

# Mason Bee Monitoring Project 2019

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Training Webinar

Monday February 18<sup>th</sup>, 2019

## **Updated Contact Information:**

Expect e-mails from  
**masonbeemonitoring@gmail.com**

Please add this e-mail to your “safe senders” list!

Kate LeCroy's phone number: **(205) 907-8890**  
Birmingham, Alabama area code

# Who We Are



T'ai Roulston, Ph.D.  
Research Associate Professor  
University of Virginia  
Dept. Environmental Sciences  
Blandy Experimental Farm



Kate LeCroy, M.S.  
Ph.D. student, University of Virginia  
Dept. Environmental Sciences  
Blandy Experimental Farm



Your  
Photo  
Here!

You!  
And 99 of your  
fellow participants



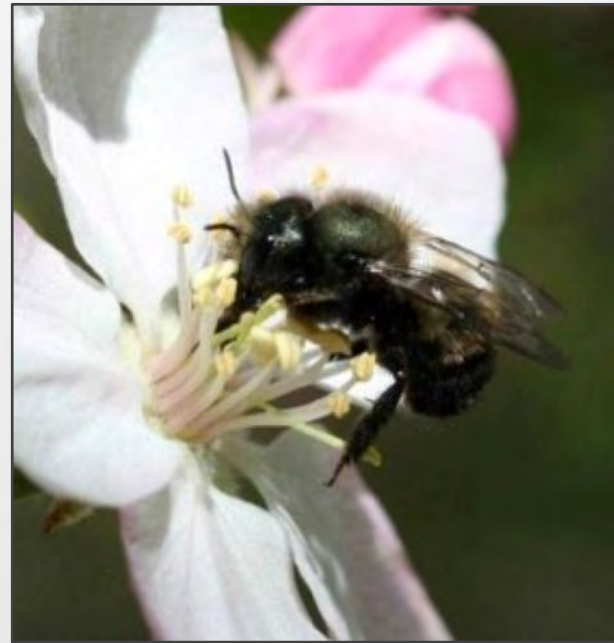
# Outline

- Introduction to Study System (5 minutes)
- Bee Hotels (15 minutes)
  - Supplies
  - When, Where, and How to install Bee Hotels
  - Weekly Recommended Observations
  - A few examples
- Bee Bowls (35 minutes)
  - Supplies
  - When, Where, and How to place Bee Bowls
  - Step-By-Step Weekly Procedure

*If you are not doing Bee Bowls,  
feel free to exit webinar when  
we start this section.*

# Mason Bees: genus *Osmia*

- Family Megachilidae
- Solitary bees
- Nest in hollow cavities





# Focal *Osmia* Species



JD Roberts

*Osmia lignaria*  
“blue orchard bee”

Native to the  
Mid-Atlantic US

Historically common,  
but now possibly  
in decline



Ben Coulter

*Osmia cornifrons*  
“Japanese horn-faced  
bee”

Not native, from Japan

Intentionally introduced  
by USDA for orchard  
pollination in 1970s



Ted Kropiewnicki

*Osmia taurus*

Not native, from Japan

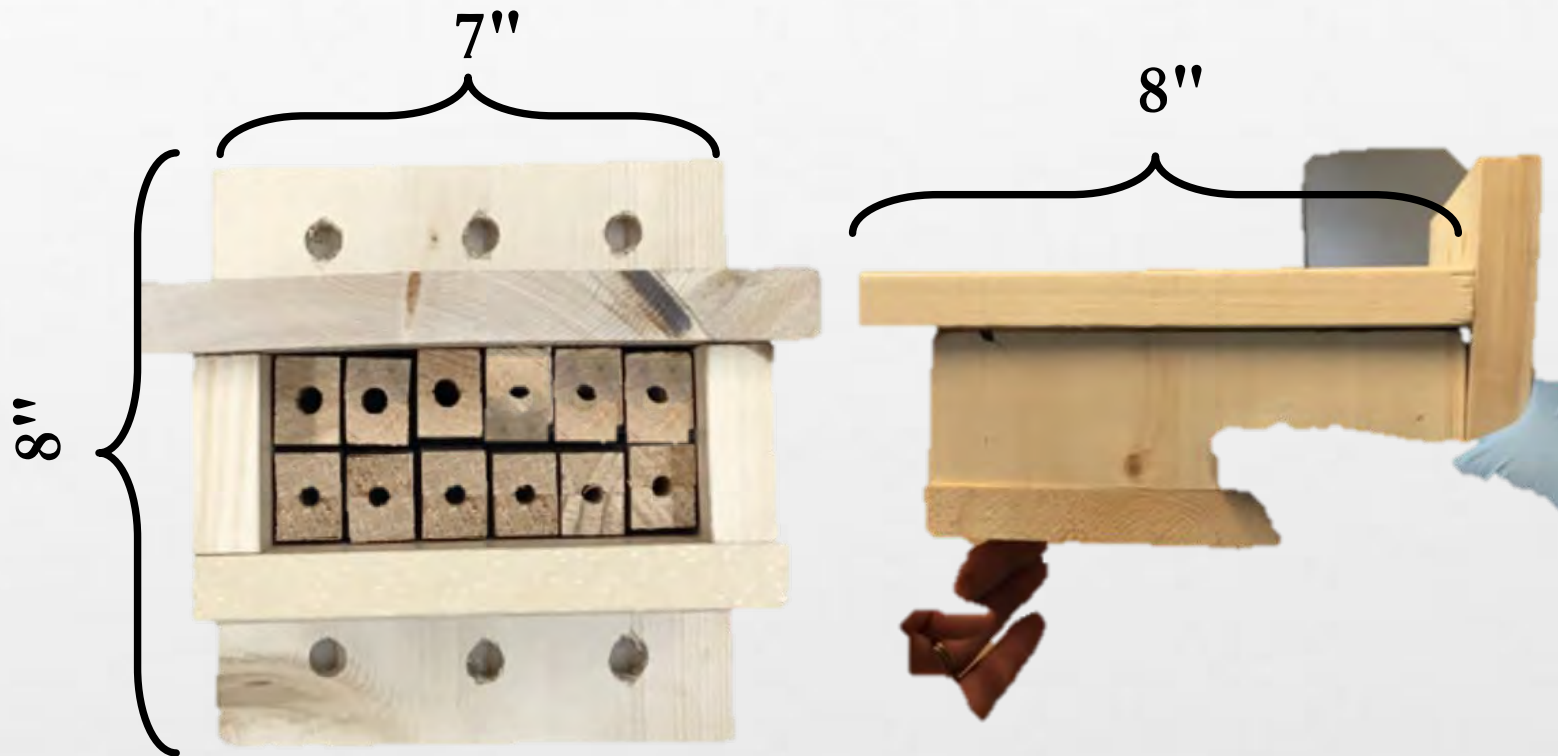
Circumstances of  
introduction are  
unknown, rec. 2002

# Bee Hotels: Timeline

- Install: As close as possible to Friday March 1<sup>st</sup> 2019
- Uninstall: As close as possible to Friday May 31<sup>st</sup> 2019
  - Pickup: 1<sup>st</sup> and 2<sup>nd</sup> weeks of June 2019



# Bee Hotel



Do not alter, remove, or rearrange any blocks.

# Bee Hotel: Where

## *Some placement recommendations*

Facing morning sun (East)	Away from Bird feeders and Bird nesting boxes*	Near early spring flowers*	<b><i>Not</i></b> tied to trees (prone to ants and earwigs!)	<b><i>Not</i></b> near your Bee Bowls*
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*\*Distances are relative to your property*

*These are all “ideal” recommendations (not every property can have all of these conditions met in one location, and that’s okay).*

# When, Where, and How to install your Bee Hotel

## **Requirements:**

- 1. Remove any tape or paper signs attached to your bee hotel**
2. Must be between 3 and 6 feet off the ground
3. Must be installed in the correct position (see previous slide)
- 4. Once installed, do not alter or touch bee hotel**  
(it can cause females to abandon nest-making!)

# When, Where, and How to install your Bee Hotel

## Requirements:

1. Must be between 3 and 6 feet off the ground
2. Must be installed in the correct position:

## *Some ideas for How:*

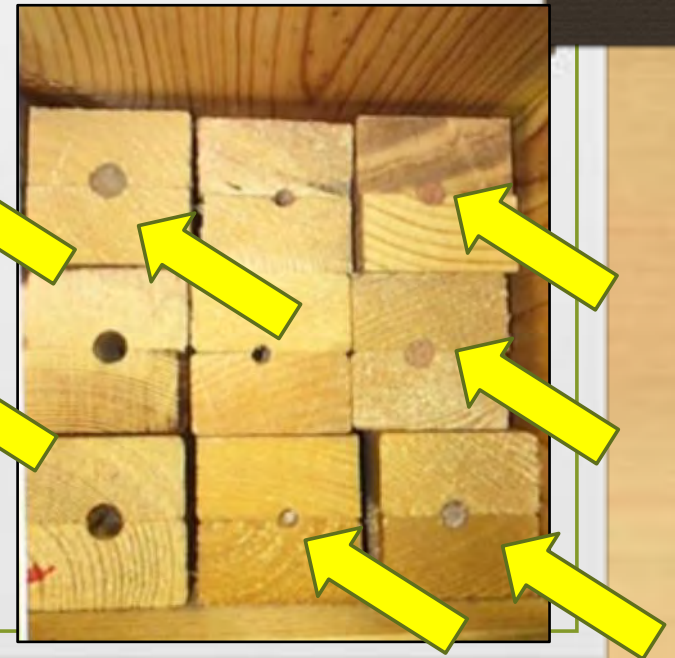
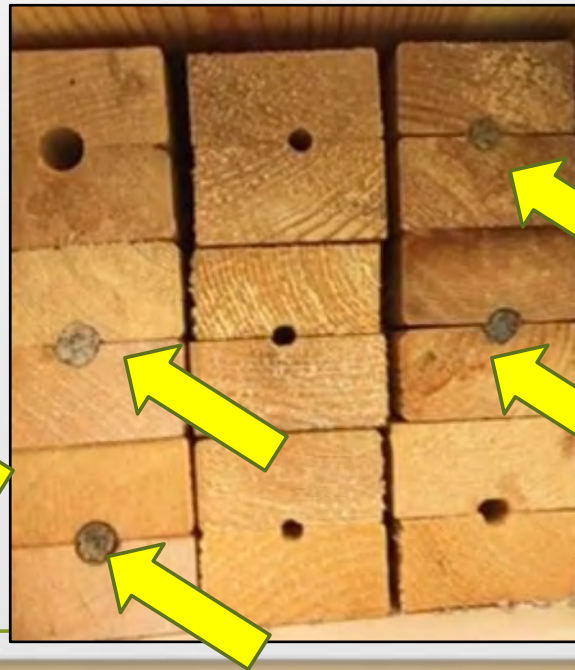
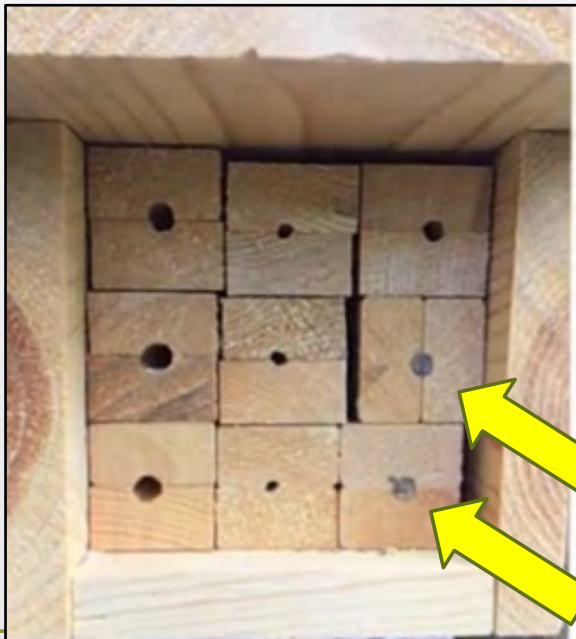
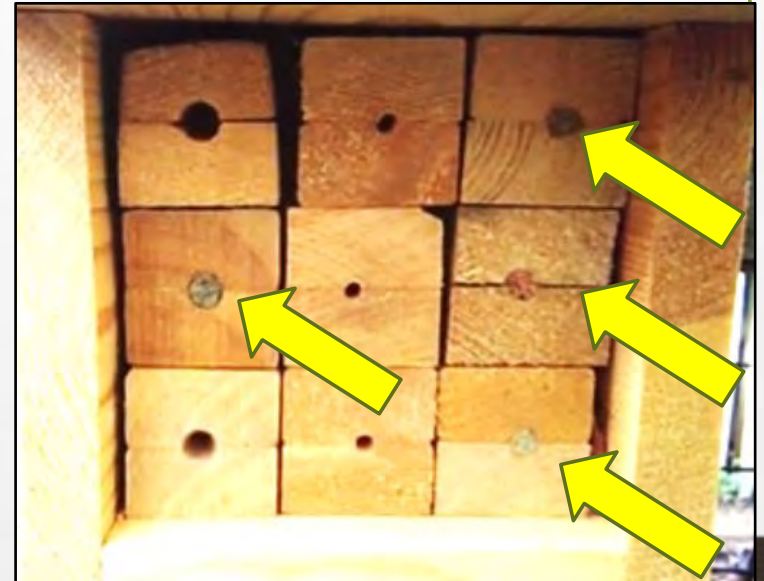
- *Zip ties*
- *On a post*
- *Rope*
- *Wire*
- *Nails, screws*

*Make sure longer edge of hotel "roof" is on top, to protect from rain*





- Inspect your bee hotel each week
- Let us know if you observe activity, such as:
  - Bees going in and out of holes
  - Holes becoming sealed with mud/leaf pulp



# Weekly Recommendations

- Inspect your bee hotel each week
- Let us know if you observe activity, such as:
  - Bees going in and out of holes
  - Holes becoming sealed with mud/leaf pulp
- Take and send pictures, video, writing!
- Share/send all media and observations weekly to us at:  
**masonbeemonitoring@gmail.com**
- If you have trouble e-mailing pictures, you can text them to: **(205) 907-8890 (include your name when you text)**
- We may share your observations with the whole group through weekly updates





# Setup Examples

# Questions?

1. E-mail: [masonbeemonitoring@gmail.com](mailto:masonbeemonitoring@gmail.com)
2. Include a phone number where we can call you if needed
3. We will answer your questions quickly!

Please add this e-mail to your “safe senders” list!

Kate LeCroy's phone number: **(205) 907-8890**  
Birmingham, Alabama area code

# Bee Bowls

*If you are not doing Bee Bowls,  
feel free to exit webinar at this time.*

# Bee Bowls: Timeline

- Install: As close as possible to Friday March 1<sup>st</sup> 2019
  - 13 Collection weeks from March – May
    - Possible sample pickup Mid-April
- Uninstall: As close as possible to Friday May 31<sup>st</sup> 2019
- Final Sample & Equipment Pickup: 1<sup>st</sup> and 2<sup>nd</sup> weeks of June 2019



# When, Where, and How to install Bee Bowls

## Requirements:

1. Must be less than 3 feet above ground vegetation
2. Must be installed in the correct position (see next slide)
3. Must be placed in a single line of bowls
4. Must be placed in a relatively “open”, full-sunlight area



9 Bowl Stands



Assorted cups



PG



Water

Step 1: Place 9 bowl stands  
every 5 meters (~16 feet)





Step 1: Place 9 bowl stands  
every 5 meters (~16 feet)

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Step 2: Set a White cup first in all 9 stands



3 Blue cups



12 White cups



3 Yellow cups



Step 2: Set a White cup first in all 9 stands



3 Blue cups



12 White cups



3 Yellow cups

Step 2: Set a White cup first in **all 9**  
**stands**



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Step 2: Set a White cup first in all 9 stands





Step 2: Set a White cup first in **all 9** stands



Step 3: Place a 2<sup>nd</sup> cup inside 1<sup>st</sup> cup  
With each stand alternating colored cups in this order:  
Blue-White-Yellow, 3 times



3 Blue cups



3 White cups



3 Yellow cups



Step 3: Place a 2<sup>nd</sup> cup inside 1<sup>st</sup> cup  
With each stand alternating colored cups in this order:  
Blue-White-Yellow, 3 times



3 Blue cups



3 White cups



3 Yellow cups



Step 3: Place a 2<sup>nd</sup> cup inside 1<sup>st</sup> cup  
With each stand alternating colored cups in this order:  
Blue-White-Yellow, 3 times



Step 3: Place a 2<sup>nd</sup> cup inside 1<sup>st</sup> cup  
With each stand alternating colored cups in this order:  
Blue-White-Yellow, 3 times



*Hint: You have an additional set of 3 blue, 3 white, and 3 yellow cups in case of breakage. If your backup cups break during the 12 weeks, let us know and we can mail you more.*

Step 4 for March 1<sup>st</sup> Setup: Fill cups halfway with  
50:50 mixture of water and PG

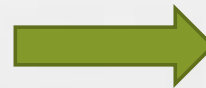


PG

+



Water



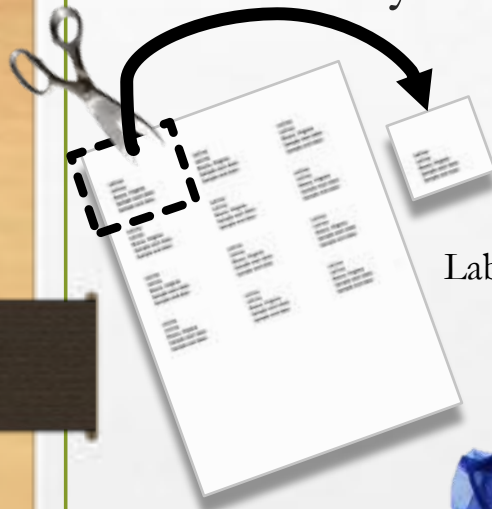
March 1 setup ONLY!



# Sample Collection

Bee Bowls

Every 7 days: Collect samples from all bee bowls,  
check liquid level of bee bowls



Label



#2 Pencil



Dip Net



Whirl-Pak Bag



PG

Packing list

1. Label from Label Sheet
2. #2 Pencil
3. Dip Net
4. 1 Whirl-Pak
5. PG

Bee Bowls Weekly Collection Protocol Mason Bee Monitoring Project 2017  
Questions about this protocol? E-mail [masonbeemonitoring@gmail.com](mailto:masonbeemonitoring@gmail.com)!

**Follow this protocol every 7 days**

**Items needed for protocol:**

*Tip: try bringing a wagon/dolly/cart and a waistpack/fannypack to hold your items as you move along the bee bowl transect.*

1. Label from Label Sheet
2. #2 Pencil
3. Dip Net
4. 1 Whirl-Pak
5. PG
6. Extra blue, white, and yellow cups.
7. Optional: larger container such as a yogurt cup for straining process
8. Optional: Trash bag for butterflies/moths/skippers/slugs/crickets/grasshoppers
9. Optional: headlamp or flashlight
10. Optional: PG waste container
11. Optional: rubber gloves (if you don't want to handle insects with your bare hands)
12. Optional: small note pad for writing down any relevant/important observations

**Protocol:**

1. Go out to your bee bowl setup with all items listed, start at first bee bowl stand.
2. Fill out label (sample start date, sample end date).
3. Open Whirl-Pak and place completed label into the Whirl-Pak.
4. At the bowl stand, pull out ONLY the innermost cup containing the PG+insects out of the bowl stand. This will leave a single white cup in the bowl stand.
5. Visually inspect the single white cup remaining in the bowl stand. If there are holes or cracks in the cup, replace it with a new white cup from the extra cups you brought with you, and put that new cup in the bowl stand.
6. Still holding your cup containing PG+insects in one hand, grab your dip net in the other hand, and place dip net flush over the opening of the white cup resting in the bowl stand.
7. Pour the cup containing PG+insects through the dip net slowly, so that the PG gets caught in the bottom white cup sitting in the bowl stand. The insects will have remained in your net.

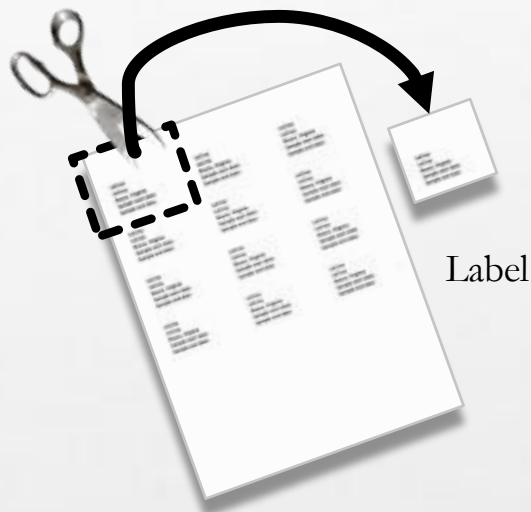
*Tip: if you don't feel confident that you can pour the PG into the white cup without losing your solution, try using a larger container, like a yogurt cup or bowl instead of the white cup. After you've strained for insects, you can pour the PG in that large container back into your original cup containing the PG+insects. This way we won't use as much PG!*

Follow the protocol  
for Bee Bowls  
(Illustrated instructions  
in the next slides!)

# Sample Collection

Bee Bowls

## Step 1: Fill out Label and Place Label in Whirl-Pak



LeCroy  
LeCroy  
Boyce, Virginia  
Sample start date: MARCH 1, 2017  
Sample end date: MARCH 8, 2017

#2 Pencil ONLY

*Hint: your "end date" will be next week's "start date"*

## Step 1: Fill out Label and Place Label in Whirl-Pak



Whirl-Pak Bag



Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



Dip Net





Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



Dip Net



Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



Dip Net



Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



Dip Net

## Step 2: Fish out all insects from bowls using dip net and “pourover” method



Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



Dip Net





Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



Dip Net



Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



Dip Net



PG gets poured back  
into original cup

Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



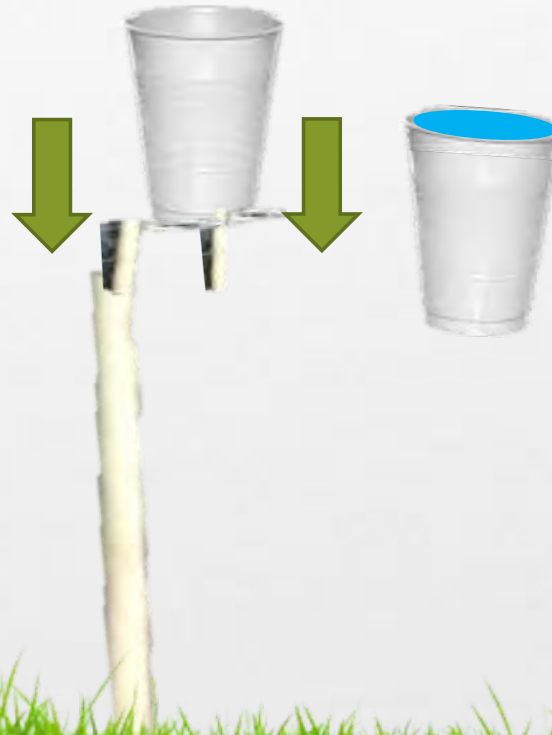
Dip Net



Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



Dip Net



Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



Dip Net





Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



Dip Net





Step 2: Fish out all insects from bowls using dip net and  
“pourover” method



Dip Net



Step 3: Remove any slugs, butterflies/moths/skippers, and crickets/grasshoppers from dip net



## Step 4: Dump remaining insects into Whirl-Pak



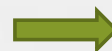
Whirl-Pak Bag

*You should use one  
Whirl-Pak bag  
each week.*



Step 5: After collecting from all 9 bowls, pour small amount of PG into whirl-pak, and then roll and close the whirl-pak

*You should use only one Whirl-Pak bag each week.*



Step 6: Re-fill any bowls less than half-full up to the halfway point with ONLY PG (no water)



*If you have bowls full from rain, pour out rain water until  $\frac{1}{4}$  of the cup remains, then fill to halfway with PG*



Step 7: Put the tied Whirl-pak bag in a **freezer**



# Questions?

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Thanks, y'all!

