



# SUMMARY | PEST MANAGEMENT ADVISORY COMMITTEE GRANT REVIEW MEETING

## CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION

February 9, 2017

*Produced by the Center for Collaborative Policy, CSU Sacramento*

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## 1. Attendance

### Pest Management Advisory Committee (PMAC) Members

- |  |   |
|--|---|
| 1. Brenna Aegerter, University of California Cooperative Extension     | 9. Anne Katten, California Rural Legal Assistance Foundation                    |
| 2. David Bakke, U.S. Forest Service                                    | 10. Marla Livengood, California Strawberry Commission                           |
| 3. Steve Blecker, California Department of Food and Agriculture (CDFA) | 11. Cliff Ohmart, SureHarvest   |
| 4. Jenny Broome, Driscoll Strawberry Associates, Inc.                  | 12. Rebecca Sisco, UC Davis, Western Region IR4 Program                         |
| 5. Caroline Cox, Center for Environmental Health                       | 13. David Still, California State University                                    |
| 6. Jim Farrar, UC Statewide Integrated Pest Management Program         | 14. Dave Tamayo, California Association of Sanitation Agencies                  |
| 7. Terry Gage, California Agricultural Aircraft Association            | 15. Paul Towers, Pesticide Action Network North America                         |
| 8. Janaki Jagannath, Alliance for Agroecology                          | 16. Kevin Wright, California Agricultural Commissioners and Sealers Association |

### California Department of Pesticide Regulation (DPR)

- |                           |                    |
|---------------------------|--------------------|
| 17. Brian Leahy, Director | 19. Mark Robertson |
| 18. Joe Damiano           | 20. Doug Downie    |

### Facilitation Support

- |  |  |
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| 21. Tania Carlone, Center for Collaborative Policy, CSUS | 22. Corin Choppin, Center for Collaborative Policy, CSUS |
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## 2. Background

### Introductions and Chair's opening comments

Brian Leahy, Director of the Department of Pesticide Regulation (DPR), welcomed everyone and thanked them for joining the meeting, and asked for attendees to introduce themselves.

### Background on DPR's Pest Management Research Grant Program, project proposal review, and basic procedures

Dr. Doug Downie provided an overview of the grant program, application process, and the proposals to be reviewed.

DPR's Pest Management Research Grant Program aims to stimulate innovation and progress in IPM in California. The 2017-2018 grant program has \$1.1 million available for funding proposals. The original fund is half a million with an additional six hundred thousand provided by the legislature in recent years. DPR has requested that the legislature continue to fund the six hundred thousand additional dollars. There are no specific research focus tiers this year for projects as there were last year. The objective of this meeting was for the PMAC to recommend which project proposals DPR should consider for possible Pest Management Research Grant funding. Dr. Downie explained that DPR wants to identify the proposals that the PMAC feels are fundable and also to record the merits and concerns of each proposal.

DPR selected 12 project proposals for PMAC members' review. The following table summarizes the 12 proposals.

2017/2018 Research Grant Summary of Submitted Proposals		
Proposal Short and Full Title	Principle Investigator	Budget
<b>Casteel - Alfalfa Aphids</b>	<b>Claire Casteel,</b>	\$265,415
<b>Walse - Fruit Fly Attractants</b> New fruit fly attractants to reduce pesticide use in eradication program	<b>Spencer Walse</b> USDA	\$75,000
<b>Choe - Termite Treatment</b>	<b>Dong Hwan Choe</b>	\$290,000
<b>Becker - Carrot Fumigant Alts</b> Alternatives to soil fumigants in California's fresh market carrot production	<b>Jörn (Ole) Becker</b> UC Riverside	\$185,255
<b>Marrone - Volatiles</b>	<b>Pam Marrone</b>	\$300,000
<b>Marrone - Saponin Biocontrol</b> Beneficial Reuse of Saponin for Biological Control of Grape Powdery Mildew	<b>Pam Marrone</b> Marrone Bio Innovations	\$260,012
<b>Westphal - Biofumigation</b>	<b>Andreas Westphal</b>	\$256,425

2017/2018		
Proposal	Principle	Budget
<b>Stapleton - Biosolarization</b> Soil fumigant/ag burning alternative: biosolarization with local crop waste for California low desert veg production	<b>Jim Stapleton</b> UC-IPM	\$298,908
<b>Putman - Soil Pests</b>	<b>Alexander Putman</b>	\$486,916
<b>Trumble - Celery</b> Integrating irrigation, nitrogen management, and insect control in celery production	<b>John Trumble</b> UC Riverside	\$254,998
<b>Gordon - Pathogens and Weeds</b>	<b>Tom Gordon</b>	\$261,433
<b>Rosenheim - Citrus</b> Improved IPM for key insect pests in the changing landscape of California citrus production	<b>Jay Rosenheim</b> UC Davis	\$220,000

### 3. Rankings Based on Reviewers' Scoring

Prior to the meeting, 18 PMAC members reviewed and scored the 12 proposals. The numeric scores were converted to ranks, where 1 was the most highly regarded proposal and 12 was the least, as presented in the following chart.

2016/17 Pest Management Research Grant Program PMAC Scores																								
Project	Rank	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	Avg	High	Low	\$	cumulative
Becker carrot fumigant alts	1	3	3	1	5	2	2	10	9	8	2	2	1	3	1	1	7	6	3	3.83	1	10	\$182,255	\$182,255
Westphal biofumigation	2	7	2	6	2	5	10	2	2	1	3	2	4	7	1	3	8	7	1	4.06	1	10	\$256,425	\$438,680
Rosenheim citrus	3	2	6	8	3	12	1	3	4	3	4	1	8	5	1	6	5	1	5	4.33	1	12	\$220,000	\$658,680
Gordon pathogens and weeds	4	4	5	3	7	7	3	6	7	7	5	4	10	9	1	4	1	4	7	5.22	1	10	\$261,433	\$920,113
Walse fruit fly attractants	5	12	8	5	1	1	4	8	11	10	1	9	2	5	6	8	4	2	3	5.56	1	12	\$75,000	\$995,113
Stapleton biosolarization	6	11		12	4	8	7	1	3	1	10	6	8	2	11	1	1	9	9	6.12	1	12	\$298,908	\$1,294,021
Putman soil pests	7	5	1	2	8	4	6	11	12	11	11	7	4		5	11	1	3	5	6.29	1	12	\$486,916	\$1,780,937
Marrone volatiles	8	1	7	9	12	3	8	7	6	6	9	7	3	1	10		11	10	10	7.06	1	12	\$300,000	\$2,080,937
Choe termite treatment	9	9	3	4	10	9	5	9	9	9	7	4	7	10	7	10	9	8	8	7.61	3	10	\$290,000	\$2,370,937
Marrone saponin biocontrol	10	7	9	10	10	6	12	3	1	4	6	9	4	11	7	7	11	12	12	7.83	1	12	\$260,012	\$2,630,949
Casteel, alfalfa aphids	11	10	10	10	9	10	9	5	5	5	8	12	12	7	7	5	5	5	11	8.06	5	12	\$265,415	\$2,896,364
Trumble celery	12	6	11	6	6	11	11	12	8	12	12	11	10	4	12	9	9	11	2	9.06	2	12	\$254,998	\$3,151,362

### 4. Discussion of Proposals

Dr. Downie introduced the facilitator, Ms. Tania Carlone, from the Center for Collaborative Policy, California State University, Sacramento. Ms. Carlone invited members who arrived late to introduce themselves. Ms. Carlone noted that the ground rules have not changed from last year and had members briefly review ground rules. Ms. Carlone emphasized that all ideas and feedback have value.

Ms. Carlone reviewed the meeting goals:

- Identify the proposals PMAC considers fundable
- Rank those proposals in order of preference
- Review and discuss proposals
- Record merits and concerns for all proposals
- Provide process feedback so that DPR can continue to improve the program

Ms. Carlone noted that the group would have approximately 80 minutes for the first round of proposal review and then PMAC members would rank the proposals again. There would be a break as DPR tabulated the new rankings. After the proposals had been re-ranked, PMAC would discuss the proposals further, if needed.

Below is a summary of PMAC members' comments for each of the 12 proposals. Comments reflect individual PMAC member observations, not consensus opinions. Thus, merits and concerns may occasionally appear to be contradictory.

1. [Becker - Carrot Fumigant Alts: Alternatives to soil fumigants in California's fresh market carrot production](#)

**Merits**

- The project is a resubmission from last year's Research Grant Program with a substantially reduced, more reasonable, budget.
- The proposal is well written with a clear rationale that responds to an important need in the carrot industry.
- Root Knot Nematodes (RKN) are clearly a problem in agriculture and the current control methods have serious environmental effects.
- The project has a good study design with a well-developed Integrated Pest Management (IPM) approach.
- The research team is reputable and already in place. The researchers have a good understanding of the pest pressure that exists in the fields.
- There are strong letters of support from the industry.
- The research is promising for immediate positive impacts on environmental justice and Greenhouse Gas (GHG) reductions.

**Concerns**

- It would have been helpful to have letters of support from the two leading carrot producers in California.
- Some PMAC members questioned if there were adequate resistant RKN varieties to ensure a successful outcome.
- There was some concern about using DPR funds for trials of pesticides not currently registered in California.
- The project should include a genetic component that can be widely and quickly implemented; genetic lines with resistance should be used as an IPM tool.
- Efficacy should be tested as a part of an IPM strategy.

- The indirect cost rate percentages should be standardized.

**Key Points of Clarification:**

There was some discussion that resistant varieties are known to work so this might be more of a demonstration proposal than a research proposal and may be a better fit for another funding source. There was a question as to whether DPR research should be using unregistered products. Staff explained that there is a system in place to use pesticides that are not yet registered as it makes sense to study possible future pesticides.

**2. Westphal – Biofumigation: Utility of Brassica crops for nematode suppression by biofumigation and co-cropping in walnut orchards**

**Merits**

- The research team is strong and collaborative.
- It's a well written proposal that articulates a clear need based on grower interest which makes it more likely to be applied.
- The project builds on previous research using annual crops and could ultimately serve several different environmental and economic benefits.
- If Brassica cover crops could prevent nematode increase, walnuts yields may be increased.
- This is a very workable project that has a high chance of success.
- The economic analysis is thorough and exact.
- The research establishes an important foundation for identifying more alternatives to fumigation.

**Concerns**

- It would be better if the graduate student were already in place.
- It appears to be an oversight that Telone is not one of the treatments to be used as a control.
- This approach works in annual crops but the root depth is quite different in perennial crops which may minimize effectiveness.
- It is logistically challenging to be based in Riverside and doing field work in Butte County. The two geographies have different soil types that could affect the efficacy of the project.
- The timeline appears to be overly ambitious.
- It is important to get proof of concept in the laboratory before conducting field trials.

**Key Points of Clarification:**

There was a request to address the root depth concerns, realizing that it is not clear if cover crops can really impact nematodes deep in the soil profile. PMAC members felt that clarification on soil depth would be helpful.

3. [Rosenheim – Citrus: Improved IPM for key insect pests in the changing landscape of California citrus production](#)

**Merits**

- The proposal was well written and reflects a demonstrated need.
- The methodology and experimental design are well-crafted.
- Researchers are well respected in the industry.
- Determining better windows of applications could minimize sprays and reduce impacts.
- The project anticipates disruption in pest management in citrus due to future management.
- The project represents a good use of big data to figure out questions on timing of treatments and differences in needs between different citrus types. Good project to utilize the robust dataset now collected to develop a mandarin IPM management plan.
- Research may be transferable to other industries combating thrips.
- This project provides training opportunities for students.
- This project addresses the highly toxic pesticide, chlorpyrifos, which is associated with public health concerns.

**Concerns**

- Other funding sources may be more appropriate for this project. DPR has already invested in initial creation of the database. Perhaps the industry should fund the continuation of this work.
- The proposal did not identify collaborators.
- The project budget is relatively high.
- Growers are reluctant to share their data which may be a barrier to the project's success.
- The project reduces the impact of pesticides through more judicious use, but does not replace pesticides.
- It is unclear if the project will achieve the desired outcomes and make the best use of funds for reducing exposure in environmental justice communities.

4. [Gordon - Pathogens and Weeds: Managing pathogens and weeds without soil fumigation](#)

**Merits**

- The proposal was well written and accessible.
- With methyl bromide out, there is a strong need for alternatives making this research important for the future of strawberry production in California.
- The PI has a good track record; the team is diverse with relevant experience.
- The project has good potential for the findings to be applied to other crops.

- There is a strong economic component to the proposal.
- This is a good pathogen to target as it is complicated and interesting to target with compost.
- The project conducts field experiments in a commercial field site which suggests greater applicability.

### **Concerns**

- Perhaps greenhouse experiments should be done first. However, if the greenhouse experiments are inconclusive, it is not clear what impact that would have on the field studies.
- One PMAC member expressed that there is no hypothesis related to weed management although this is a key part of the proposal. Another member noted that weed management was a secondary component of the project.
- The efficacy of the composts are unknown and variable.
- Cost analysis of the proposal would have been helpful, particularly because the volume of compost identified in the proposal seemed costly.
- There was a lack of explanation regarding how the project will achieve the goal of assessing the effectiveness of soil amendments in buffering against pathogens in addition to mitigating the impacts of disease and weeds.

### **Key Points of Clarification:**

Several PMAC members requested clarification on the budget totals, as there appeared to be some inconsistencies. Some members were skeptical of the feasibility of ensuring consistent compost formulations while others members pointed to earlier work by Gordon that carefully characterized composts.

## **5. Walse - Fruit Fly Attractants: New fruit fly attractants to reduce pesticide use in eradication program fermenters**

### **Merits**

- This is a relatively low cost proposal that includes significant in-kind cost sharing that covers salaries. Overall, this project is a cost-effective, reasonable investment.
- There is a high probability of project success.
- There is clear stakeholder support reflected in several letters of support.
- It is a well written proposal with clearly defined objectives and a solid scientific team.
- There is a clear need for better traps. The project guarantees sustainability and implementation within California Department of Food and Agriculture's (CDFA) current trapping regimen.
- It's an important goal to reduce high risk pesticides and it represents a good example of IPM.
- This proposal is aimed at early detection instead of treatment. Results are expected to create an instant benefit to growers.
- There is potential for transferability to other crops.

### **Concerns**

- This proposal may not represent the highest priority.
- There was a weak economic argument. The costs of implementation need to be better understood and documented.
- The timeframe to meet deliverables identified in the proposal did not seem realistic.
- It is unclear how detection will ultimately reduce the use of organophosphate pesticides (OPs).
- Though in the long term the results are most likely to be positive, more traps may lead to an increase in pesticide applications in the short term.
- There is reference to a patent application but DPR funds shouldn't be used for proprietary research.
- It is unclear who will be doing the testing in Hawaii and Texas.

## **6. Stapleton – Biosolarization: Soil fumigant/ag burning alternative: biosolarization with local crop waste for California low desert veg production**

### **Merits**

- Biosolarization is already extensively used for organic production and has the potential to be applied more widely to conventional crops. The concept of solarization and tarping is a proven technique. It strategically builds on past successes, and offers a promising alternative to fumigation.
- This project examines mechanisms using a life cycle assessment which is helpful for other crops and could lead to other alternatives.
- This project presents an integrated approach at multiple levels.
- The use of plant waste is commendable.
- The project validates lab tests with field trials.
- The project reduces air pollution from burning stubble.

### **Concerns**

- It is not clear if the researchers will use a whole genome or ribosomal RNA approach nor is it clear who will be analyzing the data.
- The project lacks a direct pest management connection. Specifically, there was no apparent relationship between efficacy of fumigant use and biosolarization for pest management.
- The economic data is anecdotal as opposed to data driven.
- There are no letters of support from growers or potential users.
- The proposal was too theoretical; the primary research was not applied.
- The budget was excessive given the deliverables.
- The experimental design provides little detail and there was a lack of a clear hypothesis. Therefore, it wasn't clear what the project intends to accomplish.



7. [Putman - Soil Pests: Development of site-specific management of soil pests using molecular quantification, remote sensing, and field scouting](#)

**Merits**

- This project is a well-designed proposal that provides a full IPM package.
- The project brings together leading experts from NASA and Tri-Cal for next generation precision and innovation; reflects the future technology trends in the industry.
- The techniques could be useful for specialty crops such as lettuce, raspberries, and celery which makes this project a worthwhile investment.
- The support letters seem to cover all bases.
- This site specific approach to management generates large datasets that have the potential to make a large impact.
- The use of two locations in strawberry growing areas strengthen the proposal.

**Concerns**

- The project budget is high and the proposal is very ambitious.
- Soil sampling is too significant a part of budget.
- If costs of monitoring do not come down, the project will most likely not be economically viable.
- It is essential to ensure that data remains in the public domain.
- There are not a lot of continuous strawberry fields that have high, medium and low pathogens which presents some challenges for the project design.

8. [Marrone – Volatiles: Development of volatiles produced by \*Muscodor albus\* for control of soil-borne and postharvest diseases.](#)

**Merits**

- This project represents an innovative concept.
- The team has experience in this research area; the PI has a long history of bringing natural compounds to market.
- There is a good presentation of previous research.
- The project has industry support.
- The budget appears adequate but costs seem high.

**Concerns**

- It is not clear what health risks and other affects may be associated with volatiles.
- The proposal does not include citations to substantiate the claim of minimal health risks.
- A lot of the proposal references used for project justification are outdated.
- The proposal did not state what commercial fumigant would be used as a comparison in the trials.
- There is no apparent economic data or analysis.

- This company has already characterized the *Muscodor albus* volatiles and has patented them and therefore should be able to do a better economic evaluation.
- It is not clear how the volatiles are going to be captured and applied at the field level.
- DPR funds shouldn't be used for private industry product development.
- The timeline seems ambitious with many uncertainties.
- Costs seem too high to bring to market.
- The goal is to replace harsh chemicals with ones that are more benign but there were not any tests conducted to demonstrate that these compounds are safer than those they seek to replace.

9. **Choe - Termite Treatment: Reducing risks associated with fumigation by improving current heat treatment and localized treatment**

**Merits**

- Improving the efficacy of heat treatment and localized injection treatment for termite treatment is an excellent idea and should reduce the number of structures fumigated with sulfuryl fluoride.
- The project appears to have an appropriate team of researchers.
- It is positive that commercial pest control businesses are participating.
- Termites in CA are clearly a major economic pest; the project addresses a significant problem.
- There is good preliminary support data to provide evidence or a rationale for the project.

**Concerns**

- The experimental design was not clear.
- The budget seems excessive.
- There is not enough information about what the volatile adjuvants are and if they will attract the termites.
- The proposal did not provide a benchmark about how often heat treatment is used in lieu of whole house fumigation.
- It was not clear how many adjuvants will be tested.
- The student researcher is not yet in place.
- There was a question about the relevance of this project to low income communities and rural areas that are most affected by termites.
- The proposal needs to provide more information about the human and primary impacts of the project.
- Variable structural characteristics may make it infeasible to heat wood at high enough levels for effective results.

10. [Marrone - Saponin Biocontrol: Beneficial Reuse of Saponin for Biological Control of Grape Powdery Mildew](#)

**Merits**

- This project aims to reuse a waste product.
- There is a need for alternatives to sulfur because it is widely used.
- This treatment can also be applied to other crops, such as peaches.
- The project team is strong and experienced.

**Concerns**

- The project description is confusing and doesn't address the non-target effects of saponin and lacked coherence between stated goals and outcomes.
- DPR should not fund regulatory requirements whose costs should be the responsibility of the company.
- This product aims to replace sulfur which is a low risk pesticide. Therefore, this project may be a lower priority than those that replace high risk pesticides.
- Economic considerations are weak particularly because sulphur is so inexpensive and low risk.
- The proposal doesn't discuss the cost or method of application.
- Even if this project is successful, it will not make a big difference in pesticide reduction.
- The experimental design is weak. There are only two replicates when three should be the minimum. The timeline to have efficacy data in place seems too optimistic.

11. [Casteel - Alfalfa Aphids: Integrated Approaches to Alfalfa Pest Management using Alternatives to Chlorpyrifos](#)

**Merits**

- This project has potential applicability across multiple crops.
- The problem statement is clear. Alfalfa covers significant acreage in California and aphids are a substantial pest problem for this crop that has an adverse economic impact on the alfalfa industry.
- There is a clear need for alternatives to chlorpyrifos because of public health concerns. This research has the potential to reduce the use of OPs in alfalfa.
- This project represents new science of ethylene inhibitors. There are few proposals that address the dairy feed continuum.

**Concerns**

- It appears that this may be too basic a research study for this program; potentially limited benefits.
- The methods section of the proposal is not well developed.
- It may not be economically viable to replace pesticide application with an ethylene inhibitor. The economic justifications are not clear.

- This method may affect the nutritional value of alfalfa and may cause other physiological effects on alfalfa.
- A 20% reduction in pest numbers is not a meaningful enough impact to justify the investment.
- The PIs are not known and the salaries seem too high.
- It is unclear how this project would contribute to a practical solution that could be implemented by growers in the short and medium term. It is unclear how this research would be effective in alfalfa production since previous research has focused on tomato and potato crops.
- The letters of support were from tomato and potato growers not alfalfa growers.

## 12. [Trumble – Celery: Integrating irrigation, nitrogen management, and insect control in celery production](#)

### Merits

- The PMAC has not looked at celery in the past.
- The PI is well known for his insect pest control work on celery.

### Concerns

- The scope of work appeared to be incomplete; the proposal was not clear and lacked details.
- Two years of field trials seem like a minimum to assess the potential effects and it is not clear where the trials will be conducted.
- There was little or no discussion about specific pests the research targets to control.
- This does not seem to be a high priority. The project justification is not developed. It is not clear how much fumigation is used in celery production.
- Hypotheses are vague and experimental design is weak.
- There is limited industry support.
- Much of the project does not appear to relate to pesticides.

## 5. Revised Rankings and Summary Recommendations

Based on the discussion, PMAC members who had participated in the initial review re-ranked the 12 proposals. There was some minor movement within the rankings.

DPR asked the PMAC which projects they considered unfundable. One member noted that the top 8 items all scored significantly higher than those ranked 9 and below. The PMAC reached consensus that those ranked 9 and below should be considered unfundable.

Re-ranking results are shown in the table below:

RE-RANKED SCORES

Project	Rank	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	Avg	High	Low	\$
Becker carrot fumigant alts	1	2	1	2	2	5	1	5	1	5	5	4	2	2	1	2	2.67	1.00	5.00	\$182,255
Westphal biofumigation	2	3	5	3	4	2	6	4	5	1	1	1	3	6	6	8	3.87	1.00	8.00	\$256,425
Rosenheim citrus	3	1	2	7	3	4	5	7	7	2	2	3	7	3	4	7	4.27	1.00	7.00	\$220,000
Walse fruit fly attractants	4	4	6	6	1	6	4	6	4	6	6	6	5	4	3	4	4.73	1.00	6.00	\$75,000
Gordon pathogens and weeds	5	5	4	5	5	3	2	3	6	4	4	5	4	5	9	9	4.87	2.00	9.00	\$261,433
Putman soil pests	6	7	3	1	10	11	3	1	2	12	11	7	1	1	2		5.14	1.00	12.00	\$486,916
Stapleton biosolarization	7	6	8		6	1	7	2	12	3	3	2	8	11	11	5	6.07	1.00	12.00	\$298,908
Choe termite treatment	8	8	7	4	7	9	8	8	3	8	7	9	6	7	5	11	7.13	3.00	11.00	\$290,000
Marrone volatiles	9	9	9	10	9	10	10	11	10	7	9	8	11	10	7	3	8.87	3.00	11.00	\$300,000
Casteel, alfalfa aphids	10	11	11	9	11	7	9	9	10	10	11	9	9	9	8	12	9.67	7.00	12.00	\$265,415
Marrone saponin biocontrol	11	10	10	11	8	8	11	10	11	9	8	10	12	8	10	10	9.73	8.00	12.00	\$260,012
Trumble celery	12	12	12	8	12	12	12	12	8	11	12	12	10	12	12	6	10.87	6.00	12.00	\$254,998

During the discussion, PMAC members raised the issue of UC indirect costs. Some suggested that the percentage for UC indirect costs might be too high. Some also emphasized the importance for UC research to remain in the public domain.

DPR noted that none of the private industry proposals were deemed fundable. This prompted the question whether private industry proposals should be eligible for DPR funding. PMAC members expressed that there may be certain circumstances that would warrant DPR's investment in private industry research. However, the PMAC agreed that DPR funds should not support research that does not remain in the public domain and where research is explicitly designed for product development or regulatory compliance. Members noted that public money should be used for the public good. One member who works in the private sector noted there can be difficulty when software or applications are involved as software is licensed. The PMAC suggested that DPR create grant program guidelines regarding the eligibility of private industry research.

## 6. Grant Program Process Feedback

The facilitator invited PMAC members to provide feedback to DPR on the Grant Program review process. The following summarizes suggestions for improvements:

- Consider whether to remove the budget from the PMAC review process because the budget amounts may overly influence how the PMAC views the fundability of the project. Some members noted that the budget is an important consideration, particularly for those PMAC members who are not scientists.
- Consider whether it is appropriate to commit DPR research investments for products that are not registered in California. It may be appropriate for products that are expected to be registered in California in the future. DPR clarified that it has the research authorization for products not currently registered.
- One member noted that the PMAC is the most diverse group of its kind that he has experienced and considers it a very positive experience.
- One member asked where to find research reports for the grant research projects. Dr. Downie conducted a quick on-line demonstration showing the PMAC how to locate those materials on the DPR website.

## 7. Closing Remarks

Mr. Leahy concluded the proposal review discussion by thanking PMAC members for reviewing and commenting on the proposals. He conveyed that PMAC's recommendations provide invaluable input for DPR's consideration.

Mr. Leahy reported that last week DPR held its employee and innovator awards ceremony. Mr. Leahy mentioned that there should probably be DPR volunteer awards to recognize the amount of time that PMAC puts into this process. He noted it takes an amazing amount of work and effort so he is very thankful for PMAC members' participation.

### Upcoming Meetings

- **Symposium:** Tuesday, March 21<sup>st</sup>, 2017: Department of Pesticide Regulation's Integrated Pesticide Management Research Symposium. 9:00 am- 4:00 pm Modoc Hall, Willow Suites 2 & 3. Sacramento State University 3020 State University Dr. Sacramento, CA. The purpose of the symposium is to showcase research funded by DPR to advance IPM in California. Lunch and free parking provided with registration.
- **PMAC Alliance Grant Program Review:** May 11, 2017 at Cal EPA Sierra Hearing Room. Details to follow.