



The Great Sunflower Project

Welcome to the Great Sunflower Project!

We are so glad that you are joining us!

Plant these seeds about one inch deep in a location that will have full sun. They need to be watered regularly, especially when they are getting started. There is more information on the website about growing sunflowers (<http://www.greatsunflower.org/en/growing-sunflowers>). Once you have flowers (about 6 weeks), you can start collecting data. We'll be sending out an email suggesting what morning to watch your sunflower.

How to sample:

What you need: Sunflowers, a place to sit comfortably, a **data sheet (on the accompanying sheet)**, a pen or pencil, and a watch or timer. After watching, you'll need a way to check the temperature.

Here are the five steps:

- 1) **Set yourself up** near your plant. Take a look at your garden and count how many sunflower plants are blooming. We recommend a cup of coffee or tea...
- 2) **Focus in on one plant**, count and record the number of open flowers on your plant. Don't count older flowers that might not have pollen or nectar. You can tell if a flower is old by touching the center part and seeing if your finger picks up pollen.
- 3) **Start your timer.**
- 4) **Write down how many minutes have passed since you started timing** (not since the last bee!) for each bee that visits.
- 5) **Stop once you have seen five bees or thirty minutes have passed**

If you wish, you can also record the type of bee (bumble bee, honey bee, green bee or other, there is a guide on the web site). Remember, seeing no bees is just as important as seeing bees.

When you get back to the house, **write down the current air temperature** on the data sheet. Then, either **enter the data online** (www.sunflower.org) or **send us your data sheet**. Email or call if you have any questions.

Thanks so much,

The Great Sunflower Team



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Growing Sunflowers

Sunflowers like full sun. When you plant them, plant each seed about 1 inch deep and at least six inches apart. These seeds have an 80% chance of germinating so; you might plant two seeds for every one plant that you want. You can always thin them after they come up.

Be sure to water them after planting. It usually takes a week or so for the seedlings to appear. This seems to depend on how warm it is. You can start your sunflower indoors. We like to use pots made out of peat because you can transfer them straight into the soil when it's warmed up.

If you are going to grow your sunflower in a pot, it's best to have a pot at least 15" deep. The deeper and larger the better because these plants like to send their roots out, out, out....

You'll want to keep the soil moist and fertilize them every other week. I usually water them heavily once a week when they are getting started (about a month) and then water a little bit every day.

Here's the blurb from *American meadows*:

This is the true grandfather species of them all—the basic annual sunflower that figured so prominently in Native American ritual, fabric making, and foods. Flowers are only about 3–4 inches across, rather like a large, single black-eyed susan on rangy, 3-foot, sandpapery plants. Do not confuse this one with its hundreds of descendants including the garden giants with huge, seed-filled centers—they're all hybrids of this species. State flower of Kansas.

Type : Annual. Lives just one year. Grows quickly, blooms heavily, dies with first frost. Can regrow following spring if seed falls on bare ground.

Height : Up to 3 ft.

Sun/Shade : Needs full sun.

Soil Preferences : Adaptable

Moisture Requirements : Average moisture, well-drained.

Where To Grow It : Native to plains regions, but can be grown in all regions.

Zones : 3-10



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BEE GUIDE



Bumble bee	Honey bee	Carpenter bee
<p>Have larger, stockier bodies than honey bees</p> <p>Are yellow and black (though some have red or white) and hairy.</p> <p>Their abdomens are hairy unlike a carpenter bee.</p> <p>Pollen is carried as moist pellets on the expanded hind legs (corbiculae)</p> <p>Females can sting more than once</p> <p>Are un-aggressive unless you appear to be attacking their nest</p>	<p>Are about the length of the nail on your thumb (an inch)</p> <p>Have gold to dark brown or black shiny abdomens with subtle stripes</p> <p>While they have hair, the hairs are sparse.</p> <p>Have hairy eyes</p> <p>Females sting once and then die</p> <p>Are found year round</p> <p>Are not native to the US</p> <p>Carry pollen on their hind legs</p>	<p>Are large and robust and resemble the bumble bee</p> <p>Are often but not always totally black in color</p> <p>The top of the abdomen is shiny not hairy like a bumble bee.</p> <p>Have strong mandibles that they use to dig into wood where they establish nests</p> <p>Are not likely to sting unless handled</p> <p>Females can sting more than once</p> <p>Have a surprisingly mild sting</p>

To tell the difference between bumble bees and carpenter bees, watch how they move. Bumble bees fly low to the ground and move slowly. Carpenter bees hover motionless at eye level or along wooden beams and are rather quick. In addition, try to see the top of the carpenter bee's abdomen it is practically bald and appears to be entirely black and rather shiny. Bumble bee females carry their pollen as moist pellets on the expanded hind legs (corbiculae), like a honey bee, and unlike any of our other bees. Also, the Carpenter bees splay their wings while landed (Bumble bees fold them neatly over the back).

Pictures from the web.

http://www.science-art.com/gallery/30/30_982003175615_small.jpg

<http://www.ivyhall.district96.k12.il.us/>

<http://www.utoronto.ca/forest/termite/petctbee.jpg>



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DATA SHEET

Please make copies of this or let us know if you need more.

Your User Name: _____

Garden Name: _____

Date ___/___/2008_ Time of day ___:___ AM or PM Temp. _____° F.

Number of flowers on the plant you are watching: _____

Only those that have pollen, touch the center of the flower and checking to see if your finger is dusty..

Number of sunflower plants in bloom in your garden: _____

Please use these types of bees: Honey bee, Bumble bee, Carpenter bee, Metallic Green bee, Other or Unknown.

	Time from start (min and seconds)	Type of bee Not required
First bee		
Second bee		
Third bee		
Fourth bee		
Fifth bee		

I didn't see any bees.

Comments (Such as what else is in bloom in your garden that's attracting bees?):

Enter the data online (www.greatsunflower.org) or send this sheet to:

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