

Tropentag 2014

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Resource Management and Rural Development

Bridging the gap between increasing knowledge and decreasing resources

Book of abstracts

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 - Anne Liljander, Victor Max Corman, Benjamin Meyer, Mario Younan, Mohammed Yahya Said, Ilona Gluecks, Erik Lattwein, Berend-Jan Bosch, Jan Felix Drexler, Set Bornstein, Marcel A. Müller, Joerg Jores, Christian Drosten : Presence of Middle East Respiratory Syndrome (MERS) Coronavirus Antibodies in East African Dromedary Camels
 - Sirak Bahta: Technical Efficiency in Beef Cattle Production in Botswana: A Stochastic Metafrontier Approach
 - Antje Hoppenheit, Burkhard Bauer, Peter-Henning Clausen, Hermann Waibel, Sabine Liebenehm, Déthié Faye, Cyrille Pissang, Zakaria Bengaly, Hervé Sèna Vitouley, Thomas Cherenet, Telahun Tekle, Marinda Oosthuizen, Luis Nevez, Komla Batawui, Eyaba Tchamdja, Abalo Kulo, Fernando Chaniso, Raffaele Mattioli, Annette McLeod, Jan van den Abbeele, Vincent Delespoux: Trypanosomosis Rational Chemotherapy - TRYRAC: Improved Trypanosomosis Management in a Community"-Based Approach
 - Sahar Mehanna: Reproductive Dynamics of the Common Sole Solea solea (Linnaeus, 1758) from Bardawil Lagoon, North Sinai, Egypt
 - Posters
 - Aulidya Nurul Habibah, Stephan Wessels, Frank Pfennig, Wolfgang Holtz, Gabriele Hörstgen-Schwark: Response to Elevated Temperature - Organogenesis of the Reproductive Tract of All-Female Tilapia (Oreochromis niloticus)
 - Mohamed Megahad, Mai Wassel: Security Issues, Protection and ISO Certification of the Genetic Improvement Program
 - Abdulmojeed Yakubu: Comparative Evaluation of the Functionality of Non-Synonymous Substitutions in MHC DRB Gene of Nigerian Goats
 - Ibrahim Dowelmadina, Ibtisam E. M. El Zubeir: Impact of Management Systems and Breeds on Milk Yield and Herd Structure of Dromedary Camel
 - Asaminew Tassew, Johann Sölkner, Maria Wurzinger: Forces Driving Change in Ethiopian Smallholder Livestock Production: Implications for Policy and Practice
 - Stanly Fon Tbug, Isabelle Baltenweck, Elizabeth Jane Poole, Ayao Missohou, Patrick Jolly Ngono Ema, Jarmo Juga, Miika Tapio, Karen Marshall: Uptake of Artificial Insemination and Non-Indigenous Cattle in Small to Medium Scale Farms in Senegal
 - Karen Marshall, Steve Kemp: Genomics for Improved Productivity Within Developing Country Livestock Production Systems
 - Muayad Salman, Jihad Abdallah: Evaluation of Performance and Estimation of Genetic Parameters for Milk Yield and some Reproductive Traits in Sheep Breeds and Crosses in the West Bank
 - Mingyan Yu, Charity Muteti, Moses Ogugo, William A. Ritchie, Jayne Raper, Steve Kemp: African Trypanosomiasis Resistance in Cattle by a Transgenic Approach

- John Gachohi, Bernard Bett: Mitigation of the Impacts of Rift Valley Fever through Targeted Vaccination Strategies
- Juliano Issakowicz, Ana Claudia Koki Sampaio, Mauro Sartori Bueno, Luciana Morita Katiki, Ricardo Lopes dias da Costa, Concepta McManus, Adibe L. Abdalla, Helder Louvandini: Productive Performance and Parasitic Infection in Native Hair Sheep Mated with Dorper Rams
- Immaculate Omondi, Kerstin Zander, Siegfried Bauer, Isabelle Baltenweck: Using Choice Experiments: Facilitating Priority Setting in Provision of Animal Health Services
- Eduardo Rodrigues de Carvalho, Paulo Alexandre Perdomo Salviano, Alcido Elenor Wander: Characterisation of the Production System of Dairy and Beef Farmers from Iporá and Neighbourhood, Goiás State, Brazil
- Thi Thu Huyen Nguyen, Nam Ha Duong, Van Hung Pham, Thi Duong Nga Nguyen, Fred Unger, Karl Rich, Lucy Lapar: Using a System Dynamics Framework to Assess Disease Risks of Pig Value Chains in Vietnam
- Henderiana Belli, Petrus Kune, I Gusti Ngurah Jelantik, Marthen Luther Mullik: Calving Time and Birthweight of Bali Cattle under Semi-Intensive Rearing System in West Timor, Indonesia
- Ja'far Al-Khaza'leh, Christoph Reiber, Anne Valle Zárate: Farmers' Perception of Water Availability for Goat Production in Southern Jordan
- Sekou Amadou Traoré, Christoph Reiber, André Markemann, Anne Valle Zárate: Risk Perception of Cattle Keepers in Southern Mali
- Helmy Metawi, Elsaid Oudah: Small Ruminant Performance in Different Agro-Ecological Zones of Egypt
- Abdulmojeed Yakubu, M.M. Muhammed, Mohammed Maikano Ari: Multivariate Path Analysis of Body Dimensions of Khaki Campbell and Pekin Ducks in Nigeria
- Aneta Baklová, Eva Baranyiová: Reaction to Predators in Guinea Pigs (*Cavia porcellus*)
- Anna Kubátová, Iva Skálová, Tamara Fedorova: Seed Germination Test for Pregnancy Diagnosis from Urine in Alpacas (*Vicugna pacos*)
- Iva Skálová, Anna Kubátová, Tamara Fedorova: Non-Invasive Urine Sampling and Pregnancy Diagnosis in Domestic Cattle and Alpacas
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 - Jacobo Arango, Jonathan Nuñez, Danilo Moreta, Hannes Karwat, Ashley Arevalo, Manabu Ishitani, Lucia Chavez, John Miles, Guntur Subbarao, Michael Peters, Idupulapati Rao: Phenotyping of a Bi-Parental *Brachiaria humidicola* Population for its Biological Nitrification Inhibition Potential
 - Nicole Wrage-Mönnig, John Kigongo, Justine Nambi-Kasozi, Birthe Paul, Johannes Isselstein, Brigitte L. Maass: Nitrogen Fixation and Drought Resistance of Selected Forage Legumes for Smallholder Farmers in Uganda
 - Ditmar Bernardo Kurtz, Marcus Giese, Maria Fabiana Navarro Rau, Folkard Asch: Is High Impact Grazing-Trampling a Management Option to Reduce Excess Standing Biomass in Argentinean Grasslands?
 - Greta Jordan, Tsevegmed Munkhnasan, Andreas Buerkert, Eva Schlecht: Is Traditional Transhumance an Adapted Strategy or an Overhauled Way of Rangeland Management in the Chinese and Mongolian Altay?
 - Mariana Pereira, Davi Jose Bungenstab, Roberto G. Almeida, Horst Jürgen Schwartz: An Agro-Silvo-Pastoral Production System in Brazil
 - Pascal Fust, Tobias Feldt, Eva Schlecht: Agent-Based Modelling of Transhumant Cattle Herd Movements in Southwestern Madagascar
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 - Miguel Angel Pequeño Ledezma, Alejandro Valdecantos Dema, Eduardo Alanis Rodriguez, Javier Jimenez Perez, Marco Aurelio Gonzalez Tagle, Israel Yerena Yamallel: Post-Grazing Secondary Succession Dynamics of a Tamaulipian Thornscrub
 - Ditmar Bernardo Kurtz, María Cristina Goldfarb, Oscar Quiros, Francisco Nuñez, Folkard Asch: Does High Impact Grazing and Trampling Affect Grasslands

- Floristic Composition?
- Abdelaziz Gaiballa, Mahgoub Sueliman, Darelmi Ramadan: Implications of Site Characteristics and Herding Practices on Rangelands Management in Semi-Arid Areas of Sudan
 - Tsevegmed Munkhnasan, Martin Wiehle, Eva Schlecht: Characterisation of Agro-Pastoralist Households Along the Bulgan River in the Altay Region of Western Mongolia
 - Takuya Soma, Andreas Buerkert, Eva Schlecht: Current Living Status and Social Use of Livestock in Nomadic Herders' Communities in Western Mongolia
 - Tobias Feldt, Regina Neudert, Eva Schlecht: Reproductive and Growth Performance of Extensively Managed Goat Herds in Southwestern Madagascar
 - Karin Stock de Oliveria Souza, Christoph Reiber, Marianna Siegmund-Schultze, Anne Valle Zárate: Resource Use and Resilience of Goat Production Systems in Pernambuco, Northeast Brazil
 - Michael Elias Mgalula, Uwe Richter, Oliver Hensel, Christian Hülsebusch, Brigitte Kaufmann, Oliver Wasonga: Monitoring Vegetation Index Dynamics in Semi-Arid Rangelands Using Rainfall, Ground Survey and MODIS Data
 - Tilo Gustavo Domínguez Gómez, Arturo Saul Juárez Reyes, Maria Andrea Cerrillo Soto, Maribel Guerrero Cervantes, Humberto Gonzalez Rodriguez, Roque G. Ramirez Lozano, Maria del Socorro Alvarado: Nutritional Value of two Native Shrub Species That Grow in the Tamaulipan Thornscrub from Mexico
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 - Thomas Randolph, Michael Kidoido, Isabelle Baltenweck, Steve Staal, Delia Grace: Refocusing Livestock AR4D to Address Food and Nutritional Security Challenges
 - Delia Grace, Kristina Roesel, Bernard Bett, Fred Unger: Healthy Lives: Tackling Food-Borne Diseases and Zoonoses at ILRI
 - Eva Schlecht: Environmental Sustainability of Livestock Systems - Challenges and Prospects
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 - James Wakhungu, Delia Grace, George Msalya, Fred Unger, Jomo Jesca, Silvia Alonso: Pastoralism: Animal Health and Food Safety Situation Analysis, Kenya and Tanzania, 2014
 - Silvia Silvestri, Patti Kristjanson, Mariana Cristina Rufino, Sabine Douxchamps, Maren Radeny, Wiebke Förch, Joash Mango, Janetta Mutie, Anthony Ndungu, Carlos Quiros: Room to Adapt: Enhancing Food Security in East Africa
 - Delia Grace, Bernard Bett, Hung Nguyen, Fred Unger, Kate Jones: Sustainable Intensification: Implications for the Emergence and Maintenance of Zoonotic Diseases
 - Delia Grace, Hung Nguyen, Johanna Lindahl, Fred Unger, Purvi Mehta: The Business Case for One Health
 - Johanna Lindahl, Jagger Harvey, Delia Grace: Aflatoxins: Serious Threats to Food Safety and Food Security. But Is it Related to Livestock?
 - Fred Unger, Delia Grace, Rainer Asse, Korapin Tohtubtiang, Jeffrey Gilbert: Capacity Building on 'Ecohealth' in Southeast Asia -- Successes and Challenges
 - Fred Unger, Bernard Bett, Elly Sawitri Siregar, Syafrison Idris, Thomas Randolph: Integrated HPAI Control in Kampong Chicken in Indonesia -- An Overview on ILRI's Research and Lessons Learned
 - Nam Ha Duong, Thi Thu Huyen Nguyen, Ninh Xuan Trung, Tran Van Long, Anh Duc Nguyen, Vu Khac Xuan, Thi Duong Nga Nguyen, Van Hung Pham, Karl Rich, Fred Unger, Lucy Lapar: Characterising Pig Value Chains in Vietnam (Descriptive Analysis from Survey Data)

- [Emily Ouma, Kristina Roesel, Michel Dione, Natalie Carter, Danilo Pezo, Francis Ejobi, Delia Grace: Participatory Research for Development to Upgrade Smallholder Pig Value Chains in Uganda](#)
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- Niels Schwab, Eva Wieners, Alina Schick, Nina Kiese, Vera Kremer, Kristina Roth, Peter Borchardt, Udo Schickhoff: Transition to Agroforestry in the Mid-Hills of Nepal: Implications for Livelihoods and Environment
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- Ken Njogu, Stepha McMullin, Parveen Anjarwalla, Roeland Kindt, Katja Kehlenbeck: Influence of Biophysical and Socio-Economic Factors on Fruit Tree Diversity in Machakos County, Eastern Kenya
- Klara Dzhakypbekova, Horst Weyerhaeuser: Agroforestry Practices in Kyrgyzstan
- Lenka Ehrenbergerová, Jan Trochta, Hana Habrová: The Vegetation Structure and Effect of Crown Shade to Microclimatic Conditions of Coffee Plantation in Villa Rica, Peru
- Paulus Maukonen, Pauline Donn, Laura Snook: The Distances Rural People Travel to Collect Forest Foods from Timber Trees in Cameroon
- Hanadi Mohamed Shawgi Gamal, Claus-Thomas Bues: Acacia seyal var. seyal: A Multipurpose Tree Species for Rural Development, Hunger and Poverty Alleviation in Sudan
- Tahiry Ranaivoson, Bakolimalala Rakouth, Andreas Buerkert, Katja Brinkmann: Analysis of Biomass Production of Tamarind Trees and their Role in Local Communities of South-Western Madagascar
- Davi Jose Bungenstab, Roberto G. Almeida, Horst Jürgen Schwartz: Integrated Crop-Livestock-Forestry Systems: A Brazilian Experience for Sustainable Farming
- Yemi Adeyeye: The Rationales, Knowledge Forms and Biophysical Outcomes of Community Forest Management in Nepal's Mid-Hills
- Jutta Lax, Margret Köthke: Influencing Factors on Forest Utilisation under Participatory Forest Management Regimes in Nepal
- Solomon Zena Walelign, Martin Reinhardt Nielsen, Helle Overgaard Larsen: The Role of Forests in Combating Rural Poverty in Nepal: Panel Data Evidence on Asset Accumulation from Four Villages
- René Förster, Benno Pokorny: Towards Community Forest Management in Agricultural Frontiers: The Case of Quintana Roo, Mexico
- Elena Mechik: Small Scale Forest Enterprises with Social Responsibility - Non-Destructive Forest Use and Poverty Alleviation
- Mara Lindtner, Tina Jensen, Loet Rammelsberg, Emmanuel Asane Otoo, José Egas: Effects of Land Use Changes on Forest Use in the Rural Village Mentu Mawang, Malaysia
- Appie van de Rijt, Walter Cano Cardona, Tina Bauer, Norbert Weber: The Response of Formal Institutions to Forest Governance Issues in the Bolivian Amazon
- Oscar Alberto Aguirre Calderon, Javier Jimenez Perez, Israel Yerena Yamallel: Characterising Spatial Structure of Natural Forests in Mexico
- Zdenek Cermák: Root Layering in a Tropical Forest after Logging (Central Vietnam)
- Rong Lang, Sergey Blagodatskiy, Georg Cadisch, Xu Jianchu: Soil Respiration in Rubber Plantation and Rainforest Indicate Different Processes During the Rainy Season
- Xueqing Yang, Sergey Blagodatskiy, Georg Cadisch, Jian Chu Xu: Carbon Storage Potential of Rubber Plantations of Different Age and Elevation in Xishuangbanna
- Daniel Ortiz, William Fonseca, Marilyn Rojas, Manuel Eduardo Chavarría, José Manuel Alvarado: Carbon Storage on Unmanaged Bamboo Plantations in Costa Rica
- Xiaolu Tang, Yuangchang Lu, Lutz Fehrmann, David Forrester, Rubén Guisasola Rodríguez, Christoph Kleinn: Aboveground Stand Biomass Dynamics in a Chinese Fir [(Cunninghamia lanceolata (Lamb.) Hook)] Plantation in Shitai County, China
- Yosias Gandhi, Ralph Mitlöhner: Tree Species Composition, Diversity and Structure in Tunas Logging Concession Area of Papua, Indonesia

- Martin Wiehle, Karsten Wesche, Sven Goenster, Barbara Vornam, Andreas Buerkert: Population Structure and Genetic Diversity of Populus laurifolia Stands in the Altay Mountains of Mongolia
 - Arisoa Rajaona, Alexandra Schappert, Sabine Stürz, Kunfang Cao, Folkard Asch: Comparison of Leaf Area Index Measurements in Rubber Plantations and Secondary Forest in Xishuangbanna, China
 - Jiri Lipensky, Bohdan Lojka, Manuel Soudre Zambrano: Effect of Indole-3-Butyric Acid on Rhizogenesis of Juvenile Leafy Cuttings of Swietenia macrophylla King
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 - Syed Faiz-Ul Islam, Andreas de Neergaard, Jan Willem van Groenigen: Mitigation of Methane Emissions from Paddy Fields by Alternate Water Management
 - Sudeh Dehnavi, Beatrice Knerr, Houman Liaghati: Governmental Policies and Ground-Water Exploitation: The Case of Darab Central Valley, Iran
 - Thanh Lan Pham, Ilona Otto, Dimitrios Zikos: Effects of Rules in Irrigation Systems: Evidence from Experiments in China, India and Vietnam
 - Ranganath Lakshmaiah, Bruhan Konda, Yashoda Yashoda: Is Devolution Sufficient for Effective Institutional Performance of Participatory Irrigation Management? A Closer Look at Water Users' Groups in Tanks Irrigation in South India
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 - Andrea Dührkoop, Abdelaali Bencheikh, Tarek Abdelmoneim Ouamane, Ahmed Madjed Djoudi, Oliver Hensel: Low Pressure Sub-Surface Irrigation Technology for an Optimal Irrigation Management - An Auto"-regulative Membrane Pipe
 - Afik Hardanto, Alexander Röhl, Furong Niu, Andrea Hanf, Heri Junedi, Hendra Yanto, Dirk Hölscher: Water Use by Rubber and Oil Palm Plantations in the Lowlands of Jambi, Indonesia
 - Mariana Chrispim, Marcelo Antunes Nolasco, André Santos, Gabriel Inacio Silva-Neto, Neildes Souza Santana: Water Resources Saving: A Possibly Contribution from a Greywater Collection, Treatment and Reuse
 - Debora Lima, Günter Gunkel: Egeria densa in Itaparica Reservoir, Brazil - Need for a Management Strategy
 - Stephen Joseph Kilasi: Local Participation in Sustainable Community Water Management in Peri-Urban Areas of Greater Accra Region
 - Oluwakemi Adeola Obayelu, Abiodun Elijah Obayelu, Zainab Aina Usman: Irrigation Technology, Technical and Resource-Use Efficiencies in Smallholder Urban Vegetable Farming in Lagos State, Nigeria
 - Anna Schwachula: Bridging Knowledge and Action: Enhancing a 'Science for Development' in Water Resources Management
 - Til Feike, Yusuyunjiang Mamitimin, Nan Ha, Reiner Doluschitz: Development of Agricultural Land and Water Use and its Driving Forces in North-Western China
 - Masoumeh Forouzani, Ezatollah Karami: Looking at Food Security through the Agricultural Water Poverty Index
 - Guilherme José Ferreira de Araújo, Edvânia Tôrres Aguiar Gomes, Martin Coy: Challenges for Sustainable Agricultural Practices in Semi Arid Brazil: The Example of Irrigation Projects in the Itaparica Region
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- Jessica Andriamparany, Katja Brinkmann, Andreas Buerkert, Vololoniaina Jeannoda: Role of Local Knowledge in the Use of Medicinal Plants in SW-Madagascar
- Isabel Madaleno: Traditional Medicinal Knowledge in Goa, India
- Manuel Toledo-Hernández, Yann Clough, Lisa Denmead, Teja Tscharntke: Management of Homegardens in Indonesian Agricultural Landscapes and its Impact on Invertebrate Diversity and Herbivore Predation
- Inga Häuser, Reza Golbon, Marc Cotter, Joachim Sauerborn: Trade-Off Analysis between Single Ecosystem Services - State of the Art
- Mustafa Mahmoud El Abbas, Elmar Csaplovics, Taisser H. H. Deafalla: The Role of Advanced Technique in Natural Resources Assessment

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- Ana Carolina Rodriguez, Michael Succow, Cecilia Accattoli: Bridges Between Knowledge and Practice in Neotropical Mires Conservation: The Case of Iberá Wetlands, Argentina
- Madeleine Kaufmann, Alejandro Gonzalez Alvarez, Alessandra Giuliani: Linking Agrobiodiversity and Conservation in Man and the Biosphere (MaB) Reserves in Guantanamo, Cuba
- Tobias Landmann, Olena Dubovyk: Contribution of Earth Observation to Emerging Environmental Challenges in Africa
- Sven Goenster, Martin Wiehle, Jens Gebauer, Abdalla Mohamed Ali, Roger D. Stern, Andreas Buerkert: Use of Daily Rainfall Data in Reliable Rainfall Risk Assessment for Rain-Fed Farming in the Nuba Mountains of Sudan
- Noromiarilanto Fanambinantsa, Miadana H. Faramalala, Andreas Buerkert, Katja Brinkmann: Dynamics and Drivers of Land Use Changes in Southwestern Madagascar During the Past 60 Years
- Aspasia Werner, Anthony Whitbread, Katja Kehlenbeck, Stepha McMullin, Gudrun B. Keding: Assessment of On-Farm, Market, and Wild Food Diversity in Three Agro-Ecological Zones of Western Kenya
- Johana Patricia Melgarejo Arzuza, Alessandra Giuliani: Geographical Indications of Handicrafts: A Tool to Improve Livelihood and Protect Biodiversity in Remote Communities?
- Anna Snider, Vincent Canwat, Nashon Mogonchi, Nawa Malumo, Andreas de Neergaard, Nicole Sibelet: Farmers' Organisations in Nnindy, Uganda: Building Social Capital for the Conservation of Natural Resources
- Milja Fenger, Victor Suarez Villanueva: The Domination of Community-Based Decision-Making by Village Level Elites in Oil Palm Conversion in Borneo
- Deisy Rosero: Traditional Agroecosystems (SHAGRA) and New Approaches in Agriculture: The Case of an Indigenous Community in Pastos-Cumbal, Colombia
- Cory Whitney, Jens Gebauer: Species Diversity and Post-Harvest Practices on the Forest Edge Homegardens in Southwestern Uganda
- Aarati Pillai, Joyce Kinabo, Johannes Hermann, Michael Krawinkel: Home Gardens and Nutrition Knowledge among Households in the Urban Areas of Morogoro, Tanzania
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- Mohamed El Nour Taha, Hatim Mohamed Ahmed Elamin, Muneer Elyas Siddig, Taisser H. H. Deafalla: Valuation of Environmental Role of Acacia senegal Tree in Gum Belt of Kordofan and Blue Nile Sectors, Sudan
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- [Humberto Gonzalez Rodriguez, Israel Cantu Silva, Roque G. Ramirez Lozano, Marco V. Gómez Meza, Juan M. López Hernández: Morphological and Physiological Leaf Traits in Ten Native Shrubs, Northeastern Mexico](#)
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Andreas Deininger, September 2014



Tropentag, September 17-19, 2014, Prague, Czech Republic

“Bridging the gap between increasing knowledge and decreasing resources”

Modelling Farmers' Credit Allocation Decisions and Impacts on Farms Technical Efficiency in Benin, West Africa

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Abstract

This paper models farmers' credit allocation behaviours in schemes and analyses effects of the schemes on farms technical efficiency. Data were collected from 476 farmers using the multistage sampling procedure. The stochastic frontier truncated-normal with conditional mean model was used to assess allocation schemes effects on farms technical efficiency. A Tobit model reveals the impact of farmers' socio-demographic characteristics on efficiency scores. Results revealed that the revenue of 2,262,566 FCFA is positively correlated with acreage, quantity of labour and costs of fertilisers, insecticides, fertilisers. The average technical efficiency score is 0.675 (± 0.137). The scores are diversely distributed across farms, with a median score equal to 0.713. Farmers' behaviour responds to six credit investments schemes, which are categorised in two allocation contexts: in-farm and out-farm allocations. In the latter credit is invested towards social needs (weddings, traditional festivals, etc.) and household needs (health, education, housing, etc.). Credit in-farm allocations are towards production inputs (land, labour, capital). The model showed that only one scheme impacted positively farms' technical efficiency: scheme (e). It is the decision to invest the credit to purchase better quality of pesticides, herbicides, fertilisers, etc. The positive effect of the scheme (c) may be significant under conditions of farmers' education level improvement. Then, scheme (e) is a better investment for all farmers; either they have a high or low level of education. But the credit allocation to buy agricultural materials is positive only for the educated farmers who were 53.5 % of the surveyed farmers. The scores of efficiency are reduced by household size and gender of the household head. Therefore, households with less than 10 members and an educated man as head are likely to improve their farms' technical efficiency through two credit investments schemes: Credit \times Capital and Credit \times Intermediary-inputs.

Keywords: Credit allocation schemes, stochastic frontier model, technical efficiency



Modelling Farmers Credit Allocation Decisions and Impacts on Farms Technical Efficiency in Benin, West Africa

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BACKGROUND

- ✓ In Benin, 75% of the total population is involved in agriculture. The sector accounts for 29.89% of the GDP [1].
- ✓ The increase of smallholder farmers productivity requires the adoption of improved technologies [2]
- ✓ The adoption of these technologies needs to be supported by a rural funding system [2].
- ✓ farmers productivity is constrained by access to credit; small volume of credit towards agriculture (14% in ECOWAS) and refunding issues.

We assume that one reason of the refunding issues is poor farmers allocation behavior which do not permit to refund loans. The aim of the study is to assess the effects of Benin farmers credit allocation decisions on their technical efficiency.

HYPOTHESES

The hypothesis to assess is:

- ✓ **H₀**: credit in-farm allocations improve farms technical efficiency
- ✓ **H₁**: credit in-farm allocations does not improve farms technical efficiency

RESULTS

Allocation schemes definitions

| Schemes | Definitions |
|---------|---|
| a | Debts, weddings, deaths, housing, etc. |
| b | Threshold |
| c | Credit to increase agricultural materials |
| d | Credit to increase acreage |
| e | Credit to increase pesticides, herbicides, etc. |
| F | Credit to increase workers |

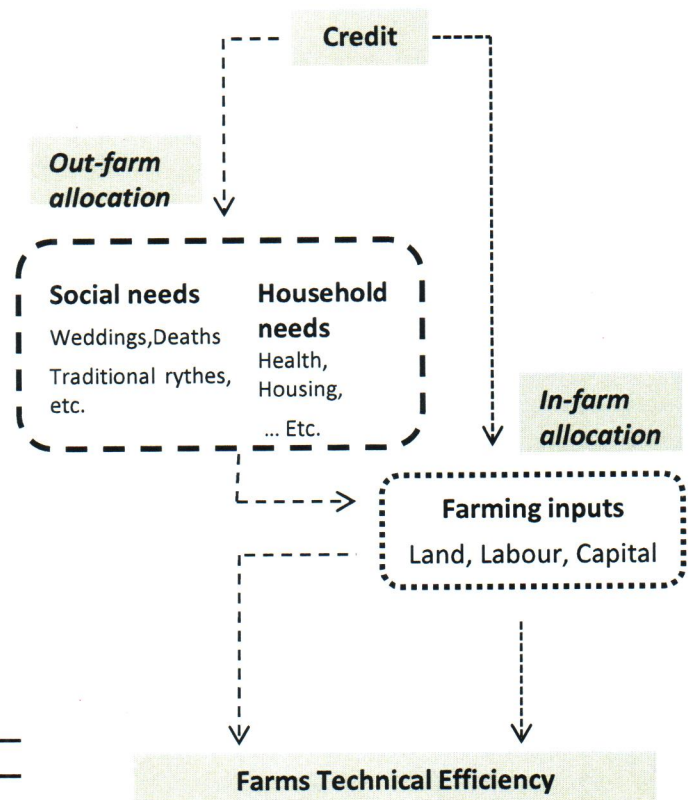
Data were collected from 476 farmers using the multistage sampling procedure.

The average technical efficiency score is 0.675 (±0.137).

Farmers behaviours respond to six credit investments schemes, categorized in two contexts: In-farm allocations and out-farm allocations.

- ✓ Scheme (e) impacts positively TE.
- ✓ Scheme (c) impacts positively TE under conditions of farmers' education level improvement.
- ✓ Scheme (e) is a better investment for all farmers.

Households with less than 10 members, an educated man as head; are likely to improve their farms technical efficiency through two credit investments schemes: **Credit × Capital** and **Credit × Intermediary – inputs**



Farmers credit allocation schemes model

Source: Authors' representation

WHAT TO KEEP ?

- ✓ Credit allocation decisions impact diversely TE
- ✓ Accounting for environmental damages: scheme (c) presents more reasons to be promoted; because educated farmers will care more about the durability of their production system.



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