



HELP SAVE SKAGIT APPLES

Situation

In 1998 Washington State Department of Agriculture (WSDA) added Skagit County to the list of quarantined areas for apple maggot. The quarantine prohibits the movement of homegrown fruit out of Skagit County to non-quarantined areas. It also puts into place stringent guidelines for commercial orchards. If apple maggots are found in traps within one-half mile of a commercial orchard, the grower must pay to have all fruit inspected. If a single maggot is found in the fruit, the fruit from that orchard cannot be moved out of the county unless it has spent a significant amount of time in storage. Since storage facilities are not available, and the industry is not yet large enough to support the building of storage facilities, the situation could cause extreme hardship to apple growers in Skagit County.

Apple Maggot History

The apple maggot (AM) is considered a major pest of apples in the northeastern U.S. and in eastern Canada. It was first discovered in the Pacific Northwest in Portland, Oregon, in 1979. Since then, the fly has been found in all western Washington counties except San Juan. Currently all western Washington counties, except San Juan are under quarantine by WSDA. In central and eastern Washington, Klickitat, Skamania, Kittitas, and Spokane counties are under quarantine. Twenty-six countries around the world now have AM quarantines.

State and County Trapping Results

WSDA has been trapping for AM since 1981, and the County Pest Control Board began trapping in 1998. One AM was found in Skagit County in 1984. After that, none were found until 1992, when one positive catch was made. In 1993, 1994, and 1995, no apple maggots were caught. The number of positive sites trapped by WSDA in subsequent years can be viewed in the chart below. All were from back-yard trees. To date, no maggots have been found in commercial orchards in Skagit County.

Year	Traps Deployed	Number of Sites (Skagit)
1996	121	3
1997	378	18
1998	499	12
1999	404	34
2000	499	51
2001	441	45
2002	341	16
2003	316	22
2004	367	60
2005	398	88
2006	272	63
2007	310	64
2008	204	46
2009	137	18
2010	141	58

Biology of Apple Maggot

The apple maggot is a relative of the Mediterranean fruit fly. Hosts include apple, crabapple, hawthorn, cherry, pear, apricot, plum, and wild rose. However, to date, the maggot has only been trapped in apple, crabapple, and hawthorn in western Washington.

Apple maggots spend the winter as pupae in the soil. The adults emerge from the soil in late June through September. After they emerge, they must feed for 7 to 10 days before they are ready to lay eggs. The females deposit eggs just below the skin of the fruit. The eggs hatch into larvae (maggots) after 3-7 days and burrow through the fruit, making brown tunnels. After feeding on the inside of the apple for a month or so, the maggot crawls out, drops to the ground, and burrows into the soil about 2", where it spends the winter in the pupal form.

Insect Identification and Fruit Symptoms

The adult flies are slightly smaller than houseflies. They have distinctive wing markings. However, there are two other flies in this area that have similar wing patterns. The snowberry maggot wing looks identical to the apple maggot, and the walnut husk fly is very similar. It takes a trained specialist to be able to identify the apple maggot. Fruit may be pitted or dimpled on the apple surface, or there may be no signs on the exterior of the fruit. On the inside you may see brown, winding trails through the apple. Eventually, the fruit becomes soft and rotten.

How Can I Prevent Apple Maggot from Infesting My Fruit?

The first line of defense against apple maggot is **prevention**. First you should find out if you have apple maggots in your trees. Place one yellow sticky trap in the outer third of each of your host trees (apple, crabapple, or hawthorn). Traps should be set out the last week in June and left in place until the end of September. Traps should be replaced about twice a month. If you think you have caught an apple maggot in your trap, take it to the Skagit County Horticultural Pest Control Coordinator's office, where you can have it identified.

Another way to prevent the maggot is by immediately picking up and destroying any fruit that has fallen to the ground early. You can destroy the fruit by putting it in plastic bags and placing in the trash; burying it at least 18" deep; or freezing, microwaving, or boiling the fruit. Do not compost it, because the maggot may survive composting. A third excellent preventive technique is eliminating any unwanted host trees. A fourth method is spraying insecticide. A fifth technique, "bagging," can be effective. A special double-layered bag is placed around each apple when the apple is about one inch in diameter. The outer bag is removed about three weeks before harvest, and the inner bag is removed about a week after that. Some sources for purchasing the bags are as follows: Apple Corps (509/886-9204) Integrated Fertility Management (509/662-3179); and Gemplers (1-800-332-6744).

What if I Have Apple Maggot in my Yard?

Insecticides are the most effective means of controlling maggots in back yard trees. If you choose to use an insecticide, WSDA entomologists recommend application of an insecticide when the first fly is captured, and at least every two weeks

afterward, through September. Non-chemical measures are available to home gardeners who prefer those methods; however, they are not as effective as insecticides. An effective and relatively non-toxic product containing kaolin clay is available. Ask your Pest Control Coordinator for further details on this product. Non-chemical methods of control or prevention include the following: 1) Hang red sticky spheres at 3-foot intervals in trees. The spheres have a red sticky substance applied to them, as well as a lure to attract the insect. Research has shown these spheres can be considerably more effective than yellow traps in catching apple maggot. 2) Harvest and destroy all the fruit from your tree.

Horticultural Pest and Disease Board

On May 26, 1998, the Skagit County Board of Commissioners approved the formation of a Horticultural Pest and Disease Board. The Board is charged with the responsibility of receiving complaints concerning pests and diseases in Skagit County and taking action to control priority pests and diseases that threaten agriculture in the county. The Board operates under the rules of the State of Washington, RCW 15.09. The Skagit County Horticultural Pest Control Coordinator (phone: 708-2362) is on duty from June through October and will be able to answer your questions about apple maggot and trap placement. The office is located at 11768 Westar Lane, Suite A Burlington, WA phone number 428-4270 ext. 233. Yellow traps are available for purchase through the Coordinator, or you can purchase them from private vendors. Please [Help Save Skagit Apples](#) by cooperating with the Pest Board and by doing your part to keep this insect out of our local apples.

NOTE: Make sure "apple" is listed as a crop on the label of the insecticide product you purchase. Use pesticides with care. Follow all label precautions to protect yourself and others around you. It is a violation of the law to disregard label direction. If pesticides are spilled on skin or clothing, remove clothing and wash skin thoroughly. Store pesticides in their original containers and keep them out of the reach of children, pets, and animals.

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