COLLABORATIVELY GROWING THE LANDSCAPE OF PLANT-BASED PROTEINS

B. Pam Ismail
Founder and Director
bismailm@umn.edu
https://ppic.cfans.umn.edu

https://ppic.cfans.umn.edu
Plant Protein Innovation Center

Mission
The Plant Protein Innovation Center (PPIC) mission is to bring together interdisciplinary researchers and industry partners to deliver to the supply chain new nutritious and functional plant protein ingredients and products, working all the way from breeding and genetics to processing, formulation, and marketing.

Approach
The PPIC will address industry-identified plant-protein challenges and opportunities to develop a wealth of interdisciplinary research.
The PPIC will not only bring economic gain to the industry, but will also address the consumer desire for nutritious and healthy food, have a positive impact on the environment by seeking and utilizing sustainable crops, provide additional sources of protein for the growing population, and provide revenue to farmers.
How? The PPIC Model

- Research will be mainly **Pre-Competitive** and **Non-Proprietary**
- Will focus on fundamental science that addresses industry needs and consumers demands

**Total funds brought in this past year: over $1,200,000**
**Pending: over $1,000,000**
The PPIC Model: 
Coming Together to Grow Research
Areas to be Addressed

- Understand how novel proteins can replace or be combined with traditional protein ingredients in various food products to deliver optimal nutrition, functionality, and flavor.

- Determine viable (cost effective) extraction (wet and dry) and processing technologies for producing functional protein ingredient from novel sources.

- Unveil unique characteristics and applications for each protein source.

- Investigate crop diversity and breed for protein quality traits.

- Secure abundant and sustainable supply.
Identified Research Priorities

Production
Primary research focus areas related to breeding, sustainability of the supply, and crop diversity

Processing & Formulation
Primary research focus areas related to extraction methods, unique processing, co-products, food systems, high value end use

Application
Primary research focus areas related to flavor, functionality, and nutrition

https://ppic.cfans.umn.edu/research/research-priorities
Research Advances

PPIC Funded Research

- Two successful RFPs resulting in five one-year projects, submitted by PPIC researchers, funded for up to $50,000 each
- [Link to research summaries]

PPIC Grant Proposals

- Proposal funded through Good Food Institute (GFI)
  - Title: Characterizing and texturizing proteins from pulses to form fibers with textures that mimic chicken
  - Three interdisciplinary PPIC researchers
  - Funds granted: $250,000
- Proposal submitted to Foundation for Food & Agricultural Research (FFAR)
  - Plant Protein Enhancement Project
  - Title: Legumes of the future: Developing methodologies and germplasm to enhance the functionality and nutritional quality of pea protein
  - Five interdisciplinary researchers
  - Funds requested: $1,167,797
Who?

- Current industry partners

**Partner**
- ADM
- Cargill
- Conagra Brands
- Danone
- General Mills
- Hershey
- IFF
- Ingredion
- Kellogg's
- Kraft Heinz
- Pleasant Valley Oil Mills
- Saputo
- Bay State Milling
- Benson Hill
- Coca-Cola
- evergrain by ABInBev
- Minn-Dak Growers, Ltd.
- motif
- Nutriati

**Associate Member**
- FoodWorks
Who?

• Researchers
  – 21 interdisciplinary researchers across the University of Minnesota and from external institutions!
  
https://ppic.cfans.umn.edu/expertise/researchers

• Students and post-docs!
Become a Member of the PPIC!

*With investment and collaborative effort between industry and researchers, we can innovate!*

**Associate**
- Companies that have less than $5 million annual revenue* and for organizations wishing to join the center
- A yearly membership fee of $6,000/year for 3 years

**Partner**
- A yearly membership of $20,000 for 3 years for companies that have $5-100 million annual revenue;
- A yearly membership of $40,000 for 3 years for companies with more than $100 million in annual revenue

- 20% discount for multi-year commitment (more than three years, e.g. year 4 and 5 will be 20% discounted)

*A company that makes more than $5 million annual revenue may join at an associate level for a one-year trial period, non-renewable. If they wish to remain a member of the PPIC they must join at the partner level the following year and will have to sign a new agreement.*

https://ppic.cfans.umn.edu/model-involvement
Benefits to Members

Associate Level
- Contribution to research ideas
- Access to non-proprietary research findings
- Involvement in research projects
- Access to workshops and short courses (free for two reps from each company), free registration to research spot-light and to planning meetings (up to two reps from each company)
- Opportunity to host booths for their respective company at spring planning meetings and fall research spotlight meetings
- Interactions with scientists from various disciplines, and general networking
- Complimentary protein analytical services

Partner Level
- Having an R&D scientist on the technical committee. Having R&D scientist on the technical committee will allow for having an impact on the direction of pre-competitive research, and choice of workshops and training programs
- All the benefits listed above for associate level.

https://ppic.cfans.umn.edu/model-involvement
Benefits to Members

Other benefits and outcomes

- Scientific exchange
- Interdisciplinary interactions and connections
- Trained professionals for future hires
- Access to resources (internal and external) and other centers within the University of Minnesota at a reasonable cost (through projects run by students and post-docs)
- Additional resources to speed up project timelines and reach goals faster
- Training programs for current employees and potential future hires
- Participation in joined projects

https://ppic.cfans.umn.edu/model-involvement
PPIC Outreach

- Conferences
- Workshops
- Training programs

Short courses (e.g. protein chemistry, extraction technology, formulations, flavor chemistry)

*Outreach will allow for the exchange of knowledge between the public and private sphere*
Thank You to Our:

Technical Committee

- Seyhun Gemili (ADM)
- Carrie Lendon (Cargill)
- Clint Johnson (Conagra Brands)
- Yui Maneephan Keeratiurai (Danone)
- Sara Rosene (General Mills)
- Steve Hess (The Hershey Company)
- Adam Janczuk (International Flavors and Fragrances)
- Wajira Ratnayake (Ingredion)
- Gabriela Perez-Hernandez (Kellogg’s)
- Julie Anne Grover (Kraft Heinz)
- Lehan Patrick (Saputo Dairy Foods)
- Lolly Occhino (AURI)
- Gary Reineccius (University of Minnesota)
Executive Board

- Julie Simonson (Schwan’s)
- Stacy Pyett (Wageningen University & Research)
- Denis Chereau (Improve)
- Christina Connelly (Protein Highway of the Canadian Consulate)
- Jason Robinson (AURI)
- Greg Cuomo (University of Minnesota)
The PPIC will not only bring economic gain to the industry, but will also address the consumer desire for nutritious and healthy food, have a positive impact on the environment by seeking and utilizing sustainable crops, provide additional sources of protein for the growing population, and provide revenue to farmers.
Partner with us today to change the landscape of plant-based protein tomorrow!