

TOMATO POLLINATION GUIDE

Solanum lycopersicum



Tomatoes have a perfect flowers with both male and female structures. These plants are self-pollinating, meaning saved seeds will be true-to-type unless a controlled pollination is made prior to pollen maturation.

Step ONE: Collect viable donor pollen



Four to eight tomato flowers will typically appear on an inflorescence. Look for fully opened flowers that are dark yellow approximately 7-8 weeks after seeding. Place a mature flower over the rim of a plastic capsule to catch mature pollen. Use an electric toothbrush or finger tap to shake pollen from the flower.

Step THREE: Remove petals to expose stigma

Carefully insert a tweezers in between the flower petals and tug straight up to remove the petals/stamen in one swift motion. A singular stigma will remain connect to the calyx.



Step FIVE: Properly label cross



If performing a cross indoors without pollinators present, covering the flower/inflorescence is not strictly necessary. Label a small crossing-tag with female x male designators and the date of the cross. More than one immature flower per inflorescence may be pollinated at a time, in which case be sure to place a crossing tag at the base of the inflorescence.

Step TWO: Identify immature flowers



Identify immature flowers that are approximately one day prior to anthesis (i.e. mature pollen formation) or flower opening.

Remove flowers that have already started to open or are too small to contain a viable female stigma.



Step FOUR: Transfer donor pollen to stigma



Using a sanitized paintbrush or cotton swab, gently cover the stigmatic surface with collected donor pollen.

Step SIX: Monitor and harvest mature fruit

It can take six-to-eight weeks to obtain mature fruit. Seed is physiologically mature when the fruit is ripe, at which time seeds may be saved using wet fermentation methods. Follow good seed stewardship practices, using clean harvesting and storage practices to obtain clean, safe seed.



TIPS FROM THE PROS:

- Pollen viability is typically highest in the early morning
- Use ethanol to sanitize materials between pollen sources
- Aim for cool, dry, and wind-free weather and protect (cover) crosses with cheesecloth, row cover tulle, etc.

THIS PROJECT WAS SUPPORTED BY:



NORTHERN ORGANIC VEGETABLE
IMPROVEMENT COOPERATIVE

Cornell AgriTech
New York State Agricultural Experiment Station

Photos and design by: H. Swegarden
Demonstration by: M. Warwick (Griffiths Lab)