

POLLINATION DEFICIT IN OPEN-FIELD TOMATO CROPS IN RIO DE JANEIRO STATE, SOUTHEAST BRAZIL

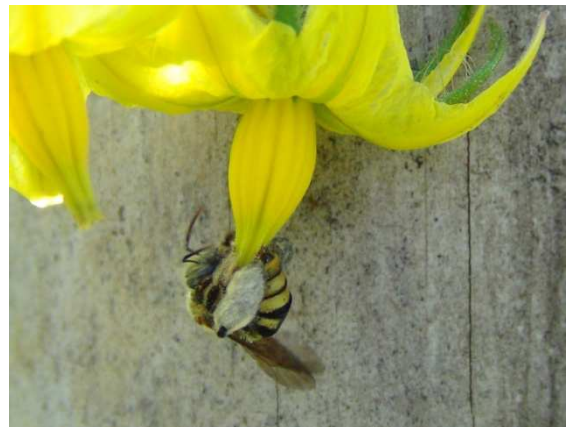
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More than 70% of world's crops benefit from pollination by animals, and bees are their main pollinators. Studies focusing the understanding of the interactions between crops and their pollinators are necessary when aiming to manage the landscape to conserve the biodiversity in agricultural lands. In this context, we analyzed the pollination status of open-field tomato crops (*Solanum lycopersicum* L.), studying fruit formation, visitation of bees and the relationship with the quality of the fruits. Our study was performed in cultivated areas in Rio de Janeiro state, in Brazil. We recorded the flower pollinators and we measured the formation of fruits through pollination experiments. We evaluated the quality of the fruits through measurements of circumference, weight, volume and number of seeds. Our study revealed higher production of fruits from flowers visited by bees, in relation to that obtained without these insects. Those fruits resulted from flowers pollinated by bees have also more seeds than those non-pollinated by bees. The main pollinators of tomato are native bees of the genus *Exomalopsis*, sweat bees of *Augochloropsis* and carpenter bees *Xylocopa*. They vibrate the cone of anthers to collect pollen and promote the transfer of grains between successive visits to different flowers. Our results indicate that, although the tomato flowers can be self-pollinated, the productivity can be increased through the action of bees. Areas with higher frequency of bees visiting the flowers have more fruit formation. That means that the presence of bees in these crop areas is very important. Management actions ensuring to maintain the native pollinators in the

agricultural areas are needed, especially in view of habitat fragmentation and destruction of the Atlantic Forest, the original ecosystem in the study region.



Tomato crops in São José de Ubá, RJ, Brazil.



Exomalopsis bee vibrating flower of tomato. Note the scopa on hind leg filled with pollen.