



10<sup>th</sup> International Conference on

# **AGRICULTURE & HORTICULTURE**

October 02-04, 2017 London, UK

# Posters

Agri 2017

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Identification and diversity analysis of the four-major host-defense peptide families in quail

Kei Hanzawa

Tokyo University of Agriculture, Japan

**Statement of the Problem:** Quails are bred for their meat and eggs in East Asia, and are widely used as experimental model animals at research institutes around the world. We are currently focusing on subclinical infection in quail with infectious diseases, such as influenza. Utilization of innate immunity has the potential to reduce the use of antibiotics and to control the emergence of drug-resistant bacteria. We identified the gene families of four quail host-defense peptides (HDPs): NK-lysin, liver expressed antimicrobial peptide 2 (LEAP-2), cathelicidin (CATH) and  $\beta$ -defensin (AvBD), and investigated their genetic diversity.

**Materials & Methods:** Genome information was obtained from DNA derived from blood samples collected from 99 quails in 6 lines. Nucleotide sequences were determined by capillary sequencing and next-generation sequencing. The obtained base sequence was analyzed by Genetyx Mac and CLC Genomics Workbench software packages.

**Findings:** Quail NK-lysin consisted of a single locus, suggesting that amino acid substitution in the antibacterial active region is closely related to antibacterial activity. LEAP-2 also consisted of a single locus, no polymorphisms were observed in the amino acid sequence, and the amino acid sequence of mature peptides was consistent with that found in chicken. CATHs consisted of four loci homologous to those found in chicken, with amino acid substitutions in two loci. AvBDs were basically composed of 12 loci, 1 to 5 copy number variation (CNV) associated with gene duplication was observed at one locus with numerous amino acid substitutions.

**Conclusion & Significance:** The gene structure of major quail HDPs and their DNA *polymorphisms* were clarified. Future studies will examine the effects of DNA polymorphisms in HDPs on antibacterial activity *in vitro*, and clarify the relationship between HDPs, innate immunity receptors (Toll like receptor: TLR) and enterobacterial flora

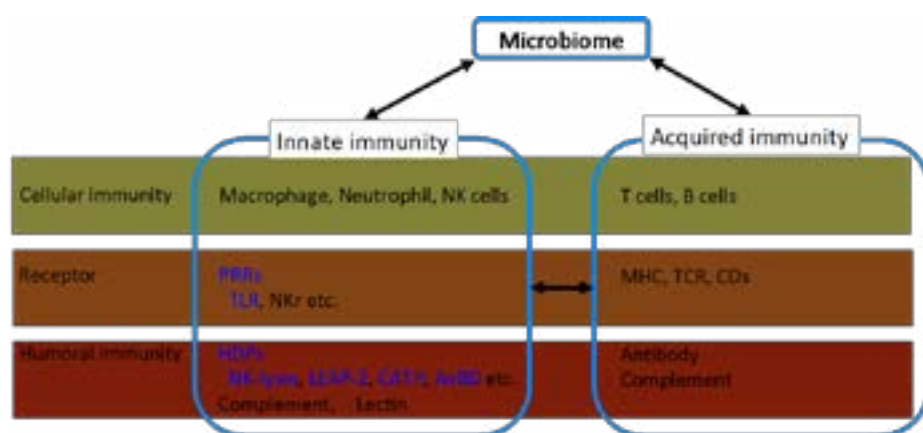


Figure 1: Overview of interaction between innate immunity (host defense peptide: HDPs and pattern recognition receptors: PRRs) and acquired immunity, and microbiome

### Biography

Kei Hanzawa is a Professor in Department of Animal science, Faculty of Agriculture, Tokyo University of Agriculture. He researches animal physiological genetics: particularly identification and diversity analysis of quail major histocompatibility complex gene region and host defense peptides genes, gene identification and analysis of heat shock response of quail heat shock protein 70s and 90s, and equine membrane transporters and exercise physiology of erythrocytes. He is the Vice President of the Japan Society of Animal Science and the Auditor of the Japanese Society of Poultry Science.

khanzawa@nodai.ac.jp

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Effect of accumulated temperature on the growth and development of tomato fruits in flowering clusters

Ju Young Lee, Hyung Seok Kim and Un Seok Lee  
KIST, South Korea

Tomato fruits ripened 57 in the first, 71 in the second, 78 in the third, 57 in the fourth, 58 in the fifth, 58 in the sixth, 48 in the seventh, 51 in the eighth, and 51d in the ninth flower cluster after fruit set when plants were grown under environmental conditions at whole growing season. The different responses to accumulated temperature were observed when the accumulated temperatures gave to the individual clusters while the plants were grown in the greenhouse. These data were used to develop an individual clustering thermal model for fruit maturation. In previous model, the overall clustering thermal model was a poor predictor of the time of ripening. However, this thermal model was made by individual cluster. The seed of tomato (*Lycopersicon esculentum* Mill 'Tabor') were sown in to seed trays containing a peat based seed and were germinated in the place of raising seeding in a minimum 24<sup>o</sup>c. Then, plants were moved to greenhouse (Chun-An City, South Korea) in which experimental treatment were applied. In the field experiment, 100 plants of tomato were selected during total growth period (1<sup>st</sup>-9<sup>th</sup> flower cluster). Every week, the height and diameter of tomato were measured at individual cluster after fruit set. The volume of tomato was estimated according to the relationship between theoretical volume and actual volume. For this relationship, the height and diameter of 2000 fruits were measured and the relationship was a "y=1.1122x+12.545 (r<sup>2</sup>=0.9534)". Here, the relationships between accumulated temperature and fruit volume were obtained based on average fruit volume in individual cluster.



### Biography

Ju Young Lee has a strong background in Ecological Engineering field based on Statistical and Mathematical Modeling about plant growth and yield model. He has served in main positions for Smart Farm Projects with governmental funds.

jyl7318@kist.re.kr

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Non-thermal plasma: new technology for pathogen control and improvement on the quality of soybean seeds

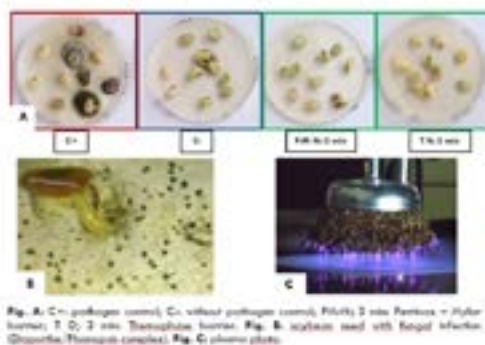
Karina Balestrasse<sup>1</sup>, Cecilia Pérez Pizá<sup>1</sup>, Leandro Prevosto<sup>2</sup>, Carla Zilli<sup>1,4</sup>, Guillermo Noriega<sup>3</sup> and Hector Kelly<sup>2</sup><sup>1</sup>FAUBA, Argentina<sup>2</sup>UTN, Argentina<sup>3</sup>UBA, Argentina<sup>4</sup>Celeste del Amo Hospital, Argentina

**Statement of the Problem:** Soybean (*Glycine max* L.) is one of the most important crops worldwide. *Diaporthe/Phomopsis* complex is one of the causal agents of soybean stem canker and pod and stem blight. It is well known that agrochemicals remain in the harvested products as in the fields and they disrupt the natural state of the microbiological flora leading to the formation of resistant strains. Considering the fact that storage provokes a deterioration of the biological quality of the seeds, the reduction of fungal contamination is of great interest.

**Methodology & Theoretical Orientation:** Non-thermal plasma is a fast, economic and pollution-free method. It is based on non-ionizing low-level radiation, which can activate the vitality of seeds but without causing gene mutations. Soybean seeds were exposed to a multi filamentous dielectric barrier (Pertinax – Mylar (P-M) and Thernophase (T)). Different gases (O<sub>2</sub> and N<sub>2</sub>) were used to transport the active agents of the plasma. In this work, we focus on the ability of the plasma to control *Diaporthe/Phomopsis* in soybean seed.

**Findings:** The results showed a decreased in the presence of the pathogen and an increase of the germination percentage and vigour test on the seeds with plasma treatment (P-M: O<sub>2</sub> 2 min and N<sub>2</sub> 3 min and T: O<sub>2</sub> 3min and N<sub>2</sub> 3min) respect to the pathogen control. We evaluated different oxidative enzymes as well as lipid peroxidation in seeds. These results demonstrated an activation of the antioxidant defenses in soybean seeds reversing the oxidative damage caused by the fungi. Changes in the lipid composition of the seed membranes were evaluated.

**Conclusion & Significance:** Plasma treatments were efficient in controlling *Diaporthe/Phomopsis* infection in soybean seeds. Therefore, this innovative technology would allow a reduction of environmental contamination by agrochemicals in soil and water.



### Biography

Karina Balestrasse has graduated in Biochemical at Buenos Aires University, Argentina. She finished her Doctoral thesis in Vegetal Biological Chemistry in 2003. She is a Professor of Buenos Aires University and Independent Investigator of The National Scientific and Technical Research Council (CONICET). She works in Agronomy Faculty of Buenos Aires University and Institute for Research in Agricultural and Environmental Biosciences (INBA) Argentina. Her expertise is oxidative stress and metabolism vegetal. Her current research program focuses on the use cold plasma to pathogen control in seed. She leads an interdisciplinary group of Engineers, Biotechnology Physicists and Biochemists. In the last year, she received two awards for her innovative work. She carries out research in collaboration with the CSIC of Granada through the program I-Links 2015. She has published more than 40 research papers in national & international journals. She currently directs Doctoral Thesis and grants.

kbale@agro.uba.ar



10<sup>th</sup> International Conference on**AGRICULTURE & HORTICULTURE**

October 02-04, 2017 London, UK

**One-step multiplex reverse transcription-polymerase chain reaction for the simultaneous detection for barley virus diseases****Bong Choon Lee, Ju Young Bae, Sang Min Kim, Ji-Eun Ra, Nak Jung Choi, Man Young Choi and Ki Do Park**  
National Institute of Crop Science, RDA, South Korea

Virus disease surveys on barley cultivation areas were conducted during 2014-2015 in Korea. In this result, we detected *Barley yellow mosaic virus* (BaYMV), *Barley mild mosaic virus* (BaMMV) and *Barley yellow dwarf virus* (BYDV) by RT-PCR from barley leaves. These viruses are of great economic importance for wheat and barley, causing significant quantitative and qualitative losses in yield. In this study, a multiplex reverse transcription polymerase chain reaction (mRT-PCR) method was developed for the simultaneous detection of these three viruses. Virus-infected barley leaves were collected from naturally infected barley in several provinces of Korea. Primers were designed from conserved regions of the capsid protein (CP) gene of viruses and the GenBank accession numbers for the CP coding genes are as follows: D01091(BaYMV), L49381(BaMMV), and NC021481(BYDV). Three sets of specific primers targeted to the CP coding genes of BaYMV, BaMMV and BYDV were used to amplify fragments that were 594 bp, 461 bp, and 290 bp, respectively. The one-step mRT-PCR assay proved to be a rapid and specific barley virus diagnostic tool. The diagnosis of mixed infections with barley viruses in one single reaction will reduce the cost, significantly increase the number of samples that can be analyzed, which will allow an examination of the viral disease epidemiology in barley.

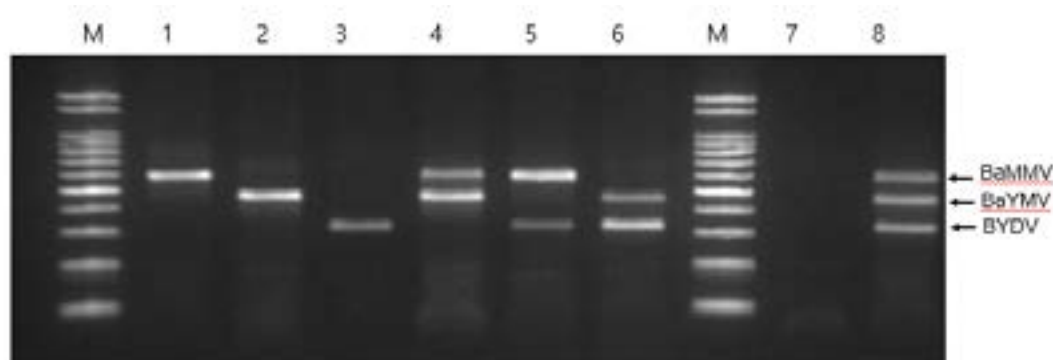


Figure 1. One-step mRT-PCR results from field barley plants collected in several provinces of Korea. One-step mRT-PCR for the single detection of BaMMV, BaYMV, BYDV (lanes 1,2,3) and the simultaneous detection of BaMMV + BaYMV (lane 4), BaMMV + BYDV (lane 5), BaYMV + BYDV (lane 6) and BaMMV + BaYMV + BYDV (lane 8). Lane 7 is negative control.

**Biography**

Bong Choon Lee has completed from Hokkaido University in Japan and Postdoctoral studies from Chonnam National University in Korea. She is the Senior Researcher of National Institute of Crop Science, RDA, Korea. She has published more than 50 papers in journals and has been serving as an Editorial Board Member of Research in *Plant Disease Journal* in Korea.

leebc21@korea.kr

**Notes:**

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Nigerian plant resources; an incredible responsibility for alleviating food insecurity and malnutrition

**Olamide Falusi**

Federal University of Technology, Minna, Nigeria

Food insecurity and malnutrition is a sincere concern in Africa and other parts of the world impacting heavily on health, socio-economy and well-being of the population. Plant resources of a region represent heritable materials, which are of economic, scientific or societal value to humankind. They form an integral part of a huge inter-dependent system that encompasses the physical components and the biological community of life. Nigeria is a physically and climatically diverse country that is endowed with substantial amount of plant resources. There are about 7,895 indigenous plant species from over 338 families and 2,215 genera that have been identified in the country with a few them demonstrating potential in alleviating food security, hunger and malnutrition. Both the physical and the climatic diversity of Nigeria permit the growth of a wide variety of such plants. This paper discusses those plant resources in Nigeria as nature's incredible generosity with potential in alleviating food security, hunger and malnutrition. It also highlights the responsibility of harnessing them for future development and food security and safety.

### Biography

Falusi Olamide has his expertise in Applied Plant genetic and Breeding. He has been involved in germplasm collection of many economic crops in Nigeria and has provided the backbone information and materials required in their improvement for better productivity. He also has passion in the study of plant chromosomes to reveal genomic identities and inheritance patterns.

[falusi.olamide@futminna.edu.ng](mailto:falusi.olamide@futminna.edu.ng)

Notes:

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## ***Pantoea ananatis* causing grain discoloration is widely distributed in the rice-growing fields of the Republic of Korea**

**Kim Sang -Min, Ra Ji-Eun, Seo Su Jwa, Lee Bong Choon, and Choi Nak Jung**

National Institute of Crop Science, Republic of Korea

We collected local isolates of *Pantoea ananatis* causing bacterial grain discoloration from southern rice-growing fields in Korea and constructed phylogenetic tree to see the genetic variation of *P. ananatis*. In 2016, rice panicles showing symptoms of grain discoloration and grain abortion were collected and the inside of lemma and palea were streaked on the King's B agar plate for pathogen isolation. 63 regional isolates were randomly selected for avoiding selection bias and gDNA were extracted for gene-based species identification. Based on 16S rRNA gene, *B. glumae*, the major pathogen of grain rot, amounted for 49.2% and *Pantoea* spp. amounted for 22.2%, separately. Multilocus sequence analysis (MLSA) by four *gyrB*, *rpoB*, *infB*, and *atpD* identified *Pantoea* spp. as *P. ananatis*. The pathogenicity of collected *P. ananatis* isolators were tested and showed weak symptoms of stem rot by artificial injection and weak symptoms of grain discoloration by spraying to the panicles of rice. In this study, we show the incidence and the regional distribution of *P. ananatis*, and the phylogenetic relationship among *P. ananatis* regional isolates in Korea, 2016. As the risk of the grain rot and grain discoloration is increasing according to the climatic change, it would be the basic data for understanding *P. ananatis* in the Republic of Korea.

### **Biography**

He is a researcher for plant pathology in the National Institute of Crop Science, RDA. Main works include diagnosis, identification and control of crop diseases on the field and on the lab.

kimsm@rda.go.kr

**Notes:**

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Tolerance of *Castanea sativa* cultivars to *Dryocosmus kuriphilus*

Tiziana Panzavolta, Matteo Bracalini, F Croci, A Turchi, E Giordani and R Tiberi  
University of Florence, Italy

**Background & Aim:** The invasive Asian chestnut gall wasp (ACGW) (*Dryocosmus kuriphilus* Yasumatsu) is a major insect pest in chestnuts (*Castanea* spp.), in all its areas of distribution. ACGW gall formation can cause heavy reductions in plants' growth rates and fruiting, severely damaging the chestnut market. Some chestnut species and hybrids have proven to be tolerant of ACGW, this was probably due to a hypersensitive response to ACGW attack. Some *C. sativa* Mill. cultivars showed different tolerance levels to the ACGW. The purpose of this study is to extend current knowledge about the tolerance of *C. sativa* cultivars to ACGW.

**Methodology & Theoretical Orientation:** Some *C. sativa* cultivars grown in the municipality of Pistoia (Tuscany, Italy) were morphologically and genetically analyzed. Current-year shoots were collected from the same trees to determine ACGW attack levels, since the number of galls per shoot is related to nut yield losses.

**Findings:** Three *C. sativa* cultivars were identified, each showing significantly different tolerance levels to the ACGW: Carpinese, Nerattino and Pastinese. More specifically, Carpinese showed the highest level of attack, with an infested shoot rate of 84.38%, the highest number of galls per shoot, as well as bigger galls. On the contrary, Nerattino had the lowest attack rate, with only 53% of shoots affected, the lowest number of galls per shoot, and the smallest galls. Pastinese parameters were in between.

**Conclusion & Significance:** All the cultivars studied were attacked by the ACGW, however they had different tolerances to the insect. More research on this field will help in creating a list of the more highly tolerant cultivars, which can be used for new plantations and graft nurseries.

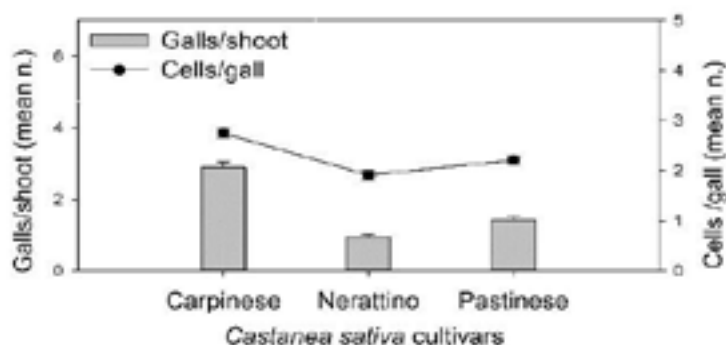


Figure 1. Attack level of *Dryocosmus kuriphilus* on three *Castanea sativa* cultivars in Tuscany (Italy)

### Biography

Tiziana Panzavolta is a Researcher in the Department of Agri-food Production and Environmental Sciences at the University of Florence (Italy). Her field of expertise is bio-ecology and control strategies of forest and urban insect pests, as well as of invasive insect pests. Among her interests are tritrophic interactions (plant-phytophagous insect-natural enemy), particularly the role of pine terpenes in host selection and oviposition by pine processionary moth and its egg parasitoids, as well as the effects of pine monoterpenes and insect pheromones on predators of saproxylic insects.

tpanzavolta@unifi.it



10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## *Biscogniauxia rosacearum* new fungal pathogen of rosaceous trees

Antonia Carlucci, Francesco Lops and Maria Luisa Raimondo  
Universita' degli Studi di Foggia SAFE, Italy

**Statement of the Problem:** The genus *Biscogniauxia* is paraphyletic to Xylariaceae and includes at least 52 species to date that are mainly pathogens of dicotyledonous angiosperm trees. Most of these are forest trees, such as *Acacia*, *Acer*, *Alnus*, *Eucalyptus*, *Fraxinus*, *Populus*, *Quercus* and other species of minor importance. *Biscogniauxia* species have been reported as endophytes or secondary invaders that attack only stressed forest plants. During a survey in rosaceous orchards in southern Italy, several charcoal cankers were observed and stroma samples were collected.

**Aim:** The purposes of this study are to characterize a collection of *Biscogniauxia* isolates from rosaceous hosts and to ascertain their virulence on rosaceous hosts by pathogenicity tests.

**Methodology & Theoretical Orientation:** By molecular tools the ITS region and the  $\beta$ -tubulin and actin gene were amplified and sequencing to perform the phylogenetic analyses. A detailed morphological study was also carried out. Four isolates of *B. rosacearum* were used in the pathogenicity tests performed on wood stems of about 15–20-year-old pear, plum and quince trees in open fields in orchards.

**Findings:** Combining morphological and molecular data, a new species of *Biscogniauxia* was found and described as *B. rosacearum*. This new species was isolated for the first time from rosaceous hosts in Apulia. Pathogenicity tests showed that it causes symptoms on stems when artificially inoculated and produces stromata on the bark surface.

**Conclusion & Significance:** The phylogenetic reconstruction based on ITS and TUB/ACT gene sequences has allowed us to distinguish a new species within the *Biscogniauxia* genus. The presence of charcoal stromata from fruit hosts such as quince, plum and pear is very uncommon. In any case, on the basis of pathogenicity tests, it was possible to assess the ability of *B. rosacearum* isolates to infect quince, plum and pear stems.



### Biography

Antonia Carlucci is a Researcher in the Department of Sciences of Agriculture, Food and Environment in Foggia, Italy. She is also head of plant pathology and diagnosis laboratory for quarantine fungal and bacterial pathogens in University of Foggia. Dr. Carlucci received her PhD in Biotechnology of agricultural and food products from University of Bari, Italy. She is expert of morphological and molecular characterization of fungi by phylogenetic studies. She has been involved in many research projects related to Plant Pathology and described ten novel fungal species by molecular approaches. Dr. Carlucci has been interesting to research and study new control means regarding the solarization practice, use of biostimulants, resistance inducers, fungal antagonists and biocides substances.

antonia.carlucci@unifg.it

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Roxazyme G2G supplemental value in the utilization of cassava starch residue by broiler-chickens

Muyiwa Hilarious Ogunsipe<sup>1</sup>, Agbede J O<sup>2</sup>, Aletor V A<sup>2</sup> and Igbasan F A<sup>2</sup><sup>1</sup>Adeyemi College of Education, Nigeria<sup>2</sup>The Federal University of Technology, Akure, Nigeria

This study assessed the supplemental value of roxazyme G2G in the utilization of cassava starch residue (CSR) by broiler-chickens in an eight-week feeding trial involving 450-day-old chicks. Fifty broiler-chicks were distributed to each of the nine dietary treatments, replicated five times of ten birds per replicate in completely randomization with 3 x 3 factorial arrangements of treatments. Cassava starch residue meal replaced maize in the diets at 0, 20 and 40% levels and enzyme supplementation at 0, 100 and 200 mg/kg to each level of CSR inclusion. Results showed that birds fed diet containing 20% CSR were similar ( $P>0.05$ ) in the two physiological growth phases (starter and finisher) to the birds fed the control with respect to average daily weight gain (24.02 versus control: 24.24 g/b/d, and 40.94 versus control: 40.82 g/b/d, respectively) while enzyme supplementation at 100 mg/kg enhanced the replacement of maize with CSR up to 40% at both phases without compromising the weight gain of the birds. However, CSR x Enzyme supplementation interaction was not significant ( $P>0.05$ ) suggesting that the trial could be independent of the two factors. Cost of feed \$/kg weight gain significantly ( $P<0.05$ ) decreased in broiler-chickens fed on CSR meal with 100 mg/kg enzyme supplementation with significant ( $P<0.05$ ) interaction of CSR x Enzyme supplementation implying the dependency of cost of feed \$/kg weight gain on these factors. The study revealed that replacement level of CSR for maize in broiler-chicken diet could be increased to 40% with roxazyme G2G supplementation at 100 mg/kg.

### Biography

Muyiwa Hilarious Ogunsipe completed his Graduation from Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria and his PhD from Federal University of Technology, Akure, Nigeria. He is a Senior Lecturer in the Department of Agricultural Science, Adeyemi College of Education, Ondo, Ondo State, Nigeria. He has well over 20 published articles in reputed journals. He is a reviewer of many journals of repute.

moogunsipe2009@yahoo.com

### Notes:

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Anti-adipogenic effect of *Moringa oleifera* leaves extract in porcine bone marrow derived mesenchymal stem cells

**Kulisara Marupanthorn**

Rajamangala University of Technology, Thailand

*Moringa Oleifera* leaves (MOL) extract was used as a traditional medicine. Recent year, many published studies have shown that alcohol, hydroalcohol, or water extracts of MOL possess a wide range of additional biological activities including antioxidant, anti-diabetic, and anti-obesity. Among these characteristics representing some of the hallmarks of metabolic syndrome, adipocytes also play an important role in this process through their metabolism. It is known that significant amount of adipocytes are derived from mesenchymal stem cells (MSCs) presented in bone marrow and adipose tissues. However, the studies on anti-adipogenic effects of *M. oleifera* leaves extract on adipogenic differentiation of bone marrow derived mesenchymal stem cells are still poorly characterized. The experiment was conducted to study the efficiency of MOL extract on adipogenic differentiation of porcine bone marrow derived mesenchymal stem cells (pBM-MSCs). pBM-MSCs were isolated and cultured in completed medium or adipogenic differentiation medium containing 0 (control group), 100, 200, and 300 µg/ml ethanolic extract of MOL to explore the anti-adipogenic differentiation ability. The results of MOL extract supplementation demonstrated that *M. oleifera* leaves extract inhibits the cytoplasmic lipid accumulation as well as adipogenic differentiation of preadipocytes.

### Biography

Kulisara Marupanthorn currently working at Rajamangala University of Technology, Thailand

kulisara.m@rmutsb.ac.th

### Notes:

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## The warning of the consumers about the effect of food synthetic dyes on children

**Zahia Saoud**

Pasteur Institute of Algiers, Algeria

Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood disorders. It can continue through adolescence and adulthood. Symptoms include difficulty staying focused and paying attention, difficulty controlling behavior, and hyperactivity (over-activity). For more than 30 years, scientists have examined the effect of food additives, especially food colorings on children's behavior which gives rise to much controversy. The debate took birth when Dr. Benjamin Feingold has established a link between food dyes and hyperactivity in children in 1982. According to his hypothesis, some children are genetically predisposed to hyperactivity. He reported a dramatic improvement in the behavior of 50% of children who adopted a diet with no dyes, artificial flavorings or salicylates. The impact of this distant controversy continues to influence parents' opinions about the effect of food additives on children's behavior. A study published in 1987 highlighted the need for pediatricians have to manage the growing manifestations of anxiety aroused by the issue of food among parents. The author found that many parents have learned the possible effect of additives in the media. In Algeria the synthetic dyes regulation exists in Algeria. The nonexistent is a regulation that requires a health warning on the labels. The aim of this project is to allow a new interdepartmental decree between the Department of Health and the Department of Trade. It will require labeling of products containing synthetic dyes that can have adverse effects by adding the mention "may have an adverse effect on activity and attention of the children". The aim of our study is to know if the synthetic food dyes have an impact on the lifestyle and the children's functioning. It will allow us to understand the risks associated with the use of these dyes. For this we have chosen to work on hyperactive children rather than the healthy ones because of the effect of the interaction which will be more apparent on the hyperactive children who have a lack of dopamine "induced hyperactivity". The immediate purpose of the study is to raise public awareness about the effect that can have synthetic food dyes on children. We are based on hyperactive children because the effects of dyes are more noticeable than in "healthy" children, but our goal is to protect all children. The Overall objectives are to never put on the market a food product is its source before it is tested and labeled and to create a new decree to ban the synthetic dyes which have bad effects on our health.

### Biography

Zahia Saoud is a pharmacist master assistant in hydrology, environment and nutrition. He is working at the faculty of medicine of Algiers in the department of pharmacy and Institute Pasteur of Algeria which it depends on the network institute Pasteur of Paris. He worked as a quality manager for 4 years and at the moment he joined the laboratory of water, food and environment of the Pasteur Institute of Algeria.

IPAsaoud@yahoo.fr &amp; zsaoud@pasteur.dz

### Notes:

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Development of soilless production of graftings

**Peter Szabo**

University of Pannonia, Hungary

Several positive results have been published in connection with the production of horticultural crops in soilless, greenhouse conditions (Buttaro et. al, 2012; Di Lorenzo et. al, 2013; Raviv, 2008). We cannot find sources in technical literature about the role and practice of soilless cultivation in producing vine propagation material. Bigger and more innovative vine producing companies already use containers – to a lesser extent – in practice. Our research aims to develop a new, innovative vine propagation producing technology that is sustainable, environmentally friendly and the used materials are recyclable. It was also an important goal that the new technology is water and nutriment saving, yet it is possible to achieve high yields. We conducted our experiment in several different ways (soil, peat, rock wool, perlite, etc). After the evaluation, we found that the best results were achieved using perlite as the growing medium. The conclusion of our research is that the properties of perlite ensure the rooting of plants, help the forming of a rich and healthy root system. It improves water supply and ensures a longer effect of the fertilizer. In the production of propagation material its insulating properties are also advantageous, thus protecting against frost. Its fine structure makes it easier to level the soil and the harvesting is also much simple. It also must be emphasized that perlite – after sterilization – is recyclable, so it is easy to be used in the next production period, as well.



## Biography

Peter Szabo works at University of Pannonia Faculty of Georgikon Department of Horticulture. Peter Szabo has his expertise in development of soilless production of graftings, his research theme also covers the economy of grape and wine production. He has extensive experience in grafting production companies all over Europe. He also deals with the issues of forcing technologies of graftings and the evaluation of different types of waxes. He is one of the board member of the European Council of Doctoral Candidates and Junior Researchers.

szabopeter@georgikon.hu

## Notes:





10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

# e-Posters

Agri 2017

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Minerals bio-availability in soil, water, forage and dairy cattle at high altitude

**Arup Giri and Vijay K Bharti**

Defense Institute of High Altitude Research, India

In nature, a complex relationship between soil, water, plant and animal has been found due to specific characteristics of the plants and interaction between different minerals. In India where dietary concentrations of fodder fed to the animals are unknown or highly variable due to availability, season, location, forage, species and animal potentials, it is important to determine mineral concentrations in animals' region-wise, to estimate needs of livestock to obtain optimum productivity and to assess the effect of mineral deficiencies on dairy cattle physiology. Limited information is available on the feeding practices and mineral status of soil, water, forage, and animal's blood in this high-altitude region. Keeping this in view, the present study was conducted in Leh valley; situated at 3327-3575 meter altitude above mean sea level, to establish the relationship for different minerals among soil, water, forage and dairy cattle to suggest dietary supplementation of area specific mineral mixture. Total 105 (soil), 210 (hand pump water, irrigation water, river water), 315 (forage- *Spinacia oleracea*, *Triticum aestivum*, *Brassica oleracea* var. *capitata*) and 70 (blood sample of lactating cattle) were collected from seven different sites in the Leh valley. All the minerals (Fe, Mg, Mn, Zn, Cu, Co and B) were estimated in the digested water samples by Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES). The result showed that the levels of studied essential minerals are available in sufficient amount in the various soil ecosystems and the mineral elements were below the optimum level, under the maximum permissible limit in water sources. In the case of plants and in cattle body, most of the minerals showed the lower level. Based on present findings, it was concluded that availability and the dynamics of mineral elements in plants and dairy cattle from less to higher concentration in plants, and animals over the studied region. Therefore, further studies should elucidate the bioavailability and strategic dietary supplementation of minerals for livestock.

### Biography

Arup Giri is pursuing PhD since 2012 at Defense Institute of High Altitude Research (DIHAR), Defence Research and Development Organization (DRDO), Jammu & Kashmir; a high-altitude region located in the Trans-Himalayan range of India (3327-3575-meter altitude above mean sea level). He has the expertise on several instruments like HACH Spectrophotometer for Water Analysis, Haematology Auto-Analyzer, Biochemistry Auto-Analyzer, Serum Semi-Auto-Analyzer, Urine Analyzer, Ion-Analyzer, UV-Visible Spectrophotometer, Multimode ELISA Plate Reader, Gradient Thermal Cycler (PCR), Gel Electrophoresis, Inductively Coupled Plasma Optical Emission of Spectroscopy (ICP-OES), Real Time PCR, Flow Cytometry, Ion Chromatography, High Performance Liquid Chromatography (HPLC) etc. He is working on certain DRDO project related to improvement in animal health and productivity under high-altitude stress condition. His current research work is now going on the studies on some heavy metals and trace minerals in drinking water of various sources and animal blood at high altitude and development of remedial measures to ameliorate their effects on animal health. Now, he has been developed on technique to ameliorate the excess level of fluoride from drinking water at high altitude region.

arupsatadal@gmail.com

### Notes:

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Research trends in precision farming

**Victor I Balabanov**

Russian State Agricultural University, Russia

Educational and scientific center of precision agriculture was opened in 2007 based on the experimental field of the Russian State Agrarian University - Moscow Timiryazev Agricultural Academy (Timiryazev RSAU-MAA). The framework of the implementation of innovative educational program for the organization and implementation of educational, research and development of innovative activities based on the use of modern agricultural technologies and principles coordinate agriculture. Long-term results of research in a field experiment scientific center of precision agriculture demonstrated the advantage of the individual elements of precision farming technologies, crop and landings of agricultural crops, for growing potatoes, fertilizing of winter wheat herbicides in crops, indirect determination of the content of nutrients in the soil, with the preparation of electronic maps of yields. For example, it has been found that the pesticide and the flow of the working solution by using precision farming techniques is reduced by 25-30%, saving of fertilizers and averages 20-30%. Currently, the most advanced technologies, which paid close attention to the Timiryazev RSAU-MAA - is the use of unmanned aerial vehicles (UAVs) and the development of robotic systems for agricultural purposes. The use of UAVs allows you to quickly and effectively conduct an inventory (geofencing) of agricultural land, create field maps to assess their inventory value, build orthophotos field surface, to monitor the state of fallow fields, agricultural crops, carry out the calculation of standardized biomass vegetation index and other plant indices, as well as to carry out various kinds of control and management of agro-technical measures. Russian agrarian sector as in the entire world agriculture still lags in the use of robots than on other sectors of the economy, so research in this area will grow with each passing year more and more rapidly.



### Biography

Victor I Balabanov is a Doctor of Technical Sciences, Professor and Dean of the faculty "Processes and Machinery in Agribusiness" at Russian State Agrarian University - Moscow Agricultural Academy named after K A Timiryazev. He is Head of Sub Committee (SC 8) "Radio navigation and control system in agriculture" of the Technical Committee for Standardization (TC 363) "Radio navigation" Federal Agency for Technical Regulation and Metrology (Rosstandart). He is an Author of over 300 scientific and educational works, including 25 monographs, scientific journals and popular science books, 25 descriptions of inventions and 11 on scientific research reports.

vbalabanov@rgau-msha.ru

### Notes:

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Market evolution of garlic (*Allium sativum* L.) in Argentina (*Ex aequo*)

Ana María Castagnino<sup>1</sup>, Karina E Diaz<sup>1</sup>, Sabrina Mondini<sup>1</sup>, W John Rogers<sup>1</sup>, Andrea Guisolis<sup>1</sup>, Oscar Liverotti<sup>2</sup>, José Fernandez Lozano<sup>3</sup> and Mario E Peralta<sup>4</sup>

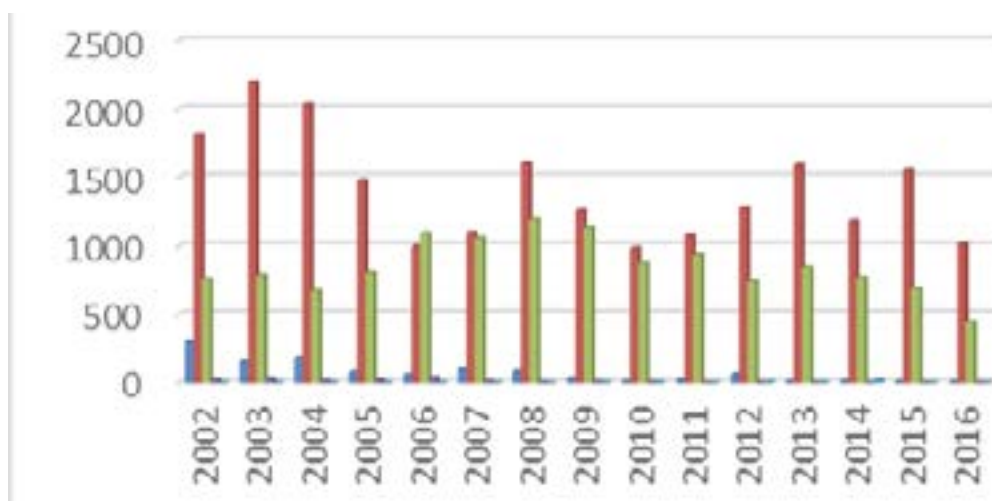
<sup>1</sup>UNCPBA, Argentina

<sup>2</sup>Pontifical Catholic University of Argentina, Argentina

<sup>3</sup>University of Buenos Aires, Argentina

<sup>4</sup>University of Belgrano, Argentina

Garlic is one of the most economically, productively and socially important horticultural products in Argentina, valued for its nutraceutical, bacteriostatic, fungistatic and antioxidant properties, amongst others. It is commercialized mainly in fresh form for both the internal market and exportation, in which Argentina occupies second place (behind China). Exportation is concentrated into three months, whereas the internal market operates all year, represented by several types of variety in distinct provinces. With the aim of analyzing garlic market evolution in Argentina based upon the volume received by the Buenos Aires Central Market, the following aspects were evaluated: total commercial volumes 2002-2016, type of varieties commercialized over the study period (TV) and province of origin commercialized in 2016. From comparative analysis between the first and final years of the study, a decrease of 50% was observed (2002: 2902t and 2016: 1466t). The total volume commercialized in the period was 35313t and the mean annual volume was 2354t, with the following exceeding the mean: 2003: by 35% (a) and 2004, 2002 and 2008: by 23% (ab), 2013: by 4% and 2009: by 3%. Garlic for the internal market was produced in nine provinces, with 98.25% of the total commercial volume concentrated in three provinces: San Juan (33%), Mendoza (32.75%) and Buenos Aires (32.5%), followed by Río Negro (0.72%), Corrientes (0.5%), Santa Fe (0.32%), Santiago del Estero (0.3%), Jujuy (0.2%) and Tucumán (0.15%). Regarding TV for 2002-2016, 99.44% corresponded to three varieties: Colorado 60.03% (a), Chino 36.25% (b) and Blanco 3.16% (c), followed by Rosado 0.45% (c) and Ruso 0.11% (c). The results demonstrate the excessive concentration of the offer in just a few provinces. Furthermore, they indicate the institutional necessity to promote increased varietal diversification and expand the production and commercialization of the internal market of this highly beneficial product for health.



### Biography

Ana María Castagnino is a Horticulture Specialist (UNIPI, Italy) with a Master's Degree in Business Management (UNCPBA, Argentina), and is Professor of Horticulture at UCA, Buenos Aires and Associate Professor at UNCPBA. She is a member of CRESCA (Regional Centre for the Systemic Study of Agro-Food Chains) and directs the programme "Promotion of the production and consumption of asparagus and other non-traditional vegetables".

amc@hotmail.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Evolution of the tomato market in Argentina (*Ex aequo*)

Ana María Castagnino<sup>1</sup>, Karina E Diaz<sup>1</sup>, Sabrina Mondini<sup>1</sup>, W John Rogers<sup>1</sup>, Andrea Guisolis<sup>1</sup>, Oscar Liverotti<sup>2</sup>, José Fernandez Lozano<sup>3</sup> and Mario E Peralta<sup>4</sup>

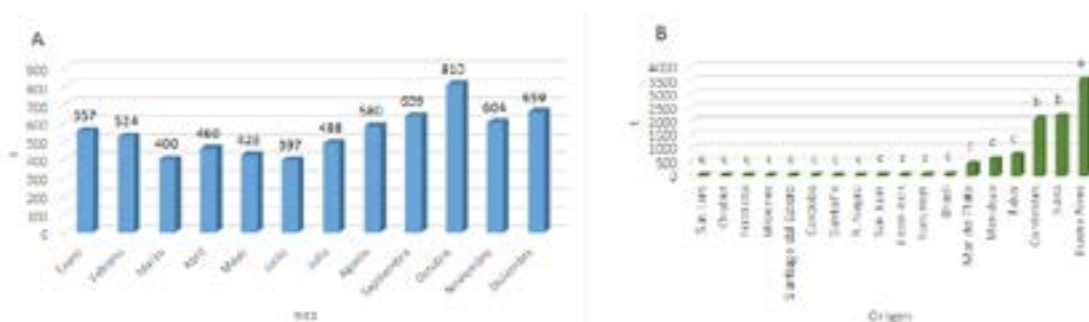
<sup>1</sup>UNCPBA, Argentina

<sup>2</sup>Pontifical Catholic University of Argentina, Argentina

<sup>3</sup>University of Buenos Aires, Argentina

<sup>4</sup>University of Belgrano, Argentina

Tomato is the principal greenhouse vegetable grown in Argentina. The aim of the current work is to analyse tomato market evolution in this country, based upon volumes received by the Buenos Aires Central Market, the main national point of reference. The following aspects were evaluated: total commercial volumes (CV) 1999-2016, evolution (E) and mean prices (MP), principal varieties (V) commercialized in 2016, origin (O), distribution by province of origin (DP) and the proportion that tomato comprises of the total volume (TV) of the horticultural produce commercialized in the reference period. For the factors evaluated, one-way analysis of variance was carried out on the tonnage values. The VC was 119,600, with a decrease over the period of 18% compared to the first year (1999: 142,968t and 2016: 117,744 t/year). In 2016, the mean monthly E was 9812t, where the following months exceeded this value, without significant differences between them: October-14586, December-11870, September-11494, November-10865, August-10446 and January-10027 t. The annual MP was 0.62 US\$kg<sup>-1</sup>, which was exceeded in September (1.03), May (0.82), October (0.80) and November (0.63). For DP, the highest volumes were observed for Buenos Aires: 3936t<sup>a</sup>, Salta: 2187t and Corrientes: 2081t<sup>b</sup>, with the remaining origins in the following order of importance, without significant differences between them: Jujuy-774, Mendoza-625, Brasil-72; Tucumán-48; Entre Ríos-29; San Juan-28; Rio Negro-9.82, Santa Fé-8; Córdoba-5.15; Santiago del Estero-2.82; Misiones-2; Formosa-1.4; Chubut-0.75 and San Luis-0.2 t<sup>c</sup>. Overall, tomato represented 14% of the TV (850240t) commercialized (16.7% in 1999 and 13.8% in 2016). For V, the monthly volumes gave differences for Larga Vida (October<sup>a</sup>, November, July, February, September, August and June<sup>ab</sup>); for Platense (January and December<sup>a</sup>, April and February<sup>ab</sup>) and the rest<sup>b</sup>. For origin, differences were found for all varieties: Larga Vida: Corrientes<sup>a</sup> and the rest<sup>b</sup>, Perita: Salta<sup>a</sup>, Jujuy, Buenos Aires<sup>b</sup> and Mendoza<sup>bc</sup>, Cherry: Buenos Aires<sup>a</sup>, Salta, Corrientes<sup>b</sup> and Jujuy<sup>bc</sup>, Redondo: Buenos Aires<sup>a</sup>, Corrientes<sup>b</sup> and Salta<sup>ab</sup>. These results provide evidence of the positioning of tomato throughout the year in the Argentinean market.



## Biography

Ana María Castagnino is a Horticulture Specialist (UNIPI, Italy) with a Master's Degree in Business Management (UNCPBA, Argentina), and is Professor of Horticulture at UCA, Buenos Aires and Associate Professor at UNCPBA. She is a member of CRESCA (Regional Centre for the Systemic Study of Agro-Food Chains) and directs the programme "Promotion of the production and consumption of asparagus and other non-traditional vegetables".

amc@hotmail.com



10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Evolution of the commercialization of asparagus in Argentina

Ana María Castagnino<sup>1</sup>, Karina E Díaz<sup>1</sup>, Sabrina Mondini<sup>1</sup>, W John Rogers<sup>1</sup>, Andrea Guisolis<sup>1</sup>, Oscar Liverotti<sup>2</sup>, José Fernandez Lozano<sup>3</sup> and Mario E Peralta<sup>4</sup>

<sup>1</sup>UNCPBA, Argentina

<sup>2</sup>Pontifical Catholic University of Argentina, Argentina

<sup>3</sup>University of Buenos Aires, Argentina

<sup>4</sup>University of Belgrano, Argentina

Asparagus is a perishable, seasonal horticultural product that lies amongst the first fifteen commercialized vegetables in Argentina, a market that needs dietary diversification given that 70% of annual consumption is concentrated in just five species: potato, tomato, onion, squash and carrot. The aim of the current work is to analyse the commercial situation in Argentina based upon the incoming volume registered by Buenos Aires Central Market, the main national point of reference. To this end the following aspects were evaluated: tendency in incoming volume between 2000 and 2016 (TIV), region of origin (RO), volume and country of origin of imports (VI and OI) and the evolution of commercialized volume and mean price through 2016 (EP). Data were analyzed by ANOVA-LSD ( $P \geq 0.05$ ). In TIV, the mean annual incoming volume was 685t, with a decreasing tendency, where the period 2000-2007 was outstanding, with an annual mean of 8% compared to the total of the study period. 93% of the total commercialized volume corresponded to the period September to December, demonstrating the marked seasonality of the production. For RO, the following provinces stood out: San Juan (51%) and Buenos Aires (43%), followed by Córdoba (5%), Corrientes (2%), Mendoza (0,2%), Salta and Santa Fe (0.1%). For OI, of the total received by the Central Market, 97.6% corresponded to asparagus produced in Argentina, and only 2.4% was imported, in counter-season, from May to August, from Chile (May) and Peru (May-August). VI in 2016 was 8.7t/year in total (Peru 8.3 and Chile 0.4). Regarding EP, the annual mean for 2016 was 3.62 US\$.kg<sup>-1</sup>, with the lowest price in December (1.6 US\$.kg<sup>-1</sup>) and the highest in August (5.13 US\$.kg<sup>-1</sup>). These results indicate the need to intensify the implementation of strategies aimed at promoting the production and consumption of asparagus in Argentina; regarding the former, this is because it is a perennial crop of great economic and social value, and, regarding the latter, since it is a non-traditional vegetable of high nutritional quality. Given the notably seasonal nature of its internal production, it could be added that the Argentinean asparagus market also represents an opportunity for producers and exporters from other countries, as well as for those national entrepreneurs who orientate their production towards obtaining early produce under glasshouse conditions.



### Biography

Ana María Castagnino is a Horticulture Specialist (UNIPI, Italy) with a Master's Degree in Business Management (UNCPBA, Argentina), and is Professor of Horticulture at UCA, Buenos Aires and Associate Professor at UNCPBA. She is a member of CRESCA (Regional Centre for the Systemic Study of Agro-Food Chains) and directs the programme "Promotion of the production and consumption of asparagus and other non-traditional vegetables".

amc@hotmail.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Fruit cultivation in apple state of India: Opportunities and challenges

**Kalpna Negi**

University of Hyderabad, India

Increased urbanization and changing lifestyle have changed the demand for food consumption from food grains to non-food grains. Horticulture development has emerged as one of the major thrust area in agriculture sector. The importance of these crops compounds in hilly and undulating terrains, like the North-East region of India, Himachal Pradesh, Jammu & Kashmir and Uttaranchal where traditional agricultural activities catering to field crops are not economically remunerative and sustainable, while the climate in general is suitable for growing temperate and subtropical fruits. This suitability of Himachal has resulted in shifting of land use pattern from agriculture to fruit crops in the past few decades and the state is known as 'fruit bowl of nation'. There has been a phenomenal increase in the area and production of fruits, particularly apple, in the state due to which the state has deservedly earned a place of pride as 'The Apple State of India'. Many farm families are depending on apple cultivation. The cultivation of apple in Himachal is more remunerative than the other field crops. Apple determines the income and purchasing power of the farmers and has a positive impact in term of people's living standard in the state. Excluding apple growers who are depending directly, the processes of grading, picking, packing and transportation provides employment to many persons. The area and production of apple in Himachal Pradesh have been increasing over the years. But the productivity has been low in terms of global standard and in fact it has been declining. Many factors and problems are responsible for the low productivity like socio-economic, agro-climatic, infrastructure, market, policy issues etc. Many of the problems of apple growers are beyond the control of apple growers themselves. Net return from apple cultivation can further be enhanced with the efficient marketing/investment support from the state and central governments. Local markets should be developed which would provide somewhat better bargaining position and may also reduce transport costs. There should be availability of cold stores in nearby market or village/block/tehsil so farmers can sell their crop at time of decent price or fair price.

### Biography

Kalpna Negi is presently a PhD Research Scholar at School of Economics, University of Hyderabad. She has completed her Master's in Philosophy from the same University. Her research area is broadly on Agricultural Economics. She has participated in academic workshops, seminars, conferences.

kalpnanegi@gmail.com

### Notes:

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Investigating the effect of arbuscular mycorrhizal fungi (*Glomus etunicatum*) and air pollutants on growth parameters of maize (*Zea mays* L.)

Mobina Jamali<sup>1</sup> and Naser Alimohamadloo<sup>2</sup><sup>1</sup>Tehran Educational Organization, Ministry of education, Iran<sup>2</sup>Islamic Azad University, Science and Research Branch, Iran

To investigate the effect of *Glomus etunicatum*, air pollutants and acidic rain on growth parameters of maize plants (*Zea mays* L.), a completely randomized experiment with ten replications was conducted from February 2016 to April 2017. Experimental treatments included four categories containing the plants treated by mycorrhiza fungus irrigation by acidic rains, plants treated by mycorrhiza fungus irrigation by control water with (p=H=7), witnessing plants irrigation by acidic rain and witnessing plants irrigation by control water. Results from analysis of variance revealed that the effect of mycorrhizal inoculation on chlorophyll, protein and carotenoid content of leaves, plant height, leaf dry wt., leaf fresh wt., root fresh wt., fruit number and leaf number and surface, were significant (p<0.05). Mycorrhizal inoculation enhanced all parameters significantly in comparison to the witnessing plants and the highest value for these traits obtained by the plants inoculated with mycorrhiza irrigation by control water and the least obtained in witnessing plants irrigation by acidic rain water. Furthermore, the research revealed that the amount of these parameters in plants inoculated with mycorrhiza irrigation by acidic rain is significantly more than witnessing plants irrigation by control water. In general inoculation by mycorrhizal fungi in addition to enhancing growth parameters can enhance the photosynthesis and production of oxygen in maize even under acidic rain circumstances and air polluted environments, compared to non-mycorrhizal plants in regular circumstances.

### Biography

Mobina Jamali is currently studying in Tehran Educational Organization, Ministry of education, Iran.

jamalimobina@yahoo.com

### Notes:

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Assessing the navigational accuracy of an autonomous orchard robot equipped with 2D laser scanner and particle filter

Pieter M Blok<sup>1</sup>, Koen van Boheemen<sup>2</sup> and Gookhwan Kim<sup>3</sup><sup>1</sup>Wageningen University and Research, The Netherlands<sup>2</sup>Wageningen University and Research, The Netherlands<sup>3</sup>Rural Development Administration, Republic of Korea

**Statement of the Problem:** A challenge faced when growing fruit in orchards is efficient weed control. Weed control is often done with tractors and mowing devices. The labour intensive nature of this operation causes that the frequency of mowing is limited to a minimum. An autonomous platform that can carry out this operation without human intervention would allow farmers to regularly tackle weeds in their orchards without the large labour requirement. In the design of an autonomous orchard robot, a combination of sensors and navigation algorithms need to be chosen which provides similar or higher navigational accuracies compared to current mowing with manual steering. The objective of this study is to investigate the accuracy of a sensor and algorithm combination for autonomous in-row navigation of an orchard robot.

**Methodology & Theoretical Orientation:** A Clearpath Robotics Husky A200 robot was equipped with a 2D laser scanner, a three-axis IMU, wheel odometry and an RTK-GNSS sensor. A navigational algorithm was built based on the particle filter. Experiments were done in a Dutch apple orchard to assess the navigational accuracy, by tracking the robots trajectory between two tree rows with RTK-GNSS and to calculate the lateral and angular deviation from the optimal AB-line.

**Results:** The particle filter guided the robot through the orchard path with an average lateral deviation of 0.07m and an average angular deviation of 2.57° from the AB-line at a speed of 0.25 m/s and respectively 0.08m and 1.73° at 0.5 m/s.

**Conclusion & Significance:** The selected sensor layout and navigational algorithm proved to be suitable for autonomous in-row navigation in fruit orchards as an alternative for manual driving. Headland detection and obstacle avoidance were not taken into account in this study, and are part of the further development of the autonomous orchard navigation.



### Biography

Pieter M Blok is a scientific researcher at Wageningen University and Research. He is specialized in agricultural robotics, computer vision, mechatronics and sensor technology, with 6 years' work experience in various national and international research projects. He is author of several peer-reviewed conference papers. Pieter graduated in 2011 as a Master of Science (MSc) in Agricultural Engineering at Wageningen University and is currently conducting his PhD entitled "Agro-robotics in open field food production".

pieter.blok@wur.nl



10<sup>th</sup> International Conference on

# **AGRICULTURE & HORTICULTURE**

October 02-04, 2017 London, UK

# Accepted Abstracts

Agri 2017



10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## A review: The essence of milkbutter; Trend and production analysis

**Wegene Getachew Andabo**

Arba Minch University College of Natural and Computational Sciences, Ethiopia

Milk is raw material for wide range items of biological importance. Milkbutter is the most enriched nutrition among milk products. There is no exact knowledge about the date and locality at which butter making was started. Making junction with the taming and domestication of wild animals scholarly estimates assert that butter making is one of the oldest customs to use and preserve the fat component of milk. The functions of milkbutter among others include making finished food product, food processing, sacrificial worship and its uses in ceremonies, medicinal and cosmetic purposes. The quality, yield and composition of milk vary among countries, mammal species and dairy management systems. Methods of butter making are traditional, modern and recombined types. In spite of the fact that traditional butter making is the most prevailing, it is the poorest production system in terms of yield, quality, time, energy and production management. Reviews of related literatures indicate in most of the dairy farms there is a disproportionate relation between livestock population and livestock production ratio. Building market networks allows butter manufacturers to capture opportunities at current and future markets. Such joint segments strengthen the most valuable commodity exchange systems within the supply networks. In inference, improving butter production through adopting new production systems and technologies is a tool to improve the livelihoods of smallholder farmers.

wegishscho@gmail.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Forms and distribution of soil potassium in selected maize growing areas of Haveri district

**Harsha B R**

University of Agricultural Sciences, Dharwad, India

Potassium, the third major nutrient, exists in soil in different forms and these forms are in a state of quasi-equilibrium with each other. These different forms of potassium and their distribution were studied in 20 representative red and black soil types spreading over seven taluks of the Haveri district of Karnataka. Soils were generally sandy clay loam to clay in texture. The soil reaction ranged between slightly acidic and near neutral in reaction and electrical conductivity was well within the permissible limit. The OC was low to medium. The average CEC, potassium adsorption ratio, sum of exchangeable cations and available potassium of black soils was high compared to red soils at both the depths. The average value of exchangeable potassium percentage was high in red soils at both the depths. Results indicated that the all the forms of potassium was higher in black soils compared to red soils. The water soluble and exchangeable K was higher in surface sample than in the sub surface in both the soil type. Whereas, non-exchangeable, lattice and total K was higher in sub surface than the surface in both the soil types. The water soluble form of K showed a significant and positive correlation with sand in red ( $r=0.755^*$ ) and black ( $r=0.527^*$ ) soils. The exchangeable K was significantly and positively correlated with CEC ( $r=0.721^*$  and  $r=0.807^*$  in red and black soils, respectively) whereas, non-exchangeable K, lattice K and total K showed positive correlation for clay.

harshaaditya123@gmail.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Malolactic fermentation and ageing in oak wood barrels: Impact on ellagitannin and anthocyanin content, volatile composition and sensory profile of red wines

**Kleopatra Chira**

Institut des Sciences de la Vigne et du Vin, France

Chemical composition, aromatic profile and sensory attributes of wines lie in the grape variety, winemaking procedure, maturation and ageing. Traditional red wine production usually consists of performing both alcoholic and malolactic fermentations in the same tank, and then, ageing in oak barrels for a variable period of time, ranging from a few months to over a year. In an attempt to obtain particular quality wines with their own personality and a higher organoleptic complexity, alternative production technologies, such as carrying out the malolactic fermentation (MLF) in the same oak barrels where ageing will take place, are being introduced in the wineries in an increasingly widespread way. The present research compares ellagitannin and anthocyanin profiles, woody volatile composition and sensory properties of wines in which malolactic fermentation (MLF) takes place in tanks prior to 12-months ageing or in oak barrels themselves. Three different barrel toasting (medium toast, MT; medium toast with watering, MTAA; noisette) were considered for ageing of each wine modality. Sensory analyses (triangle and rating tests) were also performed. Two-way ANOVA of the raw experimental data revealed that the toasting method and the container where MLF took place, as well as the interaction between both factors, have a significant influence on ellagitannin, anthocyanin and woody volatile profiles of Cabernet Sauvignon wines. Barrel-fermented wines generally presented 1.2-fold higher total phenolics, whereas tank-fermented wines exhibited 1.1 and 1.2-fold greater total proanthocyanidin and anthocyanin contents, respectively. Concerning the ellagitannin composition, barrel toasting effect seemed to be more important than differences due to MLF-container. Certain woody and fruity volatiles varied significantly depending on whether MLF occurred in barrels or tanks. Barrel-fermented wines were preferred in mouth, while olfactory preference depended on barrel toasting.

kleopatra.chira@u-bordeaux.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Plant growth and leaf morphological change of *Spinacia oleracea* grown under different light-emitting diodes

EunYoung Choi<sup>1</sup>, MyungOk Lee<sup>1</sup> and KyungRan Do<sup>2</sup><sup>1</sup>Korea National Open University, South Korea<sup>2</sup>National Institute of Horticultural and Herbal Science, South Korea

This study aimed to determinate effects of light-emitting diodes on leaf morphology and growth of two cultivars (world-star and sushiro) of *Spinacia oleracea*. Plants were grown for 25 days after transplanting (DAT) under the LEDs (White (W), Red and Blue (RB, ratio 2:1), Blue (B), Red (R) LED) under the same light intensity and photoperiod ( $130 \mu\text{mol m}^{-2} \text{s}^{-1}$ , 12 hours). Higher fresh and dry leaf weights, leaf number and leaf area were observed in the world-star cultivar, in which a 35% increase in leaf dry weight was found in both the RB and R LEDs than the B and W at 25 DAT. In the sushiro cultivar, the leaf dry weight was in the order of RB>R>B>W at 25 DAT. Leaf apinasty symptom was appeared in plants grown under both R and RB LEDs with much more severe degree of symptom under the R LED. Microscope analysis indicates that the cell size of leaf margin region was larger than that in the leaf blade region in the apinasty symptom-developed leaf. The chlorophyll content and photosynthetic activity were lower in the leaves grown under the R LED. All the integrated results suggest that the B or W LED is a proper light condition due to the leaf apinasty symptom for a closed cultivation of *Spinacia oleracea*.

ch0097@knou.ac.kr

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## What this world needs is smarter farmers

**Marc van der Sterren Kleopatra Chira**  
Farming Africa, Netherlands

Smallholder farmers are the most important people in the world. They produce 80 percent of all the food in the world, and almost 100 percent of our healthy food. Nevertheless they are widely neglected by the public, the media and most important: the people and organizations who rule this world. To keep up the demands for a growing world population and further increases in demand for high-protein food, the FAO estimates that food production will need to increase by about 60 percent. The main increase needs to come from smallholder farmers in developing countries. 80 percent of all hungry people depends on some sort of farming. If those people produce a bit more, the world food problem is solved. For most subsistence farmers in Africa it's possible to double or even to multiply their production. This means they can even produce for the growing cities in and outside Africa. In 2016 the United Nations ratified 17 sustainable development goals. The aim is to end all forms of poverty, fight inequalities and tackle climate change, while ensuring that no one is left behind. With the empowerment of smallholder family farmers through providing them access to independent information we can both keep up the demands for a growing world population and reach all 17 Sustainable Development Goals. The new publication SMARTER FARMERS is the start of a campaign which urges world leaders to focus on the empowerment of smallholder farmers by access to independent information.

[marc@farmingafrica.net](mailto:marc@farmingafrica.net)



10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Hey “Ag” what’s your pension plans?

**Raghavan Sampathkumar**

Food & Agribusiness Consultant, Singapore

Globally, agriculture sector has undergone tremendous transformation in the last few decades. Our generation is facing some of the challenges unlike none of our predecessors. Owing to sustained increase in per-capita incomes enhancing life-expectancy, developed countries are ageing faster that nearly a third or more of their population is aged 50 and above. But, the developing world is endowed with a relatively larger share of young people. Perhaps, this ‘work-force’ macro crisis affects all the industries globally. Current median age of farmers from New Zealand to Alaska is between 50 and 60 years or even more in countries like Japan. With exceptions in Asia and Africa, this is a visible global macro trend and is definitely a matter of concern for the humanity. Instead of succession or transition plan, the word ‘pension plan’ is chosen as the title since relates readily to old age and subtly but strongly emphasizes ageing farmers. Hence the question “if the global food & agriculture industry were a person, what are (or should be) his/her pension plans?” To feed 9 billion people with adequate quantities of safe, nutritious and quality food by 2050, the world needs to produce nearly 60 percent more food. Technological innovations and scientific advancements are helping the industry but shortage of talent and skills has emerged a serious issue. Whether agribusiness is one of the top career paths for the youngsters needs to be examined deeply to ensure the industry continues to attract and retains best creative minds and skilled hands to feed us in future. Apart from improving overall perception on the agri-food industry among youth, it also is necessary to address gender equality appropriately. This paper is about analyzing the current situation and identifying key issues that need to be addressed in this regard. Also it elicits the crucial roles of different stakeholders including governments, policymakers, private sector and civil societies to collaborate in nurturing young talents.

raghavan@smartagbiz.asia

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Current projects of weather engineering and their side effects on the environment, natural resources, agriculture and human health

Monir M M El Husseini  
Cairo University, Egypt

Weather engineering scientists developed a new chemtrail technology applied by jets in the stratosphere for decreasing the global warming. It is based on building synthetic chemical clouds of aluminum oxide as Welsbach particles to reflect the heat coming from the sun back in the upper atmosphere, and thus cooling the air on earth. The applied aerosol mixture contains also nanoparticles of barium monoxide which react with CO<sub>2</sub> when reaching the troposphere turning into barium carbonate and bicarbonate leading to minimization of its content in the atmosphere on the long run. In 2000, the UN approved the first global weather engineering project in the history of mankind to combat the global warming by chemtrail technology for the period from 2000 to 2050 with a budget of US \$ 50 billion (\$ 1 bill/year) financed and completely managed by USA alone. Since the application took place on the global level, climatologists, biologists, agronomists, and medical institutions around the globe recorded and explained undesirable side effects of this technology with severe impact on the weather, natural resources of flora and fauna and agriculture, as well as on human health. These effects could be summarized in the following: 1) Creation of completely new wind directions by induced air depressions. 2) Dehydration of certain ecosystems through the aluminum oxide. 3) Charging giant air electric fields leading to more lighting that induced wild fires in dehydrated forests and range land. 4) Increasing frequency and empowering the natural disasters by seeding air with precipitation nuclei causing floods. 5) Cooling upper air layers over warm water causing hurricanes, tornadoes, and building heavy snow and hail. 6) Decreasing air visibility due to suspended chemtrail particles in the air. 7) Causing health problems with allergic symptoms to chemicals and components of its aerosol. 8) Creation of extreme killer heat waves when reflecting heat back to earth by aluminum oxide. 9) Increasing human mortality in proportion to decreased air visibility, and 10) Increasing risk with calcification diseases caused by the stratospheric *Nanobacteria* carried down to earth on the chemtrail particles.

monir.elhousseini@agr.cu.edu.eg

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Transition in mechanization of hillside farming for gender and socially inclusive rural development: A case study of agricultural mechanization policy in Nepal

Rachaba Devkota<sup>1</sup>, John Fitsimons<sup>1</sup>, Hom Gartaula<sup>2</sup>, Manish Raizada<sup>1</sup>, Laxmi P Pant<sup>1</sup>, Kirit Patel<sup>2</sup>, Helen Hambly-Odame<sup>1</sup> and Devendra Gauchan<sup>3</sup>

<sup>1</sup>University of Guelph, Canada

<sup>2</sup>Canadian Menonite University, Canada

<sup>3</sup>Nepal Agricultural Research Council, Nepal

Nepal recently endorsed its first agricultural mechanization policy in 2014 though mechanization started in late 60s in Nepal. This paper examines the transition in agricultural and rural mechanization through the gender and socially inclusive lenses in the context of hillside terrace farming in Nepal. Findings suggest that most of the previous policy such as Agriculture perspectives plan, agricultural research and development policies are biased towards flat land and are gender neutral; and hillside farming was largely neglected from the beginning. Study further reveals that flat land biased rural and agricultural mechanization policy is a biggest challenge for Nepal as half of the country's production comes from hillside farming. Recently, new mechanization policy speaks about the gender and marginalized farmers issues along with hillside terrace farming. However, how this policy change will be able to address the above mentioned challenge at implementation level is unclear as there is not any such evidences and experiences of implementing mechanization policy strategies and guidelines for its effective implementation in ground.

rdevkota@uoguelph.ca

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Changing oil palm industry image towards sustainable future

Siti Khadijah Mohd Rais, Mohaimi M, Ahmad Fairuz Zamhuri and Brian Chow Voon Yang  
Sime Darby Plantation Sdn Bhd, Malaysia

Plantation agriculture is the fundamental building block in nation building acting as an economic engine for social engineering and rural development. Plantation agriculture starts with coffee and later was replaced by rubber. In the late 1970s and early 1980s, the oil palm is the major plantation crop and during this period Malaysia has transformed from agriculture to industrial nation. It has played an important role in transforming, expanding and shifting Malaysian economy from agriculture into industrial base. Unfortunately, in turn the industry is gradually taken the large part of agriculture labour force which created labour shortage in the oil palm industry. Plantation work known to difficult, dangerous and dirty making it less attracted to new generation of labour force. Initiatives has been proposed to combat these manpower shortage such as introduction of mechanization and automation however they met with poor acceptance due to high cost and still there is no pulling factor to gain interest from labour force to work in the plantation. In oil palm, harvesting is one of the important work that face labour shortage due to difficulties in harvesting tall palms. Incorporating the secondary trait such as semi-dwarf into high oil yield can greatly increase productivity, efficiency and less difficulty. Sime Darby has vast collection of oil palm germplasm and contained potential populations for semi-dwarf material development. Extensive selection and testing have been carried out to evaluate semi-dwarf populations. Combination of primary and secondary trait such as high oil yield and semi dwarf in recent population were succeed and grouped differently as showed in the Figure 1. High oil yield of semi dwarf oil palm will increased oil and harvesting productivity and indirectly reduced land expansion for sustainable future. Incorporating new technologies such as ripeness sensing technology and easy-to-operate harvesting tools with the semi-dwarf trait can be the first step towards transforming plantation agriculture.

siti.khadijah.rais@simedarby.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Usefulness of infra-red thermography as a high-throughput tool for rice heat tolerant selection

Giovani G Brito<sup>1</sup>, Paulo Ricardo Reis Fagundes<sup>1</sup>, Luís Eduardo Panozzo<sup>2</sup>, Sidnei Deuner<sup>2</sup>, Diogo Silva Moura<sup>2</sup> and Italo Lucas de Moraes<sup>2</sup><sup>1</sup>Embrapa - Brazilian Agricultural Research Corporation, Brazil<sup>2</sup>UFPEl – Universidade Federal de Pelotas, Brazil

Rice (*Oryza sativa L.*) is sensitive specie to extreme temperatures, especially at reproductive phase. Although their genome has been completely sequenced opening wide opportunities for large-scale studies in mapping and functional genomics, physiological phenotyping under field condition still is the major bottleneck to associate a specific genotype to a phenotypic trait. Thus, a set of 182 accessions involving subspecies indica, japonica and indica/japonica cross were evaluated under field conditions in two sowing date representing contrasting environments temperatures for rice growth. At second time sowing the occurrence of supra-optimal temperatures at the reproductive phase decreased significantly the mean grain yield (12%). A hierarchical clustering analysis highlighted that Cluster VI had outperforming LTB 14033 genotype; the grain per panicle and grain yield per square meter were the most closely related traits by principal components analysis (PCA); the thermography analysis highlighted that this genotype showed lower leaves temperatures, approximately 1°C less than mean shown by set of evaluated genotypes. In addition, PCA revealed an important role for leaves dissipation capability of thermal energy and its association with grain yield and that the use of non-invasive phenotyping approach via thermography correlated negatively and significantly with grain yield of set evaluated accessions.

giovani.brito@embrapa.br

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Genetic diversity of *Aspergillus flavus* and occurrence of aflatoxin contamination in stored maize across three agro-ecological zones in Kenya

Grace W Gachara<sup>1</sup>, Anthony K Nyamache<sup>1</sup>, Jagger Harvey<sup>2</sup>, Gbemenou Joselin Benoit Gnonlonfin<sup>2</sup> and James Wainaina<sup>2</sup><sup>1</sup>Kenyatta University, Kenya<sup>2</sup>Biosciences Eastern and Central Africa-International Livestock Research Institute, Kenya

Aflatoxin contamination at post-harvest poses a serious challenge in achieving millennium development goals on food security especially in the developing world. In Kenya, major outbreaks of aflatoxicoses have been attributed to poor post harvest storage practices. In this study, we conducted a cross-sectional survey within three Agro-ecological zones in Kenya, to determine occurrence and distribution of total aflatoxin in stored maize and the aflatoxigenicity potential of *Aspergillus flavus* in stored maize. The counties selected were; Kitui, Nakuru and Kitale (in Trans-Nzoia County). Sampling sites were selected based on previous aflatoxicoses outbreaks (Kitui) and major maize production areas (Nakuru and Kitale) where little information exists on the occurrence of aflatoxin contamination. A total of one hundred and thirty (130) kernel maize samples were random collected during the period between June and August 2012. Moisture content was determined using the standard oven method and *Aspergillus flavus* was isolated by direct plating technique. Genetic diversity of the isolates was determined by PCR and Single Sequence Repeats (SSR) micro satellites analysis. Positive strains were induced to produce B1 aflatoxins on Yeast Extract Sucrose Agar (YESA) and quantified using competitive ELISA technique. The results indicated mean moisture content of maize ranged between 6% and 34%, although this was found not to be significantly different ( $p=0.23>0.05$ ). However, total aflatoxin contamination of postharvest stored maize samples between sites was significantly different ( $p=0.000, <0.05$ ); with the highest contamination in Kitale at a mean of (9.68  $\mu\text{g}/\text{kg}$ ). *A. flavus* was isolated in 70% (N= 91) of the maize samples collected at postharvest. *A. flavus* isolates with the highest aflatoxigenicity potential were from Nakuru County with mean aflatoxin level at 239.7  $\mu\text{g}/\text{kg}$ . Genetic distance based on Neighbor Joining (NJ) clustered the *A. flavus* isolates into five main clusters. Principal coordinate Analysis (PCA) analysis showed five distinct clusters with both axes explaining 60.17% of the variance. This study showed widespread distribution of aflatoxin contamination and a highly toxigenic *A. flavus* in stored maize in three major agro ecological zones in Kenya. These results suggest a potential health risk of aflatoxin outbreaks within these areas, thus call for more investigations.

kikogash@gmail.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Bamboo - A building material for construction

**Latha M S**

Sri Venkateshwara College of Engineering, India

Concrete and steel are the most widely used construction materials in the world. The concrete has high compressive strength but low tensile strength. Therefore, steel is used to reinforce the concrete. Steel has a very high tensile strength as compared to concrete, but there are certain problems associated with it. Some of these problems are high production cost, large energy consumption during its production; it is a non-renewable resource and large amount of carbon emission during its production. The urge to overcome these problems without the tensile capacity of reinforced concrete being compromised, has prompted numerous scientists and engineers to seek out locally sourced materials as a replacement for conventional steel reinforcement. Specifically bamboo is one of the most suitable materials that may be used as reinforcing bar in concrete. This project work assessed the suitability of bamboo as reinforcement in concrete. In this project, size of beams selected is 230x 300 x 2000 mm. treated bamboo reinforced concrete (TBRC) beam and steel reinforced concrete (SRC) beam was casted for each size of beam and they were tested on loading frame machine. The compare of the results for the bamboo reinforced beam and steel reinforced beam shows that the load was varying from the percentage of bamboo and steel. Hence, it can be recommended to use bamboo reinforced concrete beam for light load bearing structures like beam, plinth beam and slab for small panel. Also, it may be used for temporary structure.

[lathamsm@yahoo.co.in](mailto:lathamsm@yahoo.co.in)



10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Control of soybean stem fly *Melanagromyza sojae* (Diptera: Agromyzidae) by sticky color traps in soybean field

**Hanan Alfy**

Plant Protection Institute, Agriculture Research Center, Egypt.

Five color traps were used to study the effect of color upon the attractiveness of Soybean stem fly *Melanagromyza sojae* (Zehnter), (Diptera: Agromyzidae) in Nubaria Agriculture Research Station's farm, throughout 2015 and 2016 seasons. White, yellow, red, green and blue sticky traps were used to estimate of attraction to suppress of *M. sojae* damage in soybean fields. White and yellow traps had great effect in suppressing the damage, there were increasing in seed's weight by using white and yellow traps which mean the mass trapping of these two color were success in controlling *M. sojae*, blue trap was low effect and other traps were not effective in captivity the adult.

alfyhanan@gmail.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## From manned to full autonomy; factors influencing the development and adoption of automated agricultural field machinery

**Scott A Shearer**

Ohio State University, USA

The continuing evolution of agricultural field machinery is being shaped by technological developments in other sectors such as defense and transportation. Absent defense-related concerns, it is doubtful the private sector alone could have justified the expense of space-based radio navigation or Global Navigation Satellite Systems. Arguably, the single greatest factor supporting the automation of current agricultural field machinery has been the deployment of Controller Area Networks which were necessary to meet US and EU regulatory requirements for off-highway diesel engine emissions. The focus of this presentation is multifaceted; a review of historical trends in field machinery size, physical limitations faced by the industry, tradeoffs between mechanical life and technical obsolescence, evolving automation technologies in other sectors, and soil health. So what factors will accelerate the transition from manned to fully autonomous agriculture vehicles? Perhaps the current emphasis on reducing labor costs through up-sizing equipment (>30,000 kg) will begin to lose its appeal as producers learn more about the damage done to soil structure. Or, farmers may demand that machinery life be brought in line with technical obsolescence. The first commercially successful autonomous agricultural vehicles will be low power (<50 kW) and lightweight (< 4,000 kg). The shift to smaller equipment will be accompanied by a reduction in mechanical life (< 3,500 hrs.). Equipment designers will strive to develop iron with planned failure at obsolescence (approximately five cropping seasons). Further, symmetry will be utilized to minimize the number of parts required to build this machinery thereby increasing volume concomitant with reduced production and service costs. However, the single most crucial factor that will drive the transition from manned to supervised autonomous machinery will be increased agricultural productivity through mitigation of soil compaction via the use of lightweight (and low power), autonomous field machinery.

shearer.95@osu.edu

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Genotype X environment interaction and yield stability of arabica coffee (*Coffea arabica* L.) genotypes

Lemi Beksisa<sup>1</sup>, Sentayew Alamerew<sup>2</sup> and Ashenafi Ayano<sup>1</sup><sup>1</sup>Jimma Agricultural Research Center, Ethiopia<sup>2</sup>Jimma University, Ethiopia

Lack of suitable varieties that exhibit stable yield performances across wide ranges of environments as a result of significant genotype x environment interaction (GEI) is the major factors among several production constraints contributing to low productivity of Arabica coffee in Ethiopia. In the present study, eleven advanced Limmu coffee genotypes were evaluated in eight environments (four locations over two years) to determine the existence of G x E interaction and yield stability performances. The experiment was laid out in a Randomized Complete Block Design of two replications under all locations. Combined analysis of variance showed a highly significant effect of genotype by environment interaction indicating the differential yield response of genotypes across different environments. The major proportion of the variation explained by environments was 42.74% of the total variation. Nevertheless, the contribution of the genotypes to the total variance was much smaller than the environments, and the genotype by environment interactions. This suggests that environmental variation, among other variance components, was the major factor affecting the yield performance of coffee genotypes. To this effect, different stability models such as AMMI, AMMI stability value, cultivar superiority index and yield stability index were used for stability analysis. The first two Interaction Principal Component Axis (IPCA) of AMMI exhibited a highly significant effect and cumulatively contributed about 63.21% of the total interaction sum of squares which is greater than half of the total. This indicated the capability of the first two principal component axis for cross-validation variation explained by the interaction effect. Subsequently, two high yielding genotypes, namely; G3 (L52/2001) and G9 (L55/2001), on average, showed stable performance across environments. On the other hand, the study also illustrated the presence of location specific high yielding coffee genotype such as L56/2001 as a result of significant interaction of the genotypes with the environments. Regarding to test environments, Gera 2015/16 (E5) regarded as a more stable site for coffee bean yield improvement over the rest environments due to the IPCA score nearer to zero which is having little interaction effect, while Agaro 2015/16 (E7) was considered to be the most interactive environment. Based on the result of this study, coffee breeders or farmers would be recommended for wisely selecting either for location specific or wider adaptable coffee genotypes leading to substantial yield increment under Limmu coffee growing areas.

lbeksisa@gmail.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Attraction of melon fruit fly, *Bactrocera cucurbitae* (Diptera: Tephritidae) to the odor of cultivable gut bacterial isolates

**Mala Mishra**

Indian Agricultural Research Institute, India

The melon fruit fly is a destructive pest of cucurbits in India and microbiota plays an important role in insect biology. Understanding the gut microbiota composition is essential for the development of pest management strategies. Given this, the study intended to identify the cultivable bacteria inhabiting the intestinal tract of adult melon fruit fly (*Bactrocera cucurbitae*) from the field-collected population of the experimental fields of IARI, New Delhi, India; between 28°37'22" to 28°39'05" N latitudes and 77°08'45" to 77°10'24" E longitudes. Ten isolates were identified and characterized using biochemical, molecular and 16sRNA sequencing methods to assess the attractiveness of the bacterial odours to their hosts. Bacteria identified belong to family *Enterobacteriaceae*, *Staphylococcaceae*, *Enterococcaceae*, *Bacillaceae* and *Brucellaceae*. Laboratory bioassay was employed to examine the attractiveness of the different bacterial isolates to *B. cucurbitae* adults in normal and olfactory cages separately. The bioassay showed that a higher number of female flies were attracted to bacterial filtrates than male flies across all age groups. *Klebsiella oxytoca* and *Citrobacter freundii* were the most attractive species across all age group of adult flies. These findings will facilitate blooming of female targeting bacterial bio control emissary for the defense of cucurbit crops.

dr.mala85@gmail.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Effect of differential nutrient doses and scheduling on growth yield attributes yield and nutrient efficiency in hybrid rice (*Oryza sativa* L.)

N K Tiwari<sup>1</sup>, Priyanka Sharma<sup>1</sup> and S F A Zaidi<sup>2</sup>

<sup>1</sup>SGT University, Haryana, India

<sup>2</sup>Narendra Deva University of Agriculture and Technology, India

**Statement of the Problem:** An experiment was conducted during Kharif seasons of 2011-12 and 2012-13 to study the effect of split application of NPK fertilizer growth yield parameters and yield of hybrid rice at Student Instructional Farm of Narendra Deva University of Agriculture and Technology, Kumarganj, Faizabad U.P. The experiment was laid out in RBD comprising of ten treatments with three replication and ten practices. The split timing with doses of NPK fertilizer (100% RDF) N 1/3(7DAT+MT+PI) P and K 1/3 (B + MT+PI) growth, yield (7.25-7.45 t ha<sup>-1</sup>) and availability of N (174.10- 175.55), P (17.75-17.93) and K (246.15- 248.61) kg ha<sup>-1</sup> was significantly superior over the rest treatments. Significantly at par, yield attributes growth and yield parameters recorded by T10 NPK (75% RDF) N1/3 (7DAT+ MT+PI) P and K 1/3 (B+ MT+ PI) and T2 NPK (100% RDF) as Recommended practices (RP). This way 25% NPK could be saved by splitting NPK without losing yield.

nktiwariissnd@gmail.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Market risk perceptions in smallholder maize production commercialisation: Implications for rural agricultural and marketing infrastructure development in the Eastern Cape

Ngwenya S<sup>1</sup>, Mujuru N<sup>1</sup>, Mushunje A<sup>1</sup> and Zhou L<sup>1</sup><sup>1</sup>University of Fort Hare, South Africa

South African government policies such as National Development Plan 2030 (NDP - 2030) of 2013 still place the development of smallholder commercial agriculture in the heart of solving the tripartite challenges of poverty, inequality and unemployment. Under these policies, the government has launched agricultural infrastructural development programmes targeted at unlocking Eastern Cape Province enormous potential for commercialised poverty reducing smallholder agriculture. Despite all external top-bottom approach support of agriculture by the government through several programmes, agricultural commercialisation remains an internalised decision made towards the market orientation of crop and livestock production. Furthermore, commercial agriculture is an inherently risky endeavour riddled with production, human, enabling environment, financial and market risk. How farmers perceive potential market risks becomes fundamental in decision making towards their market orientation as suggested by the Proactive Continuous Risk Assessment Reference Theory. Therefore, the main aim of this cross section designed study was to investigate market risk perceptions' influence on smallholder commercialisation levels and market risk perceptions. A multistage purposive sampling was used and Cochran equation was used to obtain a sample of 322 smallholder maize farmers in Ingquza Hill Local Municipality, South Africa. Their level of commercialisation was measured using Household Commercialisation Index (HCI) while a Likert Scale was used to aggregate their market risk severity perceptions. Bivariate Kendal's tau-b correlation analysis was used to empirically confirm the existence of a relationship between the variables their market risk perceptions and level of commercialisation. A strong negative correlation of  $r_k = -0.764$  was confirmed displayed significance ( $P < 0.05$ ). Tobit Regression Model was used to econometrically detect the significance of market risk perceptions among socio - economic, institutional and agronomic factors influencing the level of commercialisation. Market risk perceptions were confirmed to be significant ( $P < 0.05$ ) in determining the level of commercialisation. Other significant socio - economic variables included the level of education, cropping programme/ cooperative membership, climate perceptions and experience in farming. This demonstrates that market risk perceptions are important in ensuring that smallholder farmers commercialize their production and agricultural post-harvest and marketing infrastructure is optimally used. This information can be used by the Department of Rural and Agricultural Development and Department of Agriculture, Forestry and Fisheries in an effort to improve their extension service in order to grow resilience among smallholder farmers and ensure facilitated rural markets remain viable.

drsngwenya@gmail.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Social capital and agricultural technology adoption among Ethiopian farmers

Nizam A Husen<sup>1</sup>, Tim K Loos<sup>1</sup> and Khalid H A Siddig<sup>1,2,3</sup> N K Tiwari<sup>1</sup>, Priyanka Sharma<sup>1</sup> and S F A Zaidi<sup>2</sup><sup>1</sup>University of Hohenheim, Germany<sup>2</sup>Humboldt University of Berlin, Germany<sup>3</sup>Khartoum University, Sudan

Despite the recent efforts to increase agricultural productivity in Ethiopia, food insecurity remains a major challenge in the country. Improving smallholders' productivity requires the adoption of suitable agricultural technologies and practices. Previous researches highlighted the importance of socio-economic factors; but widely overlooked the role of social capital in technology adoption and its potential to create collective actions, reduce transaction costs, relax supply side constraints, and disseminate information. Using socio-economic data of 398 farming households, we assessed social capital, using a probit model, as a determinant for soil and water conservation practices (SWC) such as terraces, bunds and agro-forestry as well as adopting productivity enhancing technologies (PET) such as fertilizers and improved high yielding seed varieties. We found that members of Iddir (informal funeral group) were more likely to adopt SWC (18.2%). For the case of PET, Iddir members were 12.8% less likely to adopt. Being members of Jarsumma (informal conflict resolution) increased the likelihood of SWC and PET adoption by 12.87% and 17.8%, respectively. Therefore, we recommend that technology transfer should consider the different types of social capital as an alternative policy option to the prevailing top down approaches in order to improve smallholder livelihoods.

abbamilki@mail.com



10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Influence of ICTs Services and Applications on Agricultural Development

Tahir Munir Butt<sup>1,2</sup>

<sup>1</sup>University of Agriculture, Pakistan

<sup>2</sup>China Agricultural University, China

The major problem was to bring improvement in the quality of life of rural people without ICTs services and applications in Agriculture. In rapidly changing local and global agricultural market and price mechanism, it is difficult for traditional and poor farmers to maintain their farm productivity and one of the major problem is clear the weakness of physical distance and logistic problems with time availability of relevant information are the foremost hurdles in personal communication and dissemination of information about cropping technologies especially in critically stage of crops, weather forecast. Punjab-Pakistan province was selected purposively as the study province for the said study. In the present study, convenient and simple random sampling techniques was used to cover the whole province of the Punjab. Total sample size of the study was three hundred (300) user-ICTs. It was concluded that information attained by ICTs (services and applications) like a telephone with toll-free number application, cell phone with text and robo calls applications, computer with internet application, personal characteristics and capacity building of the farmer were significantly correlated with the decision-making aspects with important for awareness, knowledge, capacity building, timely information, improved productivity and also marketing purpose etc. There is need to restructure and redesign present technology transfer and flow of information scenario of agricultural extension system to make convenient efforts for provision of counseling services and agricultural information sources (Information Hub Center) to rural farming societies by Government.

tahirmunir2013@gmail.com

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## A pilot study of toxic elements in cotton seeds with instrumental neutron activation analysis

**Zaijing Sun**

South Carolina State University, USA

Cotton has been a major cash crop in South Carolina since revolutionary times to current day. Throughout the growing season, cotton assimilates numerous trace elements from the soil, including the toxic ones. Some of these trace elements are accumulated and enriched in cotton seeds. Therefore, cotton seeds can serve as a biological indicator of heavy metal contamination in local soil. Like other states, South Carolina is subject to the environmental impact of human behaviors. Dozens of heavily-polluted superfund sites are scattered in the state, and some of them are close to cotton plantations. It is conceivable that cotton may be under contamination impact of these sites through ground water movement or other migration paths. In this study, several cotton seeds and corresponding local soil samples from the Midlands Region of South Carolina were studied by instrumental neutron activation analysis (INAA). After irradiation of the samples with thermal and epithermal neutrons from the PULSTAR Reactor, all of short-lived, medium-lived and long-lived isotopes spectra were collected with HPGe spectrometers. The pilot study indicated that: INAA is a competent tool for conducting multi-element analysis in agricultural products, especially cash crops. It is capable to determine the level of elements in soil and cotton seeds with high accuracy and extreme sensitivity. Cotton, as a life form, works like a refining factory which has the ability to not only increase the concentration of essential elements in seeds but also block some elements which it does not need.

zsun@scsu.edu

10<sup>th</sup> International Conference on

# AGRICULTURE & HORTICULTURE

October 02-04, 2017 London, UK

## Evaluation of phosphate solubilizing bacteria by their effects on lead (Pb) toxicity

Nuwan Hettiarachchi and B C Walpola  
University of Ruhuna, Sri Lanka

Lead (Pb) is regarded as a potent occupational toxin and its toxicological manifestations are well known. When soil is contaminated with lead plants would absorb it as it's a persistent contaminant. This lead poisoning can be detoxified by using physical, chemical and biological methods. Biological detoxification is defined as enzymatic degradation or transformation of toxins that leads to less toxic products. But a complete understanding of how these detoxification mechanisms influence their P solubilization is lacking. Microorganisms play an important role in the environmental fate of toxic metal including Pb with physiochemical mechanisms transformations between soluble and insoluble phases. Such mechanisms are important components of natural toxicity tolerance of heavy metal including Pb. Phosphate Solubilizing Microorganisms (PSMs) have specialized attributes for conversion of insoluble form of phosphate to soluble via methods like solubilization and mineralization. Therefore, this study was conducted to identify the capability of growth of PSMs in the presence of Pb. Agricultural soil was used to isolate the phosphate solubilizing bacteria and isolation was done by using National Botanical Research Institutes Phosphate (NBRIP) medium. 15 phosphate solubilizing bacterial isolates were found and their resistance to Pb was tested in a medium consist with different concentrations of Pb respectively 100ppm, 200ppm, and 400ppm. The survived bacterial strains were used to determine the phosphate solubilization under Pb toxicity. Survived bacterial strains were inoculated into NBRIP broth medium. Phosphorus solubilization, growth and pH were monitored respectively after 1, 3 and 5 days. Among 14 isolates 11 were growth in 100ppm, 10 were growth in 200ppm, and 7 were growth in 400ppm Pb concentration. 7 isolates from 400ppm Pb toxicity were used for further analysis of Phosphorus solubilization. Among them PSB-8 strain has shown a vigorous growth within a maximum Pb toxicity and has solubilized 72.02ppm phosphate under 400ppm Pb toxicity.

nuwanrha@mail.com