



January 2015 Bee-Mail



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Planning for spring pollination

While your bees are deep in hibernation, it's a perfect time to plan ahead.

You are doing one (or both) of two things with your mason bees:

1. Pollinating your spring fruits and flowers
2. Raising bees for the environment and our food supply

In both cases, you need three essential elements for the spring mason bees:

1. **Pollen**
2. **Holes** to nest in
3. **Mud** to use for nesting

Without these three essentials, your bees will fly off and nest elsewhere.

The easiest to control are the **holes**. See the next section with inventorying.



Prior to letting your bees emerge, you will need **pollen** in your yard. This might be troublesome if you live in the NE with late springs. Today, your bees are about halfway through absorbing their stored fats and should be able to survive in your refrigerator easily through mid-April. If you expect spring to be late, consider cooling your refrigerator down a bit lower to around 34-35°F (4°C). This has your bees consuming their stored fats just a bit slower. Temperatures lower than freezing don't help the bees.

Remember that mason bees are generalists and will gather pollen from about anything in your yard. In the early spring, consider planting a few extra flowering bushes that might be early bloomers. Low maintenance bushes native to your area are a good solution.



Without good **clayey mud**, your mason bees may do ok, or worse~ just fly off. **No mud, no bees.** Please take this seriously. Here's a great example of why.

We have about 600 Northwest gardeners raising bees for Crown Bees. Each year, we analyze individual returns. One gardeners had been producing "just passable" returns, meaning just a few more cocoons than she received from us. This past spring she dug a 9" round hole near the nest, searched elsewhere for "clayey-mud" and added it to the side of her mud hole. Her returns this year were **triple** the amount of bees given to her.

Strongly consider enhancing the clayey mud in your spring yard. If you can't find it locally, you can order our convenient dried [mason bee mud](#).

Lastly, make your yard more bee-friendly. Replace a portion of your grassy lawn with pollen rich plants or food. Also, throw away one more lawn chemical from your shed/garage. Read more about creating a [Bee Haven](#).

How to inventory for 2015!

How many bees or nesting holes do you need for your

garden?

Here's an easy visual:



One Tree **needs** Ten Cocoons **with** Ten Holes

Here's the explanation behind this formula.

Tree to cocoon ratio:

Mason bees are amazing pollen gatherers. They gather dried pollen by rubbing their abdomens into the pollen on the bloom. Since the pollen is dry, it falls off with each visit to a flower.

A pollen-gathering female needs about a square yard/meter of flowers to create a pea-sized mass of pollen/nectar in her hole each day. An average sized fruit tree probably has enough pollen to support about 10 females if that were the only source of pollen in your yard. 4 females will easily pollinate this tree and there will be excess pollen.

At Crown Bees, our 20-pack of cocoons always includes 8 females. This rule of thumb amount should adequately pollinate two of your fruit trees.

If you are trying to *raise bees*, there will probably be enough pollen on an average tree to support 8-10 nesting females. Thus, your yard with just this one tree could support about 20 cocoons while that tree was in bloom. When that tree is done blooming, your bees need other pollen sources.

Consider spreading your holes throughout your yard/orchard. Having them all in one place creates competition for pollen, which makes your bees less efficient.

Cocoons to holes ratio:

Nature's mason bee sex ratio is 4 female to 6 male ratio.

A female has on average about 25 or so eggs in her body. Blue Orchard mason bees will lay about 6-7 eggs in one hole. Hornfaced mason bees will lay about 8-9. Thus, each nesting bee could fill about 3 holes in her six week life span.

Not all bees will choose to nest in your holes.

If you have 100 cocoons, that includes about 40 females. Of that amount, about 30 will stay in your yard, and each will fill about 2-3 holes. I always want a few more holes than necessary in case more bees hang around or are joined by nearby wild mason bees.

One cocoon per hole is a good planning rule.

If you have more cocoons than holes, some of your bees will nest elsewhere. We'd like to encourage you to either get more holes, give cocoons away to friends/family, or send us your excess cocoons in our [Bee BuyBack](#) program.

When to order bees AND ensure you get the right bee for your area

You should consider ordering mason bees now if getting them from us. *If you are getting mason bees from nurseries that we support, most bees will be these nurseries by early February.*

Two characteristics of mason bees impact their shipping behavior.

1. Mason bees need to be in hibernation about 6 months. As they approach the second half of their slumber, a little bit of heat gets them active and they begin chewing out of their cocoons.
2. As their stored fats begin to deplete, again, a bit of warmth has them thinking that "spring is almost here" and they can begin emerging from their cocoons.



Today, while it's cold during transit in planes and trucks, the bees travel just fine. We don't start shipping with cold packs until February. (We do ship mason bees through April, but it's a bit trickier to keep them dormant. We find males begin to emerge mid-shipment in March.)

We'd rather have the bees stored in *your* refrigerator where they will be less likely to emerge until you say that it's ok.

Buying correct mason bees

Make sure that you buy bees that are roughly acclimated local climate.

Most "spring weather" is consistent across North America. Spring temperatures are typically between 45-80°F (4-25°C) with lower humidity. The nesting bees from this season will do well anywhere. Your concern is about the eggs they've laid for the next

generation. Bees that were raised in different climates need their eggs developing in that same climate.

Here are two examples of what happens when you get the wrong bee nesting in your yard:

1. **Cool summer mason bees in warm yards.** The NW and NE states/provinces have cool summer temperatures, typically averaging about 70-74°F (20-21°C). If those same bees are placed in a warmer summer 80-90°F (26-32°C) state/province, they will develop from larva to adult bee faster and then begin hibernation too soon burning precious fats. In general, they run out of stored fats too soon in the winter and die before spring arrives.
2. **Hotter summer mason bees in cool yards.** The reverse occurs with warmer summer bees developing in a cooler summer environment. The bees need hotter temperatures to develop and may not be fully developed adult bees when autumn has them hibernation. An incompletely developed bee typically doesn't survive the spring.

When buying bees, you need bees that are acclimated "close" to your summer temperatures. If buying your bees from a nursery, ask where they were raised. I believe not all nurseries are aware where they buy their bees and may sell you incorrect bees.

You should consider ordering mason bees now if you're getting them directly from us. *If you are getting mason bees from nurseries we support, most will have bees by early February.*

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Buying correct mason bees

Make sure that you buy bees that are roughly acclimated to your summer heat. (did you mean summer or spring?)

Most "spring weather" is consistent across North America. Spring temperatures are typically between 45-80°F (4-25°C) with lower humidity. Any mason bee, whether from warm or cool summer climates will do well for your yard. Our concern is about the eggs they've laid for the next generation. We want those to be healthy for the next season.

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At Crown Bees, we send you bees based on your zip code. These bees are acclimated to your area. This way we help ensure your bee raising success. (We do the same for nurseries we provide bees to!)

This week we're going to modify the mason bee "product" on our website. You'll be able to specifically order a bee that is best for your area rather than have us make an educated guess at it.

We have received bees from various states through the Bee BuyBack program and will have those available later this week.

For leafcutter bees, there's no concern to order now and we'll start shipping those bees in late April.

Bees and freezing temperature survival



In researching how wild bees survive the winter, I came across a [great article](#) by Elaine Evans, a Ph.D. student at the University of Minnesota Bee Labs.

Honey bees have a unique strategy among bees. They regulate the temperature of the cluster of bees all winter to keep themselves warm. All other bees do not survive winter as a colony, and must avoid freezing on their own. The main threat posed by freezing temperatures is the formation of ice crystals within the body. When water crystalizes upon freezing, the ice crystals puncture cells and cause death.

To avoid freezing, many bees have cold resistance due to various chemicals in their blood. These sugars or alcohols allow the bees to tolerate temperatures below freezing without the formation of ice crystals. Bumble bees are one of the bees that do this. Only newly produced bumble bee queens survive the winter. They find a suitable place and dig themselves several inches down into the ground, surviving underground through even the coldest months of winter due to glycerol in their blood, a chemical that is similar to the propylene glycol we use as antifreeze. Lying dormant under the often frozen ground, these queens with the sperm stored in their spermatheca are the only connection to next summer's buzzing bumble bees. Without them, bumble bees would cease to exist, as these mated queens are the only ones who survive the winter.

Tunnel nesting bees (such as yellow-faced, small carpenter and orchard mason bees) and ground nesting bees (such as mining bees and long-horned bees) spend the winter within their nests as adult, larvae or pupae, depending on the bee species. Although we don't know exactly how all these bees do it, many also have chemicals in their blood, sometimes sugars that increase their tolerance to below-freezing temperatures. Some of ground nesting bees may have their nests far enough underground that they are below the frost line, but most will need to have some strategy to avoid freezing to survive Minnesota winters.

Although it's natural for bees to survive outside, I recommend keeping your bees within your refrigerator at a regulated temperature. Some may argue with this statement as "Survival of the fittest" is nature's way of getting rid of a weak members of a species. I respond with "why do people provide heated/protected habitats for our chickens, horses, and dogs?" We do so because we want that animal to survive.

Honey bee keepers also do all they can to protect their bees from dying. Your mason bees are important food providers through their pollination of your garden and orchard. Everything we can do to enhance their survival should be attempted.

Check the water level in your HumidiBee



Here's a short reminder to check on the water level within your HumidiBee.

If it's dry... then add a bit more water than you did last month.

If you find mold on your cocoons, look at the instructions on how to solve that [here](#).

Placing the Humidibee in a lunch sack will help keep airborne mold away.

New partnership with the Garden Media Group for awareness



One of our biggest issues facing mason bees as a supplement to the honey bee is lack of awareness.

You are aware of gentle mason and leafcutter bees. I believe you are just a small .5% of all North American gardeners and farmers. **If our future food supply needs superior pollination, we have to get more people raising these awesome bees. Our food supply is a big deal.**

Crown Bees reached out to the US's best home and gardening market firm for suggestions. Susan McCoy, and her creative team under the leadership of Katie Dubow, agreed to partner with us to increase awareness of the mason bee pollinator.

Under their direction, we will conduct a Kickstarter campaign starting the first of March. The "product" that we're kick starting is simple... an awareness campaign that will educate people about these awesome bees. Once the Kickstarter goal is achieved, Garden Media Group will implement a national awareness program.

A great slogan that Susan already created is:
Honey bees make honey, Mason bees make food.

You'll hear more about this program next month. We are truly blessed to be partnering with such a top-level firm. I'm excited about the potential good we'll be able to do!

Orchard update and the ICP Project



Our meeting with cherry, almond, and other crop farmers in Stockton went fabulously well last month.

Our teammates from partnering mason bee companies were wonderful to be with for a few days. It was great to share stories and tips with them while driving between orchards. In particular, I drove for 8 hours with our closest competitor and really had a great day with Clint, their owner.

We should have no problems getting about 500 acres under mason bee pollination. That's about 500,000 mason bees we'll use in these orchards! Thank you, all of the Bee BuyBack contributors who helped!

What is great is that we're not conducting trials any longer, we're actually helping farmers pollinate their crops to achieve better pollination than they've had before.

Two concepts helped orchard managers start with mason bees.

1. 100,000 honey bee hives (about 5%) were purchased by one almond company. There are fewer hives available across the nation for pollination.
2. We asked for the worst orchard conditions, strong cross-pollination requirements, colder places, and windier situations.

Project ICP ~ Teaching farmers how to use alternate bees



Later this month I'll be meeting at UC Davis with the USDA's [Integrated Crop Pollination Project](#). This project is starting year 3 of a 5 year program in how to teach farmers to use pollinators other than the honey bee in their crops. Apples, cherries, almonds, blueberries, and cucurbits are the primary crops of study.

The mason bee is a major pollinator along with the bumble and leafcutter bees.

In this study, are some of the lead researchers within the USA. It's great to work with and learn from them!

The work that Crown Bees is doing, along with our [Orchard Bee Association](#) peers, will provide additional understanding to ICP's work in the fields this spring. We look forward to continue to learn and partner with both researchers and peers in this important work.

Crown Bee's 2015 goals

Our goals are fairly simple, yet will take much time and energy to produce.



Increase mason bee awareness is our primary goal.

- Today we have a little more than 8,000 bee-mail followers. I'd like to get that number to 15,000 by the end of the year.
- Conduct a successful Kickstarter campaign to begin increasing nationwide awareness with the Garden Media Group.
- Double the amount of Bee BuyBack participants to bring in about 200,000 mason bees.
- Continue to maintain high quality customer service and continue to be proud of our products for your success.
- Begin rural mason bee farming

In our next issue...

- Thinking through mason bee house placement
- Our progress with the Kickstarter campaign
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Thank you for caring about raising solitary mason bees! Your success is important to us.

Dave Hunter, Owner