

The rice-cotton cutworm

Spodoptera litura



Photo: Natasha Wright, Florida Department of Agriculture and Consumer Services, Bugwood.org, #5190079



COMMUNITY FIRST DETECTOR



The rice-cotton cutworm

- Generalist plant-feeding moth.
- Not yet established in the U.S.
- Potentially high economic impact.
- Also known as: tobacco cutworm, cotton leafworm, cluster caterpillar, oriental leafworm moth and tropical armyworm



Photo: M. Shepard, G. R.Carner, and P.A.C. Ooi, Insects & their Natural Enemies Associated with Vegetables & Soybean in Southeast Asia, Bugwood.org, #5368051



COMMUNITY FIRST DETECTOR

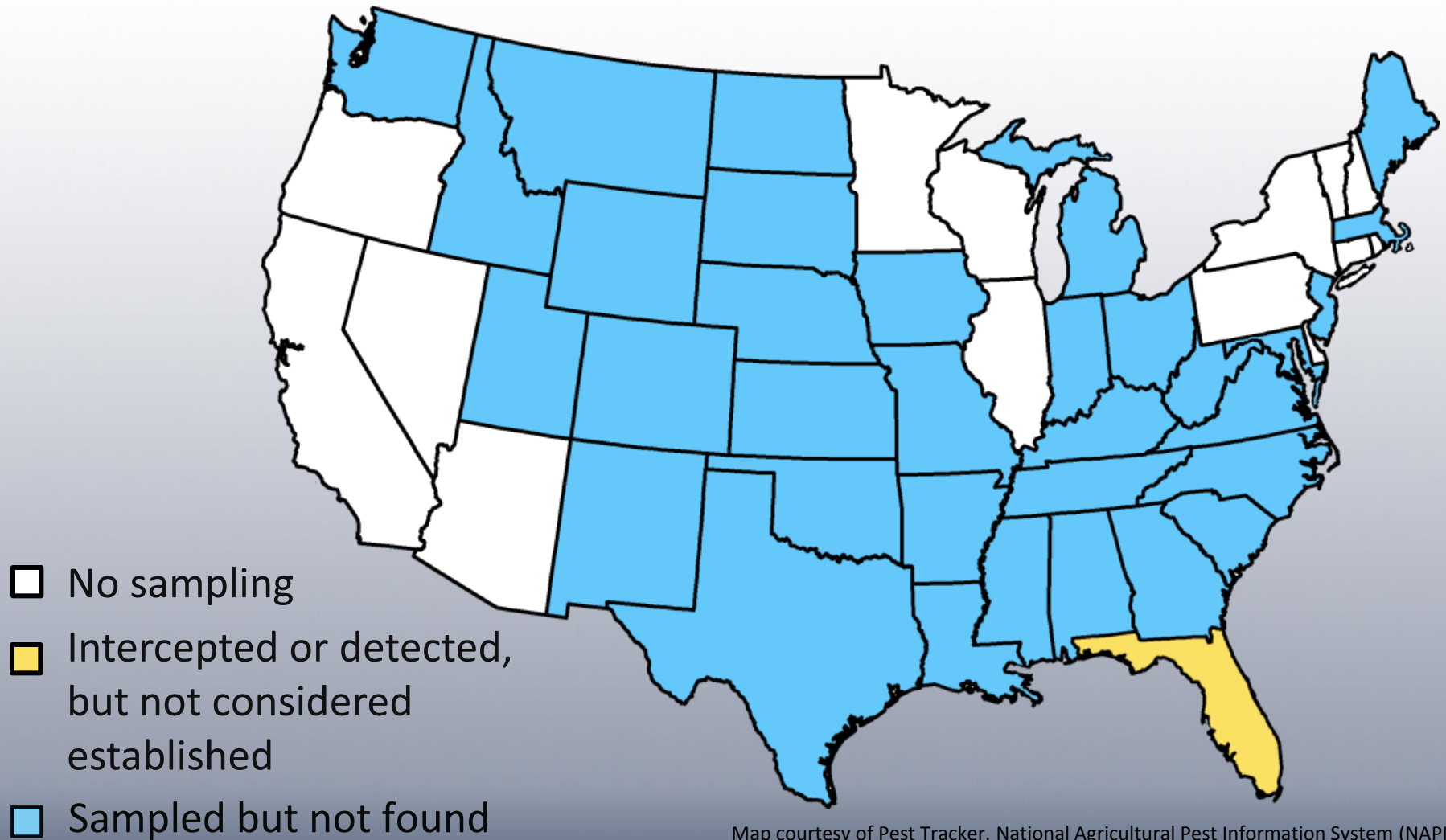


Hosts include:

- Citrus
- Soybeans
- Potatoes
- Sweet potatoes
- Cauliflower
- Strawberry
- Sugarcane
- Peanuts
- Crucifers
- Onions
- Sugarbeets
- Cotton
- Apple
- Rice
- Roses
- Tomato



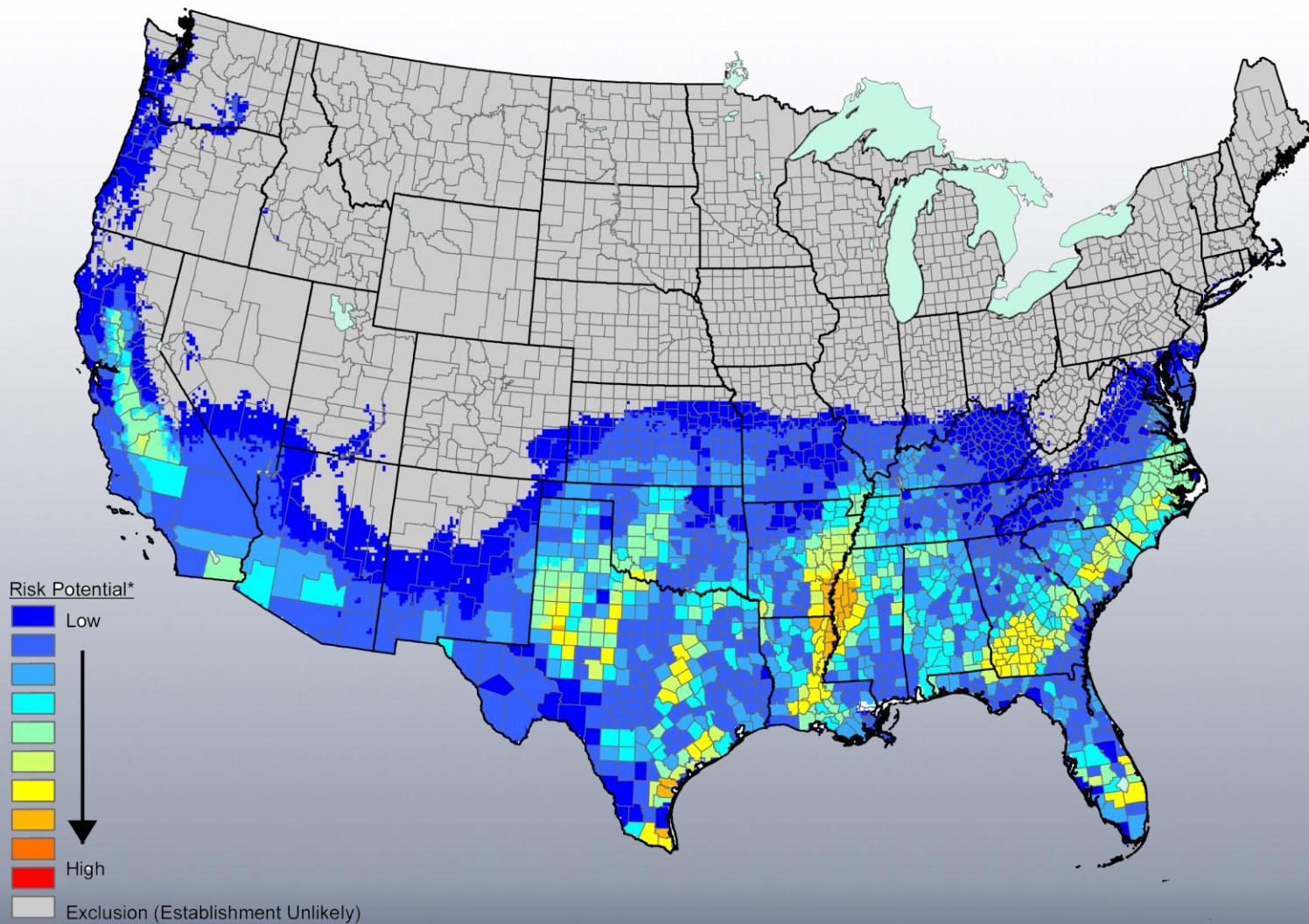
Distribution



COMMUNITY FIRST DETECTOR



Risk of Establishment



COMMUNITY FIRST DETECTOR



Eggs



Egg mass



Egg mass with early instars emerging

Image Credit: left - Brent Rowell, University of Kentucky, Growers guide to Bt; right - Merle Shepard, Gerald R. Carner, P.A. C. Ooi, Insects and their Natural Enemies Associated with Vegetables and Soybean in Southeast Asia, bugwood.org # 5368052



COMMUNITY FIRST DETECTOR



Identification: larvae



Fourth and fifth instar larvae



Photos: K. Kiritani, Bugwood.org, 1949066; Merle Shepard, Gerald R. Carner, and P.A.C Ooi, Insects and their Natural Enemies Associated with Vegetables and Soybean in Southeast Asia, Bugwood.org, #5368053



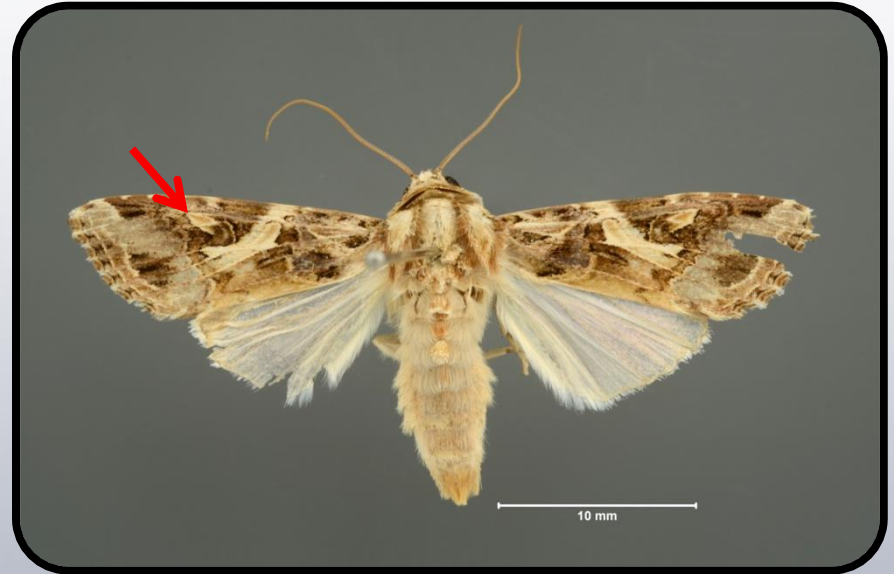
COMMUNITY FIRST DETECTOR



Identification: adults



female (left) and a male (right)



male

Note: Positive identification requires dissection of adult.

Photos: K. Kiritani, Bugwood.org, #1949067; Lyle Buss, Department of Entomology and Nematology, University of Florida



COMMUNITY FIRST DETECTOR



Life cycle

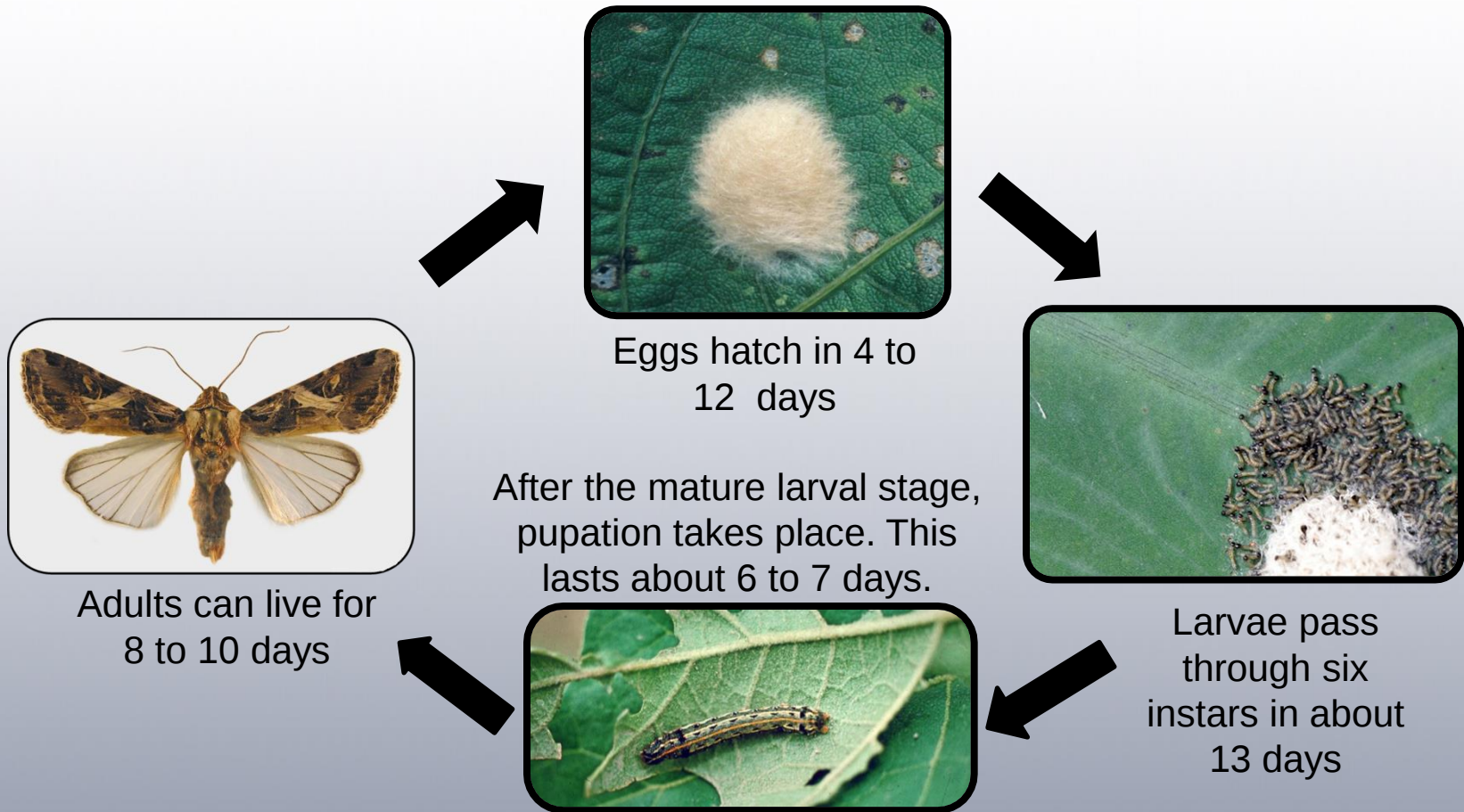


Image Credit: young larvae - Brent Rowell, University of Kentucky, Growers guide to Bt; egg mass - Merle Shepard, Gerald R. Carner, P.A. C. Ooi, Insects and their Natural Enemies Associated with Vegetables and Soybean in Southeast Asia, bugwood.org # 5368052 ; mature larva - K. Kiritani, Bugwood.org, 1949066; adult - Natasha Wright, Florida Department of Agriculture and Consumer Services, Bugwood.org, #5190079



COMMUNITY FIRST DETECTOR



Damage

- Larvae skeletonize leaves.
- Older larvae eat entire leaves, flowers, and fruits.

Damage on crucifers



Image Credit: Brent Rowell, University of Kentucky, Growers guide to Bt

Damage to taro



Image Credit: Amy Carmichael, Queensland University of Technology, www.padil.gov.au



COMMUNITY FIRST DETECTOR



Monitoring

- Visual inspection of plants
 - Especially fuzzy egg masses
- Sweep-net sampling
- Trapping
 - Pheromone and light
- Soil survey



Early instar larvae on persimmon leaf

Photos: Yuan-Min Shen, Taichung District Agricultural Research and Extension Station, Bugwood.org;



COMMUNITY FIRST DETECTOR



Look-alike Species - Adults

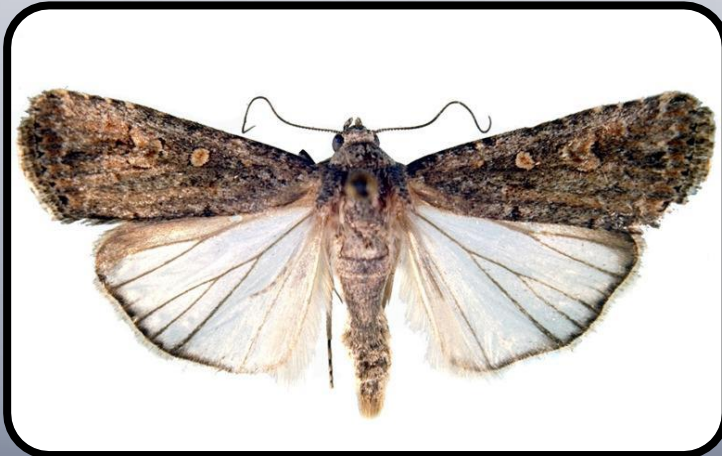
Yellowstriped armyworm



Rice-cotton cutworm



Beet armyworm



Southern armyworm



Image Credit: beet armyworm- Robert J. Bauernfeind, Kansas State University, Bugwood.org, # 5511460; southern armyworm- Lyle Buss, University of Florida; yellowstriped armyworm – John Capinera, University of Florida, Bugwood.org, #5511798; *S. littoralis* - O. Heikinheimo, Finland, Bugwood.org, #UGA0660006



COMMUNITY FIRST DETECTOR



Look Alike Species - Adults

Egyptian cotton leafworm



Rice-cotton cutworm



Image Credit: *S. litura* - Natasha Wright, FDASCS, Bugwood.org, #5190079; *S. littoralis* - O. Heikinheimo, Finland, Bugwood.org, #UGA0660006



COMMUNITY FIRST DETECTOR



Authors

Shweta Sharma, Ph.D.

Department of Entomology and Nematology,
University of Florida



COMMUNITY FIRST DETECTOR



Editors

Stephanie Stocks, M.S.

Assistant-In, Extension Scientist, Department
of Entomology and Nematology, University of
Florida



COMMUNITY FIRST DETECTOR



Reviewers

Andrew Derksen, M.S.

Pest Survey Scientist (CAPS), Florida Department of
Agriculture and Consumer Services, Division of Plant Industry

Leroy Whilby, DPM

State Survey Coordinator, Cooperative Agricultural Pest
Survey Program

Julieta Brambila, M.S.

USDA, Animal and Plant Health Inspection Service, Plant
Protection and Quarantine.

James E. Hayden, Ph.D.

Florida Department of Agriculture and Consumer Services,
Division of Plant Industry.



COMMUNITY FIRST DETECTOR



Collaborating Agencies

- U.S. Department of Agriculture Animal and Plant Health Inspection Service (USDA-APHIS)
- Cooperative Agricultural Pest Survey Program (CAPS)
- Florida Department of Agriculture and Consumer Services (FDACS)
- National Plant Diagnostic Network (NPDN)
- Sentinel Plant Network (SPN)
- Protect U.S.
- University of Florida Institute of Food and Agricultural Sciences (UF-IFAS)



COMMUNITY FIRST DETECTOR



Educational Disclaimer and Citation

- This presentation can be used for educational purposes for NON-PROFIT workshops, trainings, etc.
- Citation:
 - Sharma, S., Ph.D., 2014. The rice-cotton cutworm, *Spodoptera litura*, June 2014.



COMMUNITY FIRST DETECTOR



References

- CABI/EPPO. *Spodoptera littoralis* and *Spodoptera litura*. *Data Sheets on Quarantine Pests*. Prepared by CABI and EPPO for the EU. Accessed: 13th April, 2007.
 - http://www.eppo.org/QUARANTINE/insects/Spodoptera_litura/PRODLI_ds.pdf
- Capinera, J. L. 1999. *Spodoptera eridania* (Stoll). Featured Creature Article. University of Florida. Accessed on 15 April, 2014.
 - http://entnemdept.ifas.ufl.edu/creatures/veg/leaf/southern_armyworm.htm
- Capinera, J. L. 1999. *Spodoptera exigua* (Hubner). Featured Creature Article. University of Florida. Accessed on 15 April, 2014.
 - http://entnemdept.ifas.ufl.edu/creatures/veg/leaf/beet_armyworm.htm
- Capinera, J. L. 1999. *Spodoptera ornithogalli* (Guenee). Featured Creature Article. University of Florida. Assessed on 6 June, 2014.
 - http://entnemdept.ifas.ufl.edu/creatures/veg/leaf/yellowstriped_armyworm.htm
- Ellis, S. E. 2004. New Pest Response Guidelines: *Spodoptera*. USDA/APHIS/PPQ/PDMP. Accessed on 02/27/2014
 - http://www.phytosanitary.info/sites/phytosanitary.info/files/New_Pest_Response_Guidelines_Spodoptera.pdf



COMMUNITY FIRST DETECTOR



References

- EPPO. Data Sheets on Quarantine Pests - *Spodoptera littoralis* and *Spodoptera litura* . Accessed 6/8/2014 –
 - http://www.eppo.int/QUARANTINE/insects/Spodoptera_litura/PRODLI_ds.pdf?utm_source=www.eppo.org&utm_medium=int_redirect
- NAPIS Pest Tracker – *Spodoptera litura*. Accessed 5/1/2014-
 - <http://pest.ceris.purdue.edu/map.php?code=ITBCFMA#>
- Schreiner, I. 2000. Cluster Caterpillar (*Spotoptera litura* [Fabricus]). Agricultural Pests of the Pacific. Accessed on 02/26/2014.
 - http://www.ctahr.hawaii.edu/adap/Publications/ADAP_pubs/2000-3.pdf
- Venette, R.C., E.E. Davis, J. Zaspel, H. Heisler, and M. Larson. 2003. Mini Risk Assessment: Rice cutworm, *Spodoptera litura* Fabricius (Lepidoptera: Noctuidae). Accessed on 02/27/2014.
 - http://www.aphis.usda.gov/plant_health/plant_pest_info/pest_detection/downloads/pra/sliturapra.pdf
- Weeks, J.A., Hodges, A.C., and N.C. Leppla. 2012. Citrus Pests: Cotton cutworm. Accessed on 02/27/2014
 - <http://idtools.org/id/citrus/pests/factsheet.php?name=Cotton+cutworm>



COMMUNITY FIRST DETECTOR

