

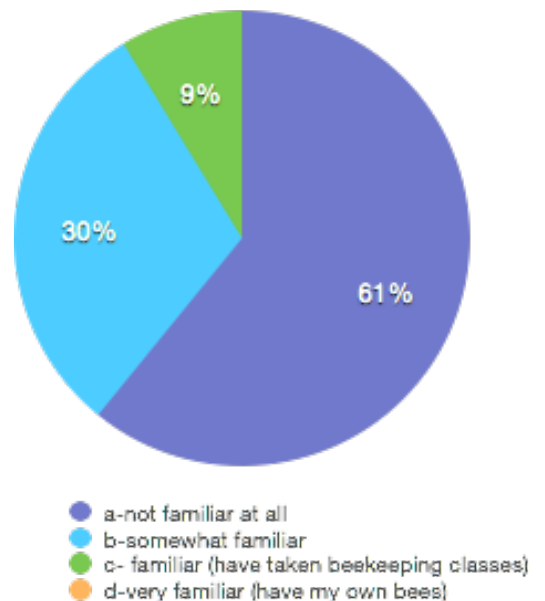
## Pre-and Post-Workshop assessments of knowledge gained

**Pre-workshop evaluations:** The sudden disappearance of feral bees on Oahu has created not only a pollination void, but also a knowledge deficit. The once abundant feral bees covered the pollination needs of the local farmers naturally. The arrival of the varroa mite and viral diseases promoted a rapid change in the island environment, and the pre-workshop questions were aimed at understanding how aware and how prepared were the stakeholders to face this challenge. These statistics were based on 2 groups of beginning farmers, a total of 46 people participated in a lecture, followed by laboratory type activity where they got to see first hand the bee life cycle stages, the main honeybee pests, sample honey, and look at beekeeping equipment.

### Question 1-How familiar are you with beekeeping?

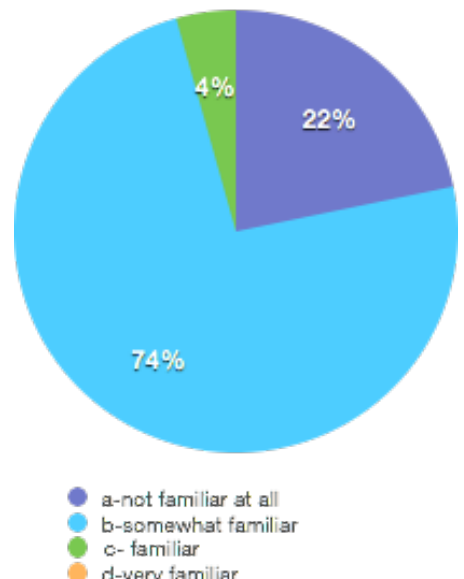
Over 60% of the beginning farmers that attended had no previous experiences with managed bees, even though many had tropical fruit trees and vegetable crops that require pollination.

This fact highlights the need for hands on instruction in beekeeping in Hawaii.



### Question 2-How familiar are you with honeybee health issues in Hawaii?

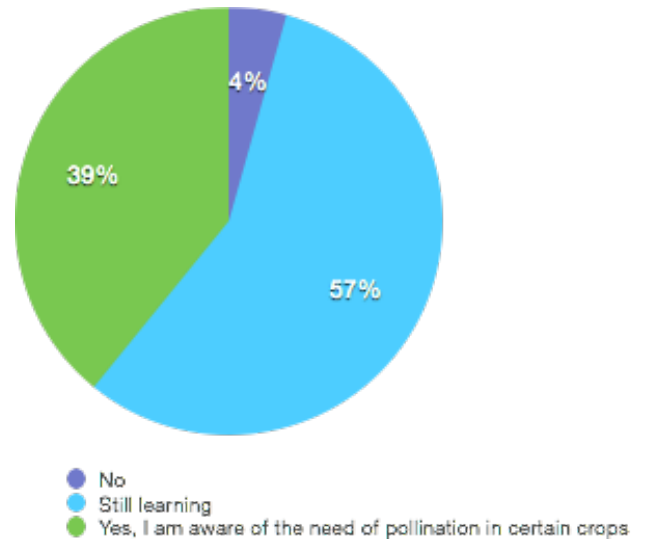
A fifth of the participants were not familiar with the pressing issues of honeybee health. The great majority, were only somewhat familiar.



### Question 3-Have you considered the role managed-bees play in agriculture?

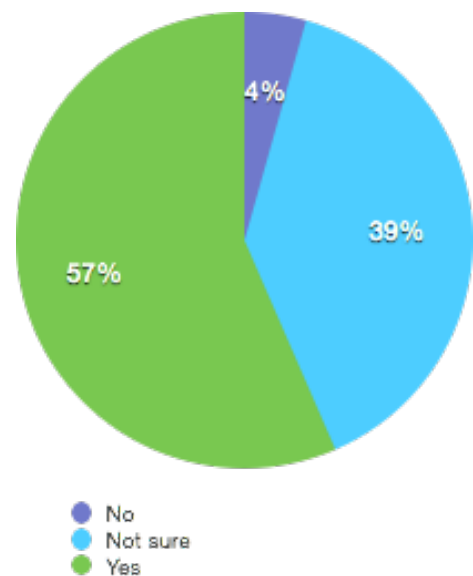
We feel this question could have been better worded to gain more information.

It is however interesting that over half of the participants opted for the “still learning” choice, indicating some uncertainty about what bees do and what crops do they pollinate in Hawaii.



### Question 4-As a farmer/backyard grower do you think the pollination services of managed bees will be needed on your land?

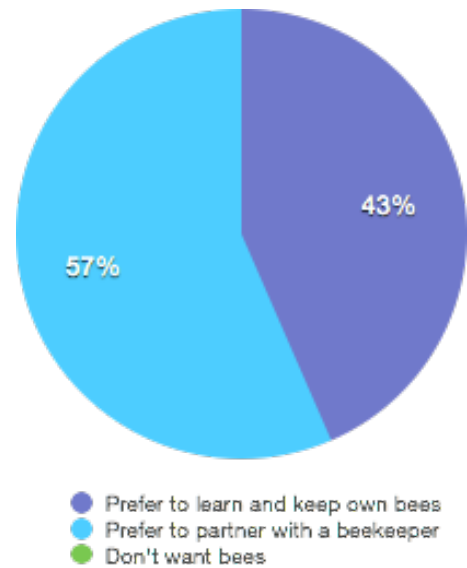
Over half of the participants believe they need bees on their farms. However, almost 40% are uncertain about the need for honeybee pollination in their fields.



**Question 5-Would you as a grower, prefer to partner with a beekeeper or keep bees on your own?**

In hindsight we feel that this question may have been premature. At this point in time, the stakeholders still don't know how much work it will be necessary to keep bees, nor if they would actually enjoy keeping bees as a hobby and added value to their farm.

We hope to assess potential preferences in a different way in the future.

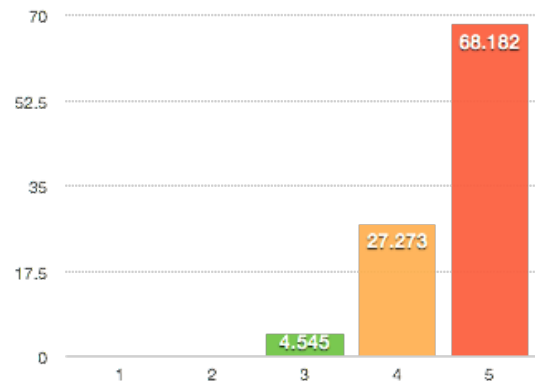


## Post-workshop assessment of knowledge gained and attitude change.

Using a scale from 1 (the lowest) to 5 (the highest) the participants were asked to score the following statements:

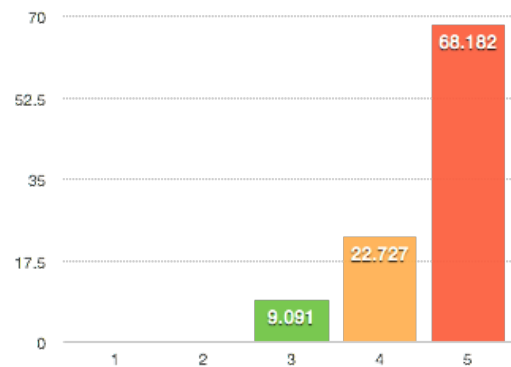
### 1-After this experience do you feel you understand more about honeybee biology and their role in agriculture?

Two thirds of the participants felt they had learned a lot about basic bee biology and their role as pollinators.



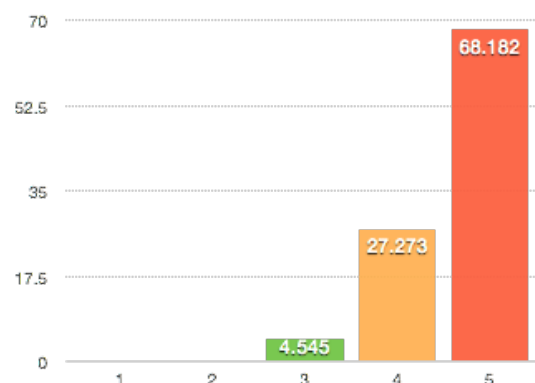
### 2-Do you feel more confident about your understanding of honeybee health issues in Hawaii?

Again, two thirds of the participants felt very positive about the knowledge gained with respect to bee diseases, pests, and potential dangers of pollinator exposure to pesticides.



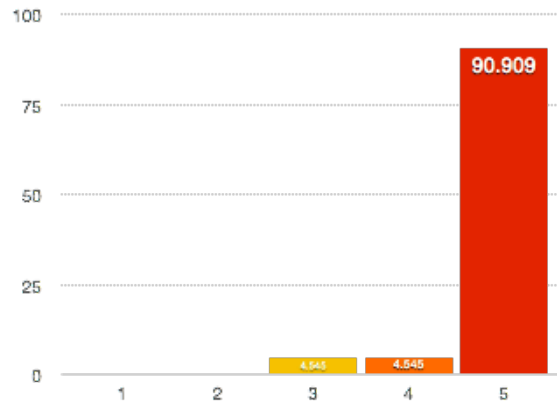
### 3-As a future farmer and/or backyard grower, did you gain a better understanding of the relative need of pollination services necessary for cultivation of certain crops?

The response to this question is encouraging when we consider that the self-reported pre-workshop knowledge of pollination services was 57%, compared to a perceived knowledge gain by over 95% of the participants.



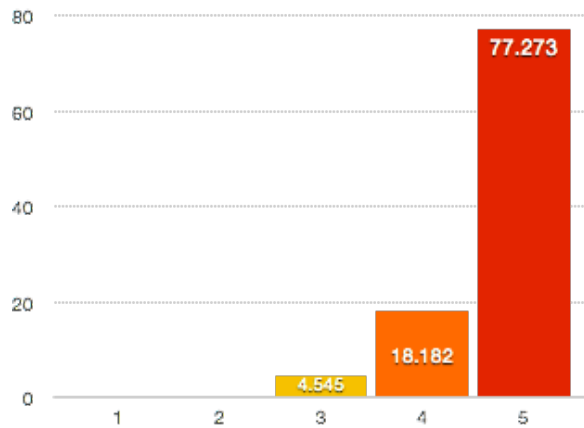
#### 4-Has this introductory workshop sparked your interest in bees?

The overwhelming majority of the participants felt that the experience had promoted a positive interest in honeybees.



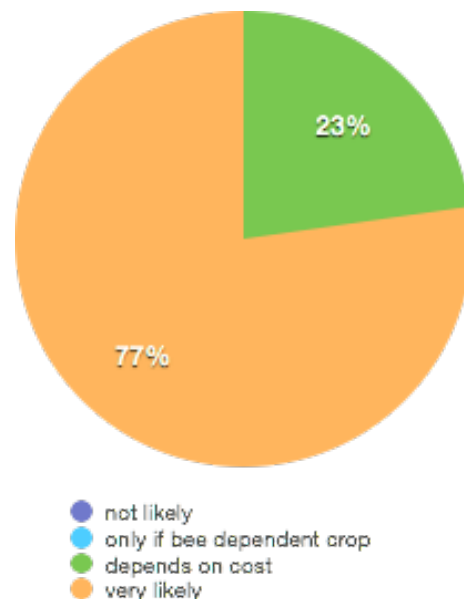
#### 5-Has this class helped to raise your awareness about the potential impacts of pesticides on pollinator health and potential crop protection alternatives?

Although the great majority of the participants felt strongly that we had succeeded in transferring knowledge about pesticide abuse, we feel that maybe due to time constraints we could not provide examples and practical solutions that would have helped the growers visualize alternatives.



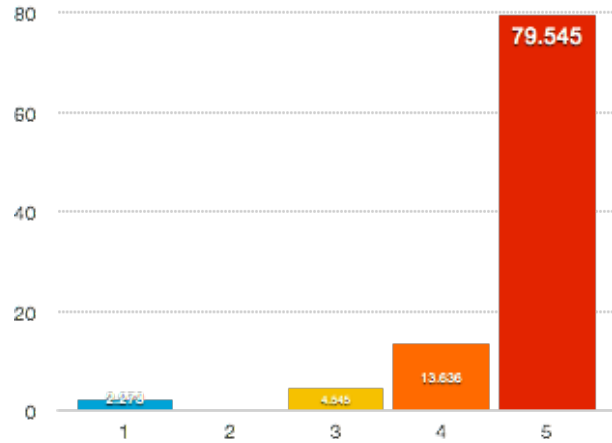
#### 6-How likely are you now to consider the impact of pesticides on bee health when selecting crop management strategies?

About 2/3 of the beginning farmers expressed a strong interest of modifying their crop protection strategies in order to protect bees. This willingness may be subject to test, especially when crops are heavily affected by insects or diseases, but knowing that there is awareness and interest, may facilitate the adoption of safer and cost efficient production practices.



**7-How would you like to see an introductory beekeeping class offered in your area?**

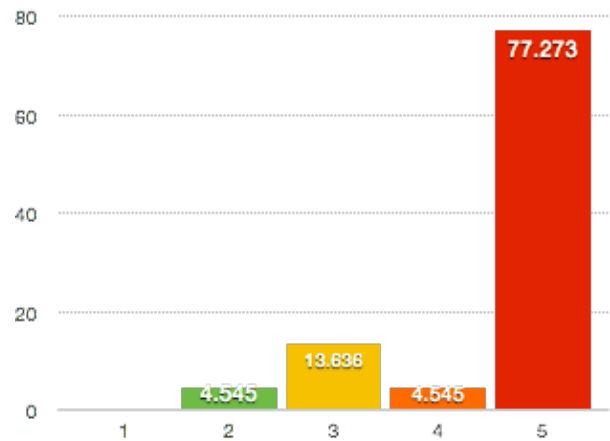
There was a strong interest in practical beekeeping classes among the beginning farmers.



**8-How likely are you to enroll in a beekeeping class if one was available?**

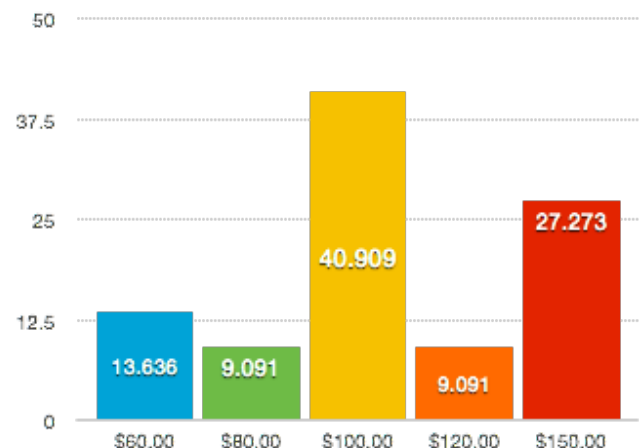
However, the present beekeeping class that is now being taught through Outreach College was filled by a different sector of the population, master gardeners and backyard growers, and none of these beginning farmers enrolled.

This suggests that to reach farmers we may need to develop a different type of “course” that gets their attention or a better advertisement system to reach them.



**9-How much would you be willing to pay for a 6-week beekeeping course (once a week for 4 hrs)?**

The dollar amount that a beginning farmer was willing to pay to enroll in a beekeeping class may have been part of the reason why the current beekeeping class did not appeal to this audience. The Outreach College charges \$175 for the 6-week course, which may have fallen out of the price range of the local growers. This cost, however, is comparable to most mainland beekeeping courses. We will work on offering new informal options at very low cost to see if the profile of our audience broadens.



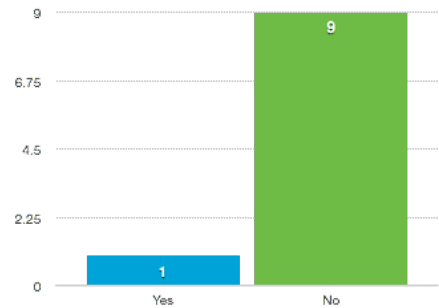
## Apiary visit evaluation

A small group of beginning farmers (9 participants) joined the UH Honeybee Project for a classroom presentation and a hands-on apiary visit. The farmers were provided protective clothing and joined the crew in their weekly colony management routine.

These are their replies to some basic questions.

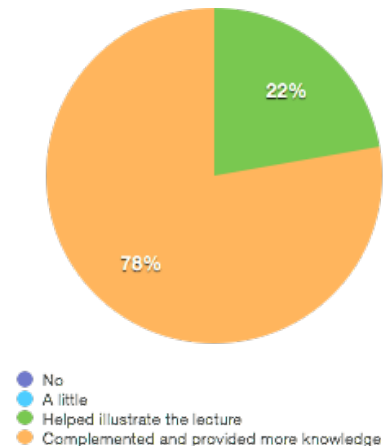
### 1-Had you ever opened a honeybee hive before this workshop?

Not surprisingly, 8 out of 9 had never worked a honeybee colony.



### 2-Did the hands-on experience helped you clarify some aspects of the presentation in the classroom?

The majority of the participants felt the hands-on activities helped them put the lecture in context with the real world. Seven out of nine felt that it added important knowledge.



### 3-Did the apiary visit allow you to visualize what it would be like to have your own bees?

All the participants agree that they gained an understanding of the type of work required and the safety precautions needed.

### 4-Would you be willing to take a longer course if at the end of the course you could obtain a honeybee colony?

The participants all agreed that they would be willing to take a 6-month long course if the fee of the course included bees at the end of the instruction period.