

Cucumber pollination protocol

Materials provided	You'll also need
<ul style="list-style-type: none">• 6 cucumber seeds (Spacemaster variety)• 1 organza flower bag• 3 colored zip-ties• 1 datasheet	<ul style="list-style-type: none">• Garden space OR two identical pots (12" diameter, 3-5 gallon volume) filled with potting soil for vegetables• About two months• Internet access

Steps marked with a  will have examples and tutorials online at <http://elsakristen.com/cucumbers>

Step 1. Plant your seeds. Cucumbers are easy to grow in the ground or in pots!

- In Raleigh, you can plant cucumber seeds anytime between late April and early August.
- If you already have a garden, you can plant your seeds there. Plant them in two groups of three seeds each, about ½" deep with 1-2' between groups.
- Or grow your cucumbers in pots. You'll need two identical pots (12" diameter, 3-5 gallon volume) filled with potting soil that is intended for outdoor vegetables. Plant 3 seeds per pot, about ½" deep and all near the middle.
- Plant all your seeds on the same day and record the date on your datasheet.

Step 2. Thin your seedlings

- Seeds should germinate in 3-10 days. Once they've grown 3-4" tall, you're ready to thin.
- Keep two seedlings per pot (or per group), for a total of four plants. Use scissors to cut off the extras at soil level.

Step 3. Keep your plants happy



- Cucumbers need fertile soil that is moist (not soggy).
- If you're growing in pots, you may need to water every few days, or even daily on very hot days.
- Check the directions on your potting soil to see if you need to provide additional fertilizer.
- Your vines will grow 2-3 feet tall. You can let them sprawl on the ground or grow them in a tomato cage or tie them to bamboo stakes or balcony rails to keep them tidy.

Step 4. Watch for flowers

- To do the experiment, you need three female flowers and at least one male flower open on the same day. Ideally, the three female flowers will be on the same plant, or from the same group of plants.



- Get to know your plants as they start flowering so you can recognize male and female flowers, and so you can identify buds that are ready to open the next day.

Step 5. Prepare for the experiment

- When you have at least three female flowers buds and one male flower bud ready to bloom the next day, it's time to act!
- Ideally the three female flower buds will be on the same plant or in the same group, but use your second (backup) pot if you need it!

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 - Gently tag each of the three female flower buds with a different colored zip tie. Put the tie on the flower's own stem, just below the miniature-cucumber part. Leave it a little loose, like a bracelet, so the stem doesn't get pinched.
 - Select one flower to bag. Make the choice at random, for example by flipping a coin (twice, since you have three flower buds and a coin has two sides!)
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 - Put the organza bag over the selected flower, cinching the drawstring down around the flower's stem. (This can be snug—gentle but firm!) This is **FLOWER 1** on your datasheet.

Step 6. Do the experiment!

- Do this step the morning after you tag your flowers, when they open. Around 7:00 or 8:00 am is great, and definitely before noon.
- Do nothing to the bagged flower (**FLOWER 1**)—leave the bag in place all day.
- Flip a coin to decide which of the two remaining tagged female flowers will be hand-pollinated. This is **FLOWER 2** on your datasheet. Record the tag color on your datasheet.
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 - Find an open male flower, pick it, and peel away the petals to expose the pollen in the center. Rub the pollen on the stigma (center part) of **FLOWER 2**. You've hand-pollinated it!
 - The last tagged flower is **FLOWER 3**. Jiggle it a little bit so all three flowers have been handled, but do nothing more. Do not bag it and do not hand-pollinate it.
 - On your datasheet, record the date and the tag color for each of the three flowers.

Step 7. Remove the bag

- At the end of the day of the experiment, once the flowers have all closed, remove the bag from **FLOWER 1**.

Step 8. Watch and wait

- Any female flower that “decides” not to make a cucumber will fall off. Check your plant daily to see if any of your tagged flowers/baby cucumbers fall off. If they do, use your datasheet to record which ones fell off and when.

Step 9. Harvest

- About three weeks after pollination day, harvest your cucumbers. The exact date is up to you, but pick all three at the same time!
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 - On your datasheet, record the following information about each cucumber:
 - Length (measured along the convex side of curved cucumbers)
 - Circumference (measured at the thickest point)
 - Number of seeds (cut the cucumber open, scoop out the seeds, and count them; tiny, soft seeds don't count!).

Step 10. Report results, eat salad

- Submit your data at elsakrsiten.com/cucumbers
- You're done! Enjoy the rest of your cukes!

Thanks for helping us understand the work of our urban bees!

The  marks steps with examples or tutorials online at <http://elsakristen.com/cucumbers>