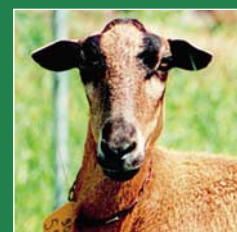
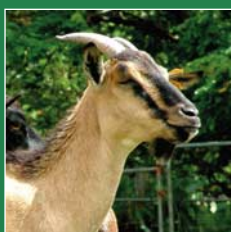


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International Sustainable Animal Production in the Tropics: Farming in a Changing World

2010

Advances in Animal Biosciences

This issue is part of a series which is a companion to the journal ANIMAL

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Welcome

This document contains the program and abstracts for SAPT 2010, **Sustainable Animal Production in the Tropics** (SAPT) 15–18 November 2010, organised jointly by INRA, BSAS, CIRAD, EAAP and WAAP.

Of the 145 papers submitted, 134 were selected by the scientific committee. They constitute contributions from 394 colleagues as authors or co-authors from 67 different countries and will be presented as oral presentations (66) or as posters (including 12 that will also be presented orally).

This meeting aims to address the questions posed by the increasing demand for protein from the growing world population at a time of climate change and changing social expectations.

Opportunities exist in three key areas:

- 1) Animal breeding, adaptation capacities of livestock in a changing environment,
- 2) Feed and forage resources, local feeds, values and strategic use,
- 3) Sustainable and integrated livestock farming systems that match local and global markets.

This conference provides an excellent opportunity for leaders in the field of animal production to come together to share knowledge and good practice, to identify relevant solutions and plan new directions to meet livestock challenges in tropical and subtropical humid areas. It is a unique opportunity for collaboration that can generate truly innovative strategies.

The holding of this conference was made possible through the support of the following individuals and organizations:

The International Advisory Committee chaired by M. Steele (BSAS, UK) with P. Chemineau (Prospective Direction, INRA, France), D. Boichard (GA, INRA, France), P. Herpin (Scientific Direction, INRA, France), P. Caron (Scientific Direction, CIRAD, France), A. Rosati (General Secretary, EAAP).

The International Scientific Committee chaired by N. Mondonnet with

- In session 1: G. Aumont (AGREENIUM, France), N. Silanikove (ARO, Inst. Anim. Sci., Israel), A. Cahaner (Hebrew Univ Jerusalem, Israel), M. Naves (INRA, Antilles Guyane), T. Lefrançois (CIRAD, France).
- In Session 2: Pr D. Sauvant (AgroParisTech, France), R. Dixon (Queensland Primary Industries & Fisheries, DEEDI, Australia), F. Jackson (Moredun Inst, UK), H. Guerin (CIRAD, France), J. Noblet (INRA, France), H. Archimède (INRA, Antilles Guyane).
- In Session 3: F. Torres-Acosta (UADY, Mexique), T.R. Preston (UTA foundation, Colombie), C. Devendra (Consulting Tropical Animal Production Specialist, Malaysia), JB. Coulon (INRA, France), P. Lecomte (CIRAD, France).

The Local Organizing Committee chaired by M. Boval with M. Mahieu, P. Huan, M.J. Bévis, G. Hostache, C. Odet, S. Calif, A. Fanchone, C. Maximin, and all our colleagues of "Tropical Animal Production Unit" (URZ-INRA), who contribute to solving various practical aspects that emerge during the organisation of the congress.

The Editorial Committee: M. Steele, W. Brand-Williams, M. Boval, N. Mondonnet, M. Mahieu

Programme

Sunday, 14 November 2010

18:00 Registration

Monday, 15 November 2010

08:00 Opening Ceremony

Session 1: Facing the major breeding constraints on livestock production in the Tropics

Chairs: Philippe Chemineau (INRA, Tours) & Michel Naves (INRA, Guadeloupe)

- 08:30 **Relative importance of adaptation and genotype x environment interactions in tropical beef breeding systems**, by H. BURROW (*Cooperative Research Centre for Beef Genetic Technologies, Australia*)
- 09:00 **Genotype by environment interaction on growth and carcass traits in beef cattle in the tropics**, by F. ASSENZA^{1,2}, A. MENENDEZ BUXADERA¹, J. L. GOURDINE¹, A. FARANT¹, B. BOCAGE¹, X. GODARD¹, M. NAVES¹ (¹INRA, UR143, Guadeloupe FWI, ²Wageningen University, The Netherlands)
- 09:10 **Reproductive performance and milk production of Girolando cows imported from Brazil to a ranch of Kpinnou in south-west Benin** by I. ALKOIRET TRAORE¹, H. MAMA YARI¹, D. Yétongnon, G. AWOHOUEJJI¹ & R. LOKOSSOU² (¹University of Parakou, Benin, ²Project of Livestock Development, Benin)
- 09:20 **Evaluation of structural traits of goats from northeastern Brazil using zoometric ratios**, by T.M.M. MACHADO¹, L.C. PIRES¹, P.L.S. CARNEIRO², A.D.H. BARBOSA³, A.M. ARAÚJO⁴, M.A.S. NOVAES¹ (¹DZO/UFV, ²UESB, ³EBDA, ⁴EMBRAPA-CPAMN, Brazil)
- 09:30 **Breed and trait preferences of Sheko cattle owners in south western Ethiopia**, by T.T. DESTA¹, W. AYALEW² and B.P. HEGDE³ (¹Wolayta Soddo Agricultural Technical Vocational Education and Training College, Ethiopia, ²ILRI, Ethiopia, ³Haramaya University, Ethiopia)
- 09:40 **A short overview on the main features enabling goats to dwell productively in hot and harsh environments**, by N. Silanikove (*ARO, Inst. Anim. Sci., Israël*)
- 09:50 **The situation of goat farming in Haiti**, by D.J. EYMA (*FAMV/UEH, Haiti*)
- 10:00 to 10:30 **Coffee Break & Poster Session**

Chairs: N. SILANIKOVE (ARO, Inst. Anim. Sci., Israël) & P. HERPIN (INRA, Rennes)

- 10:30 **Adaptation to tropical climate and research strategies to alleviate heat stress in livestock production**, by D. RENAUDEAU¹, A. COLLIN², S. YAHAV³, V. de BASILIO⁴, J.L. GOURDINE¹ and R.J. COLLIER⁵ (¹INRA, UR143 Guadeloupe, FWI, ²INRA, UR83, France, ³Institute of Animal Science, Israel, ⁴Universidad Maracay, Venezuela, ⁵University of Arizona, USA)
- 11:00 **Physiology of adaptation to nutritional stress in farm animals: from production characterization to proteome profiling**, by A. ALMEIDA and L.A. CARDOSO (*CVZ-FMV, Portugal*)
- 11:15 **Thermoregulatory response and relationships with performance of Large White growing pigs reared in tropical humid climate**, by J.L. GOURDINE, M. CYRILLE and D. RENAUDEAU (*INRA, UR143, Guadeloupe, FWI*)
- 11:30 **Adaptive traits of Sanga cattle: Their importance in meeting the challenges associated with climate change in the tropics and sub tropics**, by K. RAMSAY (*Department of Agriculture, Forestry and Fisheries, South Africa*)
- 11:45 **Planning for climate change – developing a heat load model for dairy cows in the tropics and sub-tropics**, by J. GAUGHAN (*University of Queensland, Australia*)

12:00 to 14:00 Lunch & Poster Session

Chairs: H. BURROW (Cooperative Research Centre for Beef Genetic Technologies, Australia) & D. BOICHARD (INRA, Jouy-en-Josas)

- 14:00 **How to account for adaptation in breeding schemes for ruminant production under tropics: focus on resistance to strongyles in small ruminants?** by S.C. BISHOP (*Roslin Institute, UK*)
- 14:30 **QTL affecting resistance to gastro intestinal parasite infection in sheep: which applications in selection programs?** by C.R. MORENO¹, G. SALLÉ^{1,2}, L. GRUNER⁴, J. CORTET⁴, C. SAUVÉ⁴, F. PRÉVOT⁴, J.C. BRUNEL³, D. FRANÇOIS¹, C. PERY³, J. Bouix¹, R. RUPP¹, and P. JACQUIET² (¹INRA SAGA, ²UMR INRA/ENVY IHAP, ³INRA, *Domaine de la Sapinière*, ⁴INRA BASE, France)
- 14:45 **Contributions of the Creole goat model to the understanding of the genetic resistance to gastrointestinal nematode infections**, by C. de la CHEVROTIÈRE (*INRA, UR143, Guadeloupe, France*)
- 15:00 **Production traits of St. Croix White and Dorper x St. Croix White ewes in an accelerated lambing system in the tropics**, by R.W. GODFREY, R.E. DODSON and R.C. KETRING (*University of the Virgin Islands, St. Croix, USVI*)
- 15:15 **Thermoregulation of Barbados Black belly and West African type ewes and seasonal effects of climate on pre-weaning performance of lambs reared under a pasture based system in a tropical environment**, by D. AVRIL¹, C.H.O. LALLO¹, K. PERCY², G. BOURNE¹, P. THOMAS² and R. WARNER² (¹The University of the West Indies, Republic of Trinidad and Tobago, ²Division of Agriculture, Marine Affairs and the Environment, Tobago House of Assembly, Republic of Trinidad and Tobago)

15:30 to 16:00 Coffee Break & Poster Session

Chair: F. TORRES ACOSTA (Universidad Autónoma de Yucatán, Mexique)

- 16:00 **Emerging diseases and animal production**, by Dr D. Martinez (*UMR CMAEE CIRAD-INRA, France*)
- 16:30 **Vaccinal approach using inactivated vaccine against heartwater and Ehrlichia ruminantium genetic diversity**, by N. VACHIÉRY¹, D. MEYER¹, I. MARCELINO¹, P. ALVES², M. RALINIAINA³, F. STACHURSKI¹, H. ADAKAL⁴, C. SHEIKBOUDOU¹, R. APRELON¹, V. PINARELLO¹, T. LEFRANÇOIS¹, D. MARTINEZ¹ (¹UMR CMAEE CIRAD-INRA, Guadeloupe, FWI, ²IBET, Portugal, ³FOFIFA, DRZF, Madagascar, ⁴CIRDES, Burkina Faso)
- 16:45 **Nutritional strategies to control gastrointestinal parasitism in small ruminants**, by I. KYRIAZAKIS^{1,2}, S. ATHANASIADOU³, I. GIANNENAS¹ (¹Univ. Thessaly, Greece, ²Newcastle University, UK, ³SAC, Edinburgh, UK)
- 17:00 **Epizootiology of gastrointestinal strongyles in Pelibuey ewes in a silvopastoral system under a selective treatment program**, by J. ARECE, Y. LÓPEZ, N. ARÓSTICA (*EEPF "Indio Hatuey", Cuba*)
- 17:15 **Trypanotolerant and trypanosusceptible type bovine dual purpose in lowlands of Venezuela, phenotypic identification and characterization**, by R. TAMASOUKAS (*LABIPRESAN-UNERG, Venezuela*)
- 18:00 **Poster Session with 5 min Presentations**

Chair: I. KYRIAZAKIS (Newcastle University, England; University of Thessaly, Greece) & J.-C. BAMBOU (INRA, Guadeloupe)

20:00 Welcoming Reception

Tuesday, 16 November 2010

Chairs: N. RIHANI (Animal Production Officer, FAO) & J. NOBLET (INRA, Rennes)

Session 2: LOCAL FEEDS, VALUES AND STRATEGIC USE

- 08:30 **The availability of feeds for livestock, competition with human consumption in present world**, by Pr H. Steinfeld (*FAO*)
- 09:00 **Nutritional and energy values of tropical foliages in pigs**, by C. Régnier, B. Bocage, H. Archimède, D. Renaudeau (*INRA UR143, Guadeloupe, French West Indies*)
- 09:12 **Nutritive value of fibrous ingredients fed to pigs in the Democratic Republic of Congo measured using an in vitro technique**, by B. Kambashi^{1,2}, C. Boudry², P. Picron², H. Kiatoko¹, M. Muland³, A. Théwis²

Programme

and J. Bindelle² (¹University of Kinshasa, Democratic Republic of Congo, ²University of Liège, Gembloux Agro-Bio Tech – Belgium, ³Centre agronomique et vétérinaire tropical de Kinshasa, Democratic Republic of Congo)

- 09:24 **Digestibility and metabolic utilization and nutritional value of Cassia tora (Linn.) and Leuceana leucocephala (Lam.) leaves meal incorporated in the indigenous Senegal chickens diets**, by S.B. Ayssiwede¹, C. Chrysostome², W. Ossebi¹, A. Dieng³, J.L. Hornick⁴ and A. Missohou¹ (¹LANA, EISMV Dakar -Sénégal, ²University of Abomey-Calavi – Bénin, ³Superior National School of Agriculture, Thiès – Sénégal, ⁴Liege University – Belgium)
- 09:36 **A substitution trial of cow meat meal by earthworm meal in the finishing diet of broilers**, by J.P. Nguekam (ARAPEDD, Yaoundé – Cameroun)
- 09:48 **Nutrient Analysis of Moringa Oliefera as a High Protein Supplement for Animals** by P. Bridgemohan and M. Knights (University of Trinidad and Tobago, W.I.)
- 10:00 – 10:30 **Coffee Break & Poster Session**

Chairs: J. MATA (Univ. de La Laguna, Spain)

- 10:30 **Pastures for animal production in the Tropics: importance, management, criteria and methodological progress**, by M.Boval¹, E.A. Laca², P.C. Carvalho³, R. Dixon⁴ (¹INRA, UR143Guadeloupe, French West Indies, ²UCDavis – USA, ³UFGRS, Porto Alegre, Brazil, ⁴DEEDI, Queensland, Australia)
- 11:00 **85/15 Management intensive grazing: when grazing behavior and milk yield are modified by an alternative paddock system**, by A.L. Schmitt¹ and W. Murphy² (¹University of Santa Catarina – Brazil, ²University of Vermont – USA)
- 11:15 **Utilizing faecal near infrared spectroscopy to improve nutritional management of grazing cattle in the tropics of northern Australia**, by R. Dixon¹, D. Coates², D. Jackson¹ (¹DEEDI, Queensland, Australia, ²CSIRO, Australia)
- 11:30 **The effect of pasture utilization on the defoliation of grass species by steers grazing a tropical savanna woodland during the dry season**, by M. Benvenuti^{1,2,3}, J. Bindelle^{2,4}, P. O'Reagain⁵, I. Gordon², C. Mortimore², P. Isherwood³, D. Poppi³ (¹INTA EEA Cerro Azul, Argentina, ²CSIRO, Australia, ³University of Queensland, Australia, ⁴University of Liège, Belgium, ⁵DEEDI, Queensland, Australia)
- 11:45 **Configuration of livestock rearing areas in order to maintain stability of forage systems considering the biophysical hazards of humid tropical climates – Example in French Guyana**, by J. Huguenin¹, V. Blanfort², L. Navegantes³, M. Dufour¹ (¹CIRAD-Montpellier, ²CIRAD-Kourou, Guyane française, ³ALVES, UFPA, Brazil)
- 12:00 to 14:00 **Lunch & Poster Session**

Chairs: P. ARCURI (LABEX Europe, EMBRAPA, Brésil) & P. LECOMTE (CIRAD, France)

- 14:00 **Multicriteria evaluation of biomass resources for farming**, by Dr T.R. Preston (UTA Foundation, Colombia)
- 14:30 **Adaptation of a mechanistic model of intake and digestion in sheep to tropical forages**, by H. Archimède¹, M. Boval¹, D. Sauvant² (¹INRA UR 143 Guadeloupe, French West Indies, ²INRA UMR 791, Paris, France)
- 14:45 **Ecological assessment and productivity of natural pasture in Arly national park (Burkina Faso, West Africa)**, by O. Ouedraogo¹, A. Thiombiano¹, K. Hahn-Hadjali² and S. Guinko¹ (¹Université de Ouagadougou, Burkina Faso, ²J.W. Goethe-University, Frankfurt/M, Germany)
- 15:00 **Data engineering for creating feed tables and animal models in the tropical context**, by D. Sauvant¹, G. Tran², V. Heuzé², D. Bastianelli³, H. Archimède⁴ (¹AFZ&UMR INRA-AgroParisTech MoSAR, ²AFZ (Association Française de Zootechnie), ³CIRAD, ⁴INRA UR143, Guadeloupe, French West Indies)
- 15:15 **In vitro evaluation of the nematicidal value of Artocarpus altilis (Parkinson) var. seminifera and non seminifera and Terminalia cattapa L. against Haemonchus contortus**, by C. Marie-Magdeleine, M. Mahieu, M.L. Lastel, H. Archimède (INRA UR143, Guadeloupe, French West Indies)

15:30 to 16:00 Coffee Break & Poster Session

Chairs: G. W. GARCIA (*Animal Production Laboratory, Trinidad & Tabago*) & H. ARCHIMEDE (*INRA, Guadeloupe*)

- 16:00 Exploration and design of alternative feeding systems for livestock in the tropics by integrative system approaches, by J.C.J. Groot, H. von Keulen and S.J. Oosting (*Wageningen Univ., The Netherlands*)
- 16:30 Use of different technologic for guarantee the feeding animal in the tropic, by F. Ojeda García (*EEPF "Indio Hatuey", Matanzas, Cuba*)
- 16:40 Investigations into the value and use of local indigenous trees/plants as feed for goats in the semi-arid areas of Zimbabwe, by J.L.N. Sikosana¹, T. Smith² (¹*Department of Research and Specialist Services, Zimbabwe*, ²*Stable Cottage, UK*)
- 16:50 Integration of *Enterolobium cyclocarpum* Jacq. Griseb tree with hair sheep production in the dry tropics, by H. Esquivel-Mimenza, A. Piñeiro-Vazquez, J. Bazan Godoy, A. Ayala-Burgos, J. Espinoza-Hernandez and J. Ku-Vera (*University of Yucatan, Mexico*)
- 17:00 Valorisation of mango peels and seed kernels in animal feeding: Nutritive value and voluntary feed intake by sheep, by H. Sanon, A. Kanwe (*INERA, Burkina Faso*)
- 17:10 Ratana (*Ischaemum indicum*, Houtt; sin. *I. ciliere*, Retz) response to intensive management under different nitrogen fertilization rates in the Humid Tropics, by M. Villarreal-Castro¹, E. Villalobos¹, C. Rodriguez¹, E. Ducca², O. Alfaro² (¹*Escuela de Agronomía, Costa Rica*. ²*Ministerio de Agricultura y Ganadería, Costa Rica*)
- 17:20 Effect of the volatile fraction from sugarcane silage and forage inclusion on the ruminal pH, redox potential, temperature, and partial pressure of H₂ on beef cattle diets, by J.L. Pratti Daniel, L. Gustavo Nussio, V. Pilon Santos, J. Rosolem Lima, A. de Sá Neto, G. Bonato Muraro, B. Cortes Queiroz (*University of São Paulo, ESALQ, Brazil*)

17:30 to 19:00 Poster Session with 5 min Presentations

Chairs: D. SAUVANT (*INRA, Paris*) & H. ARCHIMEDE (*INRA, Guadeloupe*)

Wednesday, 17 November 2010

Chair: C. DEVENDRA (*Consulting Tropical Animal Production Specialist, Malaysia*)

Session 3: SUSTAINABLE AND INTEGRATED LIVESTOCK FARMING SYSTEMS IN THE TROPICS

- 08:30 Tropical livestock farming systems, global framework and case studies at the biotechnical and decisional levels, by G. Alexandre¹, G.W. Garcia², L. Rodriguez³, J. Sinton⁴, H. Museau⁵, B. Dedieu⁶ (¹*INRA, France*, ²*UWI, Trinidad & Tobago*, ³*UTA foundation, Colombie*, ⁴*UAG, France*, ⁵*Veterimed, Haiti*, ⁶*INRA, France*)
- 09:00 A study of the male agouti's (*Dasyprocta leporina*) reproduction system: a Neo-tropical animal with the potential for sustainable production, by W. Mollineau, A.O. Adogwa, G.W. Garcia (*University of the West Indies, Trinidad & Tobago*)
- 09:15 The Moka cattle, an element of the Reunion Island heritage to preserve, by O. FONTAINE¹, J.P. CHOISIS², M. NAVES³ (¹*CIRAD, UR 18, La Réunion*, ²*INRA UMR 1201, France*, ³*INRA UR143, Guadeloupe, FWI*)
- 09:30 Intensive production system of collared peccary (*Pecari tajacu*) in Brazilian Amazon, by N. INAGAKI de ALBUQUERQUE¹, D.A. GUIMARÃES², H.L. TAVARES DIAS², Y. Le PENDU³, P. REIS KAHWAGE¹, A. ROSSETTO GARCIA¹ (¹*Embrapa*, ²*Universidade Federal do Pará*, ³*Universidade Estadual de Santa Cruz, Brasil*)
- 09:45 Milk production in small farms in Haiti: the "Let agogo" (milk in abundance) experience, by H. MUSEAU, R. MOISE, M. CHANCY (*Veterimed, ONG, Haiti*)

10:00–10:30 Coffee Break & Poster Session

Chair: T. R. PRESTON (*UTA Foundation, Colombia*) & J.- L. GOURDINE (*INRA, Guadeloupe*)

- 10:30 Mixed farming systems in tropical areas, by M. Herrero (*ILRI, Kenya*)

Programme

- 11:00 **Mixed farming system for the reconversion process in the Caribbean: How to do the necessary research?, Which strategies?** by E. González-García^{1,2}, J.L. Gourdine², A. Fanchone², G. Alexandre², and H. Archimède² (¹INRA UMR868, ²INRA UR143 Guadeloupe FWI)
- 11:15 **Livestock farming systems and conditions of sustainability in Cuba, the case of small ruminant production**, by Y. Alexandrine¹, X. Xandé¹, J. Arece-García², M. Mahieu³, J.L. Diman¹, G. Alexandre³ (¹ARECA, Guadeloupe, ²EPPF "Indio Hatuey", Cuba, ³INRA UR 143 Guadeloupe, FWI)
- 11:30 **Small ruminants feeding systems in semi-arid land of Punjab, Pakistan: status and prospectus for improvement**, by T. AHMAD, N. ULLAH, K. ISHAQ, S.A. HADI and M.M. Fahd QADIR (*PMAS-Arid Agriculture University, Pakistan*)
- 11:35 **Advances in integrated tree crops-ruminants systems for productivity enhancement and environmental sustainability in South East Asia**, by C. Devendra (*Consulting Tropical Animal Production Specialist, Malaysia*)
- 11:50 **Organic farming principles related to agro-ecological tropical smallholder livestock systems**, by M. Vaarst¹, S. Roderick², E.L. Vieito Reyes³, S.N. Muwanga⁴, B. Sanyal⁵, Mr. Pallob⁵, F. Funes Monzote⁶, A. Bhuiyan⁷ (¹University of Aarhus, Denmark, ²Organic Studies Centre, UK ³Instituto de Investigaciones de Pastos y Forrajes, Cuba, ⁴Faculty of Veterinary Medicine, Uganda, ⁵Loka Kalyan Parishad, India, ⁶EPPF, 'Indio Hatuey', Cuba ⁷Bangladesh)

12:00–14:00 **Lunch & Poster Session**

Chairs: P. LECOMTE (CIRAD, France)

- 14:00 **Level of assessment of livestock farming system: farm, sector and territory**, by J. Mata¹, L. Bermejo¹ and P. Caron² (¹Univ. de La Laguna, Espagne, ²CIRAD, France)
- 14:30 **Representations of breeders about local breeds in the livestock farming system of the French West Indies: between rejection and appropriation of Creole goat**, by V. Angeon¹, J. Sainton², G. Alexandre³ (¹UAG, Martinique, ²UAG, Guadeloupe, ³INRA UR 143, Guadeloupe, FWI)
- 14:45 **The farmer's viewpoint: Payment for ecosystem services and agroecologic pasture based dairy production**, by J. Farley^{1,2}, A.L. Schmitt F², J.P. Alvez^{1,2}, P.M. Rebola² (¹University of Vermont, USA, ²Federal University of Santa Catarina, Brazil)
- 15:00 **Assessment of water productivity and entry points for improvement in mixed crop-livestock systems of the Ethiopian highlands**, by K. Descheemaeker^{1,2}, A. Hailelassie³, T. Amede^{1,2}, D. Bossio¹, S. Tarawali² (¹IWMI, Ethiopia, ²ILRI, Ethiopia, ³ILRI, India)
- 15:15 **Evaluation of carbon sequestration in tropical grassland, ecological processes and farm practices in Amazonian cattle systems**, by V. Blanfort¹, S. Fontaine², C. Picon Cochard², K. Klumpp², J. Huguenin³, J.F. Soussana² (¹CIRAD UR 18, French Guyana, ²INRA UR0874, France, ³CIRAD UR 18, France)

15:30–16:00 **Coffee Break & Poster Session**

Chair: D. Sauvart (AgroParisTech, Paris)

- 16:00 **Design and assessment of livestock farming systems: Methodological advances**, by P. Lecomte, J.-F. Tourrand, R. Pocard Chapuis (*Cirad, France*)
- 16:30 **Modeling crop-livestock integration systems at a farm and regional scale in a highland region of Madagascar and in Reunion island: a conceptual model**, by S. Alvarez and J. Randrianasolo, P. Salgado, J. Vayssières, P. Lecomte, F. Guerrin, P. Titonell, F. Bocquier, E. Tillard, D. Lepelley (*CIRAD, La Réunion*)
- 16:45 **Modeling the transformation from an intensive crop production to a mixed farming systems: Integrating banana and ruminant production in the French West Indies**, by A. Fanchone¹, J.-L. Gourdine¹, J.-L. Diman², and H. Archimède¹ (¹INRA, UR143, ²INRA, UR1321 Guadeloupe FWI)
- 17:00 **Evaluating multifunctional land use and livestock farming: a co-evolutionary approach among farmers and consumers**, by C. Guarino and F. Di Iacovo (*University of Pisa, Italy*)

17:15 **A holistic approach is needed to improve the performance of the livestock sector in supporting food security in the French West Indies: an offer of the research institutes**, by A. HIOL¹, K. ROCHEFORT², G. ALEXANDRE³ (¹*IUT Pôle Guadeloupe*, ²*Pôle Agro-Alimentaire Régional de Martinique*, ³*INRA URZ 143 Guadeloupe FWI*)

18:00 **Poster Session with 5 min Presentations**

Chair: A. FANCHONE (INRA, Guadeloupe)

20:00 **Conference Dinner**