

# Program in Fruit and Vegetable Development, Production and Management

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## V(A). Planned Program (Summary)

### 1. Name of the Planned Program

Program in Fruit and Vegetable Development, Production and Management

## V(B). Program Knowledge Area(s)

### 1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms			8%	
202	Plant Genetic Resources			10%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants			13%	
204	Plant Product Quality and Utility (Preharvest)			28%	
205	Plant Management Systems			23%	
206	Basic Plant Biology			7%	
212	Pathogens and Nematodes Affecting Plants			3%	
216	Integrated Pest Management Systems			1%	
404	Instrumentation and Control Systems			4%	
601	Economics of Agricultural Production and Farm Management			1%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources			2%	
	<b>Total</b>			100%	

## V(C). Planned Program (Inputs)

### 1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	0.0	0.0	41.7	0.0
<b>Actual</b>	0.0	0.0	34.0	0.0

### 2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	316567	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	1119696	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	1639328	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

Specific activities vary across a wide range from molecular level inquiry to field based studies concerning the efficacy of horticultural production practices. These activities include: (1) basic research applying molecular biology, genetics and biochemistry to the calcium/calmodulin-mediated signal network that influences plant response to environmental factors; (2) development of data mining tools and resources for genomics research on Rosaceae; (3) studies in fruit production and biology, with an emphasis on sustainability of fruit production systems; (4) breeding and genetic studies in apple, cherry, raspberry, and strawberry, including genomics approaches to identify functional genetic markers for crop improvement; (5) studies of the anatomy and structure of grape berry during growth and development; (6) research that emphasizes the use of plant bioregulators for apple, pear, and sweet cherry, (7) studies related to the interaction of various environmental and production factors influencing yield and quality of potato tubers; (8) research focusing on environmental factors and management practices as they influence grape physiology; (9) studies of effects of deficit irrigation and partial root zone drying in apple, cherry, and grape; (10) research which focuses on the development of an understanding of factors that cause skin disorders of apples; (11) evaluation of potato cultivars for introduction into the Washington potato industry; (12) studies focusing on practical means of achieving balanced cropping; (13) effects of new clonal rootstocks on scion productivity, growth, and fruit quality in cherry; (14) research focusing on novel management strategies for high density cherry production; (15) the potential for mechanical harvest of fresh-market quality, stemless sweet cherries; and (16) the development of automation, sensing, control, and information systems for precision agriculture. The outputs of these activities will include: patents, plant variety releases, scientific journal articles, conference publications and presentations, poster presentations, field day presentations, web sites, and knowledge about production and management practices that is passed along to users in other informal settings.

**2. Brief description of the target audience**

The audience for this program will be other scientists, economists, agribusiness, farmers, horticulturists and the fruit tree and potato industries.

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	0	0	0	0
2007	0	0	0	0

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	1
2007:	2

**Patents listed**

Poovaiah B., L. Du. 2007. Size and/or growth engineering by modulation of the interaction between calmodulin, and brassinosteroid biosynthetic enzymes and orthologs thereof. submitted.  
 Schrader, L.E. 2007. Compositions and methods for suppressing cracking and water loss from cherries. U.S. Patent no. 7,222,445

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>			
2007	2	22	24

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

Peer reviewed journal articles

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2007	20	22

**Output #2**

**Output Measure**

Variety Releases

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2007	2	4

**Output #3**

**Output Measure**

Plant Patents

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2007	1	4

**Output #4**

**Output Measure**

Number of graduate students supported by Agricultural Research Center and external funds

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2007	7	19

**V(G). State Defined Outcomes**

O No.	Outcome Name
1	See below under Evaluation.

**Outcome #1**

**1. Outcome Measures**

*Not reporting on this Outcome for this Annual Report*

**2. Associated Institution Types**

**3a. Outcome Type:**

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
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**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
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**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration,new cultural groupings,etc.)

**Brief Explanation**

See above.

**V(I). Planned Program (Evaluation Studies and Data Collection)**

**1. Evaluation Studies Planned**

- Retrospective (post program)
- Before-After (before and after program)
- During (during program)

**Evaluation Results**

**Key Items of Evaluation**