A New Emerging Pest in Florida: European Pepper Moth (EPM)

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European pepper moth (EPM)

- Native to parts of southern Europe, the eastern Mediterranean region, parts of northern Africa, and the Canary Islands
- Expanded its range to include other parts of Africa, the Middle East, northwest India, Europe, Canada, and the United States
- Detected in San Diego in 2004 and again in 2010
- Detected in Florida in the fall of 2010
- aka Southern European marshland pyralid

Pest of many herbaceous ornamentals and field crops






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Damage

Image credits:
Top left - Carmelo Peter Bonsignore, Università degli Studi Mediterranei di Reggio Calabria
Bottom left - Marja van der Straten, Plant Protection Service, Wageningen, The Netherlands
Top right - Bryan Vander Mey, Department of Entomology, University of California, Riverside
Bottom right - Henk Stigter, Plant Protection Service, National Reference Centre, The Netherlands

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Identification

- Eggs
  - 0.5mm by 0.7mm
  - Whitish green turning pink, then red, then brown as the egg gets closer to hatching
  - Laid singly or in groups of 3-10
    - Overlapping like tiles
  - Mostly found on undersides of leaves, on the stems, at the base of the plant, in the upper soil layer

Image credits:
upper images- Carmelo Peter Bonsignore, Università degli Studi Mediterranei di Reggio Calabria
middle image – Lance Osborne, Mid-Florida Research and Education Center, University of Florida
bottom image - Pasquale Trematerra, University of Molise, Italy.

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Identification

- Larvae
  - 1.5mm at hatching
  - Pink body with dark brown to gray spots and dark head
  - Turn creamy white or light brown with spots as they mature
    - Color depends on host plant
  - 20-30mm long when fully developed

Image credits:
Top – Henk Stigter, Plant Protection Service, National Reference Centre, The Netherlands
Two middle images - Marja van der Straten, Plant Protection Service, Wageningen, The Netherlands
Bottom - Lyle Buss, Department of Entomology and Nematology, University of Florida

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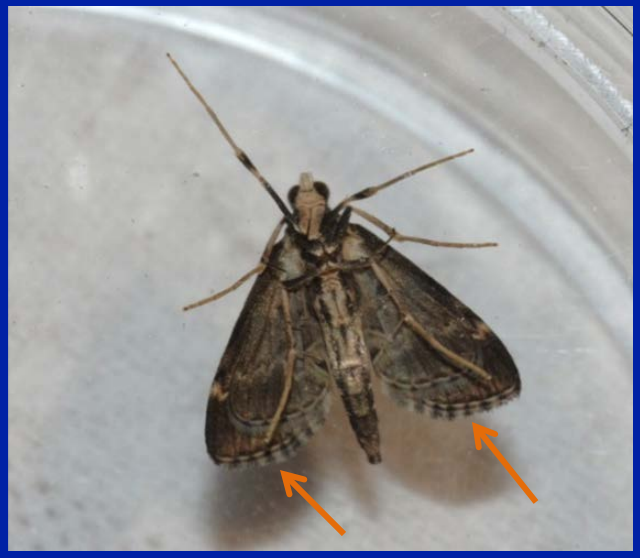
Identification

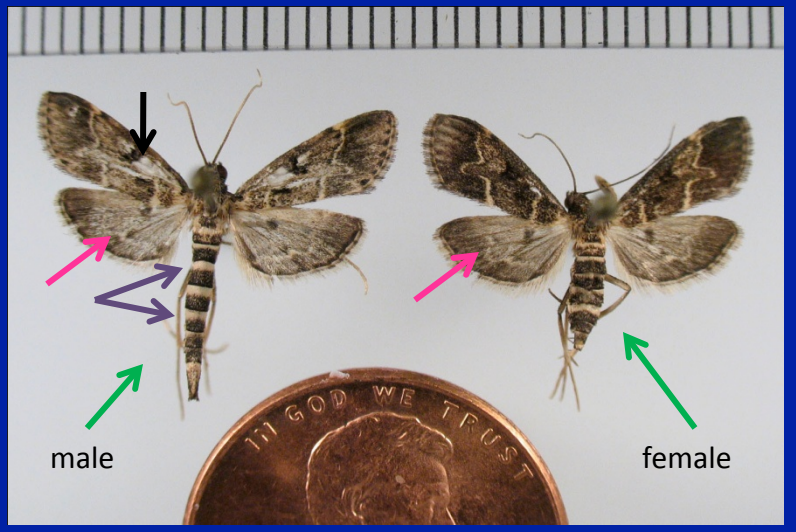
- Pupae
  - 9-12mm long
  - Yellow-brown in color
    - Gets darker closer to emergence time
  - Makes a cocoon of webbing with soil and frass in it
  - Found on undersides of leaves, at the edge of the pot, or in the upper soil layer

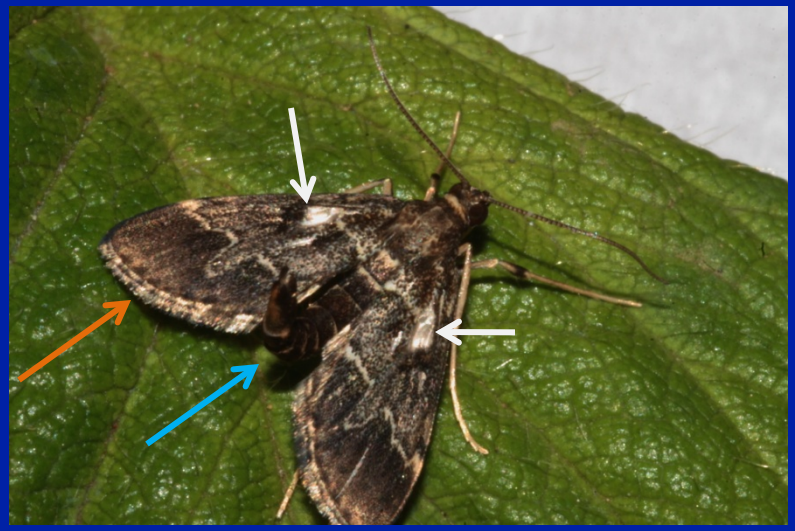
Image credits:
top image - Henk Stigter, Plant Protection Service, National Reference Centre, The Netherlands
middle image - Carmelo Peter Bonsignore, Università degli Studi Mediterranei di Reggio Calabria
bottom image- James Hayden, Florida Department of Agriculture and Consumer Services, Division of Plant Industry

Identification



- Adults





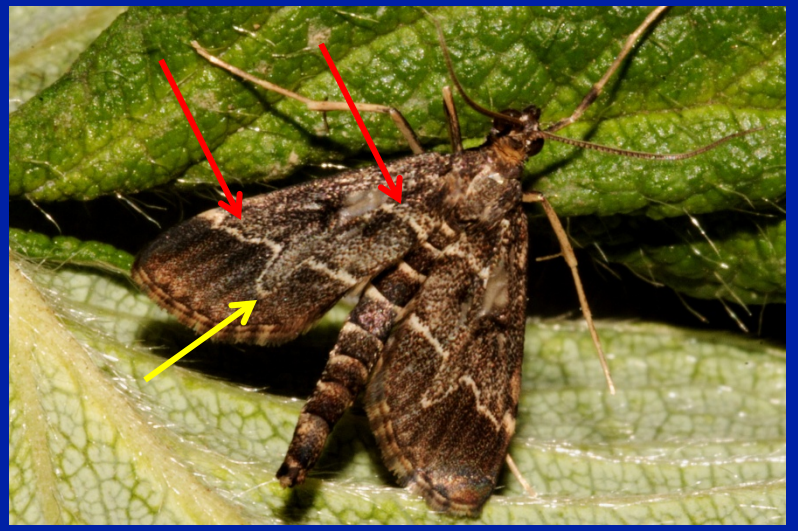


Image credits:
top right - James Hayden, Florida Department of Agriculture and Consumer Services, Division of Plant Industry
all others - Carmelo Peter Bonsignore, Università degli Studi Mediterranei di Reggio Calabria

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Life cycle

4-9 days

3-4 weeks

1-2 weeks

1-2 weeks

1-2 weeks

Image credit:
Carmelo Peter Bonsignore, Università degli Studi Mediterranei di Reggio Calabria

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Hibernation and Dispersal

- Hibernation and diapause are questionable
- In colder climates – it is primarily a pest of greenhouses
- In warmer climates – it is usually found in the field
- Dispersal
  - Movement of plant material spreads this pest
  - They are also good fliers

Monitoring

Image credit:
Dr. Peter van Deventer, Plant Research International, Wageningen, The Netherlands

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Inspection

Image credits:
Lyle Buss, Department of Entomology and Nematology, University of Florida

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Inspection

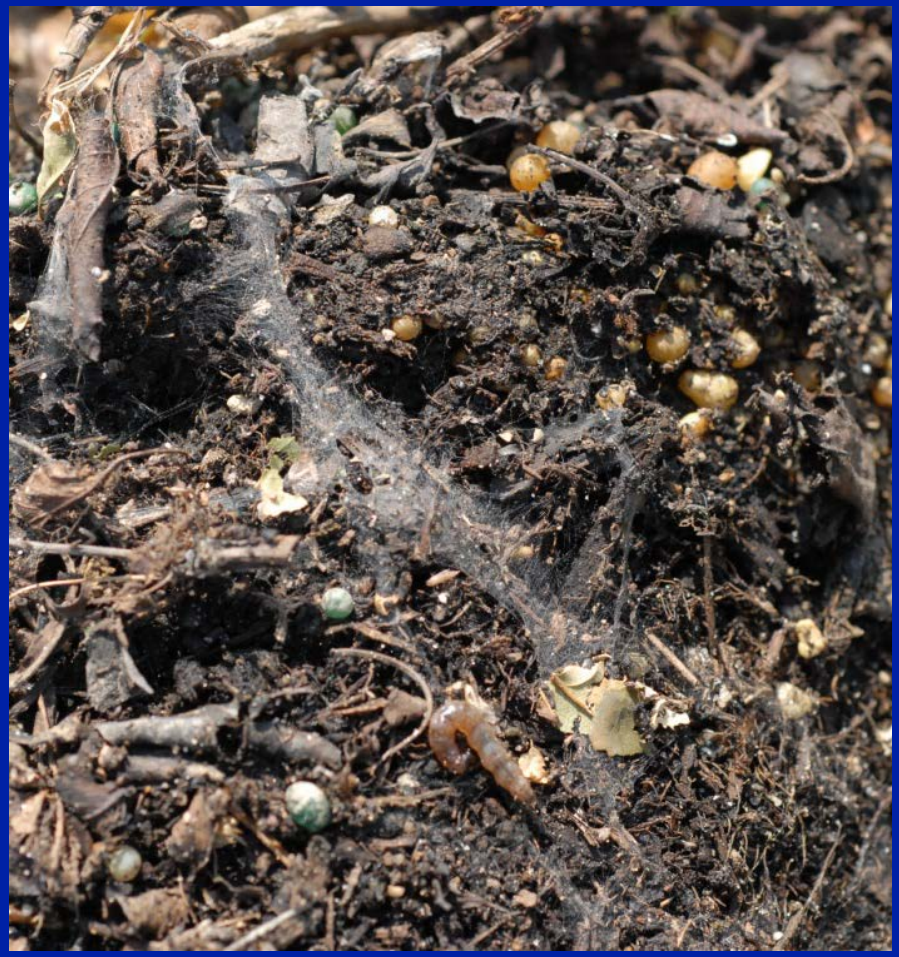

Image credits:
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Inspection

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Chemical Control

- Targeted spraying may be best
  - Shape of plants, spacing of plants, and caterpillar behavior determines efficacy of the chemical control
- Monitoring populations to determine spraying schedule is also good

Image credits:
Top - Carmelo Peter Bonsignore, Università degli Studi Mediterranei di Reggio Calabria
Bottom - Jim Bethke, Department of Entomology, University of California, Riverside

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Biological Control

Image credit:
Beetle: David Cappaert, Michigan State University, www.bugwood.org, #5403465
Nematodes: Tesfamariam Mengistu, Department of Entomology and Nematology, University of Florida
Mites: Lance Osborne, Mid-Florida Research and Education Center, University of Florida

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Cultural Control

- Removal of plant debris
- Removal of lower leaves that come into contact with soil surface
- Using drier growth medium

Image credit:
Julieta Brambila, USDA-APHIS-PPQ

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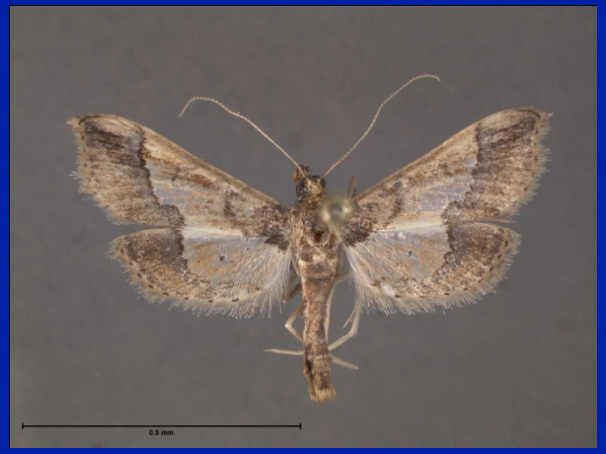
Florida Look Alikes - Adults



Hydriris ornatalis

Niphograpta albiguttalis

Udea rubigalis

Parapoynx obscuralis

Penestola bufalis

Penestola simplicialis

Image credit:
James Hayden, Florida Department of Agriculture and Consumer Services, Division of Plant Industry and Thomson Paris, graduate student, Department of Entomology and Nematology, University of Florida

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Regulatory Rules

- In partnership with the National Plant Board, APHIS has discussed this pest with experts from affected states and industry and determines that that traditional containment and regulatory approaches may not be practical solutions for European Pepper Moth (EPM) .
  - EPM Task Force has been established to create a Best Management Practices document.
- The official FDACS-DPI response is that although *Duponchelia fovealis* has been intercepted at several locations throughout Florida in CAPS traps, they have not been detected in the landscape and are therefore considered a pest of limited distribution within the nursery trade.
  - When it is detected in nurseries, it is considered a pest of quarantine significance.

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Special Thanks

- Many of the papers used in this publication had to be translated. Special thanks go to all the people who aided in the translations.
  - Serena Stornaiuolo, Florida Department of Agriculture and Consumer Services, Division of Plant Industry
  - Verena Lietze, Department of Entomology and Nematology, University of Florida
  - Theodoor Turlings, Director of the National Center of Competence in Research Plant Survival, Université de Neuchâtel
  - Renato Inserra, Florida Department of Agriculture and Consumer Services, Division of Plant Industry
  - Michal Bajdich, Postdoctoral Research Fellow, Materials Theory Group, Oak Ridge National Laboratory
  - Julio Medal, Department of Entomology and Nematology, University of Florida
  - Alberto Achilli, Glades Crop Care.
  - Johanna and Graham White
- In addition, many images used in this presentation came from colleagues in Europe.
  - Carmelo Peter Bonsignore, Università degli Studi Mediterranei di Reggio Calabria
  - Marja van der Straten, Plant Protection Service, Wageningen, The Netherlands
  - Henk Stigter, Plant Protection Service, National Reference Centre, The Netherlands
  - Pasquale Trematerra, University of Molise, Italy.
  - Peter van Deventer, Plant Research International, Wageningen, The Netherlands

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- Citation:
  - Stocks, Stephanie and Amanda Hodges. 2011. A New Emerging Pest in Florida: European Pepper Moth (EPM). Updated September 2011. accessed (add the date) - http://mrec.ifas.ufl.edu/lso/dupon/default.asp.

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