

**FACTORS AFFECTING THE EFFICACY OF A VINEGAR TRAP  
FOR *DROSOPHILA SUZIKII* (DIPTERA; DROSOPHILIDAE)**

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The spotted wing fruit fly, *Drosophila suzukii* Matsumura, is a relatively new pest in the United States attacking a variety of fruit crops. Studies were conducted to develop an optimized, economical trap for monitoring. Laboratory bioassays found that flies were attracted to dark colors ranging from red to black compared with low attraction to white, yellow, and light blue. Similarly, fly catches in 237 ml plastic 'spice' jars with ten 0.48-cm holes and baited with apple cider vinegar were significantly higher in jars with red or black than white caps. The use of an alternating set of three, 1.5-cm wide horizontal red, black, and red bands (Zorro trap) significantly increased fly catches compared with the use of a 4.5-cm all-red or all-black strip. This increase was associated with a significantly higher proportion of flies first landing on the side instead of the cap of the Zorro trap compared with the all-red or all-black spice jars. These data were used to develop a predictive model to define total fly capture as a function of trap color, cumulative area of entry holes, and the length of the trapping portion of the trap. Total fly catches by the Zorro trap was compared to other red and clear plastic traps in five trials conducted in cherry, blueberry, marionberry, apricot, peach, and wild blackberry. Comparisons (n = 12) included a commercial red-capped 200-ml trap with two 0.63 cm holes and clear and red 473-ml and clear 946-ml plastic cups with six or ten 0.48 or 0.63-cm holes. The model was successfully validated suggesting that trap performance can be predicted based on a few characteristics. The Zorro trap has many advantages including its durability, small size, and availability. In addition, a lower proportion of non-target drosophilids were caught in the Zorro than the various cup traps. The Zorro trap is available from [marginaldesign.com](http://marginaldesign.com).