

# A Coqui-free Certification Program on the Island of Maui

Adam Radford, Teya Penniman

Maui Invasive Species Committee (MISC), Makawao, Hawai'i 96768



## Introduction

On Maui, MISC currently has a full-time crew working daily to survey, detect and control coqui frogs. This crew is making significant progress controlling targeted populations. However, frogs continue to arrive on Maui from neighbor island plant stock and frogs continue to be moved around the island inadvertently. The ultimate success of MISC's efforts depends in part on the ability to stop continued intra-island vectoring of frogs. The active and meaningful cooperation of the nursery industry is essential if Maui is to become and stay frog-free.

Unfortunately, voluntary cooperation by the nursery industry has not been shown to be an effective means for preventing the movement of invasive species (Gramling 2003; Mezitt 2003). Two reasons cited for this failure include inadequate promotion of responsible practices and lack of meaningful incentives for compliance (Caton 2005). Suggested incentives for helping to prevent the spread of invasives include certification programs for dealers in compliance with specified standards (e.g., Vickerman 1998) and free advertising.

Anecdotal evidence collected by MISC suggested that local consumers want to know which nurseries have coqui frog infestations so they can avoid purchasing from infested nurseries. Similarly, some industry participants have expressed the desire for and willingness to participate in a certification program which recognizes their efforts to be coqui-free.

The intent of this research project was threefold: 1) develop and implement a voluntary coqui-free certification program; 2) evaluate whether participation in a coqui free certification program would vary by size of the business; and 3) assess the impact of the certification program and associated marketing on consumer behavior.



## Standards for Certification and Incentives

Coqui-free certification depends largely on whether coqui frogs have been detected at a site, a cooperative working relationship with business owner / managers and MISC staff, and adherence to program standards. Before finalizing certification standards, representatives of the industry were invited to review and critique standards and program structure. Their input was incorporated prior to the program launch.

**Standards include:** disclosure to consumers of site status, habitat modification as needed, adherence to specific reporting requirements, using frog-free sources, conducting inspections, establishing preventive treatment methods, training of staff, and quarantining new stock.

Marketing materials are provided to businesses that meet the coqui-free standards. Sites are designated coqui-free after several night inspections indicate that there are no coqui present, participants' complete the necessary paperwork, and it is clear that the program standards are met. Sites that are or become infested with coqui frogs will be removed from all associated advertising until the standards are met.

**Incentives include:** coqui-free stickers and decals, signage, a certificate of participation, and posting of participant's business name and contact information at [www.coquifreemaui.org](http://www.coquifreemaui.org). Participants are also allowed to reproduce many of the program materials and market themselves as certified coqui-free providers if they meet the standards. Outreach via press releases, public service announcements and other appropriate media inform the public about the program.

## Abstract

The coqui frog (*Eleutherodactylus coqui*), native to Puerto Rico, is an invasive alien species in Hawai'i. There is widespread agreement that coqui pose significant environmental, economic, and quality-of-life threats to Hawai'i. Continued inter- and intra-island movement of frogs through the nursery trade seriously undermines ongoing efforts to control the spread of this pest. To address vectoring through the nursery trade, the Maui Invasive Species Committee developed and implemented a voluntary coqui-free certification program. The program encourages specific practices designed to prevent the spread of coqui frogs. Of 76 plant industry businesses contacted on Maui, 34 expressed interest in participating, four of those after the program launch. Twenty-nine businesses are now certified coqui-free. Business size did not appear to influence willingness to participate. However, 24 businesses of 38 that responded to a self-classification question identified themselves as small-volume businesses during pre-program interviews. Pre- and post-program consumer surveys ( $N = 303$ ) were also collected to gauge interest in the program and measure program influence on purchasing behavior. Scores for pre- and post-program consumer surveys suggest no significant change in consumer behavior as a result of the program. However, respondents' strong feelings that coqui frogs are an issue in Hawai'i (68%), that the issue is important to them (56%), and that they would seek out a coqui-free certification program if available (79%), indicate that with appropriate outreach the program may be very successful at influencing consumer behavior.

## Methods

The methods developed for this project were designed to evaluate whether participation in a coqui-free certification program varied by size of the business and to assess the impact of the certification program and associated marketing on consumer behavior. Associated marketing activities are highlighted in the *Standards for Certification and Incentives* section.

The first data set, consumer-related data, was collected using a purposive sampling method to select individuals from the general Maui population. Pre-program consumer surveys ( $n = 148$ ) and post-program ( $n = 155$ ) surveys were collected from four participating businesses. Locations were chosen to represent market segments (e.g., size, geography, place in the distribution chain, etc.). Customers were approached at each location and asked to complete a questionnaire which inquired about their perceptions of invasive species issues, nursery practices, coqui frogs, and a coqui-free certification program.

The second data set, focused on Maui businesses, was collected through personal interviews. Pre-program implementation questionnaires attempted to determine interest in the program, business size, nursery practices, and views of invasive species issues. Post-program implementation interviews were less formal and asked for specific feedback about the program. All plant-related Maui business owner / managers were given multiple opportunities to complete the questionnaires. Of 117 plant-related businesses identified prior to the program launch, 41 did not answer the telephone when called or were otherwise unreachable.

Both survey instruments were based on several relevant studies (e.g., Brumfield 2001; Coordinating Group on Alien Pest Species (CGAPS) 2007, 2006, 1996; Peters 2006) and pilot tested on 29 individuals at several public events.

## Business Results

Before program implementation it was hypothesized that low-volume businesses would be more likely to participate in a certified coqui-free program than high-volume businesses. Business owner / managers were asked to classify their business as a small, medium, or large volume business in terms of sales per month. These responses were cross-tabulated with their interest in participation in the program. Business size did not appear to influence willingness to participate. However, 24 businesses of 38 that responded to the self-classification question identified themselves as small-volume businesses, suggesting that much of the plant industry on Maui is comprised of small businesses.

		Business Interest vs. Business Size			
		Small	Medium	Large	Total
Interested Business	Yes	19 (80%)	9 (90%)	3 (75%)	31 (82%)
	No	5 (20%)	1 (10%)	1 (25%)	7 (18%)
Total Responses		24 (63%)	10 (26%)	4 (11%)	38 (100%)
No Response					38
Total Contacted					76

Note. *No Response* results were largely due to individuals stating "I do not need more advertising," "I am not interested," or "I want to see how the program goes first," and ending the interview. The percent of interested businesses is based on percent of total responses.

## Consumer Results

Before program implementation, it was hypothesized that designation as a certified coqui-free business would positively influence consumer purchasing behavior. Responses to five questions regarding nursery practices and coqui frogs were combined to measure consumer behavior on a 5-point scale. Possible scores ranged from 1 (strongly disagree) to 5 (strongly agree), with the higher score indicating that nursery practices which prevent the spread of coqui frogs had a positive influence on where respondents shop. The mean score of the five questions was used to represent consumer behavior. Pre- and post-program implementation mean scores were compared using an independent samples t-test. No significant difference between scores was observed. Consumer awareness was measured by asking respondents if they had read or heard about a coqui-free nursery program. Mean scores did not vary greatly among the respondents regardless of awareness.

		Consumer Awareness vs. Consumer Behavior			
		Pre-Mean Score	n	Post-Mean Score	n
Aware of the Program	Yes	4.73	27	4.82	41
	No	4.42	115	4.45	109
	Total	4.48	142	4.55	150

## Discussion and Conclusions

Follow-up interviews with participating businesses along with consumer responses clearly indicated that the program has value and MISC's designation as a coqui-free business is meaningful. Ninety-four percent (94%) of business owner / managers responded that the program was worthwhile, with many independently adding the adjective "absolutely."

Little variation in consumer behavior was observed, possibly because consumers on Maui showed such a high degree of interest in purchasing from coqui-free providers even before program implementation. The survey indicated strong support for a certification program, with 79% of consumer respondents indicating that they would seek out a coqui-free certification program if available.

Awareness of the program was 19% before official launch and 27% after program implementation. Respondents' strong feelings that coqui frogs are an issue in Hawai'i (68%) and that the issue is important to them (56%) indicate that with increased outreach the program may be very successful at influencing consumer behavior.

MISC plans to continue the program indefinitely and this research project provided insights about how to improve on its effectiveness. Development of broader industry recognition and professional endorsements (e.g., recognition by landscaping organizations) could help expand the program's reach to all types of businesses (e.g., grower, wholesale, large, small, etc.).

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### CERTIFIED COQUI-FREE

Infestations of coqui frogs threaten Maui's natural environment and our quality of life. Property values and our economy suffer as a result. One calling frog can be as loud as a car alarm. Coqui frogs have already reached densities of 22,000 per acre on the island of Hawaii. We can prevent this from happening on Maui.

LOOK FOR THE  
COQUI-FREE CERTIFICATION  
WHEREVER YOU BUY PLANTS

**DID YOU KNOW?**  
• The first coqui frog was found on Maui in 1997.  
• Of the 14 known coqui populations on Maui, only 1 is still heavily infested.  
• Coqui frogs are notorious hitchhikers and are commonly spread through contaminated plants and potting material.

DON'T PACK A  
PEST!

The Coqui-Free certification program was created to prevent the spread of coqui frogs on Maui. Participating nurseries and plant providers must adopt specific management practices to prevent the spread of coqui frogs before they can market themselves as "Coqui-Free." The Maui Invasive Species Committee is the certifying agency, granting certification after a series of interviews and site visits conducted by MISC staff.

REPORT  
COQUI

Call 573-MISC (6472)

TO LEARN MORE ABOUT  
COQUI-FREE CERTIFICATION

VISIT [WWW.COQUIFREEMAUI.ORG](http://WWW.COQUIFREEMAUI.ORG)  
OR CALL 573-MISC (6472)

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