



**SUMMARY | PEST MANAGEMENT ADVISORY COMMITTEE GRANT REVIEW MEETING
CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION**

February 21, 2013

Produced by the Center for Collaborative Policy, CSU Sacramento

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1. Attendance

Pest Management Advisory Committee (PMAC) Members

- 1. Caroline Cox, Center for Environmental Health
- 2. Anne Katten, California Rural Legal Assistance Foundation
- 3. William Thomas, California Cattlemen’s Association
- 4. Pam Marrone, Marrone Bio Innovations, Inc.
- 5. Cliff Ohmart, SureHarvest
- 6. Joseph Grant, UC Cooperative Extension
- 7. Marcia Gibbs, Sustainable Cotton Project
- 8. Juli Jensen, California Agricultural Commissioners and Sealers Association
- 9. Terry Gage, California Agricultural Aircraft Association
- 10. David Bakke, US Forest Service
- 11. Mark Shelton, California State University
- 12. Rebecca Sisco, UC Davis, Western Region IR4 Program
- 13. Bob Blakely, California Citrus Mutual

Interested Parties

- 14. Bahman Ghashghaei, Pest Control Advisory
- 15. Afiquer Khan, Western Plant Health Association
- 16. Nicole Quinonez, Randlett Nelson Madden
- 17. John Steggall, California Department of Food and Agriculture
- 18. Jim Wells, Environmental Solutions Group

California Department of Pesticide Regulation (DPR)

- 19. Nan Gorder
- 20. Chris Reardon
- 21. Brian Leahy, Director
- 22. Marshall Lee
- 23. Mark Robertson
- 24. Ann Schaffner
- 25. Nita Davidson
- 26. Doug Downie

- 27. Steve Blecker
- 28. Pat Matteson
- 29. Randy Segawa
- 30. Laurie Brajkovich
- 31. Tom Babb

- 32. Kimberly Steinmann
- 33. Matt Fossen
- 34. Chris Jones-Roberts

Facilitation Support

- 35. Dorian Fougères, Center for Collaborative Policy, CSUS

- 36. Orit Kalman, Center for Collaborative Policy, CSUS

2. Background

Dr. Mark Robertson, Senior Environmental Scientist, DPR, welcomed participants and then provided an overview of the Pest Management Research Grant Program and an introduction to the proposals.

This first cycle of the grant program covers two fiscal years for a combined total of \$1 million in funding (each individual year includes \$500,000). The grant program timeline is:

- Proposals received by December 10, 2012
- Grants to be awarded March 22, 2013
- Project start date is June 3, 2013
- Final invoices due April 29, 2016

DPR received a large number of proposals. Staff selected fourteen proposals for review based on their relevance to the grant program's authorizing legislation and DPR's two high priorities for investigation:

- Field agricultural fumigants
- Organophosphate (OP) insecticides used on cole crops in the Central Coast

Selected grant proposals had to contribute to an integrated pest management (IPM) system by addressing the following:

- Decision-making for pest management
- Preventing and managing pests, or
- Improving application technologies

The following table summarizes the fourteen proposals selected for PMAC review.

2013/2014 Research Grant Summary of Submitted Proposals			
Proposal	PI	Budget Duration	High Priority
1) Bagrada Bug	S. Dara UC Davis	\$165,447 1 year	OPs on cole crops
2) Insurance for Growers	R. Goodhue UC Davis	\$63,390 1 year, 3 months	OPs on cole crops
3) Maggot Management	S. Joseph UC, ANR	\$302,542 3 years	OPs on cole crops
4) Organophosphate Mitigation	M. Cahn UC, ANR	\$234,887 3 years	OPs on cole crops
5) Pesticide Reduction Strategies	C. Shennan UC Santa Cruz	\$399,304 2 years, 10 months	OPs on cole crops
6) Nursery MeBr Alternatives	L. Epstein UC Davis	\$153,289 2 years, 9 months	Fumigants
7) Steam Disinfestations	S. Fennimore UC Davis	\$484,966 2 years, 9 months	Fumigants
8) Efficacy of Fumigant Alternatives	M. L. Grieneisen	\$118,022	Fumigants

2013/2014 Research Grant Summary of Submitted Proposals			
	UC Davis	1 year, 2 months	
9) Review of MeBr Alternatives	W. Quarles Bio-integral Research Center	\$50,000 1 year	Fumigants
10) 1,3-D and Chloropicrin Co-Formulation	S. Yates UC Riverside	\$187,870 2 years, 9 months	Fumigants
11) Efficacy of Biofungicides	M. Bolda UCCE	\$200,010 2 years, 2 months	Fumigants
12) Orchard Pre-Plant Fumigation	G. Brown USDA-ARS	\$130,578 3 years	Fumigants
13) Integrated Weed Management	B. Hanson UC Davis	\$120,385 2 years	Fumigants
14) Nematodes in Peppers	A. Ploeg UC Riverside	\$83,739 2 years, 8 months	Fumigants

Dr. Robertson introduced the facilitator, Dr. Dorian Fougères, from the Center for Collaborative Policy, CSU Sacramento. Dr. Fougères reviewed the meeting goals:

- Discuss the merits/concerns of each project.
- Develop consensus.
- Make recommendation to DPR management team.

3. Rankings Based on Reviewers' Scoring

Prior to the meeting, eleven PMAC members reviewed and scored the fourteen proposals as follows:

2013/2014 Research Grant Review Summary by Reviewer

Project	Rank	Reviewer										Average	Min	Max	Rank	\$ Requested
		R1	R2	R3	R4	R5	R6	R7	R8	R9	R10					
6 Nursery MeBr Alternatives	1	7	1	1	1	2	5	1	4	4	7	2.5	7	1	1	\$ 153,289
12 Orchard Re-Plant Fumigation	2	4	9	9	6	6	5	1	3	1	8	3.8	9	1	2	\$ 130,578
5 Pesticide Reduction Strategies	3	8	1	7	2	5	10	7	8	3	3	3.9	10	1	3	\$ 399,304
3 Maggot Management	4	3	4	4	8	1	9	1	8	9	10	4.1	9	1	4	\$ 302,542
101,3-D and Chloropicrin Co-Formulation	5	2	5	2	13	10	4	5	14	10	1	4.7	14	2	5	\$ 187,870
11 Efficacy of Biofungicides	5	10	10	6	2	3	8	12	12	1	2	4.7	12	1	5	\$ 200,010
13 Integrated Weed Management	7	8	11	10	2	7	5	5	1	8	11	4.9	11	1	7	\$ 120,385
14 Nematodes in Peppers	8	1	14	8	8	7	1	10	8	4	8	4.9	14	1	8	\$ 83,739
4 Organophosphate Mitigation	9	12	5	5	6	9	11	9	1	12	4	5.3	12	1	9	\$ 234,887
7 Steam Disinfestation	9	5	8	14	11	11	2	8	4	6	5	5.3	14	2	9	\$ 484,966
1 Bagrada Bug	11	13	7	3	11	4	3	11	7	7	13	5.6	13	3	11	\$ 165,447
2 Insurance for Growers	12	14	3	12	5	12	12	4	6	12	14	6.6	14	3	12	\$ 63,390
8 Fumigant Alternative Efficacy	13	5	11	11	8	14	12	13	11	14	12	7.7	14	5	13	\$ 118,022
9 Review of MeBr Alternatives	14	11	13	13	14	13	14	14	13	11	6	8.5	14	11	14	\$ 50,000

Clarification for the ranking: Dr. Robertson explained that staff calculated the rankings by converting each reviewer's score to a numerical value. In cases where reviewers assigned more than one proposal the same score, staff averaged these rankings.

4. Discussion of Proposals

The initial discussion focused on the merits and concerns that PMAC members identified when scoring each proposal. The group started with the lowest ranking proposals and worked its way to the highest ranking proposals. The facilitator asked members who gave a proposal an outlier value (i.e., a value significantly higher or lower than the overall ranking) to help the group understand their considerations.

Review of MeBr Alternatives (9)

- Concerns
 - This is a review and not a research proposal. A review should be part of and come prior to a substantive research project.
 - Relative low research value for the money requested.

Efficacy of Fumigant Alternatives (8)

- Concerns
 - As with the previous proposal, this is a meta-analysis and not a research proposal.

Insurance for Growers (2)

- Concerns
 - It is not clear if the project meets DPR's priorities.
 - This research grant program is not the right venue to fund this program. It would be more suitable to be funded by the insurance industry. A market for similar services exists. It lacks an analysis of the existing insurance pool.
- Merits
 - Implementation of a new IPM practice is inherently risky and insurance incentives may provide an opportunity to affect farmers' behavior.

Organophosphate Mitigation (4)

- Concerns
 - A narrow focus on a single pest was not the intention of the research priority.
 - The project is limited to filtration (treatment) rather than management. The project lacks an IPM approach.
 - The project addresses the parent organophosphate without consideration for its metabolites, which may be more toxic than the parent chemical.
- Merits
 - Since alternatives for managing the pests are limited, it is important to control, monitor, and study the pesticide. The pesticide will remain in the toolbox of farmers.
 - The pesticide is showing up in groundwater as well as surface water.

Bagrada Bug (1)

- Concerns
 - The project is standalone research that does not reflect field practices, where growers commonly use products with different biological and conventional active ingredients and thus, different modes of action. The results of this work are basically already known: it does not work standing alone.
 - The project lacks an IPM approach.
 - The project should look beyond counting bugs and study all effects, including damage to crops and changes in the Bagrada bug's reproduction cycle. Candidate products have different modes of action, and the study has the wrong methods to discern their effects.
 - The project does not meet the DPR high priorities; it speaks to a very broad concern.
- Merits
 - The project may provide a good alternative to target pesticides that may be eliminated.
 - Addressing invasive species early is important and may be applicable and duplicative with other new invasive species problems elsewhere, particularly earlier in the process of intervention. In this sense it offers an exemplary approach.
 - It addresses a growing problem that will become more common over time.
 - It raises the important question, how can DPR encourage innovation within a regulatory framework? Regulations may exist that restrict the use of pesticides. At the same time research is needed on new and less detrimental ways of applying them.

Integrated Weed Management (13)

- Concerns
 - The project raises concerns about the transferability of results from a controlled lab setting to field application.
 - The project raises concerns about the ability to complete the work within the proposed timeframe.
 - It's not clear whether this is appropriate for a public agency to fund. Given the commercial application of this proposal, should government pay for equipment development or should this project be developed by a private enterprise?
 - The project's focus on weeding may not meet DPR's high priorities.
- Merits
 - The project looks at a crop other than strawberries.
 - Weed control is an important issue.
 - The project provides an innovative, tractable, and well put-together approach.

Steam Disinfestation (7)

- Concerns
 - Much of the project's cost goes to building equipment. Ownership of equipment is unclear and needs to be discussed.
 - Proof of concept would be useful. At the same time, some members felt this already existed as a concept, and the historical challenge has been getting steam-generating equipment into production.

- Funding for this project may be more appropriate through industry rather than government. (It was recognized that since payoff for industry is still far off, it may be difficult to find funding for the research elsewhere.)
- Investing this much in one project keeps funding from supporting other proposals. It is better to fund multiple approaches rather than focus on one approach.
- Worker safety issues are not discussed in the project (steam can be dangerous).
- The project does not account for potentially high petroleum costs, given that the equipment treats one acre per 8 hours. There is also a significant carbon footprint.
- It's not clear whether the project will be feasible in terms of the time and duration and treatment.
- Merits
 - It is encouraging to see exploration of a non-chemical alternative control.

1,3-D and Chloropicrin Co-Formulation (10)

- Concerns
 - The project focuses on emissions management rather than alternatives to fumigant use.
 - The project does not fit priorities of IPM.
 - It is unclear what the long-term gains are in terms of reducing field applications and associated risks.
 - The proposal does not seem likely to reduce fumigant use, but rather just trades use of one fumigant for another. Risks of poisonings remain.
- Merits
 - Conversely, this project addresses fumigant emissions.

Nematodes in Peppers (14)

- Concerns
 - The project addresses a narrow geographic area and pest range.
 - Peppers are a low-value crop relative to other crops. (It was suggested that it is more important to look at the magnitude of risk reduction rather than the value of the commodity).
 - It is unclear if results are transferable to other crops/areas.
- Merits
 - The project provides an integrated approach to solving a problem.
 - The project is set in an area of the state that would not benefit from other candidate grant projects. In this regard the project seems unique and achievable.
 - The budget is appropriate for the small acreage of study.
 - Research on grafting is interesting.
 - Results can lead to reduction in fumigant emissions in the Coachella Valley.

Efficacy of Biofungicides (11)

- Concerns
 - The cost for this project is high.

- Some members felt the information was already available to the production community. (In contrast, others commented that this may help get the information to prospective biofungicide users.)
- Rather than focus on a standalone method, research should study combination treatments.
- Research should focus on the why and the science, to improve understanding of options efficacy and soil biology. The current proposal does not address why some treatments are less effective.
- Merits
 - The project is needed because this area has been understudied.
 - The field of biofungicides will benefit from the replicated design of this research and from increased exposure. Farmers need to see this treatment in action to gain greater confidence in its potential.

Maggot Management (3)

- Concerns
 - The budget is not well formulated; there may be errors.
 - The project is missing evaluation of a new biological pesticide.
 - There is a concern that the proposal is overly complex. The project is studying too many things to be able to tease out results.
- Merits
 - The project has an overall good approach.
 - One of the benefits is that it links multiple components.

Orchard Pre-Plant Fumigation (12)

- Concerns
 - The timeline to complete the project may be too ambitious.
 - The budget may be unrealistically small.
- Merits
 - The project addresses fumigant alternatives and addresses one of the DPR's research priorities.
 - The budget for the project is reasonable and cost-effective.
 - The project addresses the need to phase out high-volume hand fumigation by developing a new, safer method for spot fumigation. In this regard it also addresses worker safety.

Pesticide Reduction Strategies (5)

- Concerns
 - This project is comprised of two studies and they should be split. Looking at one crop may be sufficient if information can be transferable to other crops. It was noted that the project addresses two different pest complex issues on two different cole crops.
 - The budget is very high and takes too much from the available funding for other projects.

- Merits
 - This area of research is important.
 - This project provides a “multiple tool” approach and demonstrates IPM.
 - If the project is split apart, it may fall apart.

Nursery MeBr Alternatives (6)

- Concerns
 - No comments.
- Merits
 - No comments. The project was ranked highly because members felt it met the DPR priorities and thoroughly addressed key components.

5. Revised Rankings and Additional Discussion

PMAC members re-ranked the proposals based on the discussion. Results are shown in the table below.

2013/2014 Research Grant Poll Summary by Reviewer													
Project	Reviewer										Average	Rank	
	1	2	3	4	5	6	7	8	9	10			
6 Nursery MeBr Alternatives	1	2	2	2	1	4	4	1	1	3	2.1	1	
12 Orchard Re-Plant Fumigation	3	1	1	4	8	3	5	5	2	7	3.9	2	
5 Pesticide Reduction Strategies	5	4	7	3	2	7	3	7	3	4	4.5	3	
3 Maggot Management	4	3	6	1	6	2	6	4	6	8	4.6	4	
11 Efficacy of Biofungicides	7	12	9	5	3	10	2	2	4	2	5.6	5	
14 Nematodes in Peppers	2	8	8	8	9	1	1	9	5	6	5.7	6	
1 Bagrada Bug	9	11	5	6	10	12	8	3	8	10	8.2	7	
13 Integrated Weed Management	10	7	3	7	4	8	12	10	9	13	8.3	8	
4 Organophosphate Mitigation	11	10	4	9	7	9	13	8	10	9	9.0	9	
10 1,3-D and Chloropicrin Co-Formulation	8	5	14	10	13	6	14	6	14	1	9.1	10	
7 Steam Disinfestation	6	9	14	11	12	13	7	14	7	5	9.8	11	
8 Fumigant Alternative Efficacy	13	13	14	14	5	5	9	11	12	12	10.8	12	
2 Insurance for Growers	12	6	14	12	11	14	11	12	11	14	11.7	13	
9 Review of MeBr Alternatives	14	14	14	13	14	11	10	13	13	11	12.7	14	

Issues for Future Discussion

Members suggested several topics for further discussion in the future.

- Is it appropriate for DPR to fund technology development projects (proposals 2, 7, and 13)?
- Should DPR funding focus on proposals that develop integrated approaches and techniques specifically (proposals 4 and 11)?

- How should cost effectiveness be included in proposal reviews when proposed budgets are large relative to the total available funding (proposals 3, 5, 7, and 11)?
- There is a need for future conversation on how to encourage innovation (proposal 1).

Additional Discussion on Proposals Ranking

Q. Given that the funding is limited to \$1,000,000 and not all projects can be funded, why does DPR want all 14 proposals to be ranked?

A. During the agreement development phase of this grant, some of the selected projects may fall through, freeing money for other projects. It is helpful for DPR to have an understanding of the overall thinking and priorities of the PMAC on the remaining projects as they move down the list.

Q. (DPR) Does the advisory group agree that the top 7 proposals are fundable? Are there any concerns with the top 7 proposals?

A. (PMAC) Proposal 5, Pesticide Reduction Strategies, is too expensive and the proposal takes too much from the overall funding.

Q. (PMAC) Can DPR ask for the project to be split?

A. (DPR) DPR does not negotiate research grant projects. It can do so for Alliance Grants. Some Alliance Grant projects were negotiated, but DPR found that when one element is removed, the project has a likelihood of falling apart because of the unintended consequences.

Q. (PMAC) Can DPR ask researchers to change methodologies?

A. DPR can negotiate minor changes and make recommendations, but other changes are likely to be constrained due to legal requirements to assure fairness during a competitive grant application process. It may not be appropriate to tell researchers how to conduct their projects.

Additional comments on Proposal 5 (“Pesticide Reduction Strategies”)

- Without a determination that the scope of this proposal can be modified substantially, evaluation should be based on how the proposal is written.
- Ultimately, the final decision rests with the DPR Director.
- In the future, having a concept phase for the research grant process can help DPR guide researchers in developing proposals. (This year there was not enough time to include a concept phase in the cycle; a concept phase will be included in the next cycle.)

6. Summary Recommendations

The facilitator led a discussion to clarify whether consensus existed among PMAC members regarding the top proposals that should be recommended to the Director. The group concluded:

- All members feel that the first and second proposals should be funded.
- All members would be comfortable if any of the top seven proposals were funded.
- Some members reiterated their concern about using a large portion of the funding to support one project.

The facilitator also asked members to indicate which, if any, of the proposals that they would not want to see DPR fund under any circumstances. Results of this final poll are shown in the table below.

2013/2014 Research Grant Poll Summary by Reviewer										
Project	Rank	Reviewer								N Count
		R1	R2	R3	R4	R5	R6	R7	R8	
6 Nursery MeBr Alternatives	1									0
12 Orchard Re-Plant Fumigation	2									0
5 Pesticide Reduction Strategies	3									0
3 Maggot Management	4									0
11 Efficacy of Biofungicides	5									0
14 Nematodes in Peppers	6									0
1 Bagrada Bug	7									0
13 Integrated Weed Management	8						N		N	2
4 Organophosphate Mitigation	9				N					1
10 1,3-D and Chloropicrin Co-Formulation	10				N	N		N	N	4
7 Steam Disinfestation	11	N		N	N	N	N			5
8 Fumigant Alternative Efficacy	12		N	N	N	N	N			5
2 Insurance for Growers	13	N	N		N	N	N			5
9 Review of MeBr Alternatives	14		N	N	N	N	N			5

7. Feedback on the Review Process and the Meeting, and Closing Remarks

Members provided feedback on the process and meeting as a whole.

- Review Process
 - The scoring criteria should include quantitative guidance on important concerns such as feasibility of implementation and reductions in exposure risk.
 - Consider having a “do not fund” option in addition to numbered rankings. This would promptly eliminate certain proposals from consideration and reduce the time necessary to reach consensus on favorable proposals.
 - Limit the number of proposals to be reviewed.
 - Each proposal needs a consistent identifying name for reference.
 - The solicitation for the proposals should tighten up the specifications for the proposals. The reviewed proposals were difficult to evaluate because of the wide range in level of detail and specificity.
 - Proposals should be required to have an executive summary that describes the need, methods, and projected outcome.
- Meeting
 - The Excel ranking sheet was very helpful.
 - The meeting needs better physical accommodations and better visuals for reference. The screens could not be seen.
 - The process worked well with achieving group consensus and moving forward quickly.

Director Leahy reminded the group that the next PMAC meeting is scheduled for May 14, when members will review Alliance Grant proposals. Projects have gone through the concept phase and are ready to be reviewed. Director Leahy thanked members for their time reviewing the proposals and attending the meeting and closed the session.