

Pulse Health Initiative Strategic Planning Workshop
Sheraton Washington DC North, Beltsville, MD
March 30-31, 2010
Trip Report

1. **Background:** The US Dry Bean Council and the USA Dry Pea & Lentil Council met in January and agreed to form the American Pulse Association. The APA Board met on March 15, 2010 and agreed to a Vision, Mission and Strategic Plan.
 - a. **Mission of APA:** The Mission of the APA is “to pursue solutions, through research on pulse crops, to the critical health, nutrition, functionality and sustainability problems facing our country and the world. The American Pulse Association will accomplish this mission by supporting the goals and objectives of the Pulse Health Initiative.”
 - b. **APA Goal 1:** The first goal of the APA is to “Develop a comprehensive research strategic plan in the areas of Health and Nutrition, Functionality/End Use and Sustainability.
 - c. **Planning Workshop Held.** The American Pulse Association using sponsorships from the USADPLC and the USDBC held a Strategic Planning Workshop on March 30-31, 2010 in Beltsville, MD.

2. **Workshop Organization (see *attachment 1, Workshop Packet and Agenda*):** Over 50 scientists, researchers and industry members came together to formulate a strategic plan at the Pulse Health Initiative Workshop (see Workshop Packet for listing of participants and agenda of conference). The two-day meeting was held March 30-31, 2010, in Beltsville, MD. The conference featured speakers from USDA Agricultural Research Service (ARS), National Institute for Food and Agriculture (NIFA) and from Pulse Canada. After the opening sessions, the session broke into brainstorming sessions focused on the strategic areas of emphasis—Nutrition, Functionality/New Products and Sustainability. The final outcome of the meeting was an outline of the strategic plan and a work plan to produce the final document (see *attachment 2, Strategic Plan Outline and attachment 3, Work Plan Assignments*).

3. **Highlights of the Conference Speakers:**
 - a. **Tim McGreevy, PHI Overview and Vision:** Tim presented the vision of the Pulse Health Initiative, a definition of “Pulse” Crops and explained some of the problems that pulse crops could answer—global food security, obesity, diabetes, heart disease, cancer and sustainability issues like global climate change, water usage, nitrogen fixation and carbon sequestration. He challenged the group to “think big”.
 - b. **Greg Johnson, Chair of American Pulse Association (APA):** Greg gave an overview of the Dry Pea, Lentil and Chickpea industry in terms of history, production and potential production, and why the industry was supporting this process. He challenged to group to build coalitions and work across borders to make sure we were able to answer the needs of the country.
 - c. **Cindy Brown, Vice Chair, APA:** Cindy presented an overview of the Dry Bean industry in terms of production and history. She described the membership of the USDBC, some of the previous

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research efforts to develop dry bean markets, and showed the expanse of states that plant dry beans. She explained that in contrast to the Dry Pea, Lentil and Chickpea industry, dry beans are primarily a domestic product. Per capita consumption of dry beans has remained relatively stable over the last 5 years by variety. (Some particular classes have expanded like black beans and Chickpeas (Garbanzo Beans) but the overall trend is flat.) This is in spite of increases in populations where dry beans are a traditional part of their diet. She also pointed out the dramatic contribution of \$2.5 Million by the Federal Government of Canada to improve their national diet using Pulse Crops and the expected additional \$4.4 million for the next five years.

- d. *Dr. Judith St. John, USDA ARS:* The following comments are from notes by Cindy Brown, APA Vice Chairman.

Judy opened her speech talking about the five USDA/ARS Research Priorities:

- i. Obesity & Nutrition
- ii. Food Safety
- iii. Food Security
- iv. Climate Change
- v. Bio-energy

Major points of her speech are listed below:

- She went on to say that the pulse industry was poised and ready to take advantage of those priorities before the current administration came into office.
- Dr. Molly Jahn is responsible for Obesity & Nutrition and Food Safety, and Dr. St. John said that Dr. Jahn was a friend of our industry and being a former bean breeder, she understands the health and environmental benefits of pulses.
- She said that our timing was superb with our meeting, we could get an action plan into Agency hands for the 2012 budget. The 2011 budget has a 20 Million increase for the ARS which has to be spent on budget items that are related to the presidential initiatives so we would be asking to increase a program that fits within the President's initiatives.
- The old administration used metrics based activities to score research requests. The new administration wants "measurable" within the action plan which would ask us to tell ARS how we will move the needle and what is the target.
- She said the word earmark was a dirty word, but Congress and ARS could back an initiative that didn't have a specific location. If a location was specified, it would be considered an earmark.
- ***She applauded the American Pulse Association saying that "together you are mighty." Unity across an industry plays well with Congress. She noted that our political footprint of 22 states carries a voting majority.***

- e. *Dr. Michael Fitzner, NIFA Research Priorities:* Michael presented an overview of the NIFA reorganization, the impacts of the research priorities, and an introduction to Dr. Roger Beachy, new Director of the NIFA. He pointed out the NIFA RFA's had been published and focused on problem solving rather than just research. He explained that there was still much to do in the reorganization. He then fielded pretty pointed questions about the priorities of the RFA's. Some asked how the "stakeholder input" was received to set the priorities of the RFA's. It looked like

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the focus of some proposals limited the access. There was lots of concern about the focus for future years laid out in the proposals that sets the stage for limiting access also. He explained that the process was new and he was not yet familiar but thanked them for their comments.

- f. *Dr. Chantal Bassett, Pulse Canada:* Chantal presented the long and winding road Pulse Canada has taken to begin research into Pulse Foods as quality ingredients and solutions to problems.
- She described the Canadian Pulse Industry, the funding of Pulse Canada, and the role of the National Organization. Then she gave a history of some of the projects and the results of the Pulse Innovation Project--\$3.8 million over 4 years. She announced the continuation of the project this year at a similar amount over 4 more years along with grants specifically targeted at milling and \$1.8 million for four years to continue and expand clinical trials.
 - She explained the need for promotional work explaining the significance of pulse research. This was added to their initial work and is beginning to help. It is focused on the strengths of pulses—nutritional and environmental impacts.
 - It was very exciting to see the progress being made in Canada to develop information that promotes the healthy and sustainable parts of pulse crops in the world and primarily how they can be incorporated in the diet in North America.
4. **Brain Storming, Priority Setting and Assignments:** The entire group then went into smaller group sessions focused on the priority areas of Nutrition, Functionality/New Products and Sustainability. There was time for brainstorming and developing priorities/opportunities, time for setting goals and time for prioritizing the goals. Finally the group assigned writing assignments for completing the Strategic Plan according to the time schedule proposed by the APA Fly-in scheduled for June.
- a. *Health and Nutrition:* Discussions in the health and nutrition group were facilitated by Dr. Michael Grusak and Dr. Gerald Combs. Focus was centered on obesity and the diseases that can result from that: cardiovascular issues, diabetes and cancer. Two key goals were identified by the end of the meeting: reduce the prevalence of obesity and associated co-morbidities (cardiovascular issues, diabetes and cancer) by 50% by 2030 and reduce global hunger and enhance food/nutritional security.
- b. *Functionality/New Products:* Discussions in the functionality/new products group were facilitated by Dr. Mehmet Tulbek and Dr. Jose Berrios. There is very little research data available on the basic chemical and physical properties of all varieties of pulses. That information is critical to identify the functionality of pulses as ingredients as well as to determine the distinct nutritional profile each pulse variety has. Results of that research would then be used to conduct studies on how each pulse benefits human health.
- c. *Sustainability:* Discussions in the sustainability group were facilitated by Dr. Dr. Jim Kelly and Dr. George Vandemark. In order to support the health and nutrition and functionality/new products goals, producing pulse crops must be done with sustainability in mind. One of the top priorities is to increase productivity of pulse crops by improving varieties and sustainable management practices. Other keys include utilizing pulse crops to mitigate climate change and optimizing biological nitrogen fixation.

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5. **Plan Outline:** (See attachment 2) The group finalized the attached plan outline and is now hard at work writing the details to the plan. The goal for the group is to complete the draft by April 30th so the final document can be completed in time for the APA fly-in scheduled for June 8-9th, 2010.
6. **Other Highlights:** The PHI Workshop will produce a great strategic plan focused on using pulse crops to reduce obesity, solve world hunger, and to increase overall productivity of pulse crops in a sustainable manner. This was the primary outcome. In addition, the following comments are made:
 - a. *Enthusiasm of Group:* The participants were all enthusiastic supporters of this process and left the conference with a lot of energy and support.
 - b. *Food:* The conference food utilized pulses and highlighted entrees and side dishes using pulse products. So far, comments received include resounding support for the conference food. Everyone was surprised by the variety and the quality of the food which included pulse products in traditional dishes like hummus, rice with beans and pea soup but also flour tortillas using pulse flour.
 - c. *Willingness to return:* The group endorsed the plan to return in a few years to review and update the plan and continue to work to improve the use of pulse crops.



Pulse Health Initiative Strategic Planning Work Group
March 30, 2010

March 30-31, 2010
Beltsville, MD

Pulse Health Initiative
Strategic Planning
Workshop

AMERICAN PULSE ASSOCIATION



Strategic Planning Workshop Coordinators

Nadine Kessler, Program Analyst, USDA ARS
Tim McGreevy, Executive Director, USA Dry Pea & Lentil Council
Kim Monk, Meeting Coordinator, USA Dry Pea & Lentil Council
Todd Scholz, Research Director, USA Dry Pea & Lentil Council

Strategic Planning Workshop Facilitators

Nutrition & Health Program - Dr. Gerald Combs
(Red Group) Dr. Michael Grusak

Functionality & End Use Program - Dr. Jose Berrios
(Yellow Group) Dr. Mehmet Tulbek

Sustainability Program - Dr. James Kelly
(Green Group) Dr. George Vandemark

Strategic Planning Workshop Recorders

Shannon Berndt, Representative, USA Dry Pea & Lentil Council
Todd Scholz, Research Director, USA Dry Pea & Lentil Council
Jennifer William, Food Marketing Manager, USA Dry Pea & Lentil Council

Agenda

Monday March 29, 2010

Arrival and Check In, Sheraton Washington North
4095 Powder Mill Road
Beltsville, MD 20705

| | | |
|--------------------------|--|---------------------|
| 5:00 p.m. | Facilitator Team Dinner Powder Mill Cafe | <i>Tim McGreevy</i> |
| 6:30 p.m. - 8:30 p.m. | Registration & Greeting Reception <i>White Oak Room</i> | <i>Kim Monk</i> |

Tuesday March 30, 2010

| | | |
|-----------------------|--|--------------------------------------|
| 6:00 - 8:15 a.m. | Continental Breakfast for Hotel Guests <i>Powder Mill Cafe</i> | |
| 7:30 - 8:30 a.m. | Registration <i>Susquehanna-Potomac Lobby</i> | <i>Kim Monk</i> |
| 8:30 - 8:45 a.m. | Welcome & Introductions <i>Susquehanna-Potomac Rooms</i> | <i>Tim McGreevy</i> |
| 8:45- 9:25 a.m. | Pulse Health Initiative Overview & Vision | <i>Tim McGreevy</i> |
| 9:25 - 9:45 a.m. | US Dry Bean Industry Overview | <i>Cindy Brown</i> |
| 9:45 - 10:05 a.m. | USA Dry Pea, Lentil & Chickpea Industry Overview | <i>Greg Johnson</i> |
| 10:10 - 10:30 a.m. | Healthy Break <i>Susquehanna-Potomac Lobby</i> | |
| 10:30 - 11:00 a.m. | USDA ARS Research Priorities <i>Susquehanna-Potomac Rooms</i> | <i>Dr. Judy St. John</i> |
| 11:00 - 11:30 a.m. | USDA NIFA Research Priorities | <i>Dr. Michael Fitzner</i> |
| 11:30 - 12:00 noon | State of Canadian Research | <i>Dr. Chantal Bassett</i> |
| 12:00 - 1:00 p.m. | Lunch featuring pulse products <i>White Oak Room</i> | |
| | Health & Nutrition Overview | <i>Dr. Combs & Dr. Grusak</i> |
| | Functionality/End Use Overview | <i>Dr. Tulbek & Dr. Berrios</i> |
| | Sustainability Overview | <i>Dr. Vandemark & Dr. Kelly</i> |
| 1:00 - 3:30 p.m. | Breakout Session I: Developing Research Opportunities Health & Nutrition Program - <i>White Oak Room</i> Functionality/End Use Program - <i>Potomac Room</i> Sustainability Program - <i>Susquehanna Room</i> | <i>Facilitators</i> |
| 3:30 - 3:45 p.m. | Healthy Break <i>Susquehanna-Potomac Lobby</i> | |
| 3:45 - 5:00 p.m. | Re-group & Reports from Session I <i>Susquehanna-Potomac Rooms</i> | <i>Facilitators</i> |
| 5:00 | Group Photo of all participants <i>Outdoor Patio</i> | <i>Kim Monk</i> |
| 6:00 - 8:00 p.m. | Chesapeake Buffet Dinner <i>White Oak Room</i> | |
| 8:00 - 8:30 p.m. | Facilitator/Coordinator/Recorder Meeting <i>TBD</i> | <i>Tim McGreevy</i> |

Wednesday March 31, 2010

| | | |
|-----------------------|--|---|
| 6:00 - 8:15 a.m. | Continental Breakfast for Hotel Guests <i>Powder Mill Cafe</i> | |
| 8:30 - 8:40 a.m. | Welcome & Overview of Activities <i>Susquehanna-Potomac Rooms</i> | <i>Tim McGreevy</i> |
| 8:45 - 10:00 a.m. | Breakout Session II: Research Questions, Establishing Short & Long Term Objectives Heath & Nutrition Program - <i>Wye Board Room</i> Functionality/End Use Program - <i>Potomac Room</i> Sustainability Program - <i>Susquehanna Room</i> | <i>Facilitators</i> |
| 10:00 - 10:15 a.m. | Healthy Break <i>Susquehanna-Potomac Lobby</i> | |
| 10:15 - 11:15 a.m. | Breakout Session III: Prioritizing Objectives Heath & Nutrition Program - <i>Wye Board Room</i> Functionality/End Use Program - <i>Potomac Room</i> Sustainability Program - <i>Susquehanna Room</i> | <i>Facilitators</i> |
| 11:15 - 12:00 noon | Report of Group Sessions II & III <i>Susquehanna-Potomac Rooms</i> Health & Nutrition Overview Functionality/End Use Overview Sustainability Overview | <i>Facilitators</i> <i>Dr. Combs & Dr. Grusak</i> <i>Dr. Tulbek & Dr. Berrios</i> <i>Dr. Vandemark & Dr. Kelly</i> |
| 12:00 - 1:00 p.m. | Working Lunch featuring pulses - "Cross Pollinating" <i>White Oak Room</i> | |
| 1:00 - 1:45 p.m. | Breakout Session IV: Writing Assignments, Commitment to Schedule, Discussion of Future Events Heath & Nutrition Program - <i>Wye Board Room</i> Functionality/End Use Program - <i>Potomac Room</i> Sustainability Program - <i>Susquehanna Room</i> | <i>Facilitators</i> |
| 1:45 - 2:00 p.m. | Closing Comments <i>Susquehanna-Potomac Rooms</i> | <i>Tim McGreevy</i> |
| 2:00 p.m. | Departures | |
| 2:30 - 3:30 p.m. | APA & Facilitators Team Meeting Review <i>Wye Board Room</i> | <i>Tim McGreevy</i> |

Special Thanks to our Sponsors:



Expert Panel Matrix

Health and Nutrition Expert Panel - Red Group

Gerald Combs, Facilitator

Michael Grusak, Facilitator

Shannon Berndt, Recorder

Maurice Bennink

John Finley

Brent Flickinger

Megan McCrory

Susan Raatz

Henry Thompson

Joe Urban, Jr.

Gary Weaver

Irvin Widders

Functionality and End Use Panel - Yellow Group

Jose De Berrios, Facilitator

Mehmet Tulbek, Facilitator

Jennifer William, Recorder

Byung-Kee Baik

Atanu Biswas

Elaine Champagne

Patricia DeMark

John W. Finley

Frank Flora

Clifford Hall

Bruce Hamaker

Frayne Olson

Charles Onwulata

Barry Swanson

Juming Tang

Sustainability Panel - Green Group

James Kelly, Facilitator

George Vandemark, Facilitator

Todd Scholz, Recorder

Lynne Carpenter-Boggs

Weidong Chen

Robert G. Evans

Deborah Fravel

Kevin Hackett

Rob Hedberg

Michael Kahn

Phil McClean

Kevin McPhee

Perry Miller

Kristine Nichols

Kathleen Painter

Roy Scott

Matt Smith

Byung-Kee Baik

Washington State University
Associate Professor, PhD



Byung-Kee Baik is an associate professor in the Department of Crop and Soil Sciences at Washington State University. Dr. Baik received his B.S. & M.S degrees in Agronomy from Korea University in Korea and Ph.D. degree in Food Science from Washington State University (2001-1994) with specialization in cereal chemistry. He leads the WSU Wheat Quality Program, which evaluates the end-use quality of wheat breeding lines for the development of wheat varieties with improved end-use quality.

His research interests include chemistry, processing and product development of cereal grains and legumes. Baik's research has focused on improving the end-use quality of wheat through basic research, and development of new processes and products with barley and legumes to promote their consumption. He has published over 60 papers in refereed journals and conducted numerous presentations in international conventions.

Chantal Bassett

Pulse Canada
Manager of Nutrition & Health Innovation



As Manager of Nutrition and Health Innovation (Acting) with Pulse Canada, Bassett works to foster pulse-based health & nutrition research, to promote innovation leading to novel pulse food products and to stimulate pulse consumption via the development of marketing and educational materials. Bassett has overseen the dissemination of research results from seven randomized controlled clinical trials, organized a national conference on nutrition & health, lead an international pulse research advisory committee and contributed to several research funding grant applications. She instigated the publication and served as Managing Editor of the Special Issue on the Molecular, Functional and Processing Characteristics of Whole Pulses and Pulse Fractions and their Emerging Food and Nutraceutical Applications in the journal *Food Research International* (Elsevier), published in 2009.

Maurice Bennink

***Michigan State University
Professor, Food Science & Human Nutrition***



Bennink, from Michigan State University, is a prominent researcher investigating the health benefits associated with eating beans. He utilizes beans to help prevent colon cancer and to improve the immune status of children that are infected with HIV. He studied at Colorado State University (M.S.) and the University of Illinois (Ph.D.). His research interests lie in diet and cancer, legume starch and protein digestion and biochemical nutrition.

Shannon Berndt

***USA Dry Pea & Lentil Council Representative
Northern Pulse Growers Association Executive Director***



Berndt has served as the Executive Director of the NPGA since February 2008 and also serves as the Administrator of the ND Dry Pea & Lentil Council. Prior to 2008, she worked as the Promotions/Membership Director for the NPGA. Originally from Pollock, SD, Berndt was raised on a cattle and grain farm and attended NDSU. Berndt has worked in the agriculture industry for more than ten years--much of that time with the pulse industry. Berndt's prior work experience included working for association management companies whose clients included North Dakota Grain Growers Association, US Durum Growers Association, ND Ag Coalition and the North Dakota Buffalo Association. Berndt also worked for the North Dakota Farm Bureau and Representative Earl Pomeroy.

Jose De J. Berrios

USDA ARS WRRC

Research Food Technologist



Berrios has 25 years of combined experience in the applied and basic research fields of Food and Agriculture. He was in charge of an extrusion food program for 14 years at the USDA ARS Western Regional Research Center, conducting experiments and developing processes and formulations to increase legume utilization through the manufacture of new value added extruded foods and food products with optimized nutritional and functional properties and desirable sensory attributes. Berrios is currently serving as the Chairman of the Northern California Section of AACC International. He has been a collaborator for various research projects with national grower associations, private industry and scientists throughout the United States as well as internationally.

Atanu Biswas

USDA National Center for Ag Utilization Research

Plant Polymer Researcher



Biswas has more than 24 years of research experience dealing with the syntheses of new functional polymers and organic chemicals. After receiving a Ph.D. in synthetic organic chemistry from University of Notre Dame, South Bend, Indiana, he joined the University of Virginia, Charlottesville, Virginia, as a postdoctoral fellow. His interest in polymer chemistry led him to another postdoctoral position at the Case Western Reserve University, Cleveland, OH. He then joined Hercules Incorporated, Wilmington, DE, as a research chemist and spent 14 years in new product R&D. Several of his discoveries were patented and commercialized. Biswas is particularly well-known for his trailblazing work in polymer synthesis and modification, utilizing state-of-the-art technologies such as microwave, ionic liquid, and enzymes. Six years ago he joined Plant Polymer Research Unit at the National Center for Agricultural Utilization Research (USDA). Lately he has delved into dry beans, taking advantage of what is known about edible beans to explore three areas of application: energy, materials, and specialty chemicals. Current areas of interest include studies of bean starch and extrusion of beans, isolation and identification of polyphenols, and cholesterol-lowering effects of bean ingredients.

Lynne Carpenter-Boggs

Washington State University
Research Leader



Carpenter-Boggs is the Research Leader for Biologically-Intensive and Organic Agriculture (BIOAg) at WSU, and Director of the WSU Graduate Certificate in Sustainable Agriculture. She has also held research and teaching positions at WSU and with the USDA Agricultural Research Service. Her academic background includes a B.S. in Biophysical Environmental Studies from Northland College in Ashland, Wisconsin, M.S. in Soil Microbiology and Biochemistry from Iowa State University, and Ph.D. in Soil Science from Washington State University. Her goal is to foster the growth of a sustainable and vibrant agriculture using knowledge of biological cycles, combining traditional knowledge with new innovations in appropriate technologies.

Cindy Brown

American Pulse Association
Vice Chair



Brown has worked with the Chippewa Valley Bean & Doane Ltd since 1979. Raised on a farm in Wisconsin, she has been involved on her family's kidney bean production and marketing since 1969. Brown has also served as President of the USA Dry Bean Council, and is currently a member of the Wisconsin Ag & Trade Consumer Protection Board and the International Pulse Trading Federation. She has a BBA and minor in Economics from the University of Wisconsin. She is currently serving as the Vice Chair of the newly formed American Pulse Association.

Elaine Champagne

**USDA ARS Southern Regional Research Center
Supervisory Research Chemist**



Champagne serves as Research Leader of the Food Processing & Sensory Quality Research Unit. She leads a multidisciplinary research team conducting research ranging from the sensory and processing quality of rice, peanuts, and fresh fruit to factors affecting the flavor quality of catfish to preventing childhood obesity. Champagne has produced over 100 peer-reviewed publications focused on adding nutritional, functional, and sensory value to rice and other cereal crops. In addition, she has helped find new uses for rice and supported the development of value-added products. Champagne is an active member of the American Association of Cereal Chemists International (AACCI) and has contributed to this organization by serving as the chair of the Rice Milling and Quality Technical Committee (1994-2001), establishing and co-directing the AACCI short course "Rice Milling & Technology," serving as associate editor for *Cereal Chemistry* since 1995, organizing symposia for the Rice Division, and served as Editor for the third edition of the renowned monograph *Rice: Chemistry and Technology*.

Weidong Chen

**USDA ARS - Pullman, WA
Research Plant Pathologist**



Weidong Chen received undergraduate education at Huazhong Agricultural University in Wuhan, China, and earned M.S. and Ph.D. degrees in Plant Pathology from the Ohio State University. From 1990 to 2002, he was a research plant pathologist with Illinois Natural History Survey of University Illinois at Urbana-Champaign. In 2002, he joined the USDA ARS Grain Legume Genetics and Physiology Research Unit in Pullman, WA as a research plant pathologist. His research program focuses on mechanisms and management of grain legume diseases for sustainable pulse production. Chen is recognized worldwide as a leader in fungal diseases of legumes, particularly of foliar diseases of chickpea and lentil. He is a co-editor of the book *Chickpea Breeding and Management* and the senior editor of the upcoming book *Compendium of Chickpea and Lentil Diseases and Pests* to be published in 2010.

Gerald Combs

***USDA ARS Grand Forks Human Nutrition Center
Center Director***



Combs was named Center Director, Grand Forks Human Nutrition Research Center, in January, 2002. He came to Grand Forks from Ithaca, NY, where he was a Professor of Nutrition in the Division of Nutritional Sciences at Cornell University, having been on that faculty since 1975. At Cornell, Combs served as the Director of Graduate Studies for the Field of Nutrition of the Graduate School and as a coordinator of the Food Systems for Improved Health Program in the College of Agriculture and Life Sciences. Combs is keenly interested in nutrition and health issues relating to national development and in the linkage of those issues to agricultural production. He has lived and worked in China, India, Nepal, Indonesia, Australia and Bangladesh, and has visited more some 30 countries. In addition to English, he speaks French and Mandarin.

Patricia DeMark

***Archer Daniels Midland Company
Edible Bean Technologist***



DeMark has been the edible bean technologist for the ADM Research Food Processing Division since May of 2005. In this position she works as the lead point of contact between all of Edible Bean Specialties' vertically integrated divisions to ensure the successful delivery of edible bean products. Her responsibilities include grading the quality of potential new seed varieties, formulating plant production processes, and coordinating the development of innovative food concepts with functional ingredient attributes. DeMark also supports ADM's line of VegeFull cooked ground beans by representing ADM at various tradeshows and conferences and providing customer applications support. DeMark has held various positions in the food, dietary supplement and chemical industries, serving as lead technologist, new product coordinator, quality assurance manager and lab supervisor. In 1999, she joined ADM as a bench chemist with the Fats and Oils Research Division.

Robert G. Evans

USDA ARS

Supervisory Research Agriculture Engineer



Since January 2001, Evans has served as Supervisory Research Agricultural Engineer and Research Leader of the Agricultural Systems Research Unit (ASRU) at the USDA-ARS Northern Plains Agricultural Research Laboratory (NPRL). He is responsible for planning, conducting, and reporting research addressing irrigation management strategies that improve soil and water quality by reducing erosion and agrochemical losses to surface and ground waters in irrigated cropping systems. Evans is an internationally recognized authority in crop water management research. He has made major contributions to the areas of arid and semi-arid region crop specific water management, plant environmental modifications with irrigation, and nutrient management.

John Finley

USDA-ARS - Beltsville, MD

National Program Leader, Human Nutrition



Finley has an academic, scientific and professional background in agriculture, food production and human nutrition. His undergraduate degree was in Animal Science, and following an MS and Ph.D. in Animal Nutrition from Washington State University. Finley joined the faculty of the USDA-ARS Human Nutrition Research Center in Grand Forks, North Dakota. During eighteen years there, he built a successful research program funded by both ARS and outside grants and contracts. His primary areas of scientific expertise were mineral bioavailability, phytonutrients in plants and the nutritional prevention of cancer. Following a brief stint at the FDA, Finley joined the A.M. Todd Company. In 2009 he returned to USDA-ARS as National Program Leader in Human Nutrition. Finley's academic and professional background has given him a comprehensive understanding of the human health implications of bioactive nutrients from foods, especially those from plants (phytonutrients), as well as the legal and ethical implications of adding these substances to "functional foods".

John W. Finley
Louisiana State University
Head & Professor of Food Science



Finley is currently leading a program focused on development of functional foods which deliver targeted health benefits and are of culinary quality. Finley was the chief Technology Officer of A.M. Todd Co., which under Finley's leadership, transitioned from a commodity supplier to a provider of formulated flavors and functional foods ingredients that enhance health and wellness. In addition to A.M.Todd, Finley worked for Kraft Foods, Monsanto, and Nabisco. Finley has authored over 100 technical publications, edited 11 books and holds 47 patents. Currently he is an associate editor for the Journal of Agricultural and Food Chemistry.

Michael Fitzner
USDA NIFA
Director, Plant & Animal Systems



Fitzner is director of the plant systems section at the U.S. Department of Agriculture's National Institute of Food and Agriculture. He provides coordination and oversight for research and extension programs focused on the development of safe, environmentally friendly, and economically sustainable plant production and protection systems. He provides program leadership for the Regional Integrated Pest Management Centers and other agency investments in integrated pest management research and extension programs. Fitzner earned a B.S. in horticulture from North Carolina State University, an M.S. in agronomy (plant breeding) from the University of Florida, and a Ph.D. in crop science (plant breeding) from North Carolina State University. Prior to joining NIFA, he was a plant breeder with the peanut breeding program at North Carolina State University.

Brent Flickinger

Archer Daniels Midland Company

Senior Manager, Nutritional Science



Flickinger, is Senior Manager, Nutritional Science for the Archer Daniels Midland Company in Decatur, IL. He has been employed by ADM since April 1999. During his tenure at ADM, his area of expertise and responsibility has grown to include scientific and regulatory support for ADM's entire portfolio of food and dietary supplement ingredients. He and his colleagues evaluate scientific and regulatory literature to identify new areas for ingredients, assess level of substantiation for marketing claims, develop comments on FDA rules and regulations, and provide guidance for nutrition labeling on applicable products. His training has an emphasis in lipid chemistry, biochemistry and metabolism. Flickinger has published in the areas of metabolism of unique dietary fatty acids, cellular targeting of bioactive lipids and emerging research/innovations in dietary fats and oils. Flickinger received his doctoral degree in Nutritional Sciences from the University of Illinois at Urbana-Champaign and his bachelor's degree in Chemistry from Juniata College in Huntingdon, PA

Frank Flora

USDA ARS - Beltsville, MD

Senior National Program Leader, Quality & Utilization Ag. Products



Flora is Senior National Program Leader for Product Quality/New Products & Processes for the Agricultural Research Service (ARS)/USDA, where he provides leadership, coordination, direction, and resource allocation for the Agency's \$80M national research program related to agricultural product quality maintenance and assessment, value-added food and non-food processing and biobased products. Prior to joining ARS in 1998, he served as National Program Leader, Food Science & Technology, for USDA's Cooperative State Research, Education, and Extension Service. Before joining USDA in 1989, he served in research and technical management positions with American Home Foods, the Coca-Cola Company, and McCormick and Company, as Assistant Professor of Food Processing Research in the Department of Food Science at the University of Georgia Agricultural Experiment Station in Griffin, and as a food technologist with the U.S. Food and Drug Administration in Washington, DC. Flora earned a Ph.D. in food science from the University of Maryland and a Certificate in Management from Susquehanna University.

Deborah Fravel

USDA ARS - Beltsville, MD
National Program Leader, Plant Diseases



Fravel earned a B.A. degree in Botany from Duke University and M.S. and Ph.D. degrees in Plant Pathology from North Carolina State, respectively. In 1982, she joined the USDA, ARS Soilborne Diseases Laboratory in Beltsville, MD as a Postdoctoral Research Associate, becoming a Research Plant Pathologist in 1984. From 2004 to 2010, she was the Research Leader for the Vegetable Laboratory, later merged into the Genetic Improvement of Fruit and Vegetables Laboratory, USDA, ARS, in Beltsville. Fravel is recognized worldwide as a leader in the field of biological control, particularly the ecology and mechanisms of biocontrol fungi, integration of biocontrol and fumigation, and formulation of biocontrol agents. Fravel is a Fellow of the American Phytopathological Society.

Michael Grusak

USDA ARS Children's Nutrition Center
Plant Physiologist



Grusak is a Plant Physiologist at the USDA/ARS Children's Nutrition Research Center, Houston, TX and an Associate Professor of Pediatrics, Baylor College of Medicine. His educational and research background include undergraduate training in biology at Bates College in Lewiston, Maine, after which he earned both his M.S. and Ph.D. in botany at the University of California, Davis. Grusak received postdoctoral training in isotope technology and plant nutrient transport at the Physics and Engineering Laboratory in Lower Hutt, New Zealand, the Université de Poitiers, Poitiers, France, and the USDA/ARS US Plant, Soil and Nutrition Laboratory in Ithaca, NY. Grusak joined the Children's Nutrition Research Center in 1990 to develop an interdisciplinary program that would link plant science and production agriculture with human nutrition concerns. His research involves understanding the molecular mechanisms and regulation of nutrient transport within plants, with the long-term goal of enhancing the nutritional quality of plant foods for human consumption. He currently serves on the Editorial Board of the journals: *Plant and Soil*, *Crop Science*, *Plant Foods for Human Nutrition*, and *Trees for Life Journal*, as well as the Executive Board for the Crop Science Society of America, Division C09: Biomedical, Health-Beneficial and Nutritionally Enhanced Plants.

Kevin Hackett

USDA ARS - Beltsville, MD
Senior National Program Leader, Biological Control



Hackett is Senior National Program Leader for the USDA, Agricultural Research Service, with program responsibility for crop pests and beneficial insects, including pollinators. He is co-chair of the Federal Colony Collapse Disorder Steering Committee. Other major responsibilities include his role as co-chair of the Federal Interagency Committee for Invasive Terrestrial Animals and Pathogens. He is the ARS lead on invasive insects such as the glassy-winged sharpshooter (vector of Pierce's disease of grape). Hackett holds B.S. and M.S. degrees from Rutgers University in Entomology, and a Ph.D. from the University of California, Berkeley in Insect Pathology. Prior to joining the National Program Staff, he worked as Eastern Coordinator for the John Muir Institute for Environmental Studies, followed by 16 years as an insect pathologist for USDA/ARS in Beltsville, where his research focused on spiroplasmas, the smallest bacteria.

Clifford Hall

North Dakota State University
Associate Professor School of Food Systems



Hall's primary areas include the utilization of non-traditional crops in food products. Examples include omega-3 fortification, from flax-seed, in extruded bean snacks, use of pulse proteins as egg replacers, effects of extrusion on pulse components and sensory and stability characteristics of pulses, pulse flours and pulse fortified products. Hall has taught at NDSU since 1998 in the School of Food Systems. His industry experience includes working with Con-Agra Frozen Foods in Omaha, NE where he focused on formulation of new food products and reformulation of existing food products. Hall is currently the Senior Associate Editor for the American Oil Chemist's Society.

Bruce Hamaker

***Whistler Center of Carbohydrate Research
Director***



Hamaker is director of the Whistler Center of Carbohydrate Research and holds the Roy L. Whistler Chair in Carbohydrate Science in the Department of Food Science at Purdue University, West Lafayette, Indiana. He obtained his undergraduate degree in biological sciences from Indiana University and afterwards went into the US Peace Corps in West Africa. His graduate studies are in human nutrition (M.S.), and food chemistry (Ph.D.) from Purdue University and he was a post-doctoral researcher at the Nutrition Research Institute in Lima, Perú under Dr. George Graham of Johns Hopkins University. His research career has spanned many aspects of cereal component chemistry and its applications, though now focuses primarily on cereal carbohydrates and proteins related to topics of health and wellness. He has and continues to be active in international research collaborations in Africa and Asia.

Rob Hedberg

USDA NIFA

National Program Leader - Economic & Community Systems



Hedberg was appointed as the USDA-CSREES Interim National Program Leader for Sustainable Agriculture in January, 2009. In this role he is responsible for national oversight and coordination of the Sustainable Agriculture Research and Education program (SARE) Prior to his current assignment, Hedberg was assigned to the Office of the Undersecretary for Research, Education and Economics (REE) to serve as the Acting Director of Legislative and Intergovernmental Affairs. In this position he led the USDA participation in Farm Bill negotiations on the Research Title and research related provisions. Hedberg's permanent position is in the Office of the Administrator of the Cooperative State Research Education and Extension Service (CSREES) since July 2005. In this role he has provided an interface between CSREES, Congressional offices and other Federal agencies for agricultural research, education and extension. Hedberg also has broad practical experience in multiple aspects of agricultural business, research and education. His education includes a Bachelor's degree in Crop and Soil Science from Michigan State University, a Master's degree in Plant Science from the University of New Hampshire and a Certificate of Graduate Studies in Management and Administration from the Harvard University Extension School.

Greg Johnson

American Pulse Association Chair



Johnson started his business venture, Johnson Seed Cleaning, in 1996, which expanded and transitioned into Premier Pulses International, Inc. in 2001. He is the current Owner/Operator and President. PPI is an international pulse crop processing and exporting company in Minot, ND. Recognizing another opportunity, Johnson was instrumental in establishing the Port of North Dakota. This involvement developed into his additional ownership of North Dakota Port Services, Inc. This privately owned intermodal facility serves an area with a radius of 250 miles or more around the Minot area; reaching into MT, SD, MN and parts of Canada. Johnson has served as Chairman of both the USA Dry Pea & Lentil Council, and US Pea & Lentil Trade Association. He recently was elected to serve as the Chairman of the American Pulse Association.

Michael Kahn

Washington State University Professor



Kahn is a Professor in the Institute of Biological Chemistry and School of Molecular Biosciences at Washington State University and the Associate Director of the Agricultural Research Center, the Washington AES. His laboratory works on the physiological interaction between *Sinorhizobium meliloti* and alfalfa but works occasionally with pea. The focus is on understanding the metabolic logic of nitrogen fixation, with a goal of figuring out better strategies for getting nitrogen fixation in the symbiosis. Kahn has served as Program Manager for the USDA NRI Nitrogen Fixation and Metabolism program and also for the US Department of Energy Biosciences program.

James Kelly

Michigan State University
Professor



Since 1994 Kelly has been Professor of Crop and Soil Sciences at Michigan State University in East Lansing. His area of specialty is Plant Breeding and Genetics. He has developed and released 35 dry bean varieties in 11 commercial classes. Kelly has participated in development with international colleagues seven dry bean varieties for the semiarid highlands of Mexico and four varieties for highland Ecuador. Among his honors is the Fellow of the Crop Science Society of America (2008) and Distinguished Faculty Award of MSU. Kelly's research responsibilities include dry bean breeding and genetics with emphasis on the use of molecular markers to assist in selection for yield, plant architecture, processing quality, drought tolerance and disease resistance.

Phil McClean

North Dakota State University
Professor, Dept. of Plant Sciences



McClean has been a Department of Plant Sciences faculty member at North Dakota State University since 1985. His primary research interest is the application of genomic and molecular information for the improvement and the study of diversity in common bean. He is also applying the syntentic relationships for the discovery of candidate genes for important Phaseoleae production traits. McClean is also the director of the NSF funded NDSU Virtual Cell animation project. Most recently, he is the project director of the multi-institution USDA/AFRI BeanCAP project. McClean earned his Ph.D. from Colorado State University.

Megan McCrory

Purdue University
Assistant Professor, Foods & Nutrition



McCrory earned a PhD in nutrition from the University of California at Davis in 1997. She went on to study energy regulation as a post-doctoral researcher at the USDA Human Nutrition Research Center on Aging at Tufts University, and then became a faculty member at Tufts in 1999 for 5 years. In October of 2007 she joined the faculty in Foods and Nutrition at Purdue as an assistant professor, with a joint appointment in Psychological Sciences. She is a member of the executive committee of the Ingestive Behavior Research Center at Purdue. Her research focuses on the role of eating patterns and dietary composition in weight management, and psychological correlates of eating behaviors.

Tim McGreevy

American Pulse Association
CEO
USA Dry Pea & Lentil Council
Executive Director



McGreevy has a B.A. in General Agriculture and a M.A. in Agricultural Economics both from Washington State University. McGreevy has been the Executive Director of the USA Dry Pea and Lentil Council since 1994. He is responsible for international and domestic market development, research programming, government education and membership development for the Council. McGreevy is currently a Member of the U.S. Department of Agriculture's Agriculture Trade Advisory Committee and serves on the Executive Board of the International Pulse Trade Industry Confederation. When he is not promoting USA pulse crops around the world he spends his time managing the family farm .

Perry Miller

Montana State University

Professor, Sustainable Cropping Systems



Miller is a Professor in the Department of Land Resources and Environmental Sciences at Montana State University – conducting cropping systems research since 1998. His research focuses on systems-level water, nitrogen, and energy budgets in diversified wheat-based farming systems. Specific research emphases include no-till and organic cropping systems, pulse crop ecology, winter dicot crops, crop energy budgets, and best management practices for greenhouse gas mitigation.

Kevin McPhee

North Dakota State University

Pulse Crop Breeder



McPhee attended the University of Wyoming where he received a Bachelor of Science degree in Agronomy in 1991. He moved to Moscow, ID where he entered graduate school at the University of Idaho and received his Ph.D. in Agronomy in 1995 with an emphasis on Plant Breeding and Genetics. In July 1995, he entered service with the USDA, Agricultural Research Service as a Post-Doctoral Research Associate to study the genetics of biomass production and the potential to improve pea yield through increased biomass production. In 1998, he accepted a permanent position as Research Geneticist with the USDA-ARS Grain Legume Genetics and Physiology Research Unit where he focused on the genetics and breeding of spring and winter field pea. McPhee held this position for ten years before accepting the position as Associate Professor in the Department of Plant Sciences at North Dakota State University in October of 2008 and continues research on the genetics and breeding of pulse crops.

Kristine Nichols

***USDA ARS Northern Great Plains Research Lab
Soil Microbiologist***



Nichols has been a Soil Microbiologist with the USDA, Agricultural Research Service (ARS) Northern Great Plains Research Laboratory (NGPRL) in Mandan, ND for nearly seven years. She was raised on a primarily corn-soybean conventional farm in southwestern Minnesota. Nichols received Bachelor of Science degrees in Plant Biology and in Genetics and Cell Biology from the University of Minnesota in 1995, a Masters degree in Environmental Microbiology from West Virginia University in 1999, and a Ph.D. in Soil Science from the University of Maryland in 2003. Since 1993, she has studied arbuscular mycorrhizal (AM) fungi – a plant-root symbiont. Her most recent work involves the investigation of glomalin – a substance produced by AM fungi. Glomalin contributes to nutrient cycling by protecting AM hyphae transporting nutrients from the soil to the plant and to soil structure and plant health by helping to form and stabilize soil aggregates. Nichols has been examining the impacts of management such as crop rotation, tillage practices, organic production, cover crops, and livestock grazing on soil aggregation, water relationships, and glomalin at NGPRL.

Frayne Olson

***North Dakota State University
Crops Economist - Marketing Specialist***



Olson is a Crops Economist/Marketing Specialist in the Department of Agribusiness and Applied Economics at North Dakota State University. Olson conducts educational programs and research in crop marketing and market analysis, crop contracting and risk management. He also does collaborative research and educational work in the areas of agribusiness management and farm management. Olson received his PhD in Agricultural Economics from the University of Missouri, and his M.S. and B.S. in Agricultural Economics from North Dakota State University.

Charles Onwulata

USDA ARS, Wyndmoor, PA
Research Food Technologist



Onwulata is a Research Food Technologist with the USDA-Agricultural Research Service, Eastern Regional Research Center, Wyndmoor, PA. He is a Lead Scientist in the Dairy Processing and Products Research Unit. Onwulata heads the Center of Excellence in Extrusion and Polymer Rheology program at the Eastern Regional Research Center in Wyndmoor, Pennsylvania. He holds several patents, has published over 140 peer reviewed journal articles, edited two books and received numerous awards for Technology Transfer and commercialization of processes.

Kathleen Painter

University of Idaho
Agricultural Economist



Painter is an agricultural economist with the University of Idaho, where she develops crop and livestock budgets for the state of Idaho and continues her interests in sustainable agriculture, organic production methods, biofuels, and climate change. Prior to beginning this job in 2009, she worked for three years as an analyst for the Center for Sustaining Agriculture and Natural Resources at Washington State University, mainly on the Climate Friendly Farming Project. This award-winning multi-million dollar project developed research-based information on greenhouse gas emissions for various agricultural production practices Washington State, including dairy, irrigated agriculture, and dryland production. Painter received her PhD in Agricultural Economics from Washington State University in 1992. She lives on a small farm near Colfax, WA, with her husband and two daughters.

Susan Raatz

**USDA ARS NPA Grand Forks Nutrition Center
Research Nutritionist**



Raatz is a Research Nutritionist at the USDA Grand Forks Human Nutrition Research Center. She completed a BS in Dietetics at Northern Michigan University, a MS in Foods and Nutrition at Eastern Michigan University, a MPH in Epidemiology and a Ph.D. in Human and Clinical Nutrition at The University of Minnesota, Minneapolis, MN. Raatz' research focuses on the evaluation of the role of dietary macronutrient distribution in the promotion of optimal health and the prevention of chronic diseases. She primarily works with the utilization of whole foods diets to modify energy distribution from macronutrient substrates. Her work is focused primarily on macronutrient (carbohydrate, protein and fat) modification for metabolic control, body weight management, and the prevention of chronic diseases.

Sara Rose

**US Dry Bean Council Representative
Bush Brothers & Company Vice President & Director of
Strategic Business Development**



Rose directs Strategic Business Development at Bush Brothers & Company. Since joining the company in 1996, she has served in various roles in Industry Affairs, Marketing, Manufacturing, and Research & Product Development, which has provided her with broad exposure to many of the key functions of the business. A key focus of her work is to increase bean consumption by leveraging nutrition science and consumer messaging. Currently, Rose serves on the Health & Nutrition Committee of the United States Dry Bean Council, the Executive Committee of the Canned Food Alliance, and the Board of Directors of the Produce for Better Health Association. She served as the President of the Beans for Health Alliance (BHA), an association dedicated to promoting beans as a food-based solution to global nutrition and health concerns. Rose graduated magna cum laude with a BA in History and Economics from Vanderbilt University, and she holds an MBA from Indiana University.

Judy St. John

USDA ARS

Associate Administrator for National Programs



St. John received her Ph.D. in Plant Physiology from the University of Florida, Gainesville, Florida, in 1966. She joined the United States Department of Agriculture's Agricultural Research Service (ARS) in 1967 as a Research Plant Physiologist at the Beltsville Agricultural Research Service in Beltsville, Maryland. In her current position as ARS Associate Administrator for National Programs, she leads the Office of National Programs which manages the research objectives of the Agency. She also leads the Office of International Research Programs which is responsible for ARS' liaison with its international partners. She is recognized on both a national and international level as a leader in fostering scientific initiatives and partnerships in areas such as plant biotechnology, genomics, and bioenergy. St. John was awarded the rank of Distinguished Executive by President George W. Bush in 2001 in recognition of her exemplary leadership.

Todd Scholz

USA Dry Pea & Lentil Council
Director of Research & Information



Scholz joined the USA Dry Pea & Lentil Council in November of 2000 as the Director of Research and Information. As a member of the USADPLC Staff, he has coordinated the industry research program, represented the Industry at research workshops and seminars in Canada, the United States and Europe. Scholz also works to increase industry access to crop protection materials as a member of the IR-4 Commodity Liaison Committee, the NAFTA Label Technical Working Group and the ipmPIPE Steering Committee. His work experience includes a degree from Oregon State University in Business Administration (Go Beavers!), a stint in the Army as a Field Artillery Officer, and farming the family farm in Colfax.

Roy Scott

USDA ARS - Beltsville, MD

National Program Leader, Crop Production & Protection



Scott is a National Program Leader (NPL) for Crop Production and Protection where he provides leadership for oilseeds and bioscience as well as cotton. Scott has served as the Director of the Drought Tolerance Center for Excellence at South Dakota State University College of Ag & Bio Science. While there he developed public and private partnerships to commercialize biotechnologies for more rapid delivery to producers. As SD State University plant science professor, Scott managed the soybean breeding program. Scott earned his Ph.D. in Agronomy from Kansas State University in Manhattan, KS.

Matt Smith

USDA ARS

National Program Leader, Soil Science



Smith is a National Program Leader (NPL) for Soil Management with the Natural Resources and Sustainable Agricultural Systems (NRSAS) staff of the Office of National Programs (ONP) in the USDA's Agricultural Research Service (ARS). Smith serves as the lead NPL for ARS research in soil science, which is conducted under the new National Program 212 (Climate Change, Soils, and Emissions). He also leads National Program 214 (Agricultural and Industrial Byproducts). He has degrees from the University of Georgia, North Carolina State University and the University of Florida. He joined ARS in 2004 as Research Leader (RL) of the Environmental Management and Byproduct Utilization Laboratory (EMBUL) at the Beltsville Agricultural Research Center (BARC) in Beltsville, Maryland. From 1987 to 2004, he was a member of the faculty of the University of Georgia's Biological and Agricultural Engineering Department, where he taught graduate and undergraduate courses in soil and water engineering and environmental engineering. Smith is a registered Professional Engineer in Georgia and Maryland.

Barry Swanson

Washington State University
Professor, Interim Chair School of Food Science



Swanson is Professor and Interim Chair of the School of Food Science in the College of Agricultural, Human and Natural Resource Sciences (CAHNRS) at WSU. Swanson's research interests include studies of legume protein digestibility and storage quality in collaboration with the Institute for Nutrition in Central America and Panama (INCAP) supported by the USAID. Initial studies with sucrose fatty acid polyesters led to extensive research on syntheses of fat substitutes, alternative fat replacers and methods to improve the quality of reduced fat cheeses. He received the CAHNRS Faculty Excellence in Research Award in 2001, was elected a Fellow of the Institute of Food Technologists (IFT) in 2002, was invited to Michigan State University Department of Food Science and Human Nutrition as a prestigious G. Malcolm Trout Visiting Scholar in 2004, and elected a Fellow of the International Academy of Food Science and Technology (IUoFST) in 2006.

Juming Tang

Washington State University
Professor Food Engineering



Tang is a Professor of Food Engineering in the Department of Biological Systems Engineering, and has been on faculty of Washington State University (WSU) since 1995. Tang's research focuses on developing advanced thermal processing technologies. He also worked on value-added processes to enhance the competitive of Pacific Northwest agricultural and food processing industries. Tang's major research responsibilities have included serving as NASA Summer Faculty Fellow with Advanced Food System in Johnson Space Center, working on package and processing solutions for long-duration manned space missions. Among his many awards, he has received the USDA Secretary's Honor Award for increasing efficiency, security, sustainability, and profitability of the fruit and vegetable industry through applications of the technologies developed.

Henry Thompson

**Colorado State University - Cancer Prevention Laboratory
Director & Professor**



Thompson, Ph.D. is professor in the College of Agricultural Sciences and director of the Cancer Prevention Laboratory at Colorado State University in Fort Collins, Colorado. From 1988 to 2002 he was the head of the Center for Nutrition in the Prevention of Disease at AMC Cancer Research Center, Denver, Colorado. Before joining AMC, Thompson was on the faculty of the University of New Hampshire where he was professor of Nutritional Sciences and director of the Human Nutrition Center. He served as a senior research nutritionist at IIT Research Institute in Chicago, IL from 1977 to 1979. Thompson earned his Ph.D. from Rutgers University in nutritional sciences with an emphasis in biochemistry. Following his doctoral work, Thompson received postdoctoral training in the Department of Molecular Medicine at the Mayo Clinic in Rochester, MN.

Mehmet Tulbek

**Northern Crops Institute
Technical Director**



Tulbek provides leadership in technical services at Northern Crops Institute (NCI) for regional crops in the form of processing, consulting, processing solutions to processors and end users. Tulbek develops educational programs that identify market opportunities, addresses quality characteristics desired by buyers and conducts market development activities to promote sales of regional crops. An Istanbul, Turkey native, Tulbek concluded his B.Sc. in Agricultural Engineering with the emphasis of Food Science and Technology at Ankara University in 1996. Tulbek finished his M.Sc. degree at Food Engineering Department of Istanbul Technical University. He came to US in 2001 and conducted research on baking, pulse and flaxseed utilization at North Dakota State University Department of Cereal and Food Sciences during his Ph.D. study. Tulbek is an active member of American Association of Cereal Chemists International, American Oil Chemists' Society and Institute of Food Technologists. Tulbek has been with NCI since 2006.

Joseph Urban, Jr.

USDA ARS Human Nutrition Research Center, Beltsville, MD
Supervisory Microbiologist & Research Leader,
Diet, Genomics & Immunology Laboratory



Urban, Jr. is the Supervisory Microbiologist and Research Leader of the Diet, Genomics, and Immunology Laboratory, Beltsville Human Nutrition Research Center, Agricultural Research Service, United States Department of Agriculture. He did his graduate work at Syracuse University with a PhD in Microbiology/Immunology and post doctoral studies at the Johns Hopkins University School of Medicine in allergic diseases. Relevance to the Pulse Health Initiative is through the development of a pig model of juvenile obesity that examines the influence of diet on inflammatory aspects of obesity through analysis of functional gene expression of relevant tissues including digestive, reproductive and immunological responses; intestinal absorption and barrier function; changes in the intestinal microbiome; collaborative studies on related metabolomic and proteomic evaluations of feeding pre- and probiotics and functional foods on allergic and metabolic disease expression.

George Vandemark

USDA ARS - Washington State University
Supervisory Research Geneticist



George Vandemark earned a B.S. degree in Biology and a M.S. degree in Genetics from the Pennsylvania State University and the Ph.D in Plant Pathology from the University of Arizona. He has worked with the USDA-ARS since 1998. From 1998-2007 he worked as a research geneticist at the USDA-ARS research unit in Prosser, WA and since 2007 has been serving as the Research Leader of the USDA-ARS Grain Legume Genetics and Physiology Research Unit at Pullman, WA. Dr. Vandemark has extensive experience in plant breeding, molecular biology, and quantitative genetics. His research has focused on determining how disease resistance is inherited in legumes, identifying molecular markers associated with disease resistance, and developing populations and pure lines of legumes that have disease resistance and other desirable agronomic traits.

Gary Weaver

University of New England
Clinical Associate Professor of Internal Medicine



Weaver retired in 2008 as a Medicare Part A Medical Director but holds an appointment at the University of New England (Biddeford, Maine) as Clinical Associate Professor of Internal Medicine. Before moving to Maine, Weaver worked at the Bassett Hospital in Cooperstown, New York as Associate Professor of Clinical Medicine (College of Physicians and Surgeons, Columbia University) and as a Clinical Research Scientist (The Mary Imogene Bassett Research Institute). His research interests centered on colonic fermentation looking both at the impact of dietary fiber on fermentation and on the fermentation's impact on the colon.

Irvin Widders

Michigan State University
Professor of Horticulture



Widders, Professor of Horticulture, Michigan State University, East Lansing, MI. Since 2000, Widders has served as the Director of the Bean and Cowpea Collaborative Research Support Program (CRSP) and of the Dry Grain Pulses CRSP (2007 – 10). The Dry Grain Pulses CRSP is a global program supported by the United States Agency for International Development (USAID). As a Title XII program, the technologies and knowledge generated by Pulse CRSP research are intended to bring dual benefits to both developing countries where pulses are produced and consumed as well as to the United States. Priority global themes of the Pulse CRSP are (1) to contribute to enhanced productivity, competitiveness and sustainability of pulse production systems, and (2) to increase the utilization of pulses so as to expand market opportunities and improve community health and nutrition. Widders was also instrumental in the establishment of the Beans for Health Alliance and Directed the Health Research Program for the BHA. He currently serves as an ex-officio member on the Health and Promotions Committee of the US Dry Bean Council.

Jennifer William
USA Dry Pea & Lentil Council
Food Marketing Manager



William is the Food Marketing Manager for the USA Dry Pea & Lentil Council, the national organization that represents growers, processors, exporters, and traders of dry peas, lentils, and chickpeas grown in the United States. She is a proud graduate of the University of Illinois at Champaign-Urbana in Food Science (BS, MS) and Marketing (MBA). She is responsible for the development of new markets for legumes in the US. She promotes new applications of legumes as ingredients and provides education to the US food industry on these new uses across the country. She conceptualized the Super Tortilla, a tortilla made with yellow pea, lentil, and chickpea flour, in early 2006, which has since been re-named, trademarked, and commercialized as a viable product in the US market.

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Northern Crops Institute

Pulse Health Initiative
Strategic Planning
Workshop

Proudly sponsored by:



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US Dry Bean Council
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**Pulse Health Initiative
Strategic Plan Outline
March 31, 2010**

I. Nutrition & Health

Goal: To exploit the potential of pulse foods to:

- A. Reduce the prevalence of obesity and associated co-morbidities by 50% by 2030.
- B. Reduce global hunger and enhance food/nutritional security.

Research Priorities:

- A. Identify a market basket of pulses that are representative of global dietary patterns, which can be used to characterize these crops in health-related research.
 1. Understand global dietary consumption patterns
 2. Characterize types and forms consumed
 3. Develop market basket based on sound scientific advice
- B. Evaluate the effect of the market basket (pulse based diets) on obesity and associated co-morbidities (CVD, cancer and type2-diabetes).
 1. Review existing literature and determine gaps
 2. Dose and tolerance, escalation plan
 3. Perform coordinated clinical trials
- C. Elucidate the underlying mechanisms of the health benefits linked to pulse consumption.
 1. To identify biomarkers and cell signaling pathways (employ “omics” technologies)
 2. Conduct mechanistic studies using animal and cell models.
 3. Identify the bioactive components and the relevant plant genetic components to enhance the health value of these foods.
 4. Characterize responder/non-responder populations
- D. Develop effective and sustainable programs (national/international) using pulse foods to prevent obesity and related diseases.
 1. Conduct targeted community based intervention trials focused on children, rural populations, inner city, economically underserved populations
 2. Evaluate sustainability using cultural and economic metrics

II. Functionality/New Products

- A. Develop knowledge of impacts of processing on nutritional and chemical properties (starch, protein, dietary fiber, polyphenols, vitamins, minerals, digestibility). Characterization and understanding structure & function relationship from farm to fork.
- B. Develop convenient, healthy & appealing pulse products
 - 1. Develop solutions to increase the consumption of pulses
 - 2. Conduct sensory tests to demonstrate acceptability
 - 3. Create one success story
 - a) *From farm to fork*
 - b) *General acceptance*
 - c) *Support clinical trials and acceptance by consumers*
- C. Develop knowledge of fundamental physical, chemical and nutritional properties of pulses to support health & nutrition and sustainability programs.
- D. Support sustainability groups to improve pulse quality and production
 - 1. Develop knowledge on fundamental physical, chemical and nutritional properties of pulses
 - 2. Crop improvement
 - a) *High protein*
 - b) *High dietary fiber*
 - c) *Oligosaccharides*
 - d) *Beany flavor*
 - e) *High amylose pulses*
 - 3. Increase production
 - 4. Develop technologies to preserve & improve the nutritional value and functional properties of pulses
- E. Develop solutions to promote pulses as vegetable proteins
 - 1. Non GMO
 - 2. Non allergen

III. Sustainability

A. Increase the productivity of pulse crops through the development of improved varieties and sustainable management strategies to improve global nutrition.

1. Breeding for Nutritional Health Quality Traits
 - a) *Reduce anti-nutritional properties*
 - b) *Increase beneficial nutritional traits.*
2. Identify diverse genetic approaches that facilitate the development of new pulse crops and varieties.
3. Evaluate and utilize genetic variation in available germplasm to improve productivity in multiple production systems.
4. Develop strategies for disease, weed, and pest management of Pulse crops.
5. Develop cropping systems with pulses that utilize organic methods.

B. Utilize pulse cropping systems to mitigate and adapt to Global Climate Change.

1. Increase the role of pulses in cropping systems to reduce green house gas emissions.
2. Determine cropping systems that optimize carbon and energy budgets.
3. Determine cropping systems that optimize the efficient use of available water.
4. Broaden agro-ecological adaptation of pulse crops.
5. Develop cropping systems to maintain and enhance the soil resource.

C. Optimize biological Nitrogen fixation and other microbial interactions in pulses to support sustainable agro-ecosystems.

1. Determine how rhizosphere microbial dynamics affect nitrogen fixation and the incidence and severity of diseases of pulse crops.
2. Increase the value of nitrogen contributed from pulse crops to subsequent small grain crops.
3. Develop varieties of pulse crops that have elevated levels of nitrogen in root systems.
4. Develop varieties that enhance levels of nitrogen in seeds.
5. Identify plant x rhizobia interactions that maximize nitrogen fixation in pulse crops.
6. Characterize and maintain a rhizobia collection.

**Pulse Health Initiative Strategic Plan
Work Assignments
March 31, 2010**

| Plan Section Name | Person(s) Assigned | Due Date |
|--|-------------------------------|---------------------|
| Executive Summary | | |
| 1. Introduction | | |
| 1.1. Vision | | |
| 1.2. Mission | | |
| 2. Process of Workshop | | |
| 3. Problem Areas | | |
| 3.1. | M. Grusak, G. Combs/ | 4/30 |
| 3.2. | M. Tulbek, J. Berrios | 4/30 |
| 3.3. | G. Vandemark, J. Kelly | 4/30 |
| 4. Strategic Goals | | |
| 4.1. Nutrition | M. Grusak, G. Combs | 4/30 |
| 4.2. Functionality | M. Tulbek, J. Berrios | 4/30 |
| 4.3. Sustainability | G. Vandemark, J. Kelly | 4/30 |
| 4.4. Education & Outreach | | |
| 5. Relation of PM to ARS/ NIFA Priorities | | |

**Pulse Health Initiative Strategic Plan
Work Assignments
March 31, 2010**

| Plan Section Name | Person(s) Assigned | Due Date |
|---|-------------------------------------|-----------------|
| I. Nutrition & Health: | | |
| <i>Goal</i> | | |
| A. Reduce obesity and co-morbidities by 50% | | |
| B. Reduce global hunger and enhance food/nutritional security | | |
| <i>Research Priorities</i> | | |
| A. Identify market basket of pulses to characterize crops in health related research | M. Grusak, M. McCrory | 4/30 |
| B. Evaluate effects of market basket on obesity and co-morbidities (CVD, Cancer & Type II Diabetes) | J. Finley, S. Raatz, J. Combs | 4/30 |
| C. Elucidate underlying mechanisms of health benefits of pulse consumption | H. Thompson | 4/30 |
| D. Develop effective and sustainable programs for using pulses to prevent obesity | M. Bennink | 4/30 |
| Plan Section Name | Person(s) Assigned | Due Date |

March 31, 2010

| II. Functionality: | | |
|---|---|------|
| • Strategic Goals Summary for Functionality | M. Tulbek J. Berrios | 4/30 |
| • Education & Outreach as it pertains to Functionality | P. DeMark F. Olson | |
| • Relationship to PM to ARS/NIFA Priorities as it pertains to Functionality | F. Flora – Facilitators will send draft to Frank so that he can make sure that it speaks to the ARS/NIFA priorities | 4/30 |
| A. Impact of Processing on Different Forms of Pulses | C. Onwulata A. Biswas P. Demark – Will provide recent processing data E. Champagne – <i>Lit. Review/Edit</i> | 4/30 |
| B. Develop Convenient, Healthy, Appealing Products w/Pulses | B. Swanson B. Baik. J Tang J. Berrios | 4/30 |
| C. Physical & Chemical Properties to Support Health/Nutrition and Sustainability Researchers | B. Hamaker M. Tulbek C. Hall | 4/30 |
| D. Pulse Production & Quality to Support Sustainability | P. DeMark F. Olson C. Hall M. Tulbek J. W. Finley | 4/30 |

March 31, 2010

E. Vegetable Proteins

P. Demark

4/30

F. Olson

J. W. Finley

March 31, 2010

| Plan Section Name | Person(s) Assigned | Due Date |
|--|--|----------|
| II. Sustainability: | G. Vandemark & J. Kelly | 4/30 |
| A. Increase productivity through development of improved varieties and sustainable management strategies to improve global nutrition. | G. Vandemark | 4/30 |
| 1. Breeding for Nutritional Health Quality Traits. | G. Vandemark K. Cichy | 4/30 |
| 2. Identify diverse genetic approaches that facilitate development of new pulse crops and varieties | G. Vandemark P. Maclean P. Miklas | 4/30 |
| 3. Evaluate & utilize genetic variation to improve productivity | P. McClean K. McPhee | 4/30 |
| 4. Develop strategies for disease, weed and pest management. | K. McPhee W. Chen R. Evans A. Lenssen | 4/30 |
| 5. Develop systems that utilize organic | K. Painter L. Carpenter-Boggs | 4/30 |

March 31, 2010

| | | |
|---|---|------|
| methods. | P. Miller | |
| B. Utilize pulse cropping systems to mitigate and adapt to Global Climate Change | R. Evans | 4/30 |
| 1. Increase role of pulses to reduce GHG | K. Painter | 4/30 |
| 2. Optimize Carbon and Energy Budgets | P. Miller | 4/30 |
| 3. Efficient use of Available Water | R. Evans | 4/30 |
| 4. Broaden agro-ecological adaptations | K. McPhee L. Carpenter-Boggs | 4/30 |
| 5. Cropping systems to enhance soil resources | K. Nichols | 4/30 |
| C. Optimize Nitrogen fixation and other microbial interactions | M. Kahn | 4/30 |
| 1. Determine microbial dynamics and how they affect diseases in pulse crops. | L. Carpenter-Boggs K. Nichols W. Chen | 4/30 |
| 2. Increase value of N fixation to subsequent crop | M. Kahn P. Miller | 4/30 |
| 3. Develop varieties with N in Root Systems. | M. Kahn | 4/30 |
| 4. Develop varieties w/ | J. Kelly | 4/30 |

March 31, 2010

| Nitrogen in seeds | | |
|-------------------|--|--|
| 5. | Identify plant x rhizobia interactions that maximize N fixation. | M. Kahn G. Vandemark 4/30 |
| 6. | Characterize and maintain rhizobia collection | L. Carpenter-Boggs G. Vandemark 4/30 |

March 31, 2010

Format(2-3 pages):

Background (Introduction): (Current Knowledge, Gaps in Knowledge, Justification)

Research Need/Problem Statement: (Why the problem is important?)
Include Innovation or novel approaches to be possible

Approach Outline of Research Direction: (How to solve the problem?)

Outcomes:

Immediate (2 years)-

Midterm (6 years)

Long Term (10 years)

Impacts

Economical

Environmental

Sociological

Expected Costs

Bibliography

Relationship Flow Chart (if necessary)