

**Antonello Cannas**

**M.Sc., Ph.D.**

**Professor of Animal Nutrition**

(Professore Ordinario di nutrizione ed Alimentazione animale, SSD AGR 18; until 30th August 2010: Professore Ordinario di Zootecnica Speciale, AGR 19)

**Dipartimento di Agraria, Sezione di Scienze Zootecniche  
Università di Sassari, Sardinia  
ITALY**

***CURRICULUM VITAE ET STUDIORUM***

**Antonello Cannas** M.Sc., Ph.D. Professor of Animal Nutrition

Born in Mogoro, Sardinia, Italy, the 19<sup>th</sup> of May 1961

**PERSONAL ADDRESS**

Via Filippo Addis 1G-C, 07100 Sassari, Italy

**UNIVERSITY ADDRESS**

Dipartimento di Agraria, Sezione di Scienze Zootecniche

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**ORCID**

<https://orcid.org/0000-0001-6297-1556>

**EDUCATION**

**1986 Laurea in Scienze Agrarie** (4-year degree; thesis "*Effect of the introduction of electronic automatic feeders on milk yield of dairy cows*"; 110 e lode) University of Sassari, Italy. Chair: Prof. G. Rossi.

**1995 Master of Science in Animal Science** (thesis "*Effects of the particle size of the diet on feeding behavior and milk production in sheep*"), Cornell University, Ithaca, NY, USA. Committee: P.J. Van Soest, Chair; A.N. Pell, D.E. Hogue, B.E. Lewis, Members.

**2000 Doctor of Philosophy in Animal Science** (dissertation "*Sheep and cattle nutrient requirement systems, ruminal turnover, and adaptation of the Cornell Net Carbohydrate and Protein System to sheep*") Cornell University, Ithaca, NY, USA. Committee: P.J. Van Soest & A.N. Pell, Chairs; D.G. Fox, R.E. Pitt, D.L. Brown, Members.

**CURRENT POSITION**

Since November 2005:

**Professor of Animal Nutrition** (Professore Ordinario di nutrizione ed Alimentazione animale, SSD AGR 18; until 30th August 2010: Professore Ordinario di Zootecnica Speciale, AGR 19)

Dipartimento di Agraria, Sezione di Scienze Zootecniche (Department of Agricultural Sciences, Unit of Animal Science), Università degli Studi di Sassari

Viale Italia 39, 07100 Sassari, Italy

**PREVIOUS ACTIVITIES**

From September 1986 to December 1989

**Training scholarships** (*Borsista*)

Dipartimento di Scienze Zootecniche, Università degli Studi di Sassari

From January 1990 to August 2001

**Researcher** (*Ricercatore*)

Dipartimento di Scienze Zootecniche, Università degli Studi di Sassari

From September 2001 to October 2005

**Associate Professor of Animal Science** (*Professore Associato*)

Dipartimento di Scienze Zootecniche, Università degli Studi di Sassari

## **LANGUAGES**

Italian: mother language

English: very good reading, speaking and writing

French: intermediate reading, basic speaking

Portuguese: intermediate reading and good speaking

## **TEACHING ACTIVITIES**

*Organizational roles*

**1998- 2004**

Chair of the Committee for the Socrates-Erasmus program for international student exchange for the Faculty of Agriculture, University of Sassari, Italy

**November 2005-October 2014**

Chair of the degrees in Animal Science, Faculty of Agriculture, University of Sassari, Italy.

**January 2015-May 2018**

Chair of the Ph.D. Program in Agricultural Sciences, University of Sassari, Italy.

**Since April 2018**

Chair of the Ph.D. School of the University of Sassari, Italy.

*Undergraduate degrees, University of Sassari, Italy*

**1994-2008** *Sheep and goat production*, Faculty of Agriculture

**1999-2006** *Feed evaluation and processing*, Faculty of Agriculture

**2006-2009** *Ruminant nutrition*, Faculty of Agriculture

**2003-2004** *Applied nutritional physiology*, Faculty of Veterinary Medicine

**2006-2007** *Environmental impact of animal production*, Faculty of Agriculture

**2006-2016** *Feeding techniques and ration formulation for ruminants*, Faculty of Agriculture

**2010-2016** *Nutrition and feeding of production animals*, Faculty of Agriculture

*Post-Undergraduate degrees*

**2001-2003** *Recent advances in animal feeding and nutrition*, Specialization School for Veterinarians, Faculty of Veterinary Medicine, University of Sassari, Italy.

**2002** *Recent advances in sheep nutrition*, Specialization School for Veterinarians, Faculty of Veterinary Medicine, University of Teramo, Italy.

**2003-2008** Member of the Teaching and Scientific Committee of the Ph.D. program in Animal Science, University of Sassari, Italy.

**2007** *Recent advances in the nutrition of small ruminants*, Postgraduate School, State University of São Paulo-UNESP, Jaboticabal, SP, Brazil.

**2009** Lectures on: *Overview of the importance of forages and forage fiber quality on feed intake in small ruminants; New and improved cell wall analytical methods and development of structural tools; Use of animal and dietary information to predict rumen turn over; Development and evaluation of a model to predict sheep nutrient requirements and feed utilization; Prediction of nutrient requirements for sheep with the Small Ruminant Nutrition System*. Ph.D. course on “Forage evaluation in small ruminant nutrition” Swedish University of Agricultural Sciences, Department of Agricultural Research for Northern Sweden, Umeå, Sweden.

**2009** Lectures on “*The Small Ruminant Nutrition System nutritional model*” in the Ph.D. program in Animal Science of the Federal University of Rio Grande do Sul, Porto Alegre, Brazil.

### **August 2011**

Visiting professor. State University of São Paulo-UNESP, Campus de Jaboticabal, SP, Brazil. Course on “*Rumen turnover of feeds and liquids*” in the Ph.D. program in Animal Science.

**2012, 2013, 2014, 2015** “*Sheep and goat nutrition*” and “*Nutrition and quality of sheep and goat milk and meat*” Specialization School for Veterinarians, Faculty of Veterinary Medicine, Teramo, Italy.

### **2016**

Visiting professor. Department of Animal Science, Texas A&M University, College Station, TX, USA. Four hours of lectures on lignin and tannins in the Ph.D. course AS604 “Ruminant nutrition” of Prof. L.O. Tedeschi. Three hours of lectures in the undergraduate course ANSC320 “Animal Nutrition and Feeding”, of Dr. Whitney Houston.

### *External examiner for Ph.D. defense or qualification exam*

2007 Universitat Autònoma de Barcelona, Spain.

2009 University of Catania, Italy.

2011 State University of São Paulo-UNESP, Jaboticabal, SP, Brazil.

2011 Federal University of Viçosa, Minas Gerais, Brazil.

2013 Universidad de Castilla-La Mancha, Albacete, Spain.

2015 University of Catania, Italy.

2015 University of Turin, Italy

2015 State University of São Paulo-UNESP, Jaboticabal, SP, Brazil.

2016 University of Copenhagen, Denmark.

## **POSTGRADUATE STUDENTS**

### **Chair**

Porcu F. 2003. Ph.D. dissertation: *Prediction of microbial yield and effect of dietary fiber in lactating dairy ewes*. University of Perugia - University of Sassari.

Peana I. 2006. Ph.D. dissertation: *Effect of climatic conditions on dairy sheep performances*. University of Sassari.

Boe F. 2006. Ph.D. dissertation: *Effects of dietary carbohydrates on milk production, feed utilization and feeding behaviour of dairy sheep*. University of Sassari.

Giovanetti V. 2006. Ph.D. dissertation: *Urea as indicator of protein metabolism and excretion in dairy sheep*. University of Sassari.

Atzori A.S. 2008. Ph.D. dissertation: *Nitrogen volatilization losses, manure management and lameness in Mediterranean dairy cattle farms*. University of Sassari.

Mereu A. 2009. Ph.D. dissertation: *Palatability of concentrates fed to sheep*. University of Sassari.

Carta P. 2010. Ph.D. dissertation: *The physically effective fiber of total mixed rations and its effects on dairy cow performances*. University of Sassari.

Gaias G. 2013. Ph.D. dissertation: *Body condition score and body composition of Sarda dairy ewes*. University of Sassari, Italy.

Manca R. 2013. Ph.D. dissertation: *Nutritional value and utilization of plants with antimicrobial properties as components of the diet of dairy sheep*. University of Sassari.

Serra G. 2014. Ph.D. dissertation: *Estimation of carbon footprint in dairy cattle farms of Southern Italy*. University of Sassari.

Boaventura Neto O. 2014. Ph.D. dissertation: *Effect of the utilization of aromatic plants on diet utilization, milk production, parasitic load, and health status of dairy ewes*. University of Sassari.

Molle G. 2015. Ph.D. dissertation: *Intake of herbage by dairy ewes fed on pasture a limited number of hours per day*. University of Sassari.

Lunesu M.F. 2017. Ph.D. dissertation: *Modulation of dietary energy partitioning between milk production and body reserves in sheep and goats*. University of Sassari.

Kchour H. 2019. Ph.D. dissertation: *Agriculture pollution in Lebanese rivers: influence of soil and sediment properties on pesticide persistence*. University of Sassari and Lebanese University.

Sioutas D. (ongoing). Ph.D. project: *Nutrition and production efficiency in ewes lambs*. University of Sassari.

### **Committee Member**

Linsky A. 2013. Master of Science. Project: *Evaluation of the Small Ruminant Nutrition System growth model with South African sheep breeds*. University of Pretoria, South Africa.

Abdelkefi A. (ongoing). Ph.D. thesis project: *The relationship between the breeding system and the milk and cheese quality for the Sicilo-Sarde ewes in Northern Tunisia*. National Institute of Agronomy of Tunisia (INAT).

Termatzidou S.A. (ongoing). Ph.D. thesis project: *Effect of body condition score (BCS) on health and production variables of dairy sheep in intensive and semi-intensive farming systems*. Aristotle University, Thessaloniky, Greece.

### **VISITING STUDENTS TUTORED**

Johannes Mäuler, undergraduate student, Agricultural University of Bonn, Germany.

Anta Linsky, M.Sc. student, Department of Animal and Wildlife Science, University of Pretoria, South Africa.

Luis Bernabe' Castillo Granados, M.Sc. student, Universidade Estadual do Norte Fluminense, Brazil.

Oscar Boaventura Neto, M.Sc. student, Universidade Estadual Paulista, Campus de Jaboticabal, SP, Brazil.

Maria Izabel Carneiro Ferreira, Ph.D. student, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil.

Renato Shinkai Gentil, Ph.D. student, Escola Superior de Agricultura "Luiz de Queiroz", Universidade de São Paulo, Piracicaba, SP, Brazil.

Lisiane Dorneles de Lima, Ph.D. student, Universidade Estadual Paulista, Campus de Jaboticabal, SP, Brazil.

Lígia Maria Gomes Barreto, Ph.D. student, Universidade Federal da Paraíba, Brazil.

Simone Pedro da Silva, Ph.D. student, Universidade FedereEstadual Paulista, Campus de Jaboticabal, SP, Brazil.

Tadeu Silva de Oliveira, Ph.D. student, Universidade Federal de Viçosa, Brazil.

Leonardo Knupp, Leonardo Sidney Knupp, Ph.D. student, Universidade Federal da Paraíba, UFPB, Joao Pessoa, Brazil

Sheila Nogueira Ribeiro, Ph.D. student, Universidade Federal de Campina Grande, Patos, Brazil.

#### **CONFERENCES, WORKSHOPS AND COURSES, AS INVITED SPEAKER/SCIENTIST**

**1996** Invited speaker (presentation: *Nutrition of the dairy ewe*) at the "2<sup>nd</sup> Great Lakes Dairy Sheep Symposium", Madison, Wisconsin, USA.

**1996** Invited speaker (presentation: *Dairy Sheep Production in Italy*) at the "18<sup>th</sup> Wisconsin Sheep Industry Conference", Madison, Wisconsin, USA.

**1998** Invited scientist in the workshop "Experiences in buffalo nutrition", held in the Mustafa Kemal University, Antakya, Turkey, and organized by the "FAO Inter-Regional Cooperative Research Network".

**2001** Invited speaker (presentation: *Fiber, sugar and starch requirements of lactating ewes: effects on milk yield and quality*) at the symposium organized by the SIPAOC (Italian Society of Husbandry and Pathology of Sheep and Goats) on "Sheep milk quality", University of Foggia, Italy.

**2001** Invited speaker (presentation: *Sheep diet balancing*). Giornata di studio su "Nuove acquisizioni sull'alimentazione degli ovini da latte", Facoltà di Agraria di Catania, Italy.

**2002** Invited speaker (presentation: *Recent advances on the prediction of dairy sheep requirements*) at the XV Convegno Nazionale SIPAOC (Italian Society of Husbandry and Pathology of Sheep and Goats), Chia Laguna, Cagliari, Italy.

**2002** Invited speaker (presentation: *Nutritional strategies to improve lactation persistency*) at the "8<sup>th</sup> Great Lakes Dairy Sheep Symposium", Ithaca, NY, USA.

**2003** Invited speaker (presentation: *Modelization of ruminal and intestinal digestive function in ruminants*) at the symposium organized by the Società Italiana di Buiatria on "Post-ruminal digestive processes in cattle: functional and clinical aspects", Bologna, Italy.

**2004** Invited speaker (presentation: *Relationships among nutrition, hormonal control of metabolic processes and milk yield and composition in dairy sheep*). Symposium on

“L’ovino tra tradizione, ricerca e sviluppo”, Facoltà di Medicina Veterinaria di Teramo, Italy.

- 2005** Invited speaker (presentation: *The CNCPS Sheep Model*). International course on ruminant nutrition, Corfilac, Ragusa, Italy.
- 2006** Invited speaker (presentation: *Modelization of microbial synthesis and utilization of nutrients in ruminants*) at the XXXVIII Congresso Nazionale della Società Italiana di Buiatria, Mantova, Italy.
- 2007** Invited speaker (presentation: *Predicting energy and protein requirements of goats with the Small Ruminant nutrition System*) at the workshop on “Development of small ruminant requirements”, State University of San Paolo-UNESP, Jaboticabal, SP, Brazil.
- 2007** Moderator in the Symposium on “Strategies for scientific communication in the area of animal Science “; 44<sup>th</sup> Annual Meeting of the Brazilian Society of Animal Science, Jaboticabal, SP, Brazil.
- 2008** Invited speaker (presentation: *The Small Ruminant Nutrition System (SRNS) Model for Prediction of Energy and Protein Requirements of Goats and Sheep*. 2008 Joint ADSA-ASAS Meeting Symposia, Indianapolis, USA.
- 2008** Invited talk (presented by co-author): *A nutrition mathematical model to account for dietary supply and requirements of energy and nutrients for domesticated small ruminants: the development and evaluation of the Small Ruminant Nutrition System*. 45<sup>a</sup> 45<sup>th</sup> Annual Meeting of the Brazilian Society of Animal Science, Lavra, PR, Brazil.
- 2008** Invited talk (presented by co-author): *A nutrition mathematical model to account for dietary supply and requirements of energy and nutrients for domesticated small ruminants: the development and evaluation of the Small Ruminant Nutrition System*. 9th International Conference on Goats – Sustainable Goat Production: Challenges and Opportunities of Small and Large Enterprises. Querétaro, Mexico.
- 2009** Invited speaker (presentation: *Role of sensorial perceptions in feed selection and intake by domestic herbivores*). XVIII Congresso Nazionale ASPA, Palermo, Italy.
- 2010** Invited speaker (presentation: *The energetic cost of maintenance requirements in ruminants: from classical to new concepts and prediction systems*). 3<sup>rd</sup> EAAP International Symposium on Energy and Protein Metabolism and Nutrition. Parma, Italy, 6-10 September 2010.
- 2011** Invited speaker (presentation: *Evaluation systems of food and nutrient requirements of caprines*). III National Symposium on Dairy Cattle and I International Symposium on Dairy Cattle), Federal University of Viçosa, Minas Gerais, Brazil. 4 November 2011.
- 2011** Invited speaker (presentation: *Nuevo sistema de alimentación y recomendaciones nutritivas para pequeños rumiantes: SRNS*). XXVII Curso De Especialización Fundación Española para el Desarrollo de la Nutrición Animal, Madrid, Spain, 17 November 2011.
- 2013** Invited speaker: *Technological innovations on the modification of rumen fermentation and milk and meat production: the utilization of essential oils*. 2<sup>nd</sup> Brazilian Symposium of Ruminants Production in Cerrado: Technological Innovations. Universidade Federal De Uberlândia, MG, Brasil.
- 2013** Invited speaker (presentation: *Technological advances in the estimation of requirements, feeding behaviour, intake and geolocation of grazing ruminants*). 2<sup>nd</sup> Brazilian

Symposium of Ruminants Production in Cerrado: Technological Innovations.  
Universidade Federal De Uberlândia, MG, Brasil

- 2013** Invited speaker (presentation: *Nutrition of dairy ewes during pregnancy and early lactation*). Technical Seminar of the Project “New Technologies Supporting Traditional Cheeses in Sicily and the Maltese Islands”, University of Malta, Valletta, Malta.
- 2015** Invited talk (presented by Anna Nudda, co-author: *Effects of management practices and nutrition on the welfare and productivity of dairy sheep*). Second DairyCare Conference, Cordoba, Spain
- 2015** Invited speaker (presentation: *Utilization of carbohydrates during the lactation of dairy sheep and goats: species differences and feeding recommendations*). 7th International Symposium on Sheep, Goat and other non-Cow Milk of the International Dairy federation. 23-25 March 2015, Limassol, Cyprus.
- 2015** Invited speaker (presentation: *Environmental sustainability: carbon, nitrogen, water footprint*). 8<sup>th</sup> Convegno Nazionale Arna. 15-17<sup>th</sup> September 2015. Piacenza, Italy.
- 2015** Invited speaker (presentation: *Nutritional management in goat production systems*). EUFP7-SOLID. Workshop on dairy production in Southern Europe. Thessaloniky, Greece.
- 2016** “*Alimentation des ovins et formulation alimentaire: le Small Ruminant Nutrition System and related research*”. Two-day course. Ceqoq & Laval University, Quebec City, Canada.
- 2016** Invited speaker (presentation: *Feeding dairy sheep: nutritional challenges and opportunities*). Dairy Sheep Association of North America Symposium, Cornell University, Ithaca, NY, USA, 2-4 December 2016.
- 2017** Invited speaker (presentation: *Sheep nutritional and health challenges during late pregnancy and early lactation*). 9<sup>th</sup> International Sheep Veterinary Congress, Harrogate, UK, 22- 26 May 2017.
- 2017** Invited speaker (presentation: *Intake prediction and energy requirements for dairy small ruminants: comparison of systems*). American Dairy Science Association Meeting, Pittsburgh (PA, USA), 25-29 June 2017.
- 2018** Invited speaker (presentations: *Sheep nutrition in extensive and intensive systems* and *Goat nutrition in extensive and intensive systems*). 20° Congresso Internazionale SIVAR, 16-18 Maggio 2018, Cremona, Italy.
- 2018** Chairman of the ASN-ASAS Symposium: Future of data analytics in nutrition: Knowledge gaps, data collection and quality, and the role of supporting tools for sustainable development. Vancouver, Canada, July 8, 2018.
- 2019** Invited speaker (presentation: *Aplicación del Modelo CNCPS (Cornell Net Carbohydrate and Protein System) en pequeños rumiantes*). 2019 Nutriforum, 11-12 April, Lleida, Spain.

## SEMINARS

- 1995** “*Comparison of dairy cattle energy and protein requirements*”, Department of Animal Science, Cornell University, USA.
- 1996** “*Aspects of dairy sheep nutrition: - particle size and milk production - milk urea and nutritional status*”, Department of Meat and Animal Science, University of Wisconsin, Madison, USA.



- 1999** *“Prediction of rumen passage rate in domestic ruminants”*, Department of Animal Science, Cornell University, USA.
- 2000** *“Adaptation of the CNCPS for sheep to Brazilian conditions”* and *“Sheep production in Italy”*, Universidade Estadual do Norte Fluminense, RJ, Brazil.
- 2000** *“Nutrition of the dairy ewe”* and *“Urea as nutritional indicator for lactating ewes”*, Departamento de Ciencia Animal, Universidad Politécnica de Valencia, Spain.
- 2000** *“Adaptation of the CNCPS to sheep: development and validation”*, Dipartimento di Produzione Animale, University of Pisa, Italy.
- 2001** *“Sheep and cattle ruminal turnover, and adaptation of the Cornell Net Carbohydrate and Protein System to sheep”* and *“Sheep production in Italy”*, Department of Agricultural Research for Northern Sweden (Umea), Swedish University of Agricultural Sciences, Sweden.
- 2004** *“The CNCPS Sheep model: characteristics, accuracy and applications in sheep diet balancing”*, Dipartimento di Scienze Zootecniche, University of Basilicata, Potenza, Italy.
- 2006** *“Nutrition of small ruminants in mid-late lactation: effects of carbohydrate sources on energy partitioning between milk and body reserves”*, Department of Animal Science, University of Vermont, Burlington, VT, USA.
- 2006** *“Balancing diets for lactating goats”*, University of Vermont Extension Service, Burlington, VT, USA.
- 2007** *“Predicting energy and protein requirements of sheep with the Small Ruminant nutrition System”*. University of San Paolo-USP, Piracicaba, SP, Brazil.
- 2010** *“Palatability of concentrates fed to sheep”*. Department of Animal Science, University of Catania, Italy.
- 2010** *“Nutritional demands and feed utilization by lambs and ewes”*. Swedish University of Agricultural Sciences, Department of Animal Environment and Health, Skara, Sweden.
- 2016** *“Taking seriously sheep and goats: the Small Ruminant Nutrition System and related research”*. Department of Animal Science, Texas A&M University, College Station, TX, USA.
- 2016** *“Sheep and goats production in Sardinia and related nutritional research”*. Texas A&M Agrilife Research and Extension Center, San Angelo, TX, USA.

## **RESEARCH AND STUDIES ABROAD**

Master and Ph.D. student. *Department of Animal Science, Cornell University, US*. Four years in total (January 1992 - December 1993; July 1994 - January 1995; January 1996 - September 1996; March 1998 - September 1998)

Visiting Professor. *State University of São Paulo-UNESP, Campus de Jaboticabal, SP, Brazil*. August 2011 (30 days).

Visiting Professor. *Department of Animal Science, Texas A &M University*. 4 months in total (from April 7 2016 to May 6 2016, and from September 26 2016 to December 24 2016).

## MAIN RESEARCH FUNDING

- 1997-2000** Coordinator of the research unit of the University of Sassari of the National Project: *Development of a diet formulation model for sheep and goats*. Italian Ministry for Agriculture and Forestry. National Coordinator: G. Pulina
- 1999** Coordinator of the Project: *Milk urea as a nutritional indicator in dairy sheep*. Italian Ministry of Education and Research.
- 2001-2004** Coordinator of the research unit of the University of Sassari of the National Project: *Further development of a diet formulation model for sheep and goats*. Italian Ministry for Agriculture and Forestry. National Coordinator: G. Pulina
- 2003-2005** Participant to the European Project: *Production of CLA Enriched Dairy Products by Natural Means. Workpackage: Biosynthesis of milk fat CLA in the lactating ruminant*. Coordinator: C. Stanton, TEAGASC, Cork, Ireland.
- 2004-2005** Recipient of funding of S.A. Société Industrielle LESAFFRE (France) for the project: *Novel live yeast strains in sheep feeding*.
- 2004-2006** Recipient of funding of Cargill Inc. (USA) for the project: *Carbohydrate sources and microbial synthesis in dry and lactating ewes*.
- 2005-2006** Recipient of funding of BASF Inc. (Germany) for the project: *Use of protected CLA on dairy ewes feeding*.
- 2006-2007** Recipient of fundings of SIL- Patto Territoriale Oristano (Italy) for the project: *Studies on aseasonal milk production in dairy sheep*.
- 2007-2008** Recipient of fundings of Assessorato Ambiente Regione Sardegna (Italy) for the project: *Quantification of nitrogen volatilization in dairy cattle bedded barns*.
- 2007-2008** Recipient of fundings of Regione Sardegna (Italy) for the project: *Palatability of concentrated feeds in dairy sheep*.
- 2008-2009** Recipient of fundings of Assessorato Ambiente Provincia di Oristano (Italy) for the project: *Quantification of nitrogen volatilization in dairy cattle cubicle barns*.
- 2010-2012** Coordinator of the unit of the University of Sassari in the UE project: *TECHeese - Solving the technological problems of sheep cheese production*. 7th Framework Program - Research for SME Associations.
- 2011-2013** Coordinator of the project *“Estimation of carbon footprint in dairy cattle farms of Southern Italy*. Filiera A.Q., Italy
- 2013-2015** Coordinator of the project *“Modulation of dietary energy partitioning between milk production and body reserves in sheep and goats”* Regione Sardegna, Italy.
- 2016-2020** Coordinator of a unit of the LIFE project *“Forage systems for less GHG emissions and more soil carbon sink in continental and Mediterranean agricultural areas ”*, funded by the UE.
- 2016-2020** Component of the research unit of the University of Sassari in the LIFE project *“Sheep to Ship: Looking for an eco-sustainable sheep supply chain: environmental benefits and implications”*, funded by the UE.
- 2018-2020** Component of the research unit of the University of Sassari in the project PON 2014-2020 *“COMETA: Mediterranean local crops and their valorization with advanced green chemistry technologies”* funded by the Ministero dell’Istruzione, dell’Università e della Ricerca, Italy.

**2019-2020** Coordinator of the unit of the University of Sassari in the project “*Innovations in the Italian Dairy Industry for the enhancement of farm sustainability, milk technological traits and cheese quality*”, funded by AGER2, Italy.

## **EDITORIAL ROLES AND REFEREE**

**From April 2016 to December 2018:** Associate Editor of Nutrition, *Small Ruminant Research* (Elsevier Science)

### **Referee:**

- *Agricultural Systems* (Elsevier Science)
- *Agroforestry Systems* (Kluwer Academic Publishers)
- *Animal* (Cambridge University Press)
- *Animal Feed Science and Technology* (Elsevier Science)
- *Ecological modeling* (Elsevier Science)
- *Italian Journal of Animal Science* (Avenue media - Page Press)
- *Livestock Science* (Elsevier Science)
- *The Journal of Agricultural Science* (Cambridge University Press)
- *Journal of Animal Physiology and Animal Nutrition* (John Wiley & Sons, Inc.)
- *Journal of Animal Science* (American Society of Animal Science)
- *Journal of Dairy Science* (American Dairy Science Association)
- *Journal of the Science of Food and Agriculture* (Wiley)
- *Scientia Agricola* (ESALQ- University of São Paulo)
- *Small Ruminant Research* (Elsevier Science)
- *Spanish Journal of Agricultural Research* (Publicaciones-INIA)
- *Zootecnica e Nutrizione Animale* (Edagricole)

## **DEVELOPMENT OF FEEDING SYSTEMS**

### **1997-2004**

Developed the equations to predict nutrient requirements and feed nutritive value of **ROC 3** and **Assis.T** (CRPA, Reggio Emilia, Italy), software for sheep and goat diet formulation. ([http://www.crpa.it/nqcontent.cfm?a\\_id=1468&tt=crpa\\_www&sp=assistdev](http://www.crpa.it/nqcontent.cfm?a_id=1468&tt=crpa_www&sp=assistdev)).

### **2004- present.**

Led, jointly with D. G. Fox, Cornell University, USA, and L.O. Tedeschi, Texas A & M University USA, the development of the **Cornell Net Carbohydrate and Protein System for Sheep** and its evolution into the **Small Ruminant Nutrition System** (<http://nutritionmodels.tamu.edu/srns.htm>).

### **2007**

Developed the equations to predict energy and protein requirements of sheep adopted by the NRC (2007). *Nutrient requirements of small ruminants. Sheep, goats, cervids and New World camelids*. The National Academies Press, Washington D.C., USA (<http://www.nap.edu>).

## **ORGANIZATIONAL AND UNIVERSITY ROLES**

### **January 2007-October 2009**

Chair (*Direttore*) of the Dipartimento di Scienze Zootecniche, University of Sassari, Italy

### **May 2008- Aprile 2011**

Component of the Board of the Cooperativa 3 A “Latte Arborea” (milk and cheese cooperative industry), as Representative of the Sardinian Regional Government.

### **Since September 2010**

Member of the Committee on “Study and prediction of the carbon footprint of animal husbandry” of the *Associazione Scientifica di Produzione Animale* (Italian Scientific Association for Animal Production).

### **March 2015**

President of the Special Committee for the selection of a Lecturer/Assistant Professor in the Department of Agricultural Sciences, Biotechnology and Food Science of the Cyprus University of Technology, Limassol, Cyprus.

### **January 2015-May 2018**

Chair of the Ph.D. Program in Agricultural Sciences, University of Sassari, Italy.

### **Since April 2018**

Chair of the Ph.D. School of the University of Sassari, Italy.

## PUBLICATIONS

### ARTICLES IN SCIENTIFIC JOURNALS WITH IMPACT FACTOR

1. **Cannas A.**, Pes A., Mancuso R., Vodret B., Nudda A. 1998. Effect of dietary energy and protein concentration on the concentration of milk urea nitrogen in dairy ewes. *Journal of Dairy Science*, 81, 499-508.
2. Battacone G., Nudda A., **Cannas A.**, Cappio Borlino A., Bomboi G., Pulina G. 2003. Excretion of aflatoxin M1 in milk of dairy ewes treated with different doses of aflatoxin B1. *Journal of Dairy Science*, 86, 2667-2675.
3. **Cannas A.**, Van Soest P.J., Pell A.N. 2003. Use of animal and dietary information to predict rumen turnover. *Animal Feed Science and Technology*, 106, 95-117.
4. **Cannas A.**, Tedeschi L.O., Fox D.G., Pell A.N., Van Soest P.J. 2004. A mechanistic model to predict nutrient requirements and feed biological values for sheep. *Journal of Animal Science*, 82, 149-169.
5. **Cannas A.**, Atzori A.S. 2005. Development and evaluation of a model to predict sheep nutrient requirements and feed utilization. *Italian Journal of Animal Science* 4 (Suppl. 1), 15-33.
6. Pulina G., Nudda A., Battacone G., **Cannas A.** 2006. Effects of nutrition on the contents of fat, protein, somatic cells, aromatic compounds, and undesirable substances in sheep milk. *Animal Feed Science and Technology*, 131, 255-291.
7. Pulina G, Nudda A, Macciotta N.P.P., Battacone G., Rattu S.P.G., **Cannas A.** 2007. Non-nutritional factors affecting lactation persistency in dairy ewes: a review. *Italian Journal of Animal Science*, 6, 115-141.
8. Molle G., Decandia M., Cabiddu A., Landau S.Y., **Cannas A.** 2008. An update on the nutrition of dairy sheep grazing Mediterranean pastures. *Small Ruminant Research*, 77, 93-112.
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