



**SUMMARY | PEST MANAGEMENT ADVISORY COMMITTEE ALLIANCE AND ALTERNATIVES TO CHLORPYRIFOS RESEARCH GRANT REVIEW MEETING  
CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION**

May 14, 2020

*Produced by the Consensus and Collaboration Program, CSU Sacramento College of Continuing Education*

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**1 Attendance**

**Pest Management Advisory Committee (PMAC) Members**

- |   |  |
|---|--|
| 1. Steve Blecker, Secretary, Department of Food and Agriculture       | 5. Whitney Brim-DeForest, University of California Cooperative Extension |
| 2. Tunyalee Martin, Director, Statewide UC IPM Program                | 6. MaryLou Polek, USDA, Agricultural Research Service                    |
| 3. Lynn R. Wunderlich, University of California Cooperative Extension | 7. Ken Giles, UCD Department of Biological & Ag Engineering              |
| 4. Farzaneh Khorsandi, UCD Department of Biological & Ag Engineering  | 8. Jenny Broome, Driscoll Strawberry Associates, Inc.                    |

- |   |  |
|---|--|
| 9. Robert Ehn, CA Garlic and Onions Research Board            | 16. Dave Tamayo, California Association of Sanitation Agencies |
| 10. Emily Buerer, Community Alliance with Family Farmers      | 17. Jon Holmquist, Association of Applied IPM Ecologists       |
| 11. Caroline Cox, Center for Environmental Health             | 18. David Lawson, Western Plant Health Association             |
| 12. Kendra Klein, Friends of the Earth                        | 19. Nicole Quinonez, Consumer Specialty Products Association   |
| 13. Margaret Reeves, Pesticide Action Network North America   | 20. Terry Gage, California Agricultural Aircraft Association   |
| 14. Jonathan Evans, Center for Biological Diversity           | 21. Keith Pitts, Marrone Bio Innovations, Inc.                 |
| 15. Anne Katten, California Rural Legal Assistance Foundation |  |

**California Department of Pesticide Regulation (DPR)**

- |                           |                         |
|---------------------------|-------------------------|
| 22. Val Dolcini, Director | 28. Atefeh Nik          |
| 23. Jesse Cuevas          | 29. Rodney Jones        |
| 24. Joseph Damiano        | 30. Catherine Bilheimer |
| 25. John Gerlach          | 31. Jordan Weibel       |
| 26. Matt Fossen           | 32. Tory Vizenor        |
| 27. Jill Townzen          |                         |

**Facilitation Support, CSU Sacramento**

- |                     |                   |
|---------------------|-------------------|
| 33. Ariel Ambruster | 35. Corin Choppin |
| 34. Julia Van Horn  |                   |

*This document summarizes those portions of the meeting relevant to the Pest Management Advisory Committee’s grant consideration process.*

**2. Opening Comments and Background**

**Introductions and Chair’s Opening Comments**

Val Dolcini, Director, Department of Pesticide Regulation (DPR), welcomed everyone and thanked Pest Management Advisory Committee (PMAC) members for participating in the meeting. Due to safety precautions related to COVID-19, the meeting was held remotely. Mr. Dolcini said that public comments and questions would be taken after each agenda item, via both the Zoom meeting platform and through email for those watching the meeting by webcast.

Mr. Dolcini gave an overview of the Alliance and Alternatives to Chlorpyrifos (CPF) grant funding and proposals before the PMAC at this meeting.

Mr. Dolcini thanked the PMAC members who served on the Alternatives to CPF Work Group. He said that the group would soon release a report on both near-term and longer-term alternatives to CPF.

DPR officials ascertained that a quorum of PMAC members was participating in the meeting. (Per Governor Newsom’s executive order related to public meetings and social distancing requirements due to Covid-19, Committee members participating remotely are included toward quorum.)

**Zoom Orientation**

The facilitator, Ariel Ambruster from the Consensus and Collaboration Program at California State University, Sacramento, oriented PMAC members and the public to the Zoom remote meeting platform.

**3. Alliance Grant Proposal Review**

Atefeh Nik, Alliance Grant Program Lead, DPR Pest Management and Licensing Branch, reviewed Alliance Grant Program information. The goal of the 2020 Alliance grants are to promote the implementation and adoption of effective integrated pest management (IPM) strategies in an agricultural, urban, or wildland setting, with a focus on outreach rather than research.

For this round, a total of \$400,000 was available for the Alliance Grants. DPR received nine concept applications and determined that four of the nine met the basic eligibility and priority requirements defined in the Alliance Grant Proposal solicitation. The four organizations that sponsored these concept applications submitted full proposals.

<b>2020-2021 Alliance Grant Summary of Proposals</b>		
<b>Proposal Short and Full Title</b>	<b>Principal Investigator</b>	<b>Budget</b>
<b>Lloyd – IPM for Local Sacramento Farmers</b> Fostering Reduced-Risk Pest Management for Sacramento’s Hmong and Lu Mien Farms by Increasing Adoption of IPM, Improving Pesticide Efficiency and Safety, and Building an Agricultural Support Network	<b>Margaret Lloyd</b>	\$298,746
<b>Culver – Training for Hull Cleaners and Boaters</b> An Online Integrated Pest Management Training Program for Hull Cleaners and Boaters	<b>Carolynn Culver</b>	\$179,293
<b>Wilson – IPM for Cannabis Production</b> Developing an IPM Platform to Enhance Environmental of California Cannabis Production Performance	<b>Houston Wilson</b>	\$230,670
<b>Sutherland – Training for Pest Management Professionals</b> Development of an interactive training facility for California's structural pest management professionals	<b>Andrew Sutherland</b>	\$91,563

The goals for the meeting were to rank the proposals in order of preference and to record merits and concerns for each proposal.

PMAC members were reminded that they must recuse themselves from the grant review process in order to be eligible to receive funds through a project and must recuse themselves from review of any proposal on which they serve in an advisory capacity.

Dr. Nik shared the scores submitted by 22 PMAC members who reviewed the proposals ahead of the meeting. She noted that the scores for each proposal were very close, with all proposals receiving average scores between 80.55 and 87.52 points out of 100. DPR converted the numeric scores to ranks, where 1 was the most highly regarded proposal and 4 was the least. These ranks were averaged, as presented in the following chart. Lloyd – IPM for local Sacramento farmers – was the more highly ranked of the four proposals, with an average ranking of 2.05; Culver – Training for hull cleaners and boaters – was ranked 2.23; Wilson – IPM for cannabis production – was ranked 2.64; and Sutherland – Training for pest management professionals – was ranked 2.82.

2020/2021 Alliance Grant Review Summary by Reviewer, Initial Review																											
Project	Rank	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	Avg	High	Low	Budget
Lloyd, IPM for local Sacramento farmers	1	4	2	2	1	2	1	1	1	1	4	1	2	4	2	4	4	1	1	1	4	1	1	2.05	1	4	\$298,746
Culver, Training for hull cleaners and boaters	2	3	1	1	1	3	3	3	2	3	2	3	1	2	1	3	2	3	2	3	2	3	2	2.23	1	3	\$179,293
Wilson, IPM for cannabis production	2	1	4	4	4	1	4	2	4	4	1	4	3	3	4	1	1	2	2	3	3	1	2	2.64	1	4	\$230,670
Sutherland, Training for pest management professionals	4	2	3	3	3	4	2	4	3	2	3	2	4	1	3	2	3	4	4	2	1	3	4	2.82	1	4	\$91,563

#### 4. Alliance Grant Proposal Discussion

Ms. Ambruster reviewed the agenda and the role of the PMAC. The range of perspectives shared by the PMAC on merits, concerns, and areas needing clarification, as well as any final recommendations made, will inform Director Dolcini’s funding decisions. The group does not need to reach consensus.

##### Discussion of Proposals

PMAC members discussed the merits, concerns, and areas needing clarification for the four project proposals, in the order of their initial ranking. Below is a summary of PMAC members’ comments for each proposal. Comments reflect individual PMAC member observations, not consensus opinions. Thus, merits and concerns may occasionally appear to be contradictory. There were no public comments about any of the proposals.

##### Lloyd – IPM for Local Sacramento Farmers

###### Merits

- The project team is strong, with experience both in IPM and in working with the target communities.
- The proposal is well written, and the project is well developed and balanced.
- The target populations, Hmong and Lu Mien, are underserved with low pesticide awareness and have a lot to gain from information about IPM and practices like use of personal protective equipment. The project would reduce risk to vulnerable populations that have limited access to resources.
- The proposal includes strong strategies to reach target populations who have language, cultural, and literacy barriers that can make them hard to reach. Strategies include building community trust, focusing on in-person communication, conducting outreach at community events, and hiring translators from within target communities.

- Integration of farmer-to-farmer training will support adoption and continued use of new practices.
- The project takes a creative approach and extends innovative practices that build on previous successes.
- The project includes robust extension work including reduced-risk pest management practices, pest identification, and calibration.
- The project will also benefit nearby communities, as these farms are often near homes.
- The project is unlikely to be able to get funding from a commodity group since it covers multiple commodities.
- The project is strongly aligned with the goals of the Alliance Grant Program.
- The project builds on a successful Fresno Cooperative Extension program that has developed extensive information and resources.
- The project is likely to be beneficial by preventing pesticide misuse and related accidents.
- The project would establish a foothold to begin sharing important information with these communities.

### **Concerns**

- The impact and outcomes are unclear, in terms of the number of growers the project will work with directly, how impacts, such as adoption of practices, will be measured, and the overall size of the target communities. The proposal does not make clear how project success will be defined and measured. The proposal indicates that current application levels are not recorded, so it is unclear how the stated 30% reduction in pesticide use can be measured.
- The very broad scope of the project may be difficult to achieve, creating barriers to success.
- The cost is high for the expected impact, at around \$10,000 per farmer given a reach of 30 farmers.
- Principal Investigators (PIs) should consider how to achieve a “multiplier effect” so that the relatively small reach, when compared with competing proposals, can be extended. For example, materials could be developed to share and use beyond participating farmers.
- The purpose of a bus trip to Fresno is not well articulated.
- The choice of IPM strategies was not well supported by references. Some, like perennial hedgerows, can be difficult to implement successfully, and there were relevant strategies, such as predaceous mites, that were not included.
- The proposal does not identify a partner at UC Davis to support the soil solarization tactic.
- There may be significant challenges to implementing this project due to current restrictions on in-person events and interaction due to COVID-19.

### **Clarifications**

- Does the project focus only on farmers in the Sacramento area or also further south?

## Culver – Training for Hull Cleaners and Boaters

### Merits

- The project addresses a critical issue, keeping chemicals out of waterways and oceans, which many are not aware of.
- The proposal is well developed, straightforward, and well written, with a clear problem and objectives.
- The project team is strong.
- The project has a well-defined target audience.
- The project provides a good foundation for an IPM program, extending practices that are already used successfully and developing related resources.
- The project integrates a range of tactics, including physical, mechanical, educational, and outreach.
- The proposal addresses the economic component of the various tactics employed.
- The project includes translation so that materials will be accessible to the many Spanish-speaking hull cleaners.
- While the project targets California marinas, its effects may extend beyond the state.
- The project team seems to have strong connections with marina managers in Marina Del Rey and San Diego.
- The project appropriately starts at a small scale that can be built upon to expand the reach of the work.
- The likelihood of adoption of the project's tactics is high, given marina requirements that hull-cleaners receiving training for certification.
- The evaluation component includes not only participation in the training but also retention of the information shared.
- This project can build on the existing online learning platform for new boater certification, which is interactive and well executed.
- The boating industry and community is in transition to implement the 2018 DPR regulation requiring transition to lower-leaching copper-based paints. Many boats are likely to be resurfaced in the near future and the project takes an IPM approach that includes practices like physical removal of barnacles as well.

### Concerns

- Given the large number of alternative paints already tested, it may be that the problem is a regulatory issue.
- It is not clear whether hull cleaners and boaters are already doing what they can to reduce use of copper-based paints.
- Online trainings are challenging and require particular expertise to develop impactful and engaging material. The proposal mentions partnering with an online training platform developer but does not identify the developer. This information is critical to be

- able to evaluate whether the program is likely to succeed.
- The proposal did not provide adequate evidence related to the negative impacts of copper-based paints – the reference cited is ten years old.
- The proposal does not include any citation related to the spread of aquatic invasive species.
- It is difficult to determine whether the size of the target audience is attainable or impactful. While the marinas contain over 60,000 boats, the proposal states that the target is fifty boaters, less than 1%.
- Some important content in the application was cut off, such as that discussing potential barriers to implementation.
- DPR issued a regulation in 2018 requiring the use of lower-leaching copper-based paints, so it is unclear how necessary this outreach is.
- The project team does not include hull cleaners and the boating community.

### **Clarifications**

- Does copper have any positive effect on aquatic ecosystems, such as abating algal blooms?
- Does DPR register hull paints?
  - A DPR representative responded that the Department does register hull paints.

### **Wilson – IPM for Cannabis Production**

#### **Merits**

- The project addresses an important problem and could have a very significant positive impact on the health and safety of cannabis workers and users, as well as ecosystem health. The pesticide impacts of cannabis cultivation are well documented.
- The project addresses important needs. There is little information available on pest management for cannabis and advisors are flying blind, so an IPM guide is needed.
- The proposal is strong and well written.
- The project is timely with recent legalization and regulation. Medical, recreational and hemp growers have limited options for chemical pest management, and no products are labeled for this commodity. The Section 25(b) unregulated pesticides are not always low risk – there have been cases of sickened workers.
- Both legal, regulated growers and illegal, unregulated growers need information about safe and effective use of pest management products and practices.
- The current lack of options provides an opportunity to develop a trusted source of information for these growers, rather than the current situation where non-expert information is exchanged via word of mouth. Other states have made more progress.
- Cannabis does not have a commodity group that could fund these research and extension activities.
- The project focuses on a diverse group of producers and the range of different cultivation methods.
- The letters of support represent a wide range of stakeholders.

- The project creatively addresses the challenges of working with this grower community, using residue analysis, interviews, and building on the previous survey work done by the PI.
- Cannabis remains a taboo crop. Involving both the UC System's pest management program and DPR itself will contribute to breaking down these barriers.

### **Concerns**

- The project is largely based on residue analysis, but UC employees cannot handle Schedule 1 materials, defined as any material with THC content above 0.3%. It can be difficult to keep products below that threshold.
- Many cannabis growers, even those with legal and regulated operations, are unwilling to participate in research and collaborations. This is particularly the case when data collection is involved.
- Cannabis is not considered a crop by the USDA, so there is no organic certification that sets a chemical residue threshold.
- It is not clear how the project will handle the very wide range of growing methods and conditions across the state. The geographic area is too broad.
- There are already significant restrictions on pesticide products approved for use on cannabis, so the proposal may have limited benefits. Many of the significant detrimental effects of cannabis production come from illegal growers, which are not the focus of this proposal.
- Given the dearth of existing information, this project should be designed and apply as a Research Project Grant rather than an Alliance Project Grant. Currently there are no vetted practices to promote.
- Using a survey to identify practices currently used may lead to sharing information that has not been robustly vetted. Results of this kind of survey, in the absence of vetted growing practices that can be promoted, should not be disseminated. Instead, information on current practices should be gathered and used to hone in on areas for further research.
- The proposal does not address how the PIs would respond to challenges, which could be significant. This is especially important in the changing context of cannabis production.
- Reduction in pesticide use does not seem like a realistic goal, if that use is already limited.
- Evaluation of trainings and extension materials, including adoption and implementation of practices, is critical.
- The proposal calls for paying growers for cannabis samples. That is a likely illegal use of public funds and in most research of this kind, growers provide samples for free.
- Given the past survey work by the PI, it is not clear why further surveys are needed.
- The proposal does not explain how the residue analysis will be utilized.
- While cannabis pest management projects are needed, this project may not be the right project at this time. There is a need for baseline information such as a crop profile and development of a strategic pest management plan for the crop before implementing an outreach project.



- The proposal does not make clear why residue analysis is needed given that DPR already conducts this analysis.
- DPR is currently working on a cannabis survey. It would be useful to build a project on the outcomes of that survey.

### **Clarifications**

- Can proposals be partially funded?
  - DPR staff said that they would need to look into this question.

### **Sutherland – Training for Pest Management Professionals**

#### **Merits**

- The project builds on a way of demonstrating and sharing information – a campus structure built to test termite eradication – that has proven useful in the decades since it was originally built.
- The project leverages technology to reach a broader audience while also providing hardware for physical demonstrations. The project impact will likely extend across the state and beyond.
- The project would be a good investment, with a low cost relative to the outcomes and leveraging additional funding from UC's Richmond Field Station.
- The project focuses on Alliance Grant outreach objectives, but the structure can be used for future research and is likely to lead to a good long-term return on investment.
- The Alliance Team members have the necessary background to accomplish the project's objectives.
- The proposal clearly identifies how success will be evaluated, including assessment before and after training.
- Educational videos made at a similar structure in Ohio were used successfully to extend training beyond those who could visit in person. This project utilizes new technology to further extend a proven approach.
- Structural pest control affects the entire state and reduction in pesticide use for that purpose will have a meaningful impact.
- The project has a high likelihood of success.
- The project is well written and well thought out.

#### **Concerns**

- The proposal focuses on using videos; however, I find that hands-on training is more effective.
- Project evaluation should include evaluation of the IPM practices and the structure itself.
- The online training plan did not seem well developed. Specific expertise and significant effort are needed to develop a successful online interactive course, but the proposal does not provide sufficient information regarding how this need will be filled.
- It was difficult to assess the project based on the sparse information provided in the

proposal. The proposal does not adequately delineate the benefits of the structure. While the project is largely visual, the proposal itself lacks visual components to provide information – I needed to search for information online.

**Clarifications**

- Is the existing structure well-used?
  - A PMAC member affirmed that it is well-known among structural pest control professionals, and has been used largely for research, as well as some demonstrations.

The floor was opened for public comment after each proposal discussion. None were made.

**5. Decision on Recommendations**

Following discussion, PMAC members were asked to re-rank the four proposals and submit their re-rankings via email for DPR compilation. After taking a short break, quorum was confirmed and Dr. Nik displayed tables of the initial rankings and re-rankings.

Ms. Ambruster reviewed the changes. She noted that the Lloyd proposal – IPM for local Sacramento farmers – was still ranked first, at 1.63, and that the margin by which it was ranked higher than the others had grown. The Sutherland – Training for pest management professionals – and Culver – Training for hull cleaners and boaters – proposals were tied for the next rank, at 2.47. The Wilson proposal – IPM for cannabis production – moved to last, at 3.42.

2020/2021 Alliance Grant Review Summary by Reviewer, Re-Rank																											
Project	Rank	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	R22	Avg	High	Low	Budget
Lloyd, IPM for local Sacramento farmers	1	2	1	1	1	3	2	1	1	1	1	1	1	4	1	4	1	2	1	2	-	-	-	1.63	1	4	\$298,746
Sutherland, Training for pest management professionals	2	4	2	2	3	2	3	2	2	3	2	3	4	1	3	1	2	3	2	3	-	-	-	2.47	1	4	\$91,563
Culver, Training for hull cleaners and boaters	2	3	3	3	4	1	1	4	3	2	3	2	2	2	2	3	3	1	4	1	-	-	-	2.47	1	4	\$179,293
Wilson, IPM for cannabis production	3	1	4	4	2	4	4	3	4	4	4	4	3	3	4	2	4	4	3	4	-	-	-	3.42	1	4	\$230,670

A PMAC member noted that with \$400,000 available, the top-ranked proposal alone would not use all of the funding but the top two would exceed the total funding available and asked how that would be handled. Dr. Jill Townzen, DPR Environmental Program Manager I, said that it will be up to the Director to make the decision about how to allocate funds.

A PMAC member noted that fewer PMAC members voted on the re-rankings, 19 versus 22, and asked whether the remaining PMAC members would be voting. Dr. Townzen said that PMAC could still make a recommendation to the Director since there was still a quorum, though some people who submitted initial scores were not participating in the meeting.

A PMAC member proposed that the Committee recommend that DPR consider the Lloyd, Sutherland, and Culver proposals for funding and encourage the Wilson team to reapply for a Research Grant, with the full set of PMAC member comments, rankings, and the discussion of merits and concerns forwarded to the Director for consideration in his funding decision.

Another PMAC member preferred recommending funding all four proposals along with forwarding PMAC’s full input and discussion, indicating a lack of unanimous consensus on the proposal.

A roll-call vote was taken on the original proposal. With twelve of the seventeen participating PMAC members in favor, the proposal was approved.

Joe Damiano, Branch Chief, DPR Pest Management Licensing Branch, affirmed that DPR had the information they needed to move forward with making a decision.

## 6. Alternatives to Chlorpyrifos Grant Proposal Review

Jordan Weibel, Research Grant Program Lead, DPR Pest Management and Licensing Branch, gave an overview of the Alternatives to Chlorpyrifos Grant Program. The program began with \$2.1 million in funding. After funding three projects over the last two funding cycles, \$1.1 million remained. In addition, \$430,000 of remaining Research Grant Program funding was also available. DPR received seven concept applications and determined that three of the seven met the basic eligibility and priority requirements defined in the Research Grant Proposal solicitation. The three organizations that sponsored these concept applications submitted full proposals.

2020-2021 Alternatives to Chlorpyrifos Grant Summary of Proposals		
Proposal Short and Full Title	Principal Investigator	Budget
<b>Hoddle – Hydrogels</b> Taking Chlorpyrifos out of Citrus: Maximizing IPM of Argentine Ant and Sap Sucking Pests with Biodegradable Hydrogels, Infra-Red Sensors, and Cover Crops	<b>Mark Hoddle</b>	\$500,000
<b>Choe – Hydrogels</b> A sustainable boric acid liquid bait delivery system (as alternative to chlorpyrifos sprays) for the management of pest ants in agricultural settings	<b>Dong-Hwan Choe</b>	\$340,467
<b>Haviland – Hydrogels</b> Hydrogel Baiting Systems for Sugar-feeding Ants in California Grapes and Citrus	<b>David Haviland</b>	\$500,000

Mr. Weibel noted that enough funding remained to fully fund all three proposals, so there was no need for PMAC to rank proposals. Instead, DPR was looking for PMAC members’ recommendations as to whether each proposal was of sufficient quality to receive funding.

Mr. Weibel shared the scores and ranks submitted by PMAC members ahead of the meeting. The three Hydrogels proposals received average scores between 84.10 and 89.29 out of 100. Twenty-one PMAC members reviewed and scored the three proposals prior to the meeting. The numeric scores were converted to ranks, where 1 was the most highly regarded proposal and 3 was the least. These ranks were averaged, as presented in the following table. Hoddle was the top ranked proposal with an average score of 1.43, followed by Choe with 2.05, and Haviland with 2.38.

**2020/2021 Alternatives to Chlorpyrifos Grant Review Summary by Reviewer, Initial Rank**

Project	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	Avg	Budget
Hoddle, Hydrogels	1	1	2	1	1	2	1	1	1	1	2	2	1	1	2	2	1	1	1	2	3	<b>1.43</b>	\$500,000
Choe, Hydrogels	2	3	3	3	2	1	3	2	2	2	1	3	1	1	3	1	3	2	2	1	2	<b>2.05</b>	\$340,467
Haviland, Hydrogels	3	1	1	2	3	3	2	3	3	3	3	1	3	3	1	3	2	3	3	3	1	<b>2.38</b>	\$500,000

## 7. Alternatives to Chlorpyrifos Grant Proposal Discussion

PMAC members discussed the merits, concerns, and areas needing clarification for the three project proposals, in the order of their initial ranking. Below is a summary of PMAC members' comments for each proposal. Comments reflect individual PMAC member observations, not consensus opinions. Thus, merits and concerns may occasionally appear to be contradictory. There were no public comments about any of the proposals.

A PMAC member noted that the three proposals under consideration had significant similarities and said that it would be useful to be able to utilize and compare information from all three proposals.

### Hoddle – Hydrogels

#### Merits

- This is the most complete and ambitious of the three proposals.
- The inclusion of infrared as a measurement tool strengthens the study.
- The proposal leverages additional funding.
- The project PI has a strong track record.
- The proposal includes a good blend of diverse IPM tactics, including both pesticides and cover crops in the experimental design.
- Although the current cost of infrared technology would likely inhibit adoption, the company that produces it plans to lower the price point in the future.

#### Concerns

- Further research is needed on preservatives and mass production. How will outreach be done if there is still uncertainty about production and application? Hydrogel production will need to advance for this strategy to be adopted by growers.
- It may not be feasible to complete all aspects described in the proposal.
- The proposal would be strengthened by incorporating collaboration with Cooperative Extension, beyond inclusion of postdoctoral researchers.

### Choe – Hydrogels

#### Merits

- The team includes good collaboration with Extension advisers.
- The project uses the most sustainable formula for the hydrogel, alginate. The materials used in the hydrogels in the other studies likely have toxicity and possibly registration issues.

- The project uses boric acid, which is the most sustainable pesticide.
- The proposal addresses production of the hydrogel.
- The project addresses the issue of preservatives in the hydrogel.

### **Concerns**

- The proposal does not explain why it is necessary to genotype the ant populations.
- The project team are urban entomologists who lack relevant agriculture background.
- The team lacks necessary expertise in material science to help address issues related to developing a system to mass produce hydrogel. The proposal also lacks budget to hire someone with this expertise and to fund necessary supplies.
- There is duplicity in the research between this and the Hoddle proposal, as both utilize the same hydrogel formula.
- The proposal does not specifically name the project partners.

### **Haviland – Hydrogels**

#### **Merits**

- The inclusion of a bee attraction study strengthens the proposal.
- The proposal addresses potential pitfalls and emphasizes the need for flexibility, demonstrating awareness of how the project may need to change based on early findings.
- The team includes a postdoctoral researcher who likely has expertise in developing hydrogels from previous work with Hoddle.
- The project addresses organic farming operations, multiple crops, and multiple ant species.
- The proposal has strong support.
- The proposal clearly lays out the need for the project.
- The project evaluates multiple formulations, including different carriers and encapsulations.

#### **Concerns**

- The proposal lacks specificity about who would produce the hydrogels.
- The proposal does not use the alginate formula nor address why it does not use that formula.
- The project rests on the ability to make a usable, commercial formulation of the hydrogel. Analysis of the cost of production is needed.
- The statistical analysis presented is too cursory.
- The proposal is not clear and concise, in particular with regard to the explanation of tactics.

## **8. Decision on Recommendations and Process Feedback**

PMAC members voted individually via email on whether they recommended each proposal be funded.

Mr. Weibel reviewed the tally of new votes, represented in the table below by a “1” for each “yes” vote and a “0” for each “no” vote. He noted that all members submitting votes recommended the Hoddle proposal be funded, and smaller majorities had voted yes for the Choe and Haviland proposals, respectively.

2020/2021 Alternatives to Chlorpyrifos Grant Review Summary by Reviewer, Re-Rank (yes = 1, no = 0)																							
Project	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20	R21	Avg	Budget
Hoddle, Hydrogels	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-	1.00	\$500,000
Choe, Hydrogels	1	1	0	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	-	-	-	0.82	\$340,467
Haviland, Hydrogels	1	0	0	0	1	0	0	1	1	1	0	1	1	1	1	1	1	1	-	-	-	0.65	\$500,000

Ms. Ambruster asked whether the PMAC wanted to send a specific recommendation to DPR or simply allow the discussion and final scores to be considered as its recommendation.

A PMAC member proposed submitting all comments about the proposals, as well as the outcome of the re-scoring, so that DPR Director could consider key concerns and merits.

A roll call vote was taken; all participating PMAC members voted yes.

Ms. Ambruster invited PMAC members to share feedback about the meeting, particularly regarding the remote meeting format.

Two participants said that the meeting had gone well. A participant asked whether DPR could provide updates about which proposals considered during the previous meeting were eventually funded. Mr. Damiano said that DPR would send PMAC members an email update sharing that information about proposals discussed during the February 2020 meeting and would continue to provide such updates moving forward.

## 9. Closing Remarks

Mr. Damiano thanked PMAC members for their feedback and affirmed that the discussion, the proposal rankings, and the recommendations provided DPR with the information needed to make funding decisions. He thanked Committee members for participating in the first remote PMAC meeting.

Mr. Damiano also thanked DPR staff for their work supporting the Grants Program and the PMAC. He said that Dr. Townzen would no longer be working directly with the PMAC as she was transitioning to a new position within DPR, and Ms. Leslie Talpasanu would be the acting program manager after Dr. Townzen’s departure.

The next PMAC meeting will focus on discussion of the PMAC role and charter and will take place on August 13, 2020.