Registration form

Invasive Plant Identification and Control Course $250.00

48 HOUR RUSH ORDER PROCESSING FEE ADDITIONAL $50.00

Start and finish dates: _____
You will have 90 days from this date in order to complete this course

Print Name_____
I have read and understood the disclaimer notice found on page 2 and 6. Signature is required.

Signature _____

Address: _____

City_____ State _____Zip_____

Phone:
Home (_____)_____ Work (_____)_____

Fax (_____)_____ Email_____

License ID #_____Exp. Date_____

Please circle/check which certification you are applying the course CEU's.

Commercial Applicator____ Residential Applicator____ Industrial Applicator____

Pesticide Handler____ Agricultural Applicator____ Adviser____ Other _____

Technical Learning College
PO Box 3060, Chino Valley, AZ 86323-3060
Fax (928) 272-0747 e-mail info@tlch2o.com
(928) 468-0665 Toll Free (866) 557-1746

If you've paid on the Internet, please write your Customer#_____

We will stop mailing the certificate of completion we need your e-mail address. We will e-mail the certificate to you.

DISCLAIMER NOTICE

I understand that it is my responsibility to ensure that this CEU course is either approved or accepted in my State for CEU credit. I understand State laws and rules change on a frequent basis and I believe this course is currently accepted in my State for CEU or contact hour credit, if it is not, I will not hold Technical Learning College responsible. I fully understand that this type of study program deals with dangerous, changing conditions and various laws and that I will not hold Technical Learning College, Technical Learning Consultants, Inc. (TLC) liable in any fashion for any errors, omissions, advice, suggestions or neglect contained in this CEU education training course or for any violation or injury, death, neglect, damage or loss of your license or certification caused in any fashion by this CEU education training or course material suggestion or error or my lack of submitting paperwork. It is my responsibility to call or contact TLC if I need help or assistance and double-check to ensure my registration page and assignment has been received and graded. It is my responsibility to ensure all information is correct and to abide with all rules and regulations.

You can obtain a printed version of the course manual from TLC for an additional $169.95 plus shipping charges.

AFFIDAVIT OF EXAM COMPLETION

I affirm that I personally completed the entire text of the course. I also affirm that I completed the exam without assistance from any outside source. I understand that it is my responsibility to file or maintain my certificate of completion as required by the state or by the designation organization.

Grading Information

In order to maintain the integrity of our courses we do not distribute test scores, percentages or questions missed. Our exams are based upon pass/fail criteria with the benchmark for successful completion set at 70%. Once you pass the exam, your record will reflect a successful completion and a certificate will be issued to you. For security purposes, please fax or e-mail a copy of your driver's license and always call us to confirm we've received your assignment and to confirm your identity.

Rush Grading Service

If you need this assignment graded and the results mailed to you within a 48-hour period, prepare to pay an additional rush service handling fee of $50.00. This fee may not cover postage costs. If you need this service, simply write RUSH on the top of your Registration Form. We will place you in the front of the grading and processing line.

Some States and many employers require the final exam to be proctored.
http://www.abctlc.com/downloads/PDF/PROCTORFORM.pdf

A second certificate of completion for a second State Agency $50 processing fee.

All downloads are electronically tracked and monitored for security purposes.

No refunds.

CERTIFICATION OF COURSE PROCTOR

Technical Learning College requires that our students who takes a correspondence or home study program course must pass a proctored course reading, quiz and final examination. The proctor must complete and provide to the school a certification form approved by the commission for each examination administered by the proctor.

Instructions. When a student completes the course work, fill out the blanks in this section and provide the form to the proctor with the examination.

Name of Course:_____

Name of Licensee:_____

Instructions to Proctor. After an examination is administered, complete and return this certification and examination to the school in a sealed exam packet or in pdf format.

I certify that:

1. I am a disinterested third party in the administration of this examination. I am not related by blood, marriage or any other relationship to the licensee which would influence me from properly administering the examination.
2. The licensee showed me positive photo identification prior to completing the examination.
3. The enclosed examination was administered under my supervision on _____. The licensee received no assistance and had no access to books, notes or reference material.
4. I have not permitted the examination to be compromised, copied, or recorded in any way or by any method.
5. Provide an estimate of the amount of time the student took to complete the assignment.

Time to complete the entire course and final exam. _____

Notation of any problem or concerns:

Name and Telephone of Proctor (please print):

_____

_____

Signature of Proctor

Invasive Plant Identification CEU Course Answer Key

Name_____

Telephone_____

You are solely responsible in ensuring this course is accepted by your State for credit. Did you check with your State agency to ensure this course is accepted for credit?

No refunds.
Method of Course acceptance confirmation. Please fill this section

Website __ Telephone Call___ Email____ Spoke to_____

Did you receive the approval number, if applicable? _____

What is the course approval number, if applicable? _____

You are responsible to ensure that TLC receives the Assignment and Registration Key. Please call us to ensure that we received it.

California DPR Requirement

The Assignment must be submitted to TLC by December 27 in order to be submitted to DPR by the 31st. If it is late, you will be penalized $50 per day.

Multiple Choice. Pick only one answer per question.

Circle or Mark off or Bold the answer. Please circle the number of the assignment version 1 or 2 or 3 or 4 or 5

Complete all the Topical Sections before sumbiting the answer key

Weed Identification Section - Topic 1

1. A B C D	4. A B C D	7. A B C D	10. A B C D
2. A B C D	5. A B C D	8. A B C D	
3. A B C D	6. A B C D	9. A B C D	

Invasive Plant Species Introduction - Topic 2

1. A B C D	4. A B C D	7. A B C D	10. A B C D
2. A B C D	5. A B C D	8. A B C D	
3. A B C D	6. A B C D	9. A B C D	

Commonly Found Invasive and/or Noxious Weeds -Topic 3

1.	A B C D	4.	A B C D	7.	A B C D	10.	A B C D
2.	A B C D	5.	A B C D	8.	A B C D		
3.	A B C D	6.	A B C D	9.	A B C D		

Herbs and Related Invasive Species - Topic 4

1.	A B C D	4.	A B C D	7.	A B C D	10.	A B C D
2.	A B C D	5.	A B C D	8.	A B C D		
3.	A B C D	6.	A B C D	9.	A B C D		

Vine Section - Alien Plant Invaders - Topic 5

1.	A B C D	4.	A B C D	7.	A B C D	10.	A B C D
2.	A B C D	5.	A B C D	8.	A B C D		
3.	A B C D	6.	A B C D	9.	A B C D		

Trees- Alien Plant Invaders - Topic 6

1.	A B C D	4.	A B C D	7.	A B C D	10.	A B C D
2.	A B C D	5.	A B C D	8.	A B C D		
3.	A B C D	6.	A B C D	9.	A B C D		

Weed Management and Control Section - Topic 7

1.	A B C D	4.	A B C D	7.	A B C D	10.	A B C D
2.	A B C D	5.	A B C D	8.	A B C D		
3.	A B C D	6.	A B C D	9.	A B C D		

Introduction to Wetlands Section -Topic 8

1.	A B C D	4.	A B C D	7.	A B C D	10.	A B C D
2.	A B C D	5.	A B C D	8.	A B C D		
3.	A B C D	6.	A B C D	9.	A B C D		

Submersed Aquatic Weed Section -Topic 9

1.	A B C D	4.	A B C D	7.	A B C D	10.	A B C D
2.	A B C D	5.	A B C D	8.	A B C D		
3.	A B C D	6.	A B C D	9.	A B C D		

Aquatic Herbicides and Controls Section -Topic 10

1.	A B C D	4.	A B C D	7.	A B C D	10.	A B C D
2.	A B C D	5.	A B C D	8.	A B C D		
3.	A B C D	6.	A B C D	9.	A B C D		

Invasive Plant Rule Section - Topic 11

1.	A B C D	4.	A B C D	7.	A B C D	10.	A B C D
2.	A B C D	5.	A B C D	8.	A B C D		
3.	A B C D	6.	A B C D	9.	A B C D		

I understand that I am 100 percent responsible to ensure that TLC receives the Assignment and Registration Key. I understand that TLC has a zero tolerance towards not following their rules, cheating or hostility towards staff or instructors. I need to complete the entire assignment for credit. There is no credit for partial assignment completion. I will contact TLC if I do not hear back from them within 2 days of assignment submission. I will forfeit my purchase costs and will not receive credit or a refund if I do not abide with TLC's rules. My exam was proctored. I will abide by all TLC rules and pesticide agency regulations. I will not hold TLC liable for any misinformation or for any damages or deaths.

Please sign that you understand and will abide with TLC's Rules.

_____

Signature

Important Information about this Course (Disclaimer Notice)

This CEU course has been prepared to educate pesticide applicators and operators in general safety awareness of dealing with the often-complex and various pesticide treatment sprays, devices, methods, and applications. This course (manual) will cover general laws, regulations, required procedures and accepted policies relating to the use of pesticides and herbicides. It should be noted, however, that the regulation of pesticides and hazardous materials is an ongoing process and subject to change over time. For this reason, a list of resources is provided to assist in obtaining the most up-to-date information on various subjects. This manual is a not a guidance document for applicators or operators who are involved with pesticides. It is not designed to meet the requirements of the United States Environmental Protection Agency or your local State environmental protection agency or health department. This course manual will provide general pesticide safety awareness and should not be used as a basis for pesticide treatment method/device guidance. This document is not a detailed pesticide informational manual or a source or remedy for poison control.

Technical Learning College or Technical Learning Consultants, Inc. makes no warranty, guarantee or representation as to the absolute correctness or appropriateness of the information in this manual and assumes no responsibility in connection with the implementation of this information. It cannot be assumed that this manual contains all measures and concepts required for specific conditions or circumstances. This document should be used for educational purposes only and is not considered a legal document. Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in the original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Confine chemicals to the property or plants being treated. Avoid drift onto neighboring properties, especially gardens containing fruits and/or vegetables ready to be picked. Dispose of empty containers carefully. Follow label instructions for disposal. Never reuse containers. Make sure empty containers are not accessible to children or animals. Never dispose of containers where they may contaminate water supplies or natural waterways. Do not pour down sink or toilet. Consult your county agricultural commissioner for correct ways of disposing of excess pesticides. You should never burn pesticide containers.

Individuals who are responsible for pesticide storage, mixing and application should obtain and comply with the most recent federal, state, and local regulations relevant to these sites and are urged to consult with the EPA and other appropriate federal, state and local agencies.

USE PESTICIDES WISELY: ALWAYS READ THE ENTIRE PESTICIDE LABEL CAREFULLY, FOLLOW ALL MIXING AND APPLICATION INSTRUCTIONS AND WEAR ALL RECOMMENDED PERSONAL PROTECTIVE GEAR AND CLOTHING. CONTACT YOUR STATE DEPARTMENT OF AGRICULTURE FOR ANY ADDITIONAL PESTICIDE USE REQUIREMENTS, RESTRICTIONS OR RECOMMENDATIONS.

NOTICE: MENTION OF PESTICIDE PRODUCTS IN THIS COURSE DOES NOT CONSTITUTE ENDORSEMENT OF ANY MATERIAL OR SUPPLEMENT. ALWAYS FOLLOW THE PRODUCT'S LABEL INSTRUCTIONS.

Please e-mail or fax this survey along with your final exam

INVASIVE PLANT IDENTIFICATION AND CONTROL PROFESSIONAL DEVELOPMENT COURSE

CUSTOMER SERVICE RESPONSE CARD

NAME: _____

E-
MAIL_____PHONE_____

PLEASE COMPLETE THIS FORM BY CIRCLING THE NUMBER OF THE APPROPRIATE ANSWER IN THE AREA BELOW.

1. Please rate the difficulty of your course.
   Very Easy 0 1 2 3 4 5 Very Difficult

2. Please rate the difficulty of the testing process.
   Very Easy 0 1 2 3 4 5 Very Difficult

3. Please rate the subject matter on the exam to your actual field or work.
   Very Similar 0 1 2 3 4 5 Very Different

4. How did you hear about this Course?_____

5. What would you do to improve the Course?

_____

_____

_____

How about the price of the course?

Poor_____ Fair ____ Average ____ Good____ Great_____

How was your customer service?

Poor___ Fair ____ Average ____ Good _____ Great_____

Any other concerns or comments.

_____

_____

INSTRUCTIONS

1. We will require all students to fax or e-mail a copy of their driver's license with the registration form.
2. You will need to pick one of the following four assignments to complete. This selection process is based upon your last name.

Assignment for Last Names

If your last name…

A-G - Assignment #1 Pages 11-23
H-M - Assignment #2 Pages 25-36
N-S - Assignment #3 Pages 37-49
T-Z - Assignment #4 Pages 51-63
Alternative Assignment #5 for repeat students Pages 65-77

These exams are frequently rotated.
Complete all topics before submitting the answers key.

Rush Grading Service

If you need this assignment graded and the results mailed to you within a 48-hour period, prepare to pay an additional rush service handling fee of $50.00. This fee may not cover postage costs. If you need this service, simply write RUSH on the top of your Registration Form. We will place you in the front of the grading and processing line.

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Invasive Plant Identification CEU Conventional Assignment #1

You will have 90 days from the start of this course to have successfully completed this CEU assignment with a score of 70%. You may e-mail the answers to TLC, info@tlch2o.com, you can also find a copy of this assignment in Word on the Assignment Page on TLC's website or fax the answers to TLC (928) 468-0675. Course assistance is available on the Assignment Page under Course Assistance at www.abctlc.com. Write your answers on the Answer Key found in the front of first assignment.

Write your answers on the Answer Key found in the front section of this assignment.

Weed Identification Section Topic 1

(s) Means the answer can be plural or singular.

1. _____ weeds germinate from seed, grow, flower, and produce seed in less than one year.
A. Winter annual(s) C. Perennial
B. Annual(s) D. None of the above

2. _____ germinate in the fall, overwinter as seedlings or small rosettes and mature, set seed and die the following spring or early summer.
A. Winter annual(s) C. Perennial
B. Annual(s) D. None of the above

Understanding Weed Terms

3. The key is to use pesticides in a way that complements rather than hinders _____in the strategy and which also limits negative environmental effects.
A. Other elements C. Direct habitat destruction
B. Negative environmental effects D. None of the above

4. _____ are maintained via controlled pollination or vegetative means, so that cultivar characteristics are passed to ensuing generations.
A. Cultivars C. Ecovar development process(s)
B. Minimum levels of pesticide(s) D. None of the above

5. An ecovar is an intermediate step between a wild-growing plant and a _____.
A. Cultivar C. Direct habitat destruction
B. Minimum levels of pesticide D. None of the above

Importance of Native Plants

6. Invasions of non-native plants are not a threat to native species.
A. True B. False

7. Puncture vine is a prostrate, mat-forming _____. It has small leaflets and small yellow flowers with 5 petals.
A. Perennial C. Summer and winter annual(s)
B. Summer annual(s) D. None of the above

8. Curly dock is a _____ weed in the buckwheat family. Fairly pleasant tasting, the leaves are very rich in vitamins, especially vitamins A and C, and can be eaten raw or cooked.
A. Perennial C. Summer and winter annual(s)
B. Biennial(s) D. None of the above

9. The roasted seed has been used as a coffee substitute. It is also a very important food plant for the caterpillars of many butterflies. In the spring, basal _____ emerge from a stout taproot. These elongated leaves have wavy margins, thus the name "curly" dock. In summer, the plant has reddish, rigid stems, 2-4 feet tall. Flower stems have greenish flowers.
A. Mid-ribs C. Leaves
B. Flowers D. None of the above

10. Milkweed plants, members of the Asclepias family, are the only host plant for the monarch and queen butterflies. The adult females seek out these plants on which they lay their eggs. The caterpillars that hatch will remain on the plants and eat the leaves until they enter the pupal stage, then emerge as adult butterflies. It is a _____ herb with long-spreading rhizomes.
A. Perennial C. Summer and winter annual(s)
B. Annual(s) D. None of the above

Invasive Plant Species Introduction Topic 2

Federally Listed Invasive Plant Species

1. _____ has elliptic to lanceolate leaves, its branches are usually thorny, and its fruit is yellow, dry and mealy.
A. Russian olive C. Autumn olive
B. Russian Knotflax D. None of the above

2. Combining control methods is the best form of _____management. Persistence is imperative so the weed is continually stressed, forcing it to exhaust root nutrient stores and eventually die.
A. Canada thistle C. Toadflax
B. Japanese knotweed D. None of the above

3. _____was easy to establish and homesteaders liberally landscaped their properties with this drought resistant plant, continually spreading it in their migration to the Western frontier.
A. Snapdragon C. Toadflax
B. Spurge laurel D. None of the above

4. The broad and pointed _____ leaves can be mistaken for Broadleaf dock (Rumex obtusifolia), but docks lack rhizomes and the tall, spreading habit of Japanese knotweed.
A. Canada thistle C. Toadflax
B. Japanese knotweed D. None of the above

5. _____ is difficult to control. Its extensive root system has vast nutrient stores that let it recover from control attempts. Combine control methods into a system to achieve best results.
A. Leafy spurge C. Toadflax
B. Spurge laurel D. None of the above

6. As an annual, _____ reproduces solely by seed. Seeds generally do not remain viable past one year. Repeated hoeing, tilling, or mowing of young plants will prevent seed production. Hand-pulling (with gloves) can also be effective for small infestations.
A. Snapdragon C. Autumn olive
B. Russian thistle D. None of the above

7. _____ is a branched, robust biennial (or sometimes annual) that often grows 8 feet or more in height and 6 feet in width. Main stems may be up to 4 inches wide at the base. Stems have vertical rows of prominent, spiny, ribbon-like leaf material or "wings" that extend to the base of the flower heads.
A. Leafy spurge C. Scotch thistle
B. Russian thistle D. None of the above

8. _____ is an attractive ornamental plant known for its spiraling evergreen leaves and greenish-yellow, bitter-fragrant flowers. Larger patches of this species emit a strong unpleasant odor. Flowering occurs in late winter-early spring, producing clusters of blue berries during the spring.
A. Snapdragon C. Toadflax
B. Spurge laurel D. None of the above

9. _____ is a perennial with erect, smooth, herbaceous stems that are less than 2 feet tall and emerge in clumps from a spreading root system. Soft, gray-green leaves, which are 1 to 1 1/2 inches long and narrow, are crowded onto each stem.
A. Leafy spurge C. Toadflax
B. Spurge laurel D. None of the above

10. This plant has stems that terminate with clusters of 15 to 20 snapdragon-like flowers that are about 1 inch long and yellow. Gently pinching the sides of a flower opens its 2 lips revealing an orange throat that acts as a guide for insects to nectar produced in the spur. The plant reproduces by seeds and creeping roots.
A. Snapdragon C. Toadflax
B. Spurge laurel D. None of the above

Commonly Found Invasive and/or Noxious Weeds - Topic 3

1. Musk thistle rosettes are usually large and compact with a large, corky taproot that is hollow near the_____. Leaves have consistent shape, sometimes expressing a frosted appearance around the leaf margins, and often have a cream-colored midrib.
A. Rosettes C. Crown
B. Flowers D. None of the above

2. Musk thistle flowers and starts to produce seed 45 to 55 days after it bolts. Musk thistle has very large bracts beneath flowers that are armed with sharp spines and shoots beneath flowers are almost devoid of _____.
A. Mid-ribs C. Leaves
B. Flowers D. None of the above

3. _____ will not tolerate tillage and can be removed easily by severing its root below ground with a shovel or hoe. Mowing can effectively reduce seed output if plants are cut when the terminal head is in the late-flowering stage. Gather and burn mowed debris to destroy any seed that has developed.
A. Fountain grass C. Canada thistle
B. Musk thistle D. None of the above

4. In natural areas where Canada thistle is interspersed with desirable native plants, targeted application of a systemic herbicide such as_____, which carries plant toxins to the roots, may be effective.
A. Glyphosate (e.g., Roundup or Rodeo) C. Systemic herbicide(s)
B. Chlorpyralid (e.g. Transline) D. None of the above

5. Multiple treatments are necessary every year for several years, making leafy spurge control an extremely expensive undertaking. If left uncontrolled for a single year, _____ can re-infest rapidly. Prescribed burning, in conjunction with herbicides, may also be effective.
A. Mullein C. Leafy spurge
B. Fountain grass D. None of the above

6. The addition of a non-ionic surfactant at a concentration of 0.5% improves the effectiveness of foliar treatments. _____have been shown to be effective in controlling Chinese lespedeza.
A. Triclopyr and clopyralid C. Systemic herbicide(s)
B. Chlorpyralid (e.g. Transline) D. None of the above

7. _____ plants grow from four to ten feet high, depending upon conditions, and produce a showy display of magenta-colored flower spikes throughout much of the summer. Flowers have five to seven petals. Mature plants can have from 30 to 50 stems arising from a single rootstock.
A. Mullein C. Chinese lespedeza
B. Loosestrife D. None of the above

8. _____ raises fuel loads, which increases the intensity and spread of a fire, and results in severe damage to native, dry forest species adapted to less extreme fire regimes.
A. Fountain grass C. Canada thistle
B. Loosestrife D. None of the above

9. First year _____ plants are low-growing rosettes of bluish gray-green, felt-like leaves that range from 4-12 inches in length and 1-5 inches in width.
A. Mullein C. Chinese lespedeza
B. Loosestrife D. None of the above

Introduction to Grasses
Exotic Grass Control

10. Native plants have become one of the most insidious problems in the field of wildlife management, because they can totally dominate pasture and prairie lands once established, having little wildlife value and leaving no room for exotic grasses.
A. True B. False

Herbs and Related Invasive Species Topic 4

1. When glyphosate is applied to susceptible plants, glyphosate blocks EPSP synthase preventing the production of essential amino acids and the plant dies. However, in plants that are Roundup Ready, a modified EPSP synthase is unaffected by glyphosate and allows the plant to continue growing. There is little or no crop injury associated with _____ application and Roundup Ready alfalfa.
A. EPSP synthase C. Glyphosate
B. Dithiopyr D. None of the above

2. If the glyphosate application is made after the _____, some yield loss may occur due to the competitive effects of the weed on the crop; in other words, the damage has already been done.
A. 3 to 5 trifoliate stage C. 1 to 3 trifoliate stage
B. 5 to 8 trifoliate stage D. None of the above

Glyphosate Stewardship

3. Rotation to non-Roundup Ready crops using _____ after Roundup Ready crops is also effective in reducing the potential for glyphosate-resistant weeds.

A. Glyphosate C. Dithiopyr
B. Nonglyphosate herbicides D. None of the above

4. _____is most commonly used. However, herb Robert often occurs initially as part of a mosaic alongside desirable native species. In these situations, alternative control methods that have the ability to target individual plants can more successfully meet all goals of a project.

A. EPSP synthase C. Glyphosate (Roundup™)
B. Dithiopyr D. None of the above

5. Grass Family (Poaceae). Toothache grass is a_____.

A. Winter annual C. Warm-season, perennial bunch grass
B. Summer annual D. None of the above

6. _____ is a postemergence herbicide that is slowly translocated within the plant. It can effectively control tillered crabgrass with a single application.

A. Quinclorac C. Pendimethalin and phenoxy herbicides
B. Fenoxaprop-p-ethyl D. None of the above

7. _____ acts as a preemergence and postemergence herbicide. It provides postemergence control of crabgrass only up to the one-tiller stage of development, but it can be combined with fenoxaprop-p-ethyl when two or more tillers are present.

A. Quinclorac C. Pendimethalin and phenoxy herbicides
B. Dithiopyr D. None of the above

8. _____ is a postemergence herbicide effective in controlling crabgrass and some broadleaf weeds.

A. Quinclorac C. Pendimethalin and phenoxy herbicides
B. Dithiopyr D. None of the above

9. Quinclorac can be mixed with other herbicides, including_____, to improve weed control. For best results, apply quinclorac in combination with a methylated seed oil according to directions on the label.

A. Quinclorac C. Pendimethalin and phenoxy herbicides
B. Fenoxaprop-p-ethyl D. None of the above

10. _____leaves, in comparison, are smooth or only sparsely hairy; and the leaf segment is longer, more rounded, and lance-shaped. The somewhat rounded terminal clusters of flower heads of western yarrow are normally white to cream-colored and have an extended bloom period from May to September.

A. Canada thistle C. Common yarrow
B. Dalmatian toadflax D. None of the above

Vine Section Alien Plant Invaders Topic 5

1. For large infestations, use of a labeled systemic herbicide, such as glyphosate (e.g., Roundup) or triclopyr (e.g., Garlon), is probably the most effective method to control akebia. An herbicidal soap, such as_____, which provides a burndown of plant tissues, may also provide some control.

A. Dithiopyr C. Pelargonic acid (e.g., Scythe)
B. Chlorpyralid (e.g. Transline) D. None of the above

2. Once established, the vine quickly overwhelms and destroys native vegetation by shading out smaller plants and outcompeting native vegetation for water and nutrients. Urban parks, with extensive wooded borders neighboring landscaped residential and private property, are especially vulnerable to invasion by _____.

A. Mile-a-minute weed C. Climbing bittersweet vine (Celastrus scandens)
B. Porcelainberry D. None of the above

3. Clusters of small greenish flowers emerge from leaf axils, allowing each plant to produce large numbers of seeds. At maturity, globular, green to yellow fruits split open to reveal three red-orange, fleshy arils that contain the seeds. These showy fruits have made _____ very popular for use in floral arrangements.

A. Mile-a-minute weed C. Climbing bittersweet
B. Kudzu D. None of the above

4. A variety of _____are available for management of climbing euonymus. Grubbing, a rather labor intensive method, is effective for small populations or environmentally sensitive areas where herbicides cannot be used.

A. Triclopyr (e.g., Garlon) C. Herbicide applications
B. Mechanical and chemical methods D. None of the above

5. Because English ivy is an evergreen vine, and remains active during the winter, _____ can be made to it any time of year as long as temperatures are above 55 or 60°Fahrenheit for a few days.

A. Triclopyr (e.g., Garlon) C. Herbicide applications
B. Dithiopyr D. None of the above

6. Fall and winter applications will avoid or minimize impacts to many native plant species. Repeat _____ are likely to be needed and follow-up monitoring should be conducted to evaluate the success of treatments.

A. Triclopyr (e.g., Garlon) C. Herbicide applications
B. Dithiopyr D. None of the above

7. Several _____ (e.g., glyphosate and triclopyr) move through the plant to the roots when applied to the leaves or stems and have been used effectively on Japanese honeysuckle.

A. Herbicide applications C. Systemic herbicide(s)
B. Chlorpyralid (e.g. Transline) D. None of the above

8. Local bird populations are important for dispersal under utility lines, bird feeders, fence lines and other perching locations. Other animals observed eating _____ fruits are chipmunks, squirrel and deer.

A. Mile-a-minute weed C. Climbing bittersweet vine (Celastrus scandens)
B. Porcelainberry D. None of the above

9. Cut _____ can be fed to livestock, burned or enclosed in plastic bags and sent to a landfill. If conducted in the spring, cutting must be repeated as regrowth appears to exhaust the plant's stored carbohydrate reserves.

A. Mile-a-minute weed DC. Climbing bittersweet vine (Celastrus scandens)
B. Kudzu D. None of the above

10. _____ is effective at a concentration of 0.5% and is selective to plants in the aster, buckwheat, and pea families. Caution should be taken with chlorpyralid as groundwater pollution through leaching can be a problem with certain soil types. Do not apply spray so heavily that herbicide drips off the leaves.

A. Triclopyr (e.g., Garlon) C. Herbicide applications
B. Chlorpyralid (e.g. Transline) D. None of the above

Trees- Alien Plant Invaders Topic 6

1. Targeting large female trees for control will help reduce spread of _____ by seed.
A. Silk tree(s) C. Princess tree(s)
B. Ailanthus D. None of the above

2. Princess tree seedlings and small trees can be controlled by applying a 2% solution of _____ or triclopyr (e.g., Garlon) and water plus a 0.5% non-ionic surfactant to thoroughly wet all leaves.
A. EPSP synthase C. Glyphosate (Roundup™)
B. Dithiopyr D. None of the above

3. _____ can be controlled using a variety of mechanical and chemical controls. Hand pulling may be effective for young seedlings. Plants should be pulled as soon as they are large enough to grasp.
A. Silk tree(s) C. Princess tree(s)
B. Carrotwood D. None of the above

4. Because _____ spreads by suckering, resprouts are common after treatment. Cutting is an initial control measure and will require either an herbicidal control or repeated cutting for resprouts.
A. Mimosa C. Princess tree(s)
B. Ailanthus D. None of the above

5. Whenever possible, efforts should be taken to prevent the introduction or encroachment of _____. For example, recently disturbed beach habitat may be planted with native vegetation to prevent Australian pine from invading.
A. Ailanthus C. Australian pine
B. Carrotwood D. None of the above

6. Clumps of seedlings suggest dispersal by small mammals. In its native range, _____is pollinated by bees, which are the likely pollinators in Florida.
A. Ailanthus C. Australian pine
B. Carrotwood D. None of the above

7. _____kills broadleaf (dicotyledonous) plants but causes little or no damage to grasses and is useful for areas where desirable grasses are to be maintained.
A. Triclopyr C. Glyphosate (Roundup™)
B. Dithiopyr D. None of the above

8. Unfortunately, _____ seedlings often grow in low litter areas, unsuitable for frequent prescribed fire. In dense stands, seedlings and saplings may be cut and dropped on site, creating fuel for future fires.
A. Buckthorn C. Princess tree(s)
B. Ailanthus D. None of the above

9. _____ seedlings appear vulnerable to fire, perhaps due to their poorly established root structure. Fire will top kill a mature plant, but resprouting does occur.
A. Buckthorn C. Princess tree(s)
B. Ailanthus D. None of the above

10. Uprooting of 1/2 inch diameter seedlings by hand or up to 1 1/2 inch diameter using a weed wrench is effective, but care should be taken to avoid excessive disturbance to the soil, which can release _____ seeds stored in the soil.
A. Buckthorn C. Princess tree(s)
B. Carrotwood D. None of the above

Weed Management and Control Section Topic 7

1. _____ is necessary following mechanical or chemical control. Digging and chopping cause soil disturbance and desired plants need to be reestablished before the invader can get a foothold. The same is true of chemical control, the desired vegetation must be reestablished. Moreover, you must remember that the invader was able to gain a toehold under the management regime that had been in place on that land.

A. Cultural Control C. Chemical control
B. Environmental control D. None of the above

Cultural Control

2. Controlling weeds on such sites can be futile without_____, as weeds will readily re-invade the disturbed area.

A. Vegetative restoration C. Pesticide remains in the environment
B. Persistence D. None of the above

3. _____are available as concentrated liquids, (2 to 8 lb/gal) which need to be mixed with water before applying; as wettable powders which are from 50 to 100% active ingredient and need to be dispersed in water for uniform application, or as granules which are from 1 to 10% active ingredient and which are applied dry with granular applicators. See the label for all instructions on labeled crops and timings.

A. Weed control chemicals C. Glyphosate (Roundup™)
B. Nonglyphosate herbicides D. None of the above

4. Most effective control of _____ broadleaf weeds is obtained when applied in early fall (August 15–October 15) or in spring (May 1–June 1). For some weeds, repeated application at 20–30 day intervals may be required for control.

A. Perennial C. Summer and winter annual(s)
B. Biennial(s) D. None of the above

5. _____is referred to as a desiccant because it causes a leaf or an entire plant to dry out quickly. It is used to desiccate potato vines and seed crops, to control flowering of sugarcane, and for industrial and aquatic weed control. It is not residual; that is, it does not leave any trace of herbicide on or in plants, soil, or water.

A. Triclopyr C. Glyphosate (Roundup™)
B. Diquat dibromide D. None of the above

6. The product Agent Orange, used extensively throughout Vietnam, was about 50% 2,4-D. However, the controversies associated with the use of Agent Orange were associated with a contaminant (_____) in the 2,4,5-T component of the defoliant.

A. Dithiopyr C. Dioxin
B. Nonglyphosate herbicides D. None of the above

7. _____kill all plants, both desirable and undesirable. These herbicides can be used to spot treat perennial grassy weeds that are not affected by selective herbicides. To spot treat an area, thoroughly wet the weed foliage with herbicide solution.

A. Triclopyr C. Nonselective postemergence herbicides
B. Systemic herbicides D. None of the above

Imazapyr (Trade name Habitat®).

8. Although imazapyr is a_____, a good applicator can somewhat selectively remove targeted plants by focusing the spray only on the plants to be removed.

A. Glyphosate herbicide C. Broad spectrum, non-selective herbicide
B. Systemic herbicide D. None of the above

Persistence of Pesticides

9. Persistence is usually expressed as the "half-life" (T1/2) of a pesticide.

A. True B. False

10. Pesticides can be degraded by sunlight (photodecomposition), high air or water temperatures (thermal degradation), moisture conditions, biological action (microbial decay), and soil conditions (pH). _____break down slowly and may be more available to aquatic animals.

A. Persistent (long-lasting) pesticides C. Persistent (short-lasting) pesticides
B. Persistence D. None of the above

Introduction to Wetlands Section Topic 8

Filamentous Algae

1. Unlike microscopic algae, _____are frequently a problem in pond management and are usually visible to the naked eye as a floating mat of thread-like filaments often called "pond moss". They usually begin growth on the pond bottom in shallow water, later float to the surface and may completely cover the pond surface.

A. Filamentous algae C. Parrotfeather
B. Hydrilla D. None of the above

Biological Control

2. Grass carp do not control planktonic algae.

A. True B. False

Economic Importance

3. _____ are a severe environmental and economic problem in all of the gulf coast states and in many other areas of the world with a sub-tropical or tropical climate. This species has rapidly spread throughout inland and coastal freshwater bays, lakes, and marshes in the United States and in other countries.

A. Water lettuce C. Alders
B. Water hyacinths D. None of the above

4. When big floating bladderwort is flowering it is easily distinguished from its native cousins by large spoke-like floats that radiate out from the base of the flower stalk. During the rest of the year, however, it can be confused with_____, both of which are rather robust and can appear almost bushy underwater.

A. Water lettuce C. Common bladderwort
B. Big floating bladderwort D. None of the above

Control

5. Years of research to find insect biocontrols has resulted in the successful introduction of two insects which are believed to be helpful in keeping water lettuce under maintenance control in many places; however, biocontrol fish which are able to control submersed plants are ineffective against the_____.

A. Water hyacinths C. Algae
B. Floating water lettuce D. None of the above

6. _____ are absorbed and move within the plant to the site of action. Systemic herbicides tend to act more slowly than contact herbicides. An aquatically registered surfactant (see the label) will improve the effectiveness of triclopyr.

A. Glyphosate herbicides C. Systemic herbicides
B. Nonglyphosate herbicides D. None of the above

7. Systemic herbicides tend to act more quickly than contact herbicides.

A. True B. False

8. An aquatically registered surfactant will improve the effectiveness of_____.
A. Dithiopyr C. Systemic herbicide
B. Triclopyr D. None of the above

9. _____ benefit other plants growing near them by taking nitrogen out of the air and depositing it in the soil in usable form; fallen alder leaves make very rich compost.
A. Water lettuce C. Alders
B. Water hyacinths D. None of the above

10. One danger with any chemical control method is the chance of oxygen depletion after the treatment caused by the decomposition of the dead plant material.
A. True B. False

Submersed (underwater) Aquatic Weed Section Topic 9

1. Renovate is a liquid triclopyr formulation that is effective on _____. It is a selective broadleaf, systemic herbicide.
A. Water lettuce C. Parrotfeather
B. Water hyacinths D. None of the above

2. A variety of physical, chemical, and biological control methods have been used in attempts to manage infestations of _____.
A. Hydrilla C. Eurasian watermilfoil
B. Water hyacinths D. None of the above

3. _____are systemic herbicides. Systemic herbicides are absorbed and move within the plant to the site of action.
A. Liquid triclopyr formulations C. 2,4-D compounds
B. Liquid formulations D. None of the above

4. Reward is a liquid diquat formulation that has been effective on Eurasian watermilfoil and is very effective if mixed with a copper compound.
A. True B. False

5. Renovate is a _____ that is effective on Eurasian watermilfoil. It is a selective broadleaf, systemic herbicide.
A. Systemic herbicide(s) C. Granular butoxyethyl ester of 2,4-D
B. Liquid triclopyr formulation D. None of the above

6. Aquathol, Aquathol K, and Aquathol Super K are _____and comes in both liquid and granular formulations.
A. Liquid triclopyr formulation C. Dipotassium salts of endothall
B. Liquid diquat formulation D. None of the above

7. Sonar and Avast are fluridone compounds, come in both liquid and granular formulations, and have been effective on Eurasian watermilfoil.
A. True B. False

8. Any aquatic plant identified as _____should be sent to a specialist for positive identification since hydrilla is such a serious threat to fresh water habitats. It is only through early identification and concentrated control methods that there is any hope of eliminating hydrilla.
A. Hydrilla C. Eurasian watermilfoil
B. Egeria, elodea, or hydrilla D. None of the above

Pond Water Chemistry

9. The water hardness also should be considered when using herbicides containing copper.
A. True B. False

10. Some herbicides contain copper and should be used with caution in hard water ponds (less than 10 parts per million water hardness).
A. True B. False

Aquatic Herbicides and Controls Section Topic 10

1. _____is used as a defoliant for a wide range of crops and as a herbicide for both terrestrial and aquatic weeds.
A. Glyphosate herbicide C. Endothall
B. Nonglyphosate herbicide D. None of the above

2. Field and laboratory tests show that _____ usually remains in the top inch of soil for long periods of time after it is applied.
A. Fluridone C. Diquat
B. 2,4-D D. None of the above

3. Reward itself is an acid, but it is commonly used in salt form, most commonly the isopropylamine salt.
A. True B. False

4. Some formulations of _____ are highly toxic to fish while others are less so.
A. Reward C. Fluridone
B. 2,4-D D. None of the above

5. _____can be effective for spot treatment of Eurasian watermilfoil and is relatively selective to Eurasian watermilfoil when used at the labeled rate.
A. Glyphosate herbicide C. Triclopyr
B. Dithiopyr D. None of the above

6. _____ can show good control of submersed plants where there is little water movement and an extended time for the treatment. Its use is most applicable to whole-lake or isolated bay treatments where dilution can be minimized. It is not effective for spot treatments of areas less than five acres.
A. Reward C. Fluridone
B. 2,4-D D. None of the above

7. Most species of algae can be controlled with very low concentrations of_____. It is available in crystalline nuggets the size of rock salt or as a finely ground "snow" grade.
A. Copper sulfate C. Dithiopyr
B. Nonglyphosate herbicide D. None of the above

8. A concentrated granular herbicide is effective against a broad range of aquatic plants with a wide margin of safety to fish and other aquatic life.
A. True B. False

9. _____ is a concentrated liquid aquatic herbicide effective against a wide variety of submersed, emergent, and floating aquatic plants including duckweed, naiads, and cattails.
A. Reward C. Fluridone
B. Diquat D. None of the above

10. _____poses virtually no environmental risk in aquatic applications because the herbicide concentration rapidly decreases as it is absorbed onto soil, vegetation, and organic matter.
A. Reward C. Fluridone
B. Diquat D. None of the above

Invasive Plant Rule Section Topic 11

1. _____must be overcome for a plant to be considered an invasive weed. Invasive weeds are invasive species.
A. Population of non-native plants C. Geographical barrier
B. Several barriers D. None of the above

2. _____are non-native plants and alien species are non-native species. Therefore, non-native plants are those that occur outside their natural range boundaries, and this most often is mediated by humans either deliberately or unintentionally.
A. An invasive species C. Alien plants
B. Non-native plant D. None of the above

3. Other physical barriers might be _____, or competition for resources from neighboring plants.
A. pH, nutrient availability C. Noxious weed
B. Altering physical processes D. None of the above

Dispersal and spread barriers

4. Established non-native plants must overcome barriers to dispersal and spread from their site of establishment to be considered invasive plants. Additionally, the rate of spread must be relatively fast. However, this movement or spread alone does not necessarily make this non-native plant an invasive weed or _____.
A. Population of non-native plants C. Noxious weed(s)
B. Invasive species D. None of the above

California

5. The California Invasive Plant summarizes the impacts, potential for spread, and distribution of more than 200 _____ that invade wildlands in California.
A. Invasive species C. Alien plant(s)
B. Non-native plant(s) D. None of the above

Herbicide and Insecticide Safety Precautions

6. The Federal Environmental Pesticide Control Act of 1972 in part prohibits the application of any pesticide in a manner inconsistent with its labeling. This means that a pesticide cannot be used unless it is registered for the specific pest.
A. True B. False

7. Wash exposed skin areas with generous amounts of soap and water.
A. True B. False

8. All herbicides can be classified as either selective or nonselective. _____kill certain weeds with little or no injury to the crop.
A. Phenoxy herbicide(s) C. Selective herbicides
B. Nonselective herbicide(s) D. None of the above

9. The movement of a _____ by runoff or by soil erosion to non-target areas is another possibility. Typical 2,4 D injury symptoms on grape leaves.
A. Phenoxy herbicide(s) C. Selective herbicides
B. Nonselective herbicide(s) D. None of the above

Vapor Drift

10. Volatility refers to the ability of an herbicide to vaporize and to mix freely with the air.

A. True B. False

When Finished with Your Assignment

REQUIRED DOCUMENTS

Please scan the **Registration Page, Answer Key, Survey and Driver's License** and email it to info@TLCH2O.com.

IPhone Scanning Instructions

If you are unable to scan, take a photo of these documents with your **iPhone** and send these photos to TLC, info@TLCH2O.com.

FAX

If you are unable to scan and email, please fax these to TLC, if you fax, call to confirm that we received your paperwork. **(928) 468-0675**

Invasive Plant Identification CEU Conventional Assignment #2

You will have 90 days from the start of this course to have successfully completed this CEU assignment with a score of 70%. You may e-mail the answers to TLC, info@tlch2o.com, you can also find a copy of this assignment in Word on the Assignment Page on TLC's website or fax the answers to TLC (928) 468-0675. Course assistance is available on the Assignment Page under Course Assistance at www.abctlc.com. Write your answers on the Answer Key found in the front of first assignment.

Write your answers on the Answer Key found in the front section of this assignment.

Weed Identification Section Topic 1

(s) Means the answer can be plural or singular.

1. _____ are maintained via controlled pollination or vegetative means, so that cultivar characteristics are passed to ensuing generations.
A. Ecovar development process(s) C. Negative environmental effect(s)
B. Cultivars D. None of the above

2. To maintain _____in ensuing generations, little to no selection is done during the ecovar development process.
A. Genetic diversity C. Direct habitat destruction
B. Minimum levels of pesticide D. None of the above

3. An ecovar is an intermediate step between a wild-growing plant and a _____.
A. Cultivar C. Ecovar development process
B. Minimum levels of pesticide D. None of the above

4. _____may include using row covers or trenches to prevent insects from reaching the crop, baited or pheromone traps to capture insects, or cultivation or mowing for weed control.
A. Tactics C. Direct habitat destruction
B. Minimum levels of pesticide(s) D. None of the above

Importance of Native Plants

5. Invasions of non-native plants are the second greatest threat to native species after direct habitat destruction.
A. True B. False

Broadleaves (dicots), Grasses (monocots), and Sedges

6. Leaf shape can vary dramatically and is a consistent key to plant identification. The leaves may be alternately or oppositely arranged along the _____.
A. Rosettes C. Spikes
B. Stem D. None of the above

7. Puncture vine is a prostrate, mat-forming _____. It has small leaflets and small yellow flowers with 5 petals.
A. Perennial C. Summer annual(s)
B. Biennial(s) D. None of the above

8. Curly dock is a _____ weed in the buckwheat family. Fairly pleasant tasting, the leaves are very rich in vitamins, especially vitamins A and C, and can be eaten raw or cooked.
A. Perennial C. Summer and winter annual(s)
B. Biennial(s) D. None of the above

9. The roasted seed has been used as a coffee substitute. It is also a very important food plant for the caterpillars of many butterflies. In the spring, basal _____ emerge from a stout taproot. These elongated leaves have wavy margins, thus the name "curly" dock. In summer, the plant has reddish, rigid stems, 2-4 feet tall. Flower stems have greenish flowers.
A. Rosettes C. Leaves
B. Flowers D. None of the above

10. Milkweed plants, members of the Asclepias family, are the only host plant for the monarch and queen butterflies. The adult females seek out these plants on which they lay their eggs. The caterpillars that hatch will remain on the plants and eat the leaves until they enter the pupal stage, then emerge as adult butterflies. It is a _____ herb with long-spreading rhizomes.
A. Perennial C. Summer and winter annual(s)
B. Annual(s) D. None of the above

Invasive Plant Species Introduction Topic 2

Federally Listed Invasive Plant Species

1. _____ has elliptic to lanceolate leaves, its branches are usually thorny, and its fruit is yellow, dry and mealy.
A. Russian olive C. Autumn olive
B. Russian Knotflax D. None of the above

2. Combining control methods is the best form of _____management. Persistence is imperative so the weed is continually stressed, forcing it to exhaust root nutrient stores and eventually die.
A. Canada thistle C. Toadflax
B. Russian thistle D. None of the above

3. _____was easy to establish and homesteaders liberally landscaped their properties with this drought resistant plant, continually spreading it in their migration to the Western frontier.
A. Snapdragon C. Toadflax
B. Spurge laurel D. None of the above

4. The broad and pointed _____ leaves can be mistaken for Broadleaf dock (Rumex obtusifolia), but docks lack rhizomes and the tall, spreading habit of Japanese knotweed. Other less invasive relatives (such as P. virginianum) grow from similar rhizomes and are difficult to eradicate.
A. Japanese knotweed C. Autumn olive
B. Russian thistle D. None of the above

5. _____ is difficult to control. Its extensive root system has vast nutrient stores that let it recover from control attempts. Combine control methods into a system to achieve best results.
A. Leafy spurge C. Toadflax
B. Scotch thistle D. None of the above

6. As an annual, _____ reproduces solely by seed. Seeds generally do not remain viable past one year. Repeated hoeing, tilling, or mowing of young plants will prevent seed production. Hand-pulling (with gloves) can also be effective for small infestations.
A. Snapdragon C. Autumn olive
B. Russian thistle D. None of the above

7. _____ is a branched, robust biennial (or sometimes annual) that often grows 8 feet or more in height and 6 feet in width. Main stems may be up to 4 inches wide at the base. Stems have vertical rows of prominent, spiny, ribbon-like leaf material or "wings" that extend to the base of the flower heads.
A. Spurge laurel C. Scotch thistle
B. Russian thistle D. None of the above

8. _____ is an attractive ornamental plant known for its spiraling evergreen leaves and greenish-yellow, bitter-fragrant flowers. Larger patches of this species emit a strong unpleasant odor. Flowering occurs in late winter-early spring, producing clusters of blue berries during the spring.
A. Snapdragon C. Toadflax
B. Spurge laurel D. None of the above

9. _____ is a perennial with erect, smooth, herbaceous stems that are less than 2 feet tall and emerge in clumps from a spreading root system. Soft, gray-green leaves, which are 1 to 1 1/2 inches long and narrow, are crowded onto each stem.
A. Leafy spurge C. Toadflax
B. Scotch thistle D. None of the above

10. This plant has stems that terminate with clusters of 15 to 20 snapdragon-like flowers that are about 1 inch long and yellow. Gently pinching the sides of a flower opens its 2 lips revealing an orange throat that acts as a guide for insects to nectar produced in the spur. The plant reproduces by seeds and creeping roots.
A. Snapdragon C. Toadflax
B. Autumn olive D. None of the above

Commonly Found Invasive and/or Noxious Weeds - Topic 3

1. Musk thistle rosettes are usually large and compact with a large, corky taproot that is hollow near the_____.
A. Rosettes C. Crown
B. Mid-rib D. None of the above

2. Musk thistle has very large bracts beneath flowers that are armed with sharp spines and shoots beneath flowers are almost devoid of _____.
A. Mid-ribs C. Leaves
B. Flowers D. None of the above

3. _____ will not tolerate tillage and can be removed easily by severing its root below ground with a shovel or hoe.
A. Fountain grass C. Canada thistle
B. Musk thistle D. None of the above

4. In natural areas where Canada thistle is interspersed with desirable native plants, targeted application of a systemic herbicide such as_____, which carries plant toxins to the roots, may be effective.
A. Triclopyr (e.g., Garlon) C. Glyphosate (e.g., Roundup or Rodeo)
B. Chlorpyralid (e.g. Transline) D. None of the above

5. Multiple treatments are necessary every year for several years, making Leafy spurge control an extremely expensive undertaking. If left uncontrolled for a single year, it can re-infest rapidly. Prescribed burning, in conjunction with herbicides, may also be effective.
A. True B. False

6. The addition of a non-ionic surfactant at a concentration of 0.5% improves the effectiveness of foliar treatments.
A. True B. False

7. _____have been shown to be effective in controlling Chinese lespedeza.
A. Triclopyr and clopyralid C. Systemic herbicide(s)
B. Chlorpyralid (e.g. Transline) D. None of the above

8. _____ raises fuel loads, which increases the intensity and spread of a fire, and results in severe damage to native, dry forest species adapted to less extreme fire regimes.
A. Mullein C. Fountain grass
B. Loosestrife D. None of the above

9. First year _____ plants are low-growing rosettes of bluish gray-green, felt-like leaves that range from 4-12 inches in length and 1-5 inches in width.
A. Mullein C. Chinese lespedeza
B. Loosestrife D. None of the above

Introduction to Grasses
Exotic Grass Control
10. Exotic grasses have become one of the most insidious problems in the field of wildlife management, because they can totally dominate pasture and prairie lands once established, having little wildlife value and leaving no room for native plants.
A. True B. False

Herbs and Related Invasive Species Topic 4
1. There is little or no crop injury associated with _____ application and Roundup Ready alfalfa.
A. EPSP synthase C. Glyphosate
B. Dithiopyr D. None of the above

2. If the glyphosate application is made after the _____, some yield loss may occur due to the competitive effects of the weed on the crop; in other words, the damage has already been done.
A. 1 to 3 trifoliate stage C. 3 to 5 trifoliate stage
B. 5 to 8 trifoliate stage D. None of the above

Glyphosate Stewardship
3. Rotation to non-Roundup Ready crops using _____ after Roundup Ready crops is also effective in reducing the potential for glyphosate-resistant weeds.
A. EPSP synthase C. Glyphosate
B. Nonglyphosate herbicides D. None of the above

4. _____is most commonly used. However, herb Robert often occurs initially as part of a mosaic alongside desirable native species. In these situations, alternative control methods that have the ability to target individual plants can more successfully meet all goals of a project.
A. EPSP synthase C. Glyphosate (Roundup™)
B. Dithiopyr D. None of the above

5. Grass Family (Poaceae). Toothache grass is a_____.
A. Winter annual C. Warm-season, perennial bunch grass
B. Biennial grass D. None of the above

6. _____ is a postemergence herbicide that is slowly translocated within the plant. It can effectively control tillered crabgrass with a single application.
A. Quinclorac C. Pendimethalin and phenoxy herbicides
B. Fenoxaprop-p-ethyl D. None of the above

7. _____ acts as a preemergence and postemergence herbicide. It provides postemergence control of crabgrass only up to the one-tiller stage of development, but it can be combined with fenoxaprop-p-ethyl when two or more tillers are present.
A. Quinclorac C. Dithiopyr
B. Fenoxaprop-p-ethyl D. None of the above

8. _____ is a postemergence herbicide effective in controlling crabgrass and some broadleaf weeds.
A. Quinclorac C. Pendimethalin and phenoxy herbicides
B. Dithiopyr D. None of the above

9. Quinclorac can be mixed with other herbicides, including_____, to improve weed control. For best results, apply quinclorac in combination with a methylated seed oil according to directions on the label.
A. Quinclorac C. Pendimethalin and phenoxy herbicides
B. Fenoxaprop-p-ethyl D. None of the above

10. _____leaves, in comparison, are smooth or only sparsely hairy; and the leaf segment is longer, more rounded, and lance-shaped. The somewhat rounded terminal clusters of flower heads of western yarrow are normally white to cream-colored and have an extended bloom period from May to September.
A. Autumn olive C. Common yarrow
B. Dalmatian toadflax D. None of the above

Vine Section Alien Plant Invaders Topic 5

1. Akebia vines may also be dug up, removing as much of the roots as possible. To ensure its complete removal, regular monitoring and repeated cutting, digging or pulling is necessary. For large infestations, use of a labeled systemic herbicide, such as glyphosate (e.g., Roundup) or triclopyr (e.g., Garlon), is probably the most effective method to control akebia. An herbicidal soap, such as_____, which provides a burndown of plant tissues, may also provide some control.
A. Dithiopyr C. Pelargonic acid (e.g., Scythe)
B. Chlorpyralid (e.g. Transline) D. None of the above

2. Once established, the vine quickly overwhelms and destroys native vegetation by shading out smaller plants and outcompeting native vegetation for water and nutrients. Urban parks, with extensive wooded borders neighboring landscaped residential and private property, are especially vulnerable to invasion by _____.
A. Mile-a-minute weed C. Climbing bittersweet vine (Celastrus scandens)
B. Porcelainberry D. None of the above

3. Clusters of small greenish flowers emerge from leaf axils, allowing each plant to produce large numbers of seeds. At maturity, globular, green to yellow fruits split open to reveal three red-orange, fleshy arils that contain the seeds. These showy fruits have made _____ very popular for use in floral arrangements.
A. Mile-a-minute weed C. Climbing bittersweet
B. Fountain grass D. None of the above

4. A variety of _____are available for management of climbing euonymus. Grubbing, a rather labor intensive method, is effective for small populations or environmentally sensitive areas where herbicides cannot be used.
A. Dithiopyr C. Mechanical and chemical methods
B. Herbicide applications D. None of the above

5. Because English ivy is an evergreen vine, and remains active during the winter, _____ can be made to it any time of year as long as temperatures are above 55 or 60°Fahrenheit for a few days.
A. Dithiopyr C. Mechanical and chemical methods
B. Herbicide applications D. None of the above

6. Fall and winter applications will avoid or minimize impacts to many native plant species. Repeat _____ are likely to be needed and follow-up monitoring should be conducted to evaluate the success of treatments.
A. Dithiopyr C. Mechanical and chemical methods
B. Herbicide applications D. None of the above

7. Several _____ (e.g., glyphosate and triclopyr) move through the plant to the roots when applied to the leaves or stems and have been used effectively on Japanese honeysuckle.
A. Systemic herbicide(s) C. Mechanical and chemical methods
B. Herbicide applications D. None of the above

8. Local bird populations are important for dispersal under utility lines, bird feeders, fence lines and other perching locations. Other animals observed eating _____ fruits are chipmunks, squirrel and deer.
A. Mile-a-minute weed C. Climbing bittersweet vine (Celastrus scandens)
B. Porcelainberry D. None of the above

9. Cut _____ can be fed to livestock, burned or enclosed in plastic bags and sent to a landfill. If conducted in the spring, cutting must be repeated as regrowth appears to exhaust the plant's stored carbohydrate reserves.
A. Kudzu C. Fountain grass
B. Porcelainberry D. None of the above

10. _____ is effective at a concentration of 0.5% and is selective to plants in the aster, buckwheat, and pea families.
A. Triclopyr (e.g., Garlon) C. Dithiopyr
B. Chlorpyralid (e.g. Transline) D. None of the above

Trees- Alien Plant Invaders Topic 6

1. Princess tree(s) can be controlled using a variety of mechanical and chemical controls. Hand pulling may be effective for young seedlings. Plants should be pulled as soon as they are large enough to grasp.
A. True B. False

2. Princess tree seedlings and small trees can be controlled by applying a 2% solution of _____ or triclopyr (e.g., Garlon) and water plus a 0.5% non-ionic surfactant to thoroughly wet all leaves.
A. EPSP synthase C. Glyphosate (Roundup™)
B. Dithiopyr D. None of the above

3. Targeting large female trees for control will help reduce spread of _____ by seed.
A. Silk tree(s) C. Princess tree(s)
B. Ailanthus D. None of the above

4. Because Mimosa spreads by suckering, resprouts are common after treatment. Cutting is an initial control measure and will require either an herbicidal control or repeated cutting for resprouts.
A. True B. False

5. Whenever possible, efforts should be taken to prevent the introduction or encroachment of _____. For example, recently disturbed beach habitat may be planted with native vegetation to prevent this species from invading.
A. Silk tree(s) C. Australian pine
B. Carrotwood D. None of the above

6. Clumps of seedlings suggest dispersal by small mammals. In its native range, _____is pollinated by bees, which are the likely pollinators in Florida.
A. Ailanthus C. Australian pine
B. Carrotwood D. None of the above

7. _____kills broadleaf (dicotyledonous) plants but causes little or no damage to grasses and is useful for areas where desirable grasses are to be maintained.
A. Triclopyr C. Glyphosate (Roundup™)
B. Dithiopyr D. None of the above

8. Unfortunately, _____ seedlings often grow in low litter areas, unsuitable for frequent prescribed fire. In dense stands, seedlings and saplings may be cut and dropped on site, creating fuel for future fires.
A. Buckthorn C. Princess tree(s)
B. Ailanthus D. None of the above

9. _____ seedlings appear vulnerable to fire, perhaps due to their poorly established root structure. Fire will top kill a mature plant, but resprouting does occur.
A. Buckthorn C. Princess tree(s)
B. Ailanthus D. None of the above

10. Uprooting of 1/2 inch diameter seedlings by hand or up to 1 1/2 inch diameter using a weed wrench is effective, but care should be taken to avoid excessive disturbance to the soil, which can release _____ seeds stored in the soil.
A. Buckthorn C. Princess tree(s)
B. Ailanthus D. None of the above

Weed Management and Control Section Topic 7

1. _____ is necessary following mechanical or chemical control. Digging and chopping cause soil disturbance and desired plants need to be reestablished before the invader can get a foothold. The same is true of chemical control, the desired vegetation must be reestablished. Moreover, you must remember that the invader was able to gain a toehold under the management regime that had been in place on that land.
A. Chemical control C. Cultural Control
B. Environmental and economic problem D. None of the above

Cultural Control

2. Controlling weeds on such sites can be futile without_____, as weeds will readily re-invade the disturbed area.
A. Chemical control C. Persistent (long-lasting) pesticides
B. Vegetative restoration D. None of the above

3. _____kill all plants, both desirable and undesirable. These herbicides can be used to spot treat perennial grassy weeds that are not affected by selective herbicides. To spot treat an area, thoroughly wet the weed foliage with herbicide solution.

A. Broad spectrum, non-selective herbicide
B. Systemic herbicides
C. Nonselective postemergence herbicides
D. None of the above

4. _____are available as concentrated liquids, (2 to 8 lb/gal) which need to be mixed with water before applying; as wettable powders which are from 50 to 100% active ingredient and need to be dispersed in water for uniform application, or as granules which are from 1 to 10% active ingredient and which are applied dry with granular applicators. See the label for all instructions on labeled crops and timings.

A. Weed control chemicals
B. Non-glyphosate herbicides
C. Non-systemic herbicides
D. None of the above

5. Most effective control of _____ broadleaf weeds is obtained when applied in early fall (August 15–October 15) or in spring (May 1–June 1). For some weeds, repeated application at 20–30 day intervals may be required for control.

A. Perennial
B. Biennial(s)
C. Summer and winter annual(s)
D. None of the above

6. _____is referred to as a desiccant because it causes a leaf or an entire plant to dry out quickly. It is used to desiccate potato vines and seed crops, to control flowering of sugarcane, and for industrial and aquatic weed control. It is not residual; that is, it does not leave any trace of herbicide on or in plants, soil, or water.

A. Triclopyr
B. Glyphosate (Roundup™)
C. Diquat dibromide
D. None of the above

7. The product Agent Orange, used extensively throughout Vietnam, was about 50% 2,4-D. However, the controversies associated with the use of Agent Orange were associated with a contaminant (_____) in the 2,4,5-T component of the defoliant.

A. Dithiopyr
B. Nonglyphosate herbicides
C. Dioxin
D. None of the above

Imazapyr (Trade name Habitat®).

8. Although imazapyr is a_____, a good applicator can somewhat selectively remove targeted plants by focusing the spray only on the plants to be removed.

A. Broad spectrum, non-selective herbicide
B. Systemic herbicides
C. Nonselective postemergence herbicides
D. None of the above

Persistence of Pesticides

9. Persistence refers to the length of time a pesticide remains in the environment.

A. True
B. False

10. Pesticides can be degraded by sunlight (photodecomposition), high air or water temperatures (thermal degradation), moisture conditions, biological action (microbial decay), and soil conditions (pH). _____break down slowly and may be more available to aquatic animals.

A. Persistent (long-lasting) pesticides
B. Persistence
C. Persistent (short-lasting) pesticides
D. None of the above

Introduction to Wetlands Section Topic 8

Filamentous Algae

1. Unlike microscopic algae, _____are frequently a problem in pond management and are usually visible to the naked eye as a floating mat of thread-like filaments often called "pond moss".

A. Filamentous algae C. Parrotfeather
B. Hydrilla D. None of the above

Biological Control

2. Grass carp control planktonic algae.

A. True B. False

Economic Importance

3. _____ are a severe environmental and economic problem in all of the gulf coast states and in many other areas of the world with a sub-tropical or tropical climate. This species has rapidly spread throughout inland and coastal freshwater bays, lakes, and marshes in the United States and in other countries.

A. Big floating bladderwort C. Eurasian watermilfoil
B. Water hyacinths D. None of the above

4. When big floating bladderwort is flowering it is easily distinguished from its native cousins by large spoke-like floats that radiate out from the base of the flower stalk. During the rest of the year, however, it can be confused with_____, both of which are rather robust and can appear almost bushy underwater.

A. Water lettuce C. Common bladderwort
B. Water hyacinths D. None of the above

Control

5. Years of research to find insect biocontrols has resulted in the successful introduction of two insects which are believed to be helpful in keeping water lettuce under maintenance control in many places; however, biocontrol fish which are able to control submersed plants are ineffective against the_____.

A. Floating water lettuce C. Algae
B. Water hyacinths D. None of the above

6. _____ are absorbed and move within the plant to the site of action.

A. Glyphosate herbicides C. Broad spectrum, non-selective herbicides
B. Systemic herbicides D. None of the above

7. Systemic herbicides are absorbed and move within the plant to the site of action.

A. True B. False

8. An aquatically registered surfactant (see the label) will improve the effectiveness of_____.

A. Dithiopyr C. Glyphosate herbicides
B. Triclopyr D. None of the above

9. _____ benefit other plants growing near them by taking nitrogen out of the air and depositing it in the soil in usable form; fallen alder leaves make very rich compost.

A. Water lettuce C. Alders
B. Water hyacinths D. None of the above

10. One danger with any chemical control method is the chance of oxygen depletion after the treatment caused by the decomposition of the dead plant material.

A. True B. False

Submersed (underwater) Aquatic Weed Section Topic 9

1. Renovate is a liquid triclopyr formulation that is effective on _____. It is a selective broadleaf, systemic herbicide.
A. Water lettuce C. Parrotfeather
B. Eurasian watermilfoil D. None of the above

2. A variety of physical, chemical, and biological control methods have been used in attempts to manage infestations of Eurasian watermilfoil. Unfortunately, complete eradication is rare.
A. True B. False

3. Navigate and Aqua-Kleen is a granular butoxyethyl ester of 2,4-D and has been effective on Eurasian watermilfoil. _____are systemic herbicides. Systemic herbicides are absorbed and move within the plant to the site of action.
A. Liquid triclopyr formulations C. 2,4-D compounds
B. Liquid formulations D. None of the above

4. Reward is a liquid diquat formulation that has been effective on Eurasian watermilfoil and is very effective if mixed with a copper compound.
A. True B. False

5. Renovate is a _____ that is effective on Eurasian watermilfoil. It is a selective broadleaf, systemic herbicide.
A. Systemic herbicide(s) C. Granular butoxyethyl ester of 2,4-D
B. Liquid triclopyr formulation D. None of the above

6. Aquathol, Aquathol K, and Aquathol Super K are _____and comes in both liquid and granular formulations. These endothall products have been effective on Eurasian watermilfoil and can be mixed with copper compounds for additional effectiveness. Contact herbicides act quickly and kill all plant cells that they contact.
A. Liquid triclopyr formulation C. Dipotassium salts of endothall
B. Liquid diquat formulation D. None of the above

7. Sonar and Avast are fluridone compounds, come in both liquid and granular formulations, and have been effective on Eurasian watermilfoil.
A. True B. False

8. Any aquatic plant identified as _____should be sent to a specialist for positive identification since hydrilla is such a serious threat to fresh water habitats. It is only through early identification and concentrated control methods that there is any hope of eliminating hydrilla.
A. Water lettuce C. Parrotfeather
B. Egeria, elodea, or hydrilla D. None of the above

Pond Water Chemistry

9. In soft waters (below 50 parts per million hardness) some herbicides are more toxic to fish and plants.
A. True B. False

10. Copper--In soft water some heavy metals, can be toxic to fish.
A. True B. False

Aquatic Herbicides and Controls Section Topic 10

1. _____is used as a defoliant for a wide range of crops and as an herbicide for both terrestrial and aquatic weeds.
A. Glyphosate herbicide C. Endothall
B. Dithiopyr D. None of the above

2. Field and laboratory tests show that _____ usually remains in the top inch of soil for long periods of time after it is applied.
A. Fluridone C. Diquat
B. 2,4-D D. None of the above

3. Fluridone itself is an acid, but it is commonly used in salt form, most commonly the isopropylamine salt.
A. True B. False

4. Some formulations of _____ are highly toxic to fish while others are less so. For example, the LC50 ranges between 1.0 and 100 mg/L in cutthroat trout, depending on the formulation used. Channel catfish had less than 10% mortality when exposed to 10 mg/L for 48 hours.
A. Fluridone C. Diquat
B. 2,4-D D. None of the above

5. _____can be effective for spot treatment of Eurasian watermilfoil and is relatively selective to Eurasian watermilfoil when used at the labeled rate.
A. Glyphosate herbicide C. Triclopyr
B. Diquat D. None of the above

6. _____ can show good control of submersed plants where there is little water movement and an extended time for the treatment. Its use is most applicable to whole-lake or isolated bay treatments where dilution can be minimized. It is not effective for spot treatments of areas less than five acres.
A. Fluridone C. Diquat
B. 2,4-D D. None of the above

7. Most species of algae can be controlled with very low concentrations of_____. It is available in crystalline nuggets the size of rock salt or as a finely ground "snow" grade.
A. Glyphosate herbicide C. Copper sulfate
B. Cutrine Plus D. None of the above

8. _____, under field conditions, is effective in controlling a broad range of algae including Chara, Spirogyra, Cladophora, Vaucheria, Ulothrix, Microcystis, and Oscillatoria. Effective in hard water.
A. Glyphosate herbicide C. Cutrine Plus
B. Dithiopyr D. None of the above

9. _____ is a concentrated liquid aquatic herbicide effective against a wide variety of submersed, emergent, and floating aquatic plants including duckweed, naiads, and cattails.
A. Reward C. Diquat
B. 2,4-D D. None of the above

10. _____poses virtually no environmental risk in aquatic applications because the herbicide concentration rapidly decreases as it is absorbed onto soil, vegetation, and organic matter.
A. Reward C. Diquat
B. 2,4-D D. None of the above

Invasive Plant Rule Section Topic 11

1. _____ in general are formulated in two ways, as esters or amines.
A. Triclopyr C. Phenoxy herbicides
B. Dithiopyr D. None of the above

2. There are two categories of amines: the regular form and the low-volatile form. The latter form is less likely to cause problems.
A. True B. False

3. The _____ formulations are safer to use than are the esters, but they are less effective in their performance.
A. Ester(s) C. 2,4-D, 2,4,5-T, 2,4-DB, 2,4,5-TP (Silvex) and MCPA
B. Amine D. None of the above

Symptoms of Injury
4. Mere traces of a _____ may cause sensitive plants to produce abnormally large leaves, exaggerated distances between leaves and multiplied or enlarged flowering or fruiting parts.
A. Phenoxy herbicide C. Registration and labeling of a particular pesticide
B. Non-selective herbicides D. None of the above

5. Greater concentrations of the _____can cause stunting and cupping of leaves, spiraling growth of soft shoots, clearing and enlargement of major leaf veins and severe distortion of flowering or fruiting parts.
A. Product C. Insecticide(s)
B. Herbicide(s) D. None of the above

Long-term Effects
6. Severe cases of _____ injury may result in stunted growth and poor ripening for two to four years after exposure. Growers seeking monetary compensation should be aware of these long-term effects and not be too quick to settle damage claims.
A. Phenoxy herbicide C. Hazardous pesticides
B. Non-selective herbicides D. None of the above

Resolving Problems
7. User responsibility. Registration and labeling of a _____ clearly give individuals the right to apply the pesticide as long as they follow the directions for use and the precautions stated on the label.
A. Herbicide use(s) C. Herbicide volatility
B. Particular pesticide(s) D. None of the above

8. The use of a pesticide in any way contrary to the label is a violation of federal law. Misuse of a _____ may make the user liable to either criminal prosecution or to civil proceedings or both.
A. Pesticide C. Non-selective herbicide
B. Greater concentrations of the herbicide D. None of the above

9. Although there is no legal obligation for herbicide applicators to take stock of sensitive crops in the area of application and to consult and cooperate with neighbors in matters of _____, it is advisable to do so.
A. Herbicide use(s) C. Herbicide volatility
B. Particular pesticide(s) D. None of the above

10. Growers of sensitive crops are not obligated to inform operators of surrounding farms and local industries of the presence and sensitivity of their crops, but it is advisable to seek the cooperation of neighbors in the use of _____.
A. Hazardous pesticides C. Registration and labeling of a particular pesticide(s)
B. Non-selective herbicides D. None of the above

Invasive Plant Identification CEU Conventional Assignment #3

You will have 90 days from the start of this course to have successfully completed this CEU assignment with a score of 70%. You may e-mail the answers to TLC, info@tlch2o.com, you can also find a copy of this assignment in Word on the Assignment Page on TLC's website or fax the answers to TLC (928) 468-0675. Course assistance is available on the Assignment Page under Course Assistance at www.abctlc.com. Write your answers on the Answer Key found in the front of first assignment.

Write your answers on the Answer Key found in the front section of this assignment.

Weed Identification Section Topic 1

(s) Means the answer can be plural or singular.

Understanding Weed Terms

1. It is important to understand the life cycle of a pest so that the pesticide can be applied when the pest is_____– the aim is to achieve maximum effect at minimum levels of pesticide.
A. At its most vulnerable C. Direct habitat destruction
B. Minimum levels of pesticide D. None of the above

2. The key is to use pesticides in a way that complements rather than hinders _____in the strategy and which also limits negative environmental effects.
A. Other elements C. Direct habitat destruction
B. Ecovar development process D. None of the above

3. _____ are maintained via controlled pollination or vegetative means, so that cultivar characteristics are passed to ensuing generations.
A. Cultivars C. Direct habitat destruction
B. Negative environmental effect(s) D. None of the above

4. To maintain _____in ensuing generations, little to no selection is done during the ecovar development process.
A. Genetic diversity C. Direct habitat destruction
B. Minimum levels of pesticide D. None of the above

5. An ecovar is an intermediate step between a wild-growing plant and a _____.
A. Cultivar C. Direct habitat destruction
B. Ecovar development process D. None of the above

6. _____may include using row covers or trenches to prevent insects from reaching the crop, baited or pheromone traps to capture insects, or cultivation or mowing for weed control.
A. Tactics C. Direct habitat destruction
B. Ecovar development process(s) D. None of the above

Importance of Native Plants

7. Invasions of non-native plants are the second greatest threat to native species after direct habitat destruction.
A. True B. False

Broadleaves (dicots), Grasses (monocots), and Sedges

8. Leaf shape can vary dramatically and is a consistent key to plant identification. The leaves may be alternately or oppositely arranged along the _____.
A. Rosettes C. Spikes
B. Stem D. None of the above

9. Puncture vine is a prostrate, mat-forming _____. It has small leaflets and small yellow flowers with 5 petals. Fruits containing seeds are a sharp, spiny burr that can easily puncture a bicycle inner tube (or gardener's skin!). This weed is found only in thin, less vigorous turf given insufficient water. It will pull easily out of moist soils. Be sure to wear gloves to protect your hands from the burrs. You can discourage the growth of puncture vine by increasing the turf density.

A. Perennial C. Summer and winter annual(s)
B. Summer annual(s) D. None of the above

10. Milkweed plants, members of the Asclepias family, are the only host plant for the monarch and queen butterflies. The adult females seek out these plants on which they lay their eggs. The caterpillars that hatch will remain on the plants and eat the leaves until they enter the pupal stage, then emerge as adult butterflies. It is a _____ herb with long-spreading rhizomes.

A. Perennial C. Summer and winter annual(s)
B. Biennial(s) D. None of the above

Invasive Plant Species Introduction Topic 2

Federally Listed Invasive Plant Species

1. _____ has elliptic to lanceolate leaves, its branches are usually thorny, and its fruit is yellow, dry and mealy.

A. Russian olive C. Autumn olive
B. Russian Knotflax D. None of the above

2. Combining control methods is the best form of _____management. Persistence is imperative so the weed is continually stressed, forcing it to exhaust root nutrient stores and eventually die.

A. Canada thistle C. Toadflax
B. Japanese knotweed D. None of the above

3. _____was easy to establish and homesteaders liberally landscaped their properties with this drought resistant plant, continually spreading it in their migration to the Western frontier. Also, burial sites were often adorned with toadflax to give everlasting beauty and tranquility. Their legacy has prevailed, proving to be notorious in nature.

A. Snapdragon C. Toadflax
B. Spurge laurel D. None of the above

4. The broad and pointed _____ leaves can be mistaken for Broadleaf dock (Rumex obtusifolia), but docks lack rhizomes and the tall, spreading habit of Japanese knotweed. Other less invasive relatives (such as P. virginianum) grow from similar rhizomes and are difficult to eradicate.

A. Japanese knotweed C. Autumn olive
B. Russian thistle D. None of the above

5. _____ is difficult to control. Its extensive root system has vast nutrient stores that let it recover from control attempts. Combine control methods into a system to achieve best results.

A. Leafy spurge C. Toadflax
B. Scotch thistle D. None of the above

6. As an annual, _____ reproduces solely by seed. Seeds generally do not remain viable past one year. Repeated hoeing, tilling, or mowing of young plants will prevent seed production. Hand-pulling (with gloves) can also be effective for small infestations.

A. Snapdragon C. Toadflax
B. Russian thistle D. None of the above

7. _____ is a branched, robust biennial (or sometimes annual) that often grows 8 feet or more in height and 6 feet in width. Main stems may be up to 4 inches wide at the base. Stems have vertical rows of prominent, spiny, ribbon-like leaf material or "wings" that extend to the base of the flower heads.
A. Spurge laurel C. Scotch thistle
B. Russian thistle D. None of the above

8. _____ is an attractive ornamental plant known for its spiraling evergreen leaves and greenish-yellow, bitter-fragrant flowers. Larger patches of this species emit a strong unpleasant odor. Flowering occurs in late winter-early spring, producing clusters of blue berries during the spring.
A. Snapdragon C. Toadflax
B. Spurge laurel D. None of the above

9. _____ is a perennial with erect, smooth, herbaceous stems that are less than 2 feet tall and emerge in clumps from a spreading root system. Soft, gray-green leaves, which are 1 to 1 1/2 inches long and narrow, are crowded onto each stem.
A. Leafy spurge C. Toadflax
B. Scotch thistle D. None of the above

10. This plant has stems that terminate with clusters of 15 to 20 snapdragon-like flowers that are about 1 inch long and yellow. Gently pinching the sides of a flower opens its 2 lips revealing an orange throat that acts as a guide for insects to nectar produced in the spur. The plant reproduces by seeds and creeping roots.
A. Snapdragon C. Toadflax
B. Spurge laurel D. None of the above

Commonly Found Invasive and/or Noxious Weeds - Topic 3

1. Musk thistle rosettes are usually large and compact with a large, corky taproot that is hollow near the_____. Leaves have consistent shape, sometimes expressing a frosted appearance around the leaf margins, and often have a cream-colored midrib.
A. Rosettes C. Crown
B. Leaves D. None of the above

2. Musk thistle flowers and starts to produce seed 45 to 55 days after it bolts. Musk thistle has very large bracts beneath flowers that are armed with sharp spines and shoots beneath flowers are almost devoid of _____.
A. Mid-ribs C. Leaves
B. Flowers D. None of the above

3. _____ will not tolerate tillage and can be removed easily by severing its root below ground with a shovel or hoe. Mowing can effectively reduce seed output if plants are cut when the terminal head is in the late-flowering stage. Gather and burn mowed debris to destroy any seed that has developed.
A. Fountain grass C. Canada thistle
B. Musk thistle D. None of the above

4. In natural areas where Canada thistle is interspersed with desirable native plants, targeted application of a systemic herbicide such as_____, which carries plant toxins to the roots, may be effective.
A. Triclopyr (e.g., Garlon) C. Glyphosate (e.g., Roundup or Rodeo)
B. Chlorpyralid (e.g. Transline) D. None of the above

5. Multiple treatments are necessary every year for several years, making leafy spurge control an extremely expensive undertaking. If left uncontrolled for a single year, _____ can re-infest rapidly. Prescribed burning, in conjunction with herbicides, may also be effective.
A. Mullein C. Leafy spurge
B. Fountain grass D. None of the above

6. The addition of a non-ionic surfactant at a concentration of 0.5% improves the effectiveness of foliar treatments. _____have been shown to be effective in controlling Chinese lespedeza.
A. Triclopyr (e.g., Garlon) C. Herbicide applications
B. Triclopyr and clopyralid D. None of the above

7. _____ plants grow from four to ten feet high, depending upon conditions, and produce a showy display of magenta-colored flower spikes throughout much of the summer. Flowers have five to seven petals. Mature plants can have from 30 to 50 stems arising from a single rootstock.
A. Mullein C. Chinese lespedeza
B. Loosestrife D. None of the above

8. _____ raises fuel loads, which increases the intensity and spread of a fire, and results in severe damage to native, dry forest species adapted to less extreme fire regimes.
A. Mullein C. Chinese lespedeza
B. Fountain grass D. None of the above

9. First year _____ plants are low-growing rosettes of bluish gray-green, felt-like leaves that range from 4-12 inches in length and 1-5 inches in width.
A. Mullein C. Chinese lespedeza
B. Canada thistle D. None of the above

Introduction to Grasses
Exotic Grass Control
10. Native plants have become one of the most insidious problems in the field of wildlife management, because they can totally dominate pasture and prairie lands once established, having little wildlife value and leaving no room for exotic grass.
A. True B. False

Herbs and Related Invasive Species Topic 4
1. When glyphosate is applied to susceptible plants, glyphosate blocks EPSP synthase preventing the production of essential amino acids and the plant dies. However, in plants that are Roundup Ready, a modified EPSP synthase is unaffected by glyphosate and allows the plant to continue growing. There is little or no crop injury associated with _____ application and Roundup Ready alfalfa.
A. EPSP synthase C. Glyphosate
B. Dithiopyr D. None of the above

2. If the glyphosate application is made after the _____, some yield loss may occur due to the competitive effects of the weed on the crop; in other words, the damage has already been done.
A. 1 to 3 trifoliate stage C. 3 to 5 trifoliate stage
B. 5 to 8 trifoliate stage D. None of the above

Glyphosate Stewardship
3. Rotation to non-Roundup Ready crops using _____ after Roundup Ready crops is also effective in reducing the potential for glyphosate-resistant weeds.
A. EPSP synthase C. Glyphosate
B. Nonglyphosate herbicides D. None of the above

4. _____is most commonly used. However, herb Robert often occurs initially as part of a mosaic alongside desirable native species. In these situations, alternative control methods that have the ability to target individual plants can more successfully meet all goals of a project.
A. EPSP synthase C. Glyphosate (Roundup™)
B. Dithiopyr D. None of the above

5. Grass Family (Poaceae). Toothache grass is a_____.
A. Winter annual C. Warm-season, perennial bunch grass
B. Biennial grass D. None of the above

6. _____ is a postemergence herbicide that is slowly translocated within the plant. It can effectively control tillered crabgrass with a single application.
A. Quinclorac C. Dithiopyr
B. Fenoxaprop-p-ethyl D. None of the above

7. _____ acts as a preemergence and postemergence herbicide. It provides postemergence control of crabgrass only up to the one-tiller stage of development, but it can be combined with fenoxaprop-p-ethyl when two or more tillers are present.
A. Quinclorac C. Dithiopyr
B. Fenoxaprop-p-ethyl D. None of the above

8. _____ is a postemergence herbicide effective in controlling crabgrass and some broadleaf weeds.
A. Quinclorac C. Dithiopyr
B. Fenoxaprop-p-ethyl D. None of the above

9. Quinclorac can be mixed with other herbicides, including_____, to improve weed control. For best results, apply quinclorac in combination with a methylated seed oil according to directions on the label.
A. Pendimethalin and phenoxy herbicides C. Dithiopyr
B. Fenoxaprop-p-ethyl D. None of the above

10. _____leaves, in comparison, are smooth or only sparsely hairy; and the leaf segment is longer, more rounded, and lance-shaped. The somewhat rounded terminal clusters of flower heads of western yarrow are normally white to cream-colored and have an extended bloom period from May to September.
A. Canada thistle C. Common yarrow
B. Dalmatian toadflax D. None of the above

Vine Section Alien Plant Invaders Topic 5

1. Akebia vines may also be dug up, removing as much of the roots as possible. To ensure its complete removal, regular monitoring and repeated cutting, digging or pulling is necessary. For large infestations, use of a labeled systemic herbicide, such as glyphosate (e.g., Roundup) or triclopyr (e.g., Garlon), is probably the most effective method to control akebia. An herbicidal soap, such as_____, which provides a burndown of plant tissues, may also provide some control.
A. Dithiopyr C. Pelargonic acid (e.g., Scythe)
B. Chlorpyralid (e.g. Transline) D. None of the above

2. Once established, the vine quickly overwhelms and destroys native vegetation by shading out smaller plants and outcompeting native vegetation for water and nutrients. Urban parks, with extensive wooded borders neighboring landscaped residential and private property, are especially vulnerable to invasion by _____.

A. Mile-a-minute weed
B. Porcelainberry
C. Climbing bittersweet vine (Celastrus scandens)
D. None of the above

3. Clusters of small greenish flowers emerge from leaf axils, allowing each plant to produce large numbers of seeds. At maturity, globular, green to yellow fruits split open to reveal three red-orange, fleshy arils that contain the seeds. These showy fruits have made _____ very popular for use in floral arrangements.

A. Climbing bittersweet
B. Porcelainberry
C. Kudzu
D. None of the above

4. A variety of _____are available for management of climbing euonymus. Grubbing, a rather labor intensive method, is effective for small populations or environmentally sensitive areas where herbicides cannot be used.

A. Herbicide applications
B. Systemic herbicide(s)
C. Mechanical and chemical methods
D. None of the above

5. Because English ivy is an evergreen vine, and remains active during the winter, _____ can be made to it any time of year as long as temperatures are above 55 or 60°Fahrenheit for a few days.

A. Herbicide applications
B. Systemic herbicide(s)
C. Mechanical and chemical methods
D. None of the above

6. Fall and winter applications will avoid or minimize impacts to many native plant species. Repeat _____ are likely to be needed and follow-up monitoring should be conducted to evaluate the success of treatments.

A. Herbicide applications
B. Systemic herbicide(s)
C. Mechanical and chemical methods
D. None of the above

7. Several _____ (e.g., glyphosate and triclopyr) move through the plant to the roots when applied to the leaves or stems and have been used effectively on Japanese honeysuckle.

A. Herbicide applications
B. Systemic herbicide(s)
C. Mechanical and chemical methods
D. None of the above

8. Local bird populations are important for dispersal under utility lines, bird feeders, fence lines and other perching locations. Other animals observed eating _____ fruits are chipmunks, squirrel and deer.

A. Mile-a-minute weed
B. Fountain grass
C. Climbing bittersweet vine (Celastrus scandens)
D. None of the above

9. Cut _____ can be fed to livestock, burned or enclosed in plastic bags and sent to a landfill. If conducted in the spring, cutting must be repeated as regrowth appears to exhaust the plant's stored carbohydrate reserves.

A. Mile-a-minute weed
B. Kudzu
C. Climbing bittersweet vine (Celastrus scandens)
D. None of the above

10. _____ is effective at a concentration of 0.5% and is selective to plants in the aster, buckwheat, and pea families. Caution should be taken with chlorpyralid as groundwater pollution through leaching can be a problem with certain soil types. Do not apply spray so heavily that herbicide drips off the leaves.

A. Triclopyr (e.g., Garlon)
B. Chlorpyralid (e.g. Transline)
C. Dithiopyr
D. None of the above

Trees- Alien Plant Invaders Topic 6

1. Establishing a thick cover of trees (preferably native and non-invasive) or grass sod will help shade out and discourage establishment of ailanthus seedlings. Targeting large female trees for control will help reduce spread of _____ by seed.
A. Ailanthus C. Australian pine
B. Carrotwood D. None of the above

2. Princess tree(s) can be controlled using a variety of mechanical and chemical controls. Hand pulling may be effective for young seedlings. Plants should be pulled as soon as they are large enough to grasp.
A. True B. False

3. Princess tree seedlings and small trees can be controlled by applying a 2% solution of _____ or triclopyr (e.g., Garlon) and water plus a 0.5% non-ionic surfactant to thoroughly wet all leaves.
A. EPSP synthase C. Glyphosate (Roundup™)
B. Nonglyphosate herbicides D. None of the above

4. Because Mimosa spreads by suckering, resprouts are common after treatment. Cutting is an initial control measure and will require either an herbicidal control or repeated cutting for resprouts.
A. True B. False

5. Whenever possible, efforts should be taken to prevent the introduction or encroachment of _____. For example, recently disturbed beach habitat may be planted with native vegetation to prevent this species from invading.
A. Silk tree(s) C. Australian pine
B. Carrotwood D. None of the above

6. Clumps of seedlings suggest dispersal by small mammals. In its native range, _____is pollinated by bees, which are the likely pollinators in Florida.
A. Silk tree(s) C. Princess tree(s)
B. Carrotwood D. None of the above

7. _____kills broadleaf (dicotyledonous) plants but causes little or no damage to grasses and is useful for areas where desirable grasses are to be maintained.
A. Triclopyr C. Glyphosate (Roundup™)
B. Dithiopyr D. None of the above

8. Unfortunately, _____ seedlings often grow in low litter areas, unsuitable for frequent prescribed fire. In dense stands, seedlings and saplings may be cut and dropped on site, creating fuel for future fires.
A. Buckthorn C. Princess tree(s)
B. Ailanthus D. None of the above

9. _____ seedlings appear vulnerable to fire, perhaps due to their poorly established root structure. Fire will top kill a mature plant, but resprouting does occur.
A. Buckthorn C. Princess tree(s)
B. Carrotwood D. None of the above

10. Uprooting of 1/2 inch diameter seedlings by hand or up to 1 1/2 inch diameter using a weed wrench is effective, but care should be taken to avoid excessive disturbance to the soil, which can release _____ seeds stored in the soil.
A. Buckthorn C. Princess tree(s)
B. Ailanthus D. None of the above

Weed Management and Control Section Topic 7

1. _____ is necessary following mechanical or chemical control. Digging and chopping cause soil disturbance and desired plants need to be reestablished before the invader can get a foothold. The same is true of chemical control, the desired vegetation must be reestablished. Moreover, you must remember that the invader was able to gain a toehold under the management regime that had been in place on that land.

A. Chemical control
C. Cultural Control
B. Environmental and economic problem
D. None of the above

Cultural Control

2. Controlling weeds on such sites can be futile without_____, as weeds will readily re-invade the disturbed area.

A. Vegetative restoration
C. Weed control chemicals
B. Persistence
D. None of the above

3. _____are available as concentrated liquids, (2 to 8 lb/gal) which need to be mixed with water before applying; as wettable powders which are from 50 to 100% active ingredient and need to be dispersed in water for uniform application, or as granules which are from 1 to 10% active ingredient and which are applied dry with granular applicators. See the label for all instructions on labeled crops and timings.

A. Vegetative control chemicals
C. Weed control chemicals
B. Persistence control chemicals
D. None of the above

4. Most effective control of _____ broadleaf weeds is obtained when applied in early fall (August 15–October 15) or in spring (May 1–June 1). For some weeds, repeated application at 20–30 day intervals may be required for control.

A. Perennial
C. Summer and winter annual(s)
B. Biennial(s)
D. None of the above

5. _____kill all plants, both desirable and undesirable. These herbicides can be used to spot treat perennial grassy weeds that are not affected by selective herbicides. To spot treat an area, thoroughly wet the weed foliage with herbicide solution.

A. Broad spectrum, non-selective herbicide
C. Nonselective postemergence herbicides
B. Systemic herbicides
D. None of the above

6. _____is referred to as a desiccant because it causes a leaf or an entire plant to dry out quickly. It is used to desiccate potato vines and seed crops, to control flowering of sugarcane, and for industrial and aquatic weed control. It is not residual; that is, it does not leave any trace of herbicide on or in plants, soil, or water.

A. Dithiopyr
C. Diquat dibromide
B. Nonglyphosate herbicides
D. None of the above

7. The product Agent Orange, used extensively throughout Vietnam, was about 50% 2,4-D. However, the controversies associated with the use of Agent Orange were associated with a contaminant (_____) in the 2,4,5-T component of the defoliant.

A. Triclopyr
C. Glyphosate (Roundup™)
B. Dioxin
D. None of the above

Imazapyr (Trade name Habitat®).

8. Although imazapyr is a_____, a good applicator can somewhat selectively remove targeted plants by focusing the spray only on the plants to be removed.

A. Broad spectrum, non-selective herbicide
C. Nonselective postemergence herbicides
B. Systemic herbicides
D. None of the above

Persistence of Pesticides

9. Persistence is usually expressed as the "half-life" (T1/2) of a pesticide.
A. True B. False

10. Pesticides can be degraded by sunlight (photodecomposition), high air or water temperatures (thermal degradation), moisture conditions, biological action (microbial decay), and soil conditions (pH). _____break down slowly and may be more available to aquatic animals.
A. Persistent (long-lasting) pesticides C. Persistent (short-lasting) pesticides
B. Environmental and economic problem D. None of the above

Introduction to Wetlands Section Topic 8

Filamentous Algae

1. Unlike microscopic algae, _____are frequently a problem in pond management and are usually visible to the naked eye as a floating mat of thread-like filaments often called "pond moss". They usually begin growth on the pond bottom in shallow water, later float to the surface and may completely cover the pond surface.
A. Filamentous algae C. Parrotfeather
B. Eurasian watermilfoil D. None of the above

Biological Control

2. Grass carp do not control planktonic algae.
A. True B. False

Economic Importance

3. _____ are a severe environmental and economic problem in all of the gulf coast states and in many other areas of the world with a sub-tropical or tropical climate. This species has rapidly spread throughout inland and coastal freshwater bays, lakes, and marshes in the United States and in other countries.
A. Water lettuce C. Alders
B. Water hyacinths D. None of the above

4. When big floating bladderwort is flowering it is easily distinguished from its native cousins by large spoke-like floats that radiate out from the base of the flower stalk. During the rest of the year, however, it can be confused with_____, both of which are rather robust and can appear almost bushy underwater.
A. Water lettuce C. Common bladderwort
B. Eurasian watermilfoil D. None of the above

Control

5. Years of research to find insect biocontrols has resulted in the successful introduction of two insects which are believed to be helpful in keeping water lettuce under maintenance control in many places; however, biocontrol fish which are able to control submersed plants are ineffective against the_____.
A. Floating water lettuce C. Algae
B. Water hyacinths D. None of the above

6. An aquatically registered surfactant (see the label) will improve the effectiveness of triclopyr.
A. True B. False

7. Systemic herbicides are absorbed and move within the plant to the site of action.
A. True B. False

8. Systemic herbicides tend to act more slowly than contact herbicides. An aquatically registered surfactant (see the label) will improve the effectiveness of_____.
A. Glyphosate herbicide C. Dithiopyr
B. Triclopyr D. None of the above

9. _____ benefit other plants growing near them by taking nitrogen out of the air and depositing it in the soil in usable form; fallen alder leaves make very rich compost.
A. Water lettuce C. Alders
B. Big floating bladderwort D. None of the above

10. Aeration, particularly at night, for several days after treatment may help control the oxygen depletion.
A. True B. False

Submersed (underwater) Aquatic Weed Section Topic 9

1. Renovate is a liquid triclopyr formulation that is effective on _____. It is a selective broadleaf, systemic herbicide.
A. Water lettuce C. Parrotfeather
B. Hydrilla D. None of the above

2. A variety of physical, chemical, and biological control methods have been used in attempts to manage infestations of Eurasian watermilfoil, fortunately, complete eradication is common.
A. True B. False

3. Navigate and Aqua-Kleen is a liquid triclopyr formulation and has been effective on Eurasian watermilfoil.
A. True B. False

4. Reward is is a contact herbicide.
A. True B. False

5. Renovate is a _____ that is effective on Eurasian watermilfoil. It is a selective broadleaf, systemic herbicide.
A. Copper C. Granular butoxyethyl ester of 2,4-D
B. Liquid triclopyr formulation D. None of the above

6. Aquathol, Aquathol K, and Aquathol Super K are _____and comes in both liquid and granular formulations.
A. Liquid triclopyr formulation C. Dipotassium salts of endothall
B. Liquid diquat formulation D. None of the above

7. Sonar and Avast are fluridone compounds, come in both liquid and granular formulations, and have not been effective on Eurasian watermilfoil.
A. True B. False

8. Any aquatic plant identified as _____should be sent to a specialist for positive identification since hydrilla is such a serious threat to fresh water habitats. It is only through early identification and concentrated control methods that there is any hope of eliminating hydrilla.
A. Hydrilla C. Eurasian watermilfoil
B. Egeria, elodea, or hydrilla D. None of the above

Pond Water Chemistry

9. In soft waters (below 50 parts per million hardness) some herbicides are more toxic to fish and plants.
A. True B. False

10. Copper and some heavy metals, can be toxic to fish.
A. True B. False

Aquatic Herbicides and Controls Section Topic 10

1. _____is used as a defoliant for a wide range of crops and as an herbicide for both terrestrial and aquatic weeds.
A. Glyphosate herbicide C. Endothall
B. Dithiopyr D. None of the above

2. Field and laboratory tests show that _____ usually remains in the top inch of soil for long periods of time after it is applied.
A. Fluridone C. Diquat
B. 2,4-D D. None of the above

3. Glyphosate itself is a base, never used in salt form.
A. True B. False

4. Some formulations of _____ are highly toxic to fish while others are less so. For example, the LC50 ranges between 1.0 and 100 mg/L in cutthroat trout, depending on the formulation used. Channel catfish had less than 10% mortality when exposed to 10 mg/L for 48 hours.
A. Reward C. Fluridone
B. 2,4-D D. None of the above

5. _____can be effective for spot treatment of Eurasian watermilfoil and is relatively selective to Eurasian watermilfoil when used at the labeled rate.
A. Glyphosate herbicide C. Triclopyr
B. Dithiopyr D. None of the above

6. _____ can show good control of submersed plants where there is little water movement and an extended time for the treatment. Its use is most applicable to whole-lake or isolated bay treatments where dilution can be minimized. It is not effective for spot treatments of areas less than five acres.
A. Fluridone C. Diquat
B. 2,4-D D. None of the above

7. Most species of algae can be controlled with very low concentrations of_____. It is available in crystalline nuggets the size of rock salt or as a finely ground "snow" grade.
A. Glyphosate herbicide C. Copper sulfate
B. Dithiopyr D. None of the above

8. _____, under field conditions, is effective in controlling a broad range of algae including Chara, Spirogyra, Cladophora, Vaucheria, Ulothrix, Microcystis, and Oscillatoria. Effective in hard water.
A. Glyphosate herbicide C. Cutrine Plus
B. Copper sulfate D. None of the above

9. _____ is a concentrated liquid aquatic herbicide effective against a wide variety of submersed, emergent, and floating aquatic plants including duckweed, naiads, and cattails.
A. Reward C. A concentrated liquid aquatic herbicide
B. Fluridone D. None of the above

10. _____poses virtually no environmental risk in aquatic applications because the herbicide concentration rapidly decreases as it is absorbed onto soil, vegetation, and organic matter.

A. Glyphosate herbicide C. Reward
B. Dithiopyr D. None of the above

Invasive Plant Rule Section Topic 11

Harm and impact

1. Yellow starthistle is a source of nectar for bee producers. But the displacement of native and other desirable plant species caused by yellow starthistle leads to dramatically decreased forage for wildlife and livestock, which severely disrupts the profitability of associated businesses. _____greatly overshadow the positive effects and thus, define harm caused by yellow starthistle and explain why it is considered an invasive species.

A. Population of non-native plants C. These negative effects
B. An invasive species D. None of the above

California

2. The California Invasive Plant Inventory is a vital resource for those working to protect the state's natural areas. The Inventory summarizes the impacts, potential for spread, and distribution of more than 200 _____ that invade wildlands in California.

A. Invasive species C. Alien plant(s)
B. Non-native plant(s) D. None of the above

Herbicide and Insecticide Safety Precautions

3. The Federal Environmental Pesticide Control Act of 1972 in part prohibits the application of any pesticide in a manner inconsistent with its labeling.

A. True B. False

4. The pesticide **APPLICATOR** is always responsible for the effects of _____ as well as problems caused by residues that drift from the application site to other property. Always read and carefully follow instructions on the product label.

A. Several barriers C. Pesticide residues
B. Altering physical processes D. None of the above

5. When using pesticides and/or herbicides, always avoid prolonged chemical contact with skin. Wash exposed skin areas with generous amounts of soap and water. Launder clothing worn during application in hot water using a phosphate detergent.

A. True B. False

6. Any contaminated food should be discarded, and dishes and utensils should be thoroughly washed.

A. True B. False

7. _____kill certain weeds with little or no injury to the crop. It is the difference in plant response that determines the effectiveness of the herbicide and safety to the crop.

A. Mutual herbicide(s) C. Selective herbicides
B. Nonselective herbicide(s) D. None of the above

8. _____ are those which will kill or injure virtually all kinds of vegetation.

A. Mutual herbicide(s) C. Selective herbicides
B. Nonselective herbicide(s) D. None of the above

9. The risk of drift is great when the application is by foliar spray. When the soil is treated, a hazard may arise from the herbicide persisting in the soil longer than intended and interfering with growing a crop at some later time. The movement of a _____ by runoff or by soil erosion to non-target areas is another possibility. Typical 2,4 D injury symptoms on grape leaves.

A. Mutual herbicide(s)
B. Nonselective herbicide(s)
C. Selective herbicides
D. None of the above

10. Growers of sensitive crops are not obligated to inform operators of surrounding farms and local industries of the presence and sensitivity of their crops, but it is advisable to seek the cooperation of neighbors in the use of _____. Reporting incidents of pesticide damage. Two governmental agencies may exercise regulatory powers in situations of herbicide misuse.

A. Hazardous pesticides
B. Nonselective herbicide(s)
C. Selective herbicides
D. None of the above

When Finished with Your Assignment

REQUIRED DOCUMENTS

Please scan the **Registration Page, Answer Key, Survey and Driver's License** and email it to info@TLCH2O.com.

IPhone Scanning Instructions

If you are unable to scan, take a photo of these documents with your **iPhone** and send these photos to TLC, info@TLCH2O.com.

FAX

If you are unable to scan and email, please fax these to TLC, if you fax, call to confirm that we received your paperwork. **(928) 468-0675**

Invasive Plant Identification CEU Conventional Assignment #4

You will have 90 days from the start of this course to have successfully completed this CEU assignment with a score of 70%. You may e-mail the answers to TLC, info@tlch2o.com, you can also find a copy of this assignment in Word on the Assignment Page on TLC's website or fax the answers to TLC (928) 468-0675. Course assistance is available on the Assignment Page under Course Assistance at www.abctlc.com. Write your answers on the Answer Key found in the front of first assignment.

Write your answers on the Answer Key found in the front section of this assignment.

Weed Identification Section Topic 1

(s) Means the answer can be plural or singular.

1. _____ weeds germinate from seed, grow, flower, and produce seed in less than one year.
A. Perennial C. Annual(s)
B. Biennial(s) D. None of the above

2. _____germinate in the spring and mature in the fall, whereas winter annuals germinate in fall or late winter and mature in late spring.
A. Perennial C. Summer annuals (AKA warm season annuals)
B. Biennial(s) D. None of the above

3. _____ germinate in the fall, overwinter as seedlings or small rosettes and mature, set seed and die the following spring or early summer.
A. Winter annual(s) C. Summer and winter annual(s)
B. Perennial D. None of the above

4. Some weeds are capable of _____lifecycles.
A. Perennial C. Both summer and winter annual
B. Summer annual(s) D. None of the above

Understanding Weed Terms

5. The key is to use pesticides in a way that complements rather than hinders _____in the strategy and which also limits negative environmental effects.
A. Other elements C. Direct habitat destruction
B. Ecovar development process D. None of the above

6. It is important to understand the life cycle of a pest so that the pesticide can be applied when the pest is_____– the aim is to achieve maximum effect at minimum levels of pesticide.
A. At its most vulnerable C. Ecovar development process
B. Negative environmental effects D. None of the above

7. _____ are maintained via controlled pollination or vegetative means, so that cultivar characteristics are passed to ensuing generations.
A. Cultivars C. Direct habitat destruction
B. Minimum levels of pesticide(s) D. None of the above

8. To maintain _____in ensuing generations, little to no selection is done during the ecovar development process.
A. Genetic diversity C. Negative environmental effects
B. Minimum levels of pesticide D. None of the above

9. An ecovar is an intermediate step between a wild-growing plant and a _____.
A. Cultivar C. Direct habitat destruction
B. Ecovar development process D. None of the above

10. _____may include using row covers or trenches to prevent insects from reaching the crop, baited or pheromone traps to capture insects, or cultivation or mowing for weed control.
A. Tactics C. Direct habitat destruction
B. Ecovar development process(s) D. None of the above

Invasive Plant Species Introduction Topic 2

Federally Listed Invasive Plant Species

1. _____ has elliptic to lanceolate leaves, its branches are usually thorny, and its fruit is yellow, dry and mealy.
A. Russian olive C. Autumn olive
B. Russian Knotflax D. None of the above

2. Combining control methods is the best form of _____management. Persistence is imperative so the weed is continually stressed, forcing it to exhaust root nutrient stores and eventually die.
A. Canada thistle C. Toadflax
B. Japanese knotweed D. None of the above

3. _____was easy to establish and homesteaders liberally landscaped their properties with this drought resistant plant, continually spreading it in their migration to the Western frontier.
A. Snapdragon C. Toadflax
B. Spurge laurel D. None of the above

4. The broad and pointed _____ leaves can be mistaken for Broadleaf dock (Rumex obtusifolia), but docks lack rhizomes and the tall, spreading habit of Japanese knotweed. Other less invasive relatives (such as P. virginianum) grow from similar rhizomes and are difficult to eradicate.
A. Japanese knotweed C. Autumn olive
B. Russian thistle D. None of the above

5. _____ is difficult to control. Its extensive root system has vast nutrient stores that let it recover from control attempts. Combine control methods into a system to achieve best results.
A. Leafy spurge C. Toadflax
B. Spurge laurel D. None of the above

6. As an annual, _____ reproduces solely by seed. Seeds generally do not remain viable past one year. Repeated hoeing, tilling, or mowing of young plants will prevent seed production. Hand-pulling (with gloves) can also be effective for small infestations.
A. Snapdragon C. Toadflax
B. Russian thistle D. None of the above

7. _____ is a branched, robust biennial (or sometimes annual) that often grows 8 feet or more in height and 6 feet in width. Main stems may be up to 4 inches wide at the base. Stems have vertical rows of prominent, spiny, ribbon-like leaf material or "wings" that extend to the base of the flower heads.
A. Spurge laurel C. Scotch thistle
B. Russian thistle D. None of the above

8. _____ is an attractive ornamental plant known for its spiraling evergreen leaves and greenish-yellow, bitter-fragrant flowers. Larger patches of this species emit a strong unpleasant odor. Flowering occurs in late winter-early spring, producing clusters of blue berries during the spring.
A. Spurge laurel C. Autumn olive
B. Russian thistle D. None of the above

9. _____ is a perennial with erect, smooth, herbaceous stems that are less than 2 feet tall and emerge in clumps from a spreading root system. Soft, gray-green leaves, which are 1 to 1 1/2 inches long and narrow, are crowded onto each stem.
A. Leafy spurge C. Toadflax
B. Spurge laurel D. None of the above

10. This plant has stems that terminate with clusters of 15 to 20 snapdragon-like flowers that are about 1 inch long and yellow. Gently pinching the sides of a flower opens its 2 lips revealing an orange throat that acts as a guide for insects to nectar produced in the spur. The plant reproduces by seeds and creeping roots.
A. Snapdragon C. Toadflax
B. Autumn olive D. None of the above

Commonly Found Invasive and/or Noxious Weeds - Topic 3

1. Musk thistle rosettes are usually large and compact with a large, corky taproot that is hollow near the_____. Leaves have consistent shape, sometimes expressing a frosted appearance around the leaf margins, and often have a cream-colored midrib.
A. Rosettes C. Crown
B. Flowers D. None of the above

2. Musk thistle flowers and starts to produce seed 45 to 55 days after it bolts. Musk thistle has very large bracts beneath flowers that are armed with sharp spines and shoots beneath flowers are almost devoid of _____.
A. Mid-ribs C. Leaves
B. Flowers D. None of the above

3. _____ will not tolerate tillage and can be removed easily by severing its root below ground with a shovel or hoe. Mowing can effectively reduce seed output if plants are cut when the terminal head is in the late-flowering stage. Gather and burn mowed debris to destroy any seed that has developed.
A. Fountain grass C. Canada thistle
B. Musk thistle D. None of the above

4. In natural areas where Canada thistle is interspersed with desirable native plants, targeted application of a systemic herbicide such as_____, which carries plant toxins to the roots, may be effective.
A. Triclopyr (e.g., Garlon) C. Chlorpyralid (e.g. Transline)
B. Glyphosate (e.g., Roundup or Rodeo) D. None of the above

5. Multiple treatments are necessary every year for several years, making leafy spurge control an extremely expensive undertaking. If left uncontrolled for a single year, _____ can re-infest rapidly. Prescribed burning, in conjunction with herbicides, may also be effective.
A. Mullein C. Leafy spurge
B. Loosestrife D. None of the above

6. The addition of a non-ionic surfactant at a concentration of 0.5% improves the effectiveness of foliar treatments. _____have been shown to be effective in controlling Chinese lespedeza.
A. Triclopyr (e.g., Garlon) C. Chlorpyralid (e.g. Transline)
B. Triclopyr and clopyralid D. None of the above

7. _____ plants grow from four to ten feet high, depending upon conditions, and produce a showy display of magenta-colored flower spikes throughout much of the summer. Flowers have five to seven petals. Mature plants can have from 30 to 50 stems arising from a single rootstock.
A. Fountain grass C. Canada thistle
B. Loosestrife D. None of the above

8. _____ raises fuel loads, which increases the intensity and spread of a fire, and results in severe damage to native, dry forest species adapted to less extreme fire regimes.
A. Mullein C. Chinese lespedeza
B. Fountain grass D. None of the above

9. First year _____ plants are low-growing rosettes of bluish gray-green, felt-like leaves that range from 4-12 inches in length and 1-5 inches in width.
A. Mullein C. Chinese lespedeza
B. Loosestrife D. None of the above

Introduction to Grasses
Exotic Grass Control
10. Exotic grasses have become one of the most insidious problems in the field of wildlife management, because they can totally dominate pasture and prairie lands once established, having little wildlife value and leaving no room for native plants.
A. True B. False

Herbs and Related Invasive Species Topic 4
1. When glyphosate is applied to susceptible plants, glyphosate blocks EPSP synthase preventing the production of essential amino acids and the plant dies. However, in plants that are Roundup Ready, a modified EPSP synthase is unaffected by glyphosate and allows the plant to continue growing. There is little or no crop injury associated with _____ application and Roundup Ready alfalfa.
A. EPSP synthase C. Glyphosate
B. Dithiopyr D. None of the above

2. If the glyphosate application is made after the _____, some yield loss may occur due to the competitive effects of the weed on the crop; in other words, the damage has already been done.
A. 1 to 3 trifoliate stage C. 3 to 5 trifoliate stage
B. 5 to 8 trifoliate stage D. None of the above

Glyphosate Stewardship
3. Rotation to non-Roundup Ready crops using _____ after Roundup Ready crops is also effective in reducing the potential for glyphosate-resistant weeds.
A. Glyphosate C. Dithiopyr
B. Nonglyphosate herbicides D. None of the above

4. _____is most commonly used. However, herb Robert often occurs initially as part of a mosaic alongside desirable native species.
A. EPSP synthase C. Glyphosate (Roundup™)
B. Nonglyphosate herbicides D. None of the above

5. Grass Family (Poaceae). Toothache grass is a_____.
A. Winter annual C. Warm-season, perennial bunch grass
B. Biennial grass D. None of the above

6. _____ is a postemergence herbicide that is slowly translocated within the plant. It can effectively control tillered crabgrass with a single application.
A. Quinclorac C. Dithiopyr
B. Fenoxaprop-p-ethyl D. None of the above

7. _____ acts as a preemergence and postemergence herbicide. It provides postemergence control of crabgrass only up to the one-tiller stage of development, but it can be combined with fenoxaprop-p-ethyl when two or more tillers are present.
A. Quinclorac C. Dithiopyr
B. Fenoxaprop-p-ethyl D. None of the above

8. _____ is a postemergence herbicide effective in controlling crabgrass and some broadleaf weeds.
A. Quinclorac C. Dithiopyr
B. Fenoxaprop-p-ethyl D. None of the above

9. Quinclorac can be mixed with other herbicides, including_____, to improve weed control. For best results, apply quinclorac in combination with a methylated seed oil according to directions on the label.
A. Quinclorac C. Pendimethalin and phenoxy herbicides
B. Fenoxaprop-p-ethyl D. None of the above

10. _____leaves, in comparison, are smooth or only sparsely hairy; and the leaf segment is longer, more rounded, and lance-shaped. The somewhat rounded terminal clusters of flower heads of western yarrow are normally white to cream-colored and have an extended bloom period from May to September.
A. Canada thistle C. Common yarrow
B. Dalmatian toadflax D. None of the above

Vine Section Alien Plant Invaders Topic 5

1. Akebia vines. For large infestations, use of a labeled systemic herbicide, such as glyphosate (e.g., Roundup) or triclopyr (e.g., Garlon), is probably the most effective method to control akebia. An herbicidal soap, such as_____, which provides a burndown of plant tissues, may also provide some control.
A. Dithiopyr C. Pelargonic acid (e.g., Scythe)
B. Chlorpyralid (e.g. Transline) D. None of the above

2. Once established, the vine quickly overwhelms and destroys native vegetation by shading out smaller plants and outcompeting native vegetation for water and nutrients. Urban parks, with extensive wooded borders neighboring landscaped residential and private property, are especially vulnerable to invasion by _____.
A. Mile-a-minute weed C. Climbing bittersweet vine (Celastrus scandens)
B. Porcelainberry D. None of the above

3. Clusters of small greenish flowers emerge from leaf axils, allowing each plant to produce large numbers of seeds. At maturity, globular, green to yellow fruits split open to reveal three red-orange, fleshy arils that contain the seeds. These showy fruits have made _____ very popular for use in floral arrangements.
A. Mile-a-minute weed C. Climbing bittersweet
B. Kudzu D. None of the above

4. A variety of _____are available for management of climbing euonymus. Grubbing, a rather labor intensive method, is effective for small populations or environmentally sensitive areas where herbicides cannot be used.
A. Systemic herbicide(s) C. Herbicide applications
B. Mechanical and chemical methods D. None of the above

5. Because English ivy is an evergreen vine, and remains active during the winter, _____ can be made to it any time of year as long as temperatures are above 55 or 60°Fahrenheit for a few days.
A. Systemic herbicide(s) C. Herbicide applications
B. Mechanical and chemical methods D. None of the above

6. Fall and winter applications will avoid or minimize impacts to many native plant species. Repeat _____ are likely to be needed and follow-up monitoring should be conducted to evaluate the success of treatments.
A. Systemic herbicide(s) C. Herbicide applications
B. Mechanical and chemical methods D. None of the above

7. Several _____ (e.g., glyphosate and triclopyr) move through the plant to the roots when applied to the leaves or stems and have been used effectively on Japanese honeysuckle.
A. Systemic herbicide(s) C. Herbicide applications
B. Mechanical and chemical methods D. None of the above

8. Local bird populations are important for dispersal under utility lines, bird feeders, fence lines and other perching locations. Other animals observed eating _____ fruits are chipmunks, squirrel and deer.
A. Mile-a-minute weed C. Climbing bittersweet vine (Celastrus scandens)
B. Kudzu D. None of the above

9. Cut _____ can be fed to livestock, burned or enclosed in plastic bags and sent to a landfill. If conducted in the spring, cutting must be repeated as regrowth appears to exhaust the plant's stored carbohydrate reserves.
A. Kudzu C. Fountain grass
B. Porcelainberry D. None of the above

10. _____ is effective at a concentration of 0.5% and is selective to plants in the aster, buckwheat, and pea families. Caution should be taken with chlorpyralid as groundwater pollution through leaching can be a problem with certain soil types. Do not apply spray so heavily that herbicide drips off the leaves.
A. Triclopyr (e.g., Garlon) C. Dithiopyr
B. Chlorpyralid (e.g. Transline) D. None of the above

Trees- Alien Plant Invaders Topic 6

1. Establishing a thick cover of trees (preferably native and non-invasive) or grass sod will help shade out and discourage establishment of ailanthus seedlings. Targeting large female trees for control will help reduce spread of _____ by seed.
A. Silk tree(s) C. Princess tree(s)
B. Ailanthus D. None of the above

2. Princess tree(s) can be controlled using a variety of mechanical and chemical controls. Hand pulling may be effective for young seedlings. Plants should be pulled as soon as they are large enough to grasp.
A. True B. False

3. Princess tree seedlings and small trees can be controlled by applying a 2% solution of _____ or triclopyr (e.g., Garlon) and water plus a 0.5% non-ionic surfactant to thoroughly wet all leaves.
A. EPSP synthase C. Glyphosate (Roundup™)
B. Nonglyphosate herbicides D. None of the above

4. Because Mimosa spreads by suckering, resprouts are common after treatment. Cutting is an initial control measure and will require either an herbicidal control or repeated cutting for resprouts.
A. True B. False

5. Whenever possible, efforts should be taken to prevent the introduction or encroachment of _____. For example, recently disturbed beach habitat may be planted with native vegetation to prevent this species from invading.
A. Silk tree(s) C. Australian pine
B. Carrotwood D. None of the above

6. Clumps of seedlings suggest dispersal by small mammals. In its native range, _____is pollinated by bees, which are the likely pollinators in Florida.
A. Ailanthus C. Australian pine
B. Carrotwood D. None of the above

7. _____kills broadleaf (dicotyledonous) plants but causes little or no damage to grasses and is useful for areas where desirable grasses are to be maintained.
A. Triclopyr C. Glyphosate (Roundup™)
B. Dithiopyr D. None of the above

8. Unfortunately, _____ seedlings often grow in low litter areas, unsuitable for frequent prescribed fire. In dense stands, seedlings and saplings may be cut and dropped on site, creating fuel for future fires.
A. Buckthorn C. Princess tree(s)
B. Ailanthus D. None of the above

9. _____ seedlings appear vulnerable to fire, perhaps due to their poorly established root structure. Fire will top kill a mature plant, but resprouting does occur.
A. Buckthorn C. Princess tree(s)
B. Australian pine D. None of the above

10. Uprooting of 1/2 inch diameter seedlings by hand or up to 1 1/2 inch diameter using a weed wrench is effective, but care should be taken to avoid excessive disturbance to the soil, which can release _____ seeds stored in the soil.
A. Buckthorn C. Princess tree(s)
B. Ailanthus D. None of the above

Weed Management and Control Section Topic 7

1. _____ is necessary following mechanical or chemical control. Digging and chopping cause soil disturbance and desired plants need to be reestablished before the invader can get a foothold. The same is true of chemical control, the desired vegetation must be reestablished. Moreover, you must remember that the invader was able to gain a toehold under the management regime that had been in place on that land.
A. Chemical control C. Cultural Control
B. Environmental and economic problem D. None of the above

Cultural Control

2. Controlling weeds on such sites can be futile without_____, as weeds will readily re-invade the disturbed area.

A. Chemical control C. Weed control chemicals
B. Vegetative restoration D. None of the above

3. _____are available as concentrated liquids, (2 to 8 lb/gal) which need to be mixed with water before applying; as wettable powders which are from 50 to 100% active ingredient and need to be dispersed in water for uniform application, or as granules which are from 1 to 10% active ingredient and which are applied dry with granular applicators. See the label for all instructions on labeled crops and timings.

A. Chemical control C. Weed control chemicals
B. Vegetative restoration D. None of the above

4. Most effective control of _____ broadleaf weeds is obtained when applied in early fall (August 15–October 15) or in spring (May 1–June 1). For some weeds, repeated application at 20–30 day intervals may be required for control.

A. Perennial C. Summer and winter annual(s)
B. Biennial(s) D. None of the above

5. _____kill all plants, both desirable and undesirable. These herbicides can be used to spot treat perennial grassy weeds that are not affected by selective herbicides. To spot treat an area, thoroughly wet the weed foliage with herbicide solution.

A. Broad spectrum, non-selective herbicide C. Nonselective postemergence herbicides
B. Systemic herbicides D. None of the above

6. _____is referred to as a desiccant because it causes a leaf or an entire plant to dry out quickly. It is used to desiccate potato vines and seed crops, to control flowering of sugarcane, and for industrial and aquatic weed control. It is not residual; that is, it does not leave any trace of herbicide on or in plants, soil, or water.

A. Triclopyr C. Glyphosate (Roundup™)
B. Diquat dibromide D. None of the above

7. The product Agent Orange, used extensively throughout Vietnam, was about 50% 2,4-D. However, the controversies associated with the use of Agent Orange were associated with a contaminant (_____) in the 2,4,5-T component of the defoliant.

A. Triclopyr C. Glyphosate (Roundup™)
B. Dioxin D. None of the above

Imazapyr (Trade name Habitat®).

8. Although imazapyr is a_____, a good applicator can somewhat selectively remove targeted plants by focusing the spray only on the plants to be removed.

A. Broad spectrum, non-selective herbicide C. Nonselective postemergence herbicides
B. Systemic herbicides D. None of the above

Persistence of Pesticides

9. Persistence refers to the length of time a pesticide remains in the environment.

A. True B. False

10. Pesticides can be degraded by sunlight (photodecomposition), high air or water temperatures (thermal degradation), moisture conditions, biological action (microbial decay), and soil conditions (pH). _____break down slowly and may be more available to aquatic animals.

A. Persistent (long-lasting) pesticides C. Persistent (short-lasting) pesticides
B. Environmental and economic problem D. None of the above

Introduction to Wetlands Section Topic 8

Filamentous Algae

1. Unlike microscopic algae, _____are frequently a problem in pond management and are usually visible to the naked eye as a floating mat of thread-like filaments often called "pond moss". They usually begin growth on the pond bottom in shallow water, later float to the surface and may completely cover the pond surface.

A. Filamentous algae C. Parrotfeather
B. Hydrilla D. None of the above

Biological Control

2. Grass carp control planktonic algae.

A. True B. False

Economic Importance

3. _____ are a severe environmental and economic problem in all of the gulf coast states and in many other areas of the world with a sub-tropical or tropical climate. This species has rapidly spread throughout inland and coastal freshwater bays, lakes, and marshes in the United States and in other countries.

A. Big floating bladderwort C. Eurasian watermilfoil
B. Water hyacinths D. None of the above

4. When big floating bladderwort is flowering it is easily distinguished from its native cousins by large spoke-like floats that radiate out from the base of the flower stalk. During the rest of the year, however, it can be confused with_____, both of which are rather robust and can appear almost bushy underwater.

A. Water lettuce C. Common bladderwort
B. Water hyacinths D. None of the above

Control

5. Years of research to find insect biocontrols has resulted in the successful introduction of two insects which are believed to be helpful in keeping water lettuce under maintenance control in many places; however, biocontrol fish which are able to control submersed plants are ineffective against the_____.

A. Floating water lettuce C. Algae
B. Water hyacinths D. None of the above

6. _____ are absorbed and move within the plant to the site of action.

A. Glyphosate herbicides C. Broad spectrum, non-selective herbicides
B. Systemic herbicides D. None of the above

7. Systemic herbicides are not absorbed and do not move within the plant to the site of action.

A. True B. False

8. Systemic herbicides tend to act more slowly than contact herbicides. An aquatically registered surfactant (see the label) will improve the effectiveness of_____.

A. Glyphosate herbicide C. Dithiopyr
B. Triclopyr D. None of the above

9. _____ benefit other plants growing near them by taking nitrogen out of the air and depositing it in the soil in usable form; fallen alder leaves make very rich compost.

A. Water lettuce C. Alders
B. Big floating bladderwort D. None of the above

10. If the pond is heavily infested with weeds it may be possible (depending on the herbicide chosen) to treat the pond in sections and let each section decompose for about two weeks before treating another section.
A. True B. False

Submersed (underwater) Aquatic Weed Section Topic 9

1. Renovate is a liquid triclopyr formulation that is effective on _____. It is a selective broadleaf, systemic herbicide.
A. Water lettuce C. Parrotfeather
B. Hydrilla D. None of the above

2. A variety of physical, chemical, and biological control methods have been used in attempts to manage infestations of Eurasian watermilfoil. Unfortunately, complete eradication is rare.
A. True B. False

3. Navigate and Aqua-Kleen is a granular butoxyethyl ester of 2,4-D and has been effective on Eurasian watermilfoil. _____are systemic herbicides.
A. Liquid triclopyr formulations C. 2,4-D compounds
B. Liquid formulations D. None of the above

4. Reward is act quickly and kill all plants cells that they contact.
A. True B. False

5. Renovate is a _____ that is effective on Eurasian watermilfoil. It is a selective broadleaf, systemic herbicide.
A. Liquid triclopyr formulation C. Copper
B. Lliquid formulation D. None of the above

6. Aquathol, Aquathol K, and Aquathol Super K are _____and comes in both liquid and granular formulations.
A. Liquid triclopyr formulation C. Dipotassium salts of endothall
B. Liquid diquat formulation D. None of the above

7. Sonar and Avast are fluridone compounds, come in both liquid and granular formulations, and have been effective on Eurasian watermilfoil.
A. True B. False

8. Any aquatic plant identified as _____should be sent to a specialist for positive identification since hydrilla is such a serious threat to fresh water habitats. It is only through early identification and concentrated control methods that there is any hope of eliminating hydrilla. Fishermen or boaters in waters known to have hydrilla should make every effort not to accidentally transport hydrilla from one lake or pond to another.
A. Water lettuce C. Parrotfeather
B. Egeria, elodea, or hydrilla D. None of the above

Pond Water Chemistry

9. The water hardness should not be considered when using herbicides containing copper.
A. True B. False

10. Some herbicides contain copper and should be used with caution in soft water ponds (less than 50 parts per million water hardness).
A. True B. False

Aquatic Herbicides and Controls Section Topic 10

1. _____is used as a defoliant for a wide range of crops and as a herbicide for both terrestrial and aquatic weeds.
A. Glyphosate herbicide C. Endothall
B. Nonglyphosate herbicide D. None of the above

2. Field and laboratory tests show that _____ usually remains in the top inch of soil for long periods of time after it is applied.
A. Reward C. A concentrated liquid aquatic herbicide
B. Diquat D. None of the above

3. Glyphosate is generally distributed as water-soluble concentrates and powders.
A. True B. False

4. Some formulations of _____ are highly toxic to fish while others are less so. For example, the LC50 ranges between 1.0 and 100 mg/L in cutthroat trout, depending on the formulation used. Channel catfish had less than 10% mortality when exposed to 10 mg/L for 48 hours.
A. Reward C. Fluridone
B. 2,4-D D. None of the above

5. _____can be effective for spot treatment of Eurasian watermilfoil and is relatively selective to Eurasian watermilfoil when used at the labeled rate.
A. Triclopyr C. Dithiopyr
B. Nonglyphosate herbicide D. None of the above

6. _____ can show good control of submersed plants where there is little water movement and an extended time for the treatment. Its use is most applicable to whole-lake or isolated bay treatments where dilution can be minimized. It is not effective for spot treatments of areas less than five acres.
A. Reward C. A concentrated liquid herbicide
B. Fluridone D. None of the above

7. Most species of algae can be controlled with very low concentrations of_____. It is available in crystalline nuggets the size of rock salt or as a finely ground "snow" grade.
A. Glyphosate herbicide C. Copper sulfate
B. Cutrine Plus D. None of the above

8. _____, under field conditions, is effective in controlling a broad range of algae including Chara, Spirogyra, Cladophora, Vaucheria, Ulothrix, Microcystis, and Oscillatoria. Effective in hard water.
A. Glyphosate herbicide C. Cutrine Plus
B. Copper sulfate D. None of the above

9. _____ is a concentrated liquid aquatic herbicide effective against a wide variety of submersed, emergent, and floating aquatic plants including duckweed, naiads, and cattails.
A. Reward C. Fluridone
B. Diquat D. None of the above

10. _____poses virtually no environmental risk in aquatic applications because the herbicide concentration rapidly decreases as it is absorbed onto soil, vegetation, and organic matter.
A. Glyphosate herbicide C. Reward
B. Dithiopyr D. None of the above

Invasive Plant Rule Section Topic 11

1. Invasion can be thought of as a process that in our example, a plant must go through to become a successful, yet harmful invader. _____must be overcome for a plant to be considered an invasive weed. Invasive weeds are invasive species.

A. Population of non-native plants
B. Several barriers
C. Application of any pesticide
D. None of the above

Large-scale geographical barriers

2. First, a geographical barrier must be overcome, which often occurs as a mountain range, ocean, or similar physical barrier to movement of seeds and other reproductive plant parts. Plants that overcome _____ are known as alien plants or alien species.

A. Population of non-native plant(s)
B. An invasive species
C. Geographical barrier(s)
D. None of the above

3. _____are non-native plants and alien species are non-native species. Therefore, non-native plants are those that occur outside their natural range boundaries, and this most often is mediated by humans either deliberately or unintentionally.

A. Population of non-native plants
B. Non-native plant
C. Alien plants
D. None of the above

Survival barriers

4. The second set of obstacles that a _____must overcome is barriers to germination and survival in its new location. These typically are environmental barriers such as adequate moisture availability to allow successful germination and survival of seedlings that will continue to grow to maturity.

A. An invasive species
B. Non-native plant
C. Alien plants
D. None of the above

5. Other physical barriers might be _____, or competition for resources from neighboring plants.

A. pH, nutrient availability
B. Several barriers
C. Noxious weed
D. None of the above

Establishment barriers

6. The third obstacle that a non-native plant must overcome to be considered an invasive weed, is to form a population that is self-sustaining and does not need re-introduction to maintain a population base such that it continues to survive and thrive in its new environment. Once this occurs, this _____ is considered to be established. Environmental barriers to survival and establishment are similar.

A. Population of non-native plants
B. Non-native plant
C. Noxious weed(s)
D. None of the above

Dispersal and spread barriers

7. Established non-native plants must overcome barriers to dispersal and spread from their site of establishment to be considered invasive plants. Additionally, the rate of spread must be relatively fast. However, this movement or spread alone does not necessarily make this non-native plant an invasive weed or _____.

A. Alien plant
B. Non-native plant
C. Invasive species
D. None of the above

Harm and impact

8. Yellow starthistle is a source of nectar for bee producers. But the displacement of native and other desirable plant species caused by yellow starthistle leads to dramatically decreased forage for wildlife and livestock, which severely disrupts the profitability of associated businesses. _____greatly overshadow the positive effects and thus, define harm caused by yellow starthistle and explain why it is considered an invasive species.

A. Population of non-native plants
B. These negative effectsB.
C. An invasive species
D. None of the above

California

9. The California Invasive Plant Inventory is a vital resource for those working to protect the state's natural areas. The Inventory summarizes the impacts, potential for spread, and distribution of more than 200 _____ that invade wildlands in California.

A. Invasive species
B. Alien plant(s)
C. Non-native plant(s)
D. None of the above

Federal Weed Rule 7 CFR 360.100 Definitions
360.200 Designation of noxious weeds.

10. Pursuant to the provisions of section 10 of the Federal Noxious Weed Act of 1974 (7 U.S.C. 2809) the definition of a ``_____" in section 3(c) of the Act (7 U.S.C. 2802(c)) and that their dissemination in the United States may reasonably be expected to have, to a serious degree, an effect specified in said section 3(c) of the Act:

A. Population of non-native plants
B. Invasive species
C. Noxious weed(s)
D. None of the above

When Finished with Your Assignment

REQUIRED DOCUMENTS

Please scan the **Registration Page, Answer Key, Survey and Driver's License** and email it to info@TLCH2O.com.

IPhone Scanning Instructions

If you are unable to scan, take a photo of these documents with your **iPhone** and send these photos to TLC, info@TLCH2O.com.

FAX

If you are unable to scan and email, please fax these to TLC, if you fax, call to confirm that we received your paperwork. **(928) 468-0675**

Invasive Plant Identification CEU Conventional Assignment Exam #5

You will have 90 days from the start of this course to have successfully completed this CEU assignment with a score of 70%. You may e-mail the answers to TLC, info@tlch2o.com, you can also find a copy of this assignment in Word on the Assignment Page on TLC's website or fax the answers to TLC (928) 468-0675. Course assistance is available on the Assignment Page under Course Assistance at www.abctlc.com. Write your answers on the Answer Key found in the front of first assignment.

Write your answers on the Answer Key found in the front section of this assignment.

Weed Identification Section Topic 1

(s) Means the answer can be plural or singular.

1. Invasions of non-native plants are the least threat to native.
A. True B. False

2. To maintain _____in ensuing generations, little to no selection is done during the ecovar development process.
A. Genetic diversity C. Direct habitat destruction
B. Negative environmental effects D. None of the above

3. The roasted seed has been used as a coffee substitute. It is also a very important food plant for the caterpillars of many butterflies. In the spring, basal _____ emerge from a stout taproot. These elongated leaves have wavy margins, thus the name "curly" dock. In summer, the plant has reddish, rigid stems, 2-4 feet tall. Flower stems have greenish flowers.
A. Rosettes C. Leaves
B. Flowers D. None of the above

4. Milkweed plants, members of the Asclepias family, are the only host plant for the monarch and queen butterflies. The adult females seek out these plants on which they lay their eggs. The caterpillars that hatch will remain on the plants and eat the leaves until they enter the pupal stage, then emerge as adult butterflies. It is a _____ herb with long-spreading rhizomes.
A. Perennial C. Summer and winter annual(s)
B. Annual(s) D. None of the above

5. Puncture vine is a prostrate, mat-forming _____. It has small leaflets and small yellow flowers with 5 petals.
A. Perennial C. Summer annual(s)
B. Biennial(s) D. None of the above

6. _____ weeds germinate from seed, grow, flower, and produce seed in less than one year.
A. Summer annual(s) C. Annual(s)
B. Biennial(s) D. None of the above

7. _____ germinate in the fall, overwinter as seedlings or small rosettes and mature, set seed and die the following spring or early summer.
A. Winter annual(s) C. Perennial
B. Biennial(s) D. None of the above

8. The key is to use pesticides in a way that complements rather than hinders _____in the strategy and which also limits negative environmental effects.
A. Other elements C. Direct habitat destruction
B. Ecovar development process D. None of the above

9. _____ are maintained via controlled pollination or vegetative means, so that cultivar characteristics are passed to ensuing generations.
A. Cultivars C. Direct habitat destruction
B. Ecovar development process(s) D. None of the above

10. Curly dock is a _____ weed in the buckwheat family. Fairly pleasant tasting, the leaves are very rich in vitamins, especially vitamins A and C, and can be eaten raw or cooked.
A. Perennial C. Summer and winter annual(s)
B. Biennial(s) D. None of the above

Invasive Plant Species Introduction Topic 2

1. _____ is a perennial with erect, smooth, herbaceous stems that are less than 2 feet tall and emerge in clumps from a spreading root system. Soft, gray-green leaves, which are 1 to 1 1/2 inches long and narrow, are crowded onto each stem.
A. Leafy spurge C. Toadflax
B. Spurge laurel D. None of the above

2. This plant has stems that terminate with clusters of 15 to 20 snapdragon-like flowers that are about 1 inch long and yellow. Gently pinching the sides of a flower opens its 2 lips revealing an orange throat that acts as a guide for insects to nectar produced in the spur. The plant reproduces by seeds and creeping roots.
A. Snapdragon C. Toadflax
B. Russian thistle D. None of the above

3. The broad and pointed _____ leaves can be mistaken for Broadleaf dock (Rumex obtusifolia), but docks lack rhizomes and the tall, spreading habit of Japanese knotweed. Other less invasive relatives (such as P. virginianum) grow from similar rhizomes and are difficult to eradicate.
A. Canada thistle C. Toadflax
B. Japanese knotweed D. None of the above

4. _____ is difficult to control. Its extensive root system has vast nutrient stores that let it recover from control attempts. Combine control methods into a system to achieve best results.
A. Leafy spurge C. Toadflax
B. Spurge laurel D. None of the above

5. As an annual, _____ reproduces solely by seed. Seeds generally do not remain viable past one year. Repeated hoeing, tilling, or mowing of young plants will prevent seed production. Hand-pulling (with gloves) can also be effective for small infestations.
A. Spurge laurel C. Autumn olive
B. Russian thistle D. None of the above

6. _____ has elliptic to lanceolate leaves, its branches are usually thorny, and its fruit is yellow, dry and mealy.
A. Russian olive C. Autumn olive
B. Russian Knotflax D. None of the above

7. Combining control methods is the best form of _____management. Persistence is imperative so the weed is continually stressed, forcing it to exhaust root nutrient stores and eventually die.
A. Canada thistle C. Toadflax
B. Japanese knotweed D. None of the above

8. _____was easy to establish and homesteaders liberally landscaped their properties with this drought resistant plant, continually spreading it in their migration to the Western frontier. Also, burial sites were often adorned with toadflax to give everlasting beauty and tranquility. Their legacy has prevailed, proving to be notorious in nature.
A. Snapdragon C. Toadflax
B. Spurge laurel D. None of the above

9. _____ is a branched, robust biennial (or sometimes annual) that often grows 8 feet or more in height and 6 feet in width. Main stems may be up to 4 inches wide at the base. Stems have vertical rows of prominent, spiny, ribbon-like leaf material or "wings" that extend to the base of the flower heads.
A. Spurge laurel C. Scotch thistle
B. Russian thistle D. None of the above

10. _____ is an attractive ornamental plant known for its spiraling evergreen leaves and greenish-yellow, bitter-fragrant flowers. Larger patches of this species emit a strong unpleasant odor. Flowering occurs in late winter-early spring, producing clusters of blue berries during the spring.
A. Snapdragon C. Toadflax
B. Spurge laurel D. None of the above

Commonly Found Invasive and/or Noxious Weeds - Topic 3

1. Multiple treatments are necessary every year for several years, making leafy spurge control an extremely expensive undertaking. If left uncontrolled for a single year, _____ can re-infest rapidly. Prescribed burning, in conjunction with herbicides, may also be effective.
A. Mullein C. Leafy spurge
B. Loosestrife D. None of the above

2. The addition of a non-ionic surfactant at a concentration of 0.5% improves the effectiveness of foliar treatments. _____have been shown to be effective in controlling Chinese lespedeza.
A. Triclopyr (e.g., Garlon) C. Triclopyr and clopyralid
B. Chlorpyralid (e.g. Transline) D. None of the above

3. _____ plants grow from four to ten feet high, depending upon conditions, and produce a showy display of magenta-colored flower spikes throughout much of the summer. Flowers have five to seven petals. Mature plants can have from 30 to 50 stems arising from a single rootstock.
A. Fountain grass C. Canada thistle
B. Loosestrife D. None of the above

4. Musk thistle rosettes are usually large and compact with a large, corky taproot that is hollow near the_____.
A. Rosettes C. Crown
B. Leaves D. None of the above

5. Musk thistle flowers and starts to produce seed 45 to 55 days after it bolts. Musk thistle has very large bracts beneath flowers that are armed with sharp spines and shoots beneath flowers are almost devoid of _____.
A. Mid-ribs C. Leaves
B. Flowers D. None of the above

6. _____ will not tolerate tillage and can be removed easily by severing its root below ground with a shovel or hoe. Mowing can effectively reduce seed output if plants are cut when the terminal head is in the late-flowering stage. Gather and burn mowed debris to destroy any seed that has developed.
A. Fountain grass C. Canada thistle
B. Musk thistle D. None of the above

7. First year _____ plants are low-growing rosettes of bluish gray-green, felt-like leaves that range from 4-12 inches in length and 1-5 inches in width.
A. Mullein C. Chinese lespedeza
B. Fountain grass D. None of the above

8. Exotic grasses have become one of the most insidious problems in the field of wildlife management, because they can totally dominate pasture and prairie lands once established, having little wildlife value and leaving no room for native plants.
A. True B. False

9. In natural areas where Canada thistle is interspersed with desirable native plants, targeted application of a systemic herbicide such as_____, which carries plant toxins to the roots, may be effective.
A. Triclopyr (e.g., Garlon) C. Glyphosate (e.g., Roundup or Rodeo)
B. Chlorpyralid (e.g. Transline) D. None of the above

10. _____ raises fuel loads, which increases the intensity and spread of a fire, and results in severe damage to native, dry forest species adapted to less extreme fire regimes.
A. Fountain grass C. Canada thistle
B. Loosestrife D. None of the above

Herbs and Related Invasive Species Topic 4

1. There is little or no crop injury associated with _____ application and Roundup Ready alfalfa.
A. EPSP synthase C. Glyphosate
B. Nonglyphosate herbicides D. None of the above

2. If the glyphosate application is made after the _____, some yield loss may occur due to the competitive effects of the weed on the crop; in other words, the damage has already been done.
A. 1 to 3 trifoliate stage C. 3 to 5 trifoliate stage
B. 5 to 8 trifoliate stage D. None of the above

3. Rotation to non-Roundup Ready crops using _____ after Roundup Ready crops is also effective in reducing the potential for glyphosate-resistant weeds.
A. EPSP synthase C. Glyphosate
B. Nonglyphosate herbicides D. None of the above

4. _____is most commonly used. However, herb Robert often occurs initially as part of a mosaic alongside desirable native species. In these situations, alternative control methods that have the ability to target individual plants can more successfully meet all goals of a project.
A. EPSP synthase C. Glyphosate (Roundup™)
B. Nonglyphosate herbicides D. None of the above

5. Grass Family (Poaceae). Toothache grass is a_____.
A. Winter annual C. Warm-season, perennial bunch grass
B. Biennial grass D. None of the above

6. _____ is a postemergence herbicide that is slowly translocated within the plant. It can effectively control tillered crabgrass with a single application.
A. Quinclorac C. Fenoxaprop-p-ethyl
B. Dithiopyr D. None of the above

7. _____ acts as a preemergence and postemergence herbicide. It provides postemergence control of crabgrass only up to the one-tiller stage of development, but it can be combined with fenoxaprop-p-ethyl when two or more tillers are present.
A. Quinclorac C. Fenoxaprop-p-ethyl
B. Dithiopyr D. None of the above

8. _____ is a postemergence herbicide effective in controlling crabgrass and some broadleaf weeds.
A. Quinclorac C. Fenoxaprop-p-ethyl
B. Dithiopyr D. None of the above

9. Quinclorac can be mixed with other herbicides, including_____, to improve weed control. For best results, apply quinclorac in combination with a methylated seed oil according to directions on the label.
A. Quinclorac C. Pendimethalin and phenoxy herbicides
B. Dithiopyr D. None of the above

10. _____leaves, in comparison, are smooth or only sparsely hairy; and the leaf segment is longer, more rounded, and lance-shaped. The somewhat rounded terminal clusters of flower heads of western yarrow are normally white to cream-colored and have an extended bloom period from May to September.
A. Autumn olive C. Eurasian watermilfoil
B. Common yarrow D. None of the above

Vine Section Alien Plant Invaders Topic 5

1. Because English ivy is an evergreen vine, and remains active during the winter, _____ can be made to it any time of year as long as temperatures are above 55 or 60°Fahrenheit for a few days.
A. Herbicide applications C. Mechanical and chemical methods
B. Systemic herbicide(s) D. None of the above

2. Fall and winter applications will avoid or minimize impacts to many native plant species. Repeat _____ are likely to be needed and follow-up monitoring should be conducted to evaluate the success of treatments.
A. Herbicide applications C. Mechanical and chemical methods
B. Systemic herbicide(s) D. None of the above

3. Several _____ (e.g., glyphosate and triclopyr) move through the plant to the roots when applied to the leaves or stems and have been used effectively on Japanese honeysuckle.
A. Herbicide applications C. Mechanical and chemical methods
B. Systemic herbicide(s) D. None of the above

4. Akebia vines may also be dug up, removing as much of the roots as possible. To ensure its complete removal, regular monitoring and repeated cutting, digging or pulling is necessary. For large infestations, use of a labeled systemic herbicide, such as glyphosate (e.g., Roundup) or triclopyr (e.g., Garlon), is probably the most effective method to control akebia. An herbicidal soap, such as_____, which provides a burndown of plant tissues, may also provide some control.
A. Dithiopyr C. Pelargonic acid (e.g., Scythe)
B. Chlorpyralid (e.g. Transline) D. None of the above

5. Once established, the vine quickly overwhelms and destroys native vegetation by shading out smaller plants and outcompeting native vegetation for water and nutrients. Urban parks, with extensive wooded borders neighboring landscaped residential and private property, are especially vulnerable to invasion by _____.
A. Mile-a-minute weed C. Climbing bittersweet vine (Celastrus scandens)
B. Porcelainberry D. None of the above

6. Clusters of small greenish flowers emerge from leaf axils, allowing each plant to produce large numbers of seeds. At maturity, globular, green to yellow fruits split open to reveal three red-orange, fleshy arils that contain the seeds. These showy fruits have made _____ very popular for use in floral arrangements.
A. Mile-a-minute weed C. Climbing bittersweet
B. Porcelainberry D. None of the above

7. A variety of _____are available for management of climbing euonymus. Grubbing, a rather labor intensive method, is effective for small populations or environmentally sensitive areas where herbicides cannot be used.
A. Herbicide applications C. Mechanical and chemical methods
B. Systemic herbicide(s) D. None of the above

8. Local bird populations are important for dispersal under utility lines, bird feeders, fence lines and other perching locations. Other animals observed eating _____ fruits are chipmunks, squirrel and deer.
A. Mile-a-minute weed C. Climbing bittersweet vine (Celastrus scandens)
B. Fountain grass D. None of the above

9. Cut _____ can be fed to livestock, burned or enclosed in plastic bags and sent to a landfill. If conducted in the spring, cutting must be repeated as regrowth appears to exhaust the plant's stored carbohydrate reserves.
A. Kudzu C. Fountain grass
B. Porcelainberry D. None of the above

10. _____ is effective at a concentration of 0.5% and is selective to plants in the aster, buckwheat, and pea families. Caution should be taken with chlorpyralid as groundwater pollution through leaching can be a problem with certain soil types. Do not apply spray so heavily that herbicide drips off the leaves.
A. Triclopyr (e.g., Garlon) C. Dithiopyr
B. Chlorpyralid (e.g. Transline) D. None of the above

Trees- Alien Plant Invaders Topic 6

1. Establishing a thick cover of trees (preferably native and non-invasive) or grass sod will help shade out and discourage establishment of ailanthus seedlings. Targeting large female trees for control will help reduce spread of _____ by seed.
A. Ailanthus C. Australian pine
B. Carrotwood D. None of the above

2. Princess tree(s) can be controlled using a variety of mechanical and chemical controls. Hand pulling may be effective for young seedlings. Plants should be pulled as soon as they are large enough to grasp.
A. True B. False

3. Because Mimosa spreads by suckering, resprouts are common after treatment. Cutting is an initial control measure and will require either an herbicidal control or repeated cutting for resprouts.
A. True B. False

4. Princess tree seedlings and small trees can be controlled by applying a 2% solution of _____ or triclopyr (e.g., Garlon) and water plus a 0.5% non-ionic surfactant to thoroughly wet all leaves.
A. EPSP synthase C. Glyphosate (Roundup™)
B. Nonglyphosate herbicides D. None of the above

5. Clumps of seedlings suggest dispersal by small mammals. In its native range, _____is pollinated by bees, which are the likely pollinators in Florida.
A. Ailanthus C. Australian pine
B. Carrotwood D. None of the above

6. Whenever possible, efforts should be taken to prevent the introduction or encroachment of _____. For example, recently disturbed beach habitat may be planted with native vegetation to prevent this species from invading.
A. Silk tree(s) C. Australian pine
B. Carrotwood D. None of the above

7. _____kills broadleaf (dicotyledonous) plants but causes little or no damage to grasses and is useful for areas where desirable grasses are to be maintained.
A. Triclopyr C. Glyphosate (Roundup™)
B. Dithiopyr D. None of the above

8. Unfortunately, _____ seedlings often grow in low litter areas, unsuitable for frequent prescribed fire. In dense stands, seedlings and saplings may be cut and dropped on site, creating fuel for future fires.
A. Buckthorn C. Princess tree(s)
B. Ailanthus D. None of the above

9. _____ seedlings appear vulnerable to fire, perhaps due to their poorly established root structure. Fire will top kill a mature plant, but resprouting does occur.
A. Buckthorn C. Princess tree(s)
B. Carrotwood D. None of the above

10. Uprooting of 1/2 inch diameter seedlings by hand or up to 1 1/2 inch diameter using a weed wrench is effective, but care should be taken to avoid excessive disturbance to the soil, which can release _____ seeds stored in the soil.
A. Buckthorn C. Princess tree(s)
B. Ailanthus D. None of the above

Weed Management and Control Section Topic 7

1. _____ is necessary following mechanical or chemical control. Digging and chopping causes soil disturbance and desired plants need to be reestablished before the invader can get a foothold. The same is true of chemical control, the desired vegetation must be reestablished. Moreover, you must remember that the invader was able to gain a toehold under the management regime that had been in place on that land.

A. Chemical control
C. Cultural Control
B. Environmental and economic problem
D. None of the above

2. Controlling weeds on such sites can be futile without_____, as weeds will readily re-invade the disturbed area.

A. Chemical control
C. Persistent (long-lasting) pesticides
B. Vegetative restoration
D. None of the above

3. _____are available as concentrated liquids, (2 to 8 lb/gal) which need to be mixed with water before applying; as wettable powders which are from 50 to 100% active ingredient and need to be dispersed in water for uniform application, or as granules which are from 1 to 10% active ingredient and which are applied dry with granular applicators. See the label for all instructions on labeled crops and timings.

A. Weed control chemicals
C. Dithiopyr
B. Nonglyphosate herbicides
D. None of the above

4. Most effective control of _____ broadleaf weeds is obtained when applied in early fall (August 15–October 15) or in spring (May 1–June 1). For some weeds, repeated application at 20–30 day intervals may be required for control.

A. Perennial
C. Summer and winter annual(s)
B. Biennial(s)
D. None of the above

5. _____kill all plants, both desirable and undesirable. These herbicides can be used to spot treat perennial grassy weeds that are not affected by selective herbicides. To spot treat an area, thoroughly wet the weed foliage with herbicide solution.

A. Broad spectrum, non-selective herbicide
C. Nonselective postemergence herbicides
B. Systemic herbicides
D. None of the above

6. _____is referred to as a desiccant because it causes a leaf or an entire plant to dry out quickly. It is used to desiccate potato vines and seed crops, to control flowering of sugarcane, and for industrial and aquatic weed control. It is not residual; that is, it does not leave any trace of herbicide on or in plants, soil, or water.

A. Triclopyr
C. Dithiopyr
B. Diquat dibromide
D. None of the above

7. The product Agent Orange, used extensively throughout Vietnam, was about 50% 2,4-D. However, the controversies associated with the use of Agent Orange were associated with a contaminant (_____) in the 2,4,5-T component of the defoliant.

A. Triclopyr
C. Dithiopyr
B. Dioxin
D. None of the above

8. Although imazapyr is a_____, a good applicator can somewhat selectively remove targeted plants by focusing the spray only on the plants to be removed.

A. Broad spectrum, non-selective herbicide
C. Nonselective postemergence herbicides
B. Systemic herbicides
D. None of the above

9. Persistence is usually expressed as the "half-life" (T1/2) of a pesticide.

A. True
B. False

10. Pesticides can be degraded by sunlight (photodecomposition), high air or water temperatures (thermal degradation), moisture conditions, biological action (microbial decay), and soil conditions (pH). _____break down slowly and may be more available to aquatic animals.
A. Persistent (long-lasting) pesticides C. Persistent (short-lasting) pesticides
B. Environmental and economic problem D. None of the above

Introduction to Wetlands Section Topic 8

Filamentous Algae

1. Unlike microscopic algae, _____are frequently a problem in pond management and are usually visible to the naked eye as a floating mat of thread-like filaments often called "pond moss". They usually begin growth on the pond bottom in shallow water, later float to the surface and may completely cover the pond surface.
A. Filamentous algae C. Parrotfeather
B. Hydrilla D. None of the above

Biological Control

2. Grass carp do not control planktonic algae.
A. True B. False

Economic Importance

3. _____ are a severe environmental and economic problem in all of the gulf coast states and in many other areas of the world with a sub-tropical or tropical climate. This species has rapidly spread throughout inland and coastal freshwater bays, lakes, and marshes in the United States and in other countries.
A. Big floating bladderwort C. Eurasian watermilfoil
B. Water hyacinths D. None of the above

4. When big floating bladderwort is flowering it is easily distinguished from its native cousins by large spoke-like floats that radiate out from the base of the flower stalk. During the rest of the year, however, it can be confused with_____, both of which are rather robust and can appear almost bushy underwater.
A. Water lettuce C. Common bladderwort
B. Eurasian watermilfoil D. None of the above

Control

5. Years of research to find insect biocontrols has resulted in the successful introduction of two insects which are believed to be helpful in keeping water lettuce under maintenance control in many places; however, biocontrol fish which are able to control submersed plants are ineffective against the_____.
A. Algae C. Floating water lettuce
B. Water hyacinths D. None of the above

6. _____ are absorbed and move within the plant to the site of action.
A. Glyphosate herbicides C. Broad spectrum, non-selective herbicides
B. Systemic herbicides D. None of the above

7. Systemic herbicides are absorbed and move within the plant to the site of action.
A. True B. False

8. An aquatically registered surfactant will improve the effectiveness of_____.
A. Glyphosate herbicide C. Dithiopyr
B. Triclopyr D. None of the above

9. _____ benefit other plants growing near them by taking nitrogen out of the air and depositing it in the soil in usable form; fallen alder leaves make very rich compost.
A. Water lettuce C. Alders
B. Big floating bladderwort D. None of the above

10. One danger with any chemical control method is the chance of oxygen depletion after the treatment caused by the decomposition of the dead plant material.
A. True B. False

Submersed (underwater) Aquatic Weed Section Topic 9

1. Renovate is a liquid triclopyr formulation that is effective on _____. It is a selective broadleaf, systemic herbicide.
A. Water lettuce C. Parrotfeather
B. Hydrilla D. None of the above

2. A variety of physical, chemical, and biological control methods have been used in attempts to manage infestations of Eurasian watermilfoil. Complete eradication is common.
A. True B. False

3. Navigate and Aqua-Kleen is a granular butoxyethyl ester of 2,4-D and has been effective on Eurasian watermilfoil. _____are systemic herbicides.
A. Liquid triclopyr formulations C. 2,4-D compounds
B. Liquid formulations D. None of the above

4. Reward is a liquid diquat formulation that has been effective on Eurasian watermilfoil and is very effective if mixed with a copper compound.
A. True B. False

5. Renovate is a _____ that is effective on Eurasian watermilfoil. It is a selective broadleaf, systemic herbicide.
A. Liquid triclopyr formulation C. Copper
B. Lliquid formulation D. None of the above

6. Aquathol, Aquathol K, and Aquathol Super K are _____and comes in both liquid and granular formulations. These endothall products have been effective on Eurasian watermilfoil and can be mixed with copper compounds for additional effectiveness. Contact herbicides act quickly and kill all plant cells that they contact.
A. Liquid triclopyr formulation C. Dipotassium salts of endothall
B. Liquid diquat formulation D. None of the above

7. Sonar and Avast are fluridone compounds, come in both liquid and granular formulations, and have not been effective on Eurasian watermilfoil.
A. True B. False

8. Any aquatic plant identified as _____should be sent to a specialist for positive identification since hydrilla is such a serious threat to fresh water habitats. It is only through early identification and concentrated control methods that there is any hope of eliminating hydrilla. Fishermen or boaters in waters known to have hydrilla should make every effort not to accidentally transport hydrilla from one lake or pond to another.
A. Water lettuce C. Parrotfeather
B. Egeria, elodea, or hydrilla D. None of the above

9. In soft waters (below 50 parts per million hardness) some herbicides are more toxic to fish and plants.
A. True B. False

10. Some herbicides contain copper and should be used with caution in water ponds less than 500 parts per million water hardness.
A. True B. False

Aquatic Herbicides and Controls Section Topic 10

1. _____is used as a defoliant for a wide range of crops and as a herbicide for both terrestrial and aquatic weeds.
A. Glyphosate herbicide C. Endothall
B. Dithiopyr D. None of the above

2. Field and laboratory tests show that _____ usually remains in the top inch of soil for long periods of time after it is applied.
A. Fluridone C. Diquat
B. 2,4-D D. None of the above

3. Diquat itself is an acid, but it is commonly used in salt form, most commonly the isopropylamine salt
A. True B. False

4. Some formulations of _____ are highly toxic to fish while others are less so. For example, the LC50 ranges between 1.0 and 100 mg/L in cutthroat trout, depending on the formulation used. Channel catfish had less than 10% mortality when exposed to 10 mg/L for 48 hours.
A. Fluridone C. Diquat
B. 2,4-D D. None of the above

5. _____can be effective for spot treatment of Eurasian watermilfoil and is relatively selective to Eurasian watermilfoil when used at the labeled rate.
A. Triclopyr C. Dithiopyr
B. Nonglyphosate herbicide D. None of the above

6. _____ can show good control of submersed plants where there is little water movement and an extended time for the treatment. Its use is most applicable to whole-lake or isolated bay treatments where dilution can be minimized. It is not effective for spot treatments of areas less than five acres.
A. Reward C. Fluridone
B. Diquat D. None of the above

7. Most species of algae can be controlled with very low concentrations of_____. It is available in crystalline nuggets the size of rock salt or as a finely ground "snow" grade.
A. Copper sulfate C. Dithiopyr
B. Cutrine Plus D. None of the above

8. _____, under field conditions, is effective in controlling a broad range of algae including Chara, Spirogyra, Cladophora, Vaucheria, Ulothrix, Microcystis, and Oscillatoria. Effective in hard water.
A. Cutrine Plus C. Dithiopyr
B. Copper sulfate D. None of the above

9. _____ is a concentrated liquid aquatic herbicide effective against a wide variety of submersed, emergent, and floating aquatic plants including duckweed, naiads, and cattails.
A. Reward C. Fluridone
B. Diquat D. None of the above

10. _____poses virtually no environmental risk in aquatic applications because the herbicide concentration rapidly decreases as it is absorbed onto soil, vegetation, and organic matter.
A. Reward C. Dithiopyr
B. Fluridone D. None of the above

Invasive Plant Rule Section Topic 11

1. Any contaminated food should be discarded, and dishes and utensils should be thoroughly washed.
A. True B. False

2. All herbicides can be classified as either selective or nonselective. _____kill certain weeds with little or no injury to the crop. It is the difference in plant response that determines the effectiveness of the herbicide and safety to the crop.
A. Phenoxy herbicide(s) C. Selective herbicides
B. Nonselective herbicide(s) D. None of the above

3. _____ are those which will kill or injure virtually all kinds of vegetation.
A. Selective herbicides C. Nonselective herbicide(s)
B. Light Herbicide(s) D. None of the above

4. Volatility refers to the ability of an herbicide to vaporize and to mix freely with the air.
A. True B. False

5. _____may produce vapors that can be carried great distances from the target area to other crop sites. Such herbicide volatility can also reduce the rate of application to the target area. A row of grapevines severely injured by herbicides used to clear the nearby railroad.
A. Herbicide use(s) C. Volatile herbicides
B. Phenoxy herbicide(s) D. None of the above

6. _____has been most often involved in crop injury by off-target drift. The phenoxy group includes 2,4-D, 2,4,5-T, 2,4-DB, 2,4,5-TP (Silvex) and MCPA. These herbicides are most commonly used for the control of broad-leaved weeds in crops and for the control of undesirable woody species.
A. Ester(s) C. The phenoxy group of herbicides
B. Non-selective herbicides D. None of the above

7. Although there is no legal obligation for herbicide applicators to take stock of sensitive crops in the area of application and to consult and cooperate with neighbors in matters of _____, it is advisable to do so.
A. Herbicide use(s) C. Herbicide volatility
B. Greater concentrations of the herbicide(s) D. None of the above

8. Growers of sensitive crops are not obligated to inform operators of surrounding farms and local industries of the presence and sensitivity of their crops, but it is advisable to seek the cooperation of neighbors in the use of _____.
A. Hazardous pesticides C. Registration and labeling of a particular pesticide(s)
B. Non-selective herbicides D. None of the above

9. _____are more or less volatile. Vapors can arise from the herbicide while mixing, during and after application.
A. Non-selective herbicide C. Phenoxy herbicides
B. Nonglyphosate herbicide(s) D. None of the above

10. The use of a pesticide in any way contrary to the label is a violation of federal law.
A. True B. False

When Finished with Your Assignment

REQUIRED DOCUMENTS
Please scan the **Registration Page, Answer Key, Survey and Driver's License** and email it to info@TLCH2O.com.

IPhone Scanning Instructions
If you are unable to scan, take a photo of these documents with your **iPhone** and send these photos to TLC, info@TLCH2O.com.

FAX
If you are unable to scan and email, please fax these to TLC, if you fax, call to confirm that we received your paperwork. **(928) 468-0675**