

# 2011 Scholar Award Recipients Announced by IPNI

The 2011 winners of the Scholar Award sponsored by the International Plant Nutrition Institute (IPNI) have been selected. The individual awards of USD 2,000 (two thousand dollars) are available to graduate students enrolled in science programs relevant to plant nutrition and management of crop nutrients.

“The Institute saw a large increase in the number of applications this past year and regional competition for the award was strong,” explained Dr. Terry L. Roberts, IPNI President. “The selection process has once again assembled a most outstanding group of young scientists—this award continues to highlight the promising future for plant nutrition research throughout the world, and is an effort we are most proud to support.”

The selection committee adheres to rigorous guidelines in considering important aspects of each applicant’s academic achievements. Funding for the Scholar Award program is provided through support of IPNI member companies, primary producers of nitrogen, phosphate, potash, and other fertilizers. Graduate students must also attend a degree-granting institution located in any country with an IPNI Program.

IPNI has named 20 (twenty) graduate students as recipients of the IPNI Scholar Award. A listing of the regional distribution of the IPNI Scholars and their respective university/institution is provided below.

**Africa:** Grace Kanonge, University of Zimbabwe, Harare, Zimbabwe  
Waswa Boaz, Centre for Development Research (ZEF), Bonn, Germany

**Australia/New Zealand:** Brooke Ryan, University of Adelaide, Adelaide, Australia

**China:** Li Wang, Institute of Agricultural Resources and Regional Planning, Beijing, China  
Limin Chuan, Institute of Agricultural Resources and Regional Planning, Beijing, China  
Ying Xia, Wuhan Botanical Garden, Hubei, China

**Eastern Europe and Central Asia:** Elena Pavlova, Omsk State Agrarian University, Omsk, Russia  
Dmitry Bozhkov, Soil Science and Land Resources Department, South Federal University, Rostov-on-Don, Russia

**Latin America:** Ceballos Darío Sebastián, Buenos Aires University, Campana, Argentina  
Diogo Mendes de Paiva, Universidade Federal de Vicosa, Vicosa, Brazil  
María Elena Cardenas, Universidad de Sonora, Pueblo Yaqui, Mexico

**North America:** Ronald Navarrete-Ganchozo, Purdue University, West Lafayette, Indiana, USA  
Tyler Nigon, University of Minnesota, South Saint Paul, Minnesota, USA  
Joshua Cobb, Cornell University, Brooktondale, New York, USA  
Jared Crain, Oklahoma State University, Stillwater, Oklahoma, USA  
Cameron Pittelkow, University of California, Davis, California, USA

**South Asia:** Gopal Ramdas Mahajan, Indian Agricultural Research Institute, New Delhi, India  
Shahid Hussain, University of Agriculture, Faisalabad, Pakistan  
Sumanta Kundu, Institute of Agricultural Sciences, Calcutta University, Kolkata, India

**Southeast Asia:** Tengoua Fabien Fonguimgo, Universiti Putra Malaysia, Serdang, Malaysia

Following is a brief summary for each of the winners.



Grace Kanonge

**Ms. Grace Kanonge** is working towards a Masters degree at University of Zimbabwe in Harare, Zimbabwe. Her dissertation is titled “A Fertilizer Management Strategy for Enhanced Legume-Cereal Based Productivity under Small-holder Farming Systems of Zimbabwe” which seeks to assess legume (cowpea and soybean) and cereal (maize) yields, and nitrogen and phosphorus benefits using integrated nutrient management (i.e. balanced use of fertilizers and manures). The concept involves not fertilizing the legume crop, but fertilizing the following cereal crop with phosphorus and top-dressing nitrogen at reduced rates. For the future, Ms. Kanonge hopes to develop her research capabilities further by pursuing a doctorate degree and publishing results of her research in peer-reviewed journals.



Waswa Boaz

**Mr. Waswa Boaz** is pursuing his Ph.D. at the Center for Development Research (ZEF) in Bonn, Germany. His dissertation is titled “Assessment of Land Degradation Patterns in Western Kenya: Implications for Restoration and Rehabilitation.” The study aims to assess long-term spatial and temporal patterns of land degradation using multi-scale satellite data sets. Detailed field observations and measurements along with a socio-economic survey will help understand the decision-making process for regional land management. The principles learned could be applied to derive a set of recommendations needed for sustainable land management in Kenya. Mr. Boaz aspires to be a technical advisor to government or other agencies working in the areas of food security and environmental conservation.

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**Abbreviations and notes:** N = nitrogen; P = phosphorus; K = potassium.



Brooke Ryan

**Ms. Brooke Ryan** is working toward her Ph.D. at the University of Adelaide in Adelaide, Australia. Her dissertation title is “The Isotopic Discrimination of Copper in Soil-Plant Systems” which aims to use stable isotopes of copper ( $^{63}\text{Cu}$  and  $^{65}\text{Cu}$ ) and their fractionation to examine the source, behavior, and plant uptake mechanisms of copper within the soil-plant environment. The information gained from this work could potentially be used to develop models to track natural and anthropogenic copper in terrestrial environments, and improve crop management practices for increased fertilizer efficiency, crop growth, and micronutrient content. For the future, Ms. Ryan’s goal is to pursue a career in research working on environmental protection and remediation, especially in the area of heavy metal contamination.



Li Wang

**Mr. Li Wang** started his Ph.D. program in 2010 at the Institute of Agricultural Resources and Regional Planning in Beijing, China. His dissertation is titled “Study on the Mechanism of Adaptation to Water and Low Potassium Stress of Different Potassium-Efficient Cotton Genotypes.” Objectives of his study involve comparing two cotton genotypes for growth dynamics, biomass, potassium partitioning, potassium use efficiency, anatomical structure, root hair, quantity of soil microbes, and morphology of roots. For the future, Mr. Li intends to continue research and extension work on plant nutrition and soil fertility to help optimize fertilizer use.



Limin Chuan

**Ms. Limin Chuan** is pursuing her Ph.D. at the Institute of Agricultural Resources and Regional Planning, Beijing, China. Her dissertation title is “Nutrition Management and Fertilizer Recommendation in Wheat Based on Yield Response and Agronomic Efficiency.” A native of Hebei, Ms. Chuan earned her Masters in 2010 at the Hebei Agricultural University of China. Her research is focused on using the QUEFTS (Quantitative Evaluation of Fertility of Tropical Soils) model to derive appropriate nutrient recommendations to maximize yield and optimize nutrient use efficiencies in wheat. In the future, Ms. Chuan hopes to be in a faculty position at a leading university of work in a scientific role with an international research institution.



Ying Xia

**Ms. Ying Xia** is working toward a doctorate degree at Wuhan Botanical Garden in Hubei, China. Her research work is on understanding the mechanism of utilization of potassium in cotton genotypes with different K efficiencies through root box, water culture, and grafting experiments. This research will provide more scientific information that could be used to develop new approaches to improve potassium use efficiency. Ms. Xia has an impressive resume of academic achievements, awards, patents, and publications. For the future, her goal is to become an agricultural scientist.



Dmitry Bozhkov

**Mr. Dmitry Bozhkov** started his Ph.D. degree in 2010 at the Soil Science and Land Resources Department of South Federal University in Rostov-on-Don, Russia. The focus of his research is “Optimization of Mineral Nutrition of New Grain Varieties”. During his study he has received numerous awards, has already authored and co-authored a number of scientific works, and has demonstrated a strong commitment to involvement within the Russian soil science research community. After completing his Ph.D., Dmitry hopes to develop a related research career in Russia or abroad.



Elena Pavlova

**Ms. Elena Pavlova** is working towards her Masters degree at the Omsk State Agrarian University, Omsk, Russia. Her thesis title focuses on “The Influence of Different Methods of Zinc Application on Winter Triticale in West Siberia.” Findings of investigation are already becoming a part of fertilizer rate assessments for winter triticale crops grown within the region. She has received many awards throughout her postgraduate career and she has described a great interest in participating within community awareness programs with global scope. Ms. Pavlova hopes to continue her postgraduate work within a Ph.D. program also at the Omsk State Agrarian University so she can expand her knowledge base and continue her interest in research.



Ceballos Darío Sebastián

**Mr. Ceballos Darío Sebastián** is completing requirements for his Master’s program in Natural Resources at Buenos Aires University in Campana, Argentina. His thesis title is “Land Use Change and Nitrogen versus Phosphorus: Relative Limitation in Marsh and *Populus deltoides* Plantations in Drainage Soils in the Lower Delta of the Paraná River.” His research work is aimed to understand nutrient dynamics in the vulnerable ecosystems of production forests in the lower delta of Paraná River. This work could help provide answers to the question of growing fiber and feed to favor the island families without changing their culture. Mr. Sebastián hopes to continue his research efforts on aspects of forest nutrition and change of land use.



Diogo Mendes de Paiva

**Mr. Diogo Mendes de Paiva** is working toward his Ph.D. degree in soil and plant nutrition at Universidade Federal de Vicosa in Vicosa, Brazil. His dissertation title is “Reducing Ammonia Volatilization from Urea Fertilizer by Coating with Humic Acids Produced from Eucalyptus.” His research work is intended to present an alternative for reducing ammonia volatilization from the most used nitrogen fertilizer worldwide by coating the urea with a polymer obtained from eucalyptus coal. Preliminary results have shown a decrease in ammonia volatilization of 43% when coating was used. Mr. Paiva is a co-author for a paper receiving the 2010 IPNI Brazil Plant Nutrition Award. His near future goal is to spend time abroad during his Ph.D. studies to refine the use of the proposed technique for reducing ammonia volatilization. His medium-to-long term goal is to progress as a researcher specialized in fertilizer technology and use.



Maria Elena Cardenas

**Ms. Maria Elena Cardenas** is pursuing her Masters degree in agricultural science at Universidad de Sonora in Pueblo Yaqui, Mexico. Her research work is focused on evaluating different wheat varieties as they respond to phosphorus application and on assessing the relationship between normalized difference vegetation index (NDVI) and phosphorus deficiency in wheat. The aim of this study is to develop a diagnostic tool to guide phosphorus fertilization in wheat based on the relationship between NDVI readings and phosphorus absorption. For the future, Ms. Cardenas wants to continue her research efforts aimed at developing new knowledge and tools to increase food production in a sustainable manner.



Gopal Ramdas Mahajan

**Mr. Gopal Ramdas Mahajan** is pursuing his Ph.D. in Soil Science and Agricultural Chemistry at the Indian Agricultural Research Institute (IARI) in New Delhi, India. His dissertation title is “Development of Site-Specific Integrated Nutrient Management for the Hybrid Rice-Wheat Cropping System Using Soil Test Crop Response Correlation Studies.” Mr. Mahajan earned his Masters in 2009 from Banaras Hindu University, Varanasi, Uttar Pradesh and a Bachelors degree in 2007 at Mahatma Phule Krishi Vidyapeeth, Rahuri, Maharashtra. Mr. Mahajan’s research is focused on developing individual as well as whole crop system soil test-based recommendation systems for target yields of hybrid rice and wheat and to develop in-situ spectral methods of fertilizer recommendation for the same cropping system.



Shahid Hussain

**Mr. Shahid Hussain** is working toward a doctorate degree at University of Agriculture in Faisalabad, Pakistan. His dissertation is titled “Bioavailable Grain Zinc in Wheat Varieties of Pakistan and Strategies for Biofortification.” This study aims to evaluate zinc fertilization and other agronomic means to increase grain zinc concentrations and to decrease the phytate-to-zinc molar ratio (an indicator of zinc bioavailability) in wheat grains. For the future, Mr. Hussain hopes to become an agricultural scientist and to continue his research efforts on biofortification of cereals.



Sumantu Kundu

**Mr. Sumanta Kundu** is completing requirements for his Ph.D. Program in Agronomy at the Institute of Agricultural Sciences in Calcutta University, India. He is working with Central Research Institute for Dryland Agriculture (CRIDA) in Hyderabad, India. His dissertation title is “Improving Nutrient Use Efficiency and Profitability through Conservation Tillage and Improved Nutrient Management in the Maize-Horsegram Cropping Sequence in Rainfed Alfisols.” This research is aimed to develop a set of best management practices that include a sustainable nutrient management strategy in combination with conservation tillage and soil amendments.



Tengoua Fabien Fonquimgo

**Mr. Tengoua Fabien Fonquimgo** is pursuing his Ph.D. in soil fertility and plant nutrition at Universiti Putra Malaysia in Serdang, Malaysia. His dissertation title is “Nutritional Characteristics of Ganoderma Susceptible and Ganoderma Tolerant Oil Palm Seedlings.” This research intends to reduce the incidence of basal stem rot disease in oil palms by improving its lignin content through manipulating nutrients involved directly or indirectly in lignin concentration, like boron, copper, and manganese. The study aims to determine the optimum concentration of these nutrients in oil palm and devise fertilizer recommendations based on this determination. In the future, Mr. Fonquimgo wishes to continue his research efforts and share the knowledge and experience gained through this process with students by teaching part-time in the university.

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Ronald Navarrete-Ganchozo

**Mr. Ronald Navarrete-Ganchozo** is completing requirements for his Ph.D. in soil fertility and plant nutrition at Purdue University in West Lafayette, Indiana, USA. His dissertation is titled “Long-term Study of the Impact of Potassium Application Rates on Soil Potassium Bio-Availability in a Corn-Soybean Rotation: Effect on Critical Soil Test Potassium Values, Yield, and Net Soil Potassium Balance.” A native of Ecuador, he earned his Masters degree in 2009 from Texas A&M University in Texas, USA. His research is focused on improving the ability to predict spatial and temporal variations in potassium bioavailability, which is critical to optimize fertilizer use and reduce production costs. For the future, Mr. Navarrete-Ganchozo aims to continue his research, education, and extension efforts to become a professional capable of understanding the complexity of processes in soil nutrient dynamics and its effect on plant nutrition at a global scale.



Tyler Nigon

**Mr. Tyler Nigon** is working toward his Masters degree in land and atmospheric science at University of Minnesota, South Saint Paul, Minnesota, USA. His research work is focused on the fusion of airborne hyperspectral and thermal imagery for detecting spatial variation of nitrogen and water status in potato. At a commercial scale, this technology has the opportunity to allow increased spatial and temporal precision of nitrogen and water applications during critical growth stages of the crop. Mr. Nigon has an impressive resume of academic achievements and awards. For the future, Mr. Nigon’s goal is to either pursue a Doctorate degree or a job in agricultural industry. He loves doing consulting work to assist growers with their management strategies.



Joshua Cobb

**Mr. Joshua Cobb** is pursuing his Doctorate degree in plant breeding and genetics at Cornell University in Brooktondale, New York, USA. His dissertation title is “Characterization of Natural Variation for Plant Mineral Nutrient Homeostasis in Domestic Asian Rice and its Wild Progenitors Using Genome-Wide Association Mapping.” This research aims to extend the 4R Nutrient Stewardship Framework by also considering the range of genetic variation for nutrient use efficiency that exists across varieties within a crop. In the future, Mr. Cobb intends to develop an internationally collaborative research program to investigate the potential of genetic variation and genotype by environment interaction to improve abiotic stress tolerance, nutrient use efficiency, and response to nutrient application in the major cereal grains.



Jared Crain

**Mr. Jared Crain** is completing requirements for his Masters degree in plant and soil science at Oklahoma State University in Stillwater, Oklahoma, USA. His thesis title is “Evaluation of New Prototype NDVI Sensor for Improved Nitrogen Management.” This research is focused on evaluating performance as well as environmental and user effects on an inexpensive version of NDVI sensor in corn and wheat with an aim to develop methods to use this sensor accurately. For the future, Mr. Crain wishes to pursue a doctorate in crop science and further his research interests to provide the world an adequate and safe food supply.



Cameron Pittelkow

**Mr. Cameron Pittelkow** is working toward his Ph.D. in agronomy at University of California in Davis, California, USA. His research is focused on nitrogen management practices to reduce greenhouse gas emissions while maintaining agronomic productivity in California rice systems. The primary goal of this research work is to address issues of crop production and environment from an agronomic approach (4R Nutrient Stewardship) by illustrating that yield increases and environmental protection can be achieved simultaneously. Mr. Pittelkow’s career goal is to apply his agronomic knowledge and insights to international agricultural development efforts through research and extension.

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The IPNI Scholar Award recipients are selected by regional committees of IPNI scientific staff. The awards are presented directly to the students at their universities and no specific duties are required of them. Graduate students in the disciplines of soil and plant sciences including agronomy, horticulture, ecology, soil fertility, soil chemistry, crop physiology, and other areas related to plant nutrition are encouraged to apply. More information is available from IPNI staff, from individual universities, or from the IPNI website: >[www.ipni.net/awards](http://www.ipni.net/awards)<. 