



**PPIC Executive Board Zoom meeting,  
Wednesday, August 25<sup>th</sup>, 2021, 8:30 am to 10:00 am CST  
Minutes**

In attendance: Pam Ismail – UMN

Sarah Martinez UMN

Sergiy Smetana – German Institute of Food Technology

Laurice Pouvreau – Wageningen University and Research

Christina Connelly – Canadian Consulate

Julie Simonson – Schwan’s

Jason Robinson – AURI

**1. Introductions and Welcome**

**2. A re-cap of the previous Executive Board meeting and Technical Committee meeting minutes was deferred to ensure enough time for project discussions**

**3. General Updates (25 min)**

Objectives:

- a. Announcing new members: Bluegrass Ingredients (Partner), Roquette (Partner), PepsiCo (Associate Member-trial), SunOpta (Associate member-trial), Applied Food Sciences (Associate member-trial), Nature’s Fynd (Associate member), MN Dept of Agric (Associate level). **Total of 30 members as of today!** (Total of 19 new members gained since quarantine in March 2020!)
- b. **Five additional members signing agreements**, Ferrero at Partner level, Microsoft at Partner level, Bayer at one-year trial Associate level, Ish Food Company at Associate level, and Milk Specialties at one-year trial Associate level. **This will bring us to 35 members this summer!**
- c. **Bay State Milling upgrading to Partner Level**
- d. Updates on efforts to **recruit** new members: in conversation with several parties (see shared document)
- e. Update on external funding: **Two USDA NIFA proposals submitted (\$1,250,000)**: “Cold Plasma as a Promising Approach to Enhance the Functionality and Texturization Potential of Pea Proteins”; six interdisciplinary researchers (Pam Ismail, Peter Bruggeman, Zata Vickers, Job Ubbink, Dan Gallaher, and Chi Chen). And “Improving The Flavor Quality Of Plant Proteins As Food Ingredients”; three interdisciplinary researchers (Gary Reineccius, Pam Ismail, and Dan Gallaher)

- f. Updates on currently funded PPIC projects: Cold Plasma Project ended, final report shared, two manuscripts prepared. Quarter 7 report on Hemp Project was shared with Technical Committee and Executive Board; end date has been extended to Sep 30, 2021. Three projects funded in 2020 are under way (delayed by the pandemic) with two progress reports so far submitted and shared.
- i. Impact of Cold Plasma Treatment on Pea Protein Structural and Functional Characteristics
  - ii. An Interdisciplinary Strategy for Improving Hemp Protein as a Food Ingredient through Plant Breeding and Processing
  - iii. Flavor Reactions with Plant Proteins
  - iv. Enhancing Pennycress Oilseeds as a New Protein Source by Improving Flavor and Protein Extractability
  - v. Impact of Pea Storage Protein Fractions and Their Ratio on Functionality and Nutritional Quality
- g. Updates on Welcome Packages:
- i. Completed: Danone, Evergrain, Ingredion, Nutriati.
  - ii. In progress: ADM, Bay State Milling, Benson Hill, CoverCress, General Mills, Minn-Dak, Coca Cola
  - iii. Initiated: Conagra, Kraft Heinz, Saputo, Motif, Nature's Fynd, PepsiCo, SunOpta, Applied Food Sciences, Bluegrass
  - iv. To be initiated: Cargill (Nathan Knutson), Hershey (Steven Hess), IFF (Adam Janczuk), Johnsonville (Dale Perez), Kelloggs (Gabriela Perez Hernandez), Meati Foods (Behroze), Neom, Roquette (Jennifer Kimmel), Scoular (Brian Hansen).

**Julie:** Do these welcome packages generate further research from companies that they will want to fund themselves?

**Pam:** Yes, that is the hope that these welcome packages generate research with contracts. We haven't started any yet. The question is always IP. IP is owned by the University, but they have exclusive rights. When IP comes up, that's when there is a delay.

- h. Updates on PPIC events in 2021/2022:
- i. Proteins Basics Short Course and Research Spotlight 3<sup>rd</sup> Annual Meeting (Dec 6-8 2021). The short course will be the first 2 days and the research spotlight will be on the 3<sup>rd</sup> day. Can enroll in either or both. **Pam:** There have been questions whether this meeting can be hybrid but PPIC does not want to advertise it as such because everyone will want to do it virtual. **Julie/Laurice** are in agreement. If there is a hybrid, it should be the research part not the short course. **Christine:** If it's a mixture of in-person and hybrid, might be complicated for out-of-town attendees.
  - ii. Commercialization/Product Launch Workshop (**March 2022**). **Sarah:** this will cover all the steps of the product development process, from product design to scale-up to project management and market bundle development. **Jason:** will there be a clear demarcation of research and applications and will there be focus on ingredients vs. finished products. **Sarah:** Actually, the principles are similar whether it's ingredients or finished goods. The speakers will be guided to ensure they speak to both. Sarah will share planned agenda topics with the board for their input
  - iii. Industry Focused Research Planning Meeting (**May 2022**). **Pam:** This was skipped in 2020 and 2021 due to the pandemic. The hope is that this will be an in-person event

- i. “About you” links: Featuring you on our website. This will create visibility for the member companies. Google forms will be given to all affiliates to share as much or as little as they want about their companies, especially in the area of plant proteins. The information will be accessible via a hyperlink embedded in the company logo in the PPIC website. There was a question whether it would be easier to just have a link to the website for each company. **Pam:** we wanted just to have a short description that gives a uniform overview of each company, and link to individual website will be provided as well.
  - j. Developing 1-2 minute videos and promotional material working with Lori and Dylan from CFANS. **Julie:** this can be shared on LinkedIn and also the exec board’s respective LinkedIn pages. **Jason:** AURI can also share with their contacts.
  - k. Update on new instrumentation acquisition:
    - i. Benchtop freeze dryer
    - ii. Floor centrifuge
    - iii. Contribution to new nitrogen analyzer
    - iv. HPLC unit
    - v. Contribution to bench scale Brabender twin-screw extruder
4. Overview of funds from membership dollars and allocation of research dollars. (10 min)
- a. Grand total membership dollar is **\$2,011,200** since the PPIC inaugural in Nov 2018, accounting for three years memberships, **\$670,400** per one fiscal year. Funds available for research in 2021-2022 after overhead (15%), PPIC admin and staff cost (20%), and instrumentation and maintenance cost (8%), is **\$382,128** (57%).
  - b. Fund up to three projects in 2021, for up to two years of funding with \$50,000 per year

## 5. Proposal Review

The group discussed the 5 proposals. **Pam:** In general, the external projects did not score well with the Technical Committee. It is preferred that the top 3 projects have at least 1 external project, otherwise external researchers will be discourage and we would be sending a message that everything will remain internal. **Christina** asked about requirement that the PI be from the university. **Pam** explained that at least one co-PI or investigator should be from the University of Minnesota, it is a college requirement since the PPIC funds are acquired by the University of Minnesota effort.

Project 1: *Determination of bioaccessibility of phosphorus in pulse protein products in an in vitro simulated human digestion.* Tech Committee: 5/12 selected it as one of top 3

**Julie:** See the project as a positive especially that the focus is on nutrition. But was unsure if the results would be specifically relevant to kidney disease or more for manufacturers or label claims implications. The priority should be always “what is the need and how do we use the results?”

**Jason:** The aspect of phosphorus was less intriguing than the approach to simulate human digestion. The *in vitro* simulator method could be an enabling system for other bioactive elements.

**Christina:** Liked the niche nature of the project.

**Laurice:** The project should be broader. What is the “product”? (**Pam** clarified it’s both the ingredients and marketed finished products.

**Sergei:** Questioned the novelty of the project. Suggested should use ready-to-consumer products.

Project 2: *Fermentation of mung bean flours to improve ingredient characteristics, including flavor (Lamsal et al.)* Note: this project has been resubmitted for the second time.

Technical Committee: 4/12 selected it as one of top 3.

**Julie:** Struggled with the novelty. Not sure why mung bean was selected and the two organisms. Year two work description is not clear

**Laurice:** Topic is interesting, the approach is not well described; while nutritional value is always a question, the project is missing the functionality of the ingredient. Mung bean protein has good functionality, but flavor is an issue. Nutritional value is questionable, it was not clear what the PI meant by nutritional value, is it that fermentation will decrease antinutrients? Is the functionality going to be impacted? Gelling is not proposed to be tested, in spite the fact that it is a main functionality attribute of mung bean protein.

**Jason:** Intrigued by the project since fermentation can enhance the protein. AURI has research on *okara* and has shown enhanced benefits to the protein. This project will close the gap on the role of fermentation for plant proteins, whether mung bean is the best choice or not.

**Sergei:** Lacks novelty and clarity but would still fill knowledge gap.

**Jason:** The Technical Committee did a good job suggesting improvement of the proposal.

**Christina:** Proposal doesn’t seem to do it justice. Too many loose ends. Needs to be resubmitted. Don’t want the perception that the review process is not robust enough.

Project 3: *Eco-friendly defatting of oat protein isolates: Impact on protein structure-function relationships, flavor, and nutritional quality (Malalgoda et al.)*

Technical Committee: 5 /12 selected it as one of top 3

**Julie:** Liked the Sustainability but not sure if other eco-friendly methods were also considered? Did the PI consult with any oat industry representatives as to the applicability of findings? Is SCFE realistic to be used? Does it solve challenges the oat industry is facing? The proposal can be strengthened by making revisions based on technical committee’s suggestions.

**Jason:** The use of SCFE vs. hexane extraction... is there an understanding of the landscape of extraction. The use of oat protein isolate... is that realistic? **Pam:** while the work on oat protein isolates is ongoing, it is still not commercial but might be commercially available in the near future.

**Laurice:** It’s probably more relevant to consider other defatting methods. Should they consider another protein for comparison e.g., chickpeas (reduction from 6% fat to zero). SCFE is very expensive.

**Sergei:** Not sure about this project. If SCFE is that eco-friendly, hexane extraction can also be eco-friendly.

**Pam:** Based on the comments how about fund this project, year 1, after major revisions according to PPIC recommendations ? For year 2, submit another proposal?

Project 4: Plant Protein Blending: Inducing Molecular Interactions to Enhance Texturization (Ismail et al.) Technical Committee: 11/12 selected it as one of top 3

**Laurice:** why not use commercial ingredients? **Pam:** will use commercial soy and pea isolates along with non-commercial chickpea and oat proteins. Will measure WHC, gelation, molecular interaction and ability for texturization (as measured by texture analyzer and sensory)

**Julie:** Well written. From an industry viewpoint, blending will have a long ingredient label. Agree to do full 2years

**Jason:** Agree with other comments. Spoke to someone in Danone R&D: would be good to expand beyond meat analogues. The beverage industry is being left behind. **Pam:** this can be a future project.

**Sergei:** Well written. Relevant to industry. Note the variability in commercial proteins.

**Christine:** Agree with Jason to expand to other applications.

**Pam:** A PhD. Student will be working on this project and has more bandwidth to look into more samples and applications.

Project 5: Flavor reactions with plant proteins (2<sup>nd</sup> year) (Reineccius et al.). Technical Committee Score: 11/12 for top 3.

**Julie:** Liked how they leveraged year 1 learnings. Industry will benefit

**Jason/Christine/Laurice/Sergei:** Great proposal. No other comments.

Final Rankings of the Projects:

Exec Board Member	Phosphorus	Mung Bean	SCFE	Protein Blends	Flavor Rxn
Julie	4	5	3*	2	1
Jason	4	3	5	1	2
Laurice	4	5	3*	1	2
Christina	4	5	3*	2	1
Sergei	4	5	3*	2	1

\*With major revisions, and only one year of funding

### Discussion of Other Tasks:

- a. Two levels within the Associate Membership. The current \$6K will stay unchanged. Per consultation with Legal, a lower tier for startups with zero to \$1 M revenue will make it more affordable for the smaller companies. The discussion on the fee was as follows:
  - \$1-2K is too low; \$3K might be acceptable. At the end of the day, PPIC needs to at least cover its costs. Each additional member is added workload.
  - Skipping the welcome package (worth \$ 8K) is an option. Smaller companies might want more visibility and the networking opportunities vs. the package (**Christina and Jason**)

- There was discussion on what to call them. Calling them both “associates’ might create questions on the two levels of membership. **Christina** suggested something like the “startup alley” in the PPIC www.
- **Christina** suggested partners who can subsidize these start up companies. Would the Good Food Institute be an example of such a partner? **Sarah** has some organizations in mind and will share these with Pam. **Jason** suggested that if PPIC has a list, this can be shared with the startups for them to search a match on their own.
- **Laurice** further commented that if the membership is too cheap, it might attract too many parties and will become a resource drain for PPIC to manage. Also how big do we want the center to get?
- Cost-share model was suggested, sources could include GFI and MN Dept of Ag. The tentative plan for this ‘cost share’ model would be \$1500 (startup co.) + \$1500 (matching funds) for a 3-year period. Perhaps cost share for 3 members per year? Sarah will follow up with GFI and MN Dept of Ag to see if this is a possibility.

b. Diversify the industry members, current members promoting PPIC

**Jason:** PPIC has become self-sustaining. **Pam:** More people are reaching out, even internationally (Europe, Asia, Brazil)

c. New PPIC initiatives

- Want to initiate new programs such as exchange students/post docs/researchers and international project collaboration (e.g. initiatives with Wageningen University and Research, Improve, Nizo, other?) **Christina:** U of MN has a reciprocity agreement with the U of Manitoba and this can be further expanded. **Sergei:** DIL can support a student in a collaboration project.
- Seek new funding sources from federal, foundations

**Jason:** Bipartisan bill in the legislature could contribute \$ 2M to plant protein research, in the works.

- Outreach programs

d. Membership goals

- Increase our membership pool
  - i. Target: ~\$1 million consistently per year (in next 2-3 years) to fund 5+ active research projects yearly; 25 partner members could help us reach this number, we are now at 14 Partners and 16 Associates

e. New hires: Researcher 2, Researcher 4; part-time help with initiating programs/events, commercialization efforts, outreach, other.

**\*\* The meeting concluded at 10:32 AM CST \*\***