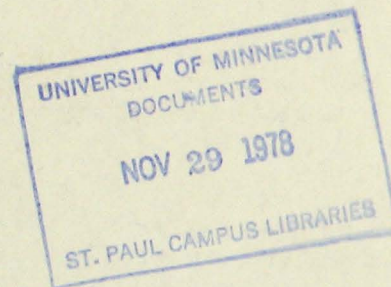


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Tests and Problems for Use in Private Pesticide Applicator Certification Training



Agricultural Extension Service
University of Minnesota

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May be used during the presentation of each phase of training, or questions may be selected for pre- and post-tests at beginning and end of training.

Contents

A. Knowledge of Pests	3
B. Pesticides and Pest Control	4
C. The Label and Labeling	5
D. Safety and Toxicity	6
E. Application Equipment	7
F. Environmental Concerns	8
G. Dilution and Calibration Problems	9
H. Laws and Regulations	10

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A. Knowledge of Pests

1. Plant diseases may be caused by:
 - insects
 - fungi
 - birds
 - machinery
 - all of the above
2. Summer annuals are plants that result from seeds which sprout in the:
 - spring
 - summer
 - fall
 - winter
 - all of the above
3. The stages of insect growth between molts is called:
 - larvae
 - instars
 - pupae
 - ovipositions
 - none of the above
4. Perennial weeds may reproduce by:
 - seed
 - rhizomes
 - tubers
 - bulbs
 - any of the above
5. A nematode is:
 - a highly specialized insect
 - a young earthworm
 - a single celled organism
 - a type of roundworm
 - none of the above
6. All adult insects have:
 - chewing mouthparts
 - eight jointed legs
 - three body regions
 - two wings
 - all of the above
7. Which of the following might be a pest?
 - beetle
 - tree
 - fungus
 - corn plant
 - any of the above
8. A winter annual is a plant which:
 - sprouts in the spring and produces seeds in the winter
 - sprouts in the fall and produces seed the following summer
 - sprouts late in the summer and produces seed before winter
 - sprouts in the spring and produces seed the following spring
 - sprouts one fall and produces seed the following winter
9. Adult ticks, spiders, and mites all have:
 - two antennae
 - eight jointed legs
 - three body regions
 - all of the above
 - none of the above
10. Which of the following causes scabs, blights, rots and rusts in plants?
 - non-living agents
 - living disease agents
 - excess moisture
 - nutrient deficiencies
 - none of the above

B. Pesticides and Pest Control

1. Mixing a wettable powder with water will form a(n):
 - emulsion
 - suspension
 - solution
 - dispersion
 - precipitate
2. Which of the following should be used dry?
 - ULV
 - dust
 - soluble powder
 - emulsion
 - none of the above
3. Which term describes the application of an herbicide after the weeds come up, or after both the crop and weeds come up?
 - preemergence
 - postemergence
 - preplant
 - postplant
 - none of the above
4. Proper pest control involves:
 - using a combination of methods to reduce pest damage
 - using non-chemical control for all pests
 - using control methods only when the pest is causing more damage than is reasonable to accept
 - combination of first and third choices above
 - combination of second and third choices above
5. A selective herbicide controls:
 - only weeds
 - only certain kinds of plants
 - all weeds in the field
 - only preemergent vegetation
 - none of the above
6. You should choose the pesticide which will give acceptable control and cause the least damage to:
 - target organisms
 - nontarget organisms
 - bees
 - all of the above
 - second and third choices above
7. Mixing an emulsifiable concentrate with water forms a(n):
 - emulsion
 - solution
 - dispersion
 - suspension
 - precipitate
8. Dipping, drenching, pour-on or spot treatment are different ways of applying pesticides to:
 - greenhouse crops
 - soil
 - livestock
 - trees
 - none of the above
9. Applying a pesticide along the midline of the back of cattle is called:
 - mainlining
 - side dressing
 - drenching
 - pour-on
 - none of the above
10. Granules may be formulated from:
 - clay
 - sand
 - corn cobs
 - walnut shells
 - any of the above

C. The Label and Labeling

1. A pesticide label must contain:
 - active ingredient statement
 - EPA registered establishment number
 - the words "Keep out of the Reach of Children"
 - EPA registration number
 - all of the above
2. Which signal words on the label indicate the greatest potential hazard to humans:
 - "Caution"
 - "Danger"
 - "Keep out of the Reach of Children"
 - "Warning"
 - "Toxic"
3. The "Directions For Use" section of the label tells you:
 - how to apply
 - how much to use
 - where to apply
 - when to apply
 - all of the above
4. The pesticide name which will remain the same on all labels regardless of which company made the chemical is:
 - chemical name
 - brand name
 - trade name
 - common name
 - first and fourth choices above
5. Who approves and registers pesticide labels?
 - federal EPA
 - University Experiment Station
 - chemical manufacturers
 - land grant universities
 - the Extension Service
6. The relative toxicity of a pesticide may be determined from:
 - the active ingredient statement
 - the directions for use section
 - the signal word
 - the environmental hazard section
 - the color of the label
7. If you want to apply a rate greater than that given on the label you may if you first:
 - contact your county agent
 - notify the EPA
 - get a permit from the state health department
 - sign an affidavit at the chemical dealer's.
 - none of the above
8. The brochures and literature which accompany the pesticide are considered as labeling:
 - true
 - false
9. You should take precautions when handling, mixing, and applying pesticides with the following signal word or symbol:
 - Skull and Crossbones
 - "Caution"
 - "Danger"
 - "Warning"
 - all of the above
10. The term, "Acid Equivalent" in the ingredients section of an herbicide label means:
 - that you should use the acid equivalent statement in determining your rate of application
 - that the acid equivalent amount is the same as the inert ingredients
 - that the formulation is acid and will corrode the pump
 - that the formulation is highly volatile and will drift
 - none of the above

D. Safety and Toxicity

1. The greatest hazard to the applicator of pesticides is from:
 - inhalation and ingestion
 - splashing in the eyes and ingestion
 - skin absorption and ingestion
 - inhalation and skin absorption
 - all of the above
2. The hazard of a pesticide to the user depends on:
 - LD/50 of the chemical
 - formulation used
 - application method
 - care taken by the user
 - all of the above
3. Allowing the filler hose to submerge in the water in the tank while filling may cause:
 - back filling
 - recycling
 - better mixing
 - back siphoning
 - slower filling
4. What contributes most to unsafe use of pesticides?
 - failure to follow label directions
 - using mechanical sprayers
 - using contaminated equipment
 - not wearing gloves
 - spraying into the wind
5. When hauling pesticides home from town the safest way is:
 - in the driver's compartment on the floor so you can watch them
 - in the trunk of the car in back of the groceries
 - fasten containers down in back of a truck
 - tied on top of the cab
 - at night when there is less traffic
6. The pesticide storage place should:
 - be dry and cool
 - admit lots of sunlight
 - have a wooden floor
 - have the door open to the prevailing wind
 - be small and inconspicuous
7. The best way to protect yourself from inhalation hazard when using a highly volatile toxic pesticide is:
 - natural rubber gloves
 - washing thoroughly before eating
 - working upwind
 - using a good dust mask
 - using a cartridge respirator
8. The safest way to mix pesticides for use is:
 - read label directions carefully and measure amounts accurately
 - mix slightly more than you think you'll need so you don't run out
 - add extra if the pest problem is very severe
 - hold the containers of concentrate up high so you can see what you are doing
 - all of the above
9. The triple-rinse-and-drain procedure makes 5 gallon containers usable for anything but drinking water:
 - true
 - false
10. What symptoms might indicate pesticide poisoning?
 - headache
 - nausea
 - dizziness
 - stomach cramps
 - any of the above

E. Application Equipment

1. If a sprayer is calibrated to apply 20 gallons per acre at 4 miles per hour, slowing the speed to 2 miles per hour will change the application rate to:
 - 40 gallons per acre (GPA)
 - 10 GPA
 - 5 GPA
 - 30 GPA
 - no change
2. The regular flat fan and flooding fan nozzles are both used mostly for:
 - spraying trees
 - spraying walls of barns
 - broadcast field spraying
 - soil injection
 - all of the above
3. Which of the following will reduce spray coverage?
 - smaller nozzle tip openings and increased ground speed
 - smaller nozzle tip openings and decreased ground speed
 - larger nozzle tip openings and increased ground speed
 - larger nozzle tip opening and decreased ground speed
 - overlapping the spray pattern
4. When following the rinse and drain procedure for emptying a liquid pesticide container, the rinse should be:
 - poured back into the original labeled container
 - buried in a low, poorly drained place
 - put into a hand sprayer for use around the yard.
 - poured into the sprayer tank with the mixed pesticide.
 - none of the above
5. The best way to clean a plugged nozzle is with a piece of soft wire:
 - true
 - false
6. When using a boom sprayer with flat spray nozzles the rate per acre can be increased by:
 - increasing the ground speed
 - increasing the pressure
 - decreasing the nozzle tip opening size
 - all of the above
 - none of the above
7. It is not a good idea to select a pump with excess capacity because it will put too much strain on the sprayer system:
 - true
 - false
8. Low pressure, boom type, field sprayers are designed to:
 - be versatile
 - provide best agitation
 - deliver high volume sprays for good coverage of foliage
 - all of the above
 - none of the above
9. An applicator made one pass spraying a fence line around a quarter section of land. How many feet of fence line did he spray?
 - 10,560 ft.
 - 2,640 ft.
 - 5,280 ft.
 - 21,120
 - none of the above
10. Granule applicators:
 - use pesticides that require thorough mixing before applying
 - are speed sensitive so require a constant speed
 - do not require calibration
 - give more uniform coverage of foliage than sprays
 - all of the above

F. Environmental Concerns

1. Once a pesticide container is empty it should be:
 - rinsed and drained and used as a trash barrel
 - rinsed and drained and turned over to the PCA
 - rinsed and drained and buried in a low, poorly drained area
 - rinsed and drained and recycled to a drum reconditioner or disposed of in an approved land fill
 - any of the above
2. Large droplets will drift farther than small droplets because they have greater mass and velocity:
 - true
 - false
3. Pesticides may enter surface waters by:
 - improper container disposal
 - drift
 - spills
 - draining and cleaning equipment
 - all of the above
4. With most pesticides we are concerned only with short-term effects on the environment:
 - true
 - false
5. Spray drift is greatest under which combination of conditions?
 - spray droplet size decreases and wind speed increases
 - spray droplet size increases and wind speed increases
 - spray droplet size increases and wind speed decreases
 - spray droplet size decreases and wind speed decreases
 - the wind speed equals the median mass diameter of the droplets squared.
6. What term describes the movement of pesticides away from the target area?
 - vaporization
 - absorption
 - drift
 - dilution
 - all of the above
7. A nontarget organism is:
 - one which can't be reached by the pesticide being applied
 - always beneficial
 - a plant or animal other than the pest
 - one which just got in the way
 - any of the above
8. "Biological magnification" refers to pesticides that:
 - can be seen only under a microscope
 - are applied in very small amounts
 - increase in concentration from low level food chain organisms to high level organisms
 - gradually increase in concentration in the fatty tissues after a single exposure
 - none of the above
9. Other things being equal, increasing the pressure will reduce drift:
 - true
 - false
10. Pesticides which are resistant to breakdown and remain for a relatively long time in soils, plants, or animals are said to be:
 - systemic
 - accumulative
 - persistent
 - nonpersistent
 - biodegradable

G. Dilution and Calibration Problems

1. The label on a 47 percent emulsifiable concentrate (EC) pesticide states that it contains 4 pounds of active ingredient per gallon. You want to apply $\frac{1}{2}$ pound active ingredient per acre. You have a sprayer with a 150 gallon tank. You calibrate it at 10 gallons per acre.
 - a). How much of the EC formulation do you want to apply per acre?

 - b). How many acres can you cover with your sprayer full?

 - c). How much of the EC formulation do you add to the sprayer tank for a full load?

2. You have a 15 percent granule formulation and want to apply 1 pound of active ingredient per acre in 10-inch bands over the rows on a 30-inch row spacing with a planter attachment.
 - a). How many pounds of granules will be applied per acre to the area of the bands actually treated?

 - b). How many pounds of granules would you need for 95 acres of crop?

3. You want to apply one pound of active ingredient per acre using an 80 percent wettable powder. The tank of your sprayer holds 200 gallons. The sprayer applies 15 gallons per acre using flat fan nozzles on a broadcast basis.
 - a). How much of the 80W formulation do you add to the tank for a full load?

 - b). How much of the 80W should be applied per acre?

 - c). How many acres can you cover with your sprayer full?

4. Your sprayer tank holds 50 gallons. You want to apply 1 pint of 45 percent EC per acre. How much formulation do you add to a full tank if you calibrate your sprayer at 10 gallons per acre?

5. Your sprayer tank holds 75 gallons. You calibrate it at 10 gallons per acre. The label of your pesticide calls for 2 pints per acre. How many pints of the concentrate do you add to a sprayer tank full?

6. Your sprayer tank holds 100 gallons. In a calibration run you poured $6\frac{1}{2}$ gallons of water back into the tank to fill it after spraying $\frac{1}{4}$ acre. What is your sprayer output in gallons per acre?

7. A recommendation for your pest problem calls for 2 pounds of 25 percent wettable powder per 100 gallons of finished spray. All you have is an emulsifiable concentrate of the same chemical containing 4 pounds active ingredient per gallon. Assuming the EC is a registered use:
 - a. How much active ingredient is called for in the spray?

 - b. How much of the EC do you use per 100 gallons? _____
8. How many pounds of 50 percent wettable powder must you add to 100 gallons of water to obtain a finished spray containing 0.5 percent active ingredient?

9. How many pints of a 25 percent EC formulation are needed to mix 50 gallons of a 1.0 percent finished spray?

10. Four pounds of a 50 percent WP were mixed in 100 gallons of water. What was the percent active ingredient in the finished spray?

H. Laws and Regulations

1. The federal law regulating pesticide sale and use is administered by:
 - HEW
 - IRS
 - EPA
 - USDA
 - IOU
2. The Minnesota state lead agency for pesticide regulation is:
 - Minnesota Department of Agriculture
 - Pollution Control Agency
 - Department of Natural Resources
 - University Experiment Station
 - County Extension Director
3. Restricted-use pesticides must be applied by or under the direct supervision of:
 - licensed restricted-use pesticide dealers
 - licensed aerial applicators
 - certified public accountants
 - certified applicators
 - county agricultural inspectors
4. Using a pesticide to control a pest which is not listed on the label is:
 - uneconomical
 - OK if you get the county agent's permission
 - legal but the company which made the chemical won't guarantee the results
 - against the law
 - unethical
5. As a private applicator you become certified:
 - when you sign the certification form at a licensed dealer
 - when you pass a test
 - when you read the label
 - when you go to a county meeting
 - none of the above
6. In case of a pesticide emergency you should contact:
 - the poison information center
 - the sheriff's office
 - a representative of the Minnesota Department of Agriculture
 - the state highway patrol
 - Any or all of the above, depending on the situation
7. If a pesticide is labeled for use against a pest on a certain crop you may legally use it for the same pest on a different crop not on the label:
 - true
 - false
8. A pesticide classified for general use must be used only in accordance with the directions on the label:
 - true
 - false
9. You don't have to be certified if you purchase restricted-use pesticide by mail order from an out-of-state company:
 - true
 - false
10. If your neighbor is not a certified applicator he may hire and pay you as a certified private applicator to control an emergency pest problem with a restricted-use pesticide.
 - true
 - false