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Your Squash Did Not Cross-Pollinate Your Cucumbers

AGRI-VIEWS

by Chuck Otte, Geary County Extension Agent

I have lost track, over the years, of how many times I have been asked if someone's cucumbers cross-pollinated their squash, or their sweet bell peppers seemed to be hot so they had to have cross pollinated with their jalapenos. Spoiler alert - other than certain supersweet sweetcorn types, the source of pollen that caused the fruit (anything containing seeds is a type of fruit) to develop will not impact that fruit. It will only be seen when the seeds from that fruit are grown out the following year. Now the rest of the story!

For a flower to develop into a fruit (pepper, tomato, squash, cucumber, whatever) it has to be pollinated. In some species, like tomatoes and peppers, there are perfect flowers in that the pollen producing structures (anthers) are in immediate proximity to the female part of the flower that receives the polled (stigma). These flowers are often not very showy because they usually do not depend on pollinators. A gust of wind hits the plant in the morning (when most mature pollen is shed) and it vibrates the pollen loose, it lands on the stigma and the process of a fruit developing begins. Pollinators (bees as well as many other pollen and nectar eating species) will visit these flowers and may aid in pollination but the plant does not require them for pollination. A very high percentage of the fruit that grows on these plants comes from self pollination.

For other plants, including all of the vine crops, the flowers are either male or female. These species are heavily dependent on pollinators. They often have very large showy flowers with the expressed intent of attracting pollinators. There are often far more male flowers than female flowers and cross pollination occurs regularly. But for effective cross pollination to occur the pollen has to be compatible meaning a genetic match. Many of the vine crops we grow are not closely related and have different chromosome numbers. Watermelon has 22 chromosomes and muskmelon has 24. They CAN NOT cross pollinate each other. Muskmelon is in the same family with honeydew melons and the chromosome number is the same, so cross pollination could theoretically occur, but it wouldn't be noticed until the seeds were grown out the following year. Cucumbers have 14 chromosomes by the way, and squash have 40.

Squash are a wild card. All the different squash varieties are closely related and this includes pumpkins. In theory any of the squash could cross pollinate each other. The resulting fruit (squash) would still be consistent with the type that was planted (zucchini would still produce zucchini, butternut squash would still produce a butternut squash looking fruit) but when the seed was grown out the next year from the squash, it's hard to tell what you'll get. BUT, your squash won't pollinate any other vine crops in your garden, nor will the cucumbers or melons!

Tomatoes and peppers (and potatoes and eggplant) theoretically could cross pollinate but rarely do, as they are primarily self pollinated. But even if they did, the fruit produced would still be consistent with the parent plant. Even if your jalapenos cross pollinated your sweet banana peppers, they would not be hot. The next generation grown from those seeds may be and that is what plant breeding is all about!

When you plant something that is not true to type when it grows out it usually comes down to one of two things. Either something was misidentified somewhere along the line or, the seed production field was not adequately isolated from other pollen sources. And now you have the rest of the story!

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