FARMING WITH BEES IN HAWAIʻI: EXTENSION EFFORTS AND GROWER SUCCESS

Bee dependent crop production

Avocado	$730,000
Cucumber	$2,736,000
Italian squash	$888,000
Lychee	$663,000
Macadamia nuts	$33,500,000
Watermelons	$3,930,000

Wintermelon

NASS 2008

Hilo, Hawaii


Waialua, Oahu

Waiahole, Oahu


Waianae, Oahu

Small scale agriculture

- 4813 out of 7521 farms were 1-9 acres in size (64%)
- Only 115 farms were 1000+ acres

NASS 2007

Feral Colonies

Unmanaged hives

Honeybee losses (2008-2009)

- Manage hive losses on Oahu
  - 275 colonies
  - 65% loss
- Feral hive losses
  - ?

Collaborators

- CTAHR's LIFE Program
  - Immigrant farmers
- Cucurbit producers
  - Melons
  - Pumpkins
- Pollination difficulties

Beekeeping Program

Commit to weekly hive management

- Basic beekeeping
- Honeybee pest monitoring

Examing Colony Health

Beekeeping Program

Focus on soft treatments to control pest

- Formic acid for mite control
- Beetle traps/colony manipulation for small hive beetle control

Checking SHB Trap

Honeybee Management

- Once a week inspections
- Colony health
- SHB checks
- Mite treatments
- Honey Extraction

Checklist

- Inspect front entrance activity
- Check cover
- Collect Beetle traps
- Replace beetle traps
- Check End frames
  - Supers
  - Deeps
- Examine brood
- Check Bottom board
- Record beetle numbers
- Scrape off any burr comb
  - Top, bottom, sides
- Keep proper frame spacing
- Harvest honey?
- Add / Remove supers?
- Add / Remove frames?
- Check for varroa
- Treat for varroa?

Checklist

- ❑ Harvest Honey?

Pesticide used in cucurbit pest management (2009)

- Diazinon
- Dimethoate
- Esfenvalerate (Asana)
- Imidacloprid (Admire)
- Methomyl (Lannate)
- Oxydemeton - methyl (MSR)
- Oxamyl (Vydate)
- B.t.
- Carbaryl (Sevin)
- Methomyl (Lannate)
- Spinetoran (Radiant)
- Spinosad (Entrust, Success)
- Potassium Salts of Fatty Acids (Impede, Des-X)

Tarutani 2011

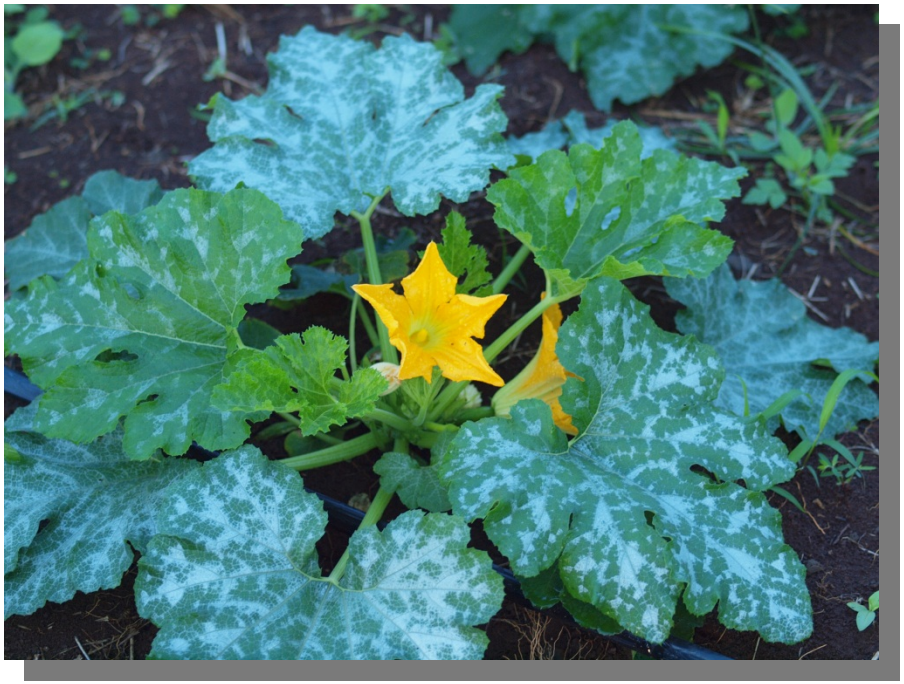
Changes of pesticide use

- Reduction and changes in practice of insecticide use.
  - Evening spraying
- Reduction or elimination of herbicide use.
  - Alternative methods to weed control

Burning Weeds

Reflective mulch study

Preliminary results



Control

- 63.8% leaves with silverleaf damage
- 35.2 kg fruit

Mulch

- 8.9% leaves with silverleaf damage
- 54.3 kg fruit

Successful Farms

- Person committed to beekeeping.
- Willing to change or incorpate new farming practices.

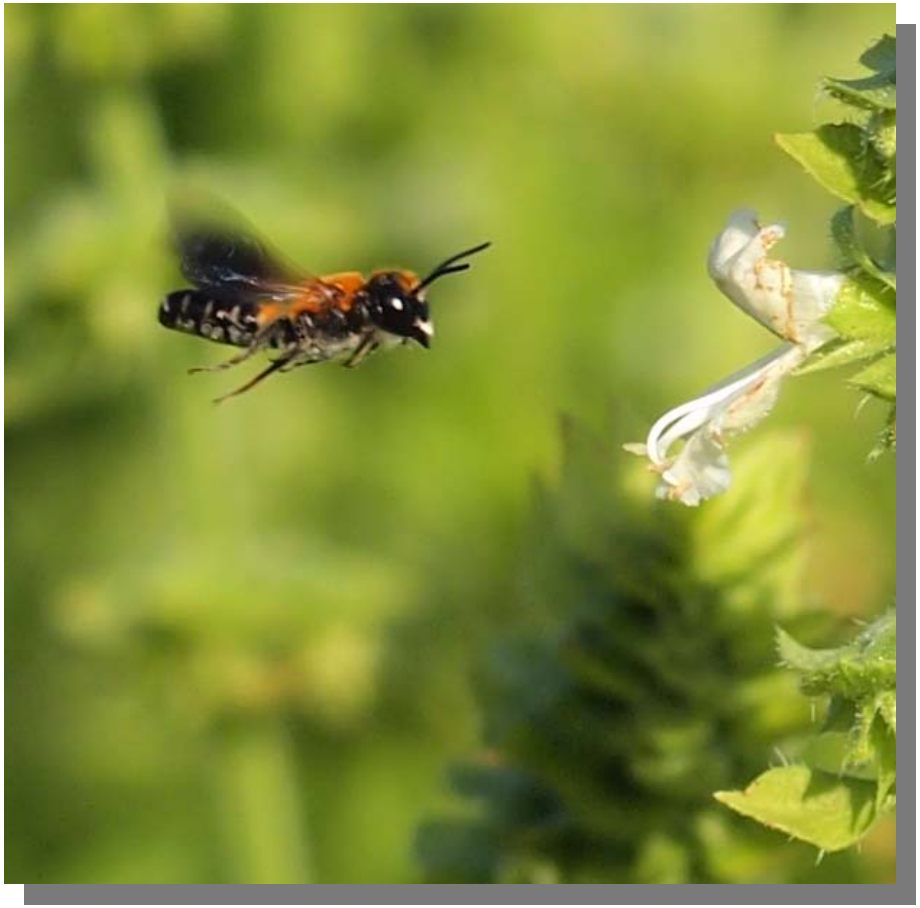
Current Status

- Currently maintain 4-5 colonies
  - Approximately ½ – 1 hive per acre.
- Increase in honeybee visitation
  - Yield?


January 2012

Other Pollinators

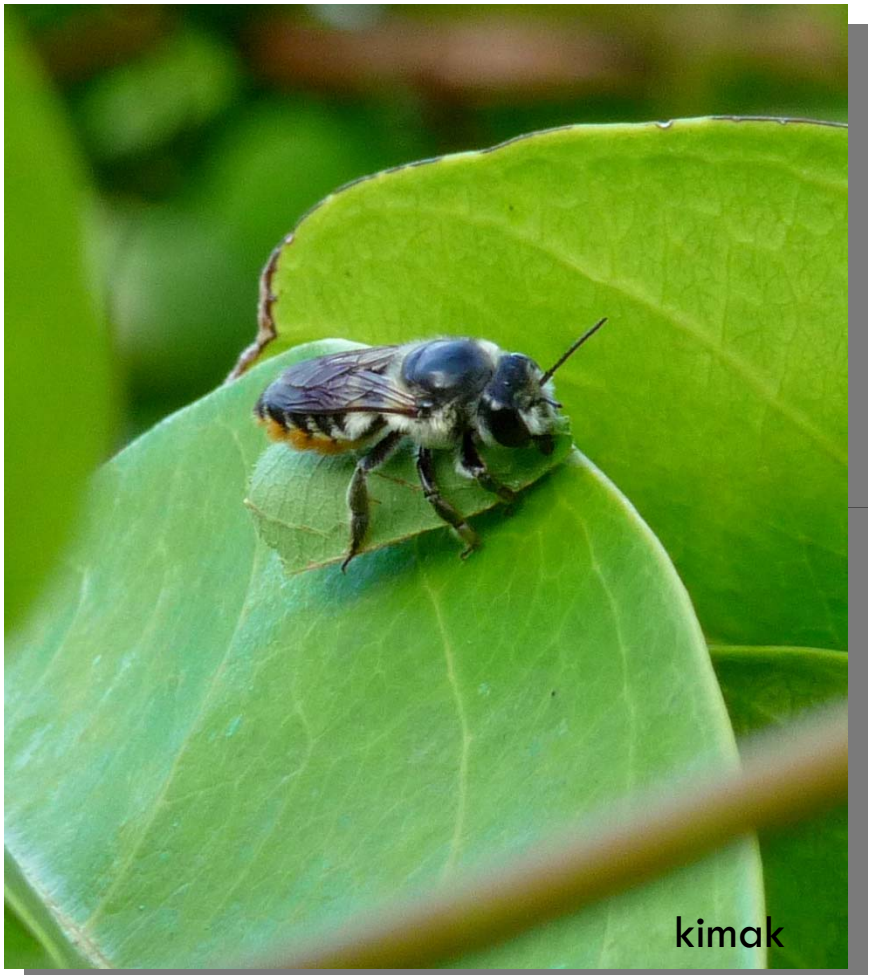
Xylocopa

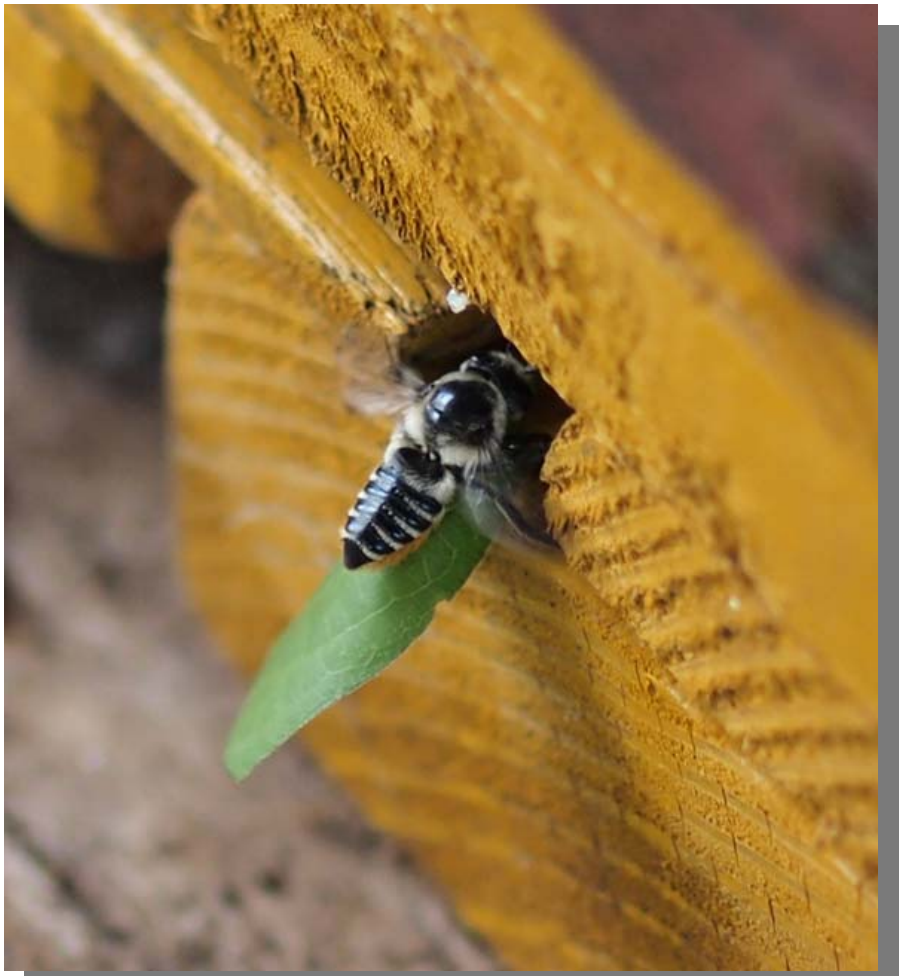


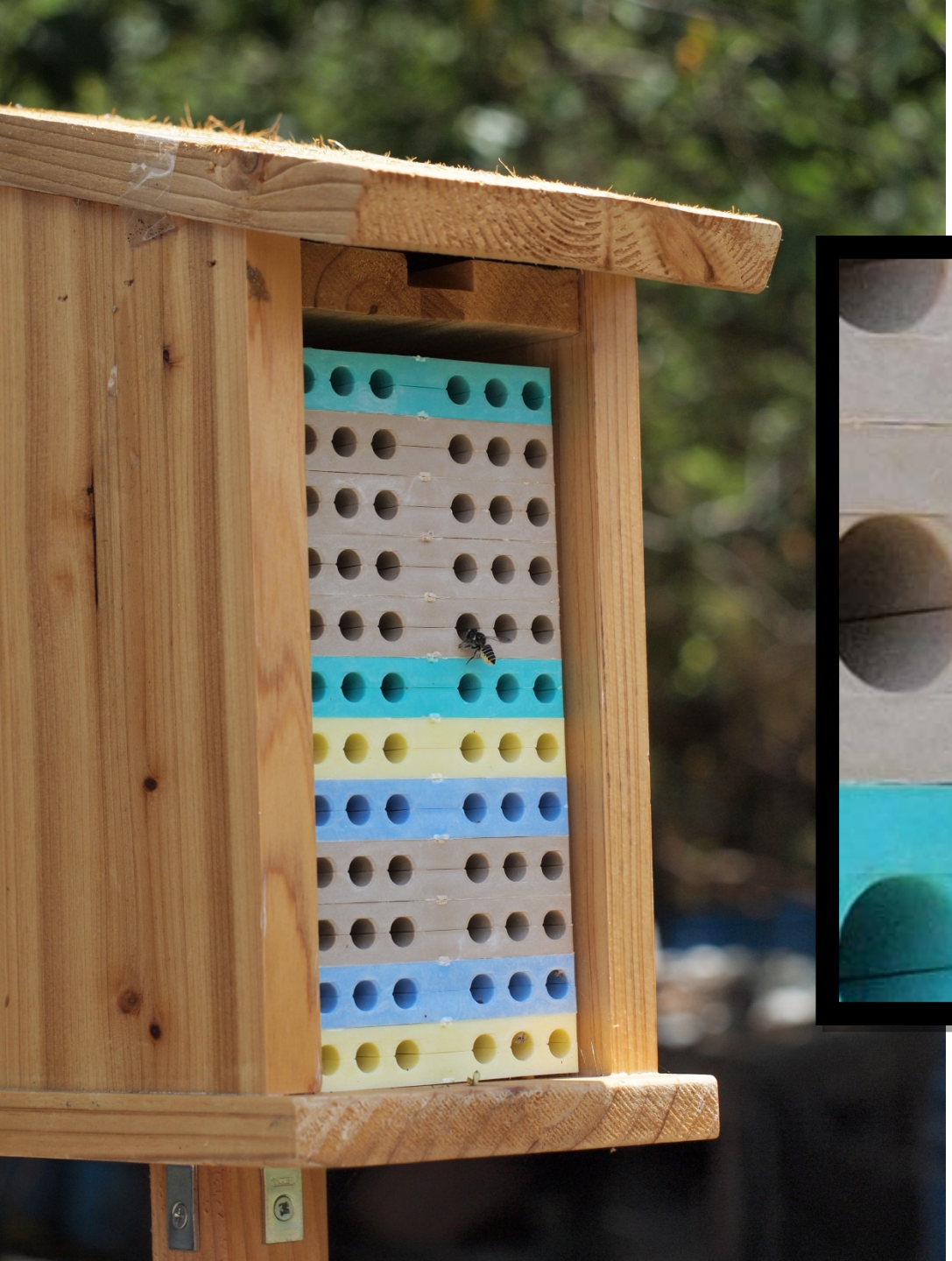
Megachilidae

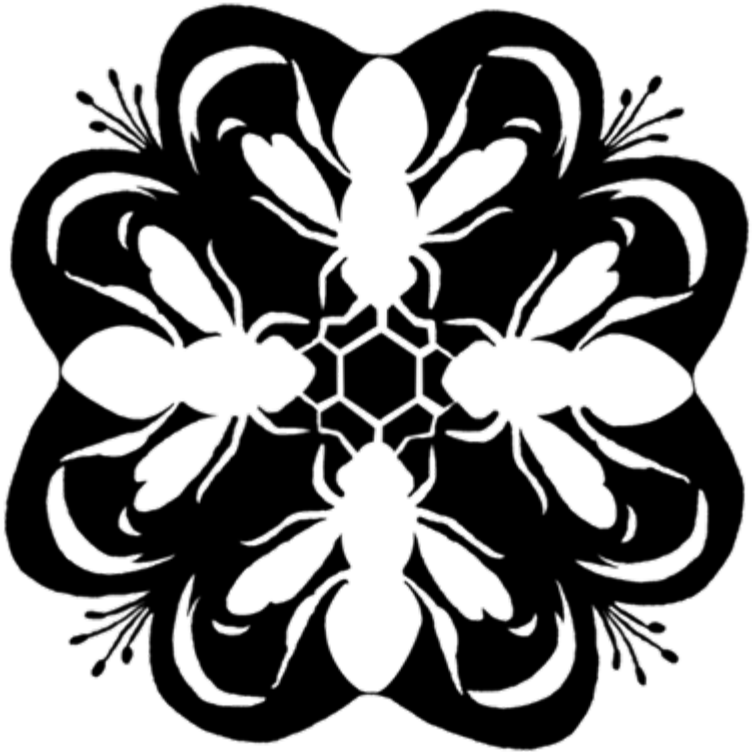
Bamboo nests

Leafcutter nests









UH Honeybee Project