2012
Industrial Crops: Developing Sustainable Solutions

The Lodge at Sonoma
1325 Broadway
Sonoma, CA
November 12-15th, 2012

Sponsored by:
The Association for the Advancement of Industrial Crops
PanAridus, LLC
CONFERENCE ORGANIZATION

General Chair
Colleen McMahan
USDA-ARS-WRRC
Albany, CA 94710

Technical Program Chair
Marisol T. Berti
North Dakota State University
Fargo, ND  58108

Registration
Valerie Teetor
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Plenary Speakers
Catherine Woteki, Undersecretary for USDA Research, Education, and Economics, Washington, DC
Chris Somerville, Energy Biosciences Institute, University of California, Berkeley,CA
Josef Brinckmann, Traditional Medicinals, Sebastopol, CA
Torey Arvik, Sonomaceuticals/Wholewine Products, Santa Rosa, CA
Carmela Bailey, USDA, National Institute of Food and Agriculture, Washington DC

Division Chairs

General Crops & Products
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Oilseeds
Grace Chen
USDA-ARS-WRRC
Albany, CA 94710

Medicinals & Nutraceuticals
Brad Morris
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Griffin, CA 30223

Fibers & Cellulosics
Greg Holt
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Lubbock, TX  79403

Natural Rubber & Resins
Lauren Johnson
PanAridus
Carefree, Arizona 85377

2012 AAIC PROGRAM SCHEDULE

MONDAY – November 12, 2012

8:00 – 10:00 am  Registration desk open (outside Palm Tree Salons A and B)  
and  2:00 - 5:00 pm

10:00 am – 1:30 pm  Benziger Family Winery Tour/Lunch  
(preregistered attendees only, bus departs 10:00 am from front of Stone Building)

2:00 – 4:30 pm  Sonoma Square  
(all are welcome; bus departs at 2:00pm from in front of Stone Building)

2:00 - 5:00 pm  Registration desk open (outside Palm Tree Salons A and B)

4:00 – 6:00 pm  Poster set up   (Manzanita Room)

2:00 – 3:30 pm  AAIC Board of Directors meeting   (Blue Oak Room)

3:30 – 5:30 pm  Crop Germplasm Committee (CGC)- New Crops meeting  
(Palm Tree Salons A and B)

6:00 – 8:00 pm  WELCOME RECEPTION (Stone Building)  
*California wine, cold beverages, hors d’oeuvres, jazz music*

7:00 – 7:15 pm  WELCOME  
*Dr. Colleen McMahan, 2012 AAIC President*
TUESDAY – November 13, 2012
7:30 am – 4:00 pm  Registration  (outside Azalea room)

PLENARY SESSION
8:00 – 12:00 pm
(Moderator, Colleen McMahan)
(Stone Building)

8:00 – 8:20 am  Opening Remarks, Dr. Colleen McMahan, 2012 AAIC President

8:20 – 9:00 am  **KEYNOTE ADDRESS: How agricultural research helps build the bioeconomy and a sustainable future**
Dr. Catherine Woteki
Undersecretary for Research, Education, and Economics, USDA
Washington, DC

9:00 – 9:40 am  **The Development of Liquid Fuels from Lignocellulose**
Prof. Chris Somerville, Philomathia Professor of Alternative Energy,
University of California, Berkeley, and Director, Energy Biosciences
Institute, Berkeley, California

9:40 – 10:00 am  **COFFEE BREAK ---** (Stone Building)

10:00 – 10:40 am  **Implementing certifiable sustainability standards for pharmacopoeial-quality medicinal plant crops**
Dr. Joseph Brinckmann, Vice President of Sustainability
Traditional Medicinals, Sebastopol, California

10:40 – 11:20 am  **Recovering Value from the Pomace Pile**
Dr. Torey Arvik, Director, Applied and Research Science
Sonomaceuticals LLC, Santa Rosa, California

11:20 – 12:00 pm  **NIFA programs to support industrial crops and products**
Dr. Carmela Bailey, National Program Leader, Division of Bioenergy
United States Department of Agriculture, National Institute of Food
and Agriculture, Washington DC

12:00 - 1:30 pm  **Lunch on site (Manzanita Room/Broadway Building)**
1:30-3:30  Technical Session –Oilseeds I (Azalea)
1:30-3:30  Technical Session- Medicinal and Nutraceuticals I (Maple)
3:30-3:50  Coffee break (Meeting rooms foyer/Broadway Building)
4:00-5:30  Technical session-Oilseeds I  (Azalea)
4:00- 5:30  Technical Session -Medicinal and Nutraceuticals I (Maple)

Evening  **DINNER ON YOUR OWN**
TUESDAY – November 13, 2012
7:30 am-4:00 pm  Registration (outside Azalea room)

OILSEEDS I
(Concurrent Sessions)
1:30 – 5:30 pm
(Moderator, Grace Chen)
(Azalea)

1:30 – 2:10 pm  Keynote Speaker – Bioengineering camelina oilseeds for enhanced biofuels and oleochemicals.
Chaofu Lu

2:10 - 2:30pm  Does irrigation increase camelina seed yield?
Richard J. Roseberg, and R.A. Bentley.

2:30 – 2:50 pm  Influence of genotype and sowing date on camelina seed yield and oil content in the northern Corn Belt.
Russ W. Gesch.

2:50 - 3:10 pm  Genetic and phenotypic diversity in camelina germplasm.

3:10 - 3:30 pm  Industrial oilseed crops in Texas and their adaptation across climatic regions of the state.

3:30 - 3:50 pm  COFFEE BREAK --- (Meeting rooms foyer)

3:50-4:10 pm  Dormant and spring seeded canola comparisons
Burton L. Johnson and P.J. Petersen

4:10-4:30 pm  Evaluation of regional field pennycress (Thlaspi arvense L.) populations
Win Phippen

4:30-4:50 pm  Isolation and enrichment of the erucic acid from Thlaspi arvense (pennycress) oil.
Terry A. Isbell, Roque Evangelista, and Serin Rao

4:50-5:10 pm  High-throughput genotyping of lesquerella (Physaria and Paysonia) germplasm collections using DArT markers.
Mark V. Cruz, Andrzej Kilian, and David A. Dierig

5:10-5:30 pm  Explore the oil biosynthesis pathways in Lesquerella fendleri
Grace Chen

Evening  DISSERT ON YOUR OWN

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TUESDAY – November 13, 2012
7:30 am - 4:00 pm  Registration (outside Azalea room)

MEDICINAL AND NUTRACEUTICALS
1:30 – 5:30 pm
(Concurrent Sessions)
(Moderator, Brad Morris)
(Maple)

1:30 – 2:10 pm  Keynote speaker – Measuring chemical composition in Yerba Mansa populations, a medicinal plant in the US southwest.  
Mary O’Connell and Andrea Medina-Holguin

2:10 - 2:30 pm  Development and agronomic scale-up of specialty crops for production of target molecules.  
Brindha Narasimhamoorthy, Rod Reed, Norman Cloud, Nicole Zhao & John A. Greaves

2:30 – 2:50 pm  Genetic diversity of riparian populations of Glycyrrhiza lepidota along the salmon and snake rivers.  
Ted J. Kisha, and Barbara C. Hellier

2:50-3:10 pm  Field production economics and best management practices of Oenothera elata (Hooker’s evening primrose)  
Cynthia B. McKenney and Amber N. Bates

3:10-3:30 pm  COFFEE BREAK  --- (Meeting rooms foyer)

3:30- 3:50 pm  Evaluation of fenugreek (Trigonella foenum-graecum L.) as new crop in western Nebraska  
Dipak K. Santra, T. Plyler-Harveson, and Santosh Rajput

3:50-4:10 pm  Variation of L-DOPA concentration in the leaf and flower tissues of seven faba bean accessions with different flower colors  

4:10-4:30 pm  Antifungal properties in vitro of plant extracts against Phytophthora cinnamomi  
F.D. Hernández-Castillo, F. Castillo-Reyes, D. Jasso de Rodríguez, R. Rodríguez-Garcia, G. Gallegos-Morales, R. Rodríguez-Herrera, and C. N. Aguilar-González

Evening  
DINNER ON YOUR OWN
WEDNESDAY – November 14, 2012
7:30 am- 1:00 pm Registration (outside Azalea room)

OILSEEDS II
8:00 – 12:00 pm
(Concurrent Sessions)
(Moderator, Burton Johnson)
(Azalea)

8:00 – 8:40 am  **Keynote speaker** - Green process for biomass-based energy: production of castor-derived synthetic lubricants
**Liangnian He, Qingwen Song, Feng Ye, Xiangming Liu**

8:40 – 9:00 am  Biodegradation of castor-based lubricant wastes.
**Changlu Wang, Yaqiong Liu, Feng Ye, Liangnian He**

9:00- 9:20 am  The challenges for promoting worldwide production of castor
**Liv S. Severino, Dick L. Auld**

9:20-9:40 am  Seed abortion as a mechanism of source/sink adjustment in castor plants.
**Liv S. Severino, Dick Auld**

9:40 – 10:00 am  **COFFEE BREAK ---** (Meeting rooms foyer)

10:00-10:20 am  Pollen dispersal and gene flow in castor (Ricinus communis L.)
**Brian S. Baldwin, J. Brett Rushing, Charles Webber, Thomas Sebastian.**

10:20-10:40 am  Industrial oilseed crops and ecosystem services: pollinators
**Frank Forcella, and Russ Gesch**

10:40-11:10 am  Development of HRJ fuel from Brassica in rotation with wheat for the western U.S.
**Terry A. Isbell, Dan Long, David Archer, Steve Lupton, Michael Gore, Matthew Jenks, Terry Tomlinson, Jeff Steiner**

12:00-1:30 pm  **Lunch on site** (Manzanita Room/Broadway Building)

1:00-1:30 pm  **Lunch speaker: Jeff Martin, Yulex Corporation**

1:30 – 5:00 pm  **Luther Burbank Home and Gardens /Cornerstone Sonoma Tour**
(Pre registered attendees only, meet at hotel entrance at 1:40 pm)

Evening  **DINNER ON YOUR OWN**
8:00 – 8:20 am **Keynote speaker** *Ericameria nauseosa (rubber rabbitbrush): a complementary rubber feedstock to augment the guayule rubber production stream*  
*David Shintani; Upul Hathwaik, Glenn Miller; Curtis Robbins; Colleen McMahan*

8:20 - 8:40 am *Overexpression of HMGR in guayule: Laboratory and field studies*  
*Niu Dong, Colleen McMahan, Grisel Ponciano, Terry Coffelt, Lauren Johnson, Robert Creelman, Maureen Whalen Katrina Cornish*

8:40 – 9:00 am *Will tomato spotted wilt virus limit widespread *Taraxacum* kok-saghyz cultivation in North America?*  
*Katrina Cornish, S. McNulty, M. Kleinhenz, J. Han, F. Qu, and M.L. Jones*

9:00 - 9:20 am *Convert inulin to rubber in Russian dandelion.*  
*Lu Zhao and Katrina Cornish*

9: 20 - 9:40 am *Guayule resin effects on termite feeding activity*  
*Lauren Slosky, James Hagler, Paul Baker, Francis Nakayama, Scott Machtley, and Terry Coffelt*

9:40 – 10:00 am **COFFEE BREAK ---** (Meeting rooms foyer)

10:00- 10:20 am *Farm to market: driving innovative applications of guayule through integration of the value chain.*  
*L. P. Christoffersen, R. Manzone, and P. Zorner*

10:20 - 10:40 am *Analysis of cold-acclimated guayule transcriptome*  
*Grisel Ponciano, Colleen McMahana, Wenshuang Xie, Gerard Lazo, Terry Coffelt, Jillian Collins-Silva, Aise ural-Taban, Martin Gollery, David Shintani, and Maureen Whalen*

10:40 - 11:00 am *Biobased alternatives to guar gum as tackifiers for hydromulch*  
*Steven F. Vaughn, James A. Kenar, Frederick C. Felker, Mark A. Berhow, Steven C. Cermak, Roque L. Evangelista George F. Fanta, Robert W. Behle, and Edward Lee*

11:00 -1 1:20 am *Growth and biomass yield of *Grindelia camporum* and *G. chiloensis* grown in the Klamath basin of Oregon, USA.*  
*Richard J. Roseberg, R.A. Bentley, and Damian A. Ravetta*

11:20 - 11:40 am *Production of guar for high gum and seed yields*  
*Dick L. Auld, Travis D. Miller, Ellen Peffley, Bralie R. Hendon, Travis Witt, and Robert Wright*
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<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>11:45-1:30 pm</td>
<td><strong>Lunch on site</strong> (Manzanita Room/Broadway Building)</td>
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<tr>
<td>12:30-1:00 pm</td>
<td><strong>MEMBERSHIP MEETING AND LUNCHEON</strong> (Manzanita Room)</td>
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<td><strong>Luther Burbank Home and Gardens /Cornerstone Sonoma Tour</strong> (Pre-registered attendees only, bus departs from front of Stone building at 1:30 pm)</td>
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THURSDAY – November 15, 2012
7:30 am- 12:00 pm Registration (outside Azalea room)

NATURAL RUBBER AND RESINS II
8:00 – 9:00 am
(Moderator, Lauren Johnson)
(Maple)

8:00-8:40 am  Securing the future of natural rubber – An American tire and bio-energy platform from guayule
Howard A. Colvin, L.P. Christoffersen, Colleen M. McMahan, and Amy Landis

8:40-9:00 am  Performance of latex products containing macro, micro and nano fillers made from agricultural, industrial and food processing wastes
J. Lauren Slutsky, K. Cornish

FIBERS AND CELLULOSICS I
9:00 - 11:00 am
(Moderator, Greg Holt)
(Maple)

9:00 – 9:20 am  Starch-based bioproducts
Greg M. Glenn, B-S. Chiou, W. J. Orts, A. P. Klamczynski, S. H. Imam.

9:20- 9:40 am  Caryopsis extraction from big bluestem spikelets (Andropogon gerardii) with seed conditioning equipment: optimal water activity to achieve high seed quality
Alan G. Taylor and S. Kavak

9:40 – 10:00 am  COFFEE BREAK (Meeting rooms foyer)

10:00- 10:20 am  Optimizing biomass blends for manufacturing molded packaging materials using mycelium.
Greg Holt, Gavin McIntyre, and Eben Bayer

10:20-10:40 am  Evaluation of various heat treatments to improve physical and mechanical properties of composites made from cotton burs, cotton stalks, kenaf, flax, and southern pine blends.
Greg Holt, Poo Chow, and Tom Wedegaertner

10:40-11:00 am  Cover crops impact on energy crops productivity in North Dakota
Dulan P. Samarappuli and Marisol T. Berti

11:00-11:20 am  Winter camelina and forage sorghum relay- and double-cropping for oil and biomass feedstock production in the North Central region
Marisol T. Berti, Alfredo Aponte, Robert Nudell, Burton Johnson, Russ Gesch, Yun Ji, and Wayne Seames

11:20-11:40 am  Effect of Coupling Agents on the Weathering Characteristics of Bio-fiber Composites
Dilpreet Bajwa, Sreekala Bajwa, and Greg Holt
THURSDAY—November 15, 2012
7:30 am–12:00 pm Registration (outside Azalea room)

12:00-1:30 pm  Lunch on site (Manzanita Room/Broadway Building)

12:30-1:00 pm  Lunch speaker: Leif Christoffersen, Director, Agriculture and Biomass, Yulex Corporation

1:30 – 2:30 pm  DIVISION MEETINGS:
Oilseeds (Azalea)
Medicinal and Nutraceuticals Divisions (Lavender)
Fiber and Cellulosics (Maple)
Natural Rubber and Resins Divisions (Camellia)

2:30 – 4:30 pm  POSTER SESSION–OILSEEDS, RUBBER AND RESINS, MEDICINAL AND NUTRACEUTICALS
(Manzanita Room/Broadway Building)
Dessert will be served!

4:00 – 5:30 pm  AAIC CLOSING BOARD MEETINGS
(Palm Tree Salons A and B)

6:00 – 6:30 pm  RECEPTION
(Stone Building)

6:30 – 10:00 pm  AWARDS BANQUET
(Stone Building)
Burton Johnson – Past-President AAIC
2012 AAIC POSTERS

Manzanita Room  (Tues-Wed-Thurs- during lunch hours - viewing only)  
Poster Session: Thursday November 15, 2012 (1:30 pm – 3:30 pm)

OILSEEDS DIVISION

1 Oil diversity in wild Manihot species – a new industrial crop?  
   Alfredo Alve, Maria M. Jenderek, Linda Manthey, and Terry Isbell

2 Castor bean inbred advanced lines evaluation in São Paulo state – Brazil  

3 Compilation of studies on jatropha nutrition in Brazil: leaf diagnosis, seasonal variation, and nutrients redistribution  
   Rosiane L.S. Lima, Liv S. Severino, Carlos A.V. Azevedo, Amanda M.A. Lucena, Valdinei Sofiatti, Jairo O. Cazzeta, Genelicio S. Carvalho Júnior, and Nair H.C. Arriel

4 Compilation of studies on jatropha in Brazil: substrates and containers for seedling production, fertilization, and root system formation  
   Rosiane L.S. Lima, Liv S. Severino, Carlos A.V. Azevedo, Amanda M.A. Lucena, Valdinei Sofiatti, and Nair H.C. Arriel

5 New crop oils - properties as potential lubricants  
   S.C. Cermak, G. Biresaw, T.A. Isbell, R.L. Evangelista, and R. Murray

6 Extraction of oil from Euphorbia lagascae seeds by screw pressing  
   Roque L. Evangelista, T.A. Isbell, R.J. Roseberg, and S.C. Cermak

7 Study on the degradation of CB1A allergen and ricinine from the castor bean meal  
   Changlu Wang, Ailin Zhang, Feng Ye , Liangnian He

8 Impact of heat stress on field pennycress seed yield and pollen viability  
   K. Parker, and W. Phippen

9 Field pennycress (Thlaspi arvense L.) response to nitrogen rates  
   B. Mason, M. Phippen, and W. Phippen

10 Hand emasculation and induced male sterility to improve field pennycress (Thlaspi arvense L.) breeding  
    W. Hoffmann, K. Roskamp, and W. Phippen

11 Camelina sativa in the High Plains  
   Garrett Jewett
2012 AAIC POSTERS

Manzanita Room  (Tues-Wed-Thurs- during lunch hours - viewing only)  
Thursday November 15, 2012 (1:30 pm – 3:30 pm)

RUBBERS AND RESINS DIVISION

12 Butanol production from inulin rich biomass  
A.K. Bharathidasa, K. Cornish, T.C. Ezeji

13 Rabbitbrush: a renewable source of rubber and biofuel.  
Upul Hathwaik, Mohammad Yazdani, Glenn Miller, Curtis Robbins, Barry Perryman, Colleen McMahan, and David Shintani

14 Guayule resin detection and influence on guayule rubber  
Bruna N. Nepomuceno, and Colleen McMahan

15 Phenotype analysis of Russian dandelion root tissues from the national plant germplasm system collection  
Lawrence Rawlins, Barbara C. Hellier, Colleen M. McMahan

MEDICINAL AND NUTRACEUTICALS DIVISION

16 Calyx diversity of flavonols and fatty acids in roselle (Hibiscus sabdariffa L.) for use as a potential nutraceutical crop.  
Brad Morris, M.L. Wang, and T.P. Thomas

17 Mexican candelilla wax covers effect on avocado fruits shelf life  
D. Jasso de Rodriguez, S. Saucedo-Pompa, R. Rodriguez- García, A. Sáenz-Galindo and C. N. Aguilar-González

18 Sensitivity in vitro of Rhizoctonia solani to polyphenols derived from Larrea tridentata, Flourensia cernua, Agave lechuguilla, Yucca filifera, and Opuntia ficus-indica.  