



# Food Security and Nutrition for the Americas

## Challenges and Opportunities for this Century



Lima, Peru  
March 14-15  
**2017**



The Inter-American Network of Academies of Sciences  
The German National Academy of Sciences-Leopoldina  
The Global Network of Academies of Sciences  
National Academy of Science of Peru

**IANAS The German National Academy of Sciences-Leopoldina IAP**

**Food and Nutrition Security for the Americas.  
Challenges and Opportunities for the next 50 years  
Country Chapters Meeting**

**Lima, Peru March 13<sup>th</sup> -16<sup>th</sup> , 2017**

**Hosted by the National Academy of Sciences of Peru**

Assuring food and nutrition security is generally regarded as one of the key global challenges for the 21st century. Population growth, climate and environmental change and technology development will all interact to determine how our various nations will assure an adequate food supply to the citizens of the Americas. Equally important will be national agricultural policies, land use patterns, market systems and systems of infrastructure. These policy dependent parameters are set by national governments and states within nations.

The aim of this project is to assess the outlook for food and nutrition security (FNS) over the next fifty years within the Americas, with the goal of informing national policy makers of critical issues and potential options for each major country of the Americas.

The project is being implemented by the national science academies of the American hemisphere through the Inter-American Network of Academies of Sciences (IANAS) with financial support from the German National Academy of Sciences-Leopoldina, the German Government (Ministry of Education) and the Global Network of Science Academies (IAP-Science). Parallel projects are also underway for the European, Asian and African Networks of Science Academies.

Experts from 21 countries of the Americas will be meeting in Lima, Peru to assess of the food and nutrition security challenge in the hemisphere for the next fifty years. The meeting will culminate in a volume of country assessments that will be published at the end of 2017.

The organization is very grateful with the hospitality and support of the National Academy of Sciences of Peru.

**GENERAL PROGRAM**

Monday March 13<sup>th</sup>, Travel Day

Tuesday March 14<sup>th</sup>, Meeting Full Day

Wednesday March 15<sup>th</sup>, Meeting Full Day

Thursday March 16<sup>th</sup>, Return Day

## Travel Information

### Monday March 13<sup>th</sup> Travel Day

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General Recommendations prior your trip: Forecast Weather °C 30/24 °F 86/75 Do not forget: To call your credit card company and inform about your next trip. Make copies of your passport. Check with the airline the new baggage policies

-You will be arriving at the Aeropuerto Internacional Jorge Chavez, Lima Peru.

-Before exiting Customs, we recommend to change some local money for incidentals. (Average exchange rate is \$1.00 USD= \$3.20 Soles)

-A pick up service has been arranged for the Airport to Hotel-Airport transportation. A representative of the company Viajes Pacífico will pick you up at the passengers arrival hall at the airport. Please look for the "IANAS" and/or "Viajes Pacífico" sign. Below a picture of the company staff. Viajes Pacífico telephone: 51-1-6101900 Annex 255 and 282, 24 hours



-IANAS will be tracking your flights and will inform the pick up company about the status of your flight so please allow 20 minutes but if the pick up services does not show up, please hire the service of Taxi Green (recommended by the Hotel) located at the airport. The charge from the airport to the hotel should be around \$ 27 USD. Reserve your ticket for reimbursement (The reimbursement should take about four weeks).

-Depending on the time of your arrival, please expect 45-55 minutes travel from the airport to the hotel.

-Lodging and Meeting will be at: Hotel NM Lima Address: Av. Pardo y Aliaga 330, San Isidro 15073, Peru Phone: +51 1 612 1000 <http://www.nmlimahotel.com/>

-At your arrival, just mention that you are from the IANAS-Food Group.

-The organization will cover the nights of March 13<sup>th</sup>, 14<sup>th</sup> and 15<sup>th</sup> meals and local transportation during the meeting.

-For those with flights departing March 16<sup>th</sup> during the evening, night or midnight, meals and the extra-time at the hotel will be covered by the organization.

-For dinners, the Restaurant Sum will be open from 18:00 pm to 23:00 pm and the limit for your consulate will be \$84.00 Soles. If you plain arrive later, you can ask for room service and the limit will be \$84.00 Soles

**-Please let us know if you prefer (white meat) or (red meat) and if you have other dietary request.**



# Agenda

## Tuesday March 14<sup>th</sup> Meeting Day Conference Room: Salon Angel 9:30 AM

Breakfast Restaurant Sum Service from 6:00 am to 10:00. Gym will be available for guests

Meeting will be at the Conference Room Salon Angel.

Translation service will be available. Please prepare an ID for the headsets.

9:30            **Welcome**

Abraham Vaisberg Wolach, President of the National Academy of Sciences of Peru and Jeremy McNeil, IANAS Co-Chair.

9:45 – 10:00        **Discussion of plan and objectives for the meeting:** Michael Clegg, General Coordinator of the IANAS-FNS Initiative

10:00 - 12:00      Parallel sessions by regions (Same Conference Room): The goal is to go over the various chapters to identify common themes and to assure that the chapters are reasonably consistent. We want to highlight issues that should be called out in the overall Summary for the project and to begin putting together presentations that can be used either within countries or regionally.

- **Southern Cone of South America**

Coordinator of the Group: Eduardo Bianchi

[Bianchi Eduardo](#) (Argentina), [Vilela Evaldo](#) (Brazil), [Muñoz Schick Carlos](#) (Chile), [Cabrera Maria Cristina](#) (Uruguay).

- **Northern Cone of South America**

Coordinator of the Group: Elizabeth Hodson

[Hodson Elizabeth](#) (Colombia), [Tejada Vélez Einstein](#) (Bolivia), Ecuador [Ruales Jenny](#) (Ecuador), [Gonzales Gustavo](#) (Peru) and [Soledad Tapia Maria](#) (Venezuela).

- **Caribbean and Central America**

Coordinator of the Group: Bruno Zachrisson

Wuddivira Mark (Caribbean), [Solomons Noel](#) (Guatemala), [Huete Jorge](#) (Nicaragua), [Jiménez Victor](#) (Costa Rica), [Zachrisson Bruno](#) (Panama), [Alduvin Carolina](#) (Honduras), [Cornide Maria Teresa](#) (Cuba) and [Betancourt Helmut](#) (Dominican Republic)

- **North America**

Coordinator of the Group: John Klirinomos

[Klironomos John](#) (Canada), [Herrera-Estrella Luis](#) (Mexico), Morrell Peter (USA)

12:00- 12:15 Coffee Break at Salon Ovalin. The conference room will be locked during this break

12:15 – 13:30 Continue the work on Parallel sessions by regions

13:30 – 14:30 Lunch at the Hotel, Restaurant Atrium. Please let us know if you have special meals request.

15:00 – 16:30 **II. General Report back**  
The Coordinators of the parallel sessions are requested to present the conclusions of their session

16:30- 16:45 Coffee Break

16:45 – 18:00 Wrap up for the first day and program for the following day

18:00 – 18:45 Meeting at the lobby of the Hotel and transportation to Miraflores Restaurant Las Brujas de Cachiche

20:30  
IANAS is very grateful with the generosity of the National Academy of Science of Peru hosting the dinner. Dress code: Smart Casual. Comfortable shoes

## Wednesday March 15<sup>th</sup> Meeting Day

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Breakfast Restaurant Sum Service from 6:00 am to 10:00 Gym will be available for guests

Meeting will be at the Conference Room Salon Angel.

Translation service will be available. Please prepare an ID for the headsets.

9:00 – The meeting will be at the Salon Angel Conference Room.

10:00 Welcome and objectives for second day

### III. Issues of composition and book design – Frances Henry, Adriana de la Cruz, Daniel Moreno

- Discussion of a potential Chapter on Gender and Food Security.
- Proposition of contents for Illustrative boxes between chapters
- Processes for book production. A quick and very important crash course about editing PDF

10:00 – 10:30 Coffee Break at Salon Ovalin. The conference room will be locked during this break. Picture of the Group

10:30 – 13:00 **IV. Big picture considerations:** This is a brainstorming session to identify and highlight novel ways to present and analyze possible future trends in food and nutrition security. We will begin with a presentation by Katherine Vammen on the big messages from the “Urban Water Project” and we will then view a short TED talk by Hans Rosling on the evolution of health and income

security. These two presentations are intended to stimulate ideas and discussion about how to present the big picture ideas from our FNS project.

**Some possible cross cutting issues to consider:**

- Major trends for the next fifty years by edaphic, physiographic and climatic regions
- Critical policy challenges including infrastructure, trade, subsidies, investment prospects for technology and human resources
- Natural resource challenges including water, soil quality, energy, climate impacts
- The intersection of gender with food and nutrition
- The global role of the Western Hemisphere in feeding ten billion

**V. Discussion of the content of the separate Summary document**

- **Top priority issues**
- **Key threats over the next fifty years**
- **Opportunities**
  - **Technologies**
  - **Scientific capacity building**
  - **Shifting consumption patterns**
  - **Slowing of population growth**
  - **education**

13:00 – Lunch at the Hotel, Restaurant Atrium. Please let us know if you have special meals request.  
14:30

**15:00 – VI. Ideas for outreach to policy makers**  
16:00

- Model power point presentations that can be adapted for use by individual countries
- Summary documents
- Country based release of report with press event
- Other ideas

16:00- Coffee Break at Salon Ovalin. The conference room will be locked during this break.

16:15

16:15- Potential Dissemination Activities for 2018 (Proposals by Country)

17:00

**End of the Meeting**

Dinner will be served from 19:00 to 23:00 at the Restaurant. Limit \$84.00 Soles

If you wish to visit the city for an evening tour, please contact in advance to Pilar Aguilar from the Kalawi Tours travel agency This activity will need to be covered by the participant

## Thursday March 16<sup>th</sup> Return Day

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- Breakfast Restaurant Sum Service from 6:00 am to 10:00. Gym will be available for guests.
  - The transportation company will leave a message in your room the previous night. Please double check.
  - For those with flights departing March 16<sup>th</sup> during the evening, night or midnight, meals and the extra-time at the hotel will be covered by the organization.
  - The Hotel-Airport transportation will pick you up exclusively at the Hotel NM Lima at the time previously confirmed by you. Please contact: Alejandra Munoz from IANAS, she will be at the Lobby of the Hotel on March 15 during the Coffee Break session to confirm your departing schedule

**End of the Meeting. Thank you very much for your energy and  
commitment towards IANAS**

## Participants

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### **Bio-Sketches of the Chapter Coordinators and/or Contributors attending FNS Lima Meeting**

#### **Argentina**

**Eduardo Bianchi**

[eduardodbianchi@gmail.com](mailto:eduardodbianchi@gmail.com)

**FLACSO OMS, Facultad Latinoamericana de Ciencias Sociales**



Economist from the University of Buenos Aires and from New York University (NYU). He was Secretary of Industry and Trade and Under-Secretary of Foreign Trade in Argentine National Government, General Manager of the Argentine National Commission for Foreign Trade and Chief-Economist of the Argentine Competition Policy Commission. He was an instructor for WTO's training missions on trade remedies and member of WTO's panels and professor in various Argentine universities. Currently, he is professor and researcher at Instituto Universitario Escuela Argentina de Negocios (IUEAN) and in LATN – FLACSO, Argentina. His current research work deals with international trade, industrial policy, climate change and food security.

## **Bolivia**

**Einstein Tejada Velez**

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**FAO – Bolivia, Food and Agriculture Organization of United Nations**



Academician (Chair of Animal Science and Production) at the National Academy of Sciences of Bolivia (NASB); National Coordinator of Risk Reduction Management and Climate Change Unit, FAO Bolivia. Doctoral Program in Digestive Physiology Animal Sciences (KVL Denmark) as Assistant Researcher in the Department of Animal Physiology and Biochemistry (University of Life Sciences, Copenhagen, Denmark); Master of Animal Sciences (New Mexico State University, USA), Engineer Agronomist (National University of San Simon, Cochabamba, Bolivia), 30 years of experience in Development and Protection of Livelihoods and Agricultural Rural Development, professor and researcher at various National Universities. Author and co-author of more than 85 International and national publications among books, outlets and papers.

## **Brazil**

**Evaldo Vilela**

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**FAPEMIG - Fundação de Amparo a Pesquisa do Estado de Minas Gerais**



Dr. Evaldo Vilela received his undergraduate degree in Agronomy from the Federal University of Viçosa (UFV). He holds a Master's degree in Entomology from the University of São Paulo (USP) and a Ph.D. in Chemical Ecology from the University of Southampton, UK. He completed postdoctoral fellowships at renowned Universities in USA, Germany, and Japan. He was Rector of UFV from 2000 to 2004. In addition, he was Deputy Secretary of Science, Technology and Higher Education of the State of Minas Gerais (SECTES-MG) from 2007 to 2014 and President of the Brazilian Society of Agricultural Defense (SBDA) from 2010 to 2013. Dr. Vilela was also the Director of Science, Technology, and Innovation of at the State Funding Agency of Minas Gerais (FAPEMIG) from March to December 2014, where nowadays he is the President.

## **Canada**

**John Klironomos**

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**The University of British Columbia**



John Klironomos is a world-renowned expert in plant and soil ecology. His research on mycorrhizal symbioses and plant-soil feedbacks has had major impact on several disciplines in ecology, including biodiversity and ecosystem functioning, species coexistence, invasion biology, and biological responses to climate change. He is well known for his creative experimental approaches to deciphering complex interactions in soil, and for developing model microbial systems to address fundamental questions in ecology. (Source: Jeremy McNeil message).



## **Canada**

**Jeremy McNeil**

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**Western University**

**IANAS Co-Chair and Member of the Editorial Committee**



Jeremy N. McNeil received his B. Sc. University of Western Ontario, Canada (1969) and his PhD at North Carolina State University, USA (1972). From 1972-2012 he was a professor at Laval University, Quebec and in 2013 was a Humboldt Fellow in Hamburg. Jeremy is now Distinguished University Professor and the H. Battle Professor of Chemical Ecology at the University of Western Ontario. He has an interdisciplinary research programme in chemical ecology, has published >200 scientific papers and trained > 50 graduate students. He has received a number of national and international awards for his research, including the Gold Medal from the Entomological Society of Canada, the Fry Medal of the Canadian Society of Zoologist, the Silver Medal of the International Society of Chemical Ecology and the Delwart Prize in Chemical Ecology (Belgium). He is a Fellow of the Royal Society of Canada and currently the RSC Foreign Secretary. For over 30 years he has been engaged, both at home and abroad, in activities relating to the public awareness of science and has received several national awards for his outreach activities. In 2014 he was appointed to the Order of Canada for his research and for his dedication to increasing public appreciation of science.

## **Caribbean**

**Mark Wuddivira**

[mark.wuddivira@sta.uwi.edu](mailto:mark.wuddivira@sta.uwi.edu)

**The University of the West Indies**



Dr. Mark Wuddivira is a Senior Lecturer in the Department of Food Production and Deputy Dean in the Faculty of Food and Agriculture, the University of the West Indies, St. Augustine, Trinidad and Tobago. He holds a Ph.D. in Soil Science and has published widely in high impact journals and book chapters covering areas such as precision agriculture, agricultural and environmental soil and water management, agricultural environmental soil physics, soil structure, soil processes and function, infiltration and susceptibility of soils to seal formation, runoff and erosion under intense humid tropical rainfall and mitigation strategies, soil water characteristic and hydrology in tropical ecosystems, soil and watershed geophysical imaging using electromagnetic induction. His research has focused on soil conservation strategies and the use geophysical techniques for precision food production towards food security in Small Island Developing States.

## **Chile**

**Carlos Muñoz Schick**

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**Universidad de Chile**



Carlos Muñoz-Schick is a Chilean scientist. He completed his undergraduate studies at the University of Chile, where he received a degree in Agricultural Engineering in 1971. He then pursued graduate studies at the University of Florida, in the United States, where he obtained the degree of Master of Science in 1981 and the degree of

Doctor of Philosophy in 1984, working in Genetics and Fruit Breeding. He is currently Professor and Deputy Dean of the Faculty of Agricultural Sciences at the University of Chile. Until 2010 he was a researcher at the National Institute of Agricultural Research in Chile. He has been a Consultant in Biotechnology and Genetic Resources to the Ministry of Agriculture and other government organizations. He has authored or coauthored over 160 publications including book chapters, scientific publications, conference presentations and extension publications, both in the agricultural and biotechnology fields. The Chilean Fruit Growers Association has honored him for his contribution to research in biotechnology applied to fruit breeding and the Chilean Agricultural Engineers Association awarded him the 2009 Carlos Porter distinction for his scientific achievements. He is also a Member of the Chilean Academy of Agricultural Sciences.

### **Colombia**

**Elizabeth Hodson de Jaramillo**

[ehodson8@outlook.com](mailto:ehodson8@outlook.com)

**Pontificia Universidad Javeriana**



Professor Emeritus at the School of Sciences of the Pontificia Universidad Javeriana (Bogota, Colombia); corresponding member of the Academia Colombiana de Ciencias Exactas, Físicas y Naturales ; Honorary Fellow for the Scientific Committee in Fondazione Scuola Medica Salernitana (Italy), Visiting Professor for the Doctorate in Bioethics at Universidad del Museo Social Argentino and at Universidad El Bosque (Colombia); member of the Ad Hoc Technical Expert Group (AHTEG) on Risk Assessment and Risk Management under the Cartagena Protocol on Biosafety (Convention on Biological Diversity); member of UNESCO's World Commission on the Ethics of Scientific Knowledge and Technology (COMEST).

Ph.D. from the University of Nottingham in the areas of Botany and plant genetic manipulation. International consultant for Biodiversity, Agro biotechnologies and Biosafety of GMOs. Has edited more than 19 books, 26 scientific chapters in books and more than 50 scientific articles.

### **Costa Rica**

**Víctor Jiménez**

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**Universidad de Costa Rica**



Full professor in Plant Physiology and Plant Biotechnology, and Director of the Institute for Research in Agriculture, at the University of Costa Rica. M.Sc. in Plant Biotechnology from the University of Costa Rica and Ph.D. in Agricultural Sciences from the University of Hohenheim, Germany. Received the TWAS/CONICIT award for Costa Rican young scientists in 2005. Was selected as Alexander von Humboldt fellow (2006-2007) and visiting professor at the University of Hohenheim (2012-2013). Received the award to distinguished researcher from the University of Costa Rica in 2009. Is the Regional Coordinator for Latin America of the Food Security Center, an Exceed project based at the University of Hohenheim. Has for than 50 peer reviewed publications.

## **Cuba**

**Maria Teresa Cornide**

[cornidemt@inica.azcuba.cu](mailto:cornidemt@inica.azcuba.cu)

**Instituto Nacional de Investigaciones de la Caña de Azúcar**



**Names and surname:** María Teresa Cornide Hernández (La Habana, Cuba, 1946-)

**Nationality:** Cuban. Civil status: married.

**Scientific field:** Plant Genetics and Breeding: Disease resistance; Molecular Applied Genetics and modeling.

**Other professional Appointments:**

-Cuban Academy of Sciences (ACC). Elected: Full Member (1995), Academic of Merit (1999 -) and Coordinator of the Section of Agricultural Sciences and Fishery (2001-2006, 2006-2011, 2012-).

-Associate Senior Professor. Plant Biology Dept. Fac. of Biology. University of Havana.

**Degrees held:**

-Graduate from the Faculty of Biology, University of Havana (1969). Cuba.

-Ph.D. in Biological Sciences (1974); Doctor in Sciences (2009). Ministry of Higher Education. Cuba.

## **Dominican Republic**

**Helmut Bethancort**

[helmutbio@yahoo.com](mailto:helmutbio@yahoo.com)

**Universidad Nacional Evangélica**



Helmut Bethancort has a background in Animal Science, later obtained a M.A. in Biblical Studies (Chicago, USA, 2002), and a M.Sc. in Biotechnology (ISA University, Dominican Republic, 2009). He is lead researcher in the projects: Breeding and evaluation of crossbred steers (*B. taurus* x *B. indicus*) with higher meat quality through molecular marker assisted selection and Introduction of the *FecB* (Booroola) gene and its effect in the prolificacy and productivity of Katahdin sheep with the National Evangelical University (UNEV) and funding from FONDOCYT. He has been a consultant for the National Council for Research in Agriculture and Forestry (CONIAF) supervising master's degree programs in veterinary medicine and agriculture. He coordinated the Program for Competitive and Sustainable Development of Dominican Bovine Cattle Farming (PROBOVINO) with the Center for Agriculture and Forestry Development, Inc. (CEDAF) from 2007 to 2014. Mr. Bethancort is currently teaching genetic improvement and dairy and beef cattle farming at the Universidad Autónoma de Santo Domingo (UASD) within the Animal Husbandry school.

## **Ecuador**

**Jenny Cumanda Ruales**

[jenny.ruales@epn.edu.ec](mailto:jenny.ruales@epn.edu.ec)

**Escuela Politécnica Nacional, Quito**



Dra. Jenny Ruales has a diploma of Chemical Engineer from Escuela Politécnica Nacional, Quito-Ecuador, a Licenciante degree in Food Engineering and a Ph.D. from the Lund University, Lund-Sweden. Since 1993, she is working at Escuela Politécnica Nacional from Quito- Ecuador. She worked as food technologist consultant for the Word bank for Ecuadorian children feeding programme (1994). She has experience in

product development, food science research and project management. She is research scientist and project manager in the field of functional foods and her activities are related to add value to local materials, evaluation of the effect of processing on the bioaccessibility of nutrients and bioactives. She is applying conventional processes and emerging technologies like membrane technology, UV-light and vacuum frying for product development. She has been the responsible for the Master programme in Food science since 1994 until 2012, and she is the coordinator of the Ph.D programme in Food Science and Technology.

## **Guatemala**

**Noel Solomons**

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**The Center for Studies of Sensory Impairment, Aging and Metabolism (CeSSIAM)**



Noel W. Solomons MD was born in Boston, MA, USA, where he graduated from Harvard College and Harvard Medical School. He later specialized in internal medicine and gastroenterology and clinical nutrition. He has lived in Guatemala since 1975, first affiliated with the Institute of Nutrition of Central America and Panama (INCAP) until 1985; he is the founding Scientific Director of the Center for Studies of Sensory Impairment, Aging and Metabolism (CeSSIAM) since 1985. He has held academic appointments at: Massachusetts Institute of Technology; Boston University and Tufts.

His current research interests include: body composition; iron metabolism; child growth; diet and disease; micronutrients; and aging. He has authored over 600 publications.

## **Honduras**

**Carolina Alduvin**

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**Universidad Nacional Autónoma de Honduras**



México City, June 17th, 1955; Bachelor in Sciences and Letters, Escuela Nacional Preparatoria, UNAM 1972; B.S. Biology, Universidad Nacional Autónoma de Honduras, 1979; M.Sc. Genetics, West Virginia University, 1982. Professor of Genetics, UNAH, 1983 – 2014; Head of Biology Department, UNAH, 1987 – 1992; Head of Biology Majors Program, UNAH, 2004 – 2006; Head of National Committee on Biological Sciences, 1990; Rep. from Honduras to Latin American Network of Biological Sciences, 1990; Rep. from Honduras to Latin American Program on Human Genome, 1990. Member of National Academy of Sciences of

Honduras, 1992; Secretary of National Academy of Sciences of Honduras, 2000; Biology Society of Honduras, 2010; Focal Point of WfS program of IANAS, 2015. Environment Officer at Ministry of Natural Resources, 1997 – 2002; Founder Member of National Committee on Biotechnology and Biosafety, 1997; Member of Honduran Delegation to COP-MOP Convention on Biodiversity, 2014.

## **Mexico**

**Luis Herrera Estrella**

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**Langebio CINVESTAV**



Dr. Luis Herrera Estrella, a pioneer and leading expert on genetic engineering, received a Ph.D. in plant molecular biology from the State University of Ghent, Belgium, where he also conducted postgraduate research. His current research is focused on the study of the molecular mechanisms that regulate the development of plant roots in response to environmental factors and in the field of functional genomics of several endemic species of Mexico. He is a Howard Hughes Distinguished Fellow, and a member of US National Academy of Sciences. Dr. Herrera has received many prestigious awards for his work, among them the Distinguished Graduate Research Award by the New York Academy of Sciences, Javed Husain award by UNESCO, Gold Medal by WIPO (World Intellectual Property Organization). Dr. Herrera Estrella has graduated many students under his direction, such as: 17 BSc, 14 MSc, and 36 PhD. His research has generated 5 patents and more than 200 publications in international journals and books which have received more than 7,800 citations. He recently created the company called StelaGenomics, which is dedicated to the development of genetically modified crops designed to reduce the use of fertilizers and agrochemicals in agriculture. Currently, he is the Director and Full Professor of the National Laboratory of Genomics for Biodiversity.

## **Nicaragua**

**Jorge Huete**

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**Universidad Centroamericana**



Dr. Huete received his Ph.D. in Biochemistry/Molecular Biology through a joint program at the University of Sao Paulo, School of Medicine, Brazil, and the University of California San Francisco, USA. Jorge has received numerous scholarships, fellowships and awards from diverse organizations including the WHO, McArthur Foundation, and Rockefeller Foundation. He also won a Pew Latin American Fellowship for postdoctoral research in molecular parasitology at the University of California. In 1998 he founded the Molecular Biology Center at the University of Central America, the first molecular biology research and training laboratory in Nicaragua. The MBC laboratory performs the official testing of GMO (Genetically Modified Organism) imports in Nicaragua in collaboration with the Ministry of Agriculture. Jorge is the representative for Central America at the RLOC network of GMO testing laboratories. For almost 15 years, Jorge has been the Director and Principal Investigator of the MBC-UCA. For a period of 4 years he was head of Research at UCA. Jorge was a postdoctoral fellow at Harvard University (2001), and a Research Fellow at the Sandler Molecular Center of UC San Francisco (2004). In 2009 Jorge became the Founding President of the Nicaraguan Academy of Sciences. He is a consultant to numerous governmental and non-governmental organizations, and an outspoken advocate for improving science education and the appropriate use of biotechnology for development. His lab currently performs research on molecular parasitology, forensic DNA typing and bio-prospecting for industrial enzymes. His lab has a collaborative program with New England Biolabs on endonucleases and is currently a visiting scientist at New England Biolabs, MA., USA. Jorge was head of the GEF Biosafety project (2005-2007). At UCA Jorge has



supervised training activities of the disciplines Industrial Microbiology & Biotechnology, Industrial and Environmental Biotechnology

### **Nicaragua**

**Katherine Vammen**

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**Universidad Centroamericana**

**Co-Chair of the IANAS Water Program and Member of the Editorial Committee**



Katherine Vammen PhD with specialty in biochemistry and microbiology of water from the University of Salzburg (Paris Lodron), Austria. Specialist in water quality and management. Dean of the Faculty of Science, Technology and Environment of the University of Central America in Nicaragua. Co-Chair of the Inter-American Network of Academies of Sciences (IANAS) Water Program and National Focal Point for Nicaragua. Co-editor of Urban Waters Challenges in the Americas, IANAS publication 2015. Former Deputy director of the Nicaraguan Research Center for Aquatic Resources at the National Autonomous University of Nicaragua (CIRA/UNAN). Founder of the Central American Regional Master's Program in Water Sciences.

### **Panama**

**Bruno Zachrisson**

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**Instituto de Investigaciones Agropecuarias de Panama (IDIAP)**



Studied biology at the Federal University of Paraná, in Curitiba, Brazil and obtained the master's degree in entomology in the University. The Ph.D. in agricultural entomology, carried out in the University of São Paulo (ESALQ), Brazil. Currently, he is an entomologist and has 26 years of being researcher at Instituto de Investigación Agropecuaria de Panamá, holding the position of national director of research program of Innovation for Competitiveness for Agribusiness (2011-2013), and deputy director (2014-2015). Retrieved recognitions and prizes, national and international, among these the medal "German de Leon", as a researcher featured in the agricultural sciences, in 2010, among others. From 2010, belongs to the national system of researchers (SNI), in the category "Investigador Nacional II". He is working in entomology agricultural and biological control of insect-pest. He is also a professor in the master's degree program in entomology, from the University of Panama. It belongs to various international associations and he is Vice President of the International Organization of Biological Control, for the neotropical region (IOBC-SRNT) (2014-2019) and Vice President of the Panamanian Association for the Advancement of Science (APANAC) (2015-2017).

**Peru**

**Gustavo Gonzales**

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**Universidad Peruana Cayetano Herrera**



Dr. Gustavo F. Gonzales is Professor at the Cayetano Heredia Peruvian University in Lima, Peru. He is Doctor in Sciences (1985) and Doctor in Medicine (1999). Actually, he is Secretary of the Peruvian National Academy of Medicine, and the Vice President of the Peruvian National Academy of Sciences. He is Principal Investigator in Peru of the GeoHealth Hub centered in Peru supported by the Fogarty International Center (FIC).

Actually is Director of the Research Circle on Medicinal Plants with effects on Health. His research activity is oriented on biological activities of maca, a plant from the highlands in Peru. This food is highly recognized worldwide due to various functional properties. He is author of more than 295 publications including 9 books and 14 chapters of books. He has received 60 Awards during professional career. In 2010, he got the second Award to the Research in Nutritional and Alimentary Security in Latin America and Caribbean organized by FAO through the Network of Research in Nutritional and Alimentary Security for Latin America and Caribbean (REDSAN), with: "Maca: From the lost Crops of the Inkas to the Miracle of the Andes".

**Peru**

**Ana Colarossi Salinas**

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**Universidad Peruana Cayetano Herrera**



Director of the School of Nutrition of the Universidad Peruana Cayetano Heredia (UPCH).

Master of Science with a major in Biochemistry and studies in PhD in Biochemistry and Molecular Biology. Specialty Nutrition Physical Activity and Health.

Associate Professor of the Department of Cellular and Molecular Sciences, involved in undergraduate and graduate teaching and research.

Researcher in nutrition area since 1985 and head of the Micronutrients Unit in the Laboratories of Research and Development (LID) Faculty of Sciences and Philosophy of Universidad Peruana Cayetano Heredia (UPCH) and head of the Iodine Laboratory of network IRLI.

**Peru**

**Lidia Sofia Caballero Gutierrez**

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**Universidad Peruana Cayetano Herrera**



I'm Born in Arequipa - Peru, On August 3, 1962, Nutritionist of Profession, with studies of undergraduate in Saint Agustín's National University of Arequipa-Perú, with post

graduate and speciality in the University of Chile Santiago - Chile and Peruvian University Cayetano Heredia Lima-Perú. I'm Principal Teacher to level of undergraduate and post graduate in the National University of the Altiplano Puno-Peru and investigator in the area of micronutrients with emphasis on nutritional interventions in populations of high altitude, member of the Research Circle plants effect on health- CONCYTEC-Perú. I have occupied charges as Director of Studies, Coordinator of Investigation of the Faculty of Sciences of the Health and adviser in topics of health, nutrition and feeding in public and private institutions.

## **Peru**

**James Alvarez Rodríguez**

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### **Universidad Nacional Dante Alcides Carrión**



Mg. Fernando James Alvarez Rodriguez, Agronomist. Associate Professor of the School of Agronomy of the Faculty of Agricultural Sciences of the Daniel Alcides Carrión National University in Pasco, Peru. Member of the editorial board of the journal Praxis. He was the Academic Director of the School of Agronomy Yanahuanca. Research Circle Member in plants with health effects (UPCH - CONCYTEC). His research focuses on grains like quinoa (*Chenopodium quinoa*), amaranth (*Amaranthus caudatus*) and kañihua (*Chenopodium pallidicaule*) as well as Andean foods such as maca (*Lepidium meyenii*). Currently through the UNDAC-UNALM research group, he is collecting and preserving native potatoes in Pasco region.

## **United States**

**Peter Morrell**

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**University of Minnesota**



Peter L. Morrell is an associate professor in the Department of Agronomy and Plant Genetics at the University of Minnesota. His research focuses primarily on genetic variation in plants. Three major areas of emphasis include the impact of domestication on patterns of polymorphism in domesticated species, the contribution of recombination to genetic variation and patterns of linkage disequilibrium, and the nature of adaptation to climatic variation. The research group makes extensive use of high performance computing and develops original programs for bioinformatics and data analysis.

## **United States**

**Michael Clegg**

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**University of California, Irvine**



Professor Emeritus, University of California, Irvine

Michael T. Clegg received his BS and PhD degrees at the University of California, Davis in agricultural genetics and genetics respectively. During a 42-year academic career, he served on the faculty of four universities, most recently as the Donald Bren Professor of Biological Sciences at the University of California, Irvine. From 1994 to 2000 he served as Dean of the College of Natural and Agricultural Sciences at UC Riverside and he was the founding Director of the UC Riverside Genomics Institute. Clegg served for 12 years as Foreign Secretary of the US national Academy of Sciences. He is currently Vice President (External) of the International Council of Science (ICSU) and a former Co-Chair of the Inter American Network of Academies of Science (IANAS). Clegg's research specialty is population genetics and molecular evolution where he has published extensively. Clegg is a Member of the US National Academy of Sciences, the American Academy of Arts and Sciences and the American Philosophical Society. He is a Fellow of the Global Academy of Sciences (TWAS) and a corresponding Member of several academies in Latin America and Africa.

## **Uruguay**

**M. Cristina Cabrera**

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**University of de Republic of Uruguay**



Dr. M. Cristina Cabrera obtained her B.Sc. degree in Agricultural Engineering at the Agronomy Faculty at the University of the Republic of Uruguay. She obtained her Master of Science and PhD in Nutritional Sciences from the Pierre and Marie Curie University (Paris VI) in France in 1986. She is a Nutrition Professor and Head of the Nutrition & Food Quality Group of the Agronomy Faculty and Associate Professor in Physiology & Nutrition of the Faculty of Sciences in Uruguay. She is coordinator of the Master in Nutritional Science held at the University of the Republic. Her research is focused on the nutritive value of meat from beef, pork, poultry and other species. Her research emphasizes on minerals, vitamins and peptides, content and bioavailability in meat, as well as the modifications provoked by animals' diet and meat processing. She also leads collaborative studies on the bioavailability of nutrients in local vegetal foods. The main interest of this research is to contribute to the knowledge of essential nutrients in animal and vegetal foods, in order to ensure nutritional security for all ages and to improve the well-being of people. Dr. Cabrera and her team manage research projects from national agencies and international organisms, and lead applied research in collaboration with the production and agri-food sector.

## Venezuela

María Soledad Tapia

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María S. Tapia was born in Caracas. She is a Biologist and Doctor in Food Science from Universidad Central de Venezuela and works in the Institute of Food Science and Technology of the Faculty of Sciences. She has a Master of Science from Michigan State University. She created the "Foundation 5aDay Venezuela" that promotes the daily consumption 5 servings of fruits and vegetables for prevention of chronic diseases and micronutrient deficiencies. She has authored and co-authored around 100 publications as peer reviewed articles and book chapters. She has edited 4 books internationally in the area of food and fruit preservation, and co-authored a FAO handbook on food preservation and has coordinated several research on food and fruit preservation. She has a blog on nutrition and health: <http://miradorsalud.com/site/>

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## IANAS Focal Point and Members of the Academy

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Nicole Bernex, Focal Point of the IANAS Water Program

Manfred Horn, Focal Pint of the IANAS Energy Program

Ruth Shady, Focal Point of the IANAS Women for Science Program

César Carranza, Focal Point of the IANAS Science Education Program

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