



*The Association for the
Advancement of
Industrial Crops*

22nd Annual Meeting

2010 New Crops: Exploring Diversity and Preserving Our Future

**Hilton Hotel
Fort Collins, CO
September 18-22, 2010**

Sponsored by Association for the Advancement of Industrial Crops
Co-sponsored by Cargill Inc., Colorado State University Department of Soil
and Crop Sciences and Department of Horticulture and Landscape Architecture

CONFERENCE ORGANIZATION

General Co-Chairs

Terry A. Isbell, President AAIC
USDA-ARS-NCAUR
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Carmela Bailey
Plant and Animal Systems, NIFA
Washington, DC 20250

Marie M. Jenderek
USDA-ARS-NCGRP
Fort Collins, CO 80521

Keynote Speaker

Molly Jahn, UW-Madison

Technical Program Chair

Steven C. Cermak
USDA-ARS-NCAUR
Peoria, IL 61604

Plenary Speakers

Steven Pueppke, Michigan State University
Mervyn de Souza, Cargill Inc.
Ravi Malhotra, iCAST
Henry Thompson, CO State University
Robert L. McCormick, NREL

Registration

Valerie Teetor
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Tuscon, AZ 85701

Division Chairs

General Crops & Products

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Oilseeds

Laura Marek
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Fibers & Cellulosics

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Natural Rubber & Resins

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2010 AAIC PROGRAM SCHEDULE

SATURDAY – September 18, 2010

5:00 – 6:00 pm Walking Tour of Annual Flower Trial Garden, Dr. Stephen Wallner,
Chair, CSU, Dept. of Horticulture (meet at corner of College and Lake, 1
block North of Prospect St.)

SUNDAY – September 19, 2010

8:30 – 3:30 pm Optional trip to Rocky Mountain National Park (ticket required- \$45)
includes lunch, park entrance, naturalist tour guide

12:00 – 5:30 pm **Registration** Atrium

12:00 – 5:30 pm **Poster Set-Up** Salon 5

2:00 – 4:00 pm **AAIC BOARD MEETING** Rams

4:00 – 6:00 pm **Crop Germplasm Committee (CGC) Meeting** Rams

6:00 – 8:00 pm **WELCOME RECEPTION/POSTER SESSION** Salon 1 & 5
(See Page xi for List of Poster Titles)

8:00 – 9:00 pm **Welcome** Salon 1 & 5

Dr. Terry Isbell, President AAIC, USDA-ARS, Peoria, Illinois

Dr. Will Blackburn, Area Director, Northern Plains Area, USDA, ARS

Dr. Craig Beyrouy, Dean, College of Agricultural Sciences, CSU

Dr. Lee Summers, Director, Colorado Agri. Exp. Stations

Dr. Stephen Wallner, Chair, Horticulture and Landscape Architecture

KEYNOTE SPEAKER

Returning to the Roots of the People's Department in the 21st Century

Molly Jahn, College of Agricultural and Life Sciences, UW-Madison,
Former Undersecretary of Research, Education and Economics at USDA.

MONDAY – September 20, 2010

7:30 – 12:00 pm Registration Artium

PLENARY SESSION I
(Moderator, Carmela Bailey)
Salon 1

8:00 – 8:05 am Opening Remarks, Dr. Terry Isbell, AAIC President

8:05 – 8:35 am *Searching for the New Bioeconomy in a World of Wicked Problems*
Steven G. Pueppke

8:35 – 9:05 am *Senior Manager, Trait and Breeding Development*
Mervyn de Souza

9:05 – 9:25 am **BREAK**

GREEN METRIC AS A DECISION-MAKING TOOL FOR INDUSTRIAL CROPS
(Moderator, Dave Dierig)
Salon 1

9:25 – 9:55 am *Green Metrics- Measuring Sustainability?*
Jill Shore Auburn

9:55 – 10:25 am *Sustainability by Design – Looking Forward to Expand Advanced Biofuel Production*
Jeffrey Steiner

10:25 – 10:55 am *Developing an Industrial Ecology Framework for Sustainable Agriculturally Based Bio-Industries*
Larry Walker

10:55 – 11:25 am *Industrial Perspectives on Bio-Based Products: Drivers, Needs, Successes and Challenges*
Nicholas Kob

11:25 – 12:30 am **AAIC LUNCH BUFFET (Provided with Registration)** Atrium

MONDAY – September 20, 2010

TOUR SERIES I

Lobby

12:30 – 6:00 pm **Option 1 Tour:** National Renewable Energy Laboratory, Golden, CO, Integrated Biorefinery and Thermochemical Users Unit. (limited to 40 people) Host: Sarah Barba, Public Affairs Office

12:30 – 3:00 pm **Option 2 Tour:** Cargill Corp, Fort Collins, CO

DINNER on own

TUESDAY – September 21, 2010

7:30 – 4:30 pm Registration Artium

PLENARY SESSION II

(Moderator, Carmela Bailey)

Salon 1

8:00 – 8:30 am *Converting Biomass to Solid or Liquid Bio-Fuels*
Ravi Malhotra

8:30 – 9:00 am *Breeding for Human Health Traits, an Emerging Facet in Contemporary Crop Improvement*
Henry J. Thompson

9:00 – 9:30 am *Biodiesel Feedstocks, Properties, and Performance*
Robert L. McCormick

9:30 – 9:50 am **BREAK --- (Oilseeds Division Meeting)**

OILSEEDS I

(Moderator, Laura Marek)

Salon 1

9:50 – 10:10 am *The Biology of *Thlaspi arvense*: Implications for Domestication and Cultivation*
James D. Metzger

10:10 – 10:30 am *Evaluation of Field Pennycress (*Thlaspi arvense* L.) Populations*
Winthrop B. Phippen and Mary E. Phippen

TUESDAY – September 21, 2010

- 10:30 – 10:50 am *Thlaspi arvense* (Pennycress) Germination, Development and Yield Potential
Terry A. Isbell and Steven C. Cermak
- 10:50 – 11:10 am *Pennycress What We Know and What We Need to Learn*
Brad Glenn
- 11:10 – 11:30 pm *Winter Camelina in the Northern U.S. and the Potential of its use in Double-Cropping*
Russ W. Gesch
- 11:30 – 1:00 pm **ANNUAL AAIC MEMBERSHIP LUNCH MEETING** Salon 3
(Provided with Registration)

OILSEEDS II

(Moderator, Laura Marek)
Salon 1

- 1:00 – 1:20 pm *Production of Camelina as Biofuel Feedstock in a Wheat-Based Production System in Central Montana*
Chengci Chen
- 1:20 – 1:40 pm *Seeding Depth and Genotype Influence on Winter Camelina in North Dakota*
Burton L. Johnson, Marisol T. Berti, and Paula J. Petersen
- 1:40 – 2:00 pm *Oil Content and Seed Yield Improvement of *Lesquerella fendleri* (Brassicaceae)*
David A. Dierig, Terry A. Coffelt, Dennis T. Ray, and Gail H. Dahlquist
- 2:00 – 2:20 pm *Develop a New *Lesquerella fendleri* Crop for Castor Oil Production*
Grace Chen
- 2:20 – 2:40 pm *Molecular Genetic Characterization of a High Oleic/No Hydroxy Fatty Acid Seed Oil Mutant of *Lesquerella fendleri* (Brassicaceae)*
Andrew M. Salywon, David A. Dierig, Pernell M. Tomasi, and Gail H. Dahlquist
- 2:40 – 3:00 pm **Lesquerella Presscake* as an Organic Fertilizer for Greenhouse Tomatoes*
Steven F. Vaughn, Nathan A. Deppe, Mark A. Berhow, and Roque L. Evangelista

- 3:00 – 3:20 pm **BREAK --- (Natural Rubber and Resins / Medicinal and Nutraceuticals Division Meetings)**
- 3:20 – 4:20 pm **POSTER SESSION** Salon 5
(See Page xi for List of Poster Titles)
- 4:20 – 4:30 pm **REMOVE POSTERS**

TOUR SERIES II

Lobby

- 4:30 – 8:00 pm Local Breweries Tour including New Belgium Brewery, and C.B. Potts Breweries, **Note: Dinner cost will be approximately \$20 - Bus provided.** Hosts: Dave Ellis and Remi Bonnart

WEDNESDAY – September 22, 2010

- 7:30 – 12:00 pm Registration Artium

FIBERS AND CELLULOSICS

(Concurrent Session)

(Moderator, Greg Holt)

Salon 5

- 8:00 – 8:20 am Keynote Speaker – *The Role of Fiber and Cellulosic Crops in the Production of Tomorrow*
William J. Orts
- 8:20 – 8:40 am *Long-Term Performance of Thermoplastic Composite Material with Cotton Burr and Stem (CBS) as a Partial Filler*
Sreekala G. Bajwa, Shashank V. Kalidindi, Dilpreet S. Bajwa, and Greg Holt
- 8:40 – 9:00 am *Evaluation of Biomass Residual Substrate Blends For Eco-Friendly Packaging And Insulation Sheets/Panels*
Greg Holt, Gavin McIntyre, Dan Flagg, and Eben Bayer
- 9:00 – 9:20 am *Nonwood Fibers: Global Activities and Challenges*
Thomas A. Rymysa

WEDNESDAY – September 22, 2010

9:20 – 9:40 am **BREAK --- (Fibers and Cellulosics / General Crop and Products Division Meetings) ---** Salon 1

NATURAL RUBBER AND RESINS

(Concurrent Session)

(Moderator, Madan Gupta)

Salon 5

9:40 – 10:00 am *Sustainability of Natural Rubber-Producing Crops in the United States: Applied Biotechnology Lessons 2000-2010*
Colleen M. McMahan, David K. Shintani, Katrina Cornish, Terry A. Coffelt, Dennis T. Ray, and Maureen C. Whalen

10:00 – 10:20 am *Harvest Height and Frequency Effects on Guayule Latex, Rubber, and Resin Yields*
Terry A. Coffelt and Dennis T. Ray

10:20 – 10:40 am *Guayule Rubber Production at Sacaton, Arizona 1987-1990*
William W. Schloman, Jr.

10:40 – 11:00 am *Guayule Production on the Southern High Plains*
Mike A. Foster, Terry A. Coffelt, and Alisa K. Petty

MEDICINALS AND NUTRACEUTICALS

(Concurrent Session)

(Moderator, Rodolfo Juliani)

Salon 5

11:00 – 11:20 pm *Quality Assessment of Griffonia (Griffonia Simplicifolia) Seeds from Liberia*
H. Rodolfo Juliani, Julia Coppin, Larry S. Amekuse, Julie Asante-Dartey, Dan Acquaye, and James E. Simon

11:20 – 11:40 am *Valuation of Field Cultivated Daffodil Bulbs as a Source of Natural Pharmaceutical Compounds*
Alan Sullivan, Theo Blom, and Jim Todd

11:40 – 1:30 pm **Lunch on your own**

GENERAL CROPS AND PRODUCTS I

(Concurrent Session)

(Moderator, Dipak Santra)

Salon 1

- 8:00 – 8:20 am *In Vitro Antifungal Activity of Polyphenolic Fraction of Lippia Graveolens Against Penicillium sp.*
D. Jasso de Rodríguez, A.F. Aguilera-Carbó, R. Rodríguez García, A. Moreno Zuccoloto, C.N. Aguilar González, and J.A. Villarreal Quintalilla
- 8:20 – 8:40 am *Evaluation of Organosolv Delignification of Acacia Dealbata for Bioethanol Production by SSF*
Claudio Muñoz, Regis T. Mendonça, Jaime Baeza, and Juanita Freer
- 8:40 – 9:00 am *Opuntia Collection at the National Arid Land Plant Genetic Resource Unit*
Gabriela B. Romano
- 9:00 – 9:20 am *Response of Cassava Genotypes to Different Micropropagation Media*
Alfredo A.C. Alves, Jenna Schnibbe, Maria M. Jenderek, and David Ellis
- 9:20 – 9:40 am **BREAK --- (Fibers and Cellulosics / General Crop and Products Division Meetings) --- Salon 1**

GENERAL CROPS AND PRODUCTS II

(Concurrent Session)

(Moderator, Dipak Santra)

Salon 1

- 9:40 – 10:00 am *Endemic Vascular Plants with Industrial Applications from the Mexican Coahuila State*
J.A. Willarreal Quintanilla, D. Jasso de Rodríguez, Juan A. Encina-Domínguez, and R. Rodríguez García
- 10:00 – 10:20 am *Earliness, Morphological, and Reproductive Variation Among 16 Sunn Hemp (Crotalaria Juncea L.) Accessions in Griffin, GA*
J. Brad Morris, Carlene A. Chase, Alyssa H. Cho, Rosalie L. Koenig, and J. Pablo Morales-Payan
- 10:20 – 10:40 am *Changes in Sugar Concentration of Sweet Sorghum Juice as Affected by Maturity and Storage*
Valerie H. Teetor, Mario L. Marquez, Kimberly L. Ogden, and Dennis T. Ray

WEDNESDAY – September 22, 2010

10:40 – 11:00 am *Characterization of Proso Millet (*Panicum Miliaceum L.*) Germplasm*
Dipak K. Santra, Tammy Plyler-Harveson, Susan Harvey, Swapna Reddy, and Glen Frickel

11:00 – 11:20 am *Can Proso Millet (*Panicum Miliaceum L.*) Be Used For Fermentation Based Ethanol Production?*
Dipak K. Santra and Wajira Ratnayake

11:40 – 1:30 pm **Lunch on your own**

TOUR SERIES III
(Moderator, David Dierig)
Lobby

1:30 – 4:00 pm Session and Tour at National Center for Genetic Resources Preservation
(Conference Room NCGRP)

1:45 – 2:05 pm *The Influence of Seed Lipids on Seed Storage Behavior and Longevity*
Christina Walters, Plant Physiologist

2:05 – 2:25 pm *Genetic Diversity and Structure in Gene Bank Collections*
Chis Richards, Population Geneticist

2:25 – 2:45 pm *Long Term Preservation of Plant Genetic Resources*
David Ellis, Curator

2:45 – 4:00 pm Tour of NCGRP Facility

4:00 – 5:30 pm **AAIC Closing Board Meeting** CSU Presidents Board Room

6:00 – 6:30 pm **RECEPTION** Salon 3

6:30 – 9:30 pm **AWARD BANQUET** Salon 3
Steven Cermak, Past-President AAIC
Speaker, Dr. Kathleen Sherman,
CSU, Chair, Department of Anthropology

2010 AAIC POSTER TITLES AND AUTHORS

FIBERS AND CELLULOSICS DIVISION

Sunday September 19, 2010 (6:00 – 9:00 pm)

Cotton Mutants with Divergent Fiber Quality Characteristics

Kimberly C. Vining, Jacob M. Rieff, Dick L. Auld, and Eric F. Hequet

Switchgrass Establishment as Affected by Seeding Depth

Marisol T. Berti, Burton L. Johnson, and Robert D. Nudell

GENERAL CROPS AND PRODUCTS DIVISION

Sunday September 19, 2010 (6:00 – 9:00 pm)

The Identification and Quantification of Leaf Mesophyll Oil Bodies During the Development of Native or Adapted Plant Species

Julie C. Rothe, Dirk B. Hays, and Scott A. Senseman

Non-Destructive Seed Evaluation of Selected Industrial Crop Germplasm Accessions

Maria M. Jenderek, James Longwell, David Ellis, and David A. Dierig

OILSEEDS DIVISION

Sunday September 19, 2010 (6:00 – 9:00 pm)

Spring Seeding of Canola, Brown Mustard and Camelina in Western Nebraska

Alexander D. Pavlista, Terry A. Isbell, David D. Baltensperger, and Gary W. Hergert

Diversity in Camelina Germplasm for Seed and Oil Quality Traits: Fatty Acid Composition, Oil Content and Glucosinolate Content

Ivan M. Ayala-Diaz, Candice Gardner, Terry A. Isbell, Laura Marek, Mark Berhow, and Mark Westgate

Effect of Temperature Gradients on Germination of Pennycress Germplasm

Ivan M. Ayala-Diaz, Candice Gardner, Terry A. Isbell, Laura Marek, and Mark Westgate

*Planting Date, Herbicide, and Soybean Rotation Studies with Field Pennycress (*Thlaspi arvense* L.)*

Winthrop B. Phippen, Billee John, Mary E. Phippen, and Terry A. Isbell

Evaluation of Planting Method and Seeding Rates with Field Pennycress (Thlaspi arvense L.)

Winthrop B. Phippen, John Gallant, and Mary E. Phippen

Development of Molecular Markers in Safflower (Carthamus tinctorius L.)

Zach B. Hinds, Paxton Payton, Gloria Burow, and Dick L. Auld

Influence of Water Availability on Yield Components of Castor

Liv S. Severino, Oscar G. Cordoba, and Dick L. Auld

An Interspecific BC2 Lesquerella Hybrid Yield Trial

Pernell Tomasi, David A. Dierig, John Dyer, and Terry A. Coffelt

Salt and Drought Tolerance in Castor (Ricinus communis L.)

Kevin B. Meeks, Dick L. Auld, Mike A. Foster, and Jacob Rieff

Collecting Lesquerella for Conservation and Research on Comparative Seed Dormancy Among Wild Populations

Von Mark V. Cruz and David A. Dierig

Jatropha curcas L. Project: Potential Biofuel for Northeast Mexico

Ignacio Moreno-Murrieta, Armando Llamas-Terres, and Lucía Martínez-González

The Phenolgy of the Jatropha curcas L. in Two Production Systems in Nuevo Leon, Mexico

Lucía Martínez-González, Ignacio Moreno-Murrieta, and Armando Llamas-Terres