

TAME Brazilian Pepper-tree

AN INDEPENDENT STUDY COURSE FOR
RESTRICTED-USE PESTICIDE APPLICATORS



Brazilian Pepper-tree Control Workbook *(Edited 2009)*

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Preface

The independent study course: TAME Brazilian Pepper-tree, 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.

References

Cuda, J., Wheeler, G. and Habeck, D. Brazilian Peppertree Seed Wasp, *Megastigmus transvaalensis* (Hymenoptera: Torymidae). University of Florida IFAS. Available Online at [<http://edis.ifas.ufl.edu/IN453>]

Cuda, J., Medal, J., Habeck, D., Pedrosa-Macedo, J. and Vitorino, M. Classical Biological Control of Brazilian Peppertree (*Schinus terebinthifolius*) in Florida. University of Florida IFAS. Available Online [<http://edis.ifas.ufl.edu/IN114>]

Gioeli, K. and Langeland, K. Brazilian Pepper-tree Control. University of Florida IFAS. Available Online [<http://edis.ifas.ufl.edu/AA219>]

Photo Credits

Pseudophilothrips ichini: (adult) M. Vitorino; (larvae) D. H. Habeck
Originally Published: <http://edis.ifas.ufl.edu/IN114>

Heteroperreya hubrichi: J. C. Medal, University of Florida
Originally Published: <http://edis.ifas.ufl.edu/IN114>

Episimus utilis: M. Fukada, Hawaii Department of Agriculture
Originally Published: <http://edis.ifas.ufl.edu/IN114>

Grading

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

SECTION 1

Brazilian Pepper-tree Infestation in Florida

Using the information contained within the "Brazilian Pepper-tree Control" fact sheet (<http://edis.ifas.ufl.edu/AA219>), answer the following:

1. Identify the scientific name for Brazilian Pepper-tree:
2. Brazilian pepper-tree is a native of these three countries:
 - a. _____
 - b. _____
 - a. _____
3. Approximately _____ percent of seedlings exposed to fire resprout.
4. Male pepper-tree flowers last for _____ day while female flowers last for _____ days.
5. List the three methods of controlling Brazilian pepper-tree currently in use:

6. True or False. The first true leaves are compound with a toothed margin.
7. The later, more mature leaves are _____ leaves.
8. True or False. Seedlings are not flood tolerant.
9. The _____ combined with animal dispersing agents may explain colonization by Brazilian pepper-tree in our native plant communities.
10. Which herbicide found in TABLE 1 is listed for cut stump, foliar and basal bark applications?

TAME Brazilian Pepper-tree

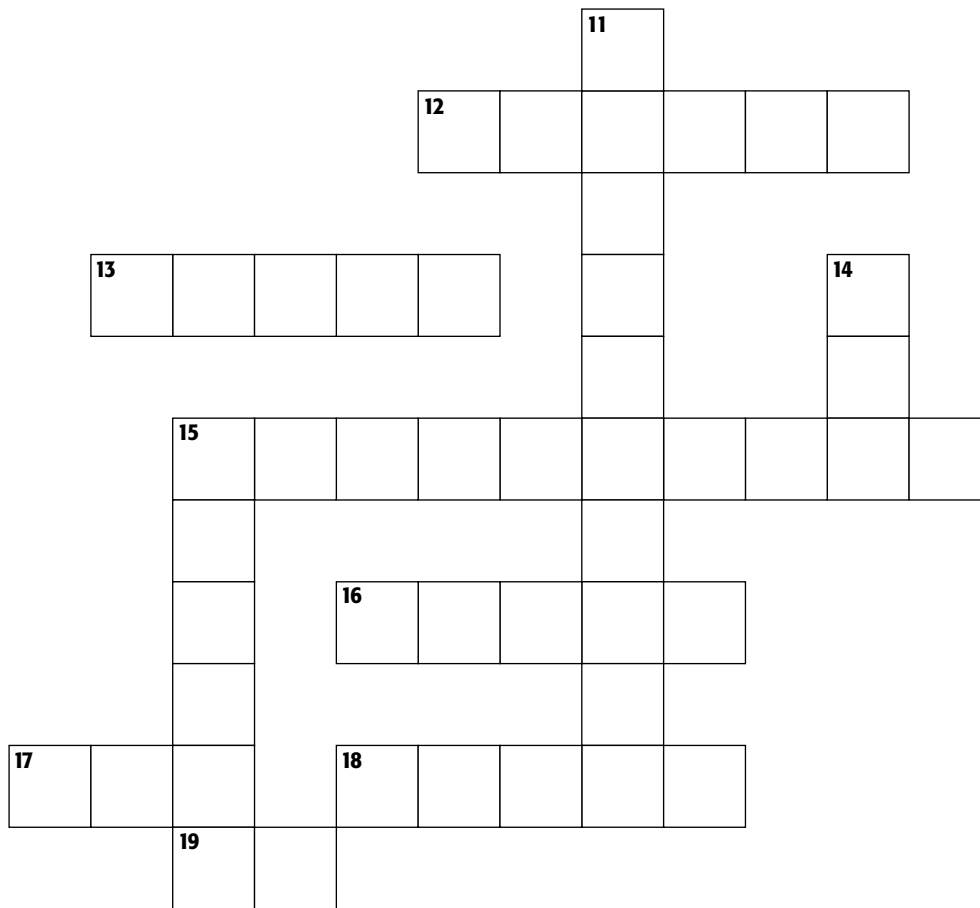
An Independent Study Course for
Restricted-Use Pesticide Applicators

*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 “Brazilian Pepper-tree Control” fact sheet (<http://edis.ifas.ufl.edu/AA219>), answer the following:



11 Down. The active ingredient in Roundup.

12 Across. Garlon 4 can be used for basal bark, cut stump and _____ applications.

13 Across. Ortho Brush-B-Gon is an example of a triclopyr _____.

14 Down. Pathfinder II can be used in _____ stump applications.

15 Down. _____ 4 and _____ 3A have similar names but one is an amine and one is an ester.

15 Across. This type of product is not recommended for basal bark applications.

16 Across. Pathfinder II can be used for _____ bark applications.

17 Across. Over _____ hundred insects have been identified that feed on Brazilian pepper-trees.

18 Across. Vine X is an example of a triclopyr _____.

19 Across. There are currently _____ biological controls for Brazilian pepper-tree.

SECTION 3

Brazilian Pepper-tree Integrated Pest Management

Refer to the following website to answer fill in the blanks. <http://edis.ifas.ufl.edu/IN114> and <http://edis.ifas.ufl.edu/IN453>

Photo Credits: (adult) M. Vitorino; (larvae) D. H. Habeck



_____ is a thrips that kills the shoot tips of Brazilian peppertree.

Photo Credit: J. C. Meda



Heteroperreyia hubrichi, a defoliating _____ of Brazilian peppertree.

Photo Credit: M. Fukada



Episimus utilis, a _____ moth.

Photo Credit: D.H Habeck, University of Florida



Adult male of _____ *transvaalensis* (Hussey) on drupe of Brazilian peppertree.

SECTION 4

Classical Biological Control

Refer to the following website to answer fill in the blanks. <http://edis.ifas.ufl.edu/IN114>

20. True or False. *Pseudophilothrips ichini* has not been observed feeding on plants other than Brazilian peppertree in its native range.
21. How many active feeding instar stages does *P. ichini* go through?
22. How many non-feeding instar stages does *P. ichini* go through?
23. What family of thrips does *P. ichini* belong to?
24. True or False. Both the larval and adult stages damage the Brazilian pepper-tree.
25. Upon emergence from the pupal stage, *Heteroperreyia hubrichi* females mate and/or oviposit in young woody branches that are adjacent to the more tender terminal shoots. Why?
26. True or False. The adult of *H. hubrichi* is the damaging stage.
27. True or False. The caterpillar (or larval stage) of *E. utilis* attacks the foliage of Brazilian pepper-tree.

Refer to the following website to answer fill in the blanks. <http://edis.ifas.ufl.edu/IN453>

28. After mating, the Brazilian pepper-tree seed chalcid female deposits an egg inside the developing _____ where all life stages of the wasp are passed.
29. How many generations per year does the Brazilian peppertree seed chalcid produce?

SECTION 5

Pesticides and the Environment

Directions: Triclopyr and Glyphosate are two common names of herbicides recommended for Brazilian Pepper-tree control. During this section, you will learn how to compare the potential environmental impacts of these herbicides. Refer to Chart 1 in this Workbook and answer the questions below.

Chart 1

| Herbicide | Koc Value | RRPI | RLPI | Aquatic LC50 |
|------------|-----------|------|--------|--------------|
| Triclopyr | 780 | 27 | 169 | 148 mg/L |
| Glyphosate | 24,000 | 1 | >2,000 | 8.3 mg/L |

- 30.** The organic carbon adsorption coefficient (Koc) is a value used to describe the relative affinity or attraction of the pesticide to soil materials and therefore its mobility in the soil. Pesticides with a Koc value less than 100 in sandy soils, or 50 or less in fine textured soils should be used with caution.

Yes or no. Should Triclopyr be used with caution in sandy soils?

Yes or no. Should Glyphosate be used with caution in sandy soils?

- 31.** The Pesticide Relative Runoff Potential Index (RRPI) is used to measure the relative immobility and availability of each pesticide in soil and its potential to remain near the soil surface and be subject to loss during the aqueous phase or sediment phase of runoff. The smaller the RRPI value of a pesticide, the greater its potential to be lost in runoff.

Which herbicide is most likely to be lost in runoff – Triclopyr or Glyphosate?

- 32.** The Relative Leaching Potential Index (RLPI) defines the relative pesticide mass as it moves through the soil. The smaller the RLPI value, the greater its leaching potential.

Which herbicide is most likely to leach into the surrounding environment – Triclopyr or Glyphosate?

TAME Brazilian Pepper-tree

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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 Brazilian Pepper-tree Workbook is my own work.

Signature Date

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

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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?
\$ _____