



ASSOCIATION FOR THE ADVANCEMENT OF INDUSTRIAL CROPS

29th Annual Meeting

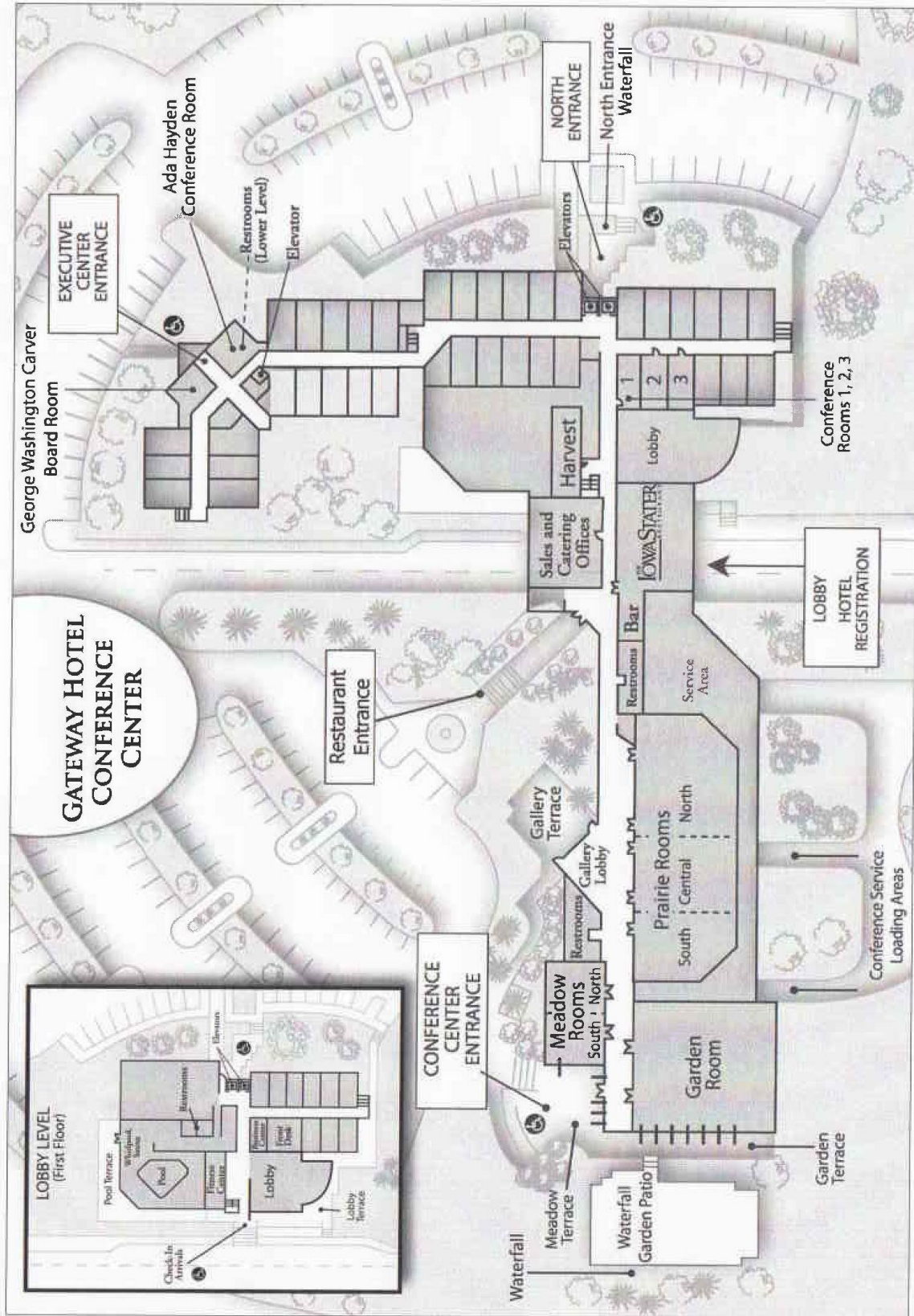
Miscanthus ETHANOL Biodiesel Canola Succinic acid Packaging FDCA Insulation
 Detergents Feed Camelina LUBRICANT Sugars Emulsifiers Pennycress Gums
 Adhesives Kenaf Flavoring Lactic acid Fibers 3-HPA POLYMERS Solvents Rubber
 Sunflower Cra... s Fabric Crambe
 Bio-oils Preserv... el Coatings Castor
 Cosmetics Che... nts Kraft lignin
 Hemp Pharmac... Linseed Corrosion
 inhibitor Mold... arnishes Waxes
 Jojoba Essential oils Biogas Dicarboxylic acids Cottonseed Epionitrone Surfactants
 Levulinic acid Switchgrass Propylene glycol Sebacic acid Ethylene Guayule Varnish FT
 diesel Soybean Tung Glucaric acid Methanol DME CUPHEA Indigo Polyurethane

Industrial Crops and Products: *Renewable Feedstocks for a Sustainable Bioeconomy*

Gateway Hotel & Conference Center
Ames, Iowa USA
September 10-13, 2017



Gateway Hotel & Conference Center



CONFERENCE PROGRAM

SUNDAY – September 10, 2017

| | | |
|------------------------------------|-------------------|----------------|
| Registration | Garden Lobby | 1:00 - 6:00 PM |
| Crop Germplasm Committee Meeting | North Meadow | 2:00-4:00 PM |
| AAIC Board Meeting | Conference Room 1 | 4:00 - 5:00 PM |
| Poster Set-up | Garden Room | 4:00 - 6:00 PM |
| Opening Reception & Poster Viewing | Garden Room | 6:00- 9:00 PM |

POSTERS

Productive performance of winter camelina grown in contrasting environments: Northern Italy vs. Minnesota, USA

Federica Zanetti, Russ W. Gesch, Jane M.F. Johnson, Giuseppe Di Girolamo, and Andrea Monti

Progress towards developing early maturing winter varieties of *Camelina sativa* as oilseed cover crops for northern climates

James V. Anderson, Wun S. Chao, David P. Horvath, Russ W. Gesch, and Marisol T. Berti

Acetyl-diacylglycerides produced by modified camelina (*Camelina sativa*)

Roque Evangelista, John Ohlrogge, Terry Isbell, Bryan Moser, Timothy Durrett, and Steven Cermak

Oil concentration and fatty acid profile of naturalized wild *Helianthus annuus* populations from Australia

Gerald J. Seiler

Biobased lubricant from used cooking oils

Steven C. Cermak, Jill K. Moser, Terry A. Isbell, Jakob W. Bredsguard, Gene E. Lester, and Rex E. Murray

Screening forage sorghum [*Sorghum bicolor* (L.) Moench] genotypes for cold tolerance

Swarup Podder, Marisol Berti, Alan Peterson, Sergio Cabello, Bryce Andersen, Dulan Samarappuli, and James Anderson

Yield and biomass quality of kenaf (*Hibiscus cannabinus* L.) irrigated with wastewaters – The effect of ammonium ions and nitrates

A.L. Fernando, M. Ferreira, B. Barbosa, and E. Alexopoulou

Guar, roselle, and sesame genetic resources currently used as ingredients in some medicinal products and several potentially new medicinal uses

J.B. Morris, M.L. Wang, and B. Tonnis

Development of edible nano-laminated coatings with antimicrobial resins of *Flourensia cernua* and their application to extend the shelf-life of tomato (*Solanum lycopersicum* L.) fruits

Diana Jasso de Rodríguez, Esperanza de J. Salas-Méndez, António A. Vicente, Ana Pinheiro, L. F. Ballesteros Giraldo, P. Silva, Raúl Rodríguez-García, F. Daniel Hernández-Castillo, M. Lourdes V. Díaz-Jimenez, José A. Villarreal-Quintanilla, María L. Flores-López, and Dennise A. Carrillo-Lomelí

Apoptotic activity of *Flourensia* spp

Diana Jasso de Rodríguez, Dennise A. Carrillo-Lomelí, Nuria E. Rocha-Guzmán, M. Rocío Moreno-Jiménez, José A. Villarreal-Quintanilla, Raúl Rodríguez-García, and M. Lourdes V. Díaz-Jimenez

Physical characterization of chitosan/montmorillonite incorporated with *Rosmarinus officinalis* l. essential oil

V.G.L. Souza, J.R.A. Pires, P.F. Rodrigues, A.A.S. Lopes, F.M.B Fernandes, and A.L. Fernando

Multi-environment performance of *Taraxacum kok-saghyz* (Rodin) clones to validate indirect selection

Sarah K. McNulty, Zinan Luo, Nikita Amstutz, and Katrina Cornish

MONDAY – September 11, 2017**MORNING**

PLENARY SESSION (Garden Room)

Chair: Roque Evangelista

| | |
|-------------|---|
| 8:00- 8:55 | Robert Brown, Bioeconomy Institute, Iowa State University <i>Overcoming the barriers to a sustainable bioeconomy</i> |
| 8:55- 9:50 | Emily Heaton, Department of Agronomy, Iowa State University <i>Perennial solutions to annual problems?</i> |
| 9:50-10:10 | Coffee Break |
| 10:10-11:05 | David Grewell, Agricultural and Biosystems Engineering, Iowa State University <i>Bio-based construction adhesives</i> |
| 11:05-12:00 | Norman Cloud, Kemin Industries, Inc., Des Moines, IA <i>Kemin Specialty Crops: Vertically integrated, sustainably grown crops for extraction of bioactive molecules</i> |

AFTERNOON**Tour Schedule**

| | |
|-----------|---|
| 12:00pm | Board bus - Gateway Underpass, by entrance across from the hotel front desk |
| 12:10 | Bus departs Gateway |
| 12:30 | Boxed lunch served at Plant Introduction Station |
| 1:00-3:00 | Plant Introduction Station Tour |
| 3:00 | Board bus |
| 3:10 | Bus Departs Plant Introduction Station |
| 3:25-5:25 | BioCentury Research Farm Tour |
| 5:25 | Board Bus |
| 5:35 | Bus Departs BioCentury Research Farm – Returns to Gateway |

Dinner on Your Own: Shuttle provided to Ames restaurants from 6:00 to 8:00 pm – Shuttle picks up at Gateway Underpass

TUESDAY – September 12, 2017

MORNING

OILSEED DIVISION (Garden Room)

Chair: Efthymia Alexopoulou

| | |
|-------------|---|
| 8:00-8:30 | Research on oilseeds in Europe <i>Efthymia Alexopoulou</i> |
| 8:30-8:50 | Winter camelina root system under contrasting environments <i>Federica Zanetti, Jane M.F. Johnson, Russ W. Gesch, Nancy Barbour, and Andrea Monti</i> |
| 8:50-9:10 | Winter camelina: Cultivar variation and sowing rate <i>Russ Gesch, Heather Mathew, Adriana Alvarez De la Hoz, and Robert D. Gardner</i> |
| 9:10-9:30 | Fall seeding of spring camelina: an opportunity for farmers in Northern Italy <i>Federica Zanetti, Christina Eynck, Giuseppe Di Girolamo, Daria Righini, Deb Puttick, and Andrea Monti</i> |
| 9:30-9:50 | Industrial oilseed crop germination in response to salinity <i>Heather L. Matthees, Matthew D. Thom, and Russ W. Gesch</i> |
| 9:50-10:10 | COFFEE BREAK |
| 10:10-10:30 | Crambe: A widely adaptable spring oilcrop for Europe <i>Michal Krzyżaniak, Federica Zanetti, Efthymia Alexopoulou, Myrsini Christou, Mariusz J. Stolarski, Eibertus N. Van Loo, Jacek Kwiatkowski, and Andrea Monti</i> |
| 10:30-10:50 | Developing a method for measuring toxicity of castor (<i>Ricinus communis</i>) meal using domestic fly <i>Liv S. Severino, Bruna S.S. Mendes, and Antonio S.E. Vasconcelos</i> |
| 10:50-11:10 | Relay cover crops in soybean (<i>Glycine max</i> (L.) Merr.) cropping systems in eastern North Dakota <i>Nicholas J. Steffl, K.A. Aasand, B.L. Johnson, P.J. Petersen, and M.T. Berti</i> |
| 11:10-11:30 | Corn relay cropping with winter rye, field pennycress, and winter camelina <i>Kyle A. Aasand, N.J. Steffl, B.L. Johnson, P.J. Petersen, and M.T. Berti</i> |
| 11:30-12:00 | Division Meeting |

LUNCH (South Prairie)

AFTERNOON**GENERAL CROPS & PRODUCTS (Garden Room)**

Chair: Ana Luisa Fernando

| | |
|-----------|---|
| 1:00-1:20 | Pros and cons of irrigating perennial grasses with wastewaters <i>J. Costa, B. Barbosa, and A.L. Fernando</i> |
| 1:20-1:40 | Effect of irrigation and plant density on yields of <i>Miscanthus x giganteus</i> <i>Efthymia Alexopoulou and Myrsini Christou</i> |
| 1:40-2:00 | Marginal land for growing industrial crops: Turning a burden into an opportunity <i>Efthymia Alexopoulou, Myrsini Christou, Ioannis Eleftheriadis, Ioanna Papamichael, and Kostas Tsiotas</i> |
| 2:00-2:20 | Yield and phytoremediation potential of perennial grasses in heavy metal contaminated soils under low irrigation <i>B. Barbosa, S. Boléo, S. Sidella, J. Costa, M. P. Duarte, S.L. Cosentino, and A.L. Fernando</i> |
| 2:20-2:40 | NH₃ ENERGY+: Optimal fuel, fertilizer, and energy storage medium <i>Norman Olson</i> |
| 2:40-3:00 | COFFEE BREAK |
| 3:00-3:20 | Status of genetic resources of guayule and other industrial crops at the USDA National Arid Land Plant Genetic Resources Unit in Parlier, CA <i>Claire Heinitz</i> |
| 3:20-3:40 | Physical and chemical properties of biochars produced from MWRDGC biosolids for utilization in sand-based turfgrass rootzones <i>Steven F. Vaughn, F.D. Dinelli, J.A. Kenar, M.A. Jackson, and S.C. Peterson.</i> |

MEDICINAL & NUTRACEUTICAL PLANTS (Garden Room)

Chair: H. Rodolfo Juliani

| | |
|-----------|--|
| 3:40-4:00 | Effect of semi-desert plants as growth regulators in tomato plants (<i>Solanum lycopersicum</i> L.) <i>Diana Jasso de Rodríguez, Alejandro Reyes-Sebastián, Raúl Rodríguez-García, Homero Ramírez-Rodríguez, José A. Villarreal-Quintanilla, M. Lourdes V. Díaz-Jimenez, Antonio Juárez-Maldonado, Norma A. Ruiz-Torres, Fidel M. Peña-Ramos, and Dennise A. Carrillo-Lomelí</i> |
| 4:00-4:20 | The chemistry and quality of Liberian spices <i>Larry Hwang, Jim Simon and H. Rodolfo Juliani</i> |
| 4:20-5:00 | Division Meetings |

Dinner on Your Own: Shuttle provided to Ames Restaurants from 6:00 to 8:00 pm - Shuttle picks up at Gateway Underpass.

WEDNESDAY – September 13, 2017

MORNING

NATURAL RUBBER & RESINS (Garden Room)

Chair: Hussein Abdel-Haleem

| | |
|-------------|--|
| 8:00-8:30 | Current prospects for a natural rubber industry in the U.S. <i>David Dierig, William Niaura, V. Mark V. Cruz, and Guangyao (Sam) Wang</i> |
| 8:30-8:50 | Efficient guayule latex extraction <i>Katrina Cornish</i> |
| 8:50-9:10 | Guayule latex supports production of the first medical radiation attenuation glove <i>Katrina Cornish and Zhenyu Li</i> |
| 9:10-9:30 | Differential expression of drought-stress associated genes and their impact on rubber synthesis in guayule (<i>Parthenium argentatum</i>) <i>Grisel Ponciano, Arcadio Valdez Franco, William Belknap, Yong Gu, Yi Wang, Naxin Huo1, Doug Hunsaker, Daa Elshikha, and Colleen McMahan</i> |
| 9:30-9:50 | Negative regulation of allene oxide synthase in guayule by salicylic acid increases natural rubber content <i>Dante F. Placido, N. Dong, G. Ponciano, C. Dong, B.G. Kang, V.M.V. Cruz, D. Dierig, M. Whalen, and C. McMahan</i> |
| 9:50-10:10 | COFFEE BREAK |
| 10:10-10:30 | Silica and egg shells synergistically reinforce guayule (<i>Parthenium argentatum</i>) natural rubber composites <i>Xianjie (Tony) Ren and Katrina Cornish</i> |
| 10:30-10:50 | Heredity of taproot phenotype in <i>Taraxacum kok-saghyz</i> (Rodin) <i>Sarah K. McNulty, Nikita Amstutz, and Katrina Cornish</i> |
| 10:50-11:10 | Water-based processes for the extraction of natural rubber from <i>Taraxacum kok-saghyz</i> (TK) roots <i>David A. Ramirez-Cadavid, Frederick Michel Jr.1, and Katrina Cornish</i> |
| 11:00-11:40 | Division Meeting |

AFTERNOON

GENERAL MEMBERSHIP LUNCHEON MEETING (South Prairie)

12:00 Noon – 1:20 PM

FIBER & CELLULOSIC CROPS (Garden Room)

Chair: Dilpreet Bajwa

| | |
|-----------|--|
| 1:30-1:50 | Comparative studies among several kenaf varieties in Greece <i>Efthymia Alexopoulou, Defang Li, and Federica Zanetti</i> |
| 1:50-2:10 | Investigation of kenaf foliage as a potential biocide in compositon panels <i>D.S. Bajwa, A. Norris, E. Alexopoulou, R. Ibach, and S.G. Bajwa</i> |
| 2:10-2:30 | Seeding date, cultivar, and seed treatment effects on industrial hemp (<i>Cannabis sativa</i> L.) stand establishment in North Dakota <i>B.K. Hanson, V. Chapara, T. Hakanson, L. Henry, J. Kostuik, M.T. Berti, P.J. Petersen, and B.L. Johnson</i> |
| 2:30-2:50 | Compatibilization improves performance of biodegradable biopolymer composites without affecting UV weathering characteristics <i>N.S. Yatigala, D.S. Bajwa, and S.G. Bajwa</i> |
| 2:50-3:10 | Epoxidized sucrose soyate as a primary binder in particleboard manufacturing <i>A.J. Norris and D.S. Bajwa</i> |
| 3:10-3:30 | Techno-economic analysis and life cycle assessment of bioadhesive derived from glycerol <i>Minliang Yang</i> |
| 3:30-4:00 | Division Meeting |

BOARD MEETING (Conference Room 1)

4:00-5:00 PM

AWARDS BANQUET 5:30-8:30 PM (South Prairie)