

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Sustainable Food Systems

- Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	14%		5%	
111	Conservation and Efficient Use of Water	2%		2%	
201	Plant Genome, Genetics, and Genetic Mechanisms	1%		18%	
202	Plant Genetic Resources	3%		5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	4%		9%	
204	Plant Product Quality and Utility (Preharvest)	7%		5%	
205	Plant Management Systems	31%		5%	
206	Basic Plant Biology	1%		15%	
211	Insects, Mites, and Other Arthropods Affecting Plants	2%		2%	
212	Diseases and Nematodes Affecting Plants	1%		4%	
302	Nutrient Utilization in Animals	4%		4%	
303	Genetic Improvement of Animals	1%		3%	
307	Animal Management Systems	11%		1%	
502	New and Improved Food Products	2%		4%	
503	Quality Maintenance in Storing and Marketing Food Products	2%		3%	
601	Economics of Agricultural Production and Farm Management	6%		3%	
604	Marketing and Distribution Practices	3%		1%	
702	Requirements and Function of Nutrients and Other Food Components	0%		7%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	4%		2%	
723	Hazards to Human Health and Safety	1%		2%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	122.8	0.0	132.0	0.0

Actual Paid	7.5	0.0	17.5	0.0
Actual Volunteer	0.0	0.0	0.0	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
1007462	0	1947597	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1007462	0	1947597	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
39549983	0	97102148	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

UC ANR's integrated research and extension activities will conduct research projects, workshops, education classes and demonstrations, as well as one-on-one interventions. In addition, the programs will use PSAs, newsletters, mass media, web sites and collaborations with other agencies and organizations to create and deliver programs.

2. Brief description of the target audience

- Food producers (e.g. farmers/ranchers and rangeland owners/operators/managers, including conventional, organic, small and large producers)
- Agricultural advising professionals (e.g. Pest Control Advisors, crop advisors, landscape professionals)
 - Allied industry companies including seed and supply companies
 - Food processors, handlers, retailers and suppliers
 - Public regulatory agencies and private non-profit advocacy groups
 - Food consumers, members of the general public

3. How was eXtension used?

UC ANR academics used eXtension to participate in and contribute to Communities of Practice, to answer "Ask an Expert" questions, and for other networking purposes. The Division looks forward to the re-invention into a system of greater value to California Extension.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	380245	0	0	0

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

Patent Applications Submitted

Year: 2014
 Actual: 7

Patents listed

1. DNA DEMETHYLATION IN THE ARABIDOPSIS GENOME
2. SNP DISCOVERY IN CANDIDATE GENES FOR CATTLE LIPID COMPOSITION
3. HARD WHITE SPRING WHEAT VARIETY "PATWIN-515"
4. DURUM WHEAT VARIETY MIWOK
5. STAYGREEN MAIZE: ENGINEERING SINGLE-GENE-CONTROLLED STAYGREEN POTENTIAL INTO PLANTS
6. STAYGREEN MAIZE: GENES WHICH PRODUCE STAYGREEN CHARACTERISTICS IN MAIZE AND THEIR USES
7. USE OF A NATURAL METABOLITE (ADENOSINE) TO INCREASE FRUIT SIZE AND YIELD

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	88	336	424

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Classes/Short Courses Conducted

Year	Actual
2014	926

Output #2

Output Measure

- Workshops Conducted

Year	Actual
2014	90

Output #3

Output Measure

- Demonstrations and Field Days Conducted

Year	Actual
2014	126

Output #4

Output Measure

- Newsletters Produced

Year	Actual
2014	28

Output #5

Output Measure

- Web Sites Created or Updated

Year	Actual
2014	38

Output #6

Output Measure

- Research Projects Conducted

Year	Actual
2014	252

Output #7

Output Measure

- Videos, Slide Sets and other A/V or Digital Media Educational Products Created

Year	Actual
2014	10

Output #8

Output Measure

- Manuals and Other Printed Instructional Materials Produced

Year	Actual
2014	22

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Farm and ranch owners/managers and allied industry professionals, participating in the programs, will gain knowledge of crop and varietal selection factors and research-based performance data.
2	Farm, ranch, and landscaping owners/managers and allied industry professionals, participating in the programs, will adopt improvements in aspects of comprehensive management systems for plant and animal production.
3	Farm, ranch and landscaping owners/managers and allied industry professionals, participating in the programs, will adopt superior varieties of crops.
4	Farm, ranch, landscaping owners/managers and allied industry professionals, participating in the programs, will gain knowledge of aspects of comprehensive management systems for plant and animal production.
5	Farm and ranch owners/managers, participating in the programs, will gain knowledge of business management practices and marketing strategies, including the costs and risks associated with producing specialty crops.
6	Tree fruit and nut owners/managers and allied industry professionals, participating in the programs, will adopt recommended pruning techniques or other orchard management practices.
7	Farm and ranch owners/managers and allied industry professionals, participating in the programs, will be more likely to try out or adopt recommended cultural practices, pest and disease management, or other aspects of comprehensive management systems for animal and plant production.
8	Farm and ranch owners/managers, participating in the programs, will gain skills in business management practices.
9	Farm and ranch owners/managers, participating in the programs, will realize increased profitability due to lower production costs or diversification of income.
10	Farm, ranch and landscaping owners/managers and allied industry professionals, participating in the programs, will gain knowledge of pest and disease management for plant and animal production.
11	Farm, ranch and landscaping owners/ managers and allied industry professionals, participating in the programs, will gain knowledge of cultural practices.
12	Farm, ranch and landscaping owners/ managers and allied industry professionals, participating in the programs, will gain knowledge of irrigation management and drainage.
13	Farm, ranch and landscaping owners/managers and allied industry professionals, participating in the programs, will adopt improvements in cultural practices.
14	Farm, ranch and landscaping owner/operators and managers and allied industry professionals, participating in the program, will gain comprehensive management skills for plant and animal production.
15	Farm and ranch owner/operators and allied industry professionals, participating in food safety programs, gaining knowledge on on-farm control of food contaminants and quality assurance programs.

16	Economic study helped determine winegrape growers' compensation of \$5.6 million for vineyard losses.
17	Precedence set for grower gains to increased market opportunity overseas and greater economic competitiveness.

Outcome #1

1. Outcome Measures

Farm and ranch owners/managers and allied industry professionals, participating in the programs, will gain knowledge of crop and varietal selection factors and research-based performance data.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	157

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
204	Plant Product Quality and Utility (Preharvest)

Outcome #2

1. Outcome Measures

Farm, ranch, and landscaping owners/managers and allied industry professionals, participating in the programs, will adopt improvements in aspects of comprehensive management systems for plant and animal production.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Farm, ranch and landscaping owners/managers and allied industry professionals, participating in the programs, will adopt superior varieties of crops.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Farm, ranch, landscaping owners/managers and allied industry professionals, participating in the programs, will gain knowledge of aspects of comprehensive management systems for plant and animal production.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1289

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
206	Basic Plant Biology
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Diseases and Nematodes Affecting Plants
302	Nutrient Utilization in Animals
307	Animal Management Systems
601	Economics of Agricultural Production and Farm Management

Outcome #5

1. Outcome Measures

Farm and ranch owners/managers, participating in the programs, will gain knowledge of business management practices and marketing strategies, including the costs and risks associated with producing specialty crops.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	222

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
601	Economics of Agricultural Production and Farm Management
604	Marketing and Distribution Practices

Outcome #6

1. Outcome Measures

Tree fruit and nut owners/managers and allied industry professionals, participating in the programs, will adopt recommended pruning techniques or other orchard management practices.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Farm and ranch owners/managers and allied industry professionals, participating in the programs, will be more likely to try out or adopt recommended cultural practices, pest and disease management, or other aspects of comprehensive management systems for animal and plant production.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	51

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Diseases and Nematodes Affecting Plants
307	Animal Management Systems

Outcome #8

1. Outcome Measures

Farm and ranch owners/managers, participating in the programs, will gain skills in business management practices.

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

Farm and ranch owners/managers, participating in the programs, will realize increased profitability due to lower production costs or diversification of income.

Not Reporting on this Outcome Measure

Outcome #10

1. Outcome Measures

Farm, ranch and landscaping owners/managers and allied industry professionals, participating in the programs, will gain knowledge of pest and disease management for plant and animal production.

Not Reporting on this Outcome Measure

Outcome #11

1. Outcome Measures

Farm, ranch and landscaping owners/ managers and allied industry professionals, participating in the programs, will gain knowledge of cultural practices.

Not Reporting on this Outcome Measure

Outcome #12

1. Outcome Measures

Farm, ranch and landscaping owners/ managers and allied industry professionals, participating in the programs, will gain knowledge of irrigation management and drainage.

Not Reporting on this Outcome Measure

Outcome #13

1. Outcome Measures

Farm, ranch and landscaping owners/managers and allied industry professionals, participating in the programs, will adopt improvements in cultural practices.

Not Reporting on this Outcome Measure

Outcome #14

1. Outcome Measures

Farm, ranch and landscaping owner/operators and managers and allied industry professionals, participating in the program, will gain comprehensive management skills for plant and animal production.

Not Reporting on this Outcome Measure

Outcome #15

1. Outcome Measures

Farm and ranch owner/operators and allied industry professionals, participating in food safety programs, gaining knowledge on on-farm control of food contaminants and quality assurance programs.

Not Reporting on this Outcome Measure

Outcome #16

1. Outcome Measures

Economic study helped determine winegrape growers' compensation of \$5.6 million for vineyard losses.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

From 1998 to about 2000, more than 40 percent of the Temecula Valley vineyards were removed due to Pierce's disease, which is spread by the glassy-winged sharpshooter. In 2000, the California Department of Food and Agriculture received money from the federal government to provide compensation to growers and alleviate the impact of their losses caused by this disease. In order to process the amount of compensation, both the growers and CDFA required current information on production practices and costs of establishment for winegrape production in the impacted areas.

What has been done

An economic study analyzing the costs of establishment and production was developed for wine grapes in Temecula, Riverside County. This study detailed production practices, and estimated and analyzed the capital needed to establish vineyards and produce winegrapes in the area. The study was developed in cooperation with growers using the practices and costs of their vineyard establishment and production.

Results

Winegrape growers in Temecula received \$5.6 million in compensation from CDFA for their vineyard losses due to Pierce's disease. The amount of the compensation was determined using the values and analysis presented in the UC economic study. The costs of establishment and production provided both growers and CDFA the detailed cultural practices and economic basis for discussion and determination of a fair compensation. This compensation enabled many of the growers to replant their vineyards and stay in the business of winegrape production. The Temecula wine grape industry has recovered many of its losses and continues to build the

economy of the community. In 2005, the industry contributed about \$4 million in crop value to the economy. The revival of the industry also restored employment in agriculture and service industries. It enabled the wine industry to stabilize and continue generating income to the community through tourism.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants

Outcome #17

1. Outcome Measures

Precedence set for grower gains to increased market opportunity overseas and greater economic competitiveness.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Off shore markets can be difficult to acquire especially when Pest Risk Assessments (PRA) are needed. PRAs are reviewed by the local agricultural commissioner, the United States Department of Agriculture Animal Plant Health Inspection Service and the receiving country. The process can halt at any level. Many growers find it daunting to write a technical PRA.

What has been done

UCCE provides the needed expertise to help growers write the technical Pest Risk Assessments(PRA).

Results

Through UCCE assistance, one ornamental plant grower successfully completed the PRA opening the market opportunity with Guatemala. A template was developed for other growers to use in acquiring markets in Guatemala and other countries.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

Brief Explanation

During FY 2014, California continued to face its worst drought in decades. Water supply and quality for agricultural, urban, and environmental systems has become one of the state's biggest challenges. UC ANR has focused efforts to serve as a resource both in offering everything from near-term management advice to farmers and ranchers to the innovative work being carried out by researchers on a vast array of issues from drought resistant crops to snow sensors to climate change.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UC ANR's quantitative and qualitative outcomes recorded from the evaluation studies are reported under the State Defined Outcomes section.

Key Items of Evaluation

The Report Overview's federal Planned Program summary of accomplishments highlights UC ANR's most significant work during FY 2014, especially the research developments. In addition, significant success stories are reported as qualitative outcomes under the State Defined Outcomes section.