

# Pan-African Grain Legume & World Cowpea Conference



## Sustainable Grain Legume Systems for Food, Income and Nutritional Security in a Rapidly Changing Climate

### PROGRAM

28 February to 4 March 2016

Livingstone, Zambia

The Pan-African Grain Legume and World Cowpea Conference is brought to you by the International Institute of Tropical Agriculture (IITA), Legume Innovation Lab (LIL) and the International Center for Tropical Agriculture (CIAT).



The Legume Innovation Lab is a USAID-funded international research and institutional capacity strengthening program that focuses on grain legumes (e.g., common bean, cowpea, tepary bean, lima bean, pigeonpea). Under the administration of Michigan State University, the program supports a multidisciplinary portfolio of ten projects that involve collaborative partnerships between scientists in U.S. universities and in twelve Feed the Future focus countries in West, Eastern, and Southern Africa as well as Central America and Haiti. The research projects seek to generate outputs and development outcomes that increase grain legume productivity, transform grain legume systems and value chains, improve the nutritional quality of diets of the poor, especially young children, and improve outcomes from investments in research and capacity strengthening. [www.legumelab.msu.edu](http://www.legumelab.msu.edu)



Africa has complex problems that plague agriculture and people's lives. We develop agricultural solutions with our partners to tackle hunger and poverty. Our award-winning research for development (R4D) is based on focused, authoritative thinking anchored on the development needs of sub-Saharan Africa. We work with partners in Africa and beyond to reduce producer and consumer risks, enhance crop quality and productivity, and generate wealth from agriculture. IITA is an international non-profit R4D organization established in 1967, governed by a Board of Trustees, and is a member of the CGIAR Consortium. [www.iita.org](http://www.iita.org)



The International Center for Tropical Agriculture (CIAT) – a member of the CGIAR Consortium – develops technologies, innovative methods, and new knowledge that better enable farmers, especially smallholders, to make agriculture eco-efficient – that is, competitive and profitable as well as sustainable and resilient. Headquartered near Cali, Colombia, CIAT conducts research for development in tropical regions of Latin America, Africa, and Asia. [www.ciat.cgiar.org](http://www.ciat.cgiar.org)

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## Acronyms

AGRA	Alliance for a Green Revolution in Africa
ARC	Agricultural Research Council
ARI	Agricultural Research Institute
AVRDC	World Vegetable Center
BecA ILRI	Biosciences eastern and central Africa International Livestock Research Institute Hub
CCARDESA	Centre for Coordination of Agricultural Research and Development for Southern Africa
CERAAS	Centre d'Etude Regional pour l'Amelioration de l'Adaptation a la Secheresse
CIAT	International Center for Tropical Agriculture
CIMMYT	International Maize and Wheat Improvement Center
CSIR-CRI	Council for Scientific and Industrial Research - Crops Research Institute
DARTS	Department of Agricultural Research and Technical Services, Malawi
EIAR	Ethiopian Institute of Agriculture Research
FARA	Forum for Agricultural Research in Africa
GAPROFFA	Group of Action for the Promotion and Protection of the Flora and Fauna
GPC	Global Pulse Confederation
ICARDA	International Center for Agricultural Research in the Dry Area
ICIPE	International Centre of Insect Physiology and Ecology
ICRAF	International Centre for Research in Agro forestry
ICRISAT	International Crops Research Institute for the Semi Arid Tropics
ICTA	Instituto de Ciencia y Tegnologia Agropecuaria
IFDC	International Fertilizer Development Center
IIPR	Indian Institute of Pulses Research
IITA	International Institute for Tropical Agriculture
ILRI	International Livestock Research Institute
INERA	Institut de l'Environnement et de Recherches Agricoles
INERA	Institut National pour l'Etude Recherché Agronomique
INRAN	Institut National de la Recherche Agronomique du Niger
IRAD	institute of Agricultural Research for Development
ISRA	Institut Senegalais de Recherches Agricoles
ISU	Iowa State University
KALRO	Kenya Agriculture and Livestock Research Institute
KEPHIS	Kenya Plant Health Inspectorate Service
KIT	Karlsruhe Institute of Technology
LUANAR	Lilongwe University of Agriculture and Natural Resources
MMUST	Masinde Muliro University of Science and Technology
MSU	Michigan State University
MUK	Makerere University
NaCRRRI	National Crops Resources Research Institute, Uganda
NaSARRI	National Semi-Arid Resources Research Institute
NARL	National Agriculture Research Laboratories
NARO	National Agricultural Research Organisation, Uganda
NCSU	North Carolina State University
PABRA	Pan-Africa Bean Research Alliance
RAB	Rwanda Agriculture Board
RVSKVV	Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, India
SARI	Savanna Agriculture Research Institute
SLARI	Sierra Leone Agricultural Research Institute
SUA	Sokoine University of Agriculture
TAMU	Texas A&M University
UC	University of California
UC - Davis	University of California-Davis
UC - Riverside	University of California-Riverside
UEA	Université Evangélique en Afrique
UIUC	University of Illinois at Urbana-Champaign
UNZA	University of Zambia
UPR	University of Puerto Rico
USAID	United States Agency for International Development
UVA	University of Virginia
WACCI	West Africa Centre for Crop Improvement
WASCAL	West African Science Service Center on Climate Change and Adapted Land Use
WUR	Wageningen University
ZARI	Zambia Agricultural Research Institute

## THE INTERNATIONAL YEAR OF PULSES 2016

The 68th UN General Assembly declared 2016 the International Year of Pulses (IYP). The IYP 2016 aims to heighten public awareness of the nutritional benefits of pulses as part of sustainable food production aimed towards food security and nutrition. The Year will create a unique opportunity to encourage connections throughout the food chain that would better utilize pulse-based proteins, further global production of pulses, better utilize crop rotations and address the challenges in the trade of pulses.

### **What are pulses and why are they important?**

Pulses are annual leguminous crops yielding between one and twelve grains or seeds of variable size, shape and color within a pod, used for both food and feed. The term pulses is limited to crops harvested solely for dry grain, thereby excluding crops harvested green for food, which are classified as vegetable crops, as well as those crops used mainly for oil extraction and leguminous crops that are used exclusively for sowing purposes.

Pulse crops such as lentils, beans, peas and chickpeas are a critical part of the general food basket. Pulses are a vital source of plant-based proteins and amino acids for people around the globe and should be eaten as part of a healthy diet to address obesity, as well as to prevent and help manage chronic diseases such as diabetes, coronary conditions and cancer; they are also an important source of plant-based protein for animals.

In addition, pulses are leguminous plants that have nitrogen-fixing properties which can contribute to increasing soil fertility and have a positive impact on the environment.

The Joint Pan-African Grain Legume and World Cowpea Conference, with the theme of Sustainable Grain Legume Systems for Food, Income, and Nutritional Security in a Rapidly Changing Climate, has been declared by the Food and Agriculture Organization of the United Nations as one of the ten international IYP signature events, and the IYP signature event for Africa.



# Joint 2016 PAN-AFRICAN GRAIN LEGUME AND WORLD COWPEA CONFERENCE

## Sustainable Grain Legume Systems for Food, Income and Nutritional Security in a Rapidly Changing Climate

28 February to 4 March 2016 Livingstone, Zambia

### PROGRAMME OF ACTIVITIES

SUNDAY, 28 February	
TIME	ACTIVITY
09.00 - 12.00 & 14.00 - 17.00	Conference Registration and Check-In, AVANI Resort Conference Center
15.00 - 17.00	Posters to be hung in Poster Exhibition Tent by authors for Poster Session 1-A and B. Set up of Exhibition Booths in Grain Legume Technology Marketplace in Poster Exhibition Tent.
19.00	<b>Welcome Reception and Cocktail</b> , AVANI Victoria Falls Resort  Welcome comments by Dr. Nteranya Sanginga, Director General, International Institute of Tropical Agriculture (IITA), and Dr. Irvin Widders, Director, Legume Innovation Lab, Michigan State University (MSU)
	Graciously sponsored by Archer Daniels Midland and Michigan State University

## MONDAY, 29 February

TIME	ACTIVITY
07.00	Conference Registration and/or Check-In, AVANI Resort Conference Centre
08.00	Tour and opening of Grain Legume Technology Marketplace by Zambia Minister of Agriculture and Livestock; other dignitaries present.
08.30	<p><b>Inauguration of Conference</b></p> <p>Moderator: Mr. Mukelebai, Head of National Agricultural Information Services, Ministry of Agriculture, Zambia. <span style="float: right;">Cont'd over</span></p> <p><b>Honored Dignitaries:</b></p> <ul style="list-style-type: none"> <li>• Honorable Given Lubinda, MP Minister, Ministry of Agriculture and Livestock</li> <li>• Honorable Dr. Yemi Akinbami, Executive Director, Forum for Agriculture Research in Africa (FARA)</li> <li>• Prof. Timothy Simalenga, Executive Director, Centre for Coordination of Agricultural Research and Development for Southern Africa (CCARDESA),</li> <li>• Dr. Robert Bertram, Chief Scientist, Bureau of Food Security, United States Agency for International Development (USAID)</li> <li>• Dr. Nteranya Sanginga, Director General, IITA</li> <li>• Dr. Ruben Echeverria, Director General, International Center for Tropical Agriculture (CIAT)</li> <li>• Dr. David Bergvinson, Director General, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)</li> <li>• Dr. Douglas Buhler, Assistant Vice President for Research; Interim Dean, College of Agriculture and Natural Resources; and Director, MSU AgBioResearch, MSU</li> <li>• Dr. Jeff Ehlers, Program Officer, Agriculture Development, Bill and Melinda Gates Foundation</li> <li>• Robynne Anderson, Executive Director, Emerging-ag Inc. Global Pulse Confederation (GPC)</li> <li>• George Okech, Representative, Food and Agriculture Organization (FAO) of the United Nations</li> </ul>
10.30	Group Photo and Break
11.00	<b>Inaugural Keynote presentation: Situating the grain legume agenda in African agricultural development strategies by Dr. Yemi Akinbami, Executive Director, Forum for Agriculture Research in Africa (FARA)</b>
12.00	<b>Inaugural Keynote presentation: Legume Productivity--An Imperative for Global Food Security by Dr. Robert Bertram, Chief Scientist, Bureau of Food Security, USAID, Washington</b>
12.30	Lunch (for paid registrants)
14.00 - 16.00	Topical Oral Sessions 1-A, B, C & D (Four concurrent sessions)
14.00 - 16.00	<p><b>Oral Session 1-A: Economics, Value Chains and Postharvest Handling of Grain Legumes</b>  Moderator: Dr. Gelson Tembo, University of Zambia (UNZA), Zambia</p>
14.00	1002 Comparing Efficiency of Hermitic and Non-Hermitic Storage Technologies Among Legume Farmers in Nigeria. Bamikole Ayedun,* IITA, Ibadan
14.15	1003 Comparative Field Assessment of Alternatives to Synthetic Pesticides in Cowpea Grain Storage. Macdonald Mubayiwa,* Brighton M Mvumi, Shaw Mlambo, Appolonia R Hove and Tinashe Nyabako, University of Zimbabwe
14.30	1004 Cross-Country Evidence of Postharvest Loss in Sub-Saharan Africa: Insights from Purdue Improved Crop Storage (PICS). Tahirou Abdoulaye <sup>1</sup> , Corinne Alexander <sup>2</sup> , John Herbert Ainembabazi <sup>1</sup> , Dieudonne Baributsa <sup>2</sup> , Didier Kadjo <sup>2</sup> , Bokar Moussa* <sup>3</sup> , Oluwatoba Omotilewa <sup>2</sup> , Jacob Ricker-Gilbert <sup>2</sup> and Shiferaw Feleke <sup>1</sup> , (1) IITA, (2) Purdue University, (4) Institut National de la Recherche Agronomique du Niger (INRAN)



## MONDAY, 29 February

TIME	ACTIVITY
14.45	1005 Ex-Ante Analysis of the Demand for New Value-Added Pulse Products: A Case of Precooked Beans in Uganda. Paul Aseete*1, Enid Katungi2, Jackline Wabbi Bonabana3, Michael Adrogu Ugen1 and Eliud Abucheli Birachi2, (1) National Crops Resources Research Institute (NaCRRI), (2) CIAT/ Pan-Africa Bean Research Alliance (PABRA), (3) Makerere University (MUK)
15.00	1006 A Commodity Corridor Approach to Regional Pulse Trade: A Case of Bean Corridors in Eastern and Southern Africa. Eliud abucheli Birachi1,* Jean Claude Rubyogo1 Augustine Musoni2, David R Karanja3, Michael Ugen4, Robin Arani Buruchara1, Ibrahim Macharia5, Kennedy Muimui6, Michael Kilango7, and Capitoline Ruraduma8. (1) CIAT/PABRA, (2) Rwanda Agriculture Board (RAB), (3) Kenya Agriculture and Livestock Research Institute (KALRO), (4) NaCRRI, (5) Kenyatta University, (6) Zambia Agricultural Research Institute (ZARI), (7) Agricultural Research Institute (ARI) Uyole, (8) Institut des Sciences Agronomiques du Burundi (ISABU)
15.15	1007 The Formal and Informal Cross-Border Trade of Common Beans Between Kenya and Its Neighbours. Anne Wanjogu Gichangi * 1, Eliud abucheli Birachi2, David R Karanja1 and Festus Murithi1, (1) KALRO, (2) CIAT/PABRA
15.30	1008 Shedding Light on the “Invisible Middle” of Value Chains for Common Beans in Uganda and Kenya. Erin Wilkus*1, Nicola Francesconi2, Hassan Ngala3, Dorothy Birungi4, Nelson Mango2, Eliud Abucheli Birachi5 and Matthias Jager2, (1) University of California (UC), (2) CIAT, (3) KALRO, (4) National Agricultural Research Organisation Uganda (NARO), (5) CIAT/PABRA
15.45	1009 Comparison of Cowpea and Groundnut Haulm Trading in Urban and Rural Fodder Markets in Niger. Sapna Jarial*1, Michael Blummel2, Idrissa Soumana3, Ravi D2, Salissou Issa3, Anthony Whitbread4 and Ramadjita Tabo4, (1) ICRISAT, (2) International Livestock Research Institute (ILRI), (3) INRAN, (4) International Crop Research Institute for the Semi Arid Tropics (ICARDA)
14.00-16.00	<b>Oral Session 1-B: Genomics of Grain Legumes</b> <b>Moderator:</b> Dr. Francis Kusi, Savanna Agriculture Research Institute (SARI), Ghana
14.00	1010 Sequencing of Common Bean Genotypes Provides Comprehensive Resources for Genetic Introgression Studies and Molecular Breeding. Juan David Lobaton,* CIAT
14.15	1011 Genomewide Association Analysis for Drought Tolerance and Associated Traits in Common Bean. Valerio Hoyos-Villegas, AgResearch Ltd., Qijian Song, United States Department of Agriculture-Agricultural Research Service (USDA-ARS) and James D. Kelly,* MSU
14.30	1012 Genome Resources for Cowpea and Their Application to West African Breeding Programs. MarÃ-a MuÃ±oz-AmatriaÃ-n*1, Hamid Mirebrahim1, Steve Wanamaker1, Ming-Cheng Luo2, Serdar Bozdog3, Matthew Alpert1, Mitchell R. Lucas1, Pei Xu4, Hind Alhakami1, Jeffrey D. Ehlers5, Bao-Lam Huynh1, Ibrahim Atokple6, Joseph Batieno7, Ousmane Boukar8, Ndiaga Cisse9, Issa Drabo7, Christian Fatokun8, Francis Kusi6, Phil Roberts1, Stefano Lonardi1 and Timothy J. Close1, (1) UC-Riverside, (2) UC-Davis, (3) Marquette University, (4) Zhejiang Academy of Agricultural Sciences, (5) The Bill and Melinda Gates Foundation, (6) SARI, (7) Institut de l'Environnement et de Recherches Agricoles (INERA), (8) IITA, (9) Institut Senegalais de Recherches Agricoles (ISRA)
14.45	1013 A Multiparent Advanced Generation Inter-Cross Population for Genetic Analysis and Breeding in Cowpea ( <i>Vigna unguiculata</i> L. Walp.). Bao-Lam Huynh*1, Jasmine L. Gracin-Dixon2, Yi-Ning Guo2, Jansen R.P. Santos2, Arsenio D. Ndeve2, Maria MuÃ±oz-AmatriaÃ-n1, Sassoum Lo2, Ira Herniter2, Steve Wanamaker2, Tra T.T. Duong2, Savannah M. St. Clair2, Mitchell R. Lucas1, Jeffrey D. Ehlers3, Timothy J. Close1 and Philip A. Roberts2, (1) UC-Riverside, (3) The Bill and Melinda Gates Foundation



## MONDAY, 29 February

TIME	ACTIVITY
15.00	1014 A Bt Gene Effectively Controls Maruca Pest in Cowpea. Prince Addae,* African Agricultural Technology Foundation (AATF)
15.15	1015 Transforming Crop Breeding at Monsanto: How Relevant to Crops in Africa. Roy G. Cantrell,* Monsanto Company, USA
15.30	1016 Applying Next-Generation Sequencing to Enable Marker-Assisted Breeding for Adaptive Traits in a Homegrown Haricot Bean ( <i>Phaseolus vulgaris</i> L.). Andrew Tock* and Eric Holub, University of Warwick
15.45	1017 Breeding Management System for Grain Legumes Research. Trushar Shah,* IITA
14.00-16.00	<b>Oral Session 1-C: Sustainable Intensification of Grain Legume Cropping Systems</b> <b>Moderator:</b> Dr. Onesimus Semalulu, National Agriculture Research Laboratories (NARL), Uganda
14.00	1026 Farmer Decision-Making Strategies for Improved Soil Fertility Management in Uganda and Mozambique. Robert E Mazur* <sup>1</sup> , Richard Miiro <sup>2</sup> , Venâncio Alexandre Salegua Sr. <sup>3</sup> , Eric A Abbott <sup>1</sup> and Ebby Luvaga <sup>1</sup> , (1) Iowa State University (ISU), (2) MUK, (3) IIAM
14.15	1027 Maize-Common Bean Intercrop Productivity As Affected By Planting Arrangements and Applied Nutrients in Northwestern Ethiopia. Alemayehu Assefa* <sup>1</sup> , Tamado Tana <sup>2</sup> , Nigusie Dechassa <sup>2</sup> , Yigzaw Dessalegn <sup>3</sup> , Kindie Tesfaye <sup>4</sup> and Charles S. Wortmann <sup>5</sup> , (1) Amhara Region Agricultural Research Institute, (2) Haramaya University, (3) ILRI, (4) International Maize and Wheat Improvement Center (CIMMYT), (5) University of Nebraska-Lincoln
14.30	1028 Developing Conservation Agriculture in Maize Legume Systems for Small Holder Farmers in Zambia, Malawi and Mozambique - a Beneficiary Perspective in Zambia. Kafula Chisanga* <sup>1</sup> , Nswana Kafwamfwa <sup>2</sup> , Petan Hamazakaza <sup>1</sup> , Mwila Mulundu <sup>1</sup> , Joy Sinyangwe <sup>1</sup> and Olipa Nyazambe Lungu <sup>3</sup> , (1) Ministry of Agriculture, (2) ZARI, Mochipapa Station, (3) UNZA
14.45	1029 Response of Cowpea to Different Integrated Nutrient and Water Management Technologies in the Southern Rangelands of Semi-Arid Eastern Kenya. Cyrus Mbugua Githunguri* and Anthony O Esilaba, KALRO
15.00	1030 Crop and Intercrop Combination, Tillage and Fertilizer Treatment Effect on Green Grams Performance in the Semi-Arid Southern Rangelands of Kenya. Cyrus Mbugua Githunguri* <sup>1</sup> , Anthony O Esilaba <sup>1</sup> , Elias Gitonga Thurania <sup>1</sup> , John R Okalebo <sup>2</sup> , Geoffrey K Mutai <sup>3</sup> , Joyce A Omakwe <sup>1</sup> and Elias N Ndwiga <sup>1</sup> , (1) KALRO, (2) University of Eldoret, (3) ICRISAT
15.15	1031 Effect of Integrating Organic with Inorganic Fertilisers on Bean Yield on Three Contrasting Soils. Stewart Kyebogola* <sup>1</sup> , Onesimus Semalulu <sup>2</sup> , Moses Makooma Tenywa <sup>3</sup> , Andrew Lenssen <sup>4</sup> and Robert Mazur <sup>4</sup> , (1) MUK, (2) NARL Kawanda, (3) College of Agricultural and Environmental Sciences, MUK (4) ISU
15.30	1032 Response of Common Bean ( <i>Phaseolus vulgaris</i> L.) to Nitrogen and Phosphorus and Rhizobia Inoculation Across Variable Soils in Zimbabwe. Vongai Chekanai* <sup>1</sup> , Regis Chikowo <sup>1</sup> , David Icishahayo <sup>1</sup> , Fred Kanampiu <sup>2</sup> and Ken Giller <sup>3</sup> , (1) University of Zimbabwe, (2) IITA, N2Africa, International Centre of Insect Physiology and Ecology (ICIPE), (3) Wageningen University
15.45	1033 Dynamics of Biologically Fixed Soil N Levels and Its Enhancement in Maize-Legume Cropping Systems in the Northern Guinea Savannah Ecology. Johnson Ehima Onyibe* <sup>1</sup> , Samson Oluwole Ajala <sup>1</sup> and Joseph A.Y. Shebayan <sup>2</sup> , (1) IITA, Ibadan, Nigeria, (2) IAR, Ahmadu Bello University, Zaria Nigeria
14.00-16.00	<b>Oral Session 1-D: Grain Legumes in Human Nutrition and Health</b> <b>Moderator:</b> Dr. Michael Grusak, USDA-ARS

## MONDAY, 29 February

TIME	ACTIVITY
14.00	1018 Community Readiness to Address Food Security and Evaluation of Cowpea Intake of Weaning Infants in Dioro, Mali. Ousmane A Koita,* University of Science, Techniques and Technologies of Bamako
14.15	1019 Constraints of Bean Consumption Among the Base of Pyramid (BoP) Consumers in Urban and Peri-Urban Kenya. Christine G.K. Chege*1, Mercy Lungaho1, John Ndungu2, David R Karanja2, Eliud Abucheli Birachi1 and Matthias Jager1, (1) CIAT/PABRA, (2) KALRO
14.30	1020 Impact of Legumes Vs Corn-Soy Flour on Environmental Enteric Dysfunction and Stunting in Rural Malawian Children: Randomized, Investigator-Blinded, Prospective Clinical Trial. Oscar H. Divala*1, Kenneth Maleta1, Kevin Stephenson2, Sophia Agapova2, Chrissie Thakwalakwa1, Indi Trehan2 and Mark Manary2, (1) School of Public Health and Family Medicine, College of Medicine, University of Malawi, (2) Washington University School of Medicine
14.45	1021 Role of Pectic Polysaccharides in the Development of the Hard-to-Cook Defect in Common Beans ( <i>Phaseolus vulgaris</i> ) during Storage. Daniel Mwangi Njoroge*1, Peter Kahenya Kinyanjui2, Daniel Ndaka Sila2 and Marc Hendrickx3, (1) Dedan Kimathi University of Technology, (2) Jomo Kenyatta University of Agriculture and Technology, (3) KU Leuven
15.00	1022 White Tepary Bean Shows Higher in Vitro Iron Bioavailability Than Brown Tepary or Common Bean. Donna M Winham*1, Amanda E Bries1, Manju B Reddy1, Karen A. Cichy2, Timothy Porch2 and Mark A. Brick3, (1) ISU, (2) USDA-ARS, (3) Colorado State University
15.15	1023 Field Evaluation of Nutritionally Superior Common Bean Genotypes with Farmers in Three Agro-Ecological Zones in Uganda. Dennis N. Katuuramu*1, James D. Kelly1, Gabriel B. Luyima2, Stanley Nkalubo2, Raymond P. Glahn3 and Karen A. Cichy4, (1) MSU, (2) NaCRRI, (3) USDA-ARs, (4) USDA-ARS
15.30	1024 Can We Breed Pulse Crops to Improve Human Health: An Emerging Facet in Contemporary Crop Improvement. Mark A. Brick*1, Henry Thompson1, Phillip McClean2 and Samira Mafimoghaddam2, (1) Colorado State University, (2) NDSU
15.45	1025 Changes in Protein, Phenolic and Condensed Tannin Contents of Cowpea Mutants from Irradiated Cowpea Parents. John Shindano*1, Kalaluka Munyinda1, Bernard Himoonga Moonga1 and Joseph Awika2, (1) UNZA, (2) TAMU
16.00	Break
16.30 - 18.30	Topical Oral Session 2-A, B, C & D (Four concurrent sessions)
16.30 - 18.30	<b>Oral Session 2-A: Gender and Youth Participation in Grain Legume Value Chains</b> <b>Moderator:</b> Dr. Jemimah Njuki, Gender Coordinator, IDRC
16.30	1039 The Role of Multi-Stakeholder Partnerships at the Maendeleo Innovation Platform in Eastern DRC: Gender and Bean Value Chain Development amidst Armed Conflict. Rebecca Mutebi Kalibwani*1, Sospeter Onchoke Nyamwaro2, Benjamin Wimba3, Audry Muke3, Moses Makooma Tenywa4, Josephat Mugabo Sr.5 and Robin Arani Buruchara Sr.6, (1) Bishop Stuart University, (2) CIAT, (3) INERA, (4) College of Agricultural and Environmental Sciences, MUK, (5) RAB, (6) CIAT/PABRA
16.45	1040 Empowering Women for Food and Income Security: The Case of Pigeon Pea in Malawi. Nathalie Me-Nsope* and Michelle Larkins, Global Center for Food Systems Innovation
17.00	1041 Determinants of Smallholder Common Bean Market Participation and Extent of Participation in Rwanda by Gender. Kelvin Kariuki Kamunye,* Egerton University, Njroro, Kenya
17.15	1042 Cultural Norms and Practices Influencing the Ethiopian Women Participation in Agricultural Training and Capacity Development. Esther Mwhaki Njuguna*1, Millicent Liani1 and Meseret Beyene2, (1) ICRISAT, (2) Ethiopian Institute of Agriculture Research (EIAR)

## MONDAY, 29 February

TIME	ACTIVITY
17.30	1043 Influence of Group Factors on Women Empowerment in Collective Action: The Case of Bean Production in Central Uganda. Florence Nakazi*1, Paul Aseete1, Enid Katungi2, Michael Ugen1, Isaac Joseph Muggaga1 and Grace Nanyonjo1, (1) NaCRRI, (2) CIAT/PABRA
17.45	1044 Gender Integration in the Innovation Platforms for the Scaling out of Innovations Cowpea in Ghana, Mali, Nigeria and Senegal. Sounkoura Adetonah*1, Ousmane Coulibaly1, Julie Loko2 and Remy Ahoyo1, (1) IITA, (2) GAPROFFA
16.30–18.00	<b>Oral Session 2-B: Grain Legume Breeding and Genetics</b> <b>Moderator:</b> Kennedy Muimui, Zambia Agriculture Research Institute (ZARI), Zambia
16.30	1045 Pigeonpea Research and Development Efforts in Eastern and Southern Africa: A Success Story. N.V.P.R. Ganga Rao*1, Moses Siambi1, Said Silim2, Stephen Lyimo3, Rose Ubwe3, Kananji GAD4, Manuel Inacio Vicente Amane5, Yuventino Obong6, Paul Kiprotich Kimurto7, Emmanuel Monyo1, Chanda Venkata Sameer Kumar1, Omari Kalanje Mponda8, Robert Kileo9, Kennedy Kanenga10, Odeny A Damaris1, Patrick Okori1, Chris O Ojiewo1, Hari D. Upadhyaya1, Rebbie Harawa12, Rachit Kumar Saxena1 and Rajeev K. Varshney1, (1) ICRISAT, (2) ICARDA, (3) SARI, (4) DARTS and Alliance for a Green Revolution in Africa (AGRA), (5) IIAM, (6) NgeZARDI, (7) Egerton University, (8) Naliendele Agricultural Research Institute, (9) LZARDI-Ukiriguru, (10) ZARI, (12) AGRA
16.45	1046 G X E Effects in Food-Fodder Traits in 50 Cowpea Genotypes. Ousmane Boukar*1, Christian Fatokun1, A. Samireddypalle2, KSVS Prasad3, D. Ravi2, I. Okike2 and M. Blummel2, (1) IITA, (2) ILRI
17.00	1047 Improved Legume Varieties and Seed Systems for Sub-Saharan Africa and South Asia - Lessons for Tropical Legumes III. Emmanuel Monyo*1, Rajeev K. Varshney1, Kai Mausch1, Hari D. Upadhyaya1, Patrick Okori1, Haile Desmae1, Ousmane Boukar2, Christian Fatokun2, Claire Mukankusi3, Pooran Mal Gaur1, Jean Claude Rubyogo3, Alpha Y. Kamara2, Hakeem Ajeigbe1, Ganga Rao N.V.P.R1 and Janila Pasupuleti1, (1) ICRISAT, (2) IITA, (3) CIAT/PABRA
17.15	1048 Advances in Chickpea Breeding in Eastern and Southern Africa: Current Status and Emerging Issues. Chris O Ojiewo*1, Ganga Rao N.V.P.R1, Said Silim2, Emmanuel Monyo1, Moses Siambi1, Pooran M Gaur1, CL Laxmipathi Gowda1, Rajeev K. Varshney1, Asnake Fikre3, Mekasha Chichaymelu3, Million Eshete3, Robert Kileo4 and Paul Kiprotich Kimurto5, (1) ICRISAT, (2) ICARDA, (3) EIAR, (4) LZARDI-Ukiriguru, (5) Egerton University
17.30	1049 Tailoring Chickpea Varieties for Amenability to Machine Harvesting. Sushil K Chaturvedi1, Narendra Pratap Singh2, Neelu Mishra2, Pooran M Gaur*3 and Rajeev K. Varshney3, (1) Indian Institute of Pulses Research (IIPR), (2) ICAR-IIPR, (3) ICRISAT
17.45	1050 A Pan-Legume Approach in Crop Simulation Modelling of Grain Legumes to Guide Breeding and Crop Management. Vincent Vadez*1, Oumarou Halilou1, Halime Mahamat Hissene2, Michel Ghanem3, Helene Marrou4, Jose Alejandro Clavijo Michelangeli5, Thomas R. Sinclair6 and Afshin Soltani7, (1) ICRISAT, (2) CERAAS, (3) ICARDA, (4) Montpellier SupAgro, UMR SYSTEM, (5) University of Florida, (6) NCSU, (7) Gorgan University of Agricultural Sciences and Natural Resources
16.30–18.00	<b>Oral Session 2-C: Plant Pathology of Grain Legumes</b> <b>Moderator:</b> Dr. Douglas Maxwell, Professor Emeritus, University of Wisconsin
16.30	1051 Evaluation of the Tepary Bean ( <i>Phaseolus acutifolius</i> ) Diversity Panel for Response to the NL 3 Strain of Bean Common Mosaic Necrosis Virus (BCMNV) and for Biological Nitrogen Fixation with Bradyrhizobium Strains. Ana G Vargas*1, John Hart2, Consuelo Estevez de Jensen1, James Beaver1 and Tim Porch2, (1) University of Puerto Rico (UPR), (2) USDA-ARS

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16.45	1052 Broad-Based Root-Knot Nematode Resistance in the Southeastern Africa Cowpea Gene Pool. Arsenio D. Ndeve* <sup>1</sup> , Williams Charles Matthews <sup>1</sup> , Jansen Rod Pereira Santos <sup>1</sup> , Bao Lam Huynh <sup>1</sup> , Rogerio Marcos Chiulele <sup>3</sup> , Timothy J. Close <sup>1</sup> and Phil Roberts <sup>1</sup> , (1) UC-Riverside (3) Eduardo Mondlane University
17.00	1053 Variability of Pseudocercospora Griseola and Identification of New Sources of Resistance to Angular Leaf Spot among Uganda Common Bean Landraces. Gabriel Ddamulira, * NaCRRRI, Clare Mukankusi, CIAT/PABRA, Mildred Ochwo-Ssemakula, MUK-Kampala and Paul Gepts, UC
17.15	1054 Genetic Diversity Assessment of Ugandan Cowpea Scab Fungus (Sphaceloma sp.) Isolates Using ISSR Markers. Emmanuel Afutu* <sup>1</sup> , Eric E Agoyi <sup>1</sup> , Allan M. Ssekamate <sup>2</sup> , Moses Biruma <sup>3</sup> and Patrick Rubaihayo <sup>1</sup> , (1) MUK, (2) CIAT, (3) National Semi-Arid Resources Research Institute (NaSARRI)
17.30	1055 Pathogenecity of Sclerotium Rolfsii Sacc. and Identification of Resistance Sources in Common Beans. Pamela Paparu* <sup>1</sup> , Stanley Nkalubo <sup>1</sup> , Amos Acur <sup>1</sup> , Fred Kato <sup>2</sup> , Catherine Acam <sup>2</sup> , Stephen Musoke <sup>2</sup> , Justine Nakibuule <sup>1</sup> and Claire Mukankusi <sup>3</sup> , (1) NaCCRI, (2) CIAT, (3) CIAT/PABRA
17.45	1056 Effect of Methanol Extracts of Leonotis Nepetifolia and Ocimum Gratissimum on the Incidence and Severity of Ascochyta Blight of French Bean. Sylvans Ochieng Ochola, * Isabel N. Wagara, Joshua O. Ogendo, Joshua O. Ogweno, Jane G. Nyaanga, Kennedy O. Obuya and Alex M. Kange, Egerton University
16.30-18.00	<b>Oral Session 2-D: Biological Nitrogen Fixation in Grain Legumes</b> <b>Moderator:</b>
16.30	1034 Understanding the Genetic Basis of Symbiotic Nitrogen Fixation in Common Bean (Phaseolus vulgaris L.) Using Genomic and Transcriptomic Analyses. Kelvin Kamfwa* <sup>1</sup> , James D. Kelly <sup>1</sup> and Karen A. Cichy <sup>2</sup> , (1) MSU, (2) USDA-ARS
16.45	1035 Cowpea (Vigna unguiculata) Crops in Africa Can Respond to Inoculation with Rhizobium. Benjamin D.K. Ahiabor* <sup>1</sup> , Robert Boddey <sup>2</sup> , Mathias Fosu <sup>3</sup> , Williams Atakora <sup>1</sup> and Luc Rouws <sup>2</sup> , (1) CSIR-SARI, (2) Embrapa Agrobiologia, (3) Association of Church Development Projects
17.00	1036 The Type of Indigenous Rhizobia, Rather Than Population Density, May be a Greater Determinant of Inoculation Success in Phaseolus vulgaris. George Mwenda,* Jason Terpolilli, John Howieson and Graham O'Hara, Centre for Rhizobium Studies, Murdoch University
17.15	1037 On-Farm Yield Response of Chickpea [Cicer arietinum (L)] to Inoculation and Phosphorus Fertilizer in Ethiopia. Endalkachew Wolde-meskel* <sup>1</sup> , Fred Kanampiu <sup>2</sup> , Joost van Heerwaarden <sup>3</sup> , Birhan Abdulkadir <sup>1</sup> , Katrien Descheemaeker <sup>4</sup> , Ibsa Aliyi <sup>5</sup> and Ken E. Giller <sup>3</sup> , (1) ILRI, (2) IITA, (3) Wageningen University, (4) WUR, (5) Haramaya University
17.30	1038 Symbiotic N <sub>2</sub> Fixation in Field Grown Kersting's Groundnut (Macrotyloma geocarpum) Landraces in Response to Inoculation with Bradyrhizobium Sp. in Ghana. Mustapha Mohammed* <sup>1</sup> , Elias Sowley <sup>2</sup> and Felix Dapare Dakora <sup>1</sup> , (1) Tshwane University of Technology, (2) University for Development Studies
18.30-20.30	<b>Poster Session 1-A</b> <b>Instructions to Authors of Posters:</b> Posters for sessions 1-A & B should be hung in the poster exhibition tent on Sunday, 28 February, between 15:00 and 18:00 hours or on Monday, 29 February, prior to 08:00 hours. Authors of even-numbered posters should be present during viewing session "1-A", while authors of odd-numbered posters should be present during viewing session "1-B." Posters for sessions 1-A & B should be taken down on Tuesday, 01 March, between 16:00 and 18:00 hours.

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TIME	ACTIVITY
18.30-20.30	<b>Poster Session 1: Abiotic Stress</b>
1057	(Poster Number 1) Evaluation of Morpho-Physiological Traits Linked to Drought Tolerance in Chickpea ( <i>Cicer arietinum</i> L.) Lines. Ruth Wangari Muriuki* 1, Kimurto K Paul <sup>1</sup> and Vincent Vadez <sup>2</sup> , (1) Egerton University, (2) ICRISAT
1058	(Poster Number 2) Breeding Climate Resilient Chickpea Varieties. Pooran M Gaur* 1, Srinivasan Samineni <sup>2</sup> , Sushil K Chaturvedi <sup>3</sup> , Veera Jayalakshmi <sup>4</sup> , Anita Babbar <sup>5</sup> , D M Mannur <sup>6</sup> , A G Vijaykumar <sup>7</sup> , Sobhan Sajja <sup>2</sup> and Rajeev K. Varshney <sup>8</sup> , (1) ICRISAT, (2) ICRISAT, (3) Indian Institute of Pulses Research (IIPR), (4) ANGRAU Regional Agricultural Research Station, (5) Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV), (6) UAS-Raichur Agricultural Research Station, (7) UAS-Dharwad Regional Agricultural Research Station, (8) ICRISAT
1059	(Poster Number 3) Adaptation of Pigeonpea ( <i>Cajanus cajan</i> ) to Southern Africa and Its Implications. Eastonce Tendayi Gwata,* University of Venda and Moses Siambi, ICRISAT
1060	(Poster Number 4) Physiological and Agronomic Responses of Selected of Cowpea ( <i>Vigna unguiculata</i> (L.) Walp) Landraces to Moisture Stress. Lawrent Lino Michael Pungulani* 1, James P Millner <sup>2</sup> , Warren M Williams <sup>2</sup> and Mackson H. P Banda <sup>1</sup> , (1) Chitedze Research Station, (2) Massey University
1061	(Poster Number 5) Discovery of Quantitative Trait Loci Underlying Drought Tolerance in the (SEQ1027 X BRB191) F2 Ril Population of Common Bean ( <i>Phaseolus vulgaris</i> L). Mabel Nabateregga* 1, Clare Mukankusi <sup>2</sup> , Richard Edema <sup>1</sup> , Stanley Nkalubo <sup>3</sup> and Allan Male <sup>2</sup> , (1) MUK, (2) CIAT/PABRA, (3) NaCRRI
1062	(Poster Number 6) Breeding Next Generation Cowpea Varieties for Adaptation to Changing Climates and Multiple Cropping Systems. Bir B. Singh,* G.B. Pant University of Agriculture & Technology
1063	(Poster Number 7) Impact of Water Stress on Stomatal Conductance, Carbon Isotope Discrimination and Biological Nitrogen Fixation in Four Cowpea Genotypes. Lawrence Munjonji* 1, Kingsley Kwabena Ayisi <sup>1</sup> , Geert Haesaert <sup>2</sup> and Pascal Boeckx <sup>2</sup> , (1) University of Limpopo, (2) Ghent University
1064	(Poster Number 8) Genome-Wide Association Studies of Morphological and Agronomical Traits in Cultivated Tepary Beans ( <i>Phaseolus acutifolius</i> ). John Hart <sup>1</sup> , Ana G Vargas <sup>2</sup> , Mark A. Brick <sup>3</sup> , Jimmy Burrige <sup>4</sup> , James S. Beaver <sup>2</sup> and Timothy Porch* 1, (1) USDA-ARS, (2) UPR, (3) Colorado State University, (4) PSU
1065	(Poster Number 9) Marker-Assisted Backcrossing to Improve Cowpea for Drought Tolerance. Benoit Joseph Batieno* 1, Issa Drabo <sup>1</sup> , Eric Yirenkyi Danquah <sup>2</sup> , Jean Baptiste De La Sale Tignegre <sup>3</sup> , Timothy J. Close <sup>4</sup> , Bao-Lam Huynh <sup>4</sup> , Jeremy Tinga Ouedraogo <sup>1</sup> and Kwadwo Ofori <sup>5</sup> , (1) INERA, (2) WACCI, (3) AVRDC, (4) UC-Riverside, (5) University of Ghana
1066	(Poster Number 10) Photosynthetic Traits Associated with Drought Tolerance in Common Bean Seedling. Isaac Onziga Dramadri,* MSU



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1067	(Poster Number 11) Evaluation of Common Bean Lines for Adaptation to High Temperatures in Honduras. Juan Carlos Rosas* <sup>1</sup> , James Beaver <sup>2</sup> , Timothy G Porch <sup>3</sup> , Stephen E. Beebe <sup>4</sup> , Jimmy D. Burrige <sup>5</sup> and Jonathan P. Lynch <sup>5</sup> , (1) Escuela Agricola Panamericana/Zamorano, (2) UPR, (3) USDA/ARS-TARS, (4) CIAT, (5) PSU
1068	(Poster Number 12) Association Mapping for Drought Tolerance in Intergenepool Populations in Common Bean ( <i>Phaseolus vulgaris</i> ). Victor Manuel Mayor* Sr., CIAT
1069	(Poster Number 13) Preliminary Screening of USDA Lentil Core Collection for Heat Tolerance. Md Nurul Amin, * Washington State University, Rebecca Mc Gee, Research Geneticist (Plants), Clarice Coyne, Research Geneticist, Karthika Rajendran, International Center for Agricultural Research in Dry Areas (ICARDA) and Shiv Kumar Agrawal, ICARDA - Intl Center for Agricultural Research in the Dry Areas
1070	(Poster Number 14) Terminal Drought Tolerance in the Andean Diversity Panel. Eninka Mndolwa* <sup>1</sup> , Jennifer Trapp <sup>2</sup> , Karen A. Cichy <sup>3</sup> and Phillip N. Miklas <sup>3</sup> , (1) Washington State University, (2) Seneca Inc, (3) USDA-ARS
1071	(Poster Number 15) Tithonia Diversifolia, Potential Alternative Solution to the Lack and High Cost of Fertilizers for Increasing Common Bean Productivity: Case of Moso Region of Burundi. Capitoline Ruraduma,* ISABU
1072	(Poster Number 16) Enhanced Drought Tolerance in Transgenic VuP5CS Cowpeas. Rachel Okeyo* <sup>1</sup> , Nelson Amugune <sup>2</sup> , Norman Njoro <sup>2</sup> , Simon Gichuki <sup>1</sup> , Catherine Taracha <sup>1</sup> , Pauline Asami <sup>3</sup> and Timothy Holton <sup>3</sup> , (1) KALRO, (2) University of Nairobi, (3) Biosciences Eastern and Central Africa-ILRI (Beca-ILRI) Hub
1073	(Poster Number 17) Bambara Groundnut - an Exemplar Drought Tolerant Under-utilised Legume. Tafadzwanashe Mabhaudhi* and Albert Thembinkosi Modi, University of KwaZulu-Natal
18.30–20.30	<b>Poster Session 1: Biological Nitrogen Fixation</b>
1074	(Poster Number 18) Genetic Diversity, Symbiotic Efficacy and Abiotic Stress Tolerance of Indigenous Rhizobia Nodulating Soybean ( <i>Glycine max</i> [L.] Merrill) in the Mpumalanga, Limpopo and Gauteng Provinces of South Africa. Naamala Judith,* Jaiswal Sanjay Kumar and Dakora Dapare Felix, Tshwane University of Technology
1075	(Poster Number 19) Molecular Diversity of Micro-Symbionts Associated with Cowpea ( <i>Vigna unguiculata</i> ) Varieties Across Different Agro-Ecological Regions of Mozambique. Ifeoma Nkeonyeasua Chidebe* <sup>1</sup> , Sanjay Jaiswal <sup>1</sup> , Dakora Dapare Felix <sup>1</sup> and Stephen Kyei-Boahen <sup>2</sup> , (1) Tshwane University of Technology, Pretoria, South Africa, (2) IITA
1076	(Poster Number 20) Screening for New Rhizobium Strains for Studying Legume Genotype x Strain Interaction in Chickpea and Common Bean in Ethiopia. By: Gunnabo, AH., Giller, Ke., Woldemeskel, E., Geurts, R., Van Heerwaarden, J. and Degefu, T. Ashenafi Hailu Gunnabo* <sup>1</sup> , Ashenafi Hailu Gunnabo* <sup>1</sup> , Ken E. Giller <sup>2</sup> and Rene Geurts <sup>2</sup> , (1) Hawassa University, (2) Wageningen University



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TIME	ACTIVITY
1077	(Poster Number 21) Improving Adaptation of Common Beans to Low Nitrogen Soils By Enhancing Nodulation through Breeding and Selection. Juan Carlos Rosas,* Escuela Agrícola Panamericana/ Zamorano
1078	(Poster Number 36) Response of Cowpea ( <i>Vigna unguiculata</i> L. Walp) to Rhizobial Inoculation and Phosphorus Application on Farmers' Fields in Minna, Southern Guinea Savanna of Nigeria. Olaotan Abimbola Adediran* 1, Johnson Akinade Oladiran 1, Akim O. Osunde 1, Abdullahi Bala 1, Emmanuel Sangodele 2 and Olusoji Olaolu Olufajo 3, (1) Federal University of Technology, (2) IITA, (3) Ahmadu Bello University
1079	(Poster Number 22) Isolation and Characterization of Bacterial Endophytes from Gnotobiotically Grown Marama Bean Seedlings. Percy Maruwa Chimwamurombe,* University of Namibia
1080	(Poster Number 23) Effect of Cropping System, Inoculant and Crops on Symbiotic N <sub>2</sub> Fixation in Cowpea ( <i>Vigna unguiculata</i> L.), Maize ( <i>Zea mays</i> L.) and Sorghum ( <i>Sorghum bicolor</i> L.) Genotypes in Marapyane, South Africa. Mpelang Pebetse Maredi,* Tshwane University of Technology
1081	(Poster Number 24) Faba Bean and Soybean Precursor Crop and Its Effects on Subsequent Yield and Nitrogen Use Efficiency of Maize Varieties in Western Ethiopia. Tolera Abera Goshu,* EIAR
1082	(Poster Number 25) Symbiotic N Contribution and Water-Use Efficiency of Sixteen Groundnut ( <i>Arachis hypogaea</i> L.) Genotypes Grown in Ethiopia, Measured Using <sup>15</sup> N and <sup>13</sup> C Natural Abundance. Sofiya Kassa Muhaba,* Ethiopian Agricultural Research, Debre zeit ARC
1083	(Poster Number 26) Effect of Selected Bradyrhizobia on Growth, Biological Nitrogen Fixation and Yield of Cowpea in Kilifi and Embu, Kenya. Winnie Jelagat Kimutai,* IITA
1084	(Poster Number 27) Assessment of Growth, Nodulation and Yield of Cowpea ( <i>Vigna unguiculata</i> L. Walp) Sampled from Farmers Fields in Northern Mozambique. Margarida Graciete Simbine,* Siphon Thulane Maseko, Sanjay Jaiswal and Felix Dapare Dakora, Tshwane University of Technology
1085	(Poster Number 28) Nitrogen Fixation, Water-Use Efficiency and Nutrient Density in Grain and Wild Legumes from Different Parts of Botswana. Nkosilathi Bernard,* Flora Pule-Meulenberg, Maitumelo Losologolo, Utlwang Batlang and Samodimo Ngwako, Botswana College of Agriculture
1086	(Poster Number 29) Symbiosis Induced Mineral Accumulation in Inoculated Soybean Genotypes Grown Under Field Conditions at Two Experimental Sites in South Africa. Glory Chinonye Mbah* 1, Cherian Mathews 1, Siphon Thulane Maseko 2 and Felix Dapare Dakora 2, (1) Tshwane University of Technology, (2) Tshwane University of Technology
1087	(Poster Number 30) Cowpea Yield Responses to Inoculation and P Fertilization in Different Environments. Stephen K. Boahen* 1, Canon Engoke 2, David Chikoye 2, Alpha Y Kamara 2 and Robert Abaidoo 2, (1) IITA, Nampula, (2) IITA

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1088	(Poster Number 31) Rhizobium Inoculant Irj 2180A Suppresses Striga Emergence and Increases the YIELD of Cowpea in Highly Infested Environment. Wajiha Abdullahi Mu'az* 1, Mahamadi Dianda <sup>2</sup> , Nouhoun Belko <sup>2</sup> , Sanusi Mohammed <sup>1</sup> , Muhammad Hayatu <sup>4</sup> , Hassan Ibrahim <sup>5</sup> and Ousmane Boukar <sup>2</sup> , (1) Bayero University, Kano, (2) IITA, (4) Bayero University P.M.B 3112, (5) Federal University of Agriculture, Makurdi
1089	(Poster Number 32) Role of P Fertilization and Rhizobium Inoculation on Plant Growth, N Accumulation, $\alpha$ 15N and GRAIN YIELD of Two Soybean (Glycine max (L.) Merr.) Varieties Grown in Two AGRO-Ecological ZONES of Mozambique. Carlos Antonio Pedro Muananamuale* Jr.1, Stephen Kyei-Boahen <sup>2</sup> , Abudo Rachad Ussene <sup>1</sup> , Canon Engoke Savala <sup>2</sup> and Dakora Dapare Felix <sup>1</sup> , (1) Tshwane University of Technology, (2) IITA
1090	(Poster Number 33) Enhancing Cowpea Productivity in the Sahelian Zone of Niger: The Contribution of Composted Millet Glume and Mineral Fertilizer. Nana Ewusi-Mensah,* Kwame Nkrumah University of Science and Technology
1091	(Poster Number 34) Benefits of Inoculation, P Fertilizer and Manure on Yields of Bean and Soybean Are Also Seen in Increased Yield of Subsequent Maize. Edouard Rurangwa* 1, Angelinus Franke <sup>2</sup> , Bernard Vanlauwe <sup>3</sup> and Ken E. Giller <sup>1</sup> , (1) Wageningen University, (2) University of the Free State, (3) IITA
1092	(Poster Number 35) Symbiotic Efficacy and Tolerance of Soybean Rhizobia to High Temperature and Drought Stress. Akech Violet,* MUK
1093	(Poster Number 37) Impact of Improved Technologies on Yiel and Income of Smallholders Farmers in South Kivu. KAHASHA IGERHA Gracia,* IITA
1094	(Poster Number 38) Nodulation Performance Under Controlled Conditions of Experimental Inoculants for Chickpea Performing Pre-Sowing Seed Treatment. Fabio Montero and Guido Ramirez Caceres,* Rizobacter
18.30–20.30	<b>Poster Session 1: Economics and Value Chain Development</b>
1095	(Poster Number 39) Abstract the Role of the Private Sector in Increasing Adoption of Postharvest Management Technologies By Smallholder Farmers: The Experience of the Pics Bags Project. Jean Njiru* and Dieudonne Baributsa, Purdue University
1096	(Poster Number 40) Situation Analysis of Common Bean Production, Marketing and Consumption in Malawi. Nyumbani Moyo,* Lilongwe University of Agriculture and Natural Resources, Bunda College of Agriculture
1097	(Poster Number 41) Traditional Markets in Nicaragua: Their Current and Potential Role to Deliver on Income Generation and Food Security for Poor Bean Producers and Consumers. Francesca Larosa* 1, Byron Reyes <sup>2</sup> , Matthias Jager <sup>3</sup> , Lorena Belixa Gomez <sup>1</sup> , Mark Lundy <sup>1</sup> , Alex Buritica <sup>1</sup> and Jenny Wiegel <sup>4</sup> , (1) CIAT, (2) CIAT-Nicaragua, (3) CIAT, (4) Lutheran World Relief

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1098	(Poster Number 42) Pathways for Generating Socio-Economic Benefits from Bean Value Chain Development at Maendeleo Innovation Platform, Eastern DRC. Sospeter Onchoke Nyamwaro*1, Rebecca Mutebi Kalibwani2, Benjamin Wimba3, Audry Muke3, Moses Makooma Tenywa4, Josephat Mugabo Sr.5 and Robin Arani Buruchara Sr.6, (1) CIAT, (2) Bishop Stuart University, (3) INERA, (4) College of Agricultural and Environmental Sciences, MUK, Kampala, (5) RAB, (6) CIAT/PABRA
1099	(Poster Number 43) Value Chain Policy Support for Improved Performance of Smallholder Grain Legume Farmers in Zimbabwe. Freeman Gutsa,* Dumisani Kutywayo and Danisile Hikwa, Department of Research and Specialist Services
1100	(Poster Number 44) The Economics of Rhizobium Biofertilizer Utilization Among Small-Scale Farming Systems in Zimbabwe and the Role for Policy. Freeman Gutsa,* Department of Research and Specialist Services
1101	(Poster Number 45) Impact Des Plateformes D'innovation Dans La Chaîne De Valeur Niébé Grain Sur La Sécurité Alimentaire Et Nutritionnelle En Afrique De L'ouest. Ayaovi Locoh* Jr., UAC
1102	(Poster Number 46) Challenges and Opportunities in Bean Production and Marketing in Selected Bean Corridors in Kenya. Justus Muteti Kavoi,* KALRO
1103	(Poster Number 47) Understanding Value Chains That Supply Nutrient Dense Foods to Urban and Peri-Urban Consumers in Kenya and Uganda through Informal Markets. Matthias Jager*, Mercy Lungaho and Eliud Abucheli Birachi, CIAT/PABRA
1104	(Poster Number 48) Estimating Common Bean Consumption Demand in Uganda. Enid katungi,* CIAT/PABRA and Catherine Larochelle, Virginia Tech
1105	(Poster Number 49) The Importance of Legumes in the Ethiopian Farming System and Overall Economy: An Overview. Mulugeta Atnaf Tiruneh*1, Kassahun Tesfaye2 and Kifle Dagne2, (1) EIAR, (2) Addis Ababa University
1106	(Poster Number 50) Improved Storage Structures for Postharvest Handling of Cereal and Pulses in Mozambique and Zambia. Olipa Nyazambe Lungu*1, Nswana Kafwamfwa2, Lucas Daniel Tivana3, Mercia Manjate3 and Rafael Nguenha3, (1) UNZA, (2) ZARI, Mochipapa Station, (3) Eduardo Mondlane University
1107	(Poster Number 51) Effects of Packaging Material and Seed Treatment on Weevil ( <i>Callosobruchus maculata</i> (F) Coleoptera: Bruchidae) Infestation and Quality of Cowpea Seeds. Ernest Gibril Kamara,* Sierra Leone ARI and Festus Bernard Massaquoi, AGRA
1108	(Poster Number 52) Determinants of Smallholder Participation in Common Bean Markets in Uganda and Mozambique. Ebby Luvaga*1, Robert E Mazur1, Venâncio Alexandre Salegua Sr.2, Moses Tenywa3 and Onesmus Semalulu4, (1) ISU, (2) IIAM, (3) MUK, (4) NARL, Kawanda

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1109	(Poster Number 53) Harnessing the Middle of the Chain: Engaging Traders to Improve Bean Value Chain Productivity. Justin Kosoris,* Chemonics International
1110	(Poster Number 54) Major Factors Influencing the Uptake of Index-Based Insurance Products in Sub-Sahara Africa. Nepomuscene Ntukamazina,* University of Nairobi
1111	(Poster Number 55) Opportunities for Sustainable Legume Business Development: An Experience from the Public-Private Partnership Progresses in South Eastern Ethiopia. Tamiru Amanu* <sup>1</sup> , Edward Baars <sup>2</sup> , Endalkachew Wolde-meskel <sup>3</sup> , Birhan Abdulkadir <sup>3</sup> , Theresa Ampadu-Boakye <sup>4</sup> , Ken E. Giller <sup>5</sup> and Fred Kanampiu <sup>2</sup> , (1) ILRI, (2) IITA, (3) ILRI, (4) IITA, (5) Wageningen University
1112	(Poster Number 56) Who Consume More Pulses? An Empirical Investigation of Consumers in Tanzania. Adelina Mfikwa* and Fredy Timothy Kilima, SUA
1113	(Poster Number 57) The Effect of Ecowas Common External Tariff on Agro-Processing in Nigeria. OLUWADAMILOLA OLUWUSI,* Stellenbosch University
1114	(Poster Number 58) Assessment of the IMPACT of Improved Cowpea Technology on Income of Women Farmers in Borno State, Nigeria. Binta Ali Zongoma* <sup>1</sup> , Nkeki Kamai <sup>2</sup> , Yakubu Ali Bila <sup>1</sup> and Patrick Vandí Kwaghe <sup>1</sup> , (1) University of Maiduguri, Maiduguri, (2) IITA
1115	(Poster Number 59) Assessment of Farmer Demand Along the Soybean Value Chains and Their Related Supply Strategies in Mozambique. Edward Baars* <sup>1</sup> , Latha Nagarajan <sup>2</sup> , Wilson Leonardo <sup>3</sup> , Alexander Fernando <sup>3</sup> , Theresa Ampadu-Boakye <sup>1</sup> and Fred Kanampiu <sup>4</sup> , (1) IITA, (2) International Fertilizer Development Center (IFDC), (3) IFDC, (4) IITA
1116	(Poster Number 60) Price and Quality of Legumes in Fodder Markets of Northern Nigeria. E. Grings,* A. Musa, K.V.S.V. Prasad, D. Ravi, A. Samireddypalle, I. Okike and M. Blummel, ILRI
18.30-20.30	<b>Poster Session 1: Gender and Youth</b>
1117	(Poster Number 61) Opportunities for Youth Employment Along the Cowpea Value Chain in Zambia. Nhamo Nhamo* and Terence Chibwe, IITA
1118	(Poster Number 62) Effect of Access and Control of Productive Resources and Incomes on Bean Production in Selected Bean Production Corridors of Kenya. Scolastica Mwikali Wambua,* KALRO
1119	(Poster Number 63) The Integration of Cowpeas and Soybeans for Improved Nutrition, Health and Gender Empowerment in Zambia and Malawi. Therese Gondwe* <sup>1</sup> , Amare Tegbaru <sup>1</sup> , John G. Fitzsimons <sup>2</sup> , Bussie Maziya-Dixon <sup>3</sup> , Emmanuel Oladeji Alamu <sup>1</sup> , Stephen K. Boahen <sup>4</sup> and Godfree Chigeza <sup>1</sup> , (1) IITA, (2) University of Guelph, (3) IITA, (4) IITA, Nampula
1120	(Poster Number 64) On-Farm Perception of Improved Bean Varieties Among Vulnerable Women Group in Eastern, Zambia. Kanenga Kennedy,* Ministry of Agriculture
1121	(Poster Number 65) Gendered Nature of Bean Marketing in Central Uganda. Grace Nanyonjo* <sup>1</sup> , Enid Katungi <sup>2</sup> , Michael Adrogu Ugen <sup>3</sup> , Paul Aseete <sup>1</sup> , Isaac Joseph Muggaga <sup>3</sup> and Ruth Kabanyoro <sup>4</sup> , (1) MUK, (2) CIAT/PABRA, (3) NaCRRI, (4) NARO

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	1122 (Poster Number 66) Factors Affecting the Diffusion of the Innovations By Gender in Cowpea Value Chains in West Africa. Sounkoura Adetonah* Sr., IITA and Julie Loko Jr., GAPROFFA
	1123 (Poster Number 67) Gender Roles and Constraints in Cowpea and Groundnut Crop-ping; A Case from Niger. Sapna Jarial* and Mamane Lamine Epihane, ICRISAT
	1124 (Poster Number 68) Intra-Household Participation in Bean Production; The Case of Central Uganda. Joseph Isaac Muggaga* 1, Enid Katungi <sup>2</sup> , Michael Adrogu Ugen <sup>3</sup> , May Sengendo <sup>4</sup> , Grace Nanyonjo <sup>4</sup> , Ruth Kabanyoro <sup>5</sup> and Paul Aseete <sup>3</sup> , (1) NaCRRI, (2) CIAT/PABRA, (3) NaCCRI, (4) Makerere University, (5) NARO
	1125 (Poster Number 69) A Critique on Research Prioritisation on New Bean Markets and the Youth in Malawi: Transforming the Region. Isaac Jonathan Jambo,* IITA Arusha/ Wageningen UR
18.30-20.30	<b>Poster Session 1: Genomics and Plant Breeding</b>
	1126 (Poster Number 70) Ascertaining the Breeding System of African Yam Bean: A Primary Process to Underutilized Legume Improvement. Daniel Adewale,* Federal University Oye-Ekiti and Adegoke Adegbite, Ondo State university of Science and Technology
	1127 (Poster Number 71) Introgression of Striga Resistant Gene into Farmers'preferred Cowpea Varieties in Niger. Mahamadou Salifou,* INRAN
	1128 (Poster Number 72) Evaluation of Bean Varieties Under Different Agro-Ecologies in a Farmer Participatory Variety Selection (Fpvs in North Rift Region, Kenya. Simon K Komen,* KEPHIS, Nairobi
	1129 (Poster Number 73) GWAS for Yield Component QTL Under Drought in a Common Bean MAGIC Population, and Molecular Marker Development Using Sequencing Data. Bodo Raatz,* Carlos Jara, Juanita Gil, Paulo Izquierdo, Juan David Lobaton, Jorge Duitama and Steve Beebe, CIAT
	1130 (Poster Number 74) Variations in Food-Feed Traits in a Core Collection of Chickpeas. Michael Blummel,* ILRI, Pooran Mal Gaur and Lal Krishnamurthy, ICRISAT
	1131 (Poster Number 75) Conservation and Utilisation of Cowpea Genetic Resources. Michael Abberton* 1, Ousmane Boukar <sup>2</sup> , Christian Fatokun <sup>2</sup> , Olaniyi Ajewole Oyatomi <sup>1</sup> and Lava Kumar <sup>1</sup> , (1) IITA, (2) IITA
	1132 (Poster Number 76) Deploying Photosynq to Enhance Local Pigeonpea Breeding Programs in Malawi. Dan TerAvest* 1, Esnart Yohane <sup>2</sup> , Frank Mnthambala <sup>3</sup> , Greg Austic <sup>1</sup> and David Kramer <sup>1</sup> , (1) MSU, (2) Department of Agricultural Research Services, (3) Agro-Solutions
	1133 (Poster Number 77) Current Status and Prospects of Molecular Breeding of Cowpea in Sub Saharan Africa. Melaku Gedil* 1, Gezahegn Girma <sup>1</sup> , Christian Fatokun <sup>2</sup> , Ismail Rabbi <sup>1</sup> , Nnanna Unachukwu <sup>1</sup> , Olaniyi Ajewole Oyatomi <sup>1</sup> , Michael Abberton <sup>1</sup> , Lava Kumar <sup>1</sup> and Ousmane Boukar <sup>2</sup> , (1) IITA, (2) IITA
	1134 (Poster Number 78) Performance of Sheep Fed Chickpea Haulms from Two Widely Grown Cultivars. Michael Blummel,* ILRI and Pooran Mal Gaur, ICRISAT

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TIME	ACTIVITY
1135	(Poster Number 79) Characterization and Application of the Andean Diversity Panel for the Improvement of Common Bean Productivity in Sub-Saharan Africa. Timothy Porch* 1, Karen Cichy1, Marcial Antonio Pastor-Corrales1, Michael A Grusak1, James S. Beaver2, John Hart1, Deidre Fourie3, Tim Porch2, Susan Nchimbi-Msolla4 and Phillip N. Miklas1, (1) USDA-ARS, (2) UPR, (3) Agricultural Research Council (ARC), (4) SUA
1136	(Poster Number 80) Identification of Molecular Markers Linked to Resistance of Cowpea ( <i>Vigna unguiculata</i> L. Walp.) to Parasitism By <i>Alectra vogelii</i> . Lucky O Omoigui* 1, Lateef Lekan Bello1, Macsamuel Sesugh Ugbaa1, Alpha Y. Kamara2 and Michael P Timko3, (1) Federal University of Agriculture, (2) IITA, (3) UVA
1137	(Poster Number 81) Evaluation of Beans ( <i>Phaseolus vulgaris</i> L.) Germoplasmes in 2 Agro-Ecological Zones of the Democratic Republic of Congo. REHANI Jumaine Mkangya* Jr. and Emmanuel Njukwe, IITA
1138	(Poster Number 82) The Agronomic Impact of Genetically Controlled Cowpea Root Architecture. James Burrige,* The PSU, Hannah Schneider, Forschungszentrum Juelich, Alexander Bucksch, Georgia Institute of Technology, Jonathan P. Lynch, PSU, Bao-Lam Huynh, UC-Riverside and Phillip Roberts, UC - Riverside
1139	(Poster Number 83) Renaissance of Pigeonpea Breeding:-Hybrid Pigeonpea Technology. Chanda Venkata Sameer Kumar* 1, Anupama Jagannadh Hingane1, Ravikoti Vijaykumar1, Satish Nagaraji1, A N Tikle2, Rachit Kumar Saxena1 and Rajeev K. Varshney1, (1) ICRISAT, (2) RVSKVV
1140	(Poster Number 84) Identifying Acceptable Improved Bean Varieties for Income and Nutrition in Zambia. Kennedy Muimui,* ZARI
1141	(Poster Number 85) Introgression of Striga Resistant Genes into Cowpea Varieties in Ghana. Victoria Abena Larweh * 1, Richard Akromah2, Francis Kusi3, Stephen Amoah2 and James Y. Asibuo4, (1) Kwame Nkrumah University of Science and Technology, (2) Kwame Nkrumah University of Science and Technology, (3) CSIR-SARI, (4) CSIR-CRI
1142	(Poster Number 86) Development and Dissemination of Drought Tolerant Cowpea Varieties in Sub-Saharan Africa. Ousmane Boukar* 1, Christian Fatokun1, Stephen K. Boahen2, Alpha Y Kamara3, R. Bandyopadhyay1, Lava Kumar4, Robert Abaidoo1, Issa Drabo5, Haruna Mohammed6, Mamadou Toure7, Moutari Adamou8, Muhammad Lawan Umar9, Olusoji Olaolu Olufajo9, Joseph Mligo10, Meshack Makenge11 and Manuel Inacio Vicente Amame12, (1) IITA, (2) IITA, Nampula, (3) IITA, (4) IITA, (5) INERA, (6) SARI, (7) Institut d'Economie Rurale (IER), (8) INRAN, (9) Institute for Agricultural Research, (10) Agricultural Research Institute (ARI), (11) African Research Institute (ARI), (12) IIAM
1143	(Poster Number 87) Bean Breeding Training By the Pan African Bean Research Alliance: Trainer Explanations of Training Results. Richard Miiri,* MUK, Rachel Muthoni-Andriatsitohaina and Clare Mukankusi, CIAT/PABRA
1144	(Poster Number 88) Molecular Characterisation of Cowpea Landraces at Genetic Resources and Biotechnology Institute (GRBI). Reagan Mudziwapasi and Elsie Kanhanda,* Chinhoyi University of Technology



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TIME	ACTIVITY
1145	(Poster Number 89) Participatory Variety Selection to Enhance Adoption of Cowpea Promising Lines in Northern of Nigeria. Yonnelle D. Moukoumbi* 1, Daniel Jockson Ishaya1, Emmanuel Makeri1, Victoria Edematie1, Nouhoun Belko1 and Ousmane Boukar1, (1) IITA
1146	(Poster Number 90) Improving Drought Tolerance in Chickpea ( <i>Cicer arietinum</i> L.) Using Marker Assisted Backcross Breeding (MABC). Paul Kiprotich Kimurto,* Egerton University
1147	(Poster Number 91) Assessment of the Genetic Diversity and the Relationship Among Common Bean ( <i>Phaseolus vulgaris</i> L.) Accessions from DR-Congo Germplasm Using SSR Molecular Markers. N.K. Matondo1, K.N. Yao2, M. Kyalo2, R. Skilton2, Kabwe K. Nkongolo*3, D. Mumba4 and D.K. Tshilenge5, (1) National Institute for Study and Agronomic Research, (2) ILRI, (3) Laurentian University, (4) National Teaching University (UPN), (5) University of Kinshasa
1148	(Poster Number 92) Screening Cowpea ( <i>Vigna unguiculata</i> (L) Walp) for Resistance to Flower Bud Thrips ( <i>Megalurothrips sjostedti</i> Trybom). Gonne Sobda* 1, Ousmane Boukar2, Jonathan Ayertey3, Bernard Pangirayi Tongoona4 and Christian Fatokun2, (1) IRAD, (2) IITA, (3) WACCI, University of Ghana, PMB LG 586 Legon, (4) WACCI, University of Ghana, PMB LG 586 Legon
1149	(Poster Number 93) Marker-Assisted Introgression of Large Seed Size QTLs into a Cowpea Cultivar from Senegal. Sassoum Lo* 1, Maria MuÃ±oz-Amatriain2, Mitchell R Lucas2, Ndiaga Cisse3, Phil Roberts2 and Timothy J. Close2, (1) UC - Riverside, (2) UCUC-Riverside, (3) ISRA
1150	(Poster Number 94) Breeding Runner Bean for Short -Day Adaptation, Grain Yield and Disease Resistance in Africa. Paul Macharia Kimani,* Serah Nyawira Njau, Mable Mercy Mulanya and Rama Devi Narla, University of Nairobi
1151	(Poster Number 95) Grain Yield and Protein Content of Brazilian Cowpea Genotypes Under Diverse Ugandan Environments. Gabriel Ddamulira* 1, Carlos Fernandes Santos2, Peter Obuo3, Charles Lwanga1 and Mildred Alanyo1, (1) NaCRRI, (2) Embrapa Semi Arid, (3) NaSARRI
1152	(Poster Number 96) Morphovariability and Agronomic Characteristics Among Common Bean Accessions from the Democratic Republic of Congo (DR-Congo) Germplsm. N.K. Matondo1, Kabwe K. Nkongolo*2, D. Mumba3, D.K. Tshilenge4 and V. Kizungu4, (1) National Institute for Study and Agronomic Research, (2) Laurentian University, (3) National Teaching University (UPN), (4) University of Kinshasa
1153	(Poster Number 97) New Sources of Resistance to Bean Rust Established with SSR Markers in Uganda. Blessing Adanta Odogwu* 1, Stanley Nkalubo2, Clare Mukankusi3, Patrick Rubaihayo1, Carlos A. Urrea4, James Steadman5 and James D. Kelly6, (1) MUK, (2) NaCCRI, (3) CIAT/PABRA, (4) University of Nebraska-Lincoln, (5) University of Nebraska, (6) MSU
1154	(Poster Number 98) Towards the Breeding of the Ideal Cowpea for Northern Ghana. Kenneth Fafa Egbadzor, * CSIR - Plant Genetic Resources Research Institute, Francis Kusi, CSIR - SARI and Kwadwo Ofori, University of Ghana

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1155	(Poster Number 99) Participatory Varietal Selection of Common Bean ( <i>Phaseolus vulgaris</i> L.) with Peasants Based on the Morphometric and Agronomic Characters. N.K. Matondo <sup>1</sup> , Kabwe K. Nkongolo <sup>*2</sup> , D. Mumba <sup>3</sup> , V. Kizungu <sup>4</sup> and D.K. Tshilenge <sup>4</sup> , (1) National Institute for Study and Agronomic Research, (2) Laurentian University, (3) National Teaching University (UPN), (4) University of Kinshasa
1156	(Poster Number 100) Breeding Beans with Bruchid and Multiple Virus Resistance. James Beaver <sup>*1</sup> , Abiezer Gonzalez <sup>2</sup> , Bernardo Mateo <sup>2</sup> , Juan Carlos Rosas <sup>3</sup> , Yulia Trukhina <sup>4</sup> and Tim Porch <sup>5</sup> , (1) UPR at Mayagüez, (2) UPR, (3) Escuela Agrícola Panamericana/Zamorano, (4) USDA-ARS Tropical Agriculture Research Station, (5) USDA-ARS
1157	(Poster Number 101) Assessment of Phenotypic and Genetic Variation Among a Subset of Elite Pigeonpea Genotypes in Kenya. Cheboi J Juliana <sup>*1</sup> , Kinyua G Miriam <sup>1</sup> , Kimurto K Paul <sup>2</sup> , Kiplagat K Oliver <sup>1</sup> , Rotich Godfrey <sup>1</sup> , Gangarao NVPR <sup>3</sup> and Odeny A Damaris <sup>3</sup> , (1) University of Eldoret, (2) Egerton University, (3) ICRISAT
1158	(Poster Number 102) Evaluation of Selected Pigeonpea [ <i>Cajanus cajan</i> (L.) Millsp.] Genotypes for Resistance to Insect Pest Complex in Dry Areas of North Rift Valley, Kenya. Cheboi J Juliana <sup>*1</sup> , Kinyua G Miriam <sup>1</sup> , Kimurto K Paul <sup>2</sup> , Kiplagat K Oliver <sup>1</sup> , Kirui C Stella <sup>3</sup> , Towett K Benard <sup>2</sup> , Kiptoo J Judith <sup>1</sup> , Kimno K Stephen <sup>1</sup> and Gangarao NVPR <sup>4</sup> , (1) University of Eldoret, (2) Egerton University, (3) Maasai Mara University, (4)
1159	(Poster Number 103) Common Bean and Cowpea Improvement in Angola. António Ndengoloka David <sup>*1</sup> , António Chicapa Dovala <sup>1</sup> , Mónica Mbui Martins <sup>1</sup> , Jim Beaver <sup>2</sup> and Tim Porch <sup>3</sup> , (1) Instituto de Investigação Agronómica, (2) UPR Mayageuz, (3) USDA-ARS
1160	(Poster Number 104) Diversity of Iron and Zinc Concentration in Seed and Phenotypic Characterization of Common Bean Genotypes. Winnyfred Amongi <sup>*1</sup> , Floride Mukamuhirwa <sup>2</sup> , Sulaiman Sebuliba <sup>1</sup> , Stephen Musoke <sup>1</sup> and Claire Mukankusi <sup>1</sup> , (1) CIAT/PABRA, (2) RAB
1161	(Poster Number 105) Development of Cowpea Genotypes through Induced Mutation. Kalaluka Muniyinda, <sup>*</sup> UNZA
1162	(Poster Number 106) Genetic Mapping of Striga and Thrips Resistance in Cowpea Population in Northern Ghana. LEANDRE SAADON PODA <sup>*1</sup> , Francis Kusi <sup>2</sup> , Richard Akromah <sup>3</sup> , Jeremy Tinga Ouedraogo <sup>4</sup> , Jean Baptiste de la Salle Tignegre <sup>5</sup> and Joseph Batieno <sup>5</sup> , (1) Kwame Nkrumah University of Science and Technology (currently at SARI for research work under Legume Innovation Lab), (2) CSIR - SARI, (3) Kwame Nkrumah University of Science and Technology, (4) INERA, (5) INERA
1163	(Poster Number 107) Developing "Dwarf" Climbing Beans through Induced Mutation. Evans Kaimoyo, <sup>*</sup> UNZA
1164	(Poster Number 108) Deployment of the Cowpea Aphid Resistance Gene for Cowpea Improvement in Ghana. Francis Kusi <sup>*1</sup> , Francis Padi <sup>2</sup> , Daniel Obeng-Ofori <sup>3</sup> , Issah Sugri <sup>4</sup> and Stephen Kwaku Asante <sup>4</sup> , (1) CSIR - SARI, (2) Cocoa Research Institute of Ghana, (3) University of Ghana Legon, (4) CSIR-SARI

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1165	(Poster Number 109) Durango Diversity Panel: Abiotic and Biotic Stress Characterization and Potential for Introducing New Germplasm into East Africa. Jennifer Trapp <sup>1</sup> , Samira Mafimoghaddam <sup>2</sup> , Susan Nchimbi-Msolla <sup>3</sup> , Tim Porch <sup>4</sup> , Sindhuja Sankaran <sup>5</sup> , Lav Khot <sup>5</sup> , Phillip McClean <sup>2</sup> and Phillip N. Miklas <sup>*4</sup> , (1) Seneca Inc, (2) NDSU, (3) SUA, (4) USDA-ARS, (5) Washington State University
1166	(Poster Number 110) Genetic Relatedness of Cowpea Aphid Resistance. Godfred Agyeman Duah, <sup>*</sup> University for Development Studies, Francis Kusi, CSIR - SARI and Nelson Opoku, University For Development Studies
1167	(Poster Number 111) Breeding Efforts for the Improvement of Climbing Beans for the Guatemala Highlands. Juan M. Osorno <sup>*1</sup> , Phillip M McClean <sup>1</sup> , Julio C Villatoro <sup>2</sup> , Luis F Aldana <sup>3</sup> , Jessica Moscoso <sup>3</sup> , Luz De Maria Montejó <sup>1</sup> , Carlos Maldonado <sup>1</sup> , Maria G Tobar <sup>1</sup> and Angela Miranda <sup>3</sup> , (1) NDSU, (2) Instituto de Ciencia y Tecnología Agrícolas (ICTA), (3) ICTA
1168	(Poster Number 112) Developing Improved Cowpea Varieties for Multiple Agro-Ecologies in Ghana: The Role of Genotype By Environment Interactions. Stephen Amoah <sup>*1</sup> , Sylvester N.T.T Addy <sup>1</sup> , Hans Adu-Dapaah <sup>1</sup> , James Y. Asibuo <sup>1</sup> , Joseph N.L. Lamptey <sup>1</sup> , Adelaide Agyeman <sup>1</sup> , Ken Okwae-Fening <sup>2</sup> , Adjei Bediako <sup>1</sup> , Paul Marno <sup>1</sup> and Victoria Larweh <sup>1</sup> , (1) Council for Scientific and Industrial Research - Crops Research Institute, (2) University of Ghana
1169	(Poster Number 113) False Constitutive QTL for Shoot Dry Weight in Cowpea [ <i>Vigna unguiculata</i> (L.) Walp] Detected in Different Environments. Atemkeng Maureen Fonji, <sup>*</sup> IRAD Cameroon, Martin Agyei Yeboah, West Africa centre for crop improvement, University of Ghana, Ousmane Boukar, IITA and Mitchell R Lucas, UCUC-Riverside
1170	(Poster Number 114) Screening and Genetic Studies of Drought Tolerance Among Sari Favorite Lines. Patrick Attamah <sup>*</sup> and Patrick Attamah, <sup>*</sup> Kwame Nkrumah University of Science and Technology
1171	(Poster Number 115) Introgression of Drought Tolerance Quantitative Trait Locus (QTL) in an Elite Kenyan Chickpea ( <i>Cicer arietinum</i> L.) Genotype Using Marker Assisted Backcross Breeding (MABC). Moses omondi Oyier, <sup>*</sup> Egerton University
1172	(Poster Number 116) Screening and Genetic Studies of Drought Tolerance Among Sari Favorite Cowpea Lines. Patrick Attamah <sup>*1</sup> , Richard Akromah <sup>2</sup> , Francis Kusi <sup>3</sup> and Daniel Nyadanu <sup>2</sup> , (1) Kwame Nkrumah University of Science and Technology, (2) Kwame Nkrumah University of Science and Technology, (3) CSIR - SARI
1173	(Poster Number 117) Agronomic Qualities of Multiple-Disease-Resistant Pyramids Developed with Marker Assisted Selection (MAS) in Common Bean. Dennis Okii <sup>*1</sup> , Clare Mukankusi <sup>2</sup> , Allan Male <sup>2</sup> , Winnyfred Amongi <sup>2</sup> , Stephen Musoke <sup>2</sup> , Sulaiman Sebuliba <sup>2</sup> , Herbert Talwana <sup>1</sup> , Stanley Nkalubo <sup>3</sup> , Paul Gepts <sup>4</sup> , Thomas Odong <sup>1</sup> and Phinehas Tukamuhabwa <sup>1</sup> , (1) MUK, (2) CIAT/PABRA, (3) NaCCRI, (4) UC-Davis
1174	(Poster Number 118) Inheritance of Extra-Early Maturity in Cowpea. Emmanuel Yaw Owusu, <sup>*</sup> CSIR - Savannah Agricultural Research Institute, Richard Akromah, Kwame Nkrumah University of Science and Technology, Francis Kusi, SARI and Nicholas Denwar, CSIR-SARI

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	1175 (Poster Number 119) Cowpea ( <i>Vigna unguiculata</i> (L.) Walpers) Genotypes Respond Differently to ( <i>Striga Gesnerioides</i> (WILLD.) Vatke) Infestation Across Environments in Northern Nigeria. Hassan Ibrahim*1, Lucky O Omoigui2, Lateef Lekan Bello1, Nouhoun Belko3, Sanusi Mohammed4, Wajjha Abdullahi Mu'az4, Alpha Y. Kamara5 and Ousmane Boukar5, (1) Federal University of Agriculture, Makurdi, (2) Federal University of Agriculture, (3) IITA, (4) Bayero University, Kano, (5) IITA
18.30-20.30	<b>Poster Session 1: Sustainable Intensification</b>
	1176 (Poster Number 120) Effects of Different Priming Methods, Varying Priming Durations on Enzyme Activities in the Germinating Chickpea Seeds ( <i>Cicer arietinum</i> L.). David Kuria Kamithi,* County Government of Laikipia-Kenya
	1177 (Poster Number 121) Determination of Grain Yields and Grain Yield Attributes of Desi Chickpea ( <i>Cicer arietinum</i> L) Under Some Priming Methods, Durations Varying Initial Soil Moisture Levels. David Kuria Kamithi,* County Government of Laikipia-Kenya
	1178 (Poster Number 122) Community Perceptions on Agro- Biodiversity Conservation of Bambaranut <i>Vigna Subterranea</i> : A Case of Mutoko District Zimbabwe. Dorah Mwenye* Sr., Onesimo Chipfunde Jr. and Rudo Musango Sr., Ministry of Agriculture Mechanisation and Irrigation Development
	1179 (Poster Number 123) Impact of Leaf Harvesting Intensity, Interval and Duration on Growth, Yield and Nutritional Composition of the Black-Eyed Bean Cowpea Type ( <i>Vigna unguiculata</i> L. Walpers). Annia Mawoyo Matikiti,* University of Zimbabwe
	1180 (Poster Number 124) Narrowing Common Bean Yield Gap and Improving Productivity Using Organic Soil Amendments within Smallholder Farming Systems of Sub-Saharan Africa. Powell Mponela,* Gift Ndengu, Barthlomew Chataika, Rowland Chirwa and Lulseged Desta Tamene, CIAT
	1181 (Poster Number 125) Development and Selection of New Cowpea ( <i>Vigna unguiculata</i> L. Walp) Lines Adapted to Sahelian Traditional Cropping Systems. Abdou Razakou Ibrahim,* INRAN
	1182 (Poster Number 126) Improved Production Systems for Common Bean in South-Central Uganda. Lance Henry Goettsch*1, Andrew Lenssen1, Robert Mazur1, Russell S. Yost2, Onesmus Semalulu3 and Moses Makooma Tenywa4, (1) ISU, (2) University of Hawaii at Manoa, (3) NARL Kawanda, (4) College of Agricultural and Environmental Sciences, MUK, Kampala
	1183 (Poster Number 127) Conservation Agriculture Tillage Practices on Soil Quality and Bean Yields in Eastern Kenya. Alfred Ngera Micheni,* KALRO
	1184 (Poster Number 128) Participatory Testing of Isfm Technologies on Bio-Fortified Bush and Climbing Beans Production in Rwanda. Nsharwasi Leon Nabahungu*1, Jules Rutebuka2 and Providence Mujawamariya2, (1) IITA, (2) RAB
	1185 (Poster Number 129) Maize-Common Bean/Lupine Intercrop Productivity and Profitability in Maize Based System of Northwestern Ethiopia. Alemayehu Assefa*1, Tamado Tana2, Nigusie Dechassa2, Yigzaw Dessalegn3, Kindie Tesfaye4 and Charles S. Wortmann5, (1) Amhara Region Agricultural Research Institute, (2) Haramaya University, (3) ILRI, (4) CIMMYT, (5) University of Nebraska-Lincoln

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1186	(Poster Number 130) Common Bean Improved Variety Impacts on Profitability and Smallholder Farmers' Income. Venance Karane Saimon* 1, Eliud Abucheli Birachi <sup>2</sup> and Patience Mshenga <sup>1</sup> , (1) Egerton University, (2) CIAT/PABRA
1187	(Poster Number 131) A Cross-Site Integrated Impacts Assessment and Trade-Offs of Adaptation Packages to Climate Change. Caroline Mwongera,* Kelvin Mashisia, Leigh Winowiecki and Peter Laderach, CIAT
1188	(Poster Number 132) Maize-Grain Legume Intercropping: Ecological Intensification to Enhance Resource Use and Production Efficiency for Smallholder Farmers in Northern Ghana. Michael Kermah* 1, Angelinus C. Franke <sup>2</sup> , Samuel Adjei-Nsiah <sup>3</sup> , Robert Abaidoo <sup>3</sup> and Ken E. Giller <sup>1</sup> , (1) Wageningen University, (2) University of the Free State, (3) IITA
1189	(Poster Number 133) Multilocation Evaluation of Drought Tolerant Bean Lines in Uganda. Stanley Nkalubo <sup>1</sup> , Kesiime Eunice Vasiter* 1, Michael Ugen <sup>2</sup> and Jane Mukabalanga <sup>1</sup> , (1) NaCCRI, (2) NaCRRRI
1190	(Poster Number 134) Improving the Productivity of Cotton/Cowpea Intercropping System in the Subhumid Savanna of Nigeria. Olusoji Olaolu Olufajo* and Isa Onu, Institute for Agricultural Research
1191	(Poster Number 135) The Role of Beans in the Milpa Production and Dietary Systems of Guatemalan Highlands: Results of a Farm Household Survey. David DeYoung* 1, Byron Reyes <sup>2</sup> , Julio Cesar Villatoro Sr. <sup>3</sup> , Luz De Maria Montejó <sup>4</sup> , Jessica Moscoso <sup>3</sup> , Juan M. Osorno <sup>4</sup> and Mywish Maredia <sup>1</sup> , (1) MSU, (2) CIAT, (3) ICTA, (4) NDSU,
1192	(Poster Number 136) Groundnut-Pigeon PEA Doubled up INTER-Cropping Systems in Malawi. Amos Robert Ngwira <sup>1</sup> , Donwell Kalomango <sup>1</sup> , Moses Siambi <sup>2</sup> , Pacsu Lukamba Simwaka* 1, Oswin Madzonga <sup>3</sup> , Kondwani Makoko <sup>4</sup> , Wycliffe Kumwenda <sup>5</sup> , Samu Phiri <sup>5</sup> and Wezzi Mhango <sup>6</sup> , (1) Chitedze Agricultural Research Station, (2) ICRISAT, (3) ICRISAT Malawi, (4) Department of Agricultural Research Services, (5) National Smallholder Farmers Association, (6) Lilongwe University of Agriculture and Natural Resources (LUANAR)
1193	(Poster Number 137) Grain Yields and Financial Returns from Hybrid Maize Intercropped with Cowpea Growth Types in Northern Ghana. Haruna Abdullai* 1, Asamoah Larbi <sup>2</sup> , Joseph Sarkodie Addo <sup>3</sup> and James Kombiok <sup>1</sup> , (1) SARI, (2) IITA, (3) Kwame Nkrumah University of Science and Technology
1194	(Poster Number 138) Improving Rapid Assessment of Production Constraints for Common Bean: Results from a Biweekly Survey in Masaka, Uganda. Prossy Kyomuhendo <sup>1</sup> , Andrew W. Lenssen* <sup>2</sup> , Moses Tenywa <sup>3</sup> , ONESMUS SEMALULU <sup>4</sup> and Robert E Mazur <sup>2</sup> , (1) MUK, (2) ISU, (3) MUK, (4) NARL Kawanda
1195	(Poster Number 139) Effect of Different Management Options on Yield of Climbing and Drought Tolerant Bush Beans in Different Soil Health Conditions. Barthlomew Yonas Chataika <sup>1</sup> , Gift Benjamin Ndengu* 1, Powell Mponela <sup>1</sup> , Lulseged Desta Tamene <sup>1</sup> , Rowland Chirwa <sup>1</sup> and Regis Chikowo <sup>2</sup> , (1) CIAT, (2) Africa RISING Malawi
1196	(Poster Number 140) Adoption of Climate Smart Technologies in Cereal-Legume Systems in Northern Uganda: Constraints, Opportunities, and Trade-Offs. Caroline Mwongera,* Kelvin Mashisia, Leigh Winowiecki and Peter Laderach, CIAT

## MONDAY, 29 February

TIME	ACTIVITY
1197	(Poster Number 141) Climbing Beans: The Under Exploited Solution for Food Security in Rwanda. Augustine Musoni*1, J. Kayumba1, Louis Butare1, E. Murwanashyaka1, Floride Mukamuhirwa1, Jean Claude Rubyogo2, Robin Arani Buruchara Sr.3, Jane Ininda4, James D. Kelly5, A. Vivienne6 and D. Gahakwa1, (1) RAB, (2) CIAT/PABRA, (3) CIAT/PABRA, (4) AGRA, (5) MSU, (6) Syngenta Foundation for Sustainable Agriculture
1198	(Poster Number 142) Developing Conservation Agriculture Maize - Legume Systems for Smallholders in Niassa, Nampula e Zambezia - Mozambique. Oscar Joao Chichongue,* IIAM
1199	(Poster Number 143) Legume Cropping Systems Diversification and Intensification for Soil Fertility Improvement and Family Nutritional Benefits. Wezzi Mhango, LUANAR, Joseph Blackwell Kalasa, * University of Livingstonia
1200	(Poster Number 144) Participatory Evaluation of Improved Cowpea Varieties and Phosphorus Application in Northern Ghana. Mohammed Haruna,* CSIR-SARI
1201	(Poster Number 145) Comparison of the Indigenous Soil Classification System with the FAO and Soil Taxonomy Systems. Onesmus Semalulu *1, Moses Tenywa2, Russell S. Yost3, Robert E Mazur4, Charles Luswata5, Stewart Kyebogola5, Freddie Kabango6 and Christopher W. Smith7, (1) NARL Kawanda, (2) MUK, (3) University of Hawaii at Manoa, (4) ISU, (5) MUK, (6) Masaka District Local Government, (7) USDA-NRCS
1202	(Poster Number 146) Working with the Private Sector in Developing Farmers in South Africa - a MODEL That Works. AS de Beer* and JL Snijman, ARC
1203	(Poster Number 147) The Case of Conservation Agriculture As a Climate Change Adaptation Measure for Small-Scale Farmers in Kalomo District, Zambia. Albert Novas Somanje,* Ministry of Agriculture
1204	(Poster Number 148) Enhancing the Release and Dissemination of Improved Drought Tolerant Cowpea Varieties in Nigeria. Olusoji Olaolu Olufajo*1, Ousmane Boukar2, Christian Fatokun2, Muhammad Lawan Umar1 and Mohammed Faguji Ishiyaku1, (1) Institute for Agricultural Research, (2) IITA
1205	(Poster Number 149) Effets Des Fertilisants Sur La Croissance Et Le Rendement De L'association Manioc Et Haricot Dans Les Conditions De Mushinga En Territoire De Walungu. Patient Zamukulu* Jr.1, Emmanuel Njukwe2, Rodrigue Ayagirwe1, Espoir Bagula1 and Gustave Mushagalusa1, (1) Université Evangélique en Afrique (UEA), (2) IITA
1206	(Poster Number 150) Climate Smart Crops for Food and Nutritional Security. Obert Jiri* and Paramu Mafongoya, University of KwaZulu Natal
1207	(Poster Number 151) Evaluation of the Performabce of Cowpea Cultivars at High Plant Population. Alpha Y Kamara*1, Abdullahi Tofa1, Sthephan K Boahen2, Reuben Solomon1 and Hakeem Ajeigbe3, (1) IITA, (2) IITA-Mozambique, (3) ICRISAT



## MONDAY, 29 February

TIME	ACTIVITY
1208	(Poster Number 152) Liming Requirements for Two Contrasting Soils in the LAKE Victoria Crescent. Moses Tenywa* <sup>1</sup> , Prossy Kyomuhendo <sup>2</sup> , Stewart Kyebogola <sup>3</sup> , Onesmus Semalulu <sup>4</sup> , Andrew W. Lenssen <sup>5</sup> , Russell S. Yost <sup>6</sup> and Robert E Mazur <sup>5</sup> , (1) MUK, (2) MUK, (3) MUK, (4) NARL Kawanda, (5) ISU, (6) University of Hawaii at Manoa
1209	(Poster Number 153) Effects of Cowpea Cultivar and Population Density on Yield and Yield Components of Cowpea [ <i>Vigna unguiculata</i> (L.) Walp]. Macsamuel Sesugh Ugbaa* <sup>1</sup> , Lucky O Omoigui <sup>1</sup> , Alpha Y. Kamara <sup>2</sup> and Fidelis Atane Akubo <sup>3</sup> , (1) Federal University of Agriculture, (2) IITA, (3) Federal University of Agriculture Makurdi
1210	(Poster Number 154) Starter Nitrogen Fertilization Effects on Yield and Profitability of Cowpea in Northern Ghana. Abdul Rahman Nurudeen* <sup>1</sup> , Asamoah Larbi <sup>2</sup> and Bekele Kotu <sup>1</sup> , (1) IITA, (2) IITA
1211	(Poster Number 155) Extent of Adopting Improved Legume Varieties in Northern and Eastern ZONE of Tanzania. Atupokile Mwakatwila,* SUA
1212	(Poster Number 156) Alternative Methods of Staking Climbing Beans in Northern Province of Rwanda: Sustainable of Legume Technologies. Speciose Kantengwa,* IITA Rwanda and Jacques Rwisebura Hakizimana, Durable Rural Development
18.30-20.30	<b>Poster Session 1: Technology Dissemination and Impact Assessment</b>
1213	(Poster Number 157) Are Grain Legumes Displacing Maize, Increasing Food Security and Improving Livelihoods in Eastern Kenya? Carolyne Khalayi Wafula * Sr., KALRO
1214	(Poster Number 158) From Small Seed Packages to Tons of Grain: Success Stories from Farmers in Rwanda. Speciose Kantengwa,* IITA Rwanda, Jacques Rwisebura Hakizimana, Developpement Rural Durable, Cyrille Nzigiye, Conseil Consultatif des Femmes, Innocent Semaringa, Eglise Presbyterienne au Rwanda and Veronique Nyirabaruhije, Caritas Rwanda
1215	(Poster Number 159) Scientific Animations without Borders: An Assessment in Benin of Learning Gains from Educational Animations in a Local Language As Compared to Traditional Extension. Julia Bello-Bravo* <sup>1</sup> , Eli Dannon <sup>2</sup> , Manuele Tamo <sup>3</sup> and Barry Robert Pittendrigh <sup>1</sup> , (1) University of Illinois at Urbana Champaign, (2) IITA, (3) IITA Bénin
1216	(Poster Number 160) An Option Value That Measures Impact of Germplasm Conservation: Using Adoption Estimates of Improved Cowpea Varieties in Nigeria. Ademola Taiwo Ogundapo* <sup>1</sup> , Victor Manyong <sup>1</sup> , Tahirou Abdoulaye <sup>1</sup> , M. T. Alberton <sup>1</sup> , L. O. Olarinde <sup>2</sup> , Arega Alene <sup>3</sup> and B. Gueye <sup>1</sup> , (1) IITA, (2) Ladoke Akintola University of Technology, (3) IITA-Nigeria
1217	(Poster Number 161) Préférences Des Utilisateurs Des Produits De Traitement Et De Conservation Du Niébé Et Le Consentement à Payer Pour Les Solutions Alternatives Dans Le Département Du Couffo (Sud-Ouest Bénin). Eustache Biao,* INRAB
1218	(Poster Number 162) Mining for Gold: Large Scale Data Management and Analysis of on-Farm Legume Trials. Joost van Heerwaarden* and Marcel Lubbers, Wageningen University

## MONDAY, 29 February

TIME	ACTIVITY
1219	(Poster Number 163) Farmers' Agronomic and Social Evaluation of Cowpea Technologies in the Guinea Savanna Zones of Ghana. Samuel Adjei-Nsiah* <sup>1</sup> , Sylvester Arnold Ampiah <sup>1</sup> , Theresa Ampadu-Boakye <sup>2</sup> , Fred Kanampiu <sup>3</sup> and Ken E. Giller <sup>4</sup> , (1) IITA, (2) IITA, (3) IITA, (4) Wageningen University
1220	(Poster Number 164) Participatory Action Research to Improve Farmer Decision Making in Integrated Soil Fertility Management in Mozambique. Ricardo Marcos Maria* Sr., National Institute of Agriculture Research of Mozambique, Robert Mazur, ISU, Janete Mutualbo Americano, IIAM and Unasse Saide Waite Sr., Legume Innovation Lab Project
1221	(Poster Number 165) Growth Performance of Weaner Rabbits Fed Cowpea Based Rations As Protein Source. Edmore Masama,* Zimbabwe Open University
1222	(Poster Number 166) Adoption of Integrated Soil Fertility Management in Central Uganda: The Influence Perceived Practice Characteristics and Socio-Economic Factors. Naboth Bwambale,* Robert E Mazur and Eric A Abbott, ISU
1223	(Poster Number 167) Evaluation of Drought Tolerant Common Bean Varieties for Adaptation, Yield and Acceptability in the Drought Prone Areas of Burundi. Capitoline Ruraduma,* ISABU
1224	(Poster Number 168) Agricultural Technology Adoption and Nutrition: Assessing the Impacts of Improved Chickpea Varieties in Ethiopia. Oluwatosin Temitope Afeni* <sup>1</sup> , Kai Mausach <sup>2</sup> , Simone Verkaart <sup>3</sup> , Bernard Munyua <sup>3</sup> and Jan Boerner <sup>4</sup> , (1) ICRISAT and University of Bonn, (2) ICRISAT, (3) ICRISAT, (4) Zentrum für Entwicklungsforschung and University of Bonn, Bonn, Germany.
1225	(Poster Number 169) Use of Animated Videos through Mobile Phones to Enhance Agricultural Knowledge and Adoption Among Bean Farmers in Gúruè District, Mozambique. Sostino Mocumbe <sup>1</sup> , Eric A Abbott <sup>1</sup> , Robert E Mazur <sup>1</sup> , Julia Bello-Bravo* <sup>2</sup> and Barry Robert Pittendrigh <sup>2</sup> , (1) ISU, (2) University of Illinois at Urbana Champaign
1226	(Poster Number 170) Can Cowpea Farming be Smart Enough Under Higher Climate Variability?. Omonlola N. Worou,* WASCAL, Seyni Salack, Karlsruhe Institute of Technology (KIT), Institute of Meteorology and Climate Research, Nohoun Belko, IITA, Sheick K. Sangare, Département Formation et Recherche (DFR), Centre Régional AGRHYMET (CRA), BP 11011, 425 Boulevard de l'Université,, Ousmane Boukar, IITA, Ndiaga Cisse, ISRA and Harald Kunstmann, Institute of Meteorology and Climate Research,
1227	(Poster Number 171) Enhanced Dissemination of FOOD Legumes Based Technologies for Increased Production in Dowa, Ntcheu and Rumphi Districts, Malawi. Yakosa Charity Tegha,* Ministry of Agriculture Irrigation and Water Development, Malawi
1228	(Poster Number 172) Identification of Criteria Linked with Farmers' Acceptability of Improved Cowpeas Via Farmers' Participatory Varietal Selection in Burkina Faso. Haruki Ishikawa* <sup>1</sup> , Issa Drabo <sup>2</sup> , Christian Fatokun <sup>1</sup> , Ousmane Boukar <sup>1</sup> and Satoru Muranaka <sup>3</sup> , (1) IITA, (2) INERA, (3) Japan International Research Center for Agricultural Sciences

## MONDAY, 29 February

TIME	ACTIVITY
1229	(Poster Number 173) Planning Investment Programs in Agriculture Research & Development. Rachel Muthoni-Andriatsitohaina*, Innocent Obilil and Resty Nagadya, CIAT/PABRA
1230	(Poster Number 174) Farmer Field School, a Participatory Process for the Cowpea Yield Improvement: Results of the Pilot Experiments Conducted in the Regions of Maradi and Zinder in Niger. Moctar Mahaman Rabé <sup>1</sup> , Baoua Ibrahim <sup>*2</sup> , Sitou Laouali <sup>2</sup> , Amadou Laouali <sup>3</sup> and Barry Robert Pittendrigh <sup>4</sup> , (1) INRAN, (2) Université de Maradi, (3) INRAN, (4) University of Illinois at Urbana Champaign
1231	(Poster Number 175) On-Farm Evaluation and Farmers' Perception of Improved Cowpea Varieties in Ghana. Stephen Amoah,* Kwame Nkrumah University of Science and Technology
1232	(Poster Number 176) Legume Intercropping and Household Food Security in Zambia. Christine M. Sauer,* Mywish Maredia and Nicole Mason, MSU
1233	(Poster Number 177) Towards Increasing Cowpea Production and Productivity in Northern Ghana. Ibrahim Dzido Kwasi Atokple,* CSIR-SARI
1234	(Poster Number 178) Private Sector LED Agricultural Innovation Platforms: Lessons in Formation and Operationalization. Richard Miiro* <sup>1</sup> , Moses Makooma Tenywa <sup>2</sup> , Robert Mazur <sup>3</sup> , Onesimus Semalulu <sup>4</sup> , Jafali Matege <sup>1</sup> , Stewart Kyebogola <sup>1</sup> and Prossy Kyomuhendo <sup>5</sup> , (1) MUK, (2) College of Agricultural and Environmental Sciences, MUK, Kampala, (3) ISU, (4) NARL Kawanda, (5) MUK
1235	(Poster Number 179) Introducing CA Demonstration Plots As an Extension Tool in Different Communities in South Africa. AS de Beer,* Y Pakela-Jezile, SJ Mashoa, EA Nemadodzi, B Sederstroom and MD Thobakgale, ARC
18.30-20.30	<b>Poster Session 1: Value Addition and Food Processing</b>
1236	(Poster Number 180) Price-Quality Relationships in Fodder Trading in Niger with Special Regards to Comparisons of Cowpea and Groundnut Haulms with Concentrates and Collected Shrubs and Grasses. Sapna Jarial* <sup>1</sup> , Michael Blummel <sup>2</sup> , Idrissa Soumana <sup>3</sup> , KSVV Prasad <sup>2</sup> , Salissou Issa <sup>3</sup> and Ravi D2, (1) ICRISAT, (2) ILRI, (3) INRAN
1237	(Poster Number 181) Bambara Nut Production, Consumption and Commercialization in Northern Mozambique. Venâncio Alexandre Salegua* Sr. <sup>1</sup> , Amancio Antonio Nhantumbo Sr. <sup>2</sup> , Amade Miliano Muitia <sup>1</sup> , Maria Carvalho Jacinta <sup>1</sup> and Luisa Penicela <sup>3</sup> , (1) IIAM, (2) IIAM, (3) IIAM
1238	(Poster Number 182) Assessment of Legume Utilization Among Smallholder Farmers in the Democratic Republic of Congo (DRC), Kenya, Rwanda and Nigeria. R. Popoola <sup>1</sup> , Bussie Maziya-Dixon* <sup>1</sup> , S. Katengwa <sup>2</sup> , Jean-Marie Sanginga <sup>3</sup> , P. Woomer <sup>4</sup> , Emmanuel Sangodele <sup>3</sup> and F. Kanempua <sup>4</sup> , (1) IITA, (2) IITA, (3) IITA, (4) IITA
1239	(Poster Number 183) Acceptability of Cowpea Fortified Maize Porridge By Under Five Children and Their Mothers. Theresa Nakoma Ngoma* and Agnes Mwangwela, Lilongwe University of Agriculture and Natural resources

## MONDAY, 29 February

TIME	ACTIVITY
1240	(Poster Number 184) Nutritive Value of Cowpeas As a Ruminant Livestock Feed. Joseph Jimu Baloyi,* University of Venda, Humphrey Hamudikuwanda, ABS TCM Rwanda Ltd, Nobbert Taurai Ngongoni, Zimbabwe Open University and Simbarashe Katsande, Univesrity of Zimbabwe
1241	(Poster Number 185) Effect of Processing on Nutritional Composition and Cooking Time of Selected Bambara Groundnut ( <i>Vigna Subterrenea L. Verde</i> ) Types. Sindiso Valentine Ncube,* University of Venda
1242	(Poster Number 186) Edits-Cowpea: Strategic Approach to Develop Value-Added Cowpea Varieties with Higher Food and Nutrition Qualities. Satoru Muranaka*1, Mariko Shono1, Haruki Ishikawa2, Hsiaoping Chien1, Takeshi Sakurai3, Ousmane Boukar2 and Hiroko Takagi1, (1) Japan International Research Center for Agricultural Sciences, (2) IITA, (3) University of Tokyo
1243	(Poster Number 187) Effects of Blanching Time/Temperature Combination Coupled with Solar-Drying on the Nutritional and Microbial Quality of Cowpeas Leaves in Kenya. Esther Wangari Njoroge, * Egerton University
1244	(Poster Number 188) Consumer Choice of Dry Common Beans in Lilongwe City. Marynia Tumeo Mazunda, * Lilongwe University of Agriculture and Natural Resources, Bunda Campus and Lawrence Daniel Mapemba, LUANAR
1245	(Poster Number 189) Participatory Evaluation of Dry Bean Products to Enhance Nutritional Status for Small Holders through Increased Utilization. Charity Wangari Gathambiri* and Juster Kathure Gitonga, KALRO
1246	(Poster Number 190) Assessment of Chemical and Antinutritional Properties of Complementary Meal Prepared from Blends of Banana and African Yam Bean. Grace Oluwakemi Babarinde* and Tolulope Precious Oyebiyi, Ladoke Akintola University of Technology
1247	(Poster Number 191) Proximate Composition, Hydration Behavior and Cooking Characteristics of Six Cowpea ( <i>Vigna unguiculata L. Walp.</i> ) Varieties in Ghana. John Kwaku Addo, Stephen Amoah, * Michael Akuamoah Boateng, Harry Okyere, Hans Adu-Dapaah, Sylvester N.T.T Addy and Abigail Amoah Owusu, CSIR-CRI
1248	(Poster Number 192) Development and Evaluation of Complementary Foods from Teff Fortified with Soybean and Orange-Fleshed Sweet Potato. Mesfin Wogayehu Tenagashaw*1, John Ndung'u Kinyuru1, Glaston Mwangi Kenji1, Eneyew Tadesse Melaku2 and Susanne Huyskens-Keil3, (1) Jomo Kenyatta University of Agriculture and Technology, (2) Addis Ababa Science and Technology University, (3) Humboldt University zu Berlin
1249	(Poster Number 193) Development of a Simple Tool for the Identification of Easy and Hard-to-Cook Common Beans ( <i>Phaseolus vulgaris</i> ). Peter Kahenya Kinyanjui*1, Daniel Sila Ndaka1, Marc Hendrickx2, Daniel Njoroge Mwangi1 and Anselimo Makokha1, (1) Jomo Kenyatta University of Agriculture and Technology, (2) KU Leven

## MONDAY, 29 February

TIME	ACTIVITY
1250	(Poster Number 194) Modeling of Drying Characteristics of Solar-Dried Fermented Locust Beans ( <i>Parkia biglobosa</i> ). Goodluck Ehis Odiase,* Ayoola Patrick Olalusi and Oluwaseun Yetunde Agbola, Federal University of Technology Akure, Nigeria
1251	(Poster Number 195) Water Absorption RATE and Proximate Analysis of Three Varieties of Legumes. JOHN ISA,* Federal University of Technology Akure, Nigeria
1252	(Poster Number 196) Nutrient Composition and Consumption Pattern of Underutilizes Pulses in Three Districts of Southern Malawi. Autile Chiwaula Sanyila,* Agnes Mwangwela, and James Bokosi, LUANAR, Bunda College Campus
1253	(Poster Number 197) Probiotic Tolerance to Simulated Gastric and Bile and Shelf Life Characteristics of Bambara Groundnut ( <i>Vigna Subterrenea</i> (L.) Verdc) Probiotic Beverage. Yvonne Yeukai Murevanhema* and Victoria Adaora Jideani, Cape Peninsula University of Technology
1254	(Poster Number 198) Evaluation of Cooking Time, Crude Fiber and Crude Protein Contents in Newly Introduced Dry Bean Varieties. Charity Wangari Gathambiri*1, Eliezh Maina Kamau1 and David R Karanja2, (1) KALRO, (2) KALRO
1255	(Poster Number 199) Evaluation of Cooking Characteristics of Six Different Pigeon Pea Varieties. Tamara Tumasile Machinjili*1, Agnes Mwangwela1 and Vernon H. Kabambe2, (1) Lilongwe University of Agriculture and Natural Resources, (2) Bunda College of Agriculture

## Bios of Keynote Speakers

### **Dr. Yemi Akinbamijo**

Dr. Yemi Akinbamijo, a Nigerian national, has spent three decades working in Africa and Europe in the domains of international agriculture, food and nutrition security, and rural development. He is currently the executive director of the Accra-based Forum for Agricultural Research in Africa (FARA), an apex organization bringing together and forming coalitions of major stakeholders in agricultural research and development in Africa.

As the executive director, Dr. Akinbamijo is a thought leader on agricultural research for development in Africa and sits on numerous technical committees and governance bodies concerned with advancing science and innovation in African agriculture.

Prior to his assumption of this position in 2013, he headed the Agriculture and Food Security Division at the African Union Commission Headquarters in Addis Ababa, Ethiopia, where his core responsibility was the development of continent-wide initiatives of the Commission on Food Security and Agriculture. He has also served as the director of the AU Inter-African Phytosanitary Council based in Yaoundé Cameroon, and on the Africa-Arab Joint Action on Food Security and Agriculture.

An accomplished agricultural research scientist with a specialization in animal health and production, Dr. Akinbamijo possesses considerable expertise in natural resource management, including crop-livestock integrated systems, market-oriented production systems, land degradation and desertification, and sustainable land management. Over the last few years, Dr. Akinbamijo has assumed the chairmanship of the Executive Council of the West African Livestock Innovation Centre (WALIC) and the chair of the Steering Committee of the Partnership for Aflatoxin Control, in Africa (PACA).

Dr. Akinbamijo holds a Ph.D. in Agriculture and Environmental Sciences from Wageningen University Research Centre, the Netherlands. He has published extensively and served on several international research panels.

### **Rob Bertram, Ph.D.**

Rob Bertram, Ph.D., is the chief scientist in USAID's Bureau for Food Security, where he leads evidence-based efforts to advance research, technology, and implementation in support of Feed the Future.

Prior to his current appointment, Dr. Bertram was the director of USAID's Office of Agricultural Research and Policy in Technology in the Bureau for Food Security, where he managed a portfolio of research investments that leverage biophysical and social sciences and economics globally, working with CGIAR, NARS, universities, and the private sector. He served as director for USAID's Office of Agriculture, Research and Policy and the Office of Environment & Science Policy in the Bureau of Economic Growth, Agriculture and Trade.

Dr. Bertram has served on many international committees, including the Genetic Resources Policy Committee of the Consultative Group on International Research (CGIAR). He has expanded collaborative relationships with the Bill and Melinda Gates Foundation and USAID Missions, led the establishment of Sustainable Commercialization of Seed in Africa (SCOSA), and co-chaired the U.S.-India Joint Working Group on Agricultural Biotechnology.

Dr. Bertram's holds advanced degrees in botany and plant breeding and has been especially active in applications of biotechnology in food security-related research. As a visiting scientist at Washington University in St. Louis, he conducted research on cassava and related wild species, using molecular techniques to explain the genetic relationships of Africa's top food crop.



## TUESDAY, 1 March

TIME	ACTIVITY
08.30	<p><b>Thematic Plenary Session 1: Impact oriented legumes seed systems in Africa: challenges, impacts, lessons learned, and scalable approaches to reach millions of farmers</b></p> <p>Moderator: Jean Claude Rubyogo, CIAT/PABRA, Arusha, Tanzania</p>
	<p><b>Keynote Presentation:</b> Innovations in grain legume seed systems. Dr. Louise Sperling, Senior Technical Advisory, Agriculture and Livelihoods - Recover Catholic Relief Services, Baltimore, Maryland, USA (1256)</p>
09.00	<p><b>Panel:</b></p> <ul style="list-style-type: none"> <li>• Dr Chichaibelu Mekasha, Crops Research Process Representative, EIAR-Debre Zeit Agricultural Research Center (DZARC), Debre Zeit, Ethiopia</li> <li>• Charles Katabalwa, Managing Director, Community Enterprise Development Organization (CEDO), Kyotera, Uganda</li> <li>• Dr. Issa Drabo, Leader of Cowpea Breeding Program, INERA, Burkina Faso</li> <li>• Dr. Cynthia Donovan, Deputy Director and Associate Professor, Legume Innovation Lab, MSU, East Lansing, Michigan USA</li> </ul>
10.30	Break
11.00 - 12.30	<p><b>Poster Session 1-B</b> <b>Instructions to authors:</b> Posters for session 1-A &amp; B should be hung in the poster exhibition tent on Sunday, 28 February, between 15:00 and 18:00 hours or on Monday, 29 February, prior to 8:00 hours. Authors of even-numbered posters should be present during viewing session "1-A", while authors of odd-numbered posters should be present during viewing session "1-B." Posters for sessions 1-A &amp; B should be taken down on Tuesday, 01 March, between 16:00 and 18:00 hours.</p> <ul style="list-style-type: none"> <li>• Abiotic Stress</li> <li>• Biological Nitrogen Fixation</li> <li>• Economics and Value Chain Development</li> <li>• Gender and Youth</li> <li>• Genomics and Plant Breeding</li> <li>• Sustainable Intensification</li> <li>• Technology Dissemination and Impact Assessment</li> <li>• Value Addition and Food Processing</li> </ul>
12.30	Lunch (for paid registrants)
14.00 - 16.00	Topical Oral Sessions 3-A, B, C & D (Four concurrent topical sessions)
14.00-16.00	<p><b>Oral Session 3-A: Technology Dissemination and Impact</b> <b>Moderator:</b> Dr. Catherine Madata, Agriculture Research Institute- Uyole, Tanzania</p>
14.00	1282 Adoption of Cereal-Legume Intercropping and Improved Varieties in Post-War Northern Uganda: Impact on Crop Income and Labour Use. Kelvin M Shikuku,* Caroline Mwonera, Leigh Winowiecki and Peter Laderach, CIAT
14.15	1283 Farmer Acceptability of a Bean Variety with High Iron Content: The Case of Icta Superchiva in Guatemala. Byron Reyes*1, Carolina Gonzalez2, Perez Salomon Sr.2, Mizaël Vasquez3, Enrique Gustavo Mejia3, Manuela Tucux3 and Juan Josue Santos3, (1) CIAT, (2) HarvestPlus (CIAT), (3) ICTA
14.30	1284 Updating the Atlas of Common Bean ( <i>Phaseolus vulgaris</i> ) Production in Africa: A Tool for Targeting and Evaluating Legume Research and Development. Andrew Farrow,* GeAgrofía, Rachel Muthoni-Andriatsitohaina, CIAT/PABRA and Moses Ojara, Uganda National Meteorological Authority (UNMA)

## TUESDAY, 1 March

TIME	ACTIVITY
14.45	1285 Impact of Improved Common Bean Varieties on Household Food Security on Adopters in Tanzania. Emmanuel Letaa*1, Catherine Kabungo2, Enid Katungi3 and Agness Ndunguru2, (1) CIAT, (2) Agricultural Research Institute - Uyole, (3) CIAT/PABRA
15.00	1286 The IMPACT of Climbing Bean Adoption on the Welfare of Smallholder Common Bean Growers in Rwanda. Enid Mbabazi Katungi* Sr., CIAT/PABRA, Catherine Larochelle Sr., Virginia Tech, Josephat Mugabo Sr., RAB and Robin Arani Buruchara Sr., CIAT/PABRA
15.15	1287 Variety Release, Adoption, and Potential Impacts of Improved Cowpea in Sub-Saharan Africa. Arega Alene,* Tahirou Abdoulaye, Victor Manyong and Ousmane Boukar, IITA
15.30	1288 The Impact of Improved Chickpea Adoption on Poverty in Rural Ethiopia. Simone Verkaart*1, Bernard Munyua1, Kai Mausch2 and Jeffrey Michler2, (1) ICRISAT, (2) ICRISAT
15.45	1289 Assessing Access and Adoption of Common Bean Improved Varieties in Northern Zambia. Petan Hamazakaza,* Ministry of Agriculture, Enid Katungi, CIAT/PABRA, Byron Reyes, CIAT-Nicaragua, Kennedy Muimui, ZARI, and Mywish Maredia, MSU
14.00-16.00	<b>Oral Session 3-B: Abiotic Stress in Grain Legumes</b> <b>Moderator:</b> Dr. Kelvin Kamfwa, UNZA (UNZA), Zambia
14.00	1258 High Throughput Plant Phenotyping for Adaptation to Drought-Prone and Low Phosphorus Environments in Cowpea: Recent Progress and Future Prospects. Nouhoun Belko*1, Kanako Suzuki1, James D. Burridge2, Patricio M. Cid2, Omonlola N. Worou3, Seyni Salack4, Yonelle D. Moukoumbi1, Vincent Vadez5, Jonathan P. Lynch2, Thomas R. Sinclair6, Christian Fatokun1 and Ousmane Boukar1, (1) IITA, (2) PSU, (3) WASCAL, (4) KIT, Institute of Meteorology and Climate Research, (5) ICRISAT, (6) NCSU
14.15	1259 Morpho-Physiological Traits Linked to Drought Tolerance in Chickpea ( <i>Cicer arietinum</i> L.). Ruth Wangari Muriuki,* Egerton University
14.30	1260 Physiological Characteristics Leading to Differences in Drought Tolerance in <i>Phaseolus vulgaris</i> and <i>P. acutifolius</i> . Jesse Traub,* James D. Kelly and Wayne Loescher, MSU
14.45	1261 Molecular Mapping of Heat Tolerance in Cowpea. Brijesh Angira*1, Laura Masor1, Yang Zhang1, Chantel F Scheuring1, Bir B. Singh2, Hong-Bin Zhang1, Dirk Boudreaux Hays1 and Meiping Zhang1, (1) TAMU, (2) G.B. Pant University of Agriculture & Technology
15.00	1262 Genetic Analysis of Common Bean ( <i>Phaseolus vulgaris</i> L.) for Yield and Yield Components Under Managed Drought Stress Conditions. Nathan Phiri,* APPSA - ZARI
15.15	1263 Identification of Drought Resistant Germplasm for Uganda and Zambia. Carlos A. Urrea,* University of Nebraska-Lincoln, Stanley Nkalubo, National Crops Resources Research Institute (NaCRRI), Namulonge, Kennedy Muimui, Zambia Agriculture Research Institute, James Steadman, University of Nebraska and James D. Kelly, MSU
15.30	1264 Adaptability of Cowpea Genotypes in Different Agroecologies of Mozambique. Canon Engoke,* Stephen Kyei-Boahen and David Chikoye, IITA
15.45	1265 Use of Root Traits in Screening Common Bean ( <i>Phaseolus vulgaris</i> L.) Genotypes Tolerant to Drought in Mozambique, Malawi and Zambia. Manuel Inacio Vicente Amane*1, Virginia Chisale2, Kennedy Muimui3, Rowland Chirwa4, Samuel Camilo5, Celestina Jochua1 and Magalhaes Amade Miguel5, (1) IIAM, (2) DARS, (3) ZARI, (4) CIAT/PABRA, (5) IIAM

## TUESDAY, 1 March

TIME	ACTIVITY
14.00-16.00	<b>Oral Session 3-C: Integrated Pest Management in Grain Legumes Cropping Systems</b> <b>Moderator:</b> Dr. Ibrahim Baoua, l'Institut National et de Recherche Agronomique du Niger (INRAN), Niger
14.00	1266 The Incidence and Severity of Common Bean ( <i>Phaseolus vulgaris</i> L.) Pests in Different Agro Ecological Zones and Smallholder Farms in Western Kenya. John Otieno Ogecha* 1, Robin Arani Buruchara Sr.2, Arinaitwe Warren3, James Muthomi4, Aritua Valentine3, Hassan Were5, Janet Nyaguicha Obanyi1 and Martins N/A Odendo1, (1) KALRO, (2) CIAT/PABRA, (3) CIAT/PABRA, (4) University of Nairobi, (5) MMUST
14.15	1267 Progress in Sustainable Management of Cowpea Pests in West Africa. Haruna Braimah,* CSRI/CRI
14.30	1268 De Nouvelles Variétés De Niébé Résistantes Aux Striga Avec La Participation Des Producteurs Au Togo. Tchabana B1.; Assignon K1.; Banla E1.; Kpémoua K1.; Tignegré J-B2; Et Timko P.M3. 1 : Institut Togolais De Recherche Agronomique/Crass/Itra 2 : Insti. Béré TCHABANA,* Institut Togolais de Recherche Agronomique/Centre de Recherche Agronomique de la Savane Sèche (ITRA/CARSS)
14.45	1269 Improving the Field Resistance of Cowpea Genotypes to Cowpea Aphid. Gloria Tetteh Kubi*1, Mary Botchey1, Aaron Tettey Asare1 and Francis Kusi2, (1) University of Cape Coast, (2) CSIR-SARI
15.00	1270 Pea Weevil ( <i>Bruchus pisorum</i> L.) Is Threatening Field Pea Production in Ethiopia: Prospects of Integrated Pest Management (IPM). Esayas Mendesil Amosa* 1, Birgitta Ramert2, Ylva Hillbur3 and Peter Anderson2, (1) Jimma University, (2) Swedish University of Agricultural Sciences, (3) IITA
15.15	1271 Evaluation and Validation of Innovative and Environmentally Friendly Integrated Disease Management (IDM) Strategies through Participatory Research on Beans in Zimbabwe. Shumirayi Muhera,* Plant Protection Research Institute
15.30	1272 Participatory Integrated Pest Management for Increased Cowpea Production in Northern Ghana. Francis Kusi,* CSIR-SARI
15.45	1273 Preliminary Study of the Presence, Damage LEVEL and Population Dynamics of Mexican POD Weevil ( <i>Apion godmani</i> ) in Bean Genotypes ( <i>Phaseolus vulgaris</i> L.), in the Highlands of Guatemala. Julio Cesar Villatoro* Sr.1, Jessica Moscoso1, Karen Adriana Agreda1, Juan M. Osorno2, Phillip M McClean2 and Luz De Maria Montejo2, (1) ICTA, (2) NDSU.
14.00-16.00	<b>Oral Session 3-D: Sustainable Seed Systems for Grain Legumes</b> <b>Moderator:</b> Dr. Ndiaga Cisse, ISRA, Senegal
14.00	1274 Assessing Effectiveness and Sustainability of Small Seed Packs Approach in Disseminating New Bean Varieties in Kenya. David R Karanja* 1, Jean Claude Rubyogo2, Scolastica Wambua1, Anne W Gichangi3, F Ngila Kimotho4 and Louise Sperling5, (1) KALRO (), (2) CIAT/PABRA, (3) KALRO, (4) Dryland Seed Ltd, (5) Catholic Relief Services
14.15	1275 Public-Private Partnership Enhances Seed Production and Utilization By Bean Farmers in Rwanda. Augustin Musoni* 1, Jean Claude Rubyogo2, Louis Butare1, I. Nyiringabo3, E. Murwanashyaka1, D. Mukankubana1, J. Muvara4, J. Mukakigeri5, J. Gafaranga6, K. Masuki7, G. Bigirwa8 and D. Gahakwa1, (1) RAB, (2) CIAT/PABRA, (3) Win-Win Agritech Ltd, (4) Rwanda Improved Seed Company, (5) Harvest Plus Project, (6) IMBARAGA Farmers' Federation, (7) ASARECA, (8) AGRA
14.30	1276 Farmer Willingness to Pay for Quality Bean Seed: Experimental Evidence from Tanzania. Mywish Maredia* 1, Robert Shupp1, Fulgence Mishili2, Byron Reyes3 and Paul Kusolwa2, (1) MSU, (2) SUA, (3) CIAT

## TUESDAY, 1 March

TIME	ACTIVITY
14.45	1277 Innovative Partnership Approach to Chickpea Seed Production and Technology Dissemination: Lessons from Ethiopia. Sherif Aliy <sup>1</sup> , Tesfaye Geleta <sup>1</sup> , Mekasha Chichaymelu <sup>1</sup> , Million Eshete <sup>1</sup> , Lijalem Korbu <sup>1</sup> , Nigusie Girma <sup>1</sup> , Ridwan Mohammed <sup>1</sup> , Chris O Ojiewo <sup>2</sup> , Ganga Rao N.V.P.R <sup>2</sup> , Emmanuel Monyo <sup>2</sup> and Asnake Fikre <sup>1</sup> , (1) EIAR, (2) ICRISAT
15.00	1278 Scaling out Cowpea Production in Northern Ghana the Community Seed Scheme. Julius Yirzagla,* CSIR-SARI
15.15	1279 Quality Declared Seed - Filling the Gap Between Formal and Informal Seed Systems: A Case of Common Bean and Groundnut in Uganda. Astrid Mastenbroek* <sup>1</sup> , Bonny Ntare <sup>2</sup> , Patrick Oyee <sup>2</sup> , Chris Tanansi Muwanika <sup>2</sup> , Geoffrey Otim <sup>2</sup> , Phionah Ninsiima <sup>2</sup> , Christine Joyce Adong <sup>2</sup> , Andrew Noah Chebet <sup>2</sup> and Christine Menya Kawuma <sup>2</sup> , (1) Wageningen University and Research Centre, (2) ISSD Uganda
15.30	1280 Taking Cowpea to Scale in West Africa: A Business Model. Simon A. Ncho,* Ousmane N. Coulibaly and Nicodeme H.V. Fassinou, IITA
15.45	1527 Comparing Recent Community-Based Bean Seed Production Models: Challenges in Designing Sustainable Interventions and Lessons Learned. Cynthia Donovan and Luis Flores*, Michigan State University
16.00	Break
16.30	<b>Thematic Plenary Session 2: Contemporary topics on role of grain legumes in human health and nutrition</b>
	<b>Moderator:</b> Dr. Mark Manary, Helene Robertson Professor of Pediatrics, Washington University in Saint Louis School of Medicine, Saint Louis, MO, USU
16.30	<b>Presentations:</b> Grain Legumes and gut health (1290) Dr. J. Ken Maleta, Professor, University of Malawi School of Medicine, Blantyre, Malawi
16.50	Grain Legumes and gut inflammation and relationship to human nutrition (1291) Dr. Elizabeth Ryan, Associate Professor, Colorado State University, Fort Collins, CO, USA
17.10	Grain legumes and human macronutrient nutrition (1292) Christina Mumantwali, RAB, Kigali, Rwanda
17.30	Grain legumes and human micronutrient nutrition (1293) Mercy Lugaho, CIAT/PABRA, Kenya
17.50	Discussion

## WEDNESDAY, 2 March

TIME	ACTIVITY
08.30	<p><b>Concurrent Thematic Plenary Session 4: Enhancing yield potential and resilience to abiotic stress through genetic improvement of grain legumes</b></p> <p><b>Moderator:</b> Dr. Douglas Cook, Professor, Department of Plant Pathology, UC- Davis</p>
08.30	<p><b>Overview Presentation:</b> Agriculture under stress. Dr. Douglas Cook, UC-Davis</p>
11.00	<p><b>Case Study Presentations:</b> Breeding Climate-Smart Cowpeas for West Africa. Dr. Phil Roberts, UC- Riverside, CA, USA (1294)</p>
09.00	<p>Enhancing genetic gain in chickpea breeding in marginal environments in Africa and South Asia. Dr. Rajeev Varshney, Grain Legume Research Program Director, ICRISAT, Hyderabad, India (1295)</p>
09.20	<p>Modern technologies to access common bean responses to environmental stress. Dr. Phil McClean, Professor and Director, Genomics and Bioinformatics Program, NDSU, ND, USA (1296)</p>
09.40	<p>Harvesting climatic adaptations from the wild progenitors of chickpea and its symbiotic bacteria Dr. Douglas Cook, Department of Plant Pathology, UC-Davis, Davis, CA, USA (1297)</p>
10.00	<p>Data mining at field scales for abiotic stress via photosynthesis. Dr. David Kramer, Professor, Department of Biochemistry and Molecular Biology, MSU, East Lansing, MI, USA (1298)</p>
08.30	<p><b>Concurrent Thematic Plenary Session 3: Ecological approaches to integrated pest management in grain Legumes.</b></p> <p><b>Moderator:</b> Dr. Tim Chancellor, Liaison Scientist, Collaborative Crop Research Program, McKnight Foundation, Southern Africa Community of Practice; University of Greenwich, Kent, UK</p>
08.35	<p><b>Keynote Presentation:</b> Biological control of cowpea insect pests: progress, challenges and opportunities Dr. Manuele Tamo, Entomologist and Country Representative (Benin), IITA, Cotonou, Benin (1299)</p>
09.15	<p><b>Panel Presentations:</b> Precision IPM: Developing robust tool sets from research to deployment Dr Barry Pittendrigh, Professor of Insect Toxicology, Department of Entomology, University of Illinois-Champaign, USA. (1300)</p>
09.25	<p>The contribution of the breeding pipeline concept to ecological management of field and storage pests in grain legumes. Dr Paul Kusolwa, Associate Professor in Horticulture and Biotechnology, Department of Crop Science and Production, SUA, Tanzania. (1301)</p>
09.35	<p>Integrating weed management into IPM systems Dr Ernest Mbega, Head of Legumes Programme, Ilonga Agricultural Research Institute, Tanzania (1302)</p>
09.45	<p>Pesticidal plants for pest management in bean: Key emerging issues Dr Kelvin Mark Mtei, Lecturer, Environmental Sciences Dept, Nelson Mandela African Institute of Science and Technology, Tanzania. (1303)</p>
09.55	<p>Efficacité de l'huile de neem (<i>Azadirachta indica</i> Juss) et du virus Multi-Nucleopolyhedrose, MaviMNPV sur les œufs de <i>Maruca Vitrata</i> Fabricius, foreuse des gousses du niébé <i>Vigna unguiculata</i> (L.) Walp. Dr. Clementine Dabire, INERA, Burkina Faso (1304)</p>
10.30	Break

## WEDNESDAY, 2 March

TIME	ACTIVITY
11.00	Topical Oral Sessions 4-A, B, C & D (Four concurrent topical sessions)
11.00-12.30	<b>Oral Session 4-A: Value Addition and Processing of Grain Legumes</b> <b>Moderator:</b> Dr. Bussie Maziya-Dixon, (IITA)
11.00	1323 The Characteristics of Extrusion Processed Foods from Whole Pigeon Pea. Mary Ozioma Okpala*1, Bettina Wolf2 and Bill Macnaughtan2, (1) Federal Polytechnic Oko, (2) University of Nottingham
11.15	1324 An Assessment of the Canning Bean Value Chain in Kenya: Opportunities and Challenges. Scolastica Mwikali Wambua,* KALRO
11.30	1325 Modelling Legume Soaking and Cooking Processes to Control Their Nutritional Value: Case of Chickpea. Aurelien Briffaz* Jr.1, Christian Mestres Sr.1, Nawel Achir Jr.2 and Philippe Bohuon Sr.2, (1) CIRAD, (2) Montpellier SupAgro
11.45	1326 Physico-Chemical Characterisation of Some Cowpea Varieties Consumed in Botswana to Study Their Efficacy As a Protein Source in Infant Food Formulations. Minah Mmoni Mosele,* National Food Technology Research Centre
12.00	1327 Chemical Composition, Functional Properties, and Cookie-Baking Qualities of Dry Bean Powders from 25 Michigan-Grown Varieties. Yongfeng Ai, James D. Kelly and Perry K.W. Ng,* MSU
12.15	1328 Versatility of Bambara Groundnut for Food and Nutrition Security. Victoria Adaora Jideani,* Cape Peninsula University of Technology and Afam Israel Obiefuna Jideani, University of Venda
11.00-12.30	<b>Oral Session 4-B: Abiotic Stress in Grain Legumes</b> <b>Moderator:</b> Dr. Benoit Joseph Batiemo, INERA, Burkina Faso
11.00	1305 11:00 Tolerance to Combined Low Phosphorus and Drought Stress in Small-Seeded Common Bean. Noel Duarte Rivas1, Aurelio Llano1 and Stephen E. Beebe*2, (1) Instituto Nicaragüense de Tecnología Agropecuaria (INTA), (2) CIAT
11.15	1306 Morpho-Physiological Characteristics and Grain Yield Attributes of Selected Cowpea Lines Under Phosphorus and Moisture Stress Conditions at Ukulima Farm, Limpopo Province, South Africa. Setshele Standford Thosago, University of Limpopo (Turffloop Campus), Funso Raphael Kutu,* North-West University (Mafikeng Campus) and Irvine Kwaramba Mariga, University of Limpopo
11.15	1306 Morpho-Physiological Characteristics and Grain Yield Attributes of Selected Cowpea Lines Under Phosphorus and Moisture Stress Conditions at Ukulima Farm, Limpopo Province, South Africa. Setshele Standford Thosago, University of Limpopo (Turffloop Campus), Funso Raphael Kutu,* North-West University (Mafikeng Campus) and Irvine Kwaramba Mariga, University of Limpopo
11.30	1307 The Use of Cowpea Haulm to Reverse N and P Mining in the Dry Savannas of Nigeria. Robert Clement Abaidoo,* IITA,, Andrews Opoku, Kwame Nkrumah University of Science and Technology, Hakeem Ajeigbe, ICRISAT, and Stephen K. Boahen, IITA, Nampula
11.45	1308 Evaluating Performance of Maize-Bean Intercropping in Smallholder Farming Systems of Zimbabwe. Jonathan Hodzi,* Agronomy Research Institute
12.00	1309 Limiting Nutrients for Bean Production on Three Contrasting Soils in Uganda. Prossy Kyomuhendo *1, Moses Tenywa2, Onesmus Semelulu3, Andrew W. Lenssen4, Russell YOST5 and Robert E Mazur4, (1) MUK, (2) MUK, (3) NARL Kawanda, (4) ISU, (5) University of Hawai'i at Manoa Honolulu, Hawaii.



## WEDNESDAY, 2 March

TIME	ACTIVITY
12.15	1310 Determining Limiting Nutrients on GRAIN YIELD and YIELD Components in Common Bean ( <i>Phaseolus vulgaris</i> L.), UNDER Drought and NON-Drought Conditions. Monea Lina Adelino Mucavea,* Msc graduate Student
11.00-12.30	<b>Oral Session 4-C: Sustainable Intensification of Grain Legume Cropping Systems</b> <b>Moderator:</b> Dr. Ricardo Maria, Instituto de Investigação Agrária de Moçambique (IIAM), Mozambique
11.00	1317 A Strategy for Geographic Targeting of Climbing Bean Varieties and Practices in Africa. G.G. Hyman* <sup>1</sup> , Augustine Musoni <sup>2</sup> , G. Taba <sup>1</sup> , Stephen E. Beebe <sup>1</sup> , Clare Mukankusi <sup>3</sup> , Robin Arani Buruchara Sr. <sup>4</sup> and Jean Claude Rubyogo <sup>5</sup> , (1) CIAT, (2) RAB, (3) CIAT/PABRA, (4) CIAT/PABRA, (5) CIAT/PABRA
11.15	1318 Pigeonpea Water Use Efficiency Under Different Cropping Systems in Ghana and Mali. Princess Adjei-Frimpong* <sup>1</sup> , Sieglinde S. Snapp <sup>1</sup> , Eva Weltzien-Rattunde <sup>2</sup> and Saaka Buah <sup>3</sup> , (1) MSU, (2) ICRISAT, (3) SARI
11.30	1319 Below and Aboveground Pigeonpea Productivity in Doubled-up Legume Cropping Systems Across Three Agro-Ecologies in Central Malawi. Chiwimbo P Gwenambira,* MSU/ Africa RISING Malawi, Regis Chikowo, Africa RISING Malawi, Sieglinde S. Snapp, MSU and Mateete Bekunda, Africa RISING Project
11.45	1320 Effect of Variety and Location on Seed and Straw Yields and Nutritive Value of Common Bean ( <i>Phaseolus vulgaris</i> L.) Straw in Crop-Livestock Systems of Ethiopia. Mesfin Dejene Ejigu* <sup>1</sup> , Robert M Dixon <sup>1</sup> , Alan J. Duncan <sup>2</sup> , David McNeill <sup>1</sup> , Kerry B. Walsh <sup>3</sup> and Endalkachew Wolde-meskel <sup>2</sup> , (1) The University of Queensland (UQ), (2) ILRI, (3) Central Queensland University (CQU)
12.00	1321 Sustainability of Crop Residue Allocation Options in Smallholder Cereal-Legume-Livestock Farms in the Dry Savannas of West Africa. Andrews Opoku* <sup>1</sup> , Robert Clement Abaidoo <sup>1</sup> , Ebenezer Yeboah Safo <sup>1</sup> , Maman Nouri <sup>2</sup> , Emmanuel Iwuafor <sup>3</sup> and Naaminong Karbo <sup>4</sup> , (1) Kwame Nkrumah University of Science and Technology, (2) INRAe Niger, (3) Institute for Agricultural Research (IAR), (4) Animal Research Institute (ARI)
12.15	1322 Crop-Livestock Interactions in Cereal-Legume Cropping: Maize and Cowpea Population Effects on Crop, Livestock and Soil. Asamoah Larbi,* IITA and Adekunle I.O., Ogun State University
11.00-12.30	<b>Oral Session 4-D: Economics and Grain Legume Value Chains</b> <b>Moderator:</b> Dr. Lawrence Mapemba, LUANAR, Malawi
11.00	1311 Determinants of Market-Oriented Among Smallholders: Evidence from Bean Farmers in the Northern Rwanda. Chantal Ingabire* <sup>1</sup> , Christine Bigler <sup>2</sup> , Louis Butare <sup>1</sup> , Augustin Musoni <sup>1</sup> , Patience Mshenga <sup>3</sup> , Jackson Langat <sup>3</sup> and Eliud Abucheli Birachi <sup>4</sup> , (1) RAB, (2) University of Bern, (3) Egerton University, (4) CIAT/PABRA
11.15	1312 Socio-Economic Assessment of Chickpea Production, Technology Adoption and Market Linkages in Ethiopia. Setotaw Ferede <sup>1</sup> , Meseret Beyene* <sup>1</sup> , Asnake Fikre <sup>1</sup> , Million Eshete <sup>1</sup> , Mekasha Chichaymelu <sup>1</sup> , Chris O Ojiewo <sup>2</sup> , Kai Mausch <sup>2</sup> and Emmanuel Monyo <sup>2</sup> , (1) EIAR, (2) ICRISAT
11.30	1313 Contextual and Factual Analysis of Common Bean Production, Consumption and Marketing and Bean Attributes That Affect Demand for Bean Consumption in Malawi. Lawrence Daniel Mapemba,* LUANAR, Marynia Tumeo Mazunda and Nyumbani Moyo, LUANAR, Bunda
11.45	1314 IPM Intervention in Benin: Cowpea Farmers' Preferences for Biological Versus Chemical Pest Control Strategies for Maruca Vitrata. Michael Agyekum,* Cynthia Donovan and Frank Lupi, MSU

## WEDNESDAY, 2 March

TIME	ACTIVITY
12.00	1315 Determinant of Purchase Decision for Quality Declared Bean Seeds in the Central Northern Zone of Tanzania. Hussein A Mvungi* and Fulgence Mishili, SUA
12.15	1316 Can Improved Food Legume Technologies Increase Technical Efficiency in Crop Production? A Case Study in Bale Highlands, Ethiopia. Girma T. Kassie* 1, Aden Aw-hassan1, Seid A. Kemal1, Lulseged Desta Tamene2, Peter Thorne3 and Mulugeta Yitayih1, (1) ICARDA, (2) CIAT, (3) ILRI
12.30	Lunch
14.00-16.00	<b>Poster Session 2-A</b> <b>Instructions to Authors of Posters:</b> Posters for session 2 A & B should be hung in the poster exhibition tent on Tuesday, 01 March, between 18:00 and 20:00 hours or on Wednesday, 02 March, prior to 09:00 hours. Authors of even-numbered posters should be present during viewing session "2-A", while authors of odd-numbered posters should be present during viewing session "2-B." Posters for session 2 A & B can be taken down after 13:00 hours on Friday, 04 March.
14.00-16.00	<b>Poster Session 2: Abiotic Stress</b>
	1329 (Poster Number 201) Effect of Nitrogen and Phosphorus Fertilizer MICRO-Dosing on the Growth and YIELD of Maize-Pigeonpea Intercrops in Tanzania. Paul Sabas Saidia* 1, Cornel Lawrence Rweyemamu1 and Anthony Anderson Kimaro2, (1) SUA, (2) International Centre for Research in Agroforestry (ICRAF)
	1330 (Poster Number 202) Evaluation of Cowpea Genotypes for Drought Tolerance in the Semi-Arid Environment of Botswana. Odireleng O. Molosiwa* and Bose C. Makwala, Ministry of Agriculture
	1331 (Poster Number 203) Response of Cowpea Genotypes to Water Stress Induced at Flowering Stage. Saul Eric Mwale* 1, Mildred Ochwo Ssemakula1 and Kassim Sadik2, (1) MUK, (2) NARO
	1332 (Poster Number 204) Integration of Climbing Bean in the Smallholder Farming Systems in Malawi. Virginia Chisale* 1, Rowland Chirwa2, Wilkson Makumba1, Barthlomew Yonas Chataika2 and Ruth Magreta3, (1) DARS, (2) CIAT/PABRA, (3) LUANAR
	1333 (Poster Number 205) Evaluating Grain and Biomass Yield of Four Legume Species for Drought Tolerance in Eastern Kenya. Arnold Nyangoka Kerina,* University of Eldoret
	1334 (Poster Number 206) Integration of Climbing Beans in the Smallholder Farming Systems in Malawi. Rowland Chirwa,* CIAT/PABRA and Virginia Chisale, DARS
	1335 (Poster Number 207) Drought Tolerant Bean Varieties Offer Hope to Smallholder Farmers in Malawi. Barthlomew Yonas Chataika* 1, Gift Benjamin Ndengu1, Powell Mponela1, Lulseged Desta Tamene1, Rowland Chirwa1 and Regis Chikowo2, (1)CIAT/PABRA, (2) Africa RISING Malawi
	1336 (Poster Number 208) Evaluation of Cowpea ( <i>Vigna unguiculata</i> L. Walp.) Genotypes for Adaptation to Low P Soil Conditions. Christian Fatokun,* IITA
	1337 (Poster Number 209) Water Use Efficiency As a Tool for Drought Resistance Selection in Cowpea. Chipo Nkomazana*, Utlwang Batlang, Thembeke Mpuisang, Thebeetsile Moroke, Samodimo Ngwako and Gloria Mashungwa, Botswana College of Agriculture

## WEDNESDAY, 2 March

TIME	ACTIVITY
1338	(Poster Number 210) Screening of Cowpea ( <i>Vigna unguiculata</i> [L.] Walp.) Genotypes for Drought Tolerance. Henriques V. Colial* <sup>1</sup> , Stephen K. Boahen <sup>2</sup> , James M. Bokosi <sup>3</sup> , Vernon H. Kabambe <sup>3</sup> and Moses B. Kwapata <sup>3</sup> , (1) Mozambique, Agriculture Research Institute, Nampula Research Station, (2) IITA, Nampula, (3) Bunda College of Agriculture
1339	(Poster Number 211) Diagnosing Common Bean Limiting Nutrient in Paddy-Rice Production System in Northern Mozambique. Ricardo Marcos Maria* Sr., National Institute of Agriculture Research of Mozambique, Russell S. Yost, University of Hawaii at Manoa, Janete Mutualbo Americano, Institute of Agriculture Research of Mozambique and Unasse Saide Waite Sr., Legume Innovation Lab Project
1340	(Poster Number 212) Rhizosphere P Depletion and Levels of Acid and Alkaline Phosphatases Using Different Test Crops. Flora Pule-Meulenberg,* Phodiso Mooketsi and Bagadzi Brenda Mothusi, Botswana College of Agriculture
1341	(Poster Number 213) Evaluation of Bean Germplasm Developed for Drought Tolerance in Malawi. Barthlomew Yonas Chataika* <sup>1</sup> , Rowland Chirwa <sup>1</sup> , Wilkson Makumba <sup>2</sup> , Elisa Mazuma <sup>2</sup> , Isaak Fandika <sup>2</sup> , Virginia Chisale <sup>2</sup> and Lloyd Liwimbi <sup>2</sup> , (1) CIAT/PABRA, (2) DARS
1342	(Poster Number 214) Impact of Sowing Dates on Agronomic Performances of Cowpea ( <i>Vigna unguiculata</i> (L.) Walp) Genotypes. Abdou Razakou Ibrahim,* INRAN
1343	(Poster Number 215) Cowpea Breeding Opportunities and Production Challenges for Climate Resilient in Ethiopia. Tesfaye Walle Mekonnen* Sr., Haramaya University and Berhanu Amsalu Fenta Sr., EIAR
1344	(Poster Number 216) Increasing Efficiency in Cowpea-Cassava Crop Combinations in Kaoma, Zambia. Nhamo Nhamo* <sup>1</sup> , Harad Lungu <sup>1</sup> and Sinoya Mkhali <sup>2</sup> , (1) IITA, (2) ZARI
1345	(Poster Number 217) "Pulse Panchayats" - an Innovative Concept in Enhancing Productivity and Profitability of Pulses in Semiarid Regions of India. Romell Samuel Shanthakumar Hopper,* Pasuvana Nandeesa, Sana Venkata Ramana and Krishnan Thachinamurthy, M.S.Swaminathan Research Foundation
14.00-15.30	<b>Poster Session 2: Biological Nitrogen Fixation</b>
1346	(Poster Number 218) Assessment of Population Density of Indigenous Cowpea Rhizobia in Nigerian Soil Using the Plant Infection Technique. Comfort Tinuade Ojo* <sup>1</sup> , Mahamadi Dianda <sup>2</sup> , Joost Heerwaarden <sup>1</sup> , Rene Geurts <sup>1</sup> and Ken E. Giller <sup>1</sup> , (1) Wageningen University, (2) IITA
1347	(Poster Number 219) Biological Nitrogen Fixation in Field Grown Groundnut As Quantified through <sup>15</sup> N Natural Abundance Technique. Richard Oteng-Frimpong,* CSIR-SARI and Felix Dapare Dakora, Tshwane University of Technology
1348	(Poster Number 220) Assessment of Sustainable Production of Pigeon Peas in SMALL Scale Farmers in Morogoro Region - Tanzania. Emanuel Andrew Kasembe,* Anglican Church Of Tanzania Diocese of Morogoro

## WEDNESDAY, 2 March

TIME	ACTIVITY
1349	(Poster Number 221) Symbiotic Potential of Isolates from Indigenous Rhizobia Population in Ghana. Ophelia Osei <sup>1</sup> , Robert Clement Abaidoo <sup>2</sup> , Nana Ewusi-Mensah <sup>1</sup> , Jacob Ulzen* <sup>1</sup> and Andrews Opoku <sup>1</sup> , (1) Kwame Nkrumah University of Science and Technology, (2) IITA,
1350	(Poster Number 222) Optimising Biological Nitrogen Fixation in Common Beans Along an Agro-Ecological Gradient in West-Nile Farming Systems of Uganda. Monday Mosses Paga* <sup>1</sup> , Waswa Boaz <sup>2</sup> , Giregon olupot <sup>1</sup> , Roelof van Til <sup>3</sup> and Koen Sneyers <sup>4</sup> , (1) MUK, (2) CIAT, (3) ZOA Netherlands, (4) ZOA Uganda
1351	(Poster Number 223) Symbiotically Effective Native Rhizobial Obviate Significant Response to Inoculation with Foreign Strains. Jacob Ulzen* <sup>1</sup> , Nana Ewusi-Mensah <sup>1</sup> , Robert Clement Abaidoo <sup>2</sup> and Andrews Opoku <sup>1</sup> , (1) Kwame Nkrumah University of Science and Technology, (2) IITA
1352	(Poster Number 224) The Effect of Planting Date on N <sub>2</sub> Fixation and C Accumulation of 30 Cowpea Genotypes Planted at Two Locations in Mozambique. Abudo Rachad Ussene* Sr., IITA, Mozambique
1353	(Poster Number 225) Characterization of Twenty-One Common Bean Genotypes for Biological Nitrogen Fixation Under Drought Stress. Crocus Zinha Hamsini,* LUANAR
1354	(Poster Number 226) The Influence of Rhizobia Inoculation and Phosphorus Fertilizer on Yield and Quality of Cowpea Fodder in Northern Ghana. Daniel Brain Akakpo,* Wageningen University
1355	(Poster Number 227) The Abundance of Indigenous Rhizobia Nodulating Common Bean in Uganda and the Soil Factors That Influence Them. Allan Ochieng,* N2Africa/Wageningen University
1356	(Poster Number 228) Policing the Gate: Can Pea Plants Stop Rhizobial Cheats from Entering?. Annet Westhoek* <sup>1</sup> , Finn Rehling <sup>2</sup> , Philip Poole <sup>1</sup> and Lindsay Turnbull <sup>1</sup> , (1) University of Oxford, (2) Philipps-University Marburg
1357	(Poster Number 229) Response of Groundnut Genotypes to Rhizobia Inoculation in the Sudan Savanna of Nigeria. Faruk G. Umar,* Bayero University
1358	(Poster Number 230) The Effect of Planting Date on N <sub>2</sub> Fixation and C Accumulation of 30 Cowpea Genotypes Planted at Two Locations in Mozambique. Abudo Rachad Ussene* Sr., IITA, Mozambique
1359	(Poster Number 231) Effects of Rhizobium, Azospirillum, and Rhizobium Azospirillumcoinoculation Inoculants on Climbing Beans Growth and Development in Low and High Phosphorus Sand Media. John Gitonga N Muthamia <sup>1</sup> , Paul Kimani <sup>2</sup> , George Chemining'wa <sup>3</sup> , Anthony O. Esilaba <sup>4</sup> , Catherine Kibunja <sup>5</sup> and John Gitonga N. Muthamia* <sup>1</sup> , (1) KALRO-Embu, (2) University of Nairobi, (3) University of Nairobi, Kabete Campus, (4) KALRO, (5) KALRO-NARL
1360	(Poster Number 232) Selecting Effective Indigenous Soybean-Nodulating Rhizobial Isolates from Ethiopia UNDER Glasshouse Conditions. Semira Mohammed Beyan,* Hawassa University, Endalkachew Wolde-meskel, ILRI and Felix Dapare Dakora, Tshwane University of Technology

## WEDNESDAY, 2 March

TIME	ACTIVITY
1361	(Poster Number 233) Efficacy Assessment of Commercial Rhizobia Inoculants on Common Bean and Soybean Varieties Growth Performance in Two Soil Types. Hezekiah Korir,* Egerton University
1362	(Poster Number 234) CO-Inoculation of Rhizobia Strains and Native Phosphate Solubilizing Bacteria in Enhancing Common Bean Growth in a Low Phosphorus Soil. Hezekiah Korir,* Egerton University
1363	(Poster Number 235) Legume Biological Nitrogen Fixation (BNF) Potential Contribution to Sustainable Smallholder CROP Production in Southern Africa. Sheunesu Mpeperekwi,* University of Zimbabwe
1364	(Poster Number 236) Commercial Rhizobia Inoculants Effect on Grain Yield of Soybean and Cowpea in Ghana. Jacob Ulzen,* Kwame Nkrumah University of Science and Technology, Robert Clement Abaidoo, IITA, Abdelaziz H. AbdelGadir, IITA and Cargele Masso, IITA
1365	(Poster Number 237) Effect of Inoculation with Bradyrhizobium Japonicum and Phosphorus Supply on Soybean Production in Two Types of Soil in Benin. Frechno Ermitte BOKO,* Laboratory of Soil Microbial/ University of Abomey-Calavi and Maliki Agnoro, University of Abomey-Calavi
14.00-15.30	<b>Poster Session 2: Genomics and Plant Breeding</b>
1366	(Poster Number 238) Differential Potential of Cowpea Genotypes and Their Diversity for Resistance to Some Pest and Diseases. Ugochi Amazue,* University of Nigeria, Nsukka. Enugu State, Nigeria and Daniel Adewale, Federal University Oye-Ekiti
1367	(Poster Number 239) Identification of Common Bacterial Blight Resistant Sources for the Bean Breeding Program in Uganda. Boris Mahulé elysé Alladassi, MUK, Stanley Nkalubo,* National Crops Resources Research Institute, Clare Mukankusi, CIAT/PABRA, Carlos A. Urrea, University of Nebraska Lincoln and James D. Kelly, MSU
1368	(Poster Number 240) Genetic Diversity and Population Structure of Ethiopian Common Bean ( <i>Phaseolus vulgaris</i> L.) Germplasm. Zelalem Fisseha Gebreegziabher* 1, Kassahun Tesfaye <sup>2</sup> , Martina Kyallo <sup>3</sup> , Jagger Harvey <sup>3</sup> , Stephen Opiyo <sup>4</sup> and Paul Gepts <sup>5</sup> , (1) Somali Region Pastoral and Agro-pastoral Research Institute (SoRPARI), Jijiga, Ethiopia, (2) Addis Ababa University, (3) Biosciences Eastern and Central Africa (BeCA-ILRI), (4) Ohio State University, (5) UC-Davis
1369	(Poster Number 241) Breeding Black Beans for Haiti with Multiple Virus Resistance. Emmanuel H Prophete* 1, Gasner Demosthene <sup>1</sup> , Jim Beaver <sup>2</sup> , Juan Carlos Rosas <sup>3</sup> and Timothy Porch <sup>4</sup> , (1) Ministère de L'Agriculture de la République d'Haïti, (2) UPR Mayageuz, (3) Escuela Agrícola Panamericana/Zamorano, (4) USDA-ARS
1370	(Poster Number 242) Extent and Pattern of Genetic Diversity in Ethiopian White Lupin Landraces for Agronomical and Phenological Traits. Mulugeta Atnaf Tiruneh* 1, Kassahun Tesfaye <sup>2</sup> , Kifle Dagne <sup>2</sup> and Dagne Wegari <sup>3</sup> , (1) EIAR, (2) Addis Ababa University, (3) CIMMYT, Ethiopia
1371	(Poster Number 243) Feed the Future Innovation Lab for Climate Resilient Cowpea. Timothy J. Close* 1, Stefano Lonardi <sup>1</sup> , Phil Roberts <sup>1</sup> , Maria Munoz-amatriain <sup>1</sup> , Ibrahim Atokple <sup>2</sup> , Joseph Batieno <sup>3</sup> , Ousmane Boukar <sup>4</sup> , Ndiaga Cisse <sup>5</sup> , Issa Drabo <sup>3</sup> , Christian Fatokun <sup>4</sup> , Yi-Ning Guo <sup>1</sup> , Bao Lam Huynh <sup>6</sup> , Francis Kusi <sup>2</sup> , Sassoum Lo <sup>6</sup> , Mitchell R. Lucas <sup>1</sup> , Hamid Mirebrahim <sup>1</sup> , Savanah M. St. Clair <sup>6</sup> , Steve Wanamaker <sup>1</sup> and Pei Xu <sup>7</sup> , (1) UCUC-Riverside, (2) SARI, (3) INERA, (4) IITA, (5) ISRA, (6) UC - Riverside, (7) Zhejiang Academy of Agricultural Sciences

## WEDNESDAY, 2 March

TIME	ACTIVITY
1372	(Poster Number 244) Bean Varieties Bred, Released and Market Opportunities for Seed Companies in the East and Central African Region. Reuben Otsyula,* Joyce Malinga and Moses Wambulwa, KALRO
1373	(Poster Number 245) Breeding for a Fast Cooking Bean: Study of Genotypes Across Environments to Determine Phenotypic Stability in <i>Phaseolus vulgaris</i> . Matthew Berry* <sup>1</sup> , Jason Wiesinger <sup>1</sup> , Susan Nchimbi-Msolla <sup>2</sup> , Phillip N. Miklas <sup>3</sup> , Timothy Porch <sup>3</sup> , Deidre Fourie <sup>4</sup> and Karen A. Cichy <sup>3</sup> , (1) MSU, (2) SUA, (3) USDA-ARS, (4) ARC
1374	(Poster Number 246) Amenability of Cowpea ( <i>Vigna unguiculata</i> ) to Micronutrients (iron and zinc) Enhancement Using Conventional Method. Muhammad Lawan Umar,* Institute for Agricultural Research
1375	(Poster Number 247) Screening for Alectra Resistance in Cowpea Germplasm Under Greenhouse Conditions in Malawi. James Bokosi* <sup>1</sup> , Vernon H. Kabambe <sup>2</sup> and Thabbie Chilongo <sup>1</sup> , (1) LUANAR, (2) Bunda College of Agriculture
1376	(Poster Number 248) The Potentials of Phosphorus and Nitrogen Fertilization at Varied Doses to Suppress Striga Parasitism in Cowpea Production, How Promising? Lucky O Omoigui, Deborah Folake Ayeni* and Joseph Ikwebe, Federal University of Agriculture
1377	(Poster Number 249) Phenotypic Evaluation and Genome Wide Association Studies of Two Common Bean ( <i>Phaseolus vulgaris</i> ) Diversity Panels Highlight Evaluation Techniques, Traits and Lines Useful for Trait Based Selection. James Burridge* <sup>1</sup> , James S. Beaver <sup>2</sup> , Stephen E. Beebe <sup>3</sup> , Celestina Jochua <sup>4</sup> , Jonathan P. Lynch <sup>1</sup> , Anica Massas <sup>1</sup> , Phillip M McClean <sup>5</sup> , Magalhaes Miguel <sup>4</sup> , Phillip N. Miklas <sup>6</sup> , Timothy Porch <sup>6</sup> , Juan Carlos Rosas <sup>7</sup> and Jeffrey W. White <sup>6</sup> , (1) PSU, (2) UPR, (3) CIAT, (4) IIAM, (5) NDSU, (6) USDA-ARS, (7) Escuela Agricola Panamericana/Zamorano
1378	(Poster Number 250) Gene Pyramiding for Improvement of Resistance to Major Diseases of Common Bean ( <i>Phaseolus vulgaris</i> ). Clare Mugisha Mukankusi,* CIAT/PABRA
1379	(Poster Number 251) G X E Effects in Haulm Fodder Quality Traits and Their Relationships with Grain and Haulm Yield in 50 Cowpea Genotypes. Anandan Samireddy* <sup>1</sup> , Ousmane Boukar <sup>2</sup> , KVSV Prasad <sup>1</sup> , Ravi D <sup>1</sup> , Christian Fatokun <sup>2</sup> , Iheanacho Okike <sup>1</sup> and Michael Blummel <sup>1</sup> , (1) ILRI, (2) IITA
1380	(Poster Number 252) AMMI Model Analysis of Stability and Adaptability of Drought Tolerant Andean Bean Genotypes in Eastern and Central Kenya. Eliezh Maina Kamau,* Kenya Agriculture and Livestock Research Organization
1381	(Poster Number 253) Fast Tracking Micro Rich-Nutrient, High Yielding and Marketable Climbing Bean Types in the Northern Highlands of Tanzania. John W.J. Msaky,* Selian ARI (SARI)
1382	(Poster Number 254) Introduction of Micro Rich-Nutrient, High Yielding and Marketable Climbing Bean Types in Tanzania. John W.J. Msaky,* Selian ARI (SARI)



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TIME	ACTIVITY
1384	(Poster Number 256) Adaptability of Micro Rich-Nutrient for Enhancing Food Security, Nutrition, Income to Cope with Climate Change in Tanzania. John W.J. Msaky,* Selian ARI (SARI)
1385	(Poster Number 257) Development of a Molecular Marker to Track APA Introgression in Common Bean for Bruchid Resistance. Lucy Lund*1, Jim Beaver2, Timothy Porch3 and Phillip McClean1, (1) NDSU, (2) UPR Mayageuz, (3) USDA-ARS
1386	(Poster Number 258) Molecular Diversity of Nigerian Cowpea Landraces. Adenubi Adesoye,* University of Ibadan and Innocent Iseghohi, Federal University Oye Ekiti
1387	(Poster Number 259) YIELD Stability and Farmer Preference of Bean Lines ( <i>Phaseolus vulgaris</i> , L.) in Different AGRO-Ecological ZONES in Malawi. James Bokosi*1, Lowinzie Sibande1, Vincent Saka1 and Rowland Chirwa2, (1) LUANAR, (2) CIAT/PABRA
1388	(Poster Number 260) Grain Yield Stability of Cowpea Genotypes in Contrasting Environmental Conditions in Southern Mozambique. Rogerio Marcos Chiulele*1, Acaccio Jose Alfredo2, Lucas Mauro Chiau1 and Teodoro Mainote Chale1, (1) Eduardo Mondlane University, (2) University of Zambeze
1389	(Poster Number 261) Caracterização De Acessos De Feijão Feijão Boer ( <i>Cajanus cajan</i> (L.) Millspaugh) Colectados Em Moçambique. Marques Cachisso Bambo Donca,* Mozambique Agrarian Research Institute
1390	(Poster Number 262) Identification of New Sources of Resistance to Common Bacterial Blight in Beans in Uganda. Belarmino Amadeu Faife Divage,* IIAM
1391	(Poster Number 263) Cowpea ( <i>Vigna unguiculata</i> (L.)Walp.) Landrace Diversity in Ethiopia. Berhanu Amsalu Fenta,* EIAR, Melkassa Agricultural Research Centre
1392	(Poster Number 264) Adaptabilidade e Estabilidade Das Concentrações De Ferro e Zinco Em Genótipos De Feijão-Caupi Na Região Nordeste Do Brasil. Maurisrael de Moura Rocha*1, Diêgo Sávio de Vasconcelos Oliveira2, Kaesel Jackson Damasceno-Silva3, José Ângelo Nogueira de Menezes Jr.3, Marília Regini Nutti4 and Luis José Duarte Franco1, (1) Embrapa Meio-Norte, (2) Universidade Federal do Piauí, (3) Embrapa Mid-North, (4) Embrapa Agroindústria de Alimentos
1393	(Poster Number 265) Research and Development of Bambara Groundnuts: Prebreeding Efforts in Zimbabwe. Busiso Olga Mavankeni,* Crop Breeding Institute
1394	(Poster Number 266) EARLY Size Selection for YIELD and SEED Traits in Cowpea Breeding. Marques Cachisso Bambo Donca,* Mozambique Agrarian Research Institute
1395	(Poster Number 267) Evaluation of Common Bean ( <i>Phaseolus vulgaris</i> ) Genotypes for Resistance to Root Rot Disease Caused By <i>Pythium Aphanidermatum</i> and <i>Pythium Splendens</i> Under Screen House Conditions. Papias Hongera Binagwa,* Selian ARI, Conrad Bonsi, Tuskegee University and Susan Nchimbi, SUA

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1396	(Poster Number 268) Evaluation of Medium Duration Pigeon PEA Lines for YIELD Potential, Disease Tolerance and Adaptability in Malawi. Esnart Yohane,* Department of Agricultural Research Services
1397	(Poster Number 269) Assessment of Stability, Adaptability and Yield Performance of Common Bean ( <i>Phaseolus vulgaris</i> L.) Genotypes Under Multi-Environment Conditions in Zimbabwe. Bruce Mutari,* Crop Breeding Institute
1398	(Poster Number 270) AMMI and GGE Biplot Analysis of Cowpea ( <i>Vigna unguiculata</i> ) Advanced Lines for the Semi-Arid Region of Kenya. Rose Wangari Kuruma,* KALRO
1399	(Poster Number 271) Genetic Studies of Winter Hardiness in Pea. Courtney Holdt,* NDSU
1400	(Poster Number 272) Responses of Cowpea Genotypes to Rock Phosphate Application. Kanako Suzuki*1, Christian Fatokun2 and Ousmane Boukar2, (1) IITA (West Africa hub), (2) IITA
1401	(Poster Number 273) Relationships Between Yield and Its Components for Common Bean ( <i>Phaseolus vulgaris</i> L.) in Burundi. Nduwarugira Eric,* ISABU
1402	(Poster Number 274) Evaluation of Cowpea Mutant Varieties in Comparison with Conventional Varieties. Kanenga Kennedy,* Ministry of Agriculture
1403	(Poster Number 275) Progress in Common Bean ( <i>Phaseolus vulgaris</i> L.) Improvement for Major Diseases in Ethiopia: Marker Assisted Selection (MAS) to Deploy Multiple Disease Resistance in Common Bean Varieties for Ethiopia. Yayis Rezene Tedla*1, Paul Gepts2, Tamara Miller3, Bethel Mulugeta Yigzaw1 and Mihiret Tadesse Mekuria1, (1) Southern ARI (SARI), (2) UC-Davis, (3) UC-Davis
1404	(Poster Number 276) Genotype x Environment Influence on African Yam Bean ( <i>Sphenostylis stenocarpa</i> ) Antinutrients. Adenubi Adesoye* and Temidayo Oluyede, University of Ibadan
1405	(Poster Number 277) Agrobacterium-Mediated Transformation and Development of Cry1Ac Transgenic Cowpea Lines. Alemayehu Teressa Negawo,* ILRI, Fathi Hassan, Leibniz Universtitat of Hannover and Hans-Jorg Jacobsen, Leibniz Universtitat of Hannover
1406	(Poster Number 278) Arcelin-Containing Bruchid Resistant Navy Beans As Future Potential Variety to Enhance White Bean Production. Berhanu Amsalu Fenta,* EIAR, Melkassa Agricultural Research Centre
1407	(Poster Number 279) Genetic Diversity of Ethiopian Cowpea ( <i>Vigna unguiculata</i> (L.) Walp.) Accessions Based on Microsatellite Markers. Belayneh Ayalew Desalegne,* Gambella ARI
1408	(Poster Number 280) Onstation Evaluation of Four Types of Pigeon Pea Varieties for Small-Holder Farming Systems. Moses Siambi@gmail.com,* ICRISAT

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1409	(Poster Number 281) Identification of New Sources of Resistance to Striga Gesnerioides in Cowpea Accessions Using Morphological and Molecular Tools. Lucky O Omoigui* <sup>1</sup> , Alpha Y. Kamara <sup>2</sup> , Isaiah Alunyo Gabriel <sup>1</sup> , Lateef Lekan Bello <sup>1</sup> , Mel Oluoch <sup>2</sup> and Michael P Timko <sup>3</sup> , (1) Federal University of Agriculture, (2) IITA, (3) UVA
1410	(Poster Number 282) Participatory Variety Selection of Canning Beans in Ghana. James Y. Asibuo,* CSIR-CRI
1411	(Poster Number 283) Field Performance of Andean Diversity Panel Lines in Two Locations in Tanzania. Susan Nchimbi-Msolla* <sup>1</sup> , Timothy Porch <sup>2</sup> , Phillip N. Miklas <sup>2</sup> , Karen Cichy <sup>2</sup> , James S. Beaver <sup>3</sup> and Deidre Fourie <sup>4</sup> , (1) SUA, (2) USDA-ARS, (3) UPR, (4) ARC
1412	(Poster Number 284) Recurrent Selection for Drought Tolerance in Cowpea. Kaesel Jackson Damasceno-Silva* <sup>1</sup> , Maurisrael de Moura Rocha <sup>2</sup> , Edson Bastos <sup>1</sup> , José Menezes Jr. <sup>1</sup> , Mário Torres <sup>3</sup> , Erina Rodrigues <sup>4</sup> and Camila Sousa <sup>5</sup> , (1) Embrapa Mid-North, (2) Embrapa Meio-Norte, (3) Universidade Federal do Piauí, (4) Universidade Estadual do Norte Fluminense Darcy Ribeiro, (5) Universidade Federal do Maranhão
1413	(Poster Number 285) Selection for Short Day Adaptation, Disease Resistance, POD Quality and YIELD in Vegetable Runner Bean. Mable Mercy Mulanya,* University of Nairobi
1414	(Poster Number 286) Evaluation of Cowpea Mutants for Tolerance to Callosobruchus Maculatus. Langa Tembo,* UNZA
1415	(Poster Number 287) Morphological Characterization and Evaluation of Cowpea [Vigna unguiculata (L.) Walp.] Genotypes for Seed Traits in South Africa. Abe S Gerrano,* Willem S Jansen van Rensburg, Patrick O Adebola and Sonja L Venter, ARC-Vegetable and Ornamental Plant Institute
1416	(Poster Number 288) Quantitative TRAIT LOCI Associated with STEM Strength and Lodging in Dry Peas. Jamin Smitchger,* Montana State University
1417	(Poster Number 289) Breeding Dry Bean for Drought Tolerance, Disease Resistance and Canning Quality in Eastern Africa. Paul Macharia Kimani* <sup>1</sup> , Serah Nyawira Njau <sup>1</sup> , Mwangi Njiru <sup>2</sup> , Patrick K Waidhima <sup>2</sup> and Steve Omondi <sup>3</sup> , (1) University of Nairobi, (2) Trufoods Ltd, (3) Njoro Canning Factory Ltd
1418	(Poster Number 290) Conservation and Use of African Orphan Grain Legumes. Benjamin Busuyi Faloye,* Michael Abberton and Olaniyi Ajewole Oyatomi, IITA
1419	(Poster Number 291) Breeding Snap Bean for Domestic and Export Markets in Eastern Africa. Paul Macharia Kimani,* Rama Devi Narla and Serah Nyawira Njau, University of Nairobi
1420	(Poster Number 292) Breeding Fast Cooking Cowpeas for Increased Utilization and Improved Nutrition in Sub-Saharan Africa. Sylvester N.T.T Addy* <sup>1</sup> , I K Asante <sup>2</sup> , H Adu-Dapaah <sup>3</sup> , S K Offei <sup>4</sup> , Karen A Cichy <sup>5</sup> and Jason Wiesinger <sup>5</sup> , (1) Crops Research Institute, (2) University of Ghana, (3) CSIR-CRI, (4) West Africa Centre for Crop Improvement, University of Ghana, (5) MSU

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TIME	ACTIVITY
1421	(Poster Number 293) Genetic Analysis of Thrips Resistance in Cowpea ( <i>Vigna unguiculata</i> [L.] Walp.). Atanda Samuel Oladejo*1, Ousmane Boukar1, Christian Fatokun1 and Israel Olujide Obisesan2, (1) IITA, (2) Obafemi Awolowo University
1422	(Poster Number 294) The Germplasm Regression Combined (GRC) Association Studies in Linseed ( <i>Linum usitatissimum</i> L.) Using Microsatellite Markers. Suma Chandrakanth Mogali*1, Prasanna N S1, krishnaraj p u1 and Revanappa S Biradar2, (1) University of Agricultural Sciences, (2) ICAR
1423	(Poster Number 295) Development of Mapping Population for Early Leaf Spot Tolerance and Best Bet Varieties Seeds Multiplication in Mali. Dramane Sako,* IER
1424	(Poster Number 296) Molecular Characterization of Cowpea ( <i>Vigna unguiculata</i> (L.) Walp.) Landraces Using Simple Sequence Repeat (SSR) Markers. Kafilat Abiodun Odesola*1, Michael Abberton2 and Olaniyi Ajewole Oyatomi2, (1) Bells University of Technology, (2) IITA
1425	(Poster Number 297) Progress in Cowpea Improvement and Production in Burkina Faso. Issa Drabo*1, Benoit Joseph Batieno1, Jean Baptiste De La Sale Tignegre2, Jeremy Tinga Ouedraogo1 and Clementine Dabiré3, (1) INERA, (2) AVRDC, (3) INERA
1426	(Poster Number 298) Morphological Characterization and Evaluation of Bambara Groundnut ( <i>Vigna subterranea</i> [L.] Verdc.) Genotypes for Yield and Yield Related Traits. Mohammed Sagir Mohammed,* Institute for Agricultural Research Samaru, Ahmadu Bello University
1427	(Poster Number 299) An Overview of Chickpea Crop Improvement Program of Ethiopia. Million Eshete*1, Mekasha Chichaymelu1, Asnake Fikre1, Dagnachew Bekele1, Nigusie Girma1, Ridwan Mohammed1, Lijalem Korbu1 and Chris O Ojiewo2, (1) EIAR, (2) ICRISAT
1428	(Poster Number 300) Induced Mutations for Increasing Genetic Diversity in Cowpea ( <i>Vigna unguiculata</i> [L.] Walp.). Festus Olakunle Olasupo*1, Christopher Olumuyiwa Ilori1, Anna Abimola Muiyiwa2 and Souleymane Bado3, (1) University of Ibadan, (2) Plant Breeding Section, (3) International Atomic Energy Agency
1429	(Poster Number 301) Radio-Sensitivity of Cowpea to Ultra-Violet Radiations By Pollen Treatment. Festus Olakunle Olasupo*1, Christopher Olumuyiwa Ilori1 and Anna Abimola Muiyiwa2, (1) University of Ibadan, (2) Plant Breeding Section
14.00-15.30	<b>Poster Session 2: Human Nutrition and Health</b>
1430	(Poster Number 302) Effect of Three Water Regimes on Micronutrient Concentration (Iron and Zinc) of Biofortified Bean Genotypes Against Malnutrition in South-Kivu Marshy Highlands. Clérisse Casinga Mubasi,* Centre de Recherche en Sciences Naturelles de Lwiro
1431	(Poster Number 303) A Nutritional Profile of Fast Cooking Bean Germplasm. Karen A. Cichy*1, Jason Wiesinger2, Fernando Mendoza2, Sharon Hooper2, Michael A Grusak1, Raymond P. Glahn3 and James D. Kelly2, (1) USDA-ARS, (2) MSU, (3) USDA-ARs

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1432	(Poster Number 304) Nutritional and Sensory Properties and Consumer Preference of Snack Foods Produced from High Quality Cassava Flour (HQCF) and Legume Blend in Nigeria and Democratic Republic of the Congo. Bussie Maziya-Dixon*1, R. Popoola1, O. Alamu2 and M. Yomeni3, (1) International Institute of Tropical of Agriculture, (2) IITA, (3) Institute of Tropical Agriculture
1433	(Poster Number 305) Effect of Processing on Proximate Composition and Sensory Acceptability of Biofortified Bean Flour. Ulemu Kankwatira, Ulemu Kankwatira,* Agnes Mwangwela and Agnes Mwangwela, LLUANR
1434	(Poster Number 306) Legume Consumption in Malawi: An Overview. Chrissie Thakwalakwa,* School of Public Health and Family Medicine, College of Medicine, University of Malawi
1435	(Poster Number 307) Postharvest Curing Practices in the Zambia's Groundnut Chain: Are We Pursuing the Right Battle Against Aflatoxins? Vincent Nyau*1, Sydney Phiri2, Doreen Hikeezi1 and Gaspard Kwizera1, (1) UNZA, (2) ZARI
1436	(Poster Number 308) Phytochemicals Profiles and Antioxidant Activity of Legume Varieties. Sarah Tshepho Pona Matenge* and Rui Hai Liu, Cornell University
1437	(Poster Number 309) Stability of Yield and Antioxidant Content of Selected Cowpea ( <i>Vigna unguiculata</i> [L.] Walp.) Mutation Derived Genotypes. Nelia Nkhoma Phiri,* Mick Mwala, Mebelo Mataa, Kalaluka Munyinda and John Shindano, UNZA
1438	(Poster Number 310) Participatory Preparation and Evaluation of Diversified Bean Based Food Products for Vulnerable Households and Communities in Western Kenya. Rhoda Azikoyo Nungo,* KALRO
1439	(Poster Number 311) Legume Consumption Pattern of Households in Selected Areas of Districts in Malawi. Samuel Kapota* and Agnes Mwangwela, LUANAR
1440	(Poster Number 312) Trade-Off Between Protein Content, Consumer Acceptability and Cooking Time of Released Common Bean Varieties in Swaziland. Phindile Jane Tsela*1, Nicholas Futhi Manana1 and Rodah Morezio Zulu2, (1) Ministry of Agriculture, (2) CIAT/PABRA
1441	(Poster Number 313) Health-Promoting Properties of Underutilized Climate-Friendly African Legumes. Gyebe Duodu* and Amanda Minnaar, University of Pretoria
1442	(Poster Number 314) Nutritional benefits of grain legume cultivation within the N2Africa project in Northern Ghana and Western Kenya. Ilse de Jager, Inge D. Brouwer and Ken E. Giller. Wageningen University.
1443	(Poster Number 315) Effects of the Legumes, Common Beans and Cowpeas, on Child Development and Morbidity Caused, Versus a 10% Soy Based Food. Yankho Kaimila,* College of Medicine
1444	(Poster Number 316) Effects of Phosphorus and Soil Moisture on Grain Yield, Leaf and Grain Tissue Concentration of Iron and Zinc in Three Bean ( <i>Phaseolus vulgaris</i> L.) Genotypes. Harrison Munuve* and Simon Nguluu, South Eastern Kenya University

## WEDNESDAY, 2 March

TIME	ACTIVITY
1445	(Poster Number 317) The Antimicrobial and Antioxidant Potential of Bambara Groundnut Seeds and Related Value Added Products. Joseline Felix-Minnaar,* Afkile Kamana, Siyasanga Zantsi, Fanie Rautenbach, Marilize LeRoes-Hill and Victoria Adaora Jideani, Cape Peninsula University of Technology
1446	(Poster Number 318) Effects of Aflatoxin Exposure and Legume Based Complementary Foods on Child Nutritional Status. Timalizge Wezi Munthali,* Lilongwe University of Agriculture and Natural Resources, Bunda College Campus
1447	(Poster Number 319) Linking Agriculture to Nutrition: The Role of Nutrition Education in Bean Seed System Development in Southern Africa. Rodah Morezio Zulu*1, Enock Maereka1, Kumbukani Munthali2, Luisa Penicela3 and Nancy Kaenga4, (1) CIAT/PABRA, (2) Mzuzu CADECOM, (3) IIAM, (4) Ministry of Agriculture, Chipata District Coordinator's Office
1448	(Poster Number 320) Consumer Acceptance for Biofortified Iron Beans in Rural Communities. Evidence from Africa and Latino America. Perez Salomon* Sr.1, Adewale Oparinde Sr.2, Ekin Biro2, Manfred Zeller Sr.2 and Carolina Gonzalez1, (1) HarvestPlus (CIAT), (2) HarvestPlus (IFPRI)
1449	(Poster Number 321) Breeding Second Generation Biofortified Bean Varieties for Africa. Paul Macharia Kimani* and Ahmed O Warsame, University of Nairobi
1450	(Poster Number 322) Nutritional Enhancement of Common Bean: Status of Seed Mineral Concentrations and Strategic Targets for Crop Improvement. Michael A Grusak,* Phillip N. Miklas and Karen A. Cichy, USDA-ARS
1451	(Poster Number 323) The Effect of Processing on the Antinutrients in Selected Legumes in Botswana. Olekile Tibe,* Boipuso Legwatagwata and K Motlogelwa, Botswana College of Agriculture
1452	(Poster Number 324) Nutritional Composition of Pulse Legume Crops and the Impact of Leaf Removal on Yield. Rosemary Bulyaba,* ISU
1453	(Poster Number 325) Pre-Processing Techniques, Cooking and Nutritional Properties of Common Beans Grown in Kenya with Regard to Storage Conditions and the Hard-to-Cook Defect. Valentine Wacu Kamau,* Elizabeth Namaemba Wafula, Peter Kahenya Kinyanjui, Daniel Njoroge Mwangi, Anselimo Makokha and Daniel Ndaka Sila, Jomo Kenyatta University of Agriculture and Technology
1454	(Poster Number 326) The Marriage of Nutrition Education and Bean Production Leads to Nutrition-Sensitive Agriculture in Masfrijol. Celina Wille,* Sharon Hoerr and Carolina Molina, Feed the Future Legume Innovation Lab at MSU
1455	(Poster Number 327) Effect of Soy Fortification on Proximate Composition of Cassava Based Porridges. Everlyne Namtala Sikuku,* University of Eldoret



## WEDNESDAY, 2 March

TIME	ACTIVITY
14.00-15.30	<b>Poster Session 2: Integrated Pest Management</b>
1456	(Poster Number 328) Degradation of Azadirachtin on Treated Cowpea with Azadirachta indica Seed Oil and Its Persistence on Callosobruchus Maculatus. Katamssadan Haman Tofel,* The University of Bamenda, Elias Nchiwan Nukenine, The University of Ngaoundere, Matthias Staehler, Julius Kühn-Institut, Federal Research Centre for Cultivated Plants and Cornel Adler, Julius Kühn-Institut Berlin, Germany
1457	(Poster Number 329) Quantification of Yield Loss Caused By the Groundnut Leaf Miner (Aproaerema modicella Deventer) on Different Soybean Genotypes in Uganda. Mercy Namara,* Jeninah Karungi, Richard Edema, Paul Gibson and Phinehas Tukamuhabwa, MUK
1458	(Poster Number 330) Belowground Influence of Rhizobium Inoculant and Water Hyacinth Composts on Yellow Bean Infested By Aphis Fabae and Colletotrichum Lindemuthianum Under Field Conditions. Victoria Naluyange*1, Dennis Ochieno1, Philip Wandahwa1, Martins Odendo2 and John Muoma1, (1) MMUST, (2) KALRO
1459	(Poster Number 331) Evaluation De L'efficacite De Cinq Biopesticides Contre LES Populations De Thrips De Maruca Vitrata EN Culture De Niebe (Vigna Unguiculata (L.) Walp.). Fousséni TRAORE,* INERA, Antoine Waongo, INERA, Clementine Dabiré, INERA , Malick Niango BA, ICRISAT, Antoine Sanon, Université de Ouagadougou and Barry Robert Pittendrigh, UIUC
1460	(Poster Number 332) IPM-Omics: From Genomics to Extension for Integrated Pest Management of Cowpea. Tolulope A. Agunbiade,* UIUC, Brad S. Coates, USDA-ARS, Weilin Sun, UIUC, Malick Ba, ICRISAT, Ibrahim Baoua, INRAB, Manuele Tamo, IITA and Barry Robert Pittendrigh, University of Illinois at Urbana Champaign
1461	(Poster Number 333) Resistance to Insect PEST Complex in Elite Lines in Pigeonpea (Cajanus cajan L.) in Dry Areas of Kenya. Juliana J Cheboi,* University of Eldoret
1462	(Poster Number 334) Evaluation De Quelques Paramètres Biologiques Et De L'efficacité De Therophilus Javanus Bhat Et Gupta (Hymenoptera : Braconidae), Parasitoïde Larvaire De Maruca Vitrata Fabricius (Lepidoptera: Crambidae), Foreuse Des Fleurs Et Des Gousses Du Niébé (Vigna Marius Abimibola Y. Apkoffo*1, Manuele Tamo1, Benjamin Datinon1, Angelo Djihinto2 and Elie Dannon1, (1) IITA Bénin, (2) Institut National des Recherches Agricoles du Bénin (INRAB)
1463	(Poster Number 335) Yield and Yield Related Component of Cowpea As Affected By Cultivar, Planting Date and Sparying Regime. Augustine Mansaray* Sr., Sierra Leone ARI (SLARI)
1464	(Poster Number 336) Mixed Infections of Multiple Pests and Diseases Are the Norm on Common Beans Grown on Smallholder Farms in Western Kenya. Warren Arinaitwe*1, Valente Aritua2, John Otieno Ogecha3, James Muthomi4, Maina Wagacha4, Macdonald Wesonga5, Hassan K Were6 and Robin Buruchara7, (1) CIAT/PABRA, (2) CIAT/PABRA, (3) KALRO, (4) University of Nairobi, (5) Appropriate rural Development Agricultural Program, (6) MMUST, (7) CIAT/PABRA

## WEDNESDAY, 2 March

TIME	ACTIVITY
1465	(Poster Number 337) Integration of Piper Guineense Essential Oil with Cowpea Varietal Resistance in Control of Cowpea Seed Beetle, <i>Callosobruchus Maculatus</i> Fabricius. Samuel A. Babarinde*1, Ebenezer O. Esan <sup>2</sup> , Olagoke Z. Olatunde <sup>1</sup> , David S. Ajayi <sup>1</sup> and Jesusegun P. Olaniyi <sup>1</sup> , (1) Ladoke Akintola University of Technology, (2) Institute of Agricultural Research & Training
1466	(Poster Number 338) Evaluation of Insecticide Application for Managing Bean Flower Thrips and Pod Borers on Common Bean in Uganda. Michael Hilary Otim*1, Wilber Ssekandi <sup>1</sup> , Thomas Odong <sup>2</sup> and Michael Ugen <sup>3</sup> , (1) National Agricultural Research Organization, (2) MUK, (3) NaCRRRI
1467	(Poster Number 339) Propriétés Répulsives Des Extraits De <i>Cleome Viscosa</i> L. (Capparaceae) En Situation De Non Choix Contre <i>Clavigralla Tomentosicollis</i> (Hemiptera : Coreidae), Punaise Suceuse Des Gousses De Niébé En Conditions De Laboratoire. Antoine Waongo,* INERA, Fousséni Traoré, INERA, Malick Ba, ICRISAT, Clementine Dabiré, INERA and Antoine Sanon, Université de Ouagadougou
1468	(Poster Number 340) Combined Activity of <i>Maruca Vitrata</i> Multi-Nucleopolyhedrovirus, Mavimnpv, and Oil from Neem, <i>Azadirachta indica</i> Juss and <i>Jatropha curcas</i> L., for the Control of Cowpea Pests. SOKAME Bonoukpoe mawuko,* Ecole Supérieure D'agronomie, Université de Lomé
1469	(Poster Number 341) Effect of Eucariptus and Commercial Vegetable Oils Against Dry Bean Damage By Bean Bruchids. Samson N. Kihara,* KALRO
1470	(Poster Number 342) Effect of Biopesticide for Controlling <i>Maruca .Vitrata</i> Population on Cowpea Crop in Niger. Abdoulaye Zakari Ousseina,* INRAN Niger, Baoua Ibrahim, Université de Maradi, Amadou Laouali, INRAN/Maradi and Abdourahamane Harouna Maimouna, INRAN/ Cerra Maradi
1471	(Poster Number 343) Bruchid ( <i>Callosobruchus maculatus</i> ) Tolerance Assessment of Ten Bruchid Resistant Cowpea ( <i>Vigna unguiculata</i> ) Varieties. Adebayo Ogunkanmi* Sr., Olufemi Amusa Jr. and Toyin Ogundipe, University of Lagos
1472	(Poster Number 344) Insecticide Spray Regime Effect on Cowpea Yield and Financial Returns in Northern Ghana. Asamoah Larbi <sup>1</sup> , Bekele Kotu* <sup>1</sup> , Abdul Rahman Nurudeen <sup>2</sup> , Daniel Brain Akakpo <sup>3</sup> , Mary Asante <sup>1</sup> and Shaibu Mellon <sup>4</sup> , (1) IITA, (2) IITA, (3) Department of Plant Sciences, Wageningen University, (4) Department of Plant Sciences, Wageningen University
1473	(Poster Number 345) Improved Tolerance to Bruchids <i>Callosobruchus Maculatus</i> in Common Bean <i>Phaseolus vulgaris</i> through Induced Mutation. Kennedy Zimba,* Philemon Sohati, Shirley Ng'andu and Kalaluka Munyinda, UNZA
14.00-15.30	<b>Poster Session 2: Plant Pathology</b>
1474	(Poster Number 346) Incidence and Severity of Fusarium Wilt of Bambara Nut ( <i>Vigna subterranea</i> ) in Western Kenya. Cynthia Nafula Wakhungu,* Egerton University-Kenya
1475	(Poster Number 347) Dr. Deidre Fourie <sup>1</sup> , Neal McLaren <sup>2</sup> and Hangwani Muedi* <sup>1</sup> , (1) ARC, (2) University of Free State

## WEDNESDAY, 2 March

TIME	ACTIVITY
1476	(Poster Number 348) A Strategy to Manage Highly Variable Pathogens of Common Bean in Africa and the Americas. Marcial Antonio Pastor-Corrales,* Agricultural Research Service-United States Department of Agriculture and Giseli Valentini, Universidade Estadual de Maringá
1477	(Poster Number 349) Virulence of <i>Macrophomina Phaseolina</i> Isolates in Common Bean ( <i>Phaseolus vulgaris</i> ) Genotypes. Tim Porch* <sup>1</sup> , Julian Colley <sup>1</sup> , Olga Gonzalez <sup>1</sup> , Timothy Porch <sup>2</sup> and James S Beaver <sup>1</sup> , (1) UPR, (2) USDA-ARS
1478	(Poster Number 350) Angular LEAF SPOT Disease Status and Characterization of the Causative Pathogen ( <i>P. GRISEOLA</i> ) in Tanzania. Luseko Amos Chilagane,* SUA, Susan Nchimbi, SUA and Tim Porch, USDA-ARS
1479	(Poster Number 351) Phenotypic Characterization of Bean Rust Isolates from Common Bean in the Guatemalan Highlands. Luz de Maria Montejó* <sup>1</sup> , Danilo Dardon <sup>2</sup> , Julio C Villatoro <sup>2</sup> , Luis Fernando Aldana <sup>2</sup> and Juan M. Osorno <sup>1</sup> , (1) NDSU, (2) ICTA
1480	(Poster Number 352) Report of <i>Sclerotinia sclerotiorum</i> As the Causal Organism of the Leaf Spot and Stem Blight Disease of African Yam Bean ( <i>Sphenostylis stenocarpa</i> ). Akinbiyi Andrew Akinlabi* and Iyabo Kemi Kehinde, Federal University of Agriculture, Abeokuta
1481	(Poster Number 353) Low Cost Management of the Variable Pathogen Causing Bean Rust in Africa and the Americas. James Steadman* <sup>1</sup> , Marcial Antonio Pastor-Corrales <sup>2</sup> , Serena McCoy <sup>1</sup> and Carlos A. Urrea <sup>3</sup> , (1) University of Nebraska, (2) Agricultural Research Service-United States Department of Agriculture, (3) University of Nebraska-Lincoln
1482	(Poster Number 354) Reaction of the Base 120 Lines to Angular Leaf Spot in Puerto Rico. Tim Porch* <sup>1</sup> , Diego Rodriguez <sup>1</sup> , Timothy Porch <sup>2</sup> and James S Beaver <sup>1</sup> , (1) UPR, (2) USDA-ARS
1483	(Poster Number 355) Summary of the Bean Diseases Regional Trials Planted at Mount Makulu in 2014/2015 in Zambia. Mathias Tembo,* Kennedy Muimui and Patrick Chiza Chikoti, Zambia Agriculture Research Institute
1484	(Poster Number 356) Occurrence of Cowpea Scab Disease ( <i>Sphaceloma</i> sp.) in Uganda. Emmanuel Afutu* <sup>1</sup> , Eric E Agoyi <sup>1</sup> , Robert Amayo <sup>2</sup> , Moses Biruma <sup>2</sup> and Patrick Rubaihayo <sup>1</sup> , (1) MUK, (2) NaSARRI
1485	(Poster Number 357) Genetic Diversity of Kenyan Cowpea and Response of Selected Cultivars to Cowpea Aphid Borne Mosaic Virus (CABMV).
1486	(Poster Number 358) Survey of Cowpea Viral Disease Symptoms and Detection of Associated Viruses in Selected Cowpea Growing Areas in Ghana. Fuleratu Adams Karim,* KNUST
1487	(Poster Number 359) Aphid Resistance and Biomass Production of Erect Cowpea Genotypes in Uganda. Awio Bruno* <sup>1</sup> , Paul T. Gibson <sup>2</sup> , Kassim Sadik <sup>3</sup> and Edema Richard <sup>1</sup> , (1) MUK, (2) Cooperative Studies, Inc., (3) NARO

## WEDNESDAY, 2 March

TIME	ACTIVITY
1488	(Poster Number 360) Genetic Diversity of Kenyan Cowpea and Response of the Cultivars to Cowpea Aphid Borne Mosaic Virus (CABMV). Irene Akoth Onyango,* Jomo Kenyatta University of Agriculture and Technology
1489	(Poster Number 361) Developing a Screening Protocol for Sclerotium Rolfsii Sacc. Pathogenic on Common Beans: Determination of Optimal Inoculum Levels. FRED KATO,* CIAT/PABRA
1490	(Poster Number 362) Bean Diseases in Southern Highlands of Tanzania: Current Occurrence Status and Management Options. Reinfrid Martin Maganga,* Michael Kilango and Frederica Shao-Mwalyego, ARI (ARI) - Uyole
1491	(Poster Number 363) Introgression of Striga Gesnerioides Resistant Genes into Cowpea Varieties.
1492	(Poster Number 364) Genetic Diversity of Ugandan Rhizoctonia Solani Isolates from Common Bean. Male Allan Ssekamatte,* CIAT, FRED KATO, CIAT/PABRA and Clare Mukankusi, CIAT/PABRA
1493	(Poster Number 365) Introgressing Striga Resistant Genes into Cowpea Varieties through the Use of Marker Assisted Selection.
1494	(Poster Number 366) Genetic Characterization of Angular Leaf Spot Resistance in Selected Common Bean Landraces from Tanzania. George Muhamba Tryphone,* SUA
1495	(Poster Number 367) Yield Loss Associated with Common Bean Rust on Germplasm Evaluation in Uganda. Blessing Adanta Odogwu <sup>1</sup> , Stanley Nkalubo <sup>2</sup> , Patrick Rubaihayo <sup>3</sup> , Clare Mukankusi <sup>4</sup> , Pamela Paparu <sup>2</sup> , James R. Steadman <sup>5</sup> and James D. Kelly <sup>6</sup> , (1) MUK, (2) NaCCRI, (3) MUK, (4) CIAT/PABRA, (5) University of Nebraska, (6) MSU
1496	(Poster Number 368) First Report of Cowpea Aphid Borne Mosaic Virus Infecting Cowpea in Zambia. Patrick Chiza Chikoti* and Mathias Tembo, ZARI
1497	(Poster Number 369) Common Bean Pests and Diseases in Angola. António Chicapa Dovala,* Instituto de Investigação Agronómica
1498	(Poster Number 370) Occurrence and Distribution of Angular Leaf Spot of Common Bean in Zambia. Patrick Chiza Chikoti* and Kennedy Muimui, ZARI
14.00-15.30	<b>Poster Session 2: Seed Systems</b>
1499	(Poster Number 371) What Soybean and Haricot Bean Technologies Pre-Scaling up Have Brought about: Evidence from North Western Ethiopia. Birhanu Ayalew Teka,* EIAR
1500	(Poster Number 372) Dryland SEED Limited Experience in Legume SEED Production and Commercialization in SEMI-Arid Areas of Eastern Kenya. Milcah Munyiva Mutisya* <sup>1</sup> , David Rore Karanja <sup>2</sup> , Felix Ngila Kimotho <sup>1</sup> , Jean Claude Rubyogo <sup>3</sup> and Peter Mwololo Mutua <sup>1</sup> , (1) Dryland Seed Ltd, (2) KALRO, (3) CIAT/PABRA

## WEDNESDAY, 2 March

TIME	ACTIVITY
1501	(Poster Number 373) Nurturing and Supporting Private Companies to Deliver Quality Seed to Small Holder Farmers in a Sustainable Manner. Charles Katabalwa,* CEDO SEEDS
1502	(Poster Number 374) Experineces of Legume Testing, Official Release and Seed Production in Kenya. Simeon Kibet Kogo* 1, David R Karanja2, Edwin Nyamwaya1, Carol Kavuu1 and John Mark Ngeny1, (1) Kenya Plant Health Inspectorate Service (KEPHIS), (2) KALRO
1503	(Poster Number 375) Raising the Profile of the Common Bean: Starting with Integrated Seed Systems and Gender Equity in Kenya. Valentine Wacu Kamau,* Peter Kahenya Kinyanjui and Daniel Ndaka Sila, Jomo Kenyatta University of Agriculture and Technology
1504	(Poster Number 376) Innovative Chickpea Seed and Technology Delivery Systems in Eastern and Southern Africa (ESA). Chris O Ojiewo* 1, Ganga Rao N.V.P.R1, Said Silim2, Emmanuel Monyo1, Moses Siambi1, Asnake Fikre3, Mekasha Chichaymelu3, Million Eshete3, Sherif Aliy3, Tesfaye Geleta3, Robert Kileo4 and Paul Kiprotich Kimurto5, (1) ICRISAT, (2) ICARDA, (3) EIAR, (4) LZARDI-Ukiriguru, (5) Egerton University
1505	(Poster Number 377) Enhancing Production and Dissemination of High Quality Improved Legume Bean Seeds to Small-Scale Farmers in Central and Northern Parts of Rift Valley in Kenya for Increased Nutritional Security and Incomes. Kimurto K Paul,* Egerton University
1506	(Poster Number 378) Analysis of Common Beans Varietal Selection and Constraints for Bean Production and Marketing in Mozambique. Alda Armindo Tomo* 1, Ana Lúcia Gungulo1, Venâncio Alexandre Salegua Sr.2 and Isabel Cachomba1, (1) Institute for Agricultural Research of Mozambique, (2) IIAM
1507	(Poster Number 379) Using Subsidized Seed to Catalyze Demand Driven Bean Seed Systems in Malawi. Ruth Magreta,* PhD student, LUANAR, Jean Claude Rubyogo and Rowland Chirwa, CIAT/PABRA, Dymon Kambewa, Associate Proffesor, LUANAR, Elisa Mazuma, Chitedze Research Station and Martin Andrews, General Manager
1508	(Poster Number 380) Taking Improved Grain Legume Technologies Beyond the Demonstration Plot. Rebbie Harawa,* Bashir Jama, David Kimani, Abed Kiwia and Zacharie Zida, AGRA
1509	(Poster Number 381) Characteristics of SMALL Holder Bean Farmers, SEED Preference and SEED Sources in Selected Bean Corridors of Kenya. Anne Wanjogu Gichangi* 1, Scolastica Wambua1, Justus Muteti Kavoi1, David R Karanja 1, Festus Murithi1, Mercy Mutua2 and Eliud Abucheli Birachi2, (1) KALRO, (2) CIAT/PABRA
1510	(Poster Number 382) Unlocking Pre-Basic Bean Seed Supply Bottlenecks through Mutually Beneficial Public-Private Sector Partnerships in Malawi and Zimbabwe. Enock Maereka, International Center for Tropical Agriculture, Virginia Chisale, DARS, Jean Claude Rubyogo, CIAT/PABRA, Bruce Mutari,* Crop Breeding Institute and Jim Goodman, Exagris Africa Ltd.
1511	(Poster Number 383) Assessing the Potential Demand for Improved Bean Variety Seeds in Malawi. Ruth Magreta,*LUANAR, Enid Katungi, Enock Maereka, Rowland Chirwa and Jean Claude Rubyogo, CIAT/PABRA,

## WEDNESDAY, 2 March

TIME	ACTIVITY
1512	(Poster Number 384) Linking Bean Seed Company to Reach Smallholder with Improved Bean Seeds. Fadhili Salum Kasubiri,* CIAT
1513	(Poster Number 385) Profitability and Growth Prospect of Community Based Seed Production Enterprises. the Case of Common Bean in Southern Rift Valley, Ethiopia. Yetagesu Abuwork Tebeka,* MUK, Enid Katungi and Jean Claude Rubyogo, CIAT/PABRA
1514	(Poster Number 386) Innovative Beans Seed System for Smallholder Farmers-Experiences from Southern Highlands of Tanzania. Michael Andrea Kilango,* ARI - Uyole
1515	(Poster Number 387) Paradigm Shift in Common Bean Production, Productivity and Marketing through Generation and Promotion of Demanded Common Bean Verities in Ethiopia. Berhanu Amsalu Fenta,* EIAR, Melkassa Agricultural Research Centre
1516	(Poster Number 388) Capacity Building of Farmer Groups for Good Quality Seed Production to Accelerate Adoption of Improved Bean Varieties in Northern Zone of Tanzania. Case Study of Kilindi District, Tanga. Papias Hongera Binagwa*1, Jean Claude Rubyogo2, Sostene Kweka1, Simon Slumpa1, John W.J. Msaky1 and Alex Kisamo1, (1) SARI, (2) CIAT/PABRA
1517	(Poster Number 389) Determinants of Sustainability of Community Seed Banks in Nicaragua. David DeYoung* and Mywish Maredia, MSU
1518	(Poster Number 390) Access to More Improved Cowpea Seeds through Partnership. Ibrahim Dzido Kwasi Atokple,* CSIR-SARI
1519	(Poster Number 391) Integrated Seed System for Increased Seed Availability and Higher Yields. Michael Adrogu Ugen*1, Jean Claude Rubyogo2, Stanley Nkalubo1, Gabriel B. Luyima1, Paul Aseete1 and Isaac Joseph Muggaga3, (1) NaCCRI, (2) CIAT, (3) NaCRRRI
1520	(Poster Number 392) A Poster: Application of Monitoring and Evaluation and Geographical Information System on Accessibility and Utilization of Improved Bean Seed Varieties in Northern Tanzania. Sylvia Monica Kalemera,* CIAT
1521	(Poster Number 393) The Economics of Community Based Seed Production: A Case Study of the Association Song Koadba (ASK), Burkina Faso. Mywish Maredia,* MSU and Dieudonné Ilboudo, INERA
1522	(Poster Number 394) Enhancing Smallholder Farmers' Access to Improved Cowpea Seed at the Community Level in Northern Ghana. Julius Yirzagla,* CSIR-SARI
1523	(Poster Number 395) Farmers' Willingness to Pay for Quality Bean Seed: Evidence from Central America. Mywish Maredia1, Byron Reyes*2 and David DeYoung1, (1) MSU, (2) CIAT
1524	(Poster Number 396) A Pathway to Small Farmer Success in Tripling Black Bean Yields in Guatemala. Salvador Castellanos,* Luis Flores and Cynthia Donovan, MSU



## WEDNESDAY, 2 March

TIME	ACTIVITY
	1525 (Poster Number 397) Overview of Tropical Legumes Projects (TLI, TLII, TLIII) - the Chickpea Scenario in Ethiopia. Mekasha Chichaymelu* 1, Million Eshete1, Lijalem Korbu1, Ridwan Mohammed1, Nigusie Girma1, Dagnachew Bekele1, Asnake Fikre1, Ganga Rao N.V.P.R2, Chris O Ojiewo2, Emmanuel Monyo2, Pooran M Gaur2 and Rajeev K. Varshney2, (1) EIAR, (2) ICRISAT
	1526 (Poster Number 398) Success of Chickpea Production in North Gondar Zone of Ethiopia. Getachew Tilahun1, Mekasha Chichaymelu*2, Million Eshete2, Asnake Fikre2, Sherif Aliy2, Tesfaye Geleta2, Chris O Ojiewo3, Ganga Rao N.V.P.R3 and Emmanuel Monyo3, (1) ARARI, (2) EIAR, (3) ICRISAT
14.00-15.30	<b>Plenary Session: “From seeds to scale and investment to impact: Sharing experiences from USAID legume programming under the Feed the Future Initiative” (Concurrent with Poster Session 2-A)</b>
	<b>Moderators:</b> Anna Tonnes, Director, Economic Growth, USAID Zambia; and Robert Bertram, Chief Scientist, Bureau of Food Security, USAID, Washington.
	Feed the Future value chain approach and the global grain legumes research strategy J. Vern Long, Senior International Agriculture Research Advisor, USAID, Washington DC
	Private sector investments in legumes value chain development- Experiences with Strategic Partnership Grants Patricia Rwasoka-Masanganise, Senior Agricultural Development Specialist, USAID Southern Africa
	Structuring legume investments to promote smallholder impact and integrated value chain development. Tracy Powel, Agriculture Development Officer, USAID Ethiopia
	Promoting agricultural diversification and boosting market competitiveness of target legumes Chrispin Magombo, Agriculture Productivity Specialist, USAID Malawi
	Improving legume seed systems through multiplication and commercialization of improved varieties Harry Ngoma, Food Security Specialist, USAID Zambia
15.30	Break
16.00	<b>Concurrent Thematic Plenary Session 5: “Transformational gender approaches in legumes research and development: Cases of excellence” (90 min)</b>
	<b>Moderator:</b> Esther Njuguna-Mungai, Gender Specialist, ICRISAT, Nairobi, Kenya
16.00	<b>Presentations:</b> Gender transformative PPB in South America Dr. Sally Humphries, Institute of Development Studies, University of Guelph, Guelph, Canada (1528)
16.30	Incorporating gender responsive trait in a bean breeding program Dr. Steve Beebe, CIAT and Enid Katungi, CIAT/PABRA (1529)
16.50	Why isn't gender just about impact? Dr. Jacqueline Ashby, Senior Advisor, Gender in Research, CGIAR Consortium Office, Montpellier, France (1530)
17.00	Plenary Discussion; lead by Esther Njuguna-Mungai

## WEDNESDAY, 2 March

TIME	ACTIVITY
16.00	<b>Concurrent Thematic Plenary Session 6: Stress tolerant orphan legumes as a response to predicted climate changes (90 min)</b> <b>Moderator:</b> Professor Sir Edwin M. Southern, Chair, Kirkhouse Trust, Oxfordshire, United Kingdom
16.00	<b>Keynote Presentation:</b> Stress tolerant orphan legumes as a response to predicted climate changes Dr. Jeremy Ouedraogo, Head Plant Genetics and Biotechnology Laboratory, INERA/ CNRST, Burkina Faso (1531)
16.30	<b>Panel Presentations:</b> Lysimetry: water budget. Dr. Vincent Vadez, Assistant Director, Dryland Cereals, ICRISAT, Hyderabad, India (1532)
16.35	Marama bean and domestication. Prof. Percy Maruwa Chimwamurombe, Associate Professor, University of Namibia, Windhoek (1533)
16.40	Agronomy and field trials. Prof. Patrick A. Ndakidemi, Deputy VC, Nelson Mandela African Institute of Science and Technology, Tanzania (1534)
16.45	Lablab in Kenya. Prof. Miriam Kinyua, University of Eldoret, Kenya (1535)
16.50	Genebanks. Prof. Paul Gepts, Distinguished Professor, UC-Davis (1536)
16.55	Legume Crops in arid regions of India. Dr. D. Kumar - Project Coordinator (arid legumes), CAZRI, Jodhpur, India (1537)
17.00	Panel Discussion

## THURSDAY, 3 March

TIME	ACTIVITY
08.30	<p><b>Field Trips to local farmer communities and grain legume production sites</b></p> <ul style="list-style-type: none"><li>• Community-based Seed Production on cowpea, common beans, etc. in Kazungula, Livingstone District (about 1 hour drive from conference venue)</li><li>• Commercial Legume Production in Kazungula, Livingstone District (about 1 hour drive from conference venue)</li><li>• Zambia Agriculture Research Institute (ZARI) Research Station in Choma, south of Livingstone (about 2.5 hours drive from conference venue)</li></ul>
19.00	<p><b>Gala dinner, "Under an African Moon",</b> at AVANI Victoria Falls Resort-Boma Graciously sponsored by the Zambia Ministry of Agriculture, through the ZARI, and the APPSA Project.</p> <ul style="list-style-type: none"><li>• Presentation of Lifelong Achievement Awards for Excellence in Grain Legume Research; TMAC (Legume Innovation Lab) awards to four grain legume scientists</li><li>• Entertainment by Ngoni Dancers</li></ul>

## FRIDAY, 3 March

TIME	ACTIVITY
08.30-09.30	<b>Poster Session 2-B</b> <ul style="list-style-type: none"> <li>• Abiotic Stress</li> <li>• Biological Nitrogen Fixation</li> <li>• Genomics and Plant Breeding</li> <li>• Human Nutrition and Health</li> <li>• Integrated Pest Management</li> <li>• Plant Pathology</li> <li>• Seed Systems</li> </ul>
09.30	<b>Thematic Plenary Session 7: Grain legume nitrogen fixation and contribution to sustainable intensification</b>
	<b>Moderator:</b> Dr. Regis Chikowo, University of Zimbabwe and N2Africa
09.35	<b>Keynote Presentations:</b> Symbiotic nitrogen fixation and approaches to increase inputs from nitrogen fixation in tropical grain legumes. Prof. Mariangela Hungria, EMBRAPA, Londrina, Brazil; member of the Brazilian Academy of Sciences (1538)
10.00	The cropping and farming system integration and broader benefits of diverse intercropping and rotation systems. Prof Bernard Vanlauwe, IITA, Nairobi, Kenya (1539)
10.25	<b>Panel Discussion:</b> Evaluation and design of legume-based farming systems, Chaired by Prof Ken Giller, N2Africa and Wageningen University, The Netherlands
	<b>Panelists:</b> <ul style="list-style-type: none"> <li>• Roland Chirwa, CIAT/PABRA, Malawi</li> <li>• Felix Dakora, Tshwane University of Technology, South Africa</li> <li>• Robin Burachara, CIAT/PABRA, Kenya</li> <li>• Wezi Mhango, LUANAR, Malawi</li> <li>• Theresa Ampadu-Boakye, N2Africa and IITA, Kenya.</li> </ul>
11.00	Break
11.30	<b>Thematic Plenary Session 8: Sustaining legume value-chains through value added processing and public-private partnerships</b>
	<b>Moderator:</b> Eliud Birachi, CIAT/PABRA
11.30	<b>Keynote Presentations:</b> Setting the scene- Public-private partnerships and value addition. Jemima Njuki, Senior Program Officer, Cultivate Africa's Future, International Development Research Centre (IDRC), Nairobi. (1540)
11.35	The role of policy in supporting value chain development and value chain partnership. Dr. Joyce Mulila-Mitti, Plant Production and Protection Officer, FAO Sub-Regional Office for Southern Harare, Zimbabwe (1541)
11.55	Partnership for linking research outputs to private sector uptake and enhancing nutrition (especially for urban and peri-urban populations) through value added processing of legumes Joab Ouma; Industrial pulse processor, Commercial Director, Lasting Solutions Ltd (1542)
12.15	<b>Panel:</b> How PPP achieves faster food standards setting and legume products development and trade. <ul style="list-style-type: none"> <li>• Mrs. Margaret Lungu, Government Standards Bureau, Zambia (1543)</li> </ul>
12.23	12:23 The broader research framework for legumes and how to build a partnership to promote legumes research using a case of Pulse innovations in Chickpea Prof. Sheleme Beyene, Legume researcher, Ethiopia (1544)

## FRIDAY, 3 March

TIME	ACTIVITY
12.31	Industrial processor; Partnerships for linking research to product development for new pulse products. Joab Ouma, Lasting Solutions Ltd. (1545)
12.39	Research to support agribusiness and investments in pulses. Professor Bill Brown, University of Saskatchewan, Canada (1546)
12.47	A Zambian farmer's perspective on how the PPP can work for the smallholder pulse farmer. Dr. Evelyn Nguleka, President, Zambia National Farmers Union (1547)
13.00	Lunch
14.30	<b>Keynote Presentation:</b> Why all the fuss about legumes? A personal experience by Honorable Dr. Ruth Oniang'o, Founder, Rural Outreach Program (ROP): and Editor and Chief, Journal for Food, Agriculture, Nutrition and Development (AJFAND)
15.15-16.00	Closing Session of Conference
	<b>Comments by:</b> <ul style="list-style-type: none"><li>• Mr. Julius J Shawa, Permanent Secretary, Ministry of Agriculture and Livestock, Zambia</li><li>• Dr. Nteranya Sanginga, Director General, IITA</li></ul>

## Bios of Keynote Speaker

### **Professor Ruth Oniang'o**

Professor Ruth Oniang'o is a food and nutrition scientist whose lifetime passion is to eliminate hunger, poverty and child suffering. She is also a politician, having served in the Kenyan parliament for five years; a rural development specialist with her own non-government organization (NGO); and serves on many boards, both locally and internationally.

Currently, Professor Oniang'o manages Rural Outreach Africa, an NGO she founded more than three decades ago to help smallholder farmers, especially women. Among the communities she works with in western Kenya, Professor Oniang'o is a big promoter of diet diversity, and especially promotes the inclusion of legumes in the diet. She also Editor and founder of African Journal of Food, Agriculture, Nutrition and Development (AJFAND), an online peer-reviewed journal; mentors young people from Africa and beyond; and helps advise on food policy.

Her work has earned her many accolades including: two Kenyan Presidential Medals – a Silver Star and a Distinguished Service Medal for her work with rural communities; the International Food and Agribusiness Management Association Award for Lifetime Distinguished Service; and in 2014 she was named among Fortune Magazine's 30 most influential women globally in foods and beverages.

Professor Oniang'o's areas of research and consultation are household food and nutrition security, women's nutrition, child health, and community level agroprocessing and related enterprises.



## SATURDAY, 5 March

TIME

ACTIVITY

- Conference attendees depart on mid-day flights
  - Side events
  - Auxiliary activities (safari, Victoria Falls, etc.) for those desiring to extend stay in Zambia
-

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- Feed-the-Future Innovation Lab for Climate-Resilient Cowpea
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