and grouping calves for optimal health and performance. 2012. **Bach, A.** Vita-Plus calf Summit. June 20, Green Bay, Wisconsin, USA.

100. Importància del maneig alimentari en la producció lletera. 2012. **Bach, A.** XXVI Jornada Agropecuària del Vallès. May 18, Granollers.

101. Nutrición y manejo de la recría y de la vaca de leche para optimizar la Rentabilidad. 2012. **Bach, A.** Mercolactea. May 8-10, San Francisco, Argentina.

102. Expert meeting on nutrition and welfare, FAO. 2011. **Bach, A.** Nutrition and welfare of dairy cattle: calves, lameness, and metabolic aspects. September 25-30, Rome, Italy.

103. Sustainability and management of large dairy herds. 2011. **Bach, A.** European Bovine Health Management Conference, September 8, Liège, Belgium.

104. **Invited Symposium.** Optimizing production of the offspring: Nourishing and managing the dam and the calf early in life.2011. **Bach, A.** July 10-14, ADSA-ASA Joint Annual Meeting, New Orleans, USA.

105. Non-dietary factors influencing rumen function and dairy cow performance. 2011. **Bach, A.** International congress on fiber: A key element for dairy production profitability? May 12, University of Bologna. Italy.

106. Improving sustainability in dairy herds. 2011. **Bach, A.** Pfizer Dairy Symposium. February, 25, Istanbul. Turkey.

107. Heifer rearing: the importance of good health and growth on future productivity. Dairy Workshop. 2011. **Bach, A.** February 22, Manchester, UK.

108. Causes, prevention and control of rumen acidosis. The Dutch Bovine Conference. 2011. **Bach, A.** February 10, Utrecht, The Netherlands.

109. SARA-NEB: Pathophysiology of the rumen and the rest of the digestive tract. The Dutch Bovine Conference. 2011. **Bach, A.** January 9, Utrecht, The Netherlands.

110. Rearing from calf to heifer: nutrition, disease and management. The Dutch Bovine Conference. 2011. **Bach, A.** February 9, Utrecht, The Netherlands.

111. Nutrition and management of large dairy herds. **Bach, A.** 2011. Semex Dairy Conference. January 18, Glasgow, Scotland

112. Alimentación pre- y post-natal de la ternera: consecuencias sobre la producción futura. 2010. **Bach, A.** Seragro. November 12, University of Lugo, Spain.

113. Reinventando las estrategias nutricionales y de manejo para una exitosa transición. 2010. **Bach, A.** Seragro. November 11, University of Lugo, Spain.

114. Key economic data and how to improve sustainability in dairy herds. **Bach, A.** 2010. European Partnership congress. November, 8, Rhodes, Greece.

115. Normas FEDNA de alimentación práctica de animales domésticos. 5. Rumiantes de recría. **Bach, A.**, C. Fernández, and M. Terré. 2010. FEDNA. November 4, Madrid.

116. Strategies to improve sustainability of dairy production systems in Europe. 2010. **Bach, A.**Pfizer European Dairy Symposium. June 16, Barcelona.

117. Optimizing management during the transition period. 2010. **Bach, A.** Pfizer European Dairy Symposium. June 14, Barcelona.

118. Modulación de la calidad nutricional de la leche a través de la alimentación de la vaca. **Bach, A.** 2010. Congreso Internacional ANEMBE. Pages 144-153. June 10-12, Granada,

119. Estrategias para racionalizar los costes de producción en el vacuno lechero. 2010. **Bach, A.** Eurovacum. June 5, Vic.

120. Feeding and managing dairy replacement heifers for optimal production. 2010. **Bach, A.** 46th Eastern Nutrition Conference. Pages 175-188. May 12-13, Guelph, Canada.

121. The impact of 'antibiotic-free' policy on medication use: the EU experience.2010. **Bach, A.**, 46th Eastern Nutrition Conference. Pages 67-78. May 12-13, Guelph, Canada.

122. Raising dairy replacement heifers objectively: the value of data-based on-farm decisions. **Bach, A.**, and A. Kertz. 2010. Tri-state Nutrition Conference. April, 14, Fort-Wayne, Indiana, USA.

123. Epidemiology and management of BRD in an intensive dairy replacement unit in Spain. 2009. **Bach, A.** European Buiatrics Forum. December 2, Marseille, France.

124. Necesidades nutricionales para rumiantes lecheros. Tablas FEDNA. 2009. Calsamiglia, S., **A. Bach**, C. de Blas, C. Fernández, and P. García-Rebollar. FEDNA. November 6, Madrid.

125. Calf and heifer rearing for optimum milk production. 2009. **Bach, A.** AFTAA, November 5, Paris. Pages 1-28.

126. Modulaí§ao do pH ruminal e o papel das levedurs vivas. 2009. **Bach, A.** I International Congress on Yeast in Animal Nutrition. Campinas, Brazil, September 16-19. Pages 14-32.

127. Estrategias nutricionales para racionalizar los costes de alimentación en rumiantes de leche ante la volatilidad de precios de las materias primas. 2009. **Bach, A.** 1st Animal Feedstuff Congress: Food Safety and Innovation. Pages 63-70, June 10-12, Donostia.

128. Development of dairy replacement heifers, the cornerstone of sustainable dairy production. 2009. **Bach, A.** Alltech International Animal Health and Nutrition Symposium. May 17-20, Lexington, Kentucky, USA.

129. Optimización de la nutrición durante la transición. 2009. **Bach, A.** ANEMBE. XIV Congreso Internacional ANEMBE. May 6-9, La Coruña.

130. Feed intake regulation: stress and digestive function in ruminants. 2008. **Bach, A.**, and C. Montoro. Institut Rosell. Scientific Exchange. November 4-6, Quebec, Canada.

131. Sistemas y prácticas de manejo en rebaños de vacuno lechero en España. 2008. **Bach, A.**, and J. L. Juaristi. FEDNA. October 23-24, Madrid.

132. Necesidades nutricionales para rumiantes de cebo. 2008.Ferret, A., S. Calsamiglia, **A. Bach**, M. Devant, C. Fernández, and P. García-Rebollar. FEDNA. October 23-24, Madrid,

133. Optimizing Growth and Nutritional Programs of Calves. 2008. **Bach, A.**, and J. Ahedo. 4th Dairy Solutions Symposium "Spotlight on Calf Nutrition and Pathology". University of La Salle. September 24-26 Beauvais, France.

134. Etiología de la acidosis ruminal subaguda (ARSA) y estrategias para su control. 2008. **Bach, A.** Digal: Tendencias Mundiales de la Leche. September 4-6. Delicias, Mexico.

135. Using growth monitoring in heifer management and research. 2008. **Bach, A.**, J. Ahedo, and A. Kertz. Invited Symposium. American Dairy Science Association-Annual meeting. July 7-11, Indianapolis, IN, USA.

136. The etiology of low rumen pH and possible tools to reduce the incidence of sub-acute rumen acidosis (SARA). 2008. **Bach, A.** California Animal Nutrition Conference. May 21-23, Fresno, CA, USA.

137. Eficiencia de utilización de la proteína en el bovino lechero. 2008. **Bach, A.** XIII Congreso Internacional ANEMBE. Salamanca, May 9-10.

138. Feeding TMR: Fiber and acidosis. 2007. **Bach, A.** AFTAA (Association de formation des techniciens de l'alimentation et des productions animales). November 7, París, France.

139. Efecto de la adición de levaduras (*Saccharomyces cerevisiae*) a la dieta en los rendimientos productivos de corderos de raza Lacaune. 2007. Ripoll, R., E. Molina, D. Villalba, J. L. Boleda, and **A. Bach**. SEOC. September 19-21, Mallorca.

140. Understanding and controlling rumen acidosis. **Bach, A.** 2007. ASA-IM 12th Annual Regional Soybean Conference.August 28-30, Istanbul, Turkey.

141. Use of live yeast products to stabilize rumen pH. 2007. Stern, M. D., **A. Bach**, and M. M. Thrune. Renaissance Nutrition, Bucknell Conference. July 16-18, Bucknell, Pennsylvania, USA.

142. Ternera enriquecida en Omega 3, un proyecto de innovación en la producción y de diferenciación en el mercado de la carne. 2007. **Bach, A.** and E. Isla. Eurovacum, June 7-8, Vic.

143. La alimentación del vacuno lechero en la era de los biocarburantes. 2007. **Bach, A.** XII Congreso Internacional ANEMBE. Oviedo, May 25-26. Pages 91-100.

144. The importance of ruminal pH and the impact of probiotics on reducing the incidence of sub-acute ruminal acidosis (SARA). 2007. **Bach, A.**, M. M. Thrune, and M. D. Stern. Canadian Eastern Nutrition Conference. Quebec City, May 14-17th. Pages 1-20.

145. Conjugated linoleic acid in milk from goats fed supplements enriched with linoleic and alpha-linolenic acids. 2007. Luna. P., **A. Bach**, M. A. de la Fuente, J. Fontecha, and M. Juárez. 5th International Symposium on the Challenge to Sheep and Goats Milk Sectors. Sardinia, Italy.

146. Benefits of implementing the animal welfare improvement strategies developed in SP3. Assuring animal welfare: from societal concerns to implementation. 2007. Manteca, X., **A. Bach**, B. Beerda, X. Boivin, B. Jones, A. Lawrence, M. Mendl, and K. van Reenen. Welfare Quality Conference. May 3-4, Berlin, Germany.

147. Using technology and records to make management decisions. 2007. **Bach, A.**, J. Ahedo, A. Kertz, and J. L. Juaristi. 11th Dairy calf and heifer national conference. Pages 56-65. March 21, Burlington, Vermont, USA.

148. Optimizing calf growth. 2007. **Bach, A.**, M. Terré, J. Ahedo, and J. L. Juaristi. 11th Dairy calf and heifer national pre-conference. Pages 81-92. March 20, Burlington,Vermont, USA.

149. Significance of intestinal digestion of dietary protein. 2007.Stern, M. D., S. Calsamiglia, **A. Bach**, and M. Ruiz Moreno. Colorado Nutrition Conference, January 23rd.

150. Modificaciones de la fermentación ruminal y sus repercusiones a medio y largo plazo sobre la patología de la producción y la calidad de la leche. 2006. **Bach, A.** XXII G-TEMCAL. Pages 20-32. October 14, Barcelona.

151. La fibra en los rumiantes: Química o Física?2006. **Bach, A.** and S. Calsamiglia. FEDNA XXII, October, Barcelona. Pages 99-113.

152. Protein, amino acid, and peptide requirements for proper rumen function and milk production. 2006. **Bach, A.**, M. L. Raeth-Knight, M. D. Stern, and J. G. Linn. Minnesota Nutrition Conference. Pages 67-79. September 20, St. Paul, MN, USA.

153. Instalaciones y bienestar animal: Un Método para la autoevaluación. 2006. **Bach, A.** and J. L. Juaristi. Eurovacum, Vic.

154. New concepts in protein nutrition of ruminants. 2006. Stern, M. D., **A. Bach**, and S. Calsamiglia. Southwest Nutrition Conference. Tempe, Arizona. Pages 45-66.

155. Developing practical species-specific measures to improve farm animal welfare. 2005. Manteca, X., X. Boivin, K. van Reenen, M. Mendl, B. Beerda, A. Lawrence, **A. Bach** and B. Jones. November 17, Brussels, Belgium.

156. Effects of a combination of eugenol and cinnamaldehyde on ruminal protein and energy metabolism in lactating dairy cows. 2005. **Bach, A.**, S. Calsamiglia, H.M. R. Greathead, and C. Kamel. BOKU-Symposium Tierernhrung. October 20, Wien, Austria.

157. Nuevos conceptos en la nutrición proteica de los animales rumiantes. 2005. Stern, M. D., **A. Bach**, and S. Calsamiglia. XII Congreso Bienal Asociación Mexicana de Especialistas en nutrición Animal (AMENA). October 26, Puerto Vallarta, Mexico.

158. Microminerales en la nutrición del Rumiante: Aspectos Técnicos y Consideraciones Legales. **Bach, A.** and M. Devant. 2004. FEDNA XIV, November, Barcelona.

159. Tablas FEDNA de valor nutritivo de forrajes y subproductos fibrosos húmedos.II. Subproductos fibrosos húmedos.2004. S. Calsamiglia, A. Ferret, and **A. Bach**. FEDNA XIV, November, Barcelona.

160. Aspecto físico de las raciones y calidad de leche. 2004. **Bach, A.** IX Congreso internacional en Medicina Bovina. ANEMBE. May 12, Giión.

161. Prebiotics in animal nutrition. Van Eys, J., and **A. Bach**. 2004. Prébiotiques et probiotics: des concepts aux produits. Pages 27-31. París. France.

162. Tablas FEDNA de valor nutritivo de forrajes y subproductos fibrosos húmedos. I. Forrajes.2003. S. Calsamiglia, A. Ferret, and **A. Bach**. FEDNA XXIII, October, Madrid.

163. Trastornos ruminales en el vacuno lechero: un enfoque práctico. 2002. **Bach, A**. FEDNA XVII. Pages 119-142. Barcelona.

164. La reproducción del vacuno lechero: nutrición y fisiología. 2001. **Bach, A**. FEDNA XXI, Madrid.

165. Adaptación de la alimentación de las vacas lecheras en granjas con sistemas de ordeño robotizado. 2002. **Bach, A**. Jornadas Técnicas Sobre Ordeño Robotizado de Vacuno Lechero. April 14, La Seu d'Urgell.

166. El NRC 2001: Nuevas tendencias en la nutrición del vacuno lechero. 2001. **Bach, A.** VII Congreso Internacional de Medicina Bovina (ANEMBE). April 22, Oviedo.

167. Improving soybean meal use by ruminants.2000. Stern, M. D., L. Aga, and **A. Bach**. 61st Minnesota Nutr. Conf. pp. 18-32. Rochester, MN, USA.

168. Efecto de la nutrición sobre el perfil de ácidos grasos en leche de ovino y su aplicación en la elaboración de quesos enriquecidos en ácidos grasos esenciales. 2000. **Bach, A.**, C. Torre, E. Hernández, E. Legaz, and J. C. García. XXV Jornadas Científicas y IV Internacionales de Ovino y Caprino. SEOC. Pages 323-226. Teruel.

169. Aminoácidos en la nutrición del vacuno lechero. 2000. **Bach, A**.VI Congreso Internacional de Medicina Bovina (ANEMBE). Pages 180-194. Santiago de Compostela.

170. Protein from alternative feeds. 1995. Stern, M. D., S. Calsamiglia, A. Ferret, and **A. Bach**. 2nd National Alternative Feeds Symposium, Ames, Iowa.

171. Effect of ruminal nitrogen metabolism on intestinal amino acid supply to lactating dairy cows. 1996. Stern, M. D. and **A. Bach.** Nutrition workshop. Fresno, California.

Publications

Scientific Articles

1. Ruminant Nutrition Symposium: Novel microbial solutions to optimize production efficiency in beef and dairy systems. 2025. Cappellozza, B. I., R. F. Cooke, R. C. Amaral, **A. Bach**, T. E. Engle, L. F. Ferraretto, R. S. Marques, A. C. Miller, P. Moriel, and J. M. B. Vendramini. J. Anim. Sci. Submitted for publication.

2. Reproductive performance at first artificial insemination of dairy cows assigned to either estrous detection using sensors or to a synchronization program. 2025. Valenza, A., and **A. Bach**. J. Dairy Sci. Communications. 2025. Submitted for publication.

3. Effects of a combination of phytogenic compounds on lactational performance and enteric methane emissions in dairy cows fed diet with no silage as forage source. 2025. Khelil-Arfa, H., A. Blanchard, D. Yáñez-Ruiz, G. Elcoso, and **A. Bach**. Sustainability. *Submitted for publication.*

4. Serum ionized calcium and ionized magnesium in dairy cows and their associations with the incidence and severity of postpartum metritis. 2025. Robles, J.A., E. Jose-Cunilleras, J. Ríos, G. Elcoso, **A. Bach**, and A. Bassols. Reprod. Dom. Anim. 60:e70057.

5. Nutritional value of black soldier fly larvae oil in calf milk replacers. 2025. Quigley, J. D., A. Zontini, G. S. Schroeder, Y. Roman-Garcia, and **A. Bach**. J. Dairy Sci. 108:2481-2488.

6. Micro RNA profiles in colostrum exosomes obtained from primiparous or multiparous dairy cows. 2024. Terré, M., A. Arís, E. Garcia-Fruitós, F. Fàbregas, and **A. Bach**. Frontiers Vet. Med. 11:1463342.

7. The oral microbiome as a proxy for feed intake in dairy cattle. 2024. Marcos, C.N., **A. Bach**, and O. González-Recio. J. Dairy Sci. 107:5881-5896

8. Effects on mineral status and milking performance of feeding difructose anhydride to transition cows. 2024. Escartín, M., N. Rialp, and **A. Bach**. J. Dairy Sci. 107:4578-4586

9. Back to basics: precision while mixing total mixed rations and its impact on milking performance. 2024. **Bach, A.** J. Dairy Sci. Communications. 5:102-106.

10. Effects on passive immune transfer and performance of feeding difructose anhydride to neonatal calves. 2023. Escartín, M., N. Rialp, and **A. Bach**. Animals. 14: 35-42.

11. Benefits of straw as a forage for dairy calves before and after weaning. 2023. Antúnez-Tort, **A. Bach**, C. Cajarville, M. Vidal, F. Fàbregas, M. A. Ahangarani, and M. Terré. J. Dairy Sci. 106:7578-7590

12. Effectiveness of precision feeding in reducing N excretion in dairy cattle. 2023. Morey, L., **Bach, A.**, D. Sabrià, V. Riau, B. Fernández, and M. Terré. Anim. Feed Sci. Technol. 304:115722.

13. Effects on rumen pH and feed intake of a dietary concentrate challenge in cows fed rations containing pH modulators with different neutralizing capacity. 2023. **Bach, A.**, M. Baudon, G. Elcoso, J. Viejo, and A. Courillon. J. Dairy. Sci. 106: 4580-4598

14. Key performance indicators used by dairy consultants during the evaluation of reproductive performance during routine visits. 2023. Armengol, R. L. Fraile, and **A., Bach**. Front. Vet. Sci. 10:1165184.

15. Changes in milk production and estimated income over feed cost of group-housed dairy cows when moved between pens. 2023. **Bach, A.** J. Dairy. Sci. 106:4108-4120.

16. Modulation of milking performance, methane emissions, and rumen microbiome on dairy cows by dietary supplementation of a blend of essential oils. 2023. **Bach, A.**, G. Elcoso, M. Escartín, K. Spengler, and A. Jouve. Animal. 100825.

17. Potential of nanoparticles containing cytokines as intestinal mucosal immunostimulants in pigs. 2022. López-Cano, **A. Bach**, S. López-Serrano, V. Aragón, M. Blanch, E. Garcia-Fruitós, and A. Arís. Animals. 12:1075.

18. Longitudinal study of rectal microbiota in calves with or without diarrhea episodes before weaning. 2022. Obregon-Gutierrez, P., J. Bague-Companys , **A. Bach**, V. Aragon, and F. Correa-Fiz. Front. Vet. Sci. 9:463-476.

19. Key performance indicators used by dairy consultants during the evaluation of reproductive performance in a first visit. 2022. Armengol, R. L. Fraile, and **A., Bach**. Front. Vet. Sci. 9: 871079.

20. Short communication: Is it better to calve alone or in groups? A pilot study. 2022. Ahedo, V., and **A. Bach**. Livestock Sci. 257:104846.

21. The potential of metalloproteinase-9 administration to accelerate mammary involution and boost the immune system at dry-off. 2021. Parés, S., O. Cano-Garrido, **A. Bach**, N. Ferrer-Miralles, A. Villaverde, E. Garcia-Fruitos, A. de-Prado, and A. Arís. Animals 11:3415.

22. Advances in efficiency of growing dairy replacements. 2021. **Bach, A.** J. Ahedo, and A. Kertz. Appl. Anim. Sci. 37:404-417. **This article was selected as the Editor's Choice for the month of August.**

23. Using compositional mixed-effects models to evaluate responses to amino acid supplementation in milk replacers for calves. 2021. Terré, M., I. Ortuzar, J. Graffelman, A. Bassols, M. Vidal, and **A. Bach**. J. Dairy Sci. 104:7808-7819.

24. Piecewise modeling of the associations between dry period length and milk, fat, and protein yield changes in the subsequent lactation. 2021. Pattamanont, P., M. I. Marcondes, J. S. Clay, **A. Bach**, and A. De Vries. J. Dairy Sci. 104:486-500.

25. Milk performance and rumen microbiome as affected by the inclusion of corn silage or corn shredlage in a total mixed ration. 2021. **Bach, A.**, I. Joulie, E. Chevaux, G. Elcoso, and J. Ragués. Animal. 15:100014.

26. Prediction of tissue composition of live dairy calves and carcasses by computed tomography 2021. Font-i-Furnols, M., M. Terré, A. Brun, M. Vidal, and **A. Bach**. Livestock Sci. 243:104371.

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Academic Honors and Awards

- First prize to 'Monòlegs del Club de la Ciència 2023' organized by the Fundació Catalana per la Recerca i Innovació (a contest that aims at fostering science dissemination to society)
- Journal of Dairy Science Member-Author Loyalty Reward (Rewards to corresponding authors for their significant contributions to, and support of, the Journal of Dairy Science), 2018.
- Journal of Dairy Science Member-Author Loyalty Reward, 2017.
- Journal of Dairy Science Member-Author Loyalty Reward, 2016.
- Award to research excellence in dairy cattle from the 'Real Academia de Ciencias Veterinarias de Española (Spanish Royal Academy of Veterinary Science), 2015.
- Journal of Dairy Science Member-Author Loyalty Reward, 2015.

- Journal of Dairy Science Member-Author Loyalty Reward, 2014.
- Journal of Dairy Science Member-Author Loyalty Reward, 2013.
- Award to the Best PhD Student in Animal Sciences (ruminant branch) by the American Association of Animal Science, 1999.
- Recipient of the John Brandt Memorial Foundation scholarship for the academic year 1998-1999.
- Award to the Best Young Researcher in Animal Nutrition by the Fundación Española para el Desarrollo de la nutrición Animal (FEDNA), 1998.
- Outstanding PhD Student Award by the Department of Animal Science of the University of Minnesota, 1998.