

Osmia Bee Company Blooms for Mason Bees Project Instructions for deploying and monitoring mason bee nests

Osmia Bee Company is a woman-owned business committed to sharing our passion for mason beekeeping. Visit [OsmiaBee.com](https://osmiabee.com) to learn more!

The goal of the Blooms for Mason Bees Project is to develop a regional seed mix to support springtime pollinators. The native blue orchard bee (*Osmia lignaria*) is North America's most agriculturally important mason bee species - they readily pollinate edible plants such as apples, almonds, cherries, pears, raspberries, and more! Currently, no spring-blooming seed mix has been developed for early-flying pollinators in the midwestern region. Our research project aims to change that!

These instructions were written for our project and published with the intention that they could be used as a starting point and adapted for other field trials. The nesting shelter design was created by Dr. Natalie Boyle at Penn State University:

https://www.huck.psu.edu/assets/uploads/documents/Bee_Hotel_Project_PSU.pdf



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Instructions

Osmia Bee Company | Midwest Mason Bee Seed Mix Project

1 Store bee cocoons. Familiarize yourself with the project and equipment.

2 Install bee shelter.

3 Release bees.

4 Monitor bee activity and collect completed nests.

OsmiaBee.com/sare-project

1 Store bee cocoons. Familiarize yourself with the project and equipment.

- **IMMEDIATELY** store bee cocoons: Place the bee emergence tubes in the door of your refrigerator immediately after receiving your package. Store them there until it's time to release. It is okay if you hear bees have emerged and are active; do not open.
- **Inspect bee cocoons (optional):** Once bees have been cooled for at least 10 minutes, you can gently uncap one side of the emergence tube to briefly check on them. It is normal for some males to have emerged during shipping. Contact us with concerns.
- To unpack the bee shelter, set on flat table with the taped size up. Remove tape and packaging. Take care to not let the loose nesting reeds fall out of place. Reeds have been sprayed with a bee attractant; do not be alarmed by an odor.
- **Review project description:** visit OsmiaBee.com/sare-project
- **Equipment:**
 - (A) Bee shelter, preloaded with nesting reeds (~60), wooden dowels (to fill empty space), and a 3" cardboard cylinder to hold bee emergence tube.
 - (B) Extra nesting reeds (10).
 - (C) Bee emergence tubes (2) with mason bee cocoons (30 each) and ice pack.
 - (D) J-hook.
 - (E) Shipping envelope with pre-paid return shipping label to Penn State University.
 - (F) Blue bee-safe mesh bag for storing extra completed nests.
- **(Not pictured)** Sharpie marker and green mesh cover to protect nests from bird and/or rodent predation; adhere to bee shelter using duct tape or other method.
- Save all packaging and accessories for future steps.



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2 Install the bee shelter

- Choose a location:
 - Height: 3-4 feet above ground.
 - Direction: front should face south/southeast to expose the entrance to morning sun.
 - Area: a sunny spot with "edge" habitat is preferable, but open fields, woodlands, gardens, etc. are suitable as well. Ideal places are near or on distinct landmarks such as a building, fence line, a tree between forest and open land, etc.
 - Cover: We recommend installing bee shelter under an overhang for added protection.
- Install the bee shelter:
 - Remove the threaded nails from the J-hook.
 - Use a hammer to affix the bee shelter to a wooden structure of your choice (see "Choosing a spot" above).
 - Center the bee shelter within the curved end of the J-hook, oriented so that the site identification and QR code are facing outwards, and the nest entrance is facing forwards.
 - Push down on the bee shelter until it snaps into the curved end of the J-hook; you will hear it 'click' into place.
- Record site identification and location (latitude, longitude) of the bee shelter.
- Share photos of your bee shelter on social media, tag us @OsmiaBee.



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3 Release bees

- **Planning when to release:**
 - After receiving your equipment, check the 10-day weather forecast daily and assess your local floral resources.
 - Release bees once daily high temperatures are consistently above 55 degrees F, and the earliest flowering trees (e.g., maple, willow, crabapple and cherry) are blooming. Do not be concerned if evening temperatures drop to the low 30's.
 - Release in the early morning or late evening.
- **Acclimate bees prior to release (STEP 3a):** Remove ONE bee emergence tube (it does not matter which one) from the refrigerator 1-2 days (24-48 hours) prior to releasing the bees. Do NOT open the emergence tube. Leave undisturbed at room temperature (out of direct sunlight) to slowly warm up the bees prior to release.
- **For transport:** Place the bee emergence tube inside of the small white cardboard box along with a frozen icepack. Place a cloth or other barrier between the icepack and the bee emergence tube so they are not touching.
- **To release bees (STEP 3b):** Place the bee emergence tube into the bee shelter, so it fits inside the cardboard cylinder. Once the bee emergence tube is installed, remove the cap from only the outer end. Do not be alarmed if some bees have already hatched.
- **Second release:** Approximately two weeks after releasing bees from one bee emergence tube, repeat STEPS 3a and 3b with the remaining bee emergence tube.
- **Record the dates that you released bees (site ID and release date).**
- Contact us with any questions or concerns.



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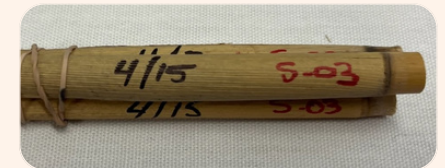
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4 Monitor bee activity and collect completed nests

- Six completed nests (see photo of mud-sealed nest) must be collected from each site, labeled with the date collected and stored in the freezer ASAP. Three nests should be collected after the first bee release (Days 8-15) and another three nests after the second release (Days 22-29+).
- **Experiment Schedule** (dates are examples and will vary based on weather conditions and floral resources at each site):
 - **Day 1** (e.g., April 5th): Release bees in early morning or late evening, after bee shelter is installed.
 - **Day 8** (e.g., April 12th): Check bee emergence and activity. If there are completed nests, remove them from the bee shelter and replace them with new reeds. On three completed nests, write the date (using a black sharpie) next to the site ID (pre-labeled in red), place them in the shipping envelope, and store them in a standard freezer. Remaining nests may be placed in the bee-safe mesh bag and stored in an unheated shed or garage.
 - **Day 15** (e.g., April 19th): Check bee activity. Follow instructions for completed nests as above. Label and freeze additional nests only if three completed nests have not yet been collected. Release the second set of bee cocoons.
 - **Day 22** (e.g., April 26th): Check bee emergence and activity. Follow instructions as above for collecting the second set of three completed nests. If six nests have not yet been collected, visit again in one week and any collect nests, even if not completed.
- Once all samples have been collected and frozen for at least 24 hours, record the total number of samples that you collected (up to 6 from each site), seal them inside of the pre-paid shipping envelope, and place in the mail. Contact us with any questions.
- Enjoy the rest of the mason bee season!



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