

# Fruit Tree, Nut Tree, and Grapevine Improvement Advisory Board

Meeting Minutes - April 19, 2017  
Trinchero Family Estate Building, Pete Christensen Conference Room  
501 Hopkins Rd., UC, Davis 95616

## Members

Nicholas Podsakoff - Chair  
Cliff Beumel  
Ernest Bowman  
Tom Burchell (absent)  
David Cox  
Mike Farris (absent)  
David Gilchrist  
Andrew Jones (absent)  
Benjamin Kaesekamp  
Clifford Little (absent)  
Denise Moore

## CDFA/Guests

Sean Dayyani - Manager  
Richard Bostock  
Deborah Golino  
Tom Gradziel  
Scott Harper  
Joshua Kress  
Randy Kuffel  
Dinesh Kumar  
Carole Lamb  
Phuong Lao  
Haley McCown  
Jennifer Moro  
Hoang Nguyen  
John Preece  
Joshua Puckett  
Adib Rowhani  
Maher Al Rwahnih  
Ken Shackel  
Sebastian Traviesa  
Andrew Walker  
Andreas Westphal

## Welcome and Introductions

Nicholas Podsakoff called the meeting to order at 9:08 a.m., followed by self-introductions.

## Research Proposal Presentations (Attachment No.1) - Research presentations available upon request

The Board heard the following 11 research and service proposals for funding consideration from Principal Investigators (PI) and service providers:

- **Andreas Westphal** - Evaluating Novel Nematicidal Chemistry for Usefulness in the Nursery Industry
- **Richard Bostock** - Integrated Management of Fusarium Canker in Bare Root and Container-Propagated Stone Fruit Seedlings
- **Ken Shackel** - Managing the Water Relations of Bare Root Nursery Stock to Improve Establishment, Performance, and Disease Resistance
- **Andrew Walker** - Development of Next Generation Rootstocks for California Vineyards
- **Mysore Sudarshana - Haley McCown presented for** - Etiology of Red Canopy Disorder of Cabernet Sauvignon Grapevines on Rootstocks with *Vitis Rupestri* Parentage in the North Coast Vineyards
- **Mysore Sudarshana - Dinesh Kumar presented for** - Genomic Approaches to Understand Non-infectious Bud Failure Syndrome in Almonds
- **Tom Gradziel** - Rootstock Breeding, Hybrid-Vigor, Tolerance to Disease, Salinity & Environmental Stresses
- **Scott Harper** - Development of an ELISA Assay for the Rapid Screening of Cherry for Little Cherry Virus 2
- **Maher Al Rwahnih** - Study of the Effects of Little Cherry Virus-1 and Little Cherry Virus-2 on Different Cherry Rootstocks
- **Deborah Golino - Joshua Puckett presented for** - Study of the Effects of Red Blotch Disease on Different Grapevine Rootstocks and Different *Vitis vinifera* Plants
- **Deborah Golino - Hoang Nguyen presented for** - Optimization of Meristem-tip Culture Methodologies for Virus Elimination for Prunus Cultivars

### **Foundation Plant Services (FPS) Budget Proposal for FY 2017-18 (Attachment No.2)**

In reference to the FPS budget proposal for FY 2017-18 (attached), Deborah Golino presented a proposed budget request of \$842,657 for 2017. Golino noted that the UC's indirect cost is expected to increase from 10% to 15% for FY 2017-18, reaching to a maximum of 40% within five years. To provide a better understanding of FPS' revenue sources, Golino also handed out a chart showing average income from various sources for the previous ten years, including from the IAB assessment, gifts, NCPN, direct sales, user fees, and custom testing and treatment.

### **Assessment Collection for 2016-17 (as of April 19, 2017)**

Sean Dayyani reported that as of April 19, 2017, a total assessment amount of \$2,703,490 was collected in 2016: \$1,445,582.00 for fruit tree, nut tree, & pome tress sales; \$31,686 for olive tree sales; and \$1,013,362 for grapevine sales. Dayyani projected an additional \$2,400 to be collected from late payments.

### **IAB Budget Draft for FY 2017-18**

Draft financial sheets were provided to the Board Members for their review in preparation for the May 17 meeting. Dayyani will email the updated financial sheets and the agenda approximately two weeks prior to the meeting.

### **Next Meeting Date and Proposed Agenda Items**

The next IAB meeting is scheduled for May 17, 2017 at 09:00 AM.

In reference to Maher Al Rwahnih's research proposal "Study of the Effects of Little cherry virus-1 and Little cherry virus-2 on Different Cherry Rootstocks," Cliff Beumel suggested to add up to five additional rootstock cultivars to the pool of 12 rootstocks as presented and selected for evaluation by Al Rwahnih. After a brief discussion, Al Rwahnih agreed to the suggestion, and offered to provide an updated list at the May 17 meeting.

Joshua Kress reported that as of April 1, 2017, the IAB assessment exemption list was effective and established in California Code of Regulations (CCR), Title 3, Section 3070. Kress suggested that the Board regularly review this list and make recommendations for additions or deletions. The Board recommended this as an agenda item for the November meeting.

Kress added that the comment period for the updated regulations for the Deciduous Fruit and Nut Tree Registration and Certification Program (3 CCR 3015-3015.7) ended on April 3, 2017. The final rulemaking package was being routed through the Department for approval, and then would be submitted to the Office of Administrative Law (OAL) for review. Kress estimated that the regulations would go into effect either July 1 or October 1 of 2017.

Kress also reported that the program had received a request to follow this effort by updating the regulations for the Pome Fruit Tree Registration and Certification Program (3 CCR 3020-3020.5). In preparation, the Program had contacted the Washington and Oregon departments of agriculture to request their input and participation.

### **Adjournment**

The meeting was adjourned at 2:00 p.m.

Respectfully Submitted By:

Sean Dayyani,  
Senior Environmental Scientist, IAB Manager  
CDFA Nursery, Seed, and Cotton Program

Approved by the California Fruit Tree, Nut Tree and Grapevine Improvement Advisory Board on  
May 17, 2017

**AGENDA**  
**California Fruit Tree, Nut Tree, and Grapevine**  
**Improvement Advisory Board (IAB)**  
**Trincherro Family Estate Building, Pete Christensen Conference Room**  
**University of California, Davis**  
**April 19, 2017 - 9:00 a.m.**

9:00 - 9:15	<b>WELCOME AND INTRODUCTIONS: Nicholas Podsakoff, Chair</b>
9:15	<b>RESEARCH PRESENTATIONS: Fiscal Year 2017-18</b> <b>PLEASE KEEP PRESENTATION WITHIN 15 MINUTES</b>
	<p><b><u>Proposal #1:</u></b>      <b>Andreas Westphal</b> – UC Riverside  (9:15 - 9:35)      Evaluating Novel Nematicidal Chemistry for Usefulness in the Nursery Industry</p> <p><b><u>Proposal #2:</u></b>      <b>Richard Bostock/Thomas Gordon</b> – UC Davis  (9:35 - 9:55)      Integrated Management of Fusarium Canker in Bare Root and Container-Propagated Stone Fruit Seedlings</p> <p><b><u>Proposal #3:</u></b>      <b>Ken Shackel</b> – UC Davis  (9:55 - 10:15)      Managing the Water Relations of Bare Root Nursery Stock to Improve Establishment, Performance, and Disease Resistance</p> <p><b><u>Proposal #4:</u></b>      <b>Andrew Walker</b> – UC Davis  (10:15 - 10:35)      Development of Next Generation Rootstocks for California Vineyards</p>
10:35 - 10:50	<b>- BREAK -</b>
	<b>RESEARCH PRESENTATIONS CONTINUED</b>
	<p><b><u>Proposal #5:</u></b>      <b>Mysore Sudarshana</b> – USDA - ARS  (10:50 - 11:10)      Etiology of Red Canopy Disorders of Cabernet Sauvignon Grapevines on Rootstocks with <i>Vitis rupestris</i> Parentage in the North Coast Vine-</p> <p><b><u>Proposal #6:</u></b>      <b>Mysore Sudarshana</b> – USDA - ARS  (11:10 - 11:30)      Genomic Approaches to Understand Non-infectious Bud Failure Syndrome in Almonds</p> <p><b><u>Proposal #7:</u></b>      <b>Thomas Gradziel</b> – UC Davis  (11:30 - 11:50)      Rootstock Improvement</p>
11:50 - 1:00	<b>- LUNCH BREAK -</b>

**AGENDA**  
**California Fruit Tree, Nut Tree, and Grapevine**  
**Improvement Advisory Board (IAB)**  
**Trinchero Family Estate Building, Pete Christensen Conference Room**  
**University of California, Davis**  
**April 19, 2017 - 9:00 a.m. (continued)**

**1:00 RESEARCH PRESENTATIONS CONTINUED**

**Proposal #8:**        **Scott Harper** – Washington State University **(to be confirmed)**  
(1:00 - 1:20)        Development of an ELISA Assay for the Rapid Screening of Cherry for Little cherry virus 2

**Proposal #9:**        **Maher Al-Rwahnih** – UC Davis  
(1:20 - 1:40)        Study of the Effects of Little cherry virus-1 and Little cherry virus-2 on Different Cherry Rootstocks

**Proposal #10:**       **Deborah Golino/Adib Rowhani** – UC Davis  
(1:40 - 2:00)       Study of the Effects of Red Blotch Disease on Different Grapevine Rootstocks and Different Vitis vinifera Plants

**Proposal #11:**       **Deborah Golino** – UC Davis  
(2:00 - 2:20)       Optimization of Meristem-tip Culture Methodologies for Virus Elimination for Prunus Cultivars

**2:20 -2:35       - BREAK -**

**2:35 OTHER BUSINESS**

- Foundation Plant Service Budget Proposal for FY 2017-18 – Deborah Golino
- Assessments Collected to Date/Fund Conditions FY 2016-17
- Review IAB Budget Draft for FY 2017-18
- Agenda Items and Next Meeting Discussion (May 17th)

**3:00 ADJUORNMENT**

*Note: Agenda order is tentative and subject to change by the Board without prior notice. Action is possible on any item contained in this agenda. Audience members may address the Board following each agenda item. All speakers from the audience are limited to three minutes. People requiring accommodation in order to attend or participate in this meeting should contact Sean Dayyani (916) 654-0435.*

*Meetings of the Improvement Advisory Board are open to the public and comply with the Bagley-Keene Open Meeting Act. This Act allows for public comment on all agenda items. For further information related to the agenda, please contact Sean Dayyani (916) 654-0435.*

**Project Summary & Scope of Work – FPS 2017-2018**  
**(This replaces the previous year’s document titled ‘Description of Budget Items’)**

## **Project Summary**

The State of California and University of California have collaborated for many years on the development of healthy grapevine and fruit tree materials for the benefit of state agricultural interests. Separate programs for the registration and certification of grapes and fruit trees were implemented in the 1950’s through close cooperation between the California Department of Food and Agriculture (CDFA) and Foundation Plant Services (FPS), University of California, Davis. Key functions mandated by the state program include testing, treatment (if necessary) and maintenance of grapevine and fruit tree materials. The selections are required to test negative for certain specified diseases, primarily viruses, to qualify for initial inclusion in the state program, and then must continue to pass periodic inspections and testing to remain in the program. FPS performs the required testing of the plant material, including index testing, laboratory tests such as ELISA and PCR analysis and DNA testing for proper identification. Should plant material test positive for prohibited diseases, FPS performs microshoot tip tissue culture therapy on selections to eliminate any disease. An FPS expert determines the correct identification of each grape and fruit tree selection using state of the art DNA technology. FPS laboratory and field staff provide ongoing maintenance and testing of grape and fruit tree selections to monitor continued compliance with program standards. The work to be performed in the project described below will enable FPS to develop and implement the high level testing and treatment protocols and effective maintenance strategies for the plant material under its care. The mutual goal of FPS and CDFA is to continue to ensure healthy plant material for the grape and fruit tree industries in California.

## **Scope of Work**

Objective 1. Maintain California Registration & Certification Foundation Orchard at CDFA standard. (Budget items 1, 2, 3, & 6, see budget summary table.)

The FPS foundation orchard is maintained as an elite source of propagation materials of various *Prunus* fruit and nut trees as part of the California Fruit & Nut Tree Certification Program under the aegis of CDFA. The FPS fruit and nut tree collection now contains a total of 330 selections for a total of 1,466 scion wood and seed trees. The almond, apricot, cherry, nectarine, peach, and plum are planted in replicates of four and are pruned as budwood sources. There are approximately 30 rootstock selections. The plant material is primarily distributed to California nurseries for the creation of the next generation of disease-tested and professionally-identified budwood sources. Twice annually, FPS and CDFA conduct joint visual inspections of the Foundation Orchard to insure that the vines are healthy and free of virus symptoms.

Funding for the FPS Fruit & Nut Tree Program for 2017-2018 includes annual testing of the trees and orchard maintenance and development. New fruit and nut tree selections entering the program must be tested for the diseases specified in the state regulations in order to qualify for the program. Such testing includes ELISA and PCR methods. If those selections are found to be virus infected, tissue culture microshoot tip therapy (see above) will be performed. Selections acquired from the Clean Plant Center of the Northwest at Prosser Washington must undergo annual maintenance testing along with other selections in the FPS orchard blocks. This project includes funding for ELISA testing of 2/3 of the FPS orchard (1,466 trees) for *Prunus* necrotic ringspot virus (PNRSV) and Prune dwarf virus (PDV) as a substitute for the annual Shirofugen biological index by agreement between CDFA and FPS. Ongoing maintenance of the orchards includes pest control, irrigation, soil relations, pruning and other practices inherent in maintaining a healthy and virus-negative collection. Aging trees are routinely re-propagated and planted in new orchard areas (Budget item 1, 2 & 3).

An FPS scientist will continue to develop micro satellite profiles for FPS fruit & nut tree accessions and improve the fruit & nut tree ID database. This analysis should provide reliable objective information about the FPS tree collection, which will be useful in the professional identification of our selections, and in providing a database for comparison with material distributed from FPS. Developing this database for our materials will allow nurseries to check their materials against that database for verification. It will also be possible to make international comparison with other documented collections, facilitating professional identification of selections in the R&C program (Budget item 6).

Objective 2. Maintain California Registration & Certification Program Foundation Grapevine Vineyard at CDFA standard. (Budget item 2, 4, 5, & 7)

The California Grapevine Registration & Certification Program is administered by CDFA. The program targets the elimination of specific grapevine diseases such as leafroll, fanleaf, corkybark, stemplitting and fleck that are spread from vine to vine by grafting and/or vegetative propagation. Some of the targeted diseases are also spread by soil nematodes (fanleaf) and mealy bugs (suspected of spreading leafroll). Under the auspices of the CDFA Program, correctly named grape materials that pass specific disease tests are identified and/or created. Once identified, foundation materials are maintained by FPS and then multiplied by participating nurseries into commercial quantities according to procedures prescribed by the Program.

The foundation source vines for the California R & C Program are maintained by FPS in its foundation vineyard blocks at UC Davis. FPS maintains 90 acres of foundation level grapevines; the collection includes more than 800 grape scion and rootstock cultivars and more than 3,000 different clones (selections). FPS has developed the foundation collection at the new Russell Ranch Foundation Vineyard to the highest phytosanitary standard in the world. These blocks contain vines that have been tested, or were propagated from sources that have been tested, using all the methods prescribed in CDFA regulations for foundation stock. During the first two years after a qualified vine is planted in the foundation block at FPS, the vines are tested annually for leafroll-associated and nematode-transmitted viruses using ELISA tests. In addition, as soon as the vines are large enough to produce fruit, they are visually inspected by a professional grape variety expert who checks the accuracy of the variety identification.

The state regulations require that 1/5 of the foundation grapevines in the California Grapevine R & C Program be tested each year to ensure that they have not become infected with any of the diseases prohibited by the program. The vines are maintained in isolation on the UC Davis campus but are subject to ongoing testing to ensure they stay healthy. FPS will test approximately 1/5 of the Russell Ranch Foundation Vineyard blocks (758 vines) by qPCR methods for the following 20 viruses: Grapevine fanleaf virus; Grapevine fleck virus; Grapevine tomato ringspot virus; Arabis mosaic virus; Grapevine leafroll associated 1, 2, 2RG, 3, 4, 5, 6, 7 & 9; Grapevine red blotch associated virus; Grapevine Virus A, B, D, E & F; and Grapevine Pinot gris virus (Budget item 2 & 4). Twice annually, FPS and CDFA conduct joint visual inspections of the Foundation Vineyard to insure that the vines are healthy and free of virus symptoms.

The regulations for the California Grapevine R & C Program require that the grapevines in the program be true to variety. FPS employs a scientist experienced in genetic analysis to conduct DNA microsatellite testing on the grapevines in the program to ensure correct variety identification of each selection. This scientist will continue to develop micro satellite profiles for FPS grape accessions and improve the grape ID database, while generating data on new accessions to the collection. This analysis should provide reliable objective information about the FPS grape collection, which will be useful in the professional identification of our selections, and in providing a database for comparison with material distributed from FPS. Developing this database for our materials will allow nurseries to check their materials against that database for verification. It will also be

possible to make international comparison with other documented collections, facilitating professional identification of selections in the R&C program (Budget item 2 & 5).

Grapevine selections that test positive for any disease prohibited by the regulations of the California R & C Program do not qualify for inclusion in the program. In order to qualify those selections, FPS performs disease elimination therapy on the material. The most effective technique used for disease elimination on grapevine is microshoot tip tissue culture therapy, which involves excision of a very small (less than 0.5 mm) piece of the shoot tip of the grape, growing it in media into a new vine and testing the new grapevine for the diseases in the program. FPS employs several scientists experienced in tissue culture techniques and performs hundreds of excisions each year. Funding for this project will support in part the work of two FPS technicians in the tissue culture laboratory (Budget item 7).

Objective 3. Provide scientific support for Objective 1 & 2.

Funding is provided for the salary of a Project Scientist who is responsible for monitoring the health status of foundation plantings at FPS by performing proper laboratory tests and visual inspections. This scientist will oversee the disease inspection and testing of quarantine and new introductions, monitor and record symptom expression on all field and greenhouse indexed plants, oversee FPS laboratory testing for virus using ELISA, PCR, or other applicable technology, and review all test results and prepare reports for inclusion in the FPS database. This work will be in support of both Objective 1 and Objective 2, above. (Budget item 2).

## FPS 2017-2018 Proposed IAB Budget Summary Table

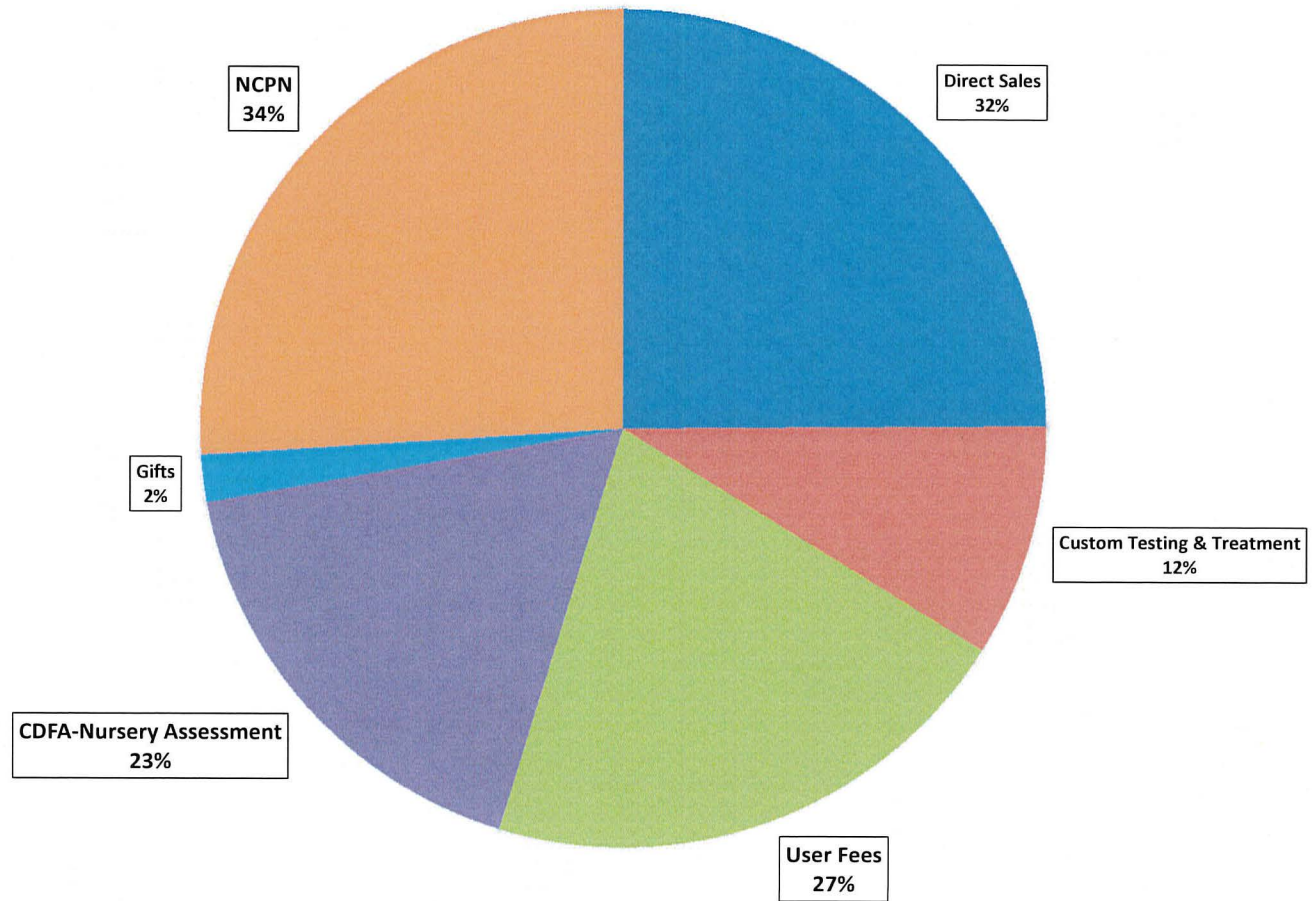
BUDGET ITEM	BASE PROGRAM	SUPPLEMENT TO BASE PROGRAM	TREE	GRAPE	TOTAL
1. Support to the FPS tree program for 2017-2018.	√		303,701		\$303,701
2. FPS Plant Pathologist salary & benefits (70%).	√		54,365	54,366	\$108,731
3. ELISA testing of 2/3 of the orchard for PNRSV and PDV.	√		57,894		\$57,894
4. PCR Test 1/5 Russell Ranch Foundation vineyard for 20 viruses.	√			111,887	\$111,887
5. Micro satellite analysis of grapevines.		√		26,188	\$26,188
6. Micro satellite analysis of orchard.		√	26,188		\$26,188
7. Tissue Culture virus elimination for grapes.		√		98,156	\$98,156
<b>SUBTOTAL</b>	\$582,213	\$262,419	\$442,148	\$290,597	\$732,745
+ 15% University Overhead Costs					\$109,912
<b>TOTAL FUNDS REQUESTED</b>					\$842,657



Budget Detail with salaries April 17, 2017

BUDGET ITEM	AMOUNT REQUESTED/ AWARDED	SALARY	BENEFITS	TOTAL PAYROLL	TRAVEL	EQUIPMENT	SUPPLIES	TOTAL DIRECT CHARGES	0.15	TOTAL
1. SUPPORT TO THE FPS TREE PROGRAM 2017-2018	\$303,701.00	\$192,763.75	\$110,937.67	\$303,701.42	\$0.00	\$0.00	\$0.00	\$303,701.42	\$45,555.21	\$349,256.63
<i>(Gallagher 100%, Puckett 30%, Pinkston 25%, Garcia 100%, Arriaga 65%)</i>										
2. FPS PLANT PATHOLOGIST SALARY /BENEIFTS	\$108,731.00	\$78,111.60	\$30,619.75	\$108,731.35	\$0.00	\$0.00	\$0.00	\$108,731.35	\$16,309.70	\$125,041.05
<i>(Al Rwahnih 70%)</i>										
3. ELISA TESTING OF 2/3 OF THE ORCHARD FOR PNRSV AND PDV	\$57,894.00	\$37,889.05	\$20,005.42	\$57,894.47	\$0.00	\$0.00	\$0.00	\$57,894.47	\$8,684.17	\$66,578.64
<i>(Klaassen 20%, Farrar 35%)</i>										
4. PCR TEST 1/5 RUSSELL RANCH FOUNDATION VINEYARD FOR 20 VIRUSES	\$111,887.00	\$73,224.70	\$38,662.64	\$111,887.34	\$0.00	\$0.00	\$0.00	\$111,887.34	\$16,783.10	\$128,670.44
<i>(Klaassen 80%, Farrar 10%)</i>										
5. MICRO SATELLITE ANALYSIS OF GRAPEVINES	\$26,188.00	\$17,138.40	\$9,049.08	\$26,187.48	\$0.00	\$0.00	\$0.00	\$26,187.48	\$3,928.12	\$30,115.60
<i>(Dangl 20%)</i>										
6. MICRO SATELLITE ANALYSIS OF ORCHARD	\$26,188.00	\$17,138.40	\$9,049.08	\$26,187.48	\$0.00	\$0.00	\$0.00	\$26,187.48	\$3,928.12	\$30,115.60
<i>(Dangl 20%)</i>										
7. TISSUE CULTURE VIRUS ELIMINATION FOR GRAPES	\$98,156.00	\$64,237.91	\$33,917.88	\$98,155.79	\$0.00	\$0.00	\$0.00	\$98,155.79	\$14,723.37	\$112,879.15
<i>(Pudlo 80%, Shoulders 40%)</i>										
	<b>\$732,745.00</b>	<b>\$480,503.81</b>	<b>\$252,241.50</b>	<b>\$732,745.31</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$732,745.31</b>	<b>\$109,911.80</b>	<b>\$842,657.11</b>

FPS INCOME TEN YEAR AVERAGE 2006-2016



Average Gross \$3,396,179

*Deborah Handout*  
4/19/17