

- II. Pome fruits
 - f. Implementation
 - 1. Codling moth - apples

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Twenty-one studies were conducted at packinghouses in Washington to measure the effectiveness of standard practices in removing codling moth-injured apples during sorting and packing. The number of fruit handled per worker-second was found to be a key factor affecting the efficiency of sorting. In addition, the size and appearance of the injury was important. Large injuries were more easily culled than small injuries. Calyx injuries were the most difficult injury type to remove. Injuries on the surface of the apple were more easily culled with 'Golden Delicious' than 'Red Delicious'. However, due to a higher percentage of calyx injuries in the 'Golden Delicious', sorting efficiency as a function of number of fruit handled per worker-second was not different between cultivars.

The method used to pack the fruit was also an important factor affecting the removal of codling moth injuries. Hand-packing fruit in which sorters are paid by the box was less efficient than automatic tray fill operations. Codling moth injured fruit were found in the packed box in all studies. Packinghouses removed an average of 84% of the codling moth injury from the initial bin to the packed box. An average of 34% of the injuries found in the box were larval penetration into the seed cavity of the fruit. Several live larvae (fourth and fifth instar) were found packed in the box though these were all from organic orchards with > 6% initial codling moth infestation in the bin. One fifth instar was alive after > 160 d in CA storage and was assumed to be in diapause.