EFFECTS OF VIRUS-RESISTANT TRANSGENIC SQUASH ON POLLINATOR BEHAVIOR.
Holly R. Prendeville and Diana Pilson, University of Nebraska-Lincoln, Lincoln, NE 68588-0118

One ecological risk associated with the use of transgenic crops is gene flow from transgenic crops to wild relatives. To assess the potential for gene flow from crop to wild plants we compared pollinator behavior on conventional and virus-resistant transgenic squash. We performed two common garden experiments in which we planted seven varieties of conventional squash and seven varieties of transgenic squash. In the first experiment, in 2004, squash was planted in mid-May and the primary pollinators were honeybees (*Apis mellifera*). Honeybees visited conventional squash flowers more frequently than transgenic squash flowers, which may have been because corolla width was significantly larger on these varieties. In the second experiment, in 2005, squash was planted in late June and the primary pollinators were squash bees (*Xenoglossa* and *Peponapis*). In contrast to honeybees, squash bees visited transgenic squash more frequently and spent more time in transgenic squash flowers than on conventional flowers. However, in this year corolla length was greater in transgenic flowers. Thus, in both years the primary pollinators preferentially visited plants with larger flowers. We also measured several other floral traits (nectar sugar concentration, nectar volume, and other components of floral morphology), but these did not vary between conventional and transgenic varieties of commercial squash in either year, and therefore cannot explain differences in pollinator visitation. Although we found differences in visitation rate to conventional and transgenic squash flowers these differences were not consistent across years. If differences in pollinator visitation rates lead to differences in siring success, then our results suggest that gene flow from transgenic squash into wild populations will vary over time.

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