# Late Season Pepper Weevil Infestation in Coachella Valley

## *Educated & Coordinated Efforts Required to Remove this Pest*

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Bell peppers are an important crop of the Coachella Valley. (See Table 1 for acreage data) Acreage goes up or down slightly over the years but bell pepper remains a major crop for desert vegetable growers. Bell peppers grow well in the well-drained sandy soils of our valley. Nurseries provide transplants that soon grow to be deep-rooted; they also produce many shallow fibrous roots and grow well with drip irrigation. There are several diseases and insects that can affect the bell pepper crop at the different growth stages. This article will report on a late season Pepper Weevil infestation in the Coachella Valley. The pepper weevil infestation started in the Oasis area of the Coachella Valley. The infestation then moved to the east side of valley to the Mecca production area and then moved north to the fields around the city of Coachella. Pepper Weevil management will require pepper grower cooperation to prevent it from becoming an established pest.

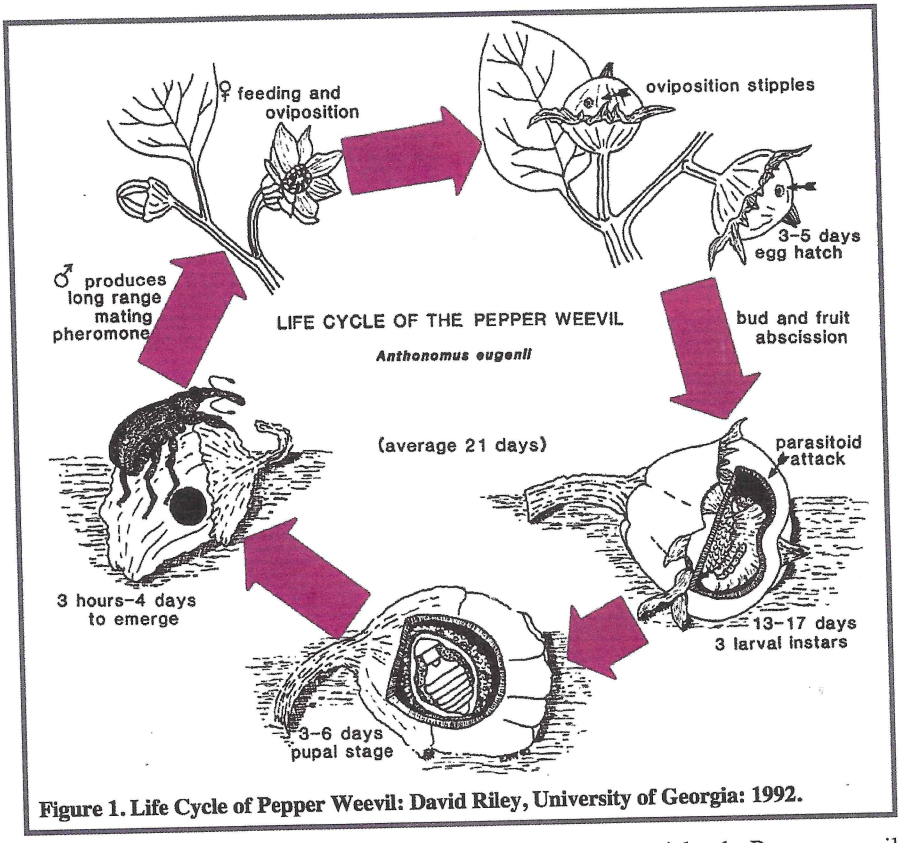


**Figure 1. Life Cycle of Pepper Weevil: David Riley, University of Georgia: 1992.**

### Pepper Weevil

Pepper Weevil, *Anthonomus eugenii,* occasionally shows up on bell peppers in the Coachella Valley. Pest Control Advisors do not believe it an established pest in this valley. It is established in other parts of southern California, southern United States and Mexico, Central America, Hawaii and some Caribbean islands. Pepper weevil is reported to be a pest of solanaceous plants such as nightshade (weed), tomato (a spring crop here) and eggplant (a spring and fall crop here). So far it has not been found or reported in tomato or eggplant fields in the Coachella Valley.

**Table 1. Bell Pepper[1] acreage and gross crop values for the Coachella Valley[2]**

| YEAR | ACREAGE | GROSS CROP VALUE |
|---|---|---|
| 2015 | 4644 | 67,726,000 |
| 2014 | 4490 | 75,497,000 |
| 2013 | 4558 | 79,089,000 |
| 2012 | 5021 | 73,994,600 |
| 2011 | 5639 | 85,287,600 |
| 2010 | 5037 | 89,903,700 |
| 2009 | 4270 | 68,019,100 |
| 2008 | 4448 | 68,758,200 |
| 2007 | 4469 | 48,041,800 |
| 2006 | 4482 | 62,075,700 |

[1]Riverside County Agricultural Commissioners Crop Reports, reports are online.
[2]30 pound unit

### *Life Cycle*

Females lay eggs on flower buds or fruit. The female can lay up to 340 eggs and can oviposit up to six eggs per day and can lay eggs for more than one month. The pepper weevil grubs will develop inside the bud or fruit. There they will have three larval instars and can produce 5-6 generations per year. The time to produce a generations is affected by temperature, in hot weather it takes two weeks, in mild weather it

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## Pepper Weevil

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takes three weeks, in cold weather it can take up to 6 weeks. (See figure 1 on page 8 for Pepper Weevil life cycle details.)

### *Sampling for Damage & Weevils*

In early infestations they tend to be in clustered in certain areas in the field. When scouting a field for weevils begin on the margins (ends) of the field then scout the interior of the field. Sample extensively to get an accurate number of adults, they tend to be found in the same sampled areas. Locate these hot spots in the field but also continue to scout the field regularly. Check fields for premature fruit drop. Most adults will be found in the top third of the plant, it is where the young buds are. There is little Information on how far the adults can travel. Collect flower buds and fruit and inspect visually for oviposition stippling. (See Figure 2.) Sometimes the stippling isn't obvious on the fruit.

### *Control*

In the Lower River Valley in Texas, researchers have established the following thresholds for treatment: 5 percent damaged clusters or one adult per 200 plants with two terminal buds inspected per plant.

In Texas and Georgia they do preventive treatments at first bloom. There are registered materials for Pepper Weevil control. But overuse of insecticides can lead to outbreaks of other pests (ie. mites, aphids, leaf miners, etc.)

Immature weevils cannot be controlled even with systemic insecticides when they are inside the bloom or fruit. Adults can only be

**Figure 2. Oviposition stippling on shoulder of young bell pepper fruit**

**Figure 3. Cut young fruit for signs of Pepper Weevil feeding.**

controlled when they come in contact with insecticidal sprays. Each day that a mature adult is not controlled, six new weevils are produced. For more treatment options see the UCIPM web site.

Crop rotations are an effective pest management strategy. Unfortunately it is not an option for the local bell pepper growers. Also as the fall bell pepper season overlaps with the spring bell pepper season, there is a risk that pepper weevil will find host plants to overwinter. For this reason growers and PCA's should cooperate and take fields down as soon as they are done harvesting.

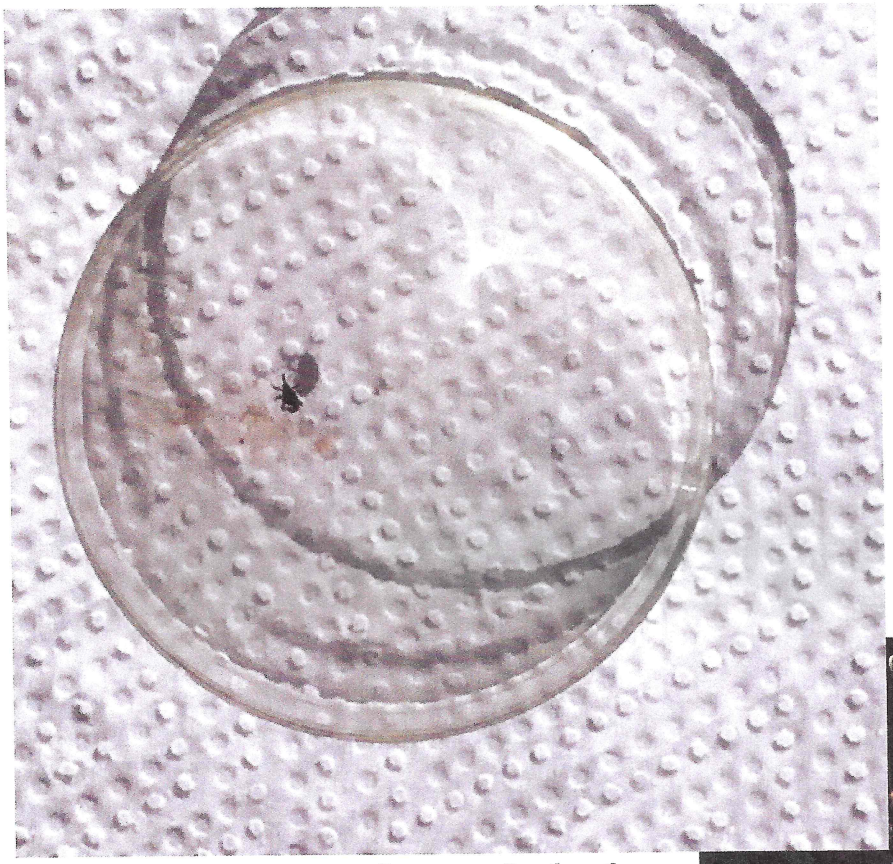

**Figure 4. The adults are very small, even smaller than the pepper seeds.**

**Figure 5. Adult weevil picture taken with a phone camera through a dissecting microscope. They have a dark body and are about 1/8 inch (3mm) long.**

**Figure 6. In Sinaloa, Mexico infested fruit is bagged and destroyed to prevent re-infestation of the field.**