

Pest Alert

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Florida Department of Agriculture and Consumer Services, Division of Plant Industry
Charles H. Bronson, Commissioner of Agriculture

California Pea Leafminer, *Liriomyza langei* (Diptera: Agromyzidae)

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Liriomyza langei Frick is a dipteran (Agromyzidae) leaf miner (Fig. 1) that is considered a pest of economic importance in California. (<http://www.doacs.state.fl.us/pi/enpp/ento/entcirc/ent378.pdf>). Affected crops include field and glasshouse-grown vegetables and flowers. In Salinas Valley of Monterey Co., CA, "This insect has gone from a sporadic fall pest, relatively easily controlled, to a pest throughout most of the vegetable growing season that is essentially not able to be controlled in many crops. This is at least partly due to evolution of insecticide resistance; changes in tillage practices may also have contributed to the problem. Lettuce is the worst affected crop, but nearly all of the fresh vegetables grown in the area are hosts for this leafminer" (Chaney 1995). Other vegetable crops suffering severe economic loss include celery (*Apium graveolens*) and garden pea (*Pisum sativum*); floral crops include baby's breath (*Gypsophila paniculata*), *Chrysanthemum*, and *Aster*.

BIOLOGY: Females puncture leaves to feed on plant sap and lay eggs within the leaf tissues. The eggs hatch after two to four days and larvae feed between the upper and lower surface of the leaves, making distinctive winding, whitish tunnels or mines that are often the first clue that leaf miners are present. Larvae emerge from the mines and pupate on the leaf surface or, more commonly, in cracks in the soil. Many generations occur each year and the entire life cycle can be completed in less than three weeks when the weather is warm (see <http://www.ipm.ucdavis.edu/PMG/r441300311.html>).

PLANT DAMAGE: Mines occur on lower leaf surfaces (spongy mesophyll) and usually are associated with midrib and lateral veins (Figs. 2, 3). A mine usually begins on the upper leaf surface and moves to the lower surface after a few millimeters. Leaf punctures can reduce photosynthesis and may kill young plants.

GEOGRAPHIC DISTRIBUTION: The pea leafminer occurs in the Salinas Valley (Monterey County) as well as in the central coast growing areas. It also appears to be extending its distribution into the southern growing regions of the state (<http://www.ipm.ucdavis.edu/PMG/r104300111.html>). Other county records for California include San Diego and Ventura counties. It is also reported from Hawaii.

DETECTION OF *L. LANGEI* IN FLORIDA: There are two published records of *L. langei* in Florida. The first (Poe and Montz 1981) reported results of a survey for leafminers in the US, in which six Florida samples were submitted. Adults of *L. langei* reared from *Gypsophila* in Lee County were submitted and the identity (as *L. huidobrensis*, as it was known at that time) was verified by Dr. K. Spencer, a world expert in Agromyzidae taxonomy. According to Dr. J.F. Price of IFAS-GCREC, Bradenton, who made the original detection in his research fields, the February 1981 detection was at a single isolated flower farm in Lee Co. The infestation probably originated on nursery stock received from an infested area of California. The infestation likely survived through Florida's cool winter months, but disappeared after May when the infested crop was destroyed. Dr. Price undertook an intensive search the following year, but was unable to detect the presence of *L. langei*. A second published report (EPPO) states that "*L. huidobrensis*" occurs in glasshouses in Florida. There is no data available to support this statement.



Florida Department of Agriculture and Consumer Services
Adam H. Putnam, Commissioner

There has been no additional detection of *L. huidobrensis* or *L. langei* in the environment in Florida since 1981.

REFERENCES:

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- Chaney, W.E.** 1995. *The pea leafminer as a pest of vegetable crops*. Crop Notes, Oct 1995. Monterrey Co. Extension Office.
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Fig. 1. California pea leafminer, *Liriomyza langei*



Fig. 3. Pea leafminer adult, larva and frass lined mines on lettuce from California



Fig. 2. Lettuce from California with pea leafminer damage