

# MASON BEES

Getting started: Care and Management

## Three Types of Living Environments

nest in hives (social)



nest in holes (solitary)



Algalia  
Dauber



Bee



Cicada Killer



Mud

nest in the ground (social and solitary)



Bumblebee  
Bee



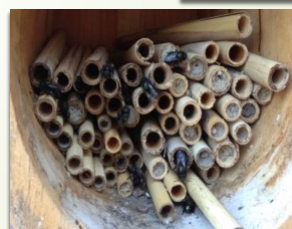
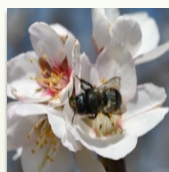
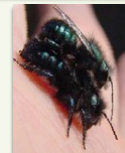
Digger Bee



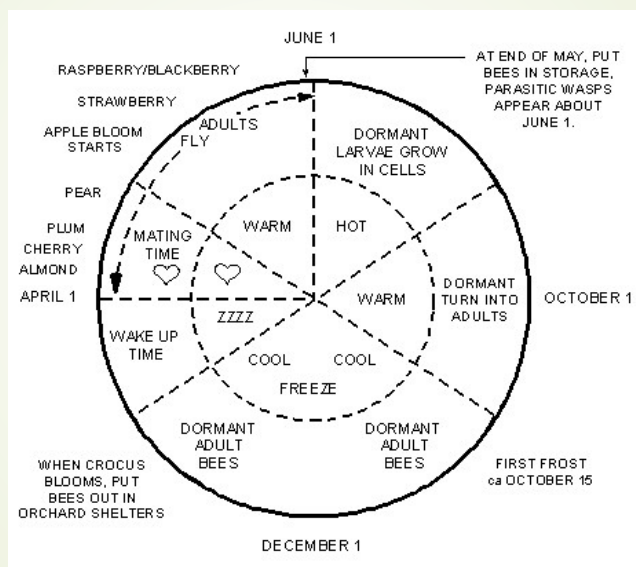
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## What's a Mason Bee?

- Solitary bee that nests in existing holes
- Emerge in spring from cocoons
- Mate, find their own nesting hole
- Begin gathering pollen & nectar, lay eggs
- Fly as adults for about 6 weeks
- Eggs are next year's bees
- Overwinter as adult bees in cocoons



## Life Cycle of a Mason Bee



## Mason Bees

- *Osmia spp.*



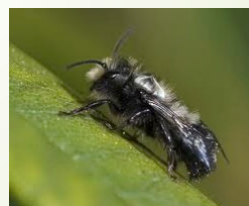
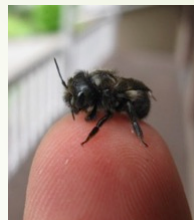
## What are Mason Bees?



- Native to US
- 130 types in NW
- Non aggressive
- Solitary
- Super pollinator
- AKA BOB,

## Physical Characteristics

- About the size of a honey bee
- Stocky in shape
- Female larger than male
- Fuzzy
- Male differences
  - No stinger
  - White on face
  - Longer antennae
  - Gathers no pollen
- Blue/black in color



## Mason Bee Facts

- ▀ Decides whether to lay a female or male egg.
- ▀ Females visit about 75 flowers per trip.
- ▀ 15 to 35 trips to collect enough pollen and nectar to feed one larva.
- ▀ Lays approximately 30 eggs in her lifetime.
- ▀ Mud dividers between eggs take about 10 trips to finish one wall.
- ▀ It takes 250 to 750 orchard mason bees to pollinate an acre of apples, It would takes 2 full hives (60,000 to 120,000) honeybees to cover the same area.



## Pollination Advantage

- Works in cool weather
  - Earlier in the year
  - Earlier in the day
- Pollen collected on body
- Belly flops on flowers
- Collect pollen and nectar at the same time
- Males also pollinate
- 97% effective – plant to plant, tree to tree
- Prefers fruit trees

## Nesting – In the Wild



- Holes in logs, trees, house siding
- They don't create, just occupy
- They choose mixed variety of vegetation

## Solitary Bee Houses

- Shelter for nesting material
  - Wind, rain & hot sun
- Place on a SE facing wall
- 5-7' high for easy viewing
- Mount on non-moving surface
- Protect from predators and parasites



## More Housing Options



- Tubes and straws inside a protected structure



- Wood trays



- Natural reeds
  - Teasel
  - Sunflower stems
  - Reeds

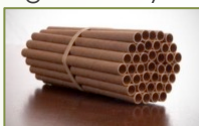


## Nesting Material

- Each female fills about two nesting holes in her lifetime.
- Small bees like small nesting holes (4mm-6mm)  
Large bees like large nesting holes (6mm-8mm)
- Consider providing a variety of sizes for all bees



Reeds



EasyTear Tubes



Inserts & Tubes



Wood trays

### Stay Away!

- Wood blocks
- Plastic straws
- Bamboo



## Essentials for a Mason Bee

### Food

- Maples- Available very early
- Pollen and nectar within 300' (100m) of their nest.
- Prefer composite flowers and open petals. Think "dandelion" and "fruit tree blossom."



## Early Spring Forage for Mason Bees

- Andromeda
- Vine maple
- Big-leaf maple
- Oregon grape
- Hazelnut
- Indian plum/plum
- Windflower
- Balsamroot
- Crocus
- Hyacinth
- Alder



- Pussy willow
- Forsythia
- Daphne
- Currant
- Skimmia japonica
- Heath
- Currant
- Willow
- Salmon berry
- Elderberry
- Miner's lettuce
- Witch hazel

## Nest Building

### Mud

- A source within 20-30 feet of shelter
- Should be more clayey than silty
- Create a mud hole
  - Dig 6-12 inches
  - Mound dirt beside hole





## Predators, Parasites and Diseases



- Predators

- Birds
- Squirrels
- Raccoons

- Parasites

- Parasitic wasps
- Mites
- Beetles

- Diseases

- Chalkbrood

## Mason Bee Harvesting

- Harvesting removes pests
- Easy to do
- Pests build up over time
- Know your bee needs for next season



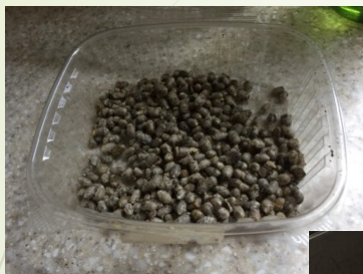
Pest: Chalkbrood



Pest: Pollen Mites



## Mason Bee Harvesting



## Mason Bee Winter Storage

- Keep some cocoons, share some
- Storing cocoons
  - Overwinter in the refrigerator
  - Bees are healthier in stable, cold temps
  - Frost-free refrigerators dehydrate bees
  - Use a damp sponge for hydration



## Mason Bee Winter Storage



## Mason Bee Springtime Release

- You're in charge of when to release them. Wait for open blossoms!
- Place cocoons behind or on top of nesting material
  - A small cup or box protects cocoons from wind
- Extend pollination – release cocoons in waves
  - 1/3 when first blossoms open
  - 1/3 two weeks later
  - 1/3 after two more weeks
- Release all mason bees by May 1st



## Mason Bee Springtime Release



## Mason Bee Springtime Release





## Pollinating with Mason Bees

- During the down time (winter months) we must plan and prepare for the season.
- Assess our needs/requirements
- Nesting blocks should be cleaned
- Tubes and inserts are put together



## Pollinating with Mason Bees

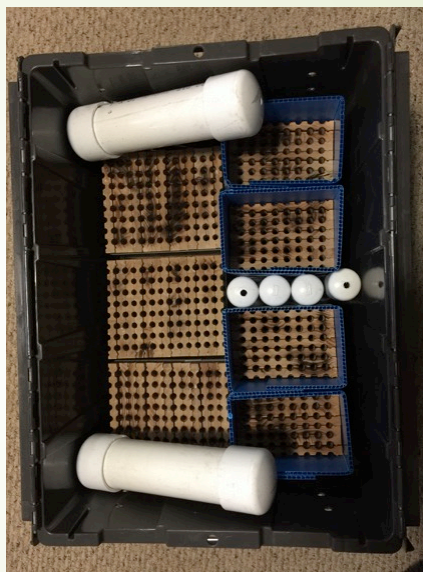
- All cocoons should be harvested, treated, and sorted by sex
- If using tubes and inserts, mix nested tubes at a 1:2 ratio



## Pollinating with Mason Bees

A typical 1 acre pollinator kit consist of:

- Three 96-hole nesting blocks
- Four 48-hole nesting blocks
- Several cocoon tubes
- A housing tote
- 1,000 mason bees



## Pollinating with Mason Bees

- The main nesting hutch is placed in the center of the acre if possible
- 1-2 nesting cavities per female
- 1:3 female to male ration





### Pollinating with Mason Bees

- Satellite nest are place towards the edge of the acre to collect dispersing females, as well as to increase coverage.
- All equipment should be gathered by the end of May to early June
- Store at ambient temperature
- Protect the nest from the *Monodontomerus* parasitic wasp



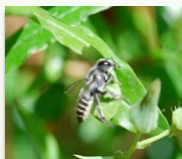
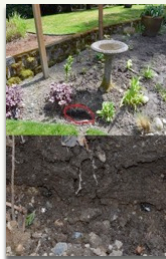
### What's a Leafcutter Bee?

- Solitary bee that nests in existing holes
- Emerge in summer from leafy cocoons
- Mate, find their own nesting hole
- Gather pollen & nectar, lay eggs
- Fly as adults for about 6 weeks
- Eggs are next year's bees
- Overwinter as pupa



## Keys to Success

- Correct nesting holes matter
- Correct mud & leaves matter
- Avoid toxins that kill or smell



## Questions?

