

XL CIOSTA

& CIGR SECTION V

INTERNATIONAL CONFERENCE



Proceedings of the XL CIOSTA & CIGR Section V
International Conference

10 – 13 September, 2023
Évora, Portugal

Published by: Universidade de Évora

Proceedings of the XL CIOSTA & CIGR Section V
International Conference

10 – 13 September, 2023
Évora, Portugal

Published by: Universidade de Évora

Title: Proceedings of the XL CIOSTA and CIGR Section V International Conference

Edited by:

José Carlos Barbosa
Luis Leopoldo Silva
José Carlos Rico
Diogo Coelho
Adélia Sousa
José Rafael Marques da Silva
Fátima Baptista
Vasco Fitas da Cruz

Published by: Universidade de Évora
Largo dos Colegiais, 2, 7004-516 Évora, Portugal

ISBN 978-972-778-337-3

Please, use the following format for paper citation:

Author(s) (2023). Title. In: Barbosa, J.C., Silva, L.L., Rico, J.C., Coelho, D., Sousa, A., Silva, J.R.M., Baptista, F., Cruz, V.F., (Eds.) Proceedings of the XL CIOSTA and CIGR Section V International Conference. Évora, Universidade de Évora, pp. xxx-xxx.

Cite Proceedings as:

Barbosa, J.C., Silva, L.L., Rico, J.C., Coelho, D., Sousa, A., Silva, J.R.M., Baptista, F., Cruz, V.F., 2023. Proceedings of the XL CIOSTA and CIGR Section V International Conference, 10-13 September, Évora, Portugal. Universidade de Évora. xxx pp

This proceeding were reproduced from manuscripts supplied by authors. Whilst every effort is made by the publisher to see that no inaccurate or misleading data, opinion or statement appears in this publication, they which to make it clear that the data and opinions appearing in the articles herein are the sole responsibility of the contributor concerned. Accordingly, the publisher, editors and their employers, officers and agents accept no responsibility or liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.

Copyright 2023, Universidade de Évora

Copyright and Reprint Permission: All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means without written permission from the copyright holders.

Not printed

Presentation

This proceedings book results from the XL CIOSTA & CIGR Section V International Conference. Subordinated to the theme "Sustainable Socio-Technical Transition of Farming Systems", the conference took place at University of Évora, Portugal, from 11 to 13 September 2023.

This book contains the full papers of a selection of abstracts that were the base for the oral presentations and posters presented at the conference.

We would like to thank all the participants who made this conference possible with their work and presentations.

Also thanks to the sponsors and members of the scientific committee, for their important and fundamental contribution to this congress

Organising Committee

Prof. Vasco Fitas da Cruz	Évora University, MED - Chair
Prof. Karolina Tryzniec	University of Agriculture in Krakow (Vice-Chair)
Prof. Fátima Baptista	Évora University, MED (Vice-Chair)
Prof. Adélia Sousa, Évora	Évora University, MED
Prof. António Bento Dias	Évora University, MED
Prof. José Carlos Barbosa	Polytechnic Institute of Bragança
Prof. José Rafael Silva	Évora University, MED
Prof. Luís Alcino Conceição	Polytechnic Institute of Portalegre, MED
Prof. Luís Leopoldo Silva	Évora University, MED
Dr. Diogo Resende	Évora University, MED
Dr. Marcela Barbosa	Évora University,
Dr. Patricia Lourenço	AgroInsider, MED
Miss Ana Margarida Coelho	Évora University
Mr. José Carlos Rico	Évora University, MED

Organization

Universidade de Évora

Institutional Support



Sponsors



Scientific Committee

Prof. José Rafael Silva, Évora University, MED (Chair)
Prof. Adélia Sousa, Évora University, MED
Prof. Alisa Yoshida, Silpakorn University
Prof. Allan Leck Jensen, Aarhus University
Prof. António Dias, Évora University, MED
Prof. Branimir Njezic, Banja Luka University
Prof. Claus Sorensen, Aarhus University
Prof. Daiane Cecchin, Fluminense University of Niteroi
Dr. Dao Nguyen, Royal Melbourne Institute of Technology
Prof. Elisabeth Quendler, Wlen University of Natural Resources and Life Sciences
Prof. Fátima Baptista, Évora University, MED
Prof. Fernanda Sousa, Federal University of Viçosa
Prof. George Papadakis, Athens University of Agriculture
Prof. João Serrano, Évora University, MED
Prof. José Carlos Barbosa, Polytechnic Institute of Bragança
Prof. Karolina Trzyniec, University of Agriculture in Krakow
Prof. Luís Alcino Conceição, Polytechnic Institute of Portalegre, MED
Prof. Luís Leopoldo Silva, Évora University, MED
Prof. Luis Manuel Navas, University of Valladolid
Prof. Michael Norremak, Aarhus University
Dr. Pawapol Kongchum, Silpakorn University
Prof. Pietro Picuno, University of Basilicata
Prof. Salvador Calvet, Polytechnic University of Valencia
Prof. Silvia Souza, State University of São Paulo
Prof. Tadeusz Julis Zewski, Agriculture University of Krakow
Prof. Thomas Banhazi, National Taiwan University
Prof. Tomas Norton, Catholic University of Leuven
Prof. Tran Thanh Son Khoa, ICISE – Vietnam
Prof. Vasco Fitas da Cruz, Évora University, MED

Table of Contents

Using Microgreen Production to Demonstrate Plant Propagation Techniques for Agriscience Teacher Professional Development Catherine A. DiBenedetto, Jeffery Adelberg	1
Analysis of feeding operations when using a self-propelled automatic feeding system (AFS) Elisabeth Quendler, Carolin Leitner, Michael Spitzhirn	7
Benefits of Adding Composted Poultry Litter to Soilless Potting Media for the Production of Woody Ornamentals John P. Chastain, Hunter F. Massey, Tom O. Owino	10
Improving Monitoring of Broiler Production Through an Early Warning System Employing Low-Cost Environmental Network in Tropical Climates Jairo A Osorio Saraz, Felipe A Obando Vega, Ana P Montoya Ríos; Verónica González Cadavid, Robinson Osorio Hernandez, Ilda Ferreira Tinoco, Vasco Fitas da Cruz	22
Sustainable Production in Almería Solar Greenhouses Increasing Photosynthetic Activity by Passive Climate Controls Systems María Ángeles Moreno-Teruel, Francisco Domingo Molina-Aiz, Diego Luis Valera-Martínez, Mireille N. Honoré, Alejandro López-Martínez, Patricia Marín-Membrive	28
Preliminary study on the quantification of livestock effluent production in Portugal Vasco Fitas Cruz, Diogo Rezende Coelho, José Carlos Rico and Fátima Baptista	36
Microgreen Nutrition Within Light Treatments and Shelf-Life Analysis to Demonstrate Seed Germination and Plant Propagation Techniques Catherine A. DiBenedetto, Jeffery Adelberg	41
Innovative Cultivation of Aloe Vera in Advanced Technological Greenhouse Systems Angeliki Kavga, Vasileios Thomopoulos; Theodoros Petrakis	47
Limited ammonia emission by inventive manure cellar ventilation and chemical air scrubber Hans Schiricke, Joop van der Leeuw	52
Use of Malt Bagasse in Ceramic Material João Pedro da Silva Costa Andrade, Daiane Cecchin, Afonso Rangel Garcez de Azevedo, Carlos Mauricio Fontes Vieira, Geovana Carla Gironi Delaqua, Flávio Castro da Silva, Leonardo da Silva Hamacher, Tulane Rodrigues da Silva, Cristina Moll Hüther, Dirlane de Fátima do Carmo, Carlos Rodrigues Pereira	57
Production and value chains of <i>Aloysia triphylla</i> in Portugal Evelin Lorena de Oliveira Freire Chagas, Cristina Moll Hüther, Thelma de Barros Machado, Dirlane de Fátima do Carmo, Elton de Oliveira, Daiane Cecchin, Leonardo da Silva Hamacher, Carlos Rodrigues Pereira.	64
Carbon Footprint in Agriculture - Studies carried out on: potato, carrot, onion, melon, watermelon, wheat, corn, barley and triticale crops Maria Caldinhas; Manuela Correia; José Rafael M. Silva	70
Safety and Maintenance Conditions in Tractors and Agricultural Machinery - A Case Study in Alentejo Luís Alcino Conceição	76
RNA extraction and reconstruction of emetin and cephalin metabolic pathways in <i>Carapichea ipecacuanha</i> Cristina Moll Hüther, Luis Willian Pacheco Arge, João Travassos Lins, Julia Ramos de Oliveira, Vitor Francisco Ferreira, Marcio Ferreira Alves, Junior Borella, Thelma de Barros Machado, Carlos Rodrigues Pereira, Leonardo da Silva Hamacher, Daiane Cecchin, Fernanda Reinert.	80
Working Conditions on Goat Farms in the Northeastern Trás-os-Montes (Portugal): From the Past to the Current Situation José Carlos Barbosa, Juliana Gonçalves	86
A survey of pig and poultry farmers' readiness and attitudes towards smart technologies I.E. Tikász, C. Bálint, G. Király, C.A.Gron Sorensen, S. Opalinsky, S. Gunnarsson, U. Marchim, E. Kokin, K. Mallinger, T. Banhazi	92
Conditions of applying advanced information technologies in livestock farming I.E. Tikász, G. Király, C. Bálint, S. Opalinsky, C.A.Gron Sorensen, S. Gunnarsson, U. Marchim, E. Kokin, K. Mallinger, T. Banhazi	101
Influence of Thermal Stress on Feeding Behaviour of Growing-Finishing Pigs: A Preliminary Study José Carlos Rico, Vasco Fitas Cruz, Fátima Baptista and Diogo Rezende Coelho	111
Assessment of Weight Loss on Pigs in Pre-Fattening Stage in Function of Temperature and Humidity Index (THI) Using Low-Cost Sensor Network Ana Paola Montoya, Alexander Osorio, Verónica Gonzalez, Felipe Obando	116
Processing Corn Silage Yield Data from Forage Harvesters Javier Bueno, Miguel Ángel Vilar, José Manuel Pereira	122
Application of Artificial Neural Networks and Genetic Algorithm for the Prediction of Grain Loss from a Medium-sized Combine Harvester Muhammad Isa Bomoí, Nazmi Mat Nawi, Samsuzana Abd Aziz, and Muhamad Saufi Mohd Kassim	129
The Role and Importance of Digital Transition in Portuguese Agriculture Sector Luis A. Conceição, Luís Silva, J. Silvestre	137
Image analysis of Hedge Almond Orchard to monitor flowering – an account of four years Ivo Lourenço Dias, Ana Cristina Gonçalves, António B Dias, Patrickc Donno	142
Effects on ammonia emission of dairy stables by implementing an hourly Dutch measurement and calculation method Hans Schiricke, Lars de Reus	150

Design of an Application for Analysing the Progression of Musculoskeletal Diseases in Slaughterhouses Hercules José Marzoque, Irenilza de Alencar Nääs, Gustavo Alvarenga Marzoque, Maria do Carmo Baracho de Alencar, Marcelo Linon Batista	158
Use of Marine Macroalgae Extracts to Protect Corn Crop from Water Stress Fabrício Macedo, José Ganança, Sónia Alves, Humberto Nóbrega, José Freitas, Miguel Carvalho	165
Spatial distribution of bed variables and animal welfare indicators in different typologies of compost-bedded pack barn Rafaella Resende Andrade, Ilda de Fátima Ferreira Tinôco, Flávio Alves Damasceno, Heloína Teresinha Faleiro, Carlos Eduardo Alves Oliveira, Alisson Neves Harmacyans Moreira, Gianluca Bambi, Vasco Fitas da Cruz	171
Development and Validation of a Real-Time Monitoring System of the Thermal Environment for Animal Production Facilities Carlos Eduardo Alves Oliveira, Ilda de Fátima Ferreira Tinôco, André Luiz de Freitas Coelho, Rafaella Resende Andrade, Poliana Maria da Costa Bandeira, Maria Angela de Souza, Flávio Alves Damasceno, Matteo Barbari	178
Validation of a Real-Time Location System for Dairy Farms. A Case Study José Manuel Pereira, Cristian Miras, Javier Bueno	186
Enhancement of Land-Use Capacity of Rural Properties Based on Geoprocessing Techniques Gabriel Brazo Sabino da Silva, Flávio Castro da Silva, Daiane Cecchin	193
Application of Drone with Multispectral Camera in Olive Grove to Assess Plant Health Pietro Catania, Santo Orlando, Eliseo Roma, Mariangela Vallone	198
Vineyard Monitoring with UAV to Extract Vegetation Indices Mariangela Vallone, Pietro Catania, Massimo Vincenzo Ferro, Santo Orlando	212
Mapping of Coffee Ripeness Spatiotemporal Variability Using UAV Imagery Rodrigo Nogueira Martins, Francisco de Assis de Carvalho Pinto, Daniel Marçal de Queiroz, Domingos Sárvio Valente Magalhães, Marcelo Fagundes Portes	221
Performance of machine learning algorithms for forest species classification using WorldView-3 data in the Southern Alentejo region, Portugal Ana Margarida Coelho, Adélia M. O. Sousa, Ana Cristina Gonçalves	225
Multispectral and hyperspectral sensors application to evaluate canopy variability in olive tree plants Santo Orlando, Pietro Catania, Marco Canicatti, Mariangela Vallone	232