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
Peoria, IL  61604

David A. Dierig
USDA-ARS-NCGRP
Fort Collins, CO  80521

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

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

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

Registration
Valerie Teetor
University of AZ
Tuscon, AZ  85701

Division Chairs

General Crops & Products
Dipak Santra
University of Nebraska-Lincoln Ext
Scottsbluff, NE  69361

Oilseeds
Laura Marek
USDA-ARS-NCRPIS
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Medicinals & Nutraceuticals
H. Rodolfo Juliani
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Fibers & Cellulosics
Greg Holt
USDA-ARS-CPP
Lubbock, TX  79403

Natural Rubber & Resins
Madan Gupta
University of Queensland, Gatton Campus
Gatton, Qld, 4343 Australia

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 Atrium

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 Atrium (See Page xii 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 Beyrouty, 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

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 Commercially Ready Yeast Biocatalyst for Cellulosic Ethanol Fermentation
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

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 YOUR 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  *Biodiesel Feedstocks, Properties, and Performance*
Robert L. McCormick

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  *Converting Biomass to Solid or Liquid Bio-Fuels*
Ravi Malhotra

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

OILSEEDS I
(Moderator, Laura Marek)
Salon 1

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

10:10 – 10:30 am  **Evaluation of Field Pennycress (Thlaspi arvensis 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  Developing a New Lesquerella fendleri Crop for Castor Oil Production
   Grace Chen

2:20 – 2:40 pm  Molecular Geenetic 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) --- Salon 1

3:20 – 4:20 pm  POSTER SESSION  Atrium
(See Page xii 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 Coopersmith Brewery,  Note: Dinner cost will be approximately $20 and 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. Rymsza

9:20 – 9:40 am  BREAK --- (Fibers and Cellulosics / General Crop and Products Division Meetings) --- Salon 1
WEDNESDAY – September 22, 2010

NATURAL RUBBER AND RESINS
(Concurrent Session)
(Moderator, Madan Gupta)
Salon 5

9:40 – 10:00 am Guayule Rubber Production at Sacaton, Arizona 1987-1990
William W. Schloman, Jr.

10:00 – 10:20 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

10:20 – 10:40 am Harvest Height and Frequency Effects on Guayule Latex, Rubber, and Resin Yields
Terry A. Coffelt and Dennis T. Ray

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

11:00 – 11:20 am Breeding Guayule: How Far Have We Come and How Far Can We Go?

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  
**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

10:20 – 10:40 am  
**Characterization of Proso Millet (Panicum Miliaceum L.) Germplasm**  
Dipak K. Santra, Tammy Plyler-Harveson, Susan Harvey, Swapna Reddy, and Glen Frickel

10:40 – 11:00 am  
**Can Proso Millet (Panicum Miliaceum L.) Be Used For Fermentation Based Ethanol Production?**  
Dipak K. Santra and Wajira Ratnayake

11:00 – 11:20 am  
**Valuation of Field Cultivated Daffodil Bulbs as a Source of Natural Pharmaceutical Compounds**  
Alan Sullivan, Theo Blom, and Jim Todd
WEDNESDAY – September 22, 2010

11:20 – 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 – 7:00 pm  RECEPTION  Atrium

7:00 – 10:00 pm  AWARD BANQUET  Legands
Steven Cermak, Past-President AAIC

Speaker: Kathleen Sherman, CSU, Department of Anthropology
Learning from the Mind of Nature: Native Americans, Plant Diversity, and Cultural Preservation
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 Nativr 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

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

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

Effect of Temperature Gradients on Germination of Pennycress Germplasm
Iván M. Ayala-Díaz, Candice Gardner, Terry A. Isbell, Laura Marek, and Mark Westgate
Extraction of Field Pennycress Seed Oil by Full Pressing  
Roque L. Evangelista, Terry A. Isbell, and Steven C. Cermak

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 Martinez-González

The Phenolgy of the Jatropha curcas L. in Two Production Systems in Nuevo Leon, Mexico  
Lucía Martinez-González, Ignacio Moreno-Murrieta, and Armando Llamas-Terres