Now is the time for home fruit growers to think about preventing ‘wormy’ apples and peaches

Although the tree-fruit harvest is many months away, now is the time for growers to think about controlling codling moth and peach twig borer. Both pests can complete as many as four generations per year in New Mexico, and although the late-season generations are the most damaging, control measures must be planned well in advance and implemented from early spring onwards if they are to be effective.

The two insects differ somewhat in their life-cycles, particularly earlier in the season. The peach twig borer spends the winter as small larvae inside silken cells (‘hibernacula’) in cracks and crevices on the rough bark of peach trees. They emerge in early spring and at that time feed inside developing shoots, causing the tips to wilt and die, which can stunt the growth of young trees and reduce their vigor. Later in the season, the adult moths lay their eggs on the developing fruits - usually at the stem end and often just as the fruit starts to show some color. As soon as the eggs hatch, the larvae bore into the fruit, where they are protected from both predators and pesticides.

The codling moth also spends the winter as a larva inside a silken cocoon, for example under rough bark, or in protected areas at the base of the apple trees, in fruit storage areas, or orchard trash piles. In contrast to peach twig borer, however, the codling moth larva is fully grown at the start of winter and pupates and emerges as an adult in early spring (typically early- to mid-April). The newly emerged adult female moths lay their eggs on developing apples in early spring, and the larvae feed inside until they reach maturity. At that point, they leave the fruit to pupate in protected sites on or near the tree. Depending on temperature, each generation takes 3 to 5 weeks to complete their larval development, and the cycle is repeated until the end of the season, with apple damage gradually increasing as the summer progresses.

Controlling these pests with insecticides can be difficult, as there is only a very limited ‘window of opportunity’ in which to apply sprays and kill the newly hatched larvae before they enter the fruit. Unless spray applications are timed correctly, they will not be effective. Furthermore, depending on the insecticides used and their residual life (i.e., period of activity), more than one application may be needed for each generation of larvae. Correctly timing spray applications involves monitoring the flight activity of the adult moths with pheromone traps (from early spring onwards), and then calculating the correct spray timing from a combination of trap catch numbers and the daily maximum and minimum temperatures. It is a complex and time-consuming process and may not be feasible for busy homeowners with just one or two trees. To make things easier, New Mexico State University is developing a web-based system that will be used to issue spray alerts for home-owners in various parts of New Mexico; the prototype will be tested for the first time this year.

Larger-scale growers have the option of using pheromone-based mating disruption techniques, but this approach
is not very effective in orchards of less than about 5 acres. A different approach that may provide adequate control for home gardeners is the use of heavy-duty ‘Maggot Barriers®’, nylon mesh bags that are placed over the developing fruits while they are still small (about an inch in diameter) and secured in place with a plastic ‘twist-tie’. The bag is left in place until harvest and no further action is required. In trials at NMSU’s Los Lunas Agricultural Science Center, the bags provided reasonably good protection for both apples and peaches. However, varieties with exceptionally large fruit stretched the mesh of the bags to the point where either the egg-laying moths or newly emerged larvae could still reach (and damage) the fruit. Late-maturing varieties also tended to suffer heavier damage. The technique may appear time consuming (it takes about an hour to bag 100 fruitlets), but it could be combined with fruit thinning (which is often neglected by home gardeners) and has the benefit of being a one-time effort compared to the season-long commitment required for successful insecticidal control.