



Photo from BVU College of Life Sciences

2013

PRESENTERS

International Quinoa Research Symposium



DIDIER BAZILLE

Scientist and researcher, CIRAD (International Cooperation Center for Agricultural Research for Development)

Didier Bazile is a geographer (PhD, Toulouse, FR) and agricultural engineer (MSC, Dijon, FR), specializing in ecology. Currently in Montpellier (France), he has over 14 years of professional experience abroad. Trained in both agronomy and ecology, Bazile's interest lies in the collective management of genetic resources in agriculture, considering the agricultural systems and seed systems associated with genetic impacts on biodiversity dynamics at different scales, and valuing the various knowledge and various forms of regulations to encourage better access to seeds by farmers. He develops participatory action research with a special interest in social and spatial dynamics of biodiversity. As a visiting professor at the Institute of Geography (PUCV, 2008–2012), he coordinated three international quinoa projects funded by the National Research Agency of France (IMAS project: France-Chile-Mali), the European Union (IRSES Project: France-Chile-Italy) and the Foundation for Research on Biodiversity (France-Chile-Brazil). A specialist of in-situ conservation of agricultural biodiversity, he is on the International Coordinating Committee preparing the International Year of Quinoa (IYQ-2013) and he is coordinating the "State of the Art Worldwide Quinoa" for IYQ-2013.



DANIEL BERTERO

Professor, Faculty of Agronomy, University of Buenos Aires (Crop Physiology) and researcher at Conicet, the Argentinian National Research Council

Daniel Bertero studied biology at the University of Cordoba, Argentina, and earned a PhD (including a year at CSIRO Plant Industry, Australia) in agriculture sciences at the University of Buenos Aires. His research and interest focus on quinoa crop and seed physiology, germplasm characterization, molecular markers, and quinoa archaeology and anthropology (the cultural context of quinoa cultivation and use). He directs agronomy MS and PhD students on genotype by interaction patterns; resistance to pre-harvest sprouting; molecular and morpho-phenological characterization of germplasm; and crop carbon and nitrogen balance. Bertero is also involved in studying quinoa responses to temperature and photoperiod, crop adaptation, and application of molecular markers in archaeological samples (Archaeoquinuas project, in collaboration with CEFEM Montpellier, France). Other species of interest are chia, grain amaranths, and Andean crops.



MATTHEW DILLON

Director of Seed Matters, Clif Bar Family Foundation

Matthew Dillon is agricultural policy and programs manager at Clif Bar & Company, and director of Seed Matters, an initiative of the Clif Bar Family Foundation to improve organic seed systems. Dillon serves as Clif Bar's liaison with state and federal officials on organic policy issues, and works with leaders in the organic industry, non-governmental organizations, and academia. At Seed Matters, Dillon directs the support of projects that conserve crop diversity, protect farmers' roles as seed innovators, and reinvigorate public seed research. His diverse roles in organic agriculture since 1982 include farmer, non-profit advocate, and consultant to organic food companies. Prior to joining Clif Bar and Seed Matters in 2012, he was founding director of Organic Seed Alliance, where he launched the nation's first organic plant breeding research and seed production education programs. In 2012 he was appointed to serve on the USDA National Genetic Resource Advisory Council, advising the Secretary of Agriculture on strategies for maintaining plant diversity and strengthening public sector plant breeding.



MORGAN GARDNER

**M.S. Environmental Science Candidate & Teaching Assistant,
Washington State University, Pullman, Washington**

Morgan Gardner's travels to Nigeria to work on an environmental remediation project with TerraGraphics of Moscow, Idaho, prompted her to enroll in graduate school where she became deeply interested in the connection between culture and food. She is studying the introduction of quinoa in Malawi under Dr. Kevin Murphy, evaluating the possibility of growing quinoa as a supplemental crop there. She is specifically interested in understanding the social and cultural reactions of Malawians to quinoa as a food—even if quinoa is successfully farmed in Malawi, will Malawians willingly eat it?



DR. LUZ GOMEZ-PANDO

Principal Professor, Universidad Nacional Agraria la Molina-Peru

Luz Gomez-Pando is a specialist in the breeding of cereals and local native grains such as kiwicha (amaranth) and quinoa, and is the head of the Cereals and Native Grains Research Program of the Universidad Nacional Agraria La Molina. Her research on quinoa includes conventional breeding, crop technology studies in the highlands, and the introduction of cultivars to farmer's fields.



DR. JUAN ANTONIO GONZÁLEZ

Instituto de Ecología, Fundación Miguel Lillo, Tucuman, Argentina

Juan González has spent his entire professional life studying mountain biota. He considers mountains to be places where energy from space reaches human beings through photosynthetic mechanisms, with quinoa being one of the species involved in this energy transference. His first paper on quinoa was published in 1989 and he has studied quinoa in the lab, greenhouse, and field ever since. His team's current goal is the reintroduction of quinoa in the valleys of the Argentinean Northwest where quinoa was cultivated before the Spanish conquest. He is also very interested in quinoa ecophysiology and especially photosynthesis, because quinoa is a C3 species with a high CO₂ assimilation.



DR. RICK JELLEN

**Professor and Department Chair, Department of Plant and Wildlife Sciences
Brigham Young University, Provo, Utah**

Rick Jellen has been working on quinoa genetics for the past 13 years with a research focus shifting from quinoa cytogenetics to germplasm collection, characterization, and utilization. His primary focus is on cloning and sequencing of genes involved in abiotic stress tolerance mechanisms. He has also worked to introduce quinoa in Morocco. He is married and the father of four sons.

DR. MOSES F. A. MALIRO (pictured next page)

**Associate Professor of Plant Breeding and Genetics, Bunda College,
Lilongwe University of Agriculture and Natural Resources (LUANAR)**

Moses Maliro trained as an agronomist and plant biotechnologist (BS, Agriculture; MS, Agronomy) at UNIMA. His PhD work (University of Melbourne, Australia) was on molecular

marker-assisted breeding. His research interests include crop germplasm enhancement, application of molecular markers, and plant tissue culture in crop improvement. His current research includes screening maize lines for high aerenchyma cells, which are important for drought tolerance. His research on quinoa focuses on evaluating quinoa varieties in different agroecological zones and seasons of Malawi and is the first work done on the crop there.

DR. ENRIQUE A. MARTÍNEZ

Centro de Estudios Avanzados en Zonas Áridas, Chile

Enrique Martínez has been working since 2004 in the arid region of Coquimbo, Chile, where quinoa disappeared about 400 years ago. Its recovery as an alternative crop for today's farmers required physiological and agronomical studies that he helped conduct after a national seed search. That research found great genetic diversity and astonishing adaptive responses to different climates, photoperiods, and soil types, particularly quinoa's tolerance of water deficit and high salinity. His and his fellow researchers' contact with farmers found another aspect of quinoa's diversity: the cultural dimension of its social roots. Broadening their research networks and studies has yielded new information on quinoa's nutritional quality and genetic × environment relationships, as well as the functional responses derived from its consumption. Martinez has also explored aspects of quinoa marketing to ensure good benefits both for quinoa producers and for consumers.

DR. JEFF MAUGHAN

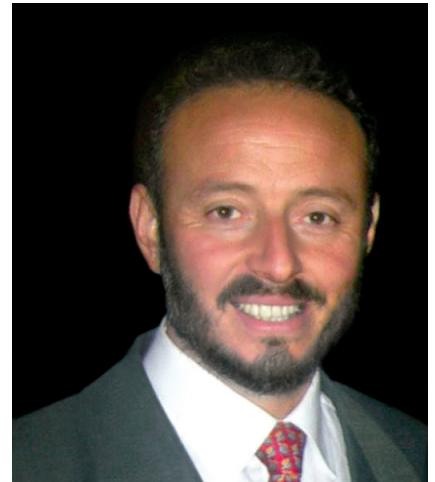
Department of Plant and Wildlife Sciences, Brigham Young University, Provo, Utah

Jeff Maughan spent five years at the Monsanto Company, first as a project lead for Technology Development and then as director of their High Throughput Genotyping Laboratory in Ankeny, IA. He began at BYU in 2002 as an associate professor and was promoted to full professor of molecular genetics in 2011. Maughan currently serves on the editorial board for the Botanical Society of America's Journal of Applied Plant Sciences. His quinoa research program is funded by the USDA, NSF, and McKnight Foundation as well as several private corporations and independent donors. He works primarily on the development of genomic resources for quinoa and amaranth, including the development of BAC and EST libraries, SSR and SNP markers, and genetic maps, as well as RNA-sequencing experiments in salt tolerance and drought tolerance.

FRANK MORTON

Breeder & Seed Grower, Wild Garden Seed, Philomath, Oregon

Frank Morton began growing quinoa purchased from Abundant Life Seed Foundation around 1983. Those varieties had been brought to Colorado from Chile by Dave Cusack. The purchased varieties were numbered Colorado strains (406, 407, and 409), and he found they were initially variable in response to the Northwest environment, but were reselected over time into four varieties and a breeding population that reliably set seed at his home farm in western Oregon. The selection criteria for these varieties were seedhead/seed color (pigment intensity), seedhead size (yield), resistance to seedhead sprouting due to rain (initial dormancy), disease resistance (Botrytis), and genetic diversity (maintenance of breeding population). Some of these varieties have performed well in recent trials at WSU and at grower locations in northern California, Oregon, Washington, and Canada. Adaptation to warmer locations and resistance to Lygus bug are current selection goals for his quinoa program.





DR. HASSAN MUNIR

**Assistant Professor Department of Crop Physiology
University of Agriculture Faisalabad, Pakistan**

Hassan Munir has been working on quinoa since 2008. He completed the first PhD on introduction and assessment of quinoa as a climate-proof grain crop for Pakistani environments. Munir is an expert on the agronomy of quinoa in the environment of Pakistan. Munir has coordinated a series of breeding and agronomy trials in addition to an extensive study of the nutritive and physiological traits of quinoa when grown under salinity and drought conditions. Quinoa breeding in Pakistan is aimed at developing varieties for local commercial cultivation, in addition to testing of quinoa germplasm in local marginal and problematic soils, especially saline and sodic soils. FAO has appointed Munir National Coordinator on quinoa for Pakistan, to organize activities related to the International Year of Quinoa (IYQ).



DR. KEVIN MURPHY

**Plant Breeder and Avid Quinoa Consumer, Department of Crop and Soil Sciences
Washington State University, Pullman, Washington**

Kevin Murphy is a barley breeder who also focuses on breeding and agronomy of specialty crops in the Palouse bioregion, including quinoa, buckwheat, spelt, millet, and most recently, amaranth and oca. Prior to academia, he farmed organically for seven years in Arkansas, Michigan, and Washington. His research on quinoa is broad, including selection for early maturity, heat tolerance, nitrogen-use efficiency, pre-harvest sprouting resistance, downy mildew resistance, nutritional value, and great taste and flavor. His lab group also explores synergistic intercropping strategies and relies on farmer collaboration for research across Washington State. His goal is to develop a strong network of innovative, diversified farmers and seed growers conducting decentralized quinoa breeding throughout the U.S. His graduate students are instrumental in the program and will share their enthusiasm, current research, and preliminary results through posters, oral presentations, and field talks during this quinoa symposium.



WILFREDO ROJAS

Plant Genetics Resources Specialist, PROINPA (Foundation for the Promotion & Investigation of Andean Produce)

Wilfredo Rojas is an agricultural engineer with an MS in plant sciences, specializing in plant genetic resources. He currently works as coordinator of the PROINPA Foundations Highland Regional Office. He is also a professor in management of plant genetics resources. He has worked for more than 20 years with quinoa, in particular, in the management of genetic resources of quinoa and Andean crops. He has contributed to the development of standardized protocols for ex-situ management of quinoa genetic resources. He has also developed strategies and tools to promote and foster in-situ conservation of agrobiodiversity with custodian farmers on quinoa diversity hot spots.