

TAME Tropical Soda Apple

AN INDEPENDENT STUDY COURSE FOR
RESTRICTED-USE PESTICIDE APPLICATORS



Tropical Soda Apple Control Workbook *(Edited 2009)*

By Ken Gioeli
Extension Agent III / Natural Resources



Preface

The independent study course: TAME Tropical Soda Apple, is designed for use by agricultural pesticide applicators intending to earn continuing education units toward renewal of their restricted-use pesticide licenses under the provisions of the Florida Pesticide Law (Chapter 487 Florida Statutes) and its rules (Chapters 5E-2 and 5E-9 of the Florida Administrative Code). It is also relevant for applicators licensed under Ch. 482. Any herbicides discussed in this workbook are solely for educational purposes and does not imply endorsement of the product.

Grading

Workbooks are graded on the second and last Fridays of the month.

References

Ferrell, J., and Mullahey, J. Tropical Soda Apple (*Solanum viarum* Dunal) in Florida. University of Florida IFAS. Available Online at [<http://edis.ifas.ufl.edu/WG201>]

Medal, J., Overholt, W., Stansly, P., Osborne, L., Roda, A., Chong, L., Gaskalla, R., Burns, E., Hibbard, K., Sellers, B., Gioeli, K., Munyan, S., Gandolfo, D., Hight, S., and Cuda, J. Classical Biological Control of Tropical Soda Apple in the USA. University of Florida IFAS. Available Online at [<http://edis.ifas.ufl.edu/IN457>]

SECTION 1

Tropical Soda Apple Infestation in Florida

Using the information contained within the "Tropical Soda Apple: Biology, Ecology and Management of a Noxious Weed in Florida" fact sheet (<http://edis.ifas.ufl.edu/UW097>), answer the following:

1. Tropical soda apple foliage is unpalatable to livestock, can infest a pasture or rangeland in 1-2 years, and result in lower _____ rates.
2. Highest incidence of tropical soda apple has occurred in improved pastures, such as bahiagrass. How many acres are estimated to be infested with tropical soda apple in Florida?
3. How many seeds can someone expect to find in one tropical soda apple fruit?
4. How many viable seeds can someone expect to find on one tropical soda apple plant?
5. What is the germination rate for tropical soda apple seeds?
6. List four animals described in the fact sheet that can be responsible for spreading tropical soda apple seeds through feces?
 - a. _____
 - b. _____
 - c. _____
 - d. _____
7. List the two countries where tropical soda apple is native.
 - a. _____
 - b. _____
8. When was tropical soda apple first identified by ranchers in South Florida?
9. Fruit production is yearly and commonly a mature plant will have both immature and mature fruit.
 - a. What color is immature fruit?
 - b. What color is mature fruit?
10. True or false? Milestone and Forefront herbicides possess postemergent control of existing plants and preemergence control of germinating seeds.

TAME Tropical Soda Apple

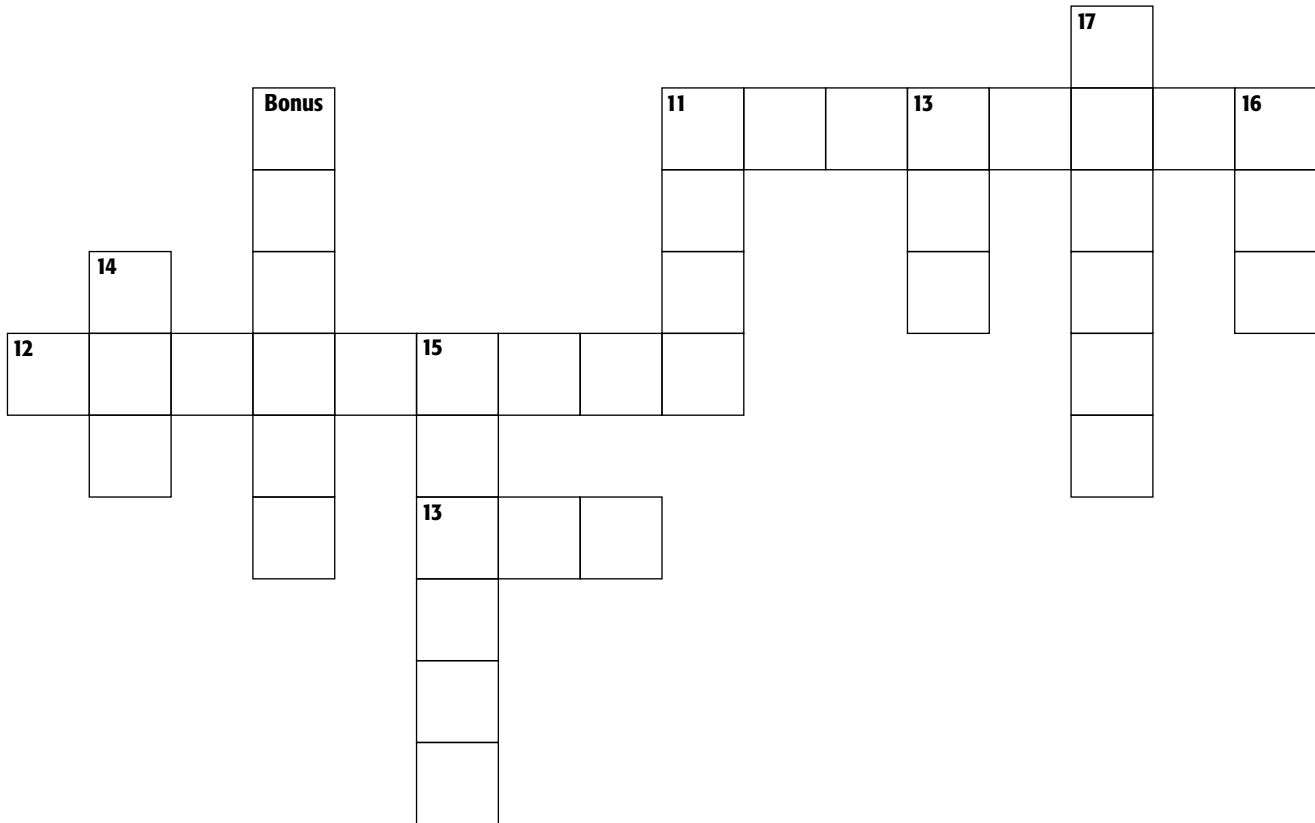
An Independent Study Course for
Restricted-Use Pesticide Applicators

*The course must be completed and received by the St. Lucie County Extension office no later than the close of business on December 31, 2009. Students must have at least 70% of the questions answered correctly to receive CEU's.

SECTION 2

Herbicides

Using the information contained within the "Tropical Soda Apple: Biology, Ecology and Management of a Noxious Weed in Florida" fact sheet (<http://edis.ifas.ufl.edu/UW097>), answer the following:



Tropical soda apple is a serious weed problem in perennial grass **(11 Across)**_____.

Milestone and **(12 Across)**_____ are herbicides that possess **(11 Down)**_____ emergence and preemergence control.

The abbreviation for tropical soda apple is **(13 Down)**_____.

When using Remedy, **(13 Across)**_____ plants to a 3-inch stubble height.

Although mowing prior to Milestone and Forefront application is not required, it is important to add a **(14 Down)**_____ -ionic surfactant.

Another brand of herbicide that can be used to control tropical soda apple is **(15 Down)**_____.

Research has shown that Milestone and Forefront will control germinating seedlings for over **(16 Down)**_____ months after application.

Remedy is an example of an **(17 Down)**_____ -auxin herbicide.

Bonus Down! This course instructor's last name.

SECTION 3

Tropical Soda Apple Integrated Pest Management

Refer to the following website to answer fill in the blanks. <http://edis.ifas.ufl.edu/IN457>

Photo Credit: Julio Meda, UF/IFAS



This is the larval form of what insect?

Genus _____

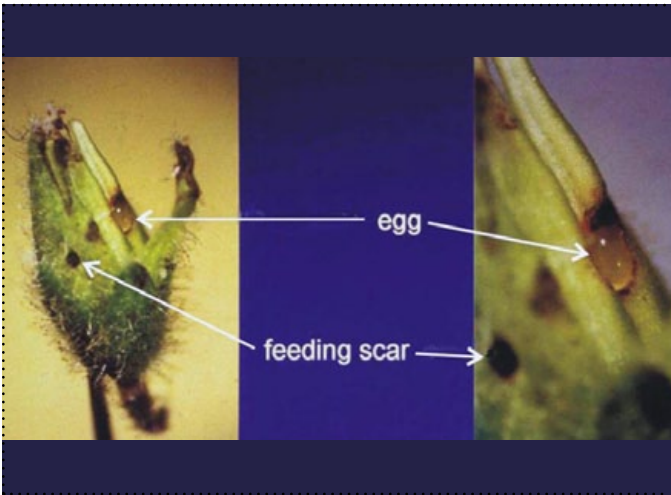
Species _____

Photo Credit: Julio Meda



What is the common name of *Gratiana boliviana*?

Photo Credit: Daniel Gandolfo, USDA-ARS



What is the genus and species of the insect pointed out above?

Genus _____

Species _____

Photo Credit: Stephan McInathan



What is the common name for *Anthonomus tenebrosus*?

SECTION 4

Classical Biological Control

Refer to the following website to answer fill in the blanks. <http://edis.ifas.ufl.edu/IN457>

- 18.** In what year did the University of Florida initiate tropical soda apple biological control agent field surveys? _____
- 19.** Choice, no-choice feeding and oviposition tests are examples of _____ specificity testing.
- 20.** In what year did the University of Florida obtain permission to perform releases of *Gratiana boliviana* in Florida? _____
- 21.** True or False? *Gratiana* are spreading from 1 to 20 miles/year from their initial release sites
- 22.** How does *Gratiana* feeding impact the health of tropical soda apple?
- a. _____
 - b. _____
 - c. _____
- 23.** *Metriona elatior* is a _____ beetle in the Cassidini tribe that may be a viable tropical soda apple biological control agent.

SECTION 5

Pesticide Activity

Directions: Milestone, Forefront, and Remedy are three brands of herbicides listed for use by the University of Florida to control tropical soda apple. In this section, you will learn how to read these product labels. Labels can be accessed on the course website.

- 24.** Describe the PPE that must be worn when applying Milestone.
- 25.** Yes or No. Can Milestone offer preemergence and postemergence control for broadleaf plants listed on the label?
- 26.** What is the recommended rate of application per 1000 sq ft when Milestone is used to control tropical soda apple?
- 27.** What is the signal word for Forefront?
- 28.** Describe the PPE that must be worn when applying Forefront.
- 29.** What plant family does tropical soda apple belong to? (pg 7)
- 30.** What is the rate range when using Forefront to control tropical soda apple? (pg 7)

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COURSE ENROLLMENT FORM

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Last Name First Middle

Mailing Address

City State Zip

() _____ () _____
Phone Number Fax Number E-mail

Pesticide License Type: Private _____ Public _____ Commercial _____

Pesticide License Number _____ Workbook Completion Date _____

I attest that the work completed in the TAME Tropical Soda Apple Workbook is my own work.

Signature Date

Mail the completed TAME Tropical Soda Apple Workbook, the signed enrollment form, and a check for \$10.00 made payable to the St. Lucie County 4-H Foundation to the following:

Ken Gioeli
Extension Agent III / Natural Resources
University of Florida / St. Lucie Co Extension
8400 Picos Road, Ste 101
Fort Pierce, FL 34945
(772) 462-1660 ktgioeli@ufl.edu

Course participants will receive their CEU form after the Workbook has been graded. Ken reserves the right to refuse to grant CEU's unless all work is shown in the Workbook.

Please help us justify the continuation of online coursework such as this course. How much money do you estimate this course saved you or your employer?

Hourly wages that would have been spent attending in-person coursework if this one online course was not available to you?
\$ _____

How much would your travel costs have been attending this course in-person (mileage, hourly wages, etc.) if this online course was not available to you? \$ _____

What costs would you or your employer have incurred in lost productivity had you attended this course in-person rather than online? \$ _____

In total, how much money did this course save you and your employer?
\$ _____