

Desert Green XVIII

November 6, 2014

Pesticide I

Day 1

TIME	SUBJECT	PRESENTER	CEU Credit
9:00 am – 10:00 am	Turfgrass Diseases and Disorders in the Landscape and Athletic Fields	Kathy Kosta, CDFA	NV/UT = NV-14-126 (1 Gen) AZDA = PS-140-14A AZOPM = 0814/41/4.0 CAST = CADPR =
10:00 am – 10:30 am	Break with Exhibitors		
10:30 am – 11:30 am	Organic Products for Landscape, Trees and Shrubs	Angela O'Callaghan, UNCE	NV/UT = NV-14-126 (1 Gen) AZDA = PS-141-14A AZOPM = 0814/42/1.0 CAST = CADPR =
11:30 am – 12:30 am	Federal Record Keeping / Disposal	Scott Cichowlaz, NDA	NV/UT = = NV-14-126 (1 Law) AZDA = PS-142-14A AZOPM = 0814/43/1.0 CAST = CADPR =
12:30 – 1:30 pm	Lunch with Exhibitors		
1:30 pm – 2:30 pm	Weed Laws? What Weed Laws?	Robert Little, NDA	NV/UT = NV-14-126 (1 Gen) AZDA = PS-143-14A AZOPM = 0814/44/1.0 CAST = CADPR =
2:30 pm – 3:30 pm	Terrestrial Weeds and Management	Jon Carpenter	NV/UT = NV-14-126 (1 Gen) AZDA = PS-144-14A AZOPM = 0814/45/1.0 CAST = CADPR =
3:30 pm – 4:30 pm	Aquatic Weeds and Management	Jon Carpenter	NV/UT = NV-14-126 (1 Gen) AZDA = PS-145-14A AZOPM = 0814/46/1.0 CAST = CADPR =
4:30 pm – 6:00 pm - Green Industry Mixer			

Course Numbers and CEU awarded

- ▶ CA Structural =
- ▶ CA Agriculture =
- ▶ Utah = See Nevada Hours
- ▶ AZ Agriculture = Approved
- ▶ AZ Office of Pest Management = Approved
- ▶ NV Agriculture = NV-14-126 (5 General, 1 Law)

November 7, 2014

Pesticide II

Day 2

TIME	SUBJECT	PRESENTER	CEU Credit
8:00 am – 9:00 am	Integrated Pest Management (IPM) Environmental Protection	ML Robinson, UNCE	NV/UT = NV-14-127 (1 Law) AZDA = PS-146-14A AZOPM = 0814/47/1.0 CAST = CADPR =
9:00 am – 10:00 am	(Pesticide) The art of Cleaning and Calibrating Spray Equipment and Spill Control	Kurt Smith, Target Specialty Products	NV/UT = NV-14-127 (1 Law) AZDA = PS-147-14A AZOPM = 0814/48/1.0 CAST = CADPR =
9:00 am – 10:00 am	(Advanced Arboriculture) Tree Diseases to Worry About	Kathy Kosta, CDFA	NV/UT = NV-14-127 (1 Gen) AZDA = PS-148-14A AZOPM = 0814/49/1.0 CAST = CADPR =
10:00 am – 10:30 am	Break with Exhibitors		
10:30 am – 11:30 am	Gophers Control	James Rodriguez, JT Eaton	NV/UT = NV-14-127 (1 Gen) AZDA = PS-149-14A AZOPM = 0814/50/1.0 CAST = CADPR =
11:30 am – 12:30 pm	(Pesticide) Turf and Landscape Insects of Concern	Jeff Knight, NDA	NV/UT = NV-14-127 (1 Gen) AZDA = PS-150-14A AZOPM = 0814/51/1.0 CAST = CADPR =
11:30 am – 12:30 pm	(Sports Turf) Tips from a Spray Tech	Bill Rohret, Sun City Highland Falls Golf Club	NV/UT = NV-14-127 (1 Gen) AZDA = PS-151-14A AZOPM = 0814/52/1.0 CAST = CADPR =
12:30 – 2:00 pm	Lunch with Exhibitors		
2:00 pm – 3:00 pm	PPE, Storage & Transportation, and Worker Safety	Charles Moses, NDA	NV/UT = NV-14-127 (1 Law) AZDA = PS-152-14A AZOPM = 0814/53/1.0 CAST = CADPR =
3:00 pm – 4:00 pm	(Pesticide) FIFRA, Drift Reduction, and the WPS	Charles Moses, NDA	NV/UT = NV-14-127 (1 Law) AZDA = PS-153-14A AZOPM = 0814/54/1.0 CAST = CADPR =
3:00 pm – 4:00 pm	(Sports Turf) Turfgrass Weed Control Update	Kai Umeda, UACE	NV/UT = NV-14-127 (1 Gen) AZDA = PS-154-14A AZOPM = 0814/55/1.0 CAST = CADPR ==

Course Numbers and CEU awarded

- ▶ CA Structural =
- ▶ CA Agriculture =
- ▶ Utah = See Nevada Hours
- ▶ AZ Agriculture = Approved
- ▶ AZ Office of Pest Management = Approved
- ▶ NV Agriculture = NV-14-127 (3 General, 3 Law)

General Nevada CEU Information

Nevada Certification Information: Full Attendance to Pesticide I and II (both days) will earn an attendee twelve (12) Continuing Education Units (CEUs). Certification renewal by pesticide CE requires at least two (2.0) laws and ten (10.0) general CEUs.

For Nevada Certification, an exam administered by the Nevada Department of Agriculture (NDA) will need to be taken. Exams are given on Tuesday's at the NDA office in Las Vegas. Pre-registration and pre-payment is required by the Friday before the Tuesday in which the exams are to be taken. **A fee of \$25.00 will be collected by the NDA at the time of pre-registration.** The NDOA can accept CASH, CREDIT CARD, CHECK and P.O. (make check or P.O. payable to the NDA). A Nevada Pesticide Applicator Training Guide can be purchased at the Nevada Cooperative Extension for \$15.00 or may be downloaded at <http://www.unce.unr.edu/programs/sites/pesticide/> For Certification questions please contact the NDA at 702-668-4570.

For Nevada Licensees: Attendance to either day's sessions earns six Continuing Education Units (CEUs).

Utah and California CEU's have been applied for – See Scott Cichowlaz for approval information and CEU's awarded for each day.

Updated: 08/25/2014

Detailed Topics

DAY 1 (11/6/2014)

Turfgrass Diseases and Disorders in the Landscape and Athletic Fields (1.0 CEU General) Presenter: Kathy Kosta, CDFA

Turf disease is caused by any number of pests, such as fungi, bacteria or nematodes, and lawns can become damaged by poor cultural practices. Environmental or climatic conditions also play a key role in disease development. Often it is a combination of these factors that result in turf decline, making accurate diagnosis difficult. Participants will be guided through the diagnostic process to determine the true source of the problem, which is often cryptic. They will learn to recognize the early signs of turf stress and best management practices to avoid diseases. The symptoms and signs of turf diseases will be fully covered with photographs, in addition to information about the life cycles of the pathogens and nematodes. Methods of disease control will be discussed, including biocontrol methods. New and emerging turfgrass pathogens will be highlighted, with discussion on how to keep them out of the southwest.

Organic Products for Landscape, Trees and Shrubs (1.0 CEU General)

Presenter: Angela O'Callaghan, UNCE

There are many products available for pest control, but not all of them are appropriate for all landscapes. As more and more people seek to decrease their use of conventional pesticides, there is a need to find effective alternatives that are more "environmentally friendly".

Organic pesticides include herbicides, fungicides and insecticides. Some are more effective than others, and not all are "harmless".

This presentation will outline these alternative pesticides, their modes of actions, what research has found about their safety and efficacy. It will also address cost, their relative cost, means of application, and feasibility for use in commercial settings.

Federal Record Keeping / Pesticide Disposal (1.0 CEU Law)

Presenter: Scott Cichowlaz, NDA

Pesticide laws and regulations will be discussed in relation Restricted-Use Pesticides (RUPs) & the laws regarding record keeping. RUP record keeping requirements will be explained in detail. The need to keep accurate and legible records and who has access to the records will be explained. Federal USDA Private Applicator recordkeeping books will be made available to Private Applicators. The reporting form supplied by the Nevada Department of Agriculture will be given to all of the participants and participants will be shown how to navigate the NDA web site to find additional forms and reports, as well as, other valuable e-documents. Sections of the reporting form will be discussed along with the proper way to fill out in each of the sections.

Proper pesticide disposal will be discussed and Nevada's pesticide disposal program and pesticide collection days will be presented at the end of this session.

Weed Laws? What Weed Laws? (1.0 CEU General)

Presenter: Robert Little, NDA

The Federal Noxious Weed Act of 1974 will be reviewed with participants. The Federal Noxious weed definition will be explored. Examples of noxious weed found in the southwest will be identified and control or eradication means will be discussed. A field guide to noxious weeds will be provided to attendees. Federal and state regulations prohibiting the movement of noxious weeds and the enforcement of the regulations will be discussed. Time permitting the establishment and enforcement of weed control districts will be presented as well as how noxious weeds get listed and removed.

Terrestrial Weeds and Management (1.0 CEU General)

Presenter: Jon Carpenter

Principles of weed management regarding invasive and ornamental weed species including annual, biennial and perennial weeds will be highlighted. Integrated weed management will be emphasized where appropriate. Discussion of physical, mechanical, cultural, biological and chemical control will highlight this presentation. Emphasis will be made regarding the correct timing of control based on the life cycle of the weed, environmental conditions, and safety of the applicator and to those working in the area.

Aquatic Weeds and Management (1.0 CEU General)

Presenter: Jon Carpenter

Discussion about common aquatic weeds including algae and vascular plants. This discussion will include Integrated Pest Management (IPM) strategies such as prevention, mechanical, biological, and chemical control methods. The presentation will focus on weeds in or near ornamental ponds. Time permitting a discussion on how to manage nuisance fish and other vertebrates in and around aquatic environments will be discussed.

Detailed Topics

DAY 2 (11/7/2014)

Integrated Pest Management (IPM)/Env. Protection (1.0 CEU Law)

Presenter: M.L. Robinson

Advanced integrated pest management techniques used in scouting landscapes will be shared. The tools necessary to perform good scouting as part of a commercial pesticide program will be demonstrated. How good integrated pest management reduces environmental risk will be discussed. Liability issues regarding pest control and integrated pest management will also receive attention.

The art of Cleaning and Calibrating Spray Equipment and Spill Control (1.0 CEU (Law)) Presenter: Kurt Smith, Target Specialty Products

The importance of regular equipment cleaning will be discussed. The calibration of a truck mounted power sprayer will be demonstrated via a hands-on demonstration. Emergency response to spills and accidents with regard to pesticides will be emphasized. The procedures for indoor and outdoor spills will be demonstrated. Components of a spill kit will be shown and discussed. The proper containment and disposal of spilled pesticide pesticides will be explained. Safety considerations regarding the operator, applicator and the environment will be discussed, including PPE. Time permitting, preventative actions, including what causes accidental spills and common sense "do's" and "don'ts" with regards to spills will be presented.

Tree Diseases to Worry About (1.0 CEU General) Presenter: Kathy Kosta, CDFA

The principles of plant pathology including the disease triangle, resistance and susceptibility of hosts, climate, soil and environmental conditions, and plant pathogens will be discussed. Integrated pest management will be emphasized. The use of the avoidance, sanitation, resistance, proper cultural practices, mechanical processes, biological agents, biorational products, and standard chemical treatments as control and management alternatives will be presented. Tree diseases commonly found in the western US will discussed along with identifying the disease and giving potential management options.

Gopher Control (1.0 CEU General)

Presenter: James Rodriguez, JT Eaton Co., Inc

Class introduction/Review Deaths that occurred using a fumigant and why control products and application methods have changed.

- Discuss body characteristics

- General Biology: Thomomys-

- General Biology/Mating

- General Biology and irrigation

- Characteristics of a burrow system

- Discussion of vertical view and as seen from above burrow system

 - Picture and discussion of gopher nest and why not to bait in these locations

 - Picture and discussion of gopher feeding holes

 - Discussion; Ask for examples of Damage caused by gophers

 - Damage examples

- Various Trapping Devices

 - Diagram of a gopher probe.

 - Picture on how to determine the direction of burrow runway

 - How to probe gopher around gopher mounds

 - Diagram demonstrating probing and trap placement

 - Picture of gopher bait block

- Label Review

 - Public Safety

 - Note to Physician: If ingested, administer Vitamin K1 intramuscularly or orally indicated in bishydroxycoumarin overdoses. Repeat as necessary based on monitoring of prothrombin times.*

 - First Aid for JT Eaton Co., Inc Answer for Gopher

 - Review Procedure; If swallowed, if on skin or clothing, if in eyes

- Gopher Behavior Modifiers

- Benefits of gophers

- Methods to protect young trees from voles

Turf and Landscape Insects of Concern (1.0 CEU General) Pesticide Session

Presenter: Jeff Knight

Principles of entomology and insect identification will be shared with pesticide applicators. Insect morphology and development along with selected lifecycles will be discussed. Common turf and landscape insect pests will be shown and their most important identifying characteristics pointed out. The importance of ID and submission for ID will be discussed and straightforward control measures will be discussed for each of the identified turf and landscape common pest.

Tips from a Spray Tech (1.0 CEU General) Sports Turf Session

Presenter: Bill Rohret, Sun City Highland Falls Golf Club

Introduction: 5 minutes

- a) Prospective moving from a Superintendent to Spray Tech
- b) How times have changed over the years

Typical Day as a Spray Tech: 20 minutes

- a) Sprayer check list
- b) Communication with the Golf Course Superintendent
- c) Filling and mixing procedure
- d) On course chemical application
- e) Cleaning equipment

Proper Safety Equipment and Clothing: 15 minutes

- a) What to wear
- b) What to watch out for when cleaning clothes, boots, etc.

Why Spray Tech's and Superintendent's get fired: 5 minutes

- a) Poor communication
- b) Mis-labeled containers
- c) Not paying attention
- d) Sloppy record keeping

What to do when: 10 minutes

- a) Dept. of Ag shows up
- b) Health Dept. shows up
- c) OSHA shows up
- d) Local news show up

PPE, Storage & Transportation, and Worker Safety (1.0 CEU Law) - Pesticide Session

Presenter: Charles Moses

PPE and labeling will be discussed as well as the differences between the components that make up PPE. Selection based on the pesticide labels requirements will be reviewed. Proper pesticide storage and safety considerations regarding the operator, applicator and the environment will be discussed. The applicator will understand the need for safe pesticide transportation and how to reduce associated risks. Proper loading, hauling, and unloading of pesticides will be reviewed. General pesticide safety training (non-WPS), SDS's, decontamination, and preventing heat related illnesses will be discussed.

FIFRA, Drift Reduction, and the WPS (1.0 CEU Law) - Pesticide Session

Presenter: Charles Moses

The basics of a certification program (differences between certification and licensing), the laws and regulations regarding transport of pesticides will be presented. The federal Worker Protection Standards as well as the "Agricultural Use Requirements" and "Non-Agricultural Use Requirements" sections of the pesticide label will be discussed. Worker training and enforcement issues related to WPS will be reviewed. Management considerations in applying pesticides to prevent drift reduction, groundwater and surface water contamination will be discussed. A summary of the food quality protection act will be presented along with current amendments and developments for pesticide applicators. Discussion regarding the registration and re-registration of pesticides and the concept of filling a risk cup will be made. Discussion along with questions and answers will be available.

Turfgrass Weed Control Update (1.0 General) – Sports Turf Session

Presenter: Kai Umeda

The performance of several relatively new herbicides will be described for weed control efficacy and turfgrass safety. Herbicides have been experimentally investigated and compared for efficacy against difficult to control weeds such as Poa annua, purple nutsedge, goosegrass, and selectively removing undesirable grasses from cool- or warm-season turfs. The list of herbicides includes Pylex, PoaCure, Dismiss CA, Tribute Total, Celsius, Xonerate, SureGuard, and Specticle. Additionally, the phenomenon of herbicide resistance has not yet been a cause for alarm in the southwest desert turfgrass growing region. However, a very common desert weed, Palmer amaranth was found to be resistant to glyphosate in an agricultural crop field in central Arizona. It is important that there be an awareness of the potential for weed resistance to develop in turf and landscapes. Means of mitigating development of herbicide resistant weeds in turf and landscapes will be described.

Presenter List

Kathleen Kosta

A graduate of Cal Poly, San Luis Obispo, Kathy has worked as a plant pathologist for 33 years. After eight years as a technician in the California Department of Food and Agriculture, Plant Pathology Laboratory, Kathy accepted the position of Nevada State Plant Pathologist for the Nevada Department of Agriculture. She worked for seven years throughout Nevada with farmers, arborists and landscapers alike. As the sole plant pathologist for the state, she worked on diseases of many types of plants from turfgrass to palm trees to potatoes. After leaving Nevada, Kathy worked as a Field Plant Pathologist for CDFA for 10 years. Her work primarily included performing inspections of plant materials imported from out of the country or state, surveys for exotic plant diseases, including agricultural crops as well as landscape and forest pathogens, and training County Agricultural Commissioner's staff biologists on plant diseases. In 2006, Kathy accepted the position of Primary State Plant Pathologist for CDFA serving as advisor and representative of the Department on issues concerning plant diseases. In early 2012 she changed positions and now works on the disease known as Sudden Oak Death, caused by the pathogen *Phytophthora ramorum*, which affects many tree species and ornamental plants in the nursery trade.

Dr. Angela O'Callaghan

Angela O'Callaghan is Associate Professor at the University of Nevada Reno, College of Cooperative Extension. As Area Specialist in Social Horticulture, her programs include: Food for Thoughts (School Gardens), Master Gardeners of Southern Nevada, and Composting in Southern Nevada. Her Community Horticulture Education Program consists of several parts: Growing in Small Places ("Patio farming"), Eat Smart/ Live Strong (senior horticulture and nutrition); Principles of Basic Landscape Management for entry level landscape professionals; Citizen Monitoring for Invasive Bark Beetles (Urban Forest health).

Her Master of Science (Fruit and Vegetable Science) and Doctor of Philosophy (Horticulture) were both awarded by Cornell University. She received her Bachelor's degree in Chemistry, with minors in Biology and English from the State University of New York College at Albany.

She has been a research technician at the Laboratory for Bioenergetics at State University of New York at Albany and a research assistant at the Howard Hughes Medical Institute of Harvard University Medical School in Boston, Massachusetts. She studied Horticultural Maintenance at the Arnold Arboretum of Harvard University and holds a certificate in Acupuncture from the New England School of Acupuncture.

While living in Massachusetts, she created a self-help advocacy center for poor and homeless women and their families; created volunteer program and "family buddy" program for families affected by HIV/AIDS and/or drug abuse, and she was manager and volunteer coordinator at a shelter for homeless women.

Scott D. Cichowlaz

Scott Cichowlaz, Agriculturist III / Continuing Education Coordinator, Nevada Department of Agriculture.

B.S. Education (major: General Science, Minor: Geography) from the University of Nevada at Reno, 1993.

I have worked for the Nevada Department of Agriculture (NDOA) for the last 20 years. I am currently working in the Pest Control Licensing Section as the Continuing Education Coordinator. I conduct routine pesticide inspection, both use and misuse. I moved from the Environmental Compliance Section of the NDOA where he had the responsibility for the EPA/State pesticide program in Southern Nevada & and the statewide groundwater protection program which protects Nevada's groundwater from pesticide contamination in 1999. I still act as the liaison for these programs in southern Nevada. I began my career in the NDOA working for the State Entomologist in biological control section (APHIS) before moving to Las Vegas. I have worked on other NDOA programs, such as: protecting Endangered Species from pesticides, the Farm Worker Protection program, and have conducted many agricultural field inspections for plant diseases and insects.

Robert Little

Robert Little, Agriculturist III / Noxious Weeds Coordinator, Nevada Department of Agriculture.

B.S. Biology from the University of Nevada at Reno, 2006.

I have worked for the Nevada Department of Agriculture for the last 10 years. My first eight years were spent in the Entomology Program where I conducted invasive/problematic insect surveys under the APHIS Cooperative Agricultural Pest Survey program as well as the Grasshopper & Mormon Cricket Control Program. I have been the Noxious Weeds Coordinator for the past two years. I am responsible for enforcing Nevada's noxious weed laws under NRS chapter 555 statewide. I also communicate with the various federal, state, county, city, and private weed control programs and groups throughout the state to coordinate noxious weed control efforts. Our Noxious Weeds Program also has Weed Free Certification, Grants, Mapping, Outreach/Education, and Biocontrol components for which I share in coordination duties.

Jon Carpenter

Jon Carpenter worked at the Nevada Department of Agriculture for 25 years. He began his career in Elko and Winnemucca working on invasive weed management and rangeland insect control.

He began working in the pesticide program where he acquired the title of Environmental Scientist II. He coordinated the Worker Protection Standard and was responsible for pesticide waste collection and disposal.

Jon spent the last several years of his career coordinating the state groundwater protection program.

In addition Jon was heavily involved with state pesticide applicator certification and training where he presented topics including rodent and weed control as well as integrated pest management.

Jon retired from the Nevada Department of Agriculture in 2013.

M.L. Robinson

Teaching

With the University of Florida, I developed programming in fields of commercial horticulture including urban forestry, pesticide safety, CEU training, and retail and wholesale nursery training programs (using the text I wrote for graduate school). I developed on-going training programs for county, city, and parks employees. I facilitated county and statewide programs and developed advisory committees for each programmatic area that determined community needs.

With the University of Nevada Extension, I developed programming including Desert Bioscape (principles of sustainable desert landscaping) and Desert Green (regional conference for commercial clientele now in its 11th year). Over 350 people attend the Desert Green conference, which includes 36 different classes and a tabletop trade show. A colleague and I developed the correctional horticulture training program, a 16-class course presented in six institutions. Along with these and other programs, I developed materials for the classes. I also developed training related to palm care and growing in southern Nevada and the southwest. Water conservation, recycling, and water harvest is an important component of all my programming and research.

Research

In research, my record includes journal articles, presentations, posters, grants, fact sheets, and special publications on national and international levels. I am presently researching palm seed germination and new palms for southern Nevada. I am working on two books; growing cactus in Southern Nevada and growing palms in southern Nevada, similar to the date palm book I completed. In both Nevada and Florida, I have been instrumental in obtaining grant funding and in-kind donations. My most recent acquisitions were towards landscape development of the new off-campus extension building, which included more than \$20,000 in plants, landscape materials and other services. I obtained \$10,000 from the water authority for signage equipment last year. TV and other media are an important part of my teaching, allowing me to reach a large audience.

Education:

Doctorate Studies, *University of South Florida*, Adult Education, Tampa, FL (1988-1991)

University of Nevada Las Vegas, Environmental Studies, Las Vegas, NV (1997-2001)

Master of Science, Horticulture/Nursery Management, 1981
Brigham Young University, Provo, Utah - GPA 3.6

Bachelor of Science, Horticulture/Agriculture, 1975
Brigham Young University, Provo, Utah - GPA 3.4

Kurt Smith

Presently working for Target Specialty Products as the Southern Nevada Business Manager. I cover the Structural Pest, Termite and Landscape market in Southern Nevada, Southern Utah and Arizona. I have worked for Target Specialty Products a little over 9 years.

Prior I was with a large landscape distribution company as a Sales person for 4 years.

I also worked as Area Supervisor for a large commercial landscape management company for 4 years.

I have a B.S. in Business Management from Arizona State University.

James Rodriguez, A.C.E:

James is the National Marketing Manager for J.T. Eaton, in charge of the distribution of its pest control products in the US, professional division. He holds multiple state licenses in California, including pest control, termite control, fumigation, and is an Associate Certified Entomologist from the Entomological Society of America. James has 28 years of practical experience in the industry, and is a consultant to public and private entities for structural pest control, both rodent and insect. He also holds in-house training of employees and sales teams, and is a leading pest control educator in several states.

Jeff Knight

Born in Reno, Nevada

B. S. Degree from the Univ. of Nevada in Pest Management, 1977

M. S. degree in Entomology from Utah State University, 1981

Work Experience:

Nevada Department of Agriculture, Entomologist, Jan. 1993 until present

Nevada State Department of Agriculture, Agriculturist, Nov. 1985 till Jan 1993

University of Nevada, Reno, Extension Entomologist, Assistant Professor July 1982 till Oct. 1985

Current Duties:

Identification and recommendations for general insect and other pest problems.

Curate the arthropod reference collection for Nevada.

Teach classes in insect identification and management, specific to Nevada.

Conduct and coordinate surveys for pests of quarantine significance (Japanese beetle, gypsy moth, imported fire ant, chili thrips, red palm mite, Khapra beetle) and native insects of Nevada.

Oversee the Mormon cricket and grasshopper survey and control program for Nevada.

Conduct and coordinate releases of biocontrol agents for weed and insect pests.

Coordinate the Cooperative Agricultural Pest Survey (CAPS)

Charles Moses

Charles Moses, Environmental Scientist IV
Nevada Department of Agriculture
350 Capitol Hill Avenue
Reno, Nevada 89502

Education: Master of Science degree in Agribusiness, August 1983. Arizona State University, Tempe, Arizona.

Bachelor of Science degree in Forestry, March 1979. Michigan University, East Lansing, Michigan.

Professional Experience:

1987 to Present: Environmental Scientist IV, Nevada Department of Agriculture (NDOA): Program administrator at the Nevada Department of Agriculture, Environmental Compliance Branch. Chuck has oversight responsibilities for the U.S. Environmental Protection Agency, Pesticide Enforcement/Certification Cooperative Agreement, USDA SITC/Pesticide Record Keeping Program, and a Homeland Security sub-grant which resides at the NDOA. Chuck also serves as agency safety coordinator.

1986: Propagator, Palo Verde Nursery, Mesa, Arizona

1981-1985: Administrative Assistant, Inter-Tribal Council of Arizona

1984-1985: Pesticide Program Manager, Gila River Indian Community

1979-1980: Research Biologist, Arizona State University

1977: Nurseryman, Sno-Kist Tree Company, Cheboygan, Michigan

Chuck is the Environmental Compliance Branch Chief and is responsible for program outreach and enforcement related to federal/state laws that address pesticide use, production, distribution, and sale. He also works closely with the Nevada Cooperative Extension to develop related training program.

Bill Rohret CGCS

Began his golf course career in 1971

Was a Golf Course Superintendent for 39 years

Graduated from Kirkwood College with a degree in Horticulture/Turfgrass

Management

Became a Certified Golf Course Superintendent in 1991

Involved in 4 golf course construction projects

20 years experience at multi-golf course facilities

Was a Golf Course Superintendent in Las Vegas for 25 years

President of The Southern Nevada Golf Course Superintendents Association in 1989-1990

President of the Iowa Golf Course Superintendents Association in 1986

Currently semi-retired---and working at Sun City Highland Falls Golf Club as Spray Technician/Equipment Operator

Kai Umeda, Area Extension Agent, University of Arizona Cooperative Extension

Kai Umeda is an area extension agent for turfgrass science conducting research and outreach education with golf course superintendents, sports turf managers, and commercial, municipal, and school facilities personnel in Maricopa County and adjacent counties in central Arizona. He continually collaborates with other College of Agriculture and Life Sciences faculty in the School of Plant Sciences; Soil, Water, and Environmental Sciences; and Entomology Departments as well as other researchers across the country in academia and in industry to address the priority issues of the turfgrass managers.

Since 1994, Umeda has worked closely with faculty and industry colleagues to deliver relevant and innovative technologies to clientele. For 10 years, he conducted an extension program in vegetable crops by conducting herbicide and insecticide research and transferring technology to the vegetable and melon producers. In 2003, Umeda transitioned into his current turfgrass science responsibilities. His turfgrass extension program areas of emphasis are weed science, pest management, and turf management cultural practices.

He actively conducts applied field research to demonstrate to his clientele how new and old practices work or don't work. Turf painting, salinity management, weed control, and integrated pest management strategy adoption have been major projects welcomed by turf managers. Most of his research results of field research programs are available online at <http://turf.arizona.edu> or published with other colleagues in professional journals or shared at professional society conferences, in other reports, or presented at Cooperative Extension seminars, workshops, and field days. Additionally, articles about his research and technology transfer outreach have appeared in trade magazines and newspapers.

Umeda obtained a B.S. degree in pest management from the University of California, Berkeley and received his M.S. degree in weed science from Southern Illinois University. Prior to joining the University of Arizona, he worked in private industry conducting agrichemical research and development. Professionally, he is a member of the Weed Science Society of America, Western Society of Weed Science, Entomology Society of America, Agronomy Society, Council for Agricultural Science and Technology, Golf Course Superintendents and the Sports Turf Managers Associations.

Name: _____ **State:** _____

Answer only the questions for the sessions you attended. A minimum score of 70% must be obtained to get credit. Circle the best answer.

Exam Questions:

Session: Turfgrass Diseases and Disorders in the Landscape and Athletic Fields

- 1) Most turfgrass diseases are caused by:
 - (a) Viruses
 - (b) Bacteria
 - (c) Fungi
 - (d) Nematodes

- 2) A common turf disease is:
 - (a) fairy ring
 - (b) melting out
 - (c) rust
 - (d) all of the above

- 3) Cultural practices play a major role in turf disease.
 - (a) True
 - (b) False

- 4) The best time to irrigate to avoid disease development is:
 - (a) late at night
 - (b) during the hottest time of the day
 - (c) early morning
 - (d) none of the above

- 5) One of the most common problems in management of athletic fields is compaction.
 - (a) True
 - (b) False

- 6) Choose the best method of irrigating which will result in the healthiest, most vigorous lawn.
 - (a) Irrigate for a few minutes several times a day, to keep the lawn moist as much as possible.
 - (b) Irrigate deeply and infrequently, but enough to keep the turfgrass from drying out.

- 7) Circular patterns of declining turf is a symptom of fairy ring.
 - (a) True
 - (b) False

- 8) A nematode known to have infested turfgrass in some areas of the desert southwest is known as:
 - (a) Needle
 - (b) Sting
 - (c) Dagger
 - (d) None of the above.

- 9) Diseases can be moved around from one site to another by:
- (a) equipment
 - (b) tools
 - (c) shoes
 - (d) all of the above
- 10) Perhaps the most damaging disease on golf course greens, partly because it is often difficult to get under control is:
- (a) Brown Patch
 - (b) Melting Out
 - (c) Pythium
 - (d) Dollar Spot

Session: Organic Products for Landscape, Trees and Shrubs

- 11) There are currently no organic controls for aphids.
- (a) True
 - (b) False
- 12) Organic weed control is never as effective as conventional method.
- (a) True
 - (b) False
- 13) Organic Pesticides include\
- (a) Insecticides
 - (b) Fungicides
 - (c) Rodenticides
 - (d) All of the Above
- 14) Because they are “natural” applying organic pesticides
- (a) Does not need the same level of safety protocols as conventional
 - (b) Requires a higher level of safety protocols
 - (c) Requires about the same level
- 15) Organic herbicides are generally
- (a) Systemic (translocated)
 - (b) Contact (burn-down)
 - (c) Neither
- 16) For a horticulture items (not edible) to be labeled Organic in the US, it must contain the logo of
- (a) USDA
 - (b) EPA
 - (c) OMRI
 - (d) USDOD
- 17) An organic pesticide does not require a signal word on the label.
- (a) True
 - (b) False
- 18) If a product is “natural”, it is “organic”..
- (a) True
 - (b) False
- 19) State governments do not regulate organic pesticides.
- (a) True
 - (b) False

- 20) A synthetic ingredients are allowed in an organic system if:
- (a) There is no natural alternative
 - (b) It contains no alcohols
 - (c) It is listed on the National List of Allowed and Prohibited Substances
 - (d) It is a soap or a detergent

Session: Federal Record Keeping / Pesticide Disposal

- 21) How long must a Nevada "Certified Applicator" keep application records?
- (a) 6 months,
 - (b) 1 year,
 - (c) 2 years,
 - (d) 4 years
- 22) Besides meeting the requirements, how can pesticide application records be helpful to you?
- 23) A Nevada "Certified Applicator" can renew a certification via CEU's?
- (a) True
 - (b) False
- 24) How can pesticide records help you to improve your pest control practices and efficiency?
- 25) When is the best time to fill out record sheets? Why?
- 26) Why bother filling out standard forms? Why not just jot down the things you need to know?
- 27) The proper order of the "3-C" approach for addressing pesticide spills is:
- (a) Contain, control, clean-up
 - (b) Clean-up, contain, control
 - (c) Control, contain, clean-up
 - (d) Control, clean-up, contain
- 28) Which of the following items would **NOT** be found in a pesticide spill kit?
- (a) Water
 - (b) Absorbant material
 - (c) A bucket or plastic bags
 - (d) Broom and dust pan
 - (e) Bleach

- 29) In Nevada, guidance for the proper disposal of pesticides and pesticide containers can be found:
- (a) On the pesticide label
 - (b) By contacting the local health or environmental agency
 - (c) From the Nevada Department of Agriculture
 - (d) All of the above
- 30) If you believe that you or a family member has become ill from a pesticide exposure:
- (a) call the Department of Agriculture before you do anything else
 - (b) call the local poison control center
 - (c) seek medical assistance
 - (d) call the EPA immediately
 - (e) b and c

Session: Weed Laws? What Weed Laws?

- 31) How many weeds are listed as noxious in Nevada?
- (a) 106
 - (b) 47
 - (c) 63
 - (d) 25
- 32) Is Cheatgrass (*Bromus tectorum*) a noxious weed in Nevada?
- (a) Yes
 - (b) No
- 33) Name three general methods for controlling weeds?
- (a) _____
 - (b) _____
 - (c) _____
- 34) According to Nevada law, who is responsible for controlling noxious weeds?
- (a) The Federal Government
 - (b) The Nevada Department of Agriculture
 - (c) The County
 - (d) All land owners/managers
- 35) Is tilling an effective treatment for Perennial pepperweed (*Lepidium latifolium*)?
- (a) Yes
 - (b) No
- 36) Name one place where you can find the official list of Nevada's noxious weeds.
- _____
- 37) Who can determine if a landowner's control methods are effective and if they are in compliance?
- (a) The Nevada Department of Agriculture
 - (b) The Bureau of Land Management
 - (c) The Environmental Protection Agency
 - (d) A Cooperative Weed Management Area
- 38) Can the Nevada Department of Agriculture conduct an abatement of noxious weeds?
- (a) Yes
 - (b) No
- 39) Are the State and Federal noxious weed lists the same?
- (a) Yes
 - (b) No

- 40) How many regulatory categories of noxious weeds are listed for Nevada?
- (a) 2
 - (b) 3
 - (c) 4
 - (d) 5

Session: Terrestrial Weeds and Management

- 41) At what life stage in a weeds development is it most effectively controlled using chemicals.
- (a) Seedling
 - (b) Vegetative
 - (c) Flowering
 - (d) Maturity
- 42) Chemicals that kill all plant life would be called:
- (a) selective herbicides.
 - (b) contact herbicides.
 - (c) non-selective herbicides.
 - (d) systemic herbicides
- 43) The term “Invasive Species” is used to identify newly introduced weeds?
- (a) True
 - (b) False
- 44) What is the first step in a weed control program?
- 45) Weeds compete with native vegetation, landscape and crop plants for:
- (a) pesticides and wind
 - (b) water and nutrients
 - (c) shelter and mates
- 46) Perennial weeds live for how long?
- (a) One year
 - (b) Two years
 - (c) Many years
- 47) Using several methods including mechanical, herbicide, biological, and prevention for weed control is considered:
- (a) Integrated Weed Management
 - (b) Superior Weed Management
 - (c) Implemented Weed Management
- 48) Herbicides that are toxic to a broad range of plants are called:
- (a) Selective herbicides
 - (b) Non selective herbicides
 - (c) Integrated herbicides
- 49) Which are considered barriers to herbicide uptake?
- (a) Roots and Stems
 - (b) Flowers and Leaves
 - (c) Leaf Cuticle and Leaf Hairs
- 50) Digging, burning, and mowing weeds is which type of weed control?
- (a) Preventive
 - (b) Mechanical
 - (c) Biological

Session: Aquatic Weeds and Management

- 51) The major aquatic weed problem in Nevada is:
- (a) Algae
 - (b) Floating plants
 - (c) Weeds growing inside the ditch bank
 - (d) Water plants rooted at the bottom of ponds and canals
- 52) Algae are:
- (a) Small non-vascular plants
 - (b) Vascular plants
 - (c) Attached by roots
 - (d) Flowering plants
- 53) Is the following statement true or false? When applying herbicides to control aquatic weeds growing in a pond the applicator should not treat the entire pond all at one time.
- (a) True
 - (b) False
- 54) A Nevada "Certified Applicator" can renew a certification via CEU's?
- (a) True
 - (b) False
- 55) Which one of the following is considered a preventative method of aquatic weed control?
- (a) Using rip-rap around the edge of ponds
 - (b) Applying granular herbicides
 - (c) Burning ditch banks
 - (d) Application of copper compounds
 - (e) Introduction of weed eating grass carp
- 56) What are the two major types of aquatic weeds?
- (a) Vascular plants and algae
 - (b) Algae and moss
 - (c) Vascular plants and evergreens
- 57) Which one is a true statement regarding algae?
- (a) Algae has stems and flowers.
 - (b) Algae is classified as vascular plant.
 - (c) Algae does not have roots or leaves
- 58) Which one is a category of vascular plants?
- (a) Emergent
 - (b) Microscopic
 - (c) Filamentous
- 59) To prevent fish kills how should aquatic herbicides be applied to ponds?
- (a) Aquatic herbicides should be applied all at once - during one application.
 - (b) Aquatic herbicides should be applied to only 1/3 of the pond at a time.
 - (c) Ponds are not listed on aquatic herbicide labels.
- 60) Aquatic weeds spread during mechanical harvesting through the process of:
- (a) Fragmentation
 - (b) Soil erosion
 - (c) Runoff

Session: Integrated Pest Management (IPM) Env. Protection

- 61) Integrated Pest Management (IPM) integrates all of the following pest control techniques to prevent and suppress pest problems, except:
- (a) mechanical control
 - (b) biological control
 - (c) neglect of the problem
 - (d) chemical control
- 62) IPM incorporates a _____ view of pest management problems.
- (a) focused
 - (b) holistic
 - (c) exclusion
 - (d) long-term
- 63) List four "Tools" necessary for a good pest scouting program:
- a. _____
 - b. _____
 - c. _____
 - d. _____
- 64) Pesticide toxicity refers to:
- (a) How bad the pesticide smells
 - (b) How much carryover to expect in the following crop
 - (c) How much residue is allowed on our food
 - (d) The ability of the pesticide to cause harmful effects
- 65) Human health risk from a slightly-toxic pesticide is increased by:
- (a) Using less product
 - (b) Repeated exposure
 - (c) More PPE
 - (d) None of the above
- 66) How would you define integrated pest management?
- 67) Pheromone traps are primarily used for
- (a) Detecting which insects are currently active in the orchard.
 - (b) Catching insects for identification and selecting the correct pesticide to use.
 - (c) Coordinating an IPM program used to control a specific insect.
 - (d) Scouting an orchard to determine beneficial insects present.
- 68) Why is the proper identification of pests so important?
- 69) Types of chronic effects of pesticide exposure may include:
- (a) Cancer
 - (b) Developmental effects
 - (c) Nerve disorders
 - (d) All of the above
- 70) What are some of the benefits of integrated pest management?

Session: The art of Cleaning and Calibrating Spray Equipment and Spill Control

- 71) Before the process of calibration can begin, what factor(s) must be considered?
- (a) The pest to be controlled and the pesticide chosen
 - (b) Where the pest will be
 - (c) The type of equipment
 - (d) Weather conditions
 - (e) All of the above
- 72) The benefit of calibrating your spray equipment is to reduce the potential for:
- (a) Illegal pesticide residues
 - (b) Injury to plants and animals
 - (c) Excessive runoff
 - (d) Lawsuits and fines
 - (e) All of the above
- 73) If you are spraying more gallons per acre than is recommended or desired, how can you change the output?
- (a) Change the tractor speed
 - (b) Change pressure
 - (c) Change nozzles
 - (d) All of the above
- 74) In the refill method of calibration you must have information on:
- (a) Size of the area to be treated
 - (b) The size of your spray tank
 - (c) A pesticide label which contains the recommended rate of application or dilution rate
 - (d) a, b, and c
 - (e) The LD 50 of the pesticide product
- 75) Even if you have correctly calibrated your sprayer, the incorrect amount of pesticide can be applied to the target area by:
- (a) Improper mixing of the pesticide with the carrier in the spray tank
 - (b) Using an incorrect amount of pesticide in the spray tank
 - (c) Applying the pesticide in the morning when the air is calm
 - (d) Both (a) and (b)
- 76) How often should you calibrate your spraying equipment?
- 77) Which tips need service or replacement more Brass or Stainless steel?
- 78) If a pesticide spill occurs, you should:
- (a) Hose down the area with lots of water
 - (b) Contact your lawyer
 - (c) Control, contain and clean up the spill
 - (d) Allow the spill to be absorbed into the ground
- 79) In the event you spill a pesticide on yourself during the busy spring planting season, the best procedure is to:
- (a) Continue working, as rain is forecasted
 - (b) Wipe the pesticide off with a rag and get back to work
 - (c) Wash the pesticide off with soap and water
 - (d) Allow the pesticide to dry before going back to work

- 80) What should be done with unusable pesticide material?
- (a) Store and mark as outdated
 - (b) Treat as hazardous waste and dispose of accordingly
 - (c) Throw away as regular or construction waste
 - (d) Bury in fallow area

Session: Gopher Control

- 81) Gophers live an almost total subterranean life
- (a) True
 - (b) False
- 82) Gophers are social animals except during breeding season?
- (a) True
 - (b) False
- 83) Gophers can close their lips behind teeth to keep out dirt?
- (a) True
 - (b) False
- 84) Irrigated areas can lead to gophers having more litters per year?
- (a) True
 - (b) False
- 85) Gopher holes can cause injuries to livestock?
- (a) True
 - (b) False
- 86) In California and the southwest gophers hibernate during the winter or colder months?
- (a) True
 - (b) False
- 87) Sexual maturity for a gopher is around 1 year of age?
- (a) True
 - (b) False
- 88) It is best to probe for Gophers 12-18 inches from mound?
- (a) True
 - (b) False
- 89) Vitamin K1 is the antidote for JT Eaton's Answer for Gophers block bait?
- (a) True
 - (b) False
- 90) After baiting or probing you need to cover opening to prevent light from entering burrow?
- (a) True
 - (b) False

Session: Turf and Landscape Insects of Concern

- 91) Insects rarely act as vectors to transmit disease from plant to plant.
- (a) True
 - (b) False
- 92) There are numerous ways to limit or prevent the introduction of new insect pests. Which of the following is not considered a suitable control measure?
- (a) Regulatory control
 - (b) Inspections at the border
 - (c) Quarantines
 - (d) Limiting the number of plants grown in local nurseries
 - (e) Certifications at the originating nursery

- 93) Pesticide use to control certain pests may result in an outbreak of other pests due to a variety of factors.
(a) True
(b) False
- 94) All insects have a complete life cycle.
(a) True
(b) False
- 95) Insects comprise one group of animals within a larger group called ARTHROPODS.
(a) True
(b) False
- 96) Name two insect pests that do not occur, or have limited occurrence, that are of a concern to the Western United States.
- 97) Turf insects can be effectively controlled at any stage in their life cycle
(a) True
(b) False
- 98) White grubs are the larvae of what insect
(a) June beetles and Chafers
(b) lawn moths
(c) billbugs
(d) chinch bugs
- 99) Imported fire ants (*Solenopsis invicta*) are found in southern Nevada
(a) True
(b) False
- 100) Scale insects are best controlled in the crawler stage.
(a) True
(b) False

Session: Tips from a Spray Tech

- 101) Why do Spray Tech's get fired?
- 102) After a day of applying pesticides it is alright to wash you work clothes with the rest of your families laundry the label of any herbicide you
(a) True
(b) False
- 103) When someone from the Dept of Agriculture visits your work place, it is a good idea to have your Pesticide Applicators license and chemical application records handy
(a) True
(b) False
- 104) Before you begin a pesticide application it is important to make sure your spray equipment is calibrated correctly
(a) True
(b) False
- 105) You should change the spray nozzles every 5 years whether they need it or not.
(a) True
(b) False
- 106) If a supervisor tells you what pesticides to apply, it is not your responsibility to read the pesticide label

- (a) True
- (b) False

107) Smoking is never permitted while mixing and applying pesticides

- (a) True
- (b) False

108) It is permissible for you to change the "pesticide label" application rate if **you** feel that more or less product would work better

- (a) True
- (b) False

109) Not wearing protective gloves and safety glasses while mixing pesticides is Ok if the wind is not blowing to hard

- (a) True
- (b) False

110) Pesticide containers should be triple rinsed, cut open, and disposed of in the nearest open body of water.

- (a) True
- (b) False

Session: PPE, Pesticide Storage and Transportation, & Worker Safety Tips

111) What should you do with the rinsate after triple-rinsing pesticide containers?

- (a) Pour down drain
- (b) Put into extra container
- (c) Add to pesticide mixture
- (d) Leave in rinsed container

112) What should be done with unusable pesticide material?

- (a) Store and mark as outdated
- (b) Treat as hazardous waste and dispose of accordingly
- (c) Throw away as regular or construction waste
- (d) Bury in fallow area

113) Shipping and packaging of pesticides by ground or air transportation is regulated by:

- (a) The U.S. Department of Transportation
- (b) The U.S. EPA
- (c) The Nevada Department of Wildlife
- (d) The U.S. Department of Labor
- (e) OSHA

114) When transporting pesticides in bulk containers, the pesticide should be in the pesticide manufacturer's approved container.

- (a) True
- (b) False

115) No PPE is required for green chemistries?

- (a) True
- (b) False

116) All products labeled to control insects outdoors can be used legally indoors as long as windows and doors are opened for at least 6 hours following the application.

- (a) True
- (b) False

117) 25b exempt products can be any product derived from a natural active ingredient?

- (a) True
- (b) False

- 118) Children are more sensitive to pesticide applications in the home because:
- (a) children more commonly put objects that have pesticide residue on them in their mouths than adults
 - (b) they touch their mouths and faces more than adults
 - (c) they breath a greater volume of air per body weight than adults
 - (d) their immune systems are not fully developed
 - (e) all of the above
- 119) 25b exempt products can make any claim regarding efficiency?
- (a) True
 - (b) False
- 120) If you believe that you or a family member has become ill from a pesticide exposure:
- (a) call the Department of Agriculture before you do anything else
 - (b) call the local poison control center
 - (c) seek medical assistance
 - (d) call the EPA immediately
 - (e) b and c

Session: FIFRA, Drift Reduction, and the WPS

- 121) The Worker Protection Standard (WPS) is:
- (a) A federal regulation designed to limit farm worker and handler pesticide exposure
 - (b) An OSHA regulation designed to protect pesticide company employees
 - (c) A Nevada Pesticide Law regulation
 - (d) All of the above
- 122) Drinking water aquifers are so deep in the State of Nevada, it is not necessary to worry about contaminating them when mixing, applying, or disposing of pesticides.
- (a) True
 - (b) False
- 123) After obtaining initial certification, private applicators MUST retake exams every three years to maintain certification.
- (a) True
 - (b) False
- 124) The state lead agency in Nevada in charge of the certification of applicators and enforcement of both Nevada pesticide laws and FIFRA is:
- (a) Nevada Environmental Protection Agency
 - (b) Nevada Department of Agriculture
 - (c) Nevada Department of Health
 - (d) University of Nevada Cooperative Extension
- 125) If you are a private applicator, you may legally do which of the following applications without a certification?
- (a) Apply restricted-use products on your own land or land you rent.
 - (b) Apply general use products on your own land or land you rent.
 - (c) Apply general use and restricted-use products on your own land or land you rent.
 - (d) Apply general use pesticides for hire.
 - (e) Answers (a), (b), and (c) are correct.
- 126) If a pesticide product is legal to use in a commercial building or food handling establishment, it must be legal to use in a residential setting.
- (a) True
 - (b) False
- 127) Products that are classified as reduced risk pesticides, such as FIFRA Section 25b active ingredients are totally safe to use and always work better than traditional pesticide products registered by the U.S. Environmental Protection Agency.
- (a) True
 - (b) False
- 128) Restricted-use pesticides may be sold only by:
- (a) Custom applicators
 - (b) Private applicators

- (c) Licensed pesticide dealers
 - (d) Fertilizer dealers
- 129) All people engaged in the production of an agricultural commodity are required to be certified as a pesticide applicator if they use:
- (a) Any pesticide products
 - (b) Restricted-use pesticide products
 - (c) Certified organic products
 - (d) All of the above
- 130) Certification to use restricted-use pesticides may only be obtained initially in Nevada by:
- (a) Sitting through three hours of recertification training
 - (b) Paying the license fee
 - (c) Passing examinations and paying a fee
 - (d) Attending an approved training session

Session: Turfgrass Weed Control Update

- 131) Poa annua is a summer annual weed in turf.
- (a) True
 - (b) False
- 132) Purple nutsedge is a summer annual weed in turf and landscapes.
- (a) True
 - (b) False
- 133) Goosegrass is a perennial grass weed in turf.
- (a) True
 - (b) False
- 134) Pylex herbicide causes a bleaching or whitening effect on treated weeds.
- (a) True
 - (b) False
- 135) PoaCure is applied postemergence but is effectively taken up by the roots of P. annua.
- (a) True
 - (b) False
- 136) Dismiss CA (sulfentrazone) is in the family of sulfonylurea herbicides.
- (a) True
 - (b) False
- 137) Celsius and Tribute Total both contain thiencazzone as one of the combination of active ingredients.
- (a) True
 - (b) False
- 138) Xonerate has the active ingredient amicarbazone that has activity against P. annua.
- (a) True
 - (b) False
- 139) SureGuard and Specticle are effective against P. annua in dormant bermudagrass.
- (a) True
 - (b) False
- 140) Palmer amaranth is resistant to glyphosate in crops throughout the southern U.S. and was found to be resistant in an Arizona alfalfa field.
- (a) True
 - (b) False

Session: Tree Diseases to Worry About

141) Trees can become diseased by several methods. Name four of those methods.

142) Match the symptom:

- | | |
|--|-------|
| 1) yellow leaves | _____ |
| 2) swelling on branch | _____ |
| 3) ends of branches dying | _____ |
| 4) blossoms dead | _____ |
| 5) bottom of tree trunk decayed | _____ |
| 6) cambium under bark has dark streaks | _____ |

- a) *vascular discoloration*
- b) *crown rot*
- c) *blight*
- d) *dieback*
- e) *gall*
- f) *chlorosis*

143) When you come across an unusual disease or insect, who should you notify?

144) A large, fungal growth, or conk, on the side of a tree is indicative of what condition?

145) When vascular discoloration is discovered, what does that indicate?

146) Proper identification is a primary component of controlling insect pests. Which of the following would not be useful in making a correct ID of an insect?

- (a) Type of mouthparts
- (b) The absence or presence of wings, and if present the number of wings
- (c) Class of pesticide that will effectively kill the pest
- (d) The type of metamorphosis

147) Some insect pests cause minor damage but are still considered beneficial in the grand scheme of things. Which of the following is not a beneficial insect?

- (a) Ladybird Beetle
- (b) Lacewing
- (c) Leafcutter Bee
- (d) Praying Mantis
- (e) None of the above

148) Insects rarely act as vectors to transmit disease from plant to plant.

- (c) True
- (d) False

149) There are numerous ways to limit or prevent the introduction of new insect pests. Which of the following is not considered a suitable control measure?

- (f) Regulatory control
- (g) Inspections at the border
- (h) Quarantines
- (i) Limiting the number of plants grown in local nurseries
- (j) Certifications at the originating nursery

150) Pesticide use to control certain pests may result in an outbreak of other pests due to a variety of factors.

- (a) True
- (b) False