

## 4. Invasive Species Education and Management

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

##### 1. Name of the Planned Program

4. Invasive Species Education 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
121	Management of Range Resources	5%		0%	
123	Management and Sustainability of Forest Resources	5%		0%	
136	Conservation of Biological Diversity	10%		0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	20%		27%	
212	Pathogens and Nematodes Affecting Plants	20%		0%	
213	Weeds Affecting Plants	20%		53%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	15%		0%	
215	Biological Control of Pests Affecting Plants	0%		20%	
311	Animal Diseases	5%		0%	
<b>Total</b>		100%		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>	2.0	0.0	5.0	0.0
<b>Actual</b>	1.6	0.0	8.3	0.0

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

Extension		Research	
Smith-Lever 3b & 3c 78231	1890 Extension	Hatch 437446	Evans-Allen 0
<b>1862 Matching</b> 103583	<b>1890 Matching</b> 0	<b>1862 Matching</b> 1801323	<b>1890 Matching</b> 0
<b>1862 All Other</b> 6941	<b>1890 All Other</b> 0	<b>1862 All Other</b> 150883	<b>1890 All Other</b> 0

#### 4. Invasive Species Education and Management

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

###### 1. Brief description of the Activity

Research and extension efforts to support Invasive Species Education and Management continue to be a top priority for CTAHR. With increased airline and shipping traffic, more invasive species are arriving, and threaten the native plants and animals, as well as economically important plants, forests, and watersheds. A great majority of the resource for invasive species were invested in the following knowledge areas: pathogens and nematodes affecting plants; insects, mites, and other arthropods affecting plants; and weeds affecting plants.

CTAHR has conducted research and outreach activities on invasive species that became established within the last 10 years include: coqui frog, nettle caterpillar, Erythrina gall wasp, fireweed, pickle worm, and papaya mealybug.

The brown tree snake (Guam and other Pacific islands) and the Red Imported Fire Ant (Southeast USA, California, Australia, and Taiwan) are two species that have drawn particular attention and for which action plans have been developed in the event that they are accidentally introduced into Hawaii.

- Provided outreach activities to educate stakeholders on biology, management techniques, and other information on targeted invasive species.
- Coordinated activities with partner agencies, community groups, and other interested stakeholders.
- Conducted pertinent research on the biology, and control of the invasive species.
- Improved the detection methods for an invasive bacterial species, *Ralstonia solanacearum*.
- Generated multiple lines of transgenic Mexican lime plants that may be resistant to citrus tristeza virus.

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

As intended by the Land Grant perspective, CTAHR's "targeted" clients for this program in teaching are the undergraduate and graduate students in agriculture and allied fields. Targeted clients for research are peers and extension specialists. Clients for extension specialists are CTAHR's county extension agents and the counterpart professional personnel of sister state and federal agencies (such as the Hawai'i State Departments of Agriculture, Health, and Land and Natural Resources, and the USDA Natural Resources Conservation Service, NRCS). Clients for extension agents are potential and existing farmers/producers and their organizations, (such as the Hawai'i Association of Soil and Water Conservation Districts, individual commodity associations, and the Hawai'i Farm Bureau), packing houses and shippers, extension staff, and other members of the community who are involved in the agriculture industry, and environmental groups.

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

###### 1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	70	500	200	100
2007	123	25	0	0

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

###### Patent Applications Submitted

Year	Target
Plan:	0
2007:	1

###### Patents listed

Dr. Qing Li. Human Consumable Essential Oil Highly Toxic to Pest Tephritid Fruit Flies. Provisional patent application filed on 11/9/07

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

###### Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	1	25	26

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

###### Output Target

###### Output #1

###### Output Measure

Number of workshops, field days, demonstrations held

Year	Target	Actual
2007	1	4

###### Output #2

###### Output Measure

Number of publications

Year	Target	Actual
2007	10	26

###### Output #3

###### Output Measure

Number of grant proposals submitted

Year	Target	Actual
2007	10	14

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

<b>O No.</b>	<b>Outcome Name</b>
1	Number of people completing non-formal education programs
2	Number of agency professionals, including extension agents who implement or install demonstration or similar programs for clientele education
3	Total dollar value of grants and contracts obtained.

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##### **Outcome #1**

###### **1. Outcome Measures**

*Not reporting on this Outcome for this Annual Report*

###### **2. Associated Institution Types**

###### **3a. Outcome Type:**

###### **3b. Quantitative Outcome**

<b>Year</b>	<b>Quantitative Target</b>	<b>Actual</b>
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###### **3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

###### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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##### **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

Competing Programmatic Challenges

Other (Loss of Special Grants)

###### **Brief Explanation**

Invasive species programs are integral in most of the other planned programs (natural resources, agriculture, livestock,) and closely linked to those areas and many are thus reported in those areas. Only one project is listed in this program on the extension side.

Current Homeland Security policies and regulations preempt and thus affect the ability of state quarantine procedures and activities to effectively prevent import of invasive species. For example, taro root is allowed to be imported from countries and regions of the Pacific with minimal inspection, despite the presence of industry threatening pests that are present in the country of origin but do not occur here.

Loss of USDA/CSREES special grants during FY 2007 has caused disruption in our research program. Loss of personnel in various programs will have a longer impact beyond next fiscal year.

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

#### **1. Evaluation Studies Planned**

After Only (post program)

During (during program)

#### **Evaluation Results**

All CTAHR research programs are required to conduct evaluations. Annual program evaluation is conducted by the department chair and the associate dean for research. Most faculty members were able to leverage their formula funds to obtain additional grants and contracts to support their programs. However, small number of faculty members were not successful in getting extramural funding; thus, limited their effectiveness in delivering expected outcomes.

#### **Key Items of Evaluation**