

2009 Scholar Award Recipients Announced by IPNI

The 2009 winners of the Scholar Award sponsored by the International Plant Nutrition Institute (IPNI) have been selected. The awards of US\$2,000 (two thousand dollars) are available to graduate students in sciences relevant to plant nutrition and management of crop nutrients.

“There were many highly qualified applicants this year from a wide array of universities and fields of study,” said Dr. Terry L. Roberts, IPNI President. “The academic institutions these young people represent and their advisers and professors can be proud of their accomplishments. The selection committee adheres to rigorous criteria evaluating important aspects of each applicant’s academic achievements.”

In total, 14 (fourteen) graduate students were named to receive the IPNI Scholar Award in 2009, with the most widespread geographic distribution ever for the awards. They are listed below by region and university/institution.

North America: Daniel Edmonds, Oklahoma State University; Robert Burwell, Louisiana State University; Eduardo Kawakami, University of Arkansas; Melissa Wilson, University of Minnesota.

China: Hailong Liu, Chinese Academy of Agricultural Sciences; Juan Zou, Huazhong Agriculture University; Zhen-hua Zhang, Hunan Agricultural University; Yulin Liao, Hunan Agricultural University and Soil and Fertilizer Institute of Hunan Province.

India: Govindaraj Mahalingam, Tamil Nadu Agricultural University; Ramesh Thangavel, Indian Agricultural Research Institute, New Delhi.

Eastern Europe and Central Asia: Polina Kotyak, Yaroslavl State Agriculture Academy, Russia.

Latin America: Leandro Bortolon, Universidade Federal do Rio Grande do Sul, Brazil.

Southeast Asia: José Alvaro Cristancho Rodriguez, Universiti Putra Malaysia.

Australia: Preeti Roychand, La Trobe University, Melbourne.

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 attending a degree-granting institution located in any country with an IPNI program region are eligible. 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. Following is a brief summary for each of the winners.



Daniel Edmonds

Mr. Daniel Edmonds is pursuing a Ph.D. degree in Soil Science at Oklahoma State University, with a dissertation titled “By-Plant Nitrogen Fertilization in Maize (*Zea mays* L.)” Combining height, distance, and DFP-INSEY (days-from-planting in-season estimated yield) have recently provided the tools needed to generate improved prediction of yield potential. Past studies with by-plant N fertilization methods have not simultaneously combined Normalized Difference Vegetation Index (NDVI), plant height, and distance to and from adjoining plants within one algorithm. The goal of his research is to deliver a by-plant N fertilization strategy that results in increased corn grain yields as well as increased N use efficiency. In addition to his research, Mr. Edmonds has worked in a wide range of other responsibilities and traveled extensively as a leader in sensor-based N management training.



Robert Burwell

Mr. Robert Burwell is working towards his masters (M.S.) degree in the Department of Plant, Environmental, and Soil Sciences at Louisiana State University. His thesis title is “Nutrient and Sediment Losses from Surface Runoff during Bermudagrass (*Cynodon dactylon*) Establishment on a Levee Embankment.” Because mature vegetation has been shown to greatly reduce surface runoff occurrence and severity after levee construction in areas such as New Orleans, fertilizers are used to accelerate vegetative establishment. Slow release fertilizers and other practices are being studied for potential in reducing nutrient run-off losses in these conditions. Mr. Burwell’s research is intended to develop best management plans to reduce nutrient and sediment loading during vegetative establishment on new levees.



Eduardo Kawakami

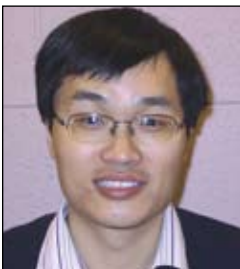
Mr. Eduardo Kawakami is completing his Ph.D. degree in Crop Physiology at the University of Arkansas, with a dissertation titled “Physiological and Yield Responses of Cotton (*Gossypium* spp.) to Urea with NBPT and DCD under Different Stress Conditions.” The outcome of his research should help cotton farmers perfect N fertilization practices, with higher yields and minimum impact on the environment. His project involves evaluation of urea with and without the urease inhibitor NBPT on cotton growth and yield under different temperature and salinity conditions. A native of Brazil, Mr. Kawakami has a strong interest in best management practices, using balanced nutrition with improved cultivars of crops for sustainable agricultural systems.

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Melissa Wilson

Ms. Melissa Wilson began her Ph.D. program in Water Resources Science in 2008 at the University of Minnesota. Her dissertation is titled “Factors Affecting the Successful Establishment of Aerially-Seeded Winter Rye.” Her project is intended to improve understanding of barriers to establishment of winter rye cover crops in southern Minnesota. In a corn-soybean rotation, aerially seeding winter rye into standing crops in the early fall can reduced nitrate leaching loss during the off-season. Part of the study Ms. Wilson is conducting involves local stakeholders who are interested in developing winter cover crop programs.



Hailong Liu

Mr. Hailong Liu registered his Ph.D. degree study with the Chinese Academy of Agricultural Sciences in 2007. He was awarded a scholarship under the State Scholarship Fund in China and is conducting his research in Canada at the Greenhouse and Processing Crops Research Centre of Agriculture and Agri-Food Canada in Harrow, Ontario (2009-2011). His dissertation title is “Testing and Validation of a Crop and Soil Model to Simulate Crop Growth, Soil Carbon, and Nitrogen Dynamics Using Field Experimental Data in Canada and China.” When the study is complete, his findings will allow the Decision Support System for Agrotechnology Transfer (DSSAT) model to be successfully used in plant nutrition and soil fertility management to ensure sustained development of crop production and scientific use of fertilizer in both China and Canada.



Yulin Liao

Mr. Yulin Liao is completing his Ph.D. degree program in Plant Nutrition at Hunan Agricultural University and conducting his research at the Soil and Fertilizer Institute of Hunan Province in China. His dissertation is titled “Effect of Long-term Application of Potassium on Rice Yield and Potassium Supplying Capacity in Paddy Soil in Middle Reaches Regions of the Yantze River.” Mr. Liao has studied the effects of returning rice straw to the soil as part of a long-term balanced fertilization program. This practice can significantly increase soil organic matter as well as sustainability of the production system.



Juan Zou

Ms. Juan Zou is completing her Ph.D. degree in Plant Nutrition at Huazhong Agriculture University in Wuhan, Hubei Province, China. Her dissertation title is “Study of the Fertilization Effect, Soil Nutrients Abundant and Deficient Indexes and Fertilizer Recommendations for Winter Rapeseed along Yantze River Valley.” There has been little research on rapeseed response to fertilization in China. Ms. Zou’s project will help establish soil nutrient indices and lead to reasonable fertilizer recommendations.



Zhen-hua Zhang

Mr. Zhen-hua Zhang is continuing is a Ph.D. degree program in Crop Physiology with Hunan Agricultural University in China and conducting his research at the International Rice Research Institute in the Philippines. His dissertation title is “Potassium, Calcium, and Manganese Requirements of Rice under Salt Stress and Roles of Plant Hormones in Mediating Responses to Nutrient Deficiency in Saline Soils.” Salinity is a major obstacle for agricultural production in many parts of the world. Mr. Zhang’s study will provide better understanding of phytohormones and concentrations of key nutrients to increase the salt tolerance of rice.



Govindaraj Mahalingam

Mr. Govindaraj Mahalingam began his Ph.D. program in 2007 in Plant Breeding and Genetics at Tamil Nadu Agricultural University, Coimbatore, India. His dissertation title is “Genetics of Grain Iron and Zinc Content in Pearl Millet” and the study is focused on assessing and evaluating the genetic efficiency of pearl millet genotypes for the accumulation of iron and zinc content in grain. Enhancement of mineral nutrition in grain is essential to eradicate human mineral malnutrition, especially in resource-poor populations of developing nations. For the future, development of genotypes having higher nutrient use efficiency, especially for iron and zinc, is important to enable production on many soils. This research can significantly increase the mineral content of grain and enable other agronomic advantages in crop plants.



Ramesh Thangavel

Mr. Ramesh Thangavel began his Ph.D. program in 2008 in Soil Science and Agricultural Chemistry at the Indian Agricultural Research Institute (IARI) in New Delhi. His dissertation title is “Stocks and Quality of Soil Organic Matter under Different Land Use Systems in East Khasi Hills of Meghalaya.” Objectives of his project include quantifying and qualifying soil organic matter stocks in different land use systems under slash and burn cultivation, and studying carbon stability mechanisms in Northeast India. For the future, this could lead to great reduction in soil erosion and much improved land use patterns.



Polina Kotyak

Ms. Polina Kotyak is completing an advanced degree (M.Sc. equivalent) program in General Farming at Yaroslavl State Agriculture Academy in Russia. Her thesis title is “Impact of Herbicides, Fertilizer, and Different Intensity of Cultivation Systems on Biological Properties of Sod-Podzol Gleyey Soil and Yield of Crops.” Russia has large areas of gleyey soils, which are subject to temporary overwetting and pose many challenges related to tillage and crop production, including weed and pest control difficulties. Objectives of this study were to gain a better understanding of energy-efficient tillage and soil management and improvement practices. Results indicate advantages for a system of plowing every 4 years, with surface cultivation after harvest in the other 3 years, to incorporate straw and fertilizer into the soil. After defending her thesis, Ms. Kotyak plans to continue her studies toward a doctorate degree.



Leandro Bortolon

Mr. Leandro Bortolon is completing requirements for his Ph.D. degree in Soil Fertility and Nutrient Management at Universidade Federal do Rio Grande do Sul in Brazil. His thesis title is “Phosphorus Dynamics in Soils under No-Tillage Affected by Land Use and Their Relationship with Crop Yields.” An important focus of his research is to evaluate best management practices for phosphorus in no-till systems of southern Brazil, based on nutrient use efficiency and economic and environmental aspects. Extensive field work was conducted over the last 4 years to address P use efficiency for protecting soil and water quality and long-term practices for P as a finite resource. In addition, Mr. Bortolon works in a wide range of other responsibilities, mainly in soil testing efficiency with focus on multi-element extraction and determination methods.



José Cristancho Rodriguez

Mr. José Alvaro Cristancho Rodriguez is pursuing a Ph.D. degree in Soil Fertility and Plant Nutrition at Universiti Putra Malaysia. His dissertation title is “Soil Acidity Effects on Oil Palm Nutrition: Aluminum Effect and Amelioration of Aluminum Toxicity in Highly Acidic Soils and Its Effect on Growth, Nutrient Uptake, and Physiology of Hybrids and Clonal Oil Palm (*Elaeis guineensis*, Jacq.) Seedlings.” Results have indicated benefits of ground magnesium limestone in neutralizing soil acidity for oil palm seedling growth. However, response varies with soil type and oil palm planting materials. Many oil palm producing regions have highly acidic soil conditions which can benefit by improved management. For the future, Mr. Cristancho Rodriguez hopes to further study relationships between oil palm nutrition and plant diseases.



Preeti Roychand

Ms. Preeti Roychand began her program in 2009 for a Ph.D. degree in Soils at La Trobe University in Melbourne, Australia. Her dissertation title is “Carbon Sequestration and Protection in Soil.” The objectives of her project are to determine the physico-chemical processes which protect organic matter within the soil based on carbon saturation level, exact size of pores within the aggregates where organic matter remains protected, type of minerals responsible for protection of organic matter, and carbon pool size of each fraction. From her previous work as a research fellow at Punjab Agricultural University, she has about 20 research publications. She has received a special appreciation award from the International Potash Institute and Plant Nutrient Sulphur award from The Sulphur Institute.

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. More information is available from IPNI staff, from individual universities, or from the IPNI website: www.ipni.net/awards.

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