

PPIC Technical Committee Meeting, Monday, April 8, 2019: 1:30-3:30 pm, FScN 225G

In attendance: Pam Ismail – UMN, PPIC Director
Amy Mathiowetz – UMN, PPIC Manager of Operations
Lolly Occhino – AURI
Clint Johnson – ConAgra, via WebEx
Dina Fernandez – ADM, via WebEx
Steve Hess – Hershey's, via WebEx
Carrie Lendon – Cargill, via WebEx
Absent: Therese Liffriig – UMN, Program Coordinator
Baljit Ghotra – ADM

1. Quick re-cap of previous meeting minutes (in Appendix 1 of agenda)

- a. Reviewed the executive board and technical committee responsibilities
- b. Benefits
- c. Current partners- no major changes but in conversation with:
 - i. Pepsico- meeting in May
 - ii. Ingredion (Nutritional component)
 - iii. DuPont- waiting to hear back
 - iv. Kraft Heinz- said no this year, but will consider for next fiscal year
- d. Reviewed the PPIC budget
- e. Reviewed how research priorities were established, where gaps in priorities are

2. Current Funds

- a. After deducting the college's fees, we have a sum of \$339,912 coming from membership fees, as well as money from Schwan's Giving foundation to fund two fellowships over 5 years; open to discussion how this money will be spent
- b. Based on last meeting's discussion, Pam proposed the following:
 - i. Potential use of \$100,000 to fund two-1 year projects to show productivity in the short-term; \$100,000 equal to 1/3 of our income (as of now) for one year
 - ii. Potential use of \$180,000 plus AURI funds (Lolly can help determine dollar amount) plus *one* of Schwan's fellowships (\$180,000 + AURI funds + \$35,000) will give us > \$210,000, which we can then potentially match with FFAR funds if grant proposal is approved
 - iii. This leaves approximately \$50,000+ in bank so we don't deplete our funds (reserve for workshops and meetings)
- c. Will apply for additional funds from MDA in October
- d. Carrie: Do we anticipate other companies along down the pipeline/other potential funding over the next 6 months?
 - i. Pam: Yes, a lot of companies held off for fiscal year (ends in June for many companies); will follow up as time evolves
Pam also in conversation with DuPont, Ingredion, LOL (April), Pepsico
A matter of budgeting at this point
- e. Reactions to Pam's proposal of overarching utilization of current funds:
 - i. Allocation of funds for 2 short-term projects and one longer term project strikes a nice balance between being able to show results over the next year and saving for projects further down the road
 - ii. Dina: Will be nice to know how money for projects will specifically be utilized

1. Pam: Type of projects and how money is allocated for projects is open to discussion and will be discussed later in meeting
2. Lolly and Clint agree that it is worthwhile to discuss research project more in detail/assess end objectives of projects to determine if the money amount proposed makes sense with the needs of the project

3a. Overview of Research Topics and Priorities: Review Current Research Priorities

- a. Research priorities (in Appendix 2 of tech committee agenda) developed over extended period from 1) What Pam already knows from research in area and 2) Industry conversations (challenges and needs). Top 6 priorities decided based on ranking at Inaugural meeting
- b. Research priorities not set in stone -- ranking can change; serving partners first and foremost
- c. Consensus that current 7th priority (Number 4 as listed in agenda) should be moved into top 6 priorities: "Investigate potential increases in nutritional value and functionality via blending of plant proteins"
 - iii. Lolly: Blending comes up in conversations at AURI
 - iv. Carrie: Most high protein products are multi-protein in composition
 - v. Lolly: Potentially relates to a project that can be done in shorter period with practical applications
 - vi. Dina: To add complexity to research on blends, also consider evaluating impact on functionality, processing, flavor etc. of blends, in addition to evaluating nutritional of blends
 - vii. Clint: Broad scope of work; best if research organized in way where chunks of research can be pulled out to report on in publications
 - viii. Carrie: Flavor critical for use and repeat use; important to investigate with blends
- d. Consensus that current 2nd priority (Number 1 as listed in agenda) will be moved down and "nutritional quality" will be embedded into other priorities, particularly priorities number 7 and 10. Number 4 will be moved into top 6 in its place.
 - ix. Priority #7 as it reads currently: "Functionalize novel proteins and determine impact on flavor, functionality, and nutrition"
 1. Per Pam's clarification, this priority addresses technologies that would enhance functionality of novel proteins and how this would impact flavor, functionality, and nutrition
 - x. Priority #10 as it reads currently: "characterize structural/functional properties of novel proteins of novel proteins upon isolation and processing"
- e. Lolly: To consider as another priority: Other techniques to derive protein quality other than PDCASS; alternate methods that are easier, more reliable
 - xi. Tabled for now
- f. Confusion around priority number 8 and how it might be similar to other priorities
 - xii. Pam: Number 8 addresses diversification of novel proteins to find unique functionality for unique applications without using modifications.
 1. Clint: From understanding of ingredient industry, to create a platform for a novel protein, there is a higher chance of success if we can find multiple uses for single protein (modified or not) from single source

- xiii. Carrie: This priority may address whether there is a quicker way to understand whether we can predict how proteins will function in certain applications than traditional methods?
- g. Dina: Top 6 priorities seem to be short to medium-term projects. Do we have topic for long term project included in top 6? For example, priority addressing breeding to enhance protein content?
 - xiv. Pam: Can have more than 6 top- priorities are dynamic, continue to evolve. Breeding can be moved into “top 7 or 8” priorities.
- h. Pam will work on re-wording top 7 or 8 priorities
 - xv. Group consensus that 1, 7, and 10 are similar in wording
 - xvi. Group can edit and provide feedback

3b. Overview of Research Topics and Priorities: Quick Review of Published Research and Gaps

- a. We have put together a literature review in Excel that shows recent research in plant proteins (this document was shared via email). This document is a work in progress and will continue to evolve and be shared as amended
 - xvii. This document was put together in response to request during last meeting to better understand why and how research priorities were chosen
 - xviii. Put together written summary (Appendix 3) of what has been researched the most and most common gaps based on this literature search
- b. Lolly: Possible to highlight the gaps?
 - xix. Pam: This document is just an overview; based on Pam’s knowledge of research, most gaps exist in area of novel proteins and understanding of their structure, function, structure-function relationship, extraction methods, etc.
- c. Clint: Any themes that have come out of literature review?
 - xx. Most of the information was not new to Pam; This lit review and corresponding summary is intended to be a reference to technical committee to ensure we are looking at research priorities that we need to be looking at
- d. Consensus among team that more time is need to review the document, as document will be influencing how team chooses direction of research

4a. Long Term and Short Term Projects: Discuss FFAR Preproposal Justification and Draft

(Appendices 4 & 5 of Technical Committee Agenda)

- a. FFAR has 6 priority areas. Most relevant to PPIC is “Next generation crops”: new crops with environmental benefits that are also novel, nutritional, profitable and resilient
- b. Justification for using short season oil seed crops (camelina and pennycress) as FFAR preproposal topic; refer to Appendix 4 in Technical Committee agenda
 - i. Can double our pool of funds by going for FFAR grant
 - ii. Short season oilseeds not currently subject to competition among partners
 - iii. Short-term results, as these crops are already in development at U of M
 - iv. Basic information can be acquired that will further entice industry to pursue the development and utilization of such crops; future patents may evolve
 - v. Knowledge acquired can be applied to different protein sources and co-products
- c. Overview of preproposal draft
 - i. Functionalizing these novel proteins sources (camelina and pennycress) will help create a market for these crops that will in turn incentivize farmers to plant these crops
 - ii. Gaps project will fill:

1. Currently, little research around protein (as well as fiber and oil) components of these crops. Need compositional characterization
 2. Need to work closely with breeders to ensure we can breed for high quality for protein; using selective breeding and genomics to produce lines with high quality for food use.
 3. Not much known about extraction, optimization of yield, processing and impact on structure, function, nutrition quality, etc.
- iii. *Innovation* section is a work in progress
 - iv. Review of objectives and outcomes
 1. Outcome 5 will be reworded per Steve's suggestion to say "Developing ways to deliver consumer preferred flavors in high protein food systems"
 - v. List of researchers to be involved in project includes:
 1. B. Pam Ismail
 2. David Marks (U of M Plant Breeding and Genetics)
 3. Jim Haus (Manitoba Harvest)
 4. Zata Vickers (U of M Food Science; flavor sensory)
 5. Gary Reineccius (U of M Food Science; flavor chemistry)
 6. George Annor (U of M Food Science; coproducts/fiber)
 - d. Pre-proposal is for a 3 year project timeline
 - e. Pre-proposal due **April 19th**
 - i. If invited for full proposal, it will be due in June
 - ii. Find out around October whether proposal is accepted
 - f. Lolly: is there potential for other crops (i.e. hemp) to fit into this proposal?
 - i. Pam: for this particular proposal, considered our researchers' expertise and what assets we currently have; at this moment, U of M already breeding pennycress and camelina
 - g. Team will review preproposal and submit comments and edits by April 15th

4b. Long Term and Short Term Projects: Discuss call for proposals for short term projects (*Appendix 6 in Technical Committee Agenda*)

- a. 13 researchers affiliated with center will get call for proposals developed based on research priorities
- b. Research on pulses and hemp encouraged due to the large amount of buzz around pulses and hemp
 - i. Small companies producing hemp protein (i.e. Manitoba Harvest)
 - ii. AURI works directly with hemp growers and sees benefit in researching hemp as potential short-term project (i.e. functionalizing hemp, extraction methods to increase protein yields, or methods of deriving protein quality)
 - iii. Hemp is GRAS but can be gray area from marketing perspective (consensus that it is still worth exploring)
 - iv. Pulses are environmentally friendly, short season crops that are being adapted across many food categories; research will have broad benefits
- c. Consensus to expand call for proposals to include ancient grains and oats (listed in no particular order)
- d. Consensus that plant protein blends should be worked into call for proposals
- e. Timeline for call for proposals:
 - v. Pam will put out RFP in May

- vi. Researchers to submit in ~July
- vii. Review proposals (expect ~10 or fewer) in July and August
- viii. Release funding in September
- f. Proposals will be limited to 3 pages
- g. Researchers will also be invited to join Technical Committee

5. Next Steps

- a. **Discuss the plan for research spotlight meeting**
 - i. Ran out of time to address this topic in meeting; Pam will send out notes in email
- b. **Discuss ideas for workshop in the summer and a short course** (Appendix 7 in Technical Committee meeting agenda)
 - i. PPIC will hold either one short course or workshop per year, likely around summer
 - ii. Two people from partner and associate companies will be able to attend workshops and short courses for free; all others welcome to pay fee to attend
 - iii. Consensus among technical committee that we should start with basic short course (2-3 days) and eventually develop more in-depth workshop as the PPIC grows
 - 1. Tech committee given priority in deciding topic of meeting
 - 2. Could potentially utilize surveys in future to gauge topic interests
 - iv. Preference among committee for early September (falls between other proteins short courses and workshops listed in Appendix 7)
 - v. Location: current plan to hold in U of M Food Science and Nutrition Department, which would enable hands-on activities; Center for Continuing Education is nearby and also does food catering
 - vi. Carrie: Do we anticipate workshops being revenue-positive?
 - 1. Potentially, yes. Outside of the free attendance given to two members of each partner company, attendance fees will go toward generating money to cover the cost of the workshops