

## **Illumination: a technique for observing SWD eggs in ripe red raspberry fruits**

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Red raspberry fruit is soft, facilitating oviposition by spotted wing drosophila, SWD. SWD eggs possess a pair of respiratory filaments, which assist during embryonic development. The filaments resemble two fine white threads projecting from an oviposition scar in the fruit. Red raspberry fruit are naturally pubescent making recognition of the respiratory filaments of SWD difficult (Fig.1). While various disclosing methods have been developed for SWD larval sampling including dunking fruit in salt or sugar solutions and boiling fruit, detecting eggs in fruit in early red raspberry infestations remains tedious. An effective method for quickly discerning SWD eggs in red raspberry fruit without destructive sampling for larvae has been developed which could assist growers in verifying presence of SWD eggs in fruit in early infestations and in experimental research. Use of internal illumination eliminates distracting berry pubescence, leaving only the SWD eggs clearly outlined against the brilliant red color (Fig. 2). Eggs can be easily detected and if desired, quickly located under a dissecting microscope, using surface illumination, for further viewing and assessment of the respiratory filament quality. Internal illumination is best performed using a fiber optic light source and dissecting microscope in a laboratory setting but this technique can also be performed in the field (Fig. 3). When using a fiber optic light source remove the diffuser on the end of the fiber optic arm and project the pinpoint light source directly into the hollow end of the berry. In the field a small penlight can substitute for a fiber optic light source. Inserted into the berry it allows observation using a hand lens to identify SWD eggs (Fig. 4). This technique may be more suitable for fieldmen, processors, extension researchers and experienced growers.



Fig. 1. Red Raspberry viewed through a dissecting microscope with surface illumination.

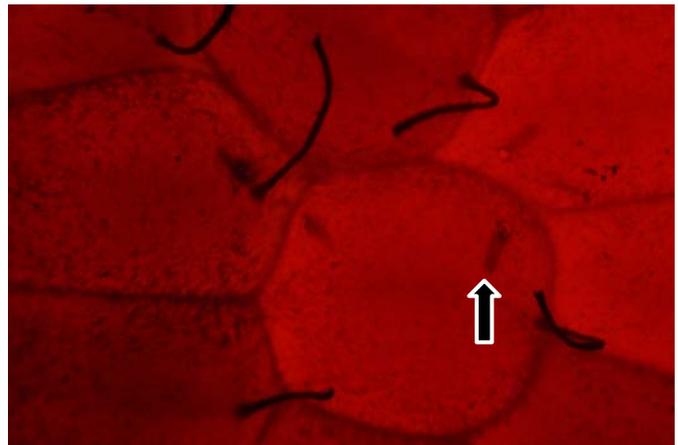


Fig. 2. Same image as Fig. 1 but internally illuminated. Three SWD eggs are visible as dark objects in center of photo.



Fig. 3. Handheld illumination of red raspberry for detection of SWD eggs.



Fig. 4. Tools for field illumination of red raspberry: 10X hand lens and small penlight.