

Post-Award Peer Review of IFAFS – RAMP Grants:

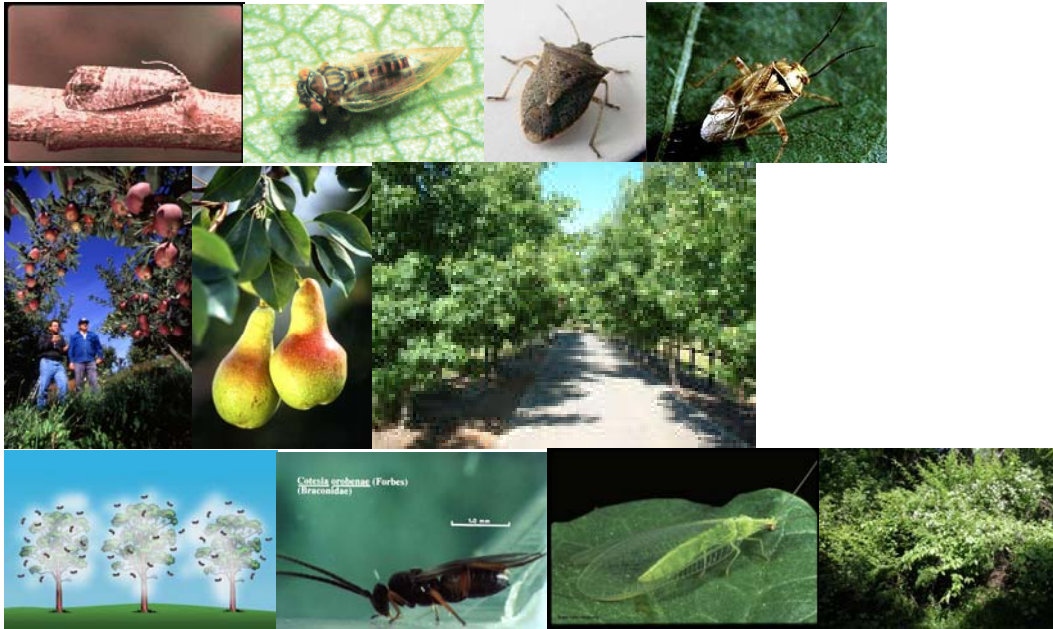
IFAFS grant #00.52103-9657 entitled “*Building a multi-tactic pheromone-based pest management system in western orchards*”

RAMP grant #00.51101-9673 entitled “*Enhancing pheromone mating disruption programs for lepidopterous pests in western orchards*”

**March 3 and 4, 2004
Portland, OR**

Conducted by:

**The Cooperative State Research, Education, and Extension Service
United States Department of Agriculture
Washington, DC 20250**



**Peer Review Team: Dr. Robert M. Nowierski, USDA-CSREES, Washington, DC
Dr. Wendell L. Roelofs, Cornell University, Geneva, NY
Dr. Timothy J. Dennehy, University of Arizona, Tucson, AZ
Dr. Larry A. Hull, The Pennsylvania State University, Biglerville, PA**

Table of Contents

I. Introduction.....4

Peer Review Team.....4-5

Location of Review.....5

Purpose of the Review.....5

IFAFS and RAMP Goals and Objectives.....5-6

Approaches Outlined in the Objectives.....6

Review Format and Agenda.....7

II. Project Descriptions

A. IFAFS Project #2000-04884: Building a Multi-Tactic Pheromone-Based Pest Management System in Western Orchards.....8

B. RAMP Project #00.51101-9673: Enhancing Pheromone Mating Disruption Programs for Lepidopterous Pests in Western Orchards.....9

III. Progress on IFAFS and RAMP Grants and Recommendations from the Peer Review Committee.....10-14

Goal 1: Stabilize and extend the codling moth mating disruption (CMMD) system to 75% of pome fruit and 25% of walnut acreage in CA, OR, and WA.....10

Objectives 1.1 and 2.1: Implementation - demonstration projects.....10

Objectives 1.2 and 1.3: New pheromone delivery technology.....11

Objectives 1.4 and 1.5: Baits, attract and kill, and monitoring.....11

Goal 2: Double the impact of biological control in orchards through the use of selective tactics.....12

Objective 2.1: Implementation - demonstration projects (discussed with Objective 1.1 on page 9)

Objectives 2.2 and 2.3: Effects of pesticides on natural enemies.....12

Goal 3: Stabilize the management of specific pest populations through manipulation of orchard ecosystems, including groundcovers and surrounding habitats.....12

Objectives 3.1-3.3. Landscape ecology studies with pests.....	12-13
Goal 4: Create an integrated educational plan to support the implementation and sustainability of a pheromone-based IPM (Integrated Pest Management) system for western orchards.....	13
Objective 4.1: Education and outreach activities.....	13
Conclusions.....	13-14
IV. Appendix A. Topics for discussion during our November 7, 2003 meeting regarding the University of California-Berkeley RAMP grant #00.51101-9673 entitled, “ <i>Enhancing pheromone mating disruption programs for lepidopterous pests in western orchards</i> ” and the Washington State University IFAFS grant subcontract # 00.52103-9657 at Berkeley entitled “ <i>Building a multi-tactic pheromone based pest management system in western orchards</i> ”	15-16
V. Appendix B. Preliminary synopsis of the November 7, 2003 site visit to the University of California-Berkeley regarding their RAMP project #00-51101-9673 and the Berkeley sub-contract of the Washington State University IFAFS grant project #00-52103-9657.....	17-18

I. Introduction

Post-award management of grant programs is recognized by CSREES as critical for the successful administration and management of CSREES-funded programs. In October 2003, National Program staff Dr. Dennis Kopp, Dr. Robert Nowierski, Ms. Vera Smith, and Ms. Kathy Kimble-Day discussed the need for a site review and post-award management of RAMP (Risk Avoidance and Mitigation Program) grant #00.51101-9673 and the Washington State University IFAFS (Initiative for Future Agricultural and Food Systems) grant subcontract # 00.52103-9657, at the University of California, Berkeley. Since Dr. Kopp was going to be in the Bay Area during November 2003 on other business, it was decided that he would meet with Dr. Steven Welter and other appropriate administrators on November 7, 2003 on the Berkeley campus. The purpose of the site visit was to discuss a number of topics relative to the IFAFS and RAMP grants with respect to budgets, programmatic elements, and accountability and post-award management of the projects. Discussion topics for the November 7, 2003 site visit were developed at the initial Washington meeting and were drafted as the document shown in Appendix A. Upon return to Washington, DC following the November 7, 2003 site visit, Dr. Kopp then developed a preliminary synopsis of the meeting which is presented in Appendix B. The initial site visit laid the ground work for a mid-project peer review of the IFAFS and RAMP Projects which took place on March 3 and 4, 2004 in Portland, Oregon. The results of this peer review form the basis of this special report.

Peer Review Team:

Dr. Robert M. Nowierski, **Review Team Leader**
National Program Leader for Bio-Based Pest Management
USDA-CSREES-PAS
Washington, DC
Ph. 202-401-4900
FAX 202-401-4888
rnowierski@csrees.usda.gov

Dr. Wendell L. Roelofs
Professor and Chair
Department of Entomology
630 W. North St
Cornell University
Geneva, NY 14456
Ph. 315-787-2321
wlr1@cornell.edu

Dr. Timothy J. Dennehy
Specialist and Professor
Department of Entomology
University of Arizona
Tucson, AZ 85721
Ph. 520-621-7124
tdennehy@ag.arizona.edu

Dr. Larry A. Hull
Professor of Entomology
The Pennsylvania State University
Fruit Research Lab
P. O. Box 309
Biglerville, PA 17307
Ph. 717-677-6116
lah4@psu.edu

Location of Review:

Hilton Portland & Executive Tower, 921 SW Sixth Avenue, Portland, OR 97204.

Purpose of the Review:

The purpose of this mid-project peer review was to gain a more complete understanding of the progress and accomplishments of the Berkeley RAMP Grant and its relationship to the IFAFS Grant, and through the collective expertise and experience of the peer review team provide recommendations and mid-project considerations for both projects. Such an understanding of program accomplishments is essential for growth and justification of funding lines and for reporting program impacts to Congress.

IFAFS and RAMP Goals and Objectives:

The intention of the four goals was to define the main areas of emphasis for the grants (i.e., to further reduce broad-spectrum pesticide use, expand the use of mating disruption in pome fruits and new cropping systems, and increase the efficacy of biological control in orchards for secondary pests).

The RAMP grant focused on, and provided resources to all objectives in Goals 1 and 4. The IFAFS grant distributed resources to all objectives, but proportionately more to Goals 2 & 3 where no RAMP funds were used.

Goal 1: Stabilize and extend the codling moth mating disruption (CMMD) system to 75% of pome fruit and 25% of walnut acreage in CA, OR, and WA.

Objective 1.1: Evaluate CMMD programs that replace supplemental controls of organophosphates with selective insecticides (oils, insect growth regulators [IGR's], particle film, microbials, neo-neurotoxins).

Objective 1.2: Evaluate alternative pheromone delivery technologies for mating disruption (sprayable formulations, aerosol emitters, paraffin emulsion, etc.).

Objective 1.3. Evaluate new pheromone technology for multi-species mating disruption programs.

Objective 1.4. Develop and evaluate alternative non-pheromone-based monitoring systems.

Objective 1.5. Evaluate feeding stimulants and baits as tools in a selective control program.

Goal 2: Double the impact of biological control agents in orchards through the use of selective control tactics.

Objective 2.1. Evaluate/compare biological control in orchards using mating disruption integrated with other selective tactics.

Objective 2.2. Develop bioassay methods that predict impacts of selective insecticides on biological control agents.

Objective 2.3. Develop a risk rating system for conservation of biological control agents in orchards.

Goal 3: Stabilize the management of specific pest populations through manipulation of orchard ecosystems, including groundcovers and surrounding habitats.

Objective 3.1. Manage groundcover and near-orchard habitats to promote leafroller natural enemies.

Objective 3.2. Identify alternative hosts (extra-orchard) for key natural enemies of pear psylla that are suitable for habitat manipulations.

Objective 3.3. Understand the role of extra-orchard elements as predictors of pest risk from true bugs, and use trap crops, attractants and other tactics to manage these pests.

Goal 4: Create an integrated educational plan to support the implementation and sustainability of a pheromone-based IPM (Integrated Pest Management) system for western orchards.

Objective 4.1. Conduct workshops and intensive courses, establish electronic information dissemination systems, and publish guidelines to support decision makers implementing selective IPM programs.

Approaches Outlined in the Objectives.

The approaches outlined in the objectives included the following:

- Establishment of large-scale sites to assess the replacement of organophosphate and carbamate insecticides with new selective products.
- Extension of pheromone-based management principles to new acreage, pests and crops.
- Evaluation and improvement of non-pheromone monitoring systems to reduce risk.
- Determination of the impact of new insecticides on selected natural enemies of importance in the orchard ecosystem.
- Manipulation of the orchard and near-orchard habitats to improve efficacy of biocontrol of secondary pests.
- Development of alternative methods for managing locally invasive secondary pests, such as true bugs.

Review Format and Agenda:

Each presenter spent approximately 20 minutes on the topic followed by a period for questions and comments from the review panel.

Date/Time	Topic Area	Presenter
March 3, 2004		
0630	Peer Review Team Meeting – introductions, purpose of review	Bob Nowierski, Tim Dennehy, Larry Hull, Wendell Roelofs
0800	Introduction and welcome – agenda and proposed changes	Steve Welter
0810	Overview, budgets and funding leveraged from other sources	Steve Welter
0840	Demonstration projects	Jay Brunner
0910	Pheromone delivery technology	Steve Welter
0940	Monitoring and baits	Peter Landolt
1010	Break	
1030	Pesticide effects on natural enemies	Nick Mills
1100	Landscape ecology (Pests)	Richard Hilton
1130	Landscape ecology (Biocontrol)	Tom Unruh
1200	Lunch	
1330	Education	Bob VanSteenwyk
1400	Summary & Future Direction of projects	Jay Brunner
1430	General Discussion	Bob Nowierski
1500	Break	
1520	General Discussion - continued	Review Team
1600	Peer Review Team consultation/delineation of writing responsibilities/strategy for presentation next day	
1600	IFAFS-RAMP Executive meeting	Brunner/Welter
1900	Group dinner at selected location	
March 4, 2004		
0630	Peer Review Team Meeting/Breakfast-progress on writing/Power Point presentation	
1000	Peer Review Team Report	Bob Nowierski
1100	IFAFS-RAMP response and discussion	Steve Welter
1200	Adjourn	
Transportation to airport for review team members		

II. Project Descriptions

- A. IFAFS Project #2000-04884: Building a Multi-Tactic Pheromone-Based Pest Management System in Western Orchards.

Project Director: J. F. Brunner, Washington State University, Wenatchee, Washington.

Co-PI's: Beers, E. H., Dunley, J., Riedl, H., Hilton, R., VanBuskirk, P., Landolt, P. J., Horton, D. R., Knight, A., Unruh, T. R., Welter, S. C., Van Steenwik, R. A., Light, D., Mills, N. J., and Millar, J. G.

IFAFS Grant Number: #2000-04884; \$2,500,000; Expires 8-31-04

Subcontractors: Oregon State University; University of California, Berkeley; University of California, Riverside; USDA/ARS, Wapato, WA

Project Summary. This project is intended to build upon and expand the successful codling moth area-wide management project that reduced in-season organophosphate use in apples and pears by 75%. The original project goals were to further reduce broad-spectrum pesticide use, expand the use of mating disruption in pome fruits and new cropping systems, and increase efficacy of biological control in orchards for secondary pests. Apple and pear production systems are at risk under the 1996 Food Quality and Protection Act (FQPA) due to safety concerns and re-registration obstacles for currently used pesticides, and the fact that apples and pears comprise a significant fraction of the "risk cup" in the diets of infants and children. The approaches outlined in the objectives include: 1) establish large-scale sites to assess the replacement of organophosphate and carbamate insecticides with new selective products; 2) extend pheromone-based management principles to new acreage, pests and crops; 3) evaluate and improve non-pheromone-based monitoring systems to reduce risk; 4) manipulate the orchard and near-orchard habitats to improve efficacy of biocontrol of secondary pests; and 5) develop alternative methods for managing locally invasive secondary pests, such as true bugs. This multi-state, multi-institutional, and multi-disciplinary project will develop technologies that are equally appropriate for small, medium, and large-sized producers. Proposed research and educational programs will significantly reduce use of broad-spectrum pesticides, will increase farm worker safety and reduce the risk of environmental contamination. The results of the project will also enhance biological control in orchards, and will establish a low-cost renewable-resource-based management system that is sustainable.

B. RAMP Project #00.51101-9673: Enhancing Pheromone Mating Disruption Programs for Lepidopterous Pests in Western Orchards.

Project Directors: Stephen Welter, University of California, Berkeley.
Robert A. Van Steenwyk, University of California, Berkeley.

Project Start Date: 09-01-00

Expected Completion Date: 08-31-04

Award: \$1,428,092

Project Summary. This project is intended to build upon the successful area-wide management project that targeted the key pest in apples and pears, the codling moth, and reduced the use of in-season organophosphate insecticides by 75%. The original project goals were to further reduce broad-spectrum pesticide use, expand the use of mating disruption using the pheromones of key insect pests, and to improve opportunities for biological control of other pests in orchards. Apple and pear production systems are at risk under the 1996 Food Quality and Protection Act (FQPA) due to safety concerns and re-registration obstacles for currently used pesticides, and the fact that apples and pears comprise a significant fraction of the "risk cup" in the diets of infants and children. The approaches outlined in the objectives include: a) establishment of large-scale sites to determine the difficulties and advantages of replacing broadly toxic insecticides with new selective products; b) evaluation and development of new non-insecticidal, e.g., pheromones, programs for both the primary and secondary pests; c) evaluation and improvement of new monitoring systems to reduce grower risk; d) reductions in insecticide use rates through use of feeding stimulants and baits; and e) extension of these new programs to new acreage, pests and crops. This project is multi-state, multi-institutional, and multi-disciplinary. Proposed research and education programs will significantly reduce use of broad-spectrum pesticides, increase farm worker safety and reduce the risk of environmental contamination. It will also enhance biological control in orchards, establishing a low-cost, more sustainable management system. This project is expected to increase acreage under mating disruption, improve program efficacy, reduce program risks, and reduce costs to help U.S. agriculture compete in a global economy.

III. Progress on IFAFS and RAMP Grants and Recommendations from the Peer Review Committee.

Goal #1: Stabilize pheromone-based IPM systems in pome fruit and extend the technology to more acres and new crops. (IFAFS and RAMP Participation).

Objectives 1.1 and 2.1: Implementation - demonstration projects.

The IFAFS and RAMP research teams demonstrated that alternatives to organophosphate (OP) insecticides could be used successfully in pome fruit management, using a pheromone-based approach. Such pheromone-based programs were found to be cost neutral with equal efficacy as conventional programs. The use of mating disruption in pome fruits has remained relatively constant during the first three years of the IFAFS and RAMP grants, with a noticeable increase in the use of mating disruption in Washington in 2003, and expectations that this trend will continue for Washington in the future. However, the implementation goals for the extension of mating disruption in pome fruit and walnut have not been realized to date, due to two reasons identified in the IFAFS - RAMP Grants Peer Review Report (self-evaluation). First, the economic plight of the fruit industry nationally and internationally and economic downturn over the last few years resulted in growers cutting costs, one of which was the cost of mating disruption. It is obvious that the efforts by the IFAFS and RAMP participants have encouraged many growers to continue the use of mating disruption during this period. Secondly, one of the reasons for the lack of extension of pheromone-based IPM systems to walnuts was the disappointing results with sprayable pheromone formulations.

The huge efforts in conducting the demonstration projects have provided excellent data on the comparisons of organophosphate (OP) and non-OP treated fields that are under codling moth mating disruption. Many different protocols were used for the alternative insecticides in the different States to provide a variety of options. An interesting all Insect Growth Regulator (IGR) management system in pear in Washington showed the potential of these compounds as alternative insecticides. The Review Committee felt that this area-wide organic pest management effort for pears was a hallmark program that should be continued for the life of the project, and possibly beyond through the acquisition of new funding. The value-added/niche market opportunities demonstrated in this program could possibly be applied to other pome fruit programs and commodities as well.

The Review Committee recommends that the IFAFS/RAMP participants pull together all the information on the efficacy of IGRs and other alternative pesticides, along with all other data on "windows of opportunity", effects on natural enemies, regional variabilities and pest density requirements (as judged by the best monitoring systems). This information should then be used to develop a general bio-based plan for pest management in pears and apples that could be followed in all the States involved in this project. One consideration for a general plan might be to establish a higher rate of 300 ties per acre as a base, and then modify the number from there according to the pest populations in individual orchards.

Objectives 1.2 & 1.3: New pheromone delivery technology.

Although interesting research has been conducted on using the adult codling moth attractant (pear ester; a.k.a. DA technology) in mass trapping and with other technologies for control, the Review Committee is of the opinion that DA technology is unlikely to yield profitable results within a 2-5 year time span, and that the incremental benefit over current pheromone-based approaches is limited. Therefore, it is recommended that research for this project be focused instead on the attract and kill strategies discussed in the next sub-objective.

Although a number of sprayable pheromones have been tested, recent data indicate that they would not be useful in the demonstration projects mentioned above. Additional testing of newer and perhaps better formulations should be done only if funding and time permit. Hand-applied dispensers have been thoroughly researched and need not to be part of the focus for the remaining period of the grants.

High emission releasers for mating disruption have shown great promise for control and this research should be continued. They are of particular importance in walnuts. Larger sites should be established with the ‘puffers’ in walnuts in overall pest management programs to move this system to more growers. It should be stressed that this system may not be the best and cheapest, but the efficacy of the system should nonetheless be demonstrated. Research should be continued in other plots with other high release systems, such as that produced by the MISTRIS Company of Dr. Baker. Research should be continued on new application technologies for distributing fibers and flakes and their efficacy assessed – particularly aerial sprays in walnuts.

There is a paucity of information on the basic mechanisms of mating disruption and how it affects reproduction. Research in this important area needs to continue to better understand the effects of delayed mating and density-dependent mating.

Objectives 1.4 & 1.5: Baits, attract and kill and monitoring.

Monitoring techniques should continue to be investigated to optimize ways to assess damage in demonstration orchards. This would include the use of pheromone and DA (pear ester) traps over the course of the growing season, and the use of any baits that have potential in assessing a pest population. If funds and time are available, it would be interesting to characterize the apple volatiles that attract codling moth adults, and the host volatiles that attract the walnut husk fly. Research on the use of bait sprays for the walnut husk fly should be continued, to replace OP controls.

Research on the use of the pear ester and various pheromone technologies should be conducted with the lure and kill system. Studies should be conducted throughout the entire codling moth flight period in walnuts to determine if there is a reduction in crop damage with these technologies.

Feeding studies have produced data that suggest these compounds might have potential in synergizing pesticide applications – particularly those that need to be ingested. These studies should be continued on a research basis only if funds and time permit. Supplemental funding should be sought.

Goal #2: Double the impact of biological control in orchards through the use of selective tactics (IFAFS only).

Objectives 2.2 & 2.3: Effects of pesticides on natural enemies.

Experimental methods were developed for evaluating direct and sub-lethal effects on a suite of natural enemies, including predators and parasites of different pests. The IFAFS participants felt that pesticide screening was a "black hole" for resources and that there was an endless list of natural enemy candidates to test. The consensus of the Review Committee, however, is that this work is much needed to determine the true impact of these products. Therefore, the Review Committee recommends that this aspect of the project must be completed since it is very critical for full development of the risk rating model and for substantial achievement of GOAL 2. In addition, the Review Committee encourages the IFAFS participants to collect as much data in the field as possible on the long-term effects of these products, the field documentation of which will be critically important for their acceptance and adoption by growers. The Review Committee recommends that one additional product, Novaluron, be considered because of its potential importance in managing codling moth and its potential lethal/sublethal toxicity to many natural enemies.

The IFAFS participants should consider developing a realistic (lab/field) risk analysis system for acute and sublethal effects of pesticides (where risk = hazard X exposure). Ernest Defosse, NPL for Weed Science, USDA-ARS, Beltsville, MD is developing such a system for biocontrol of weed agents and would be a good contact for information on risk analysis (ph. 301-504-6470; esd@ars.usda.gov). The Review Committee acknowledges that implementing this suggestion is contingent on the IFAFS participants obtaining supplemental funding (e.g., from EPA, NRI [National Research Initiative Program], Regional Integrated Pest Management Competitive Grants Program, etc.).

Goal #3: Stabilize the management of specific pest populations through manipulation of orchard ecosystems, including groundcovers and surrounding habitats (IFAFS only).

Objectives 3.1 - 3.3: Landscape ecology studies with pests.

The Review Committee thought there might be some merit in developing lure and kill strategies for stink bugs (possibly using pheromone-baited/vibrational emitting pyramid traps). However, alternative funding sources will be required if work is to continue on this research project. CSREES' NRI Program is a potential source for funding, specifically the Integrative Biology of Arthropods and Nematodes Program (Mary Purcell-Miramontes is the Project Director; ph. 202-401-5168; mpurcell@csrees.usda.gov).

The Review Committee suggests that additional management strategies for *Lygus* bugs might be worth pursuing. These include exploring the possibility of using broadleaf trap crops for *Lygus* (e.g. alfalfa) as a tree understory that could be chemically treated, or the use of broadleaf plants with defensive compounds that are deterrent to *Lygus* that might provide nectar and pollen resources for natural enemies.

The Review Committee felt that the work on using rose/strawberry gardens as a habitat manipulation strategy for leafroller management should continue. Protein marker technology should be utilized to better understand the movement of the leaf-roller parasitoid, *Colpoclypeus florus* (Hymenoptera: Eulophidae) from rose/strawberry gardens and general natural enemies from ground cover (or native habitats) to trees (orchards). This effort will contribute much to biocontrol of leaf rollers and possibly other pests. Regarding the management of pear psylla, studies should focus on using selected plants (e.g. red alder) as new habitat manipulation components to encourage generalist psylla predators.

More focused, higher resolution studies are needed to isolate the ecological interactions, relative impacts, and components of predation. This could be accomplished through carefully designed exclusion/inclusion studies, gut content analysis, ordination analyses, etc. Supplemental funding should be sought to help accomplish this important aspect of the IFAFS study.

Goal #4: Create an integrated education plan for implementation and sustainability of a pheromone-based IPM system.

Objectives 4.1: Educational and outreach activities.

The Review Committee recommends that specific workshops and field days associated with biological control and habitat manipulation be conducted to explain the value of the new bio-based pest management approaches to growers and other stakeholders. Invite state IPM Coordinators in the West, the Western IPM Center Director (Rick Melnicoe; ph. 530-754-8378; rsmelnicoe@ucdavis.edu) and the Center IPM Coordinator to one of your major workshops to engage these stakeholders in your pheromone-based programs. Invite political staffers representing Senators and Congressman from WA, OR, and CA to one of the major workshops to generate political support for bio-based pest management at the national level.

Technical publications should be developed for appropriate aspects of the IFAFS/RAMP projects, such as how to integrate new insecticides into pheromone-based IPM systems. The Western IPM Center should be involved in the development of publications and information delivery. The Review Committee felt that web-based technical information generated from the IFAFS and RAMP projects might be better handled by employing a web manager, possibly through supplemental support and facilitation by the Western IPM Center.

Conclusions:

This is an incredible and exciting project, and is perhaps the best data-driven IPM effort in the United States. The strength of the project is the diversity of talent and the synergy of participants. IFAFS and RAMP participants are to be congratulated for their contributions and dedication. Undoubtedly, many of them did not get credit for the many hours they have devoted to these projects.

Participants should be highly commended for seeking and obtaining other needed funding, as leverage to the IFAFS/RAMP funding that continues to make this project successful and visible. IFAFS and RAMP participants should continue to aggressively pursue funding from CSREES (NRI, and the Pest Management Programs), EPA, and ARS to supplement existing projects.

Explore "Area-Wide" funding opportunities with ARS (Nowierski will work with ARS National Program Staff Kevin Hackett, Ernest Delfosse, and Bob Faust). According to Ernest Delfosse, NPL USDA-ARS, Beltsville, MD, ARS has extended funding for three of the Area-Wide projects until 2006. Proposals for new projects will be solicited in 2006; funds will be available in 2007. Funding for Bio-Based research should also be explored with EPA, CSREES, NRCS, etc. (Nowierski will communicate with EPA, SARE Program Director Jill Auburn, and NRCS regarding funding opportunities).

The educational outreach phases of the projects should now become fully functional. Agricultural producers, environmental groups, and the public at large need to be made aware of this effort and the benefits that have accrued to consumers, field workers, and the environment. The Review Committee would strongly encourage all participants to increase the number of grower meetings, workshops, etc., to increase the visibility and momentum of this project. The schedule of workshops and meetings should be formalized to ensure participation by key project members. All IFAFS and RAMP participants should be encouraged to publish their results in peer-reviewed journals, popular article forums, etc., to showcase the results and successes of these projects. The results of such efforts could then be used as a model for others to emulate.

The Review Committee was very excited about the value-added organically-grown program for pears in Washington, and felt that this concept could be extended to apples and walnuts, in addition to other pear-growing regions in the Northwest.

The Executive Committee is applauded for organizing a peer panel review in the middle of the project. Congratulations on all your accomplishments!

Appendix A.

Topics for discussion during our November 7, 2003 meeting regarding the University of California-Berkeley RAMP grant #00.51101-9673 entitled, “Enhancing pheromone mating disruption programs for lepidopterous pests in western orchards” and the Washington State University IFAFS grant subcontract # 00.52103-9657 at Berkeley entitled “Building a multi-tactic pheromone based pest management system in western orchards”

The intent of this post-award management visit is to help the programmatic and budget staff of CSREES develop a more complete understanding of the progress and accomplishments of the Berkeley RAMP Grant (ca. \$1.0 M) and its relationship to the IFAFS Grant (Building a Multi-tactic, Pheromone-based Pest Management System in Western Orchards; \$2.5 M). Such an understanding of program accomplishments is essential for growth and justification of funding lines and for reporting program impacts to Congress.

Budget related inquiries:

1. Are you maintaining separate accounts for the Berkeley RAMP grant and the IFAFS subcontract grant from Washington State University? It would be helpful for us to understand accounting procedures that maintain the needed integrity of both funding lines.
2. What are your sub-award processes used to distribute subcontract funding of the Berkeley RAMP grant? We would appreciate seeing a budget history of both the Berkeley RAMP and IFAFS subcontract accounts? This would help elucidate where the RAMP and IFAFS grants are with respect to draw-down of funds.
3. Are your funding draw-downs current?

Programmatic related inquiries:

1. What programmatic elements of the Berkeley RAMP grant and the Berkeley subcontract of the IFAFS grant are shared or over-lapping?
2. Which programmatic elements of the Berkeley RAMP grant and the Berkeley subcontract of the IFAFS grant are unique?
3. From an accountability standpoint, do the allocation of funds on the Berkeley RAMP grant and the subcontract of the IFAFS grant reflect the degree of overlap versus the unique components of these separate funding lines?

Accountability and post-award management related inquiries:

It has been difficult for CSREES program leaders to identify program accomplishment from the nearly 200 page annual reports submitted for years 2001 and 2002.

1. What is needed in 2003 is a 2 to 3-page summary of accomplishments of the Berkeley RAMP grant. The summary report should have a number of bullets that reflect the research, education and extension accomplishments for each of the subcontracts relating them to specific benchmarks for the grant’s two goals and subsidiary objectives (as laid out on page 4 of your 2000 proposal). This accomplishment report should also reflect

and reference research publications, education and extension materials produced during the previous year. Would you please provide the 2003 accomplishment report, in such format, during our meeting on November 7, 2003?

2. In your 2000 RAMP proposal under “Evaluation/monitoring/milestones” you discuss the formation and utilization of an advisory committee whom would report to the executive committee of the project. Please identify the composition, roles and describe the leadership provided by the RAMP executive committee for this project. Also, please share the composition of the RAMP project’s advisory committee and the annual review reports and recommendations of the advisory committee to the executive committee for the first 3 years of the grant.
3. If it has not already been completed, I would like to discuss with you the process and status of the mid-project peer review that will allow programmatic adjustments for the final 2 years of the project. I would also like to review summary comments and suggestions from the grower surveys that have been used to identify program constraints and successes.

Dennis D. Kopp
Robert Nowierski
Vera Smith

October 22, 2003

Appendix B.

Preliminary synopsis of the November 7, 2003 site visit to the University of California-Berkeley regarding their RAMP project #00-51101-9673 and the Berkeley sub-contract of the Washington State University IFAFS grant project #00-52103-9657.

Drafted by Dennis D. Kopp, November 8, 2003

Dr. Steve Welter is the Project Director (PD) of the Berkeley RAMP project and a CoPD of the Washington State University IFAFS grant. I met with Dr. Welter in his office at 1:00 PM. Also in attendance was Ms. Barbara Lane, representative from the office of the Dean of the College of Natural Resources. The purpose of the meeting was to address several post-award questions that CSREES staff had regarding these two grants. The questions from CSREES had been previously forwarded to the PI and the Dean's office on October 22, 2003. The intent of this site visit was to discuss opportunities and approaches to enhance the Federal partners understanding of the progress, accomplishments and boundaries of these two unique, but parallel research, education and extension projects. The CSREES questions related to the present status of draw-downs on both projects, the programmatic boundaries of each project and opportunities to improve reporting procedures, thus allowing the Federal partner to better understand project accomplishments.

Budget related inquiries: There have been delays in institutional submissions of sub-contract expenditures and the multi-step processes necessary for submissions, processing and draw-down of sub-contracts for both of these projects. The complexity of the procedures necessary for maintaining the integrity of the sub-contract process between state institutions and with the federal partner has resulted in slowing the draw-down of funds from the host institution and, in turn, from the federal partner. A large portion of the balance, on the Federal ledger of this project, has already been committed to institutions for incurred expenditures. The incurred expenditures are experiencing processing delays that are presently being addressed and steps are being taken to improve the timeliness of sub-contracts draw-downs. The integrity of both funding lines are being judiciously maintained by the host institution and each project expenditure and sub-contract draw-down of funds is related to the appropriate budget line before payment.

Programmatic related inquiries: The RAMP and IFAFS projects have both shared and separate goals. Dr. Welter has developed a diagram that visually describes the goals and objectives of the two grants, showing their relationship to each other and also the uniqueness of each. This diagram will be included with the FY2003 RAMP annual accomplishment report. The FY 2003 report will be submitted once this season's data are analyzed.

Accountability and post-award management related inquiries: Dr. Welter explained how the RAMP project's executive committee functions as a steering committee for both grants and is composed of two members from each cooperating institution; meeting annually to provide project oversight, reporting and management. The RAMP project proposal indicated an advisory committee would be formed that would provide relevancy input serving as the project's formal stakeholder group. An advisory committee has not been formed, yet producer input has been provided to the RAMP project through its cooperators (walnut, peach and apple growers).

A mid-term peer review of the RAMP project was written into the original proposal. Dr. Welter and I discussed the value of such a review and how it could be accomplished. Dr. Welter suggested that a review may be of greater value to western orchard management if it included both the IFAFS and the RAMP project, since both projects shared many objectives. A wider review would encompass the area-wide efforts these projects have put in place and could provide objective guidance to help move these projects to the next phase of implementation. Dr. Welter will visit with Dr. Jay Brunner, PI of the IFAFS grant, concerning the inclusion of the IFAFS project in the review. We felt the preferred time frame would be early in the next calendar year with a 3-4 member peer review team meeting in an easy to access western hub city. I indicated that I would visit with the Western IPM Center to see if they would help support the travel expenses of the review team for this multi-state integrated pest management effort. Dr. Welter and I discussed names of potential reviewers that would be recognized by all as lead scientists familiar with the science and implementation of pheromone based pest management. The following are the beginning of a list of potential peer panel review team members:

Team Leadership:

Steve Yaninek, Purdue (#1 choice as review team leader)

Chemical foundation of pheromones:

1. Wendell Roelofs, Cornell
2. Jim Miller, Michigan State University

Production and grower engagement

1. Jan Nyrop, Cornell
2. Jim Walgenback, North Carolina State University
3. Larry Hull, Pennsylvania State University

Other names mentioned:

1. Bob Nowerski, USDA/CSREES
2. Possibly an ARS scientist or a National Program Leader. (Scott Cameron or Kevin Hackett)
3. Possibly a dean or director from a western state, other than one of those with project scientists. (Possibly Phil Rasmussen or Mike Harrington)

Once both projects have agreed upon participation, the PDs of both grants will provide the leadership in contacting and securing a review team, deciding on the location and dates, developing a self study guide for the review team, and implementing the review. The review team chair will coordinate the development of the review document in conjunction with the National Program Leadership staff of CSREES, ensuring that copies of the completed document are provided to the appropriate administrative and programmatic contacts.