

2016 Iowa FFA Floriculture CDE
Phase I: General Knowledge Exam

1. Bird of Paradise, Orchids, and Anthurium are what type of flower?
 - a. Line
 - b. Form
 - c. Mass
 - d. Filler

2. What does the acronym AIFD stand for?
 - a. American Institute of Floral Designers
 - b. Association of International Floral Designers
 - c. American Informed Floral Designers
 - d. Association of Intelligent Floral Designers

3. Which country exported the highest dollar value worth of flower bouquets last year (2015)?
 - a. Colombia
 - b. Ecuador
 - c. Netherlands
 - d. China

4. Most popular flower worldwide is the _____.
 - a. Carnation
 - b. Rose
 - c. Orchids
 - d. Baby breath

5. What is the common name for Dianthus?
 - a. Carnation
 - b. Rose
 - c. Orchids
 - d. Baby breath

6. Which of the following is NOT a line flower?
 - a. Tuber Rose
 - b. Stock
 - c. Snapdragon
 - d. Alstroemeria

7. The pollen of a flower is contained on the _____.
 - a. Stigma
 - b. Style
 - c. Filament
 - d. Anther

8. Horizontal design arrangements are generally based on a horizontal line plus a _____ shape.
- Triangle or square
 - Square or oval
 - Triangle or oval
 - Square or trapezoid
9. National Bosses Day falls in which month?
- March
 - April
 - October
 - November
10. Which of the following is NOT a secondary color?
- Green
 - Red
 - Orange
 - Purple
11. Which of the following is NOT a bulb plant?
- Tulip
 - Daffodil
 - Hyacinth
 - Lilac
12. The water conducting tissue that carries water up the stem is _____.
- Xylem
 - Phloem
 - Stigma
 - Style
13. When a cut flower, such as a gladiolus or snapdragon, bends upward in response to the force of gravity this is known as _____.
- Phototropism
 - Geotropism
 - Phytohormones
 - Cytokinins
14. What type of floral design presents plants as they grow in nature?
- Vegetative
 - Western line
 - Parallel
 - Sheltered

15. If a flower arrangement appears to be ready to fall over, it lacks _____.
- Form
 - Balance
 - Filler
 - Fertilizer
16. When wiring flowers, the “pierce” method would be used on _____.
- Daisies
 - Baby’s breath
 - Snapdragon
 - Carnation
17. The order of the elements in a 10-20-15 fertilizer analysis is:
- PNK
 - KPN
 - NPK
 - KNP
18. _____ lines, when designing an arrangement, stress width. They seem peaceful and calm compared to other line directions and imply restfulness.
- Vertical
 - Horizontal
 - Diagonal
 - Curved
19. When analyzing balance in an arrangement what type of balance remains interesting for a long time because the visual weight and eye attraction on both sides of the design are balanced with different elements and various placements?
- Symmetrical
 - Asymmetrical
 - Radial
 - Open
20. There are many different types of flower shops. Which type focuses on selling loose cut flowers by the stem or by bunches, but generally does not offer delivery or design services?
- Full-service, Professional
 - Specialty
 - Limited-service
 - Flower Merchandisers
21. Which flower wire listed below would have the thickest diameter?
- 18 gauge
 - 20 gauge
 - 22 gauge
 - 24 gauge

22. A method of applying pesticides to plants that can be effectively used in greenhouse but not outdoors is _____.
- Foliar application
 - Broadcast spray
 - Band application
 - Fumigation
23. A postharvest technique used to load flowers with sugar and other chemicals prior to shipment is known as _____.
- Pumping
 - Pulsing
 - Hydrating
 - Loading
24. When working with bridal bouquets which is defined as a simple or casual gathering of flowers tied with ribbon, raffia, or string for a natural, garden picked appearance?
- Colonial
 - Cascade
 - Crescent
 - Clutch
25. When is cut eucalyptus available to flower shops?
- Only spring and Summer
 - Only winter
 - Only fall
 - Year round

**2016 Iowa FFA Floriculture CDE
Phase I: General Knowledge Exam**

1. B
2. A
3. C
4. B
5. A
6. D
7. D
8. C
9. C
10. B
11. D
12. A
13. B
14. A
15. B
16. D
17. C
18. B
19. B
20. D
21. A
22. D
23. B
24. D
25. D

2016 Iowa FFA Floriculture CDE
Phase IV: Floriculture Production

1. Burning of plant leaves could be the result of:
 - a. Over Application of Nitrogen
 - b. Too much water
 - c. Not enough water
 - d. Iron deficiency

2. Chelated iron can be used to treat what?
 - a. Chlorosis
 - b. Water deficiency
 - c. Spidermites
 - d. Transpiration loss

3. During periods of cool and wet weather, this disease frequently develops on roses. The disease may affect flowers which may not open and may become covered with grayish brown fungal growth. Sometimes the disease is observed as small flecks on infected petals. At the base of infected flowers, sunken, grayish-black spots (lesions) may be found on the stems and the lesions may continue down the cane.
 - a. Sunscald
 - b. Sawfly damage
 - c. Botrytis Blight
 - d. Whitefly Damage



4. Common on many plants and easily recognized, this disease is a fungi found throughout the United States. It is caused by a variety of closely related fungal species, each with a limited host range. (The fungi attacking your roses are unlikely to spread to your lilacs). Low soil moisture combined with high humidity levels at the plant surface favors this disease. Symptoms usually appear later in the growing season on outdoor plants. This disease starts on young leaves as raised blister-like areas that cause leaves to curl, exposing the lower leaf surface. Infected leaves become covered with a white to gray powdery growth, usually on the upper surface.
 - a. Mealy Bug damage
 - b. Powdery Mildew
 - c. Rust
 - d. None of the above



5. What appears to be the damage to the plant in the photo on the right?
 - a. Old Plant
 - b. Over watered
 - c. Under Watered
 - d. Nitrogen burn



6. What type of product below would you use to spray Spider Mites?
- Fungicide
 - Herbicide
 - Miticide
 - Insecticide

7. These insects are only about 1/50 of an inch long and are difficult to see. They have piercing-sucking mouth parts for feeding on plant sap. They can multiply rapidly and in large numbers, cause leaves to take on a dusty, dull appearance. Leaves then yellow and drop or turn brown or tan. (See Photo On The Right)



- White Flies
- Aphids
- Mealy Bugs
- Spider Mites

8. What is a good way to minimize transferring diseases from one plant to another?
- Sterilizing soil by prior to use.
 - Disinfecting hand tools during use (trowels, pruners, etc.)
 - Washing pots/containers in bleach/water mixture between uses
 - All of the Above

9. Which of these terms is not a method of asexual reproduction?
- Grafting
 - Layering
 - Cuttings
 - Seed

10. What is a common symptom of a plant that has a magnesium deficiency?
- Death of the lateral buds
 - Death of terminal buds
 - Interveinal chlorosis on the upper leaves
 - Interveinal chlorosis on the lower leaves

Answers: 1) a 2) a 3) c 4) b 5) b 6) c 7) d 8) d 9) d 10) d

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Phase V: Pesticide Use & Application

1. Boots, Neoprene Gloves, Respirator, Goggles, Long Pants, and Long Sleeve Shirt are examples of what?
 - a. BBC
 - b. PPE
 - c. COD
 - d. IDC

2. Pesticide failure can be caused by which of the following?
 - a. Pesticide Resistance
 - b. Inappropriate rate of pesticide
 - c. Environmental factors unfavorable for pesticide activity
 - d. All the above

3. Which of the following is not a Pesticide?
 - a. Insecticide
 - b. Herbicide
 - c. Attractant
 - d. Surfactant

4. While pouring a slurry of wettable powder insecticide & water into the spray tank from a bucket, a wind gust blows the mixture onto an operator's chest & arms. What type of exposure has just occurred?
 - a. Oral
 - b. Repeated
 - c. Dermal
 - d. Inhalation

5. Why is it important to read the entire label of a pesticide prior to use?
 - a. Using the correct rate for the correct plant to be sprayed.
 - b. The label is a legal document
 - c. The label will tell you what the re-entry time is for the product
 - d. All of the above

6. How do you determine if a Pesticide is restricted use or general use?
 - a. The label
 - b. The color of the lid on the container
 - c. The dealer who sold it to you
 - d. The RDS

For questions 7-10, please refer to the label: Tempo SC Ultra

7. According to the label, what is the re-entry time for Tempo SC Ultra?
 - a. 24 hours
 - b. 2 days
 - c. After the treated area has dried
 - d. None of the above

8. According to the label where can Tempo SC Label be applied?
 - a. In and around buildings and structures
 - b. On residential, commercial and recreational areas of turf
 - c. On ornamentals in landscapes and interior plantscapes
 - d. All of the above.

9. (See Tempo SC Ultra Label) What use rate would you use to spray Whitefly in an Ornamental outdoor landscape &/or interior plantscape setting?
 - a. 45 to 160 ml (1.5 to 5.4 oz.) Tempo SC Ultra per 100 gallons of water
 - b. 0.05% -- 16 ml(0.54 fl oz) / gal water
 - c. 0.025% to 0.05% (8 to 16 ml of Tempo SC Ultra per gallon of water).
 - d. None of the above

10. Is Tempo SC Ultra is toxic to what?
 - a. bees
 - b. mammals
 - c. fish and aquatic invertebrates
 - d. Both a & c

Answers: 1) b 2) d 3) d 4) c 5) d 6) a 7) c 8) d 9) a 10) d



Tempo[®] SC Ultra Insecticide

SHAKE WELL BEFORE USING

For Pest Management Professionals and Commercial Use Only.

ACTIVE INGREDIENT:

β- Cyfluthrin, Cyano(4-fluoro-3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethyl-cyclopropanecarboxylate 11.8%

OTHER INGREDIENTS: 88.2%

100.0%

Contains 1 lb cyano(4-fluoro-3-phenoxyphenyl)methyl 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate per gallon.

SHAKE WELL BEFORE USING

EPA Reg. No. 432-1363

EPA Est. No. ____

STOP - Read The Label Before Use.

Keep out of reach of children.

CAUTION

FIRST AID

If on skin	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If swallowed	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything to an unconscious person.
Have the product container or label with you when calling a poison control center or doctor or going for treatment. The Bayer Environmental Science Emergency Response Telephone No. is 1-800-334-7577.	
Note To Physician: No specific antidote is available. Treat the patient symptomatically.	

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed, inhaled or absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Remove contaminated clothing and wash before reuse.

ENVIRONMENTAL HAZARDS



This pesticide is extremely toxic to fish and aquatic invertebrates. Remove from premises or tightly cover fish tanks and disconnect aerators when applying indoors where such containers are present. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark.

Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash waters. Apply this product only as specified on this label.

This pesticide is highly toxic to bees exposed to direct treatment or residues on crops or weeds. Do not apply TEMPO SC ULTRA Insecticide or allow it to drift onto crops or weeds on which bees are actively foraging. Additional information may be obtained by consulting your Cooperative Extension Service.

PRO FACTS

- Quick Knockdown & Residual Control
- Low Odor
- Non-staining
- No phytotoxicity on a wide range of ornamentals

TEMPO SC ULTRA	<ul style="list-style-type: none"> • Suspension concentrate containing 1 lb β- cyfluthrin per gallon
CONTROLS	<ul style="list-style-type: none"> • Indoor Pests <ul style="list-style-type: none"> - General Household Pests - Pantry and Stored Product Pests - Food Processing Pests • Outdoor/ Perimeter Pests • Wood-Infesting Pests • Turf and Ornamental Pests <p><i>For list of specific insects, see inside.</i></p>
WHERE TO APPLY	<p>Apply where pests have been seen or found, or can find shelter.</p> <ul style="list-style-type: none"> • In and around buildings and structures • On residential, commercial and recreational areas of turf • On ornamentals in landscapes and interior plantscapes
COVERAGE	<ul style="list-style-type: none"> • Makes up to 30 gallons of finished spray solution for indoors. (240 ml size) • Treats up to 30,000 sq ft. outdoors. (240 ml size)
MIXING INFORMATION	<ul style="list-style-type: none"> • Mix the appropriate amount of Tempo SC Ultra with water. • May tank mix with other pesticides currently registered for similar uses, unless specifically prohibited.
HOW TO APPLY	<ul style="list-style-type: none"> • General surface spot, mist, or crack & crevice application. • Broadcast application to turf and foliar application to ornamentals.
RE-APPLY	<ul style="list-style-type: none"> • Every 7 to 10 days, if needed. • For turf, reapply if needed, but not more than 6 times per year.
RE-ENTRY 	<ul style="list-style-type: none"> • Avoid contact with treated surfaces until dry. • People and pets may re-enter after the treated area is dry.
QUESTIONS 	<p>For questions or comments, call toll-free 1 800 842-8020 www.nobugs.com</p>

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not formulate this product into other end-use products.

STRUCTURAL PESTS

FOR RESIDUAL PEST CONTROL IN AND AROUND BUILDINGS, STRUCTURES, FOOD/FEED HANDLING ESTABLISHMENTS AND MODES OF TRANSPORT

Use Tempo SC Ultra as a general surface, spot, mist, or crack and crevice treatment in and around buildings and structures. This includes schools, factories, stores, warehouses, hospitals, food processing facilities, and modes of transport. For a list of common facilities where this product may be used, see Appendix.

INDOOR PESTS

General Household Pests		Pantry & Stored Product Pests		Food Processing Pests	
<u>Crawling Pest</u>	Pillbugs	<u>Beetles</u>	Lesser mealworm	Fruit flies	Also includes: General Household Pests Pantry & Stored Product Pests
Ants (except Pharaoh)	Silverfish	(exposed adults & immature stages)	Merchant grain	Phorid flies	
Bedbugs	Sowbugs	Cadelle	Mealworm	Sciariid flies	
Carpet beetles	Spiders	Cigarette	Red flour		
Centipedes	<u>Flying Pests</u>	Confused flour	Rice weevil		
Clothes moths	Flies	Dermestid	Sawtoothed grain		
Cluster fly	Gnats	Drugstore	Warehouse		
Cockroaches	Hornets	Granary weevil	<u>Moths</u>		
Crickets	Midges	Hide	Indian meal		
Darkling beetles	Moths	Larder	Mediterranean flour		
Earwigs	Wasps	Leather			
Firebrats	Yellow jackets	Lesser grain borer			
Millipedes					

WHERE TO APPLY	Apply where pests have been seen or found, or can find shelter. Use a general surface, spot, mist, or crack and crevice application.
USE RATE	0.025% -- 8 mL (0.27 fl oz) /gal water 0.05% -- 16 ml (0.54 fl oz) /gal water <ul style="list-style-type: none"> Use high rate for severe infestations, faster knockdown, and longer residual. Always use the high rate for bees, wasps, yellow jackets and hornets.
HOW TO APPLY (Also see APPLICATION FOR INDOOR PESTS)	<ul style="list-style-type: none"> Remove or tightly cover fish tanks and disconnect aerators during application. Remove pets during application and until treated surfaces are completely dry. Avoid contact with treated surfaces until dry. Wear safety glasses, goggles, or face shield and a dust/mist respirator when treating overhead areas. <p><u>General Surface Applications</u></p> <ul style="list-style-type: none"> Use a low-pressure system (do not exceed 50 psi at nozzle tip), with a fan-type nozzle to apply the dilution uniformly. In the home, all food processing surfaces and utensils should be covered or thoroughly washed following treatment. Cover exposed food or remove from area being treated. <p><u>Spot, Mist, or Crack and Crevice Applications</u></p> <ul style="list-style-type: none"> Apply directly into voids, cracks and crevices using spray or foam equipment. Spray: •Use a low-pressure system (do not exceed 50 psi at nozzle tip), with a pinpoint or variable pattern nozzle or applicator equipment that delivers low volume treatments, such as the Micro-Injector® or Actisol®. Foam: Use appropriate foam generating equipment to supply a sufficient volume of foam, Mix the dilution with manufacturer's recommended volume of foaming agent.
WHEN TO APPLY	<ul style="list-style-type: none"> When pests are seen or found Re-apply every 7 to 10-days if needed.
MIXING INFORMATION	<ul style="list-style-type: none"> Add product when filling spray tank with water; shake or agitate mixture. Diluted spray mixture can be stored overnight. Agitate before using. <p>Can be tank mixed with other pesticides currently registered for similar uses. To be sure of physical compatibility, first prepare a sample in a small jar using the proper proportions of water and products. Follow the most restrictive of labeling directions and precautions. Do not exceed label rates.</p>
RESTRICTIONS	<ul style="list-style-type: none"> Do not treat entire area of floor or floor coverings. Do not apply where electrical short circuits can occur. Use a dust or dry bait in these areas. Do not apply in occupied hospital and/or nursing home rooms. Occupants may return when surfaces have dried. Do not apply in occupied classrooms. Do not apply to furniture or upholstery where prolonged contact by humans will occur. Do not apply as a space spray.

ADDITIONAL DIRECTIONS FOR FOOD AND FEED HANDLING ESTABLISHMENTS	
WHERE TO APPLY	<p>Applications may be made to both Food/Feed and non-food areas of food and feed handling establishments.</p> <p>Food/Feed handling establishments are defined as places other than private residences in which exposed food/feed is held, processed, prepared, or served. Includes areas for:</p> <ul style="list-style-type: none"> receiving, storing and packing (canning, bottling, wrapping, boxing) food preparing food edible waste storage enclosed processing systems (mills, dairies, edible oils, syrups) of food. <p>Serving areas where food is exposed and the facility is in operation are also considered food areas.</p>
USE RATE	<ul style="list-style-type: none"> Apply as a general surface spot, mist, or crack & crevice application. 0.025% -- 8 ml (0.27 fl oz) /gal water 0.05% -- 16 ml (0.54 fl oz) /gal water Use high rate for severe infestations, faster knockdown, and longer residual.
HOW TO APPLY (Also see INDOOR PESTS)	<p><u>General Surface Applications</u></p> <p>Cover or remove all food processing and handling equipment before treatment.</p> <p>After applying where food is commercially prepared or processed, wash all handling and processing equipment, benches, shelving, and other surfaces which food will contact. Rinse thoroughly with clean, fresh water.</p> <p>Do not apply to surfaces in food-handling areas when facility is in use or when foods are exposed.</p> <p>Do not apply directly to food.</p> <p><u>Spot or Crack & Crevice Applications</u></p> <p>Spot or crack and crevice application is permitted while facility is in use.</p> <p>Cover or remove food from area being treated.</p> <p>Do not apply directly to food or food handling surfaces.</p>

APPLICATION FOR INDOOR PESTS	
GENERAL HOUSEHOLD PESTS Cockroaches, Crickets, Silverfish, Spiders, and others	<ul style="list-style-type: none"> Use a coarse, low-pressure spray. Treat entry points such as around water pipes, doors, windows, and eaves. Treat areas where pests normally feed or hide such as baseboards, corners, around water pipes, under refrigerators, cabinets, sinks, and stoves, being sure to spray cracks & crevices. Spot treat floor or rugs beneath furniture, in closets, and storage areas, but do not apply to entire floor area. Do not use as a "space spray". IGR Note: This product can be tank mixed with an insect growth regulator (IGR) for extended cockroach control.
ANTS	<ul style="list-style-type: none"> Apply to ant trails on walls, tile, baseboards, around pipes, under cabinets, and other places where ants are active. Treat entry points such as windows and doors and the outdoor perimeter. For best results, treat nests when possible.
PANTRY AND STORED PRODUCT PESTS	<ul style="list-style-type: none"> For best results, clean area before treating. Remove and destroy infested food. Discard food accidentally contaminated with spray. For cupboards, shelving, or food storage areas: Remove utensils, exposed food, shelf paper, and other items before spraying. When dried, cover shelves with clean paper before replacing items.
COMMERCIAL STORED PRODUCT PESTS	<ul style="list-style-type: none"> Commercial storage or transportation: Clean and treat warehouses, production facilities, storage areas, rail cars, truck beds, and other areas where products are stored <i>before</i> filling with the product.
PESTS IN AIRCRAFT	<ul style="list-style-type: none"> Do not use in aircraft cabins. May be applied to carpet or upholstery in the cargo area only.
PESTS IN LIVESTOCK HOUSING STRUCTURES including poultry houses & pet kennels	<ul style="list-style-type: none"> Apply as a general surface and/or a crack and crevice spray. For best results, clean facilities before applying and treat outdoor perimeter areas. Do not apply indoors where animals other than cattle or horses are present. Do not apply to animal feedstuffs or watering equipment.
FLYING INSECTS	<ul style="list-style-type: none"> Apply to surfaces where pests collect or rest.

STRUCTURAL PESTS

OUTDOOR/PERIMETER PESTS

Ants	Cluster fly	Flies	Millipedes	Sowbugs
Bees	Crickets	Gnats	Mosquitoes	Spiders
Boxelder bugs	Elm leaf beetle	Ground beetles	Moths	Ticks
Carpenter ants	Fire ants	Hornets	Pillbugs	Wasps
Centipedes	Firebrats	Midges	Scorpions	Yellow jackets
Cockroaches	Fleas		Silverfish	

WHERE TO APPLY

- Apply where pests have been seen or found, or can find shelter.
- Apply to buildings, porches, patios, garages, fences and other areas where pests are found.
- To prevent infestation, treat the building foundation, walls, and around doors, windows, and soffits where pests are active or may enter or hide; also treat the soil, turf, or other substrates adjacent to buildings

USE RATE

- 8 to 16 ml (0.27 to 0.54 fl oz) / 1000 sq ft - See Table 1 for mixing directions.
- For fire ants and flying pests
0.025% -- 8 ml (0.27 fl oz) /gal water
0.05% -- 16 ml (0.54 fl oz) /gal water
- Always use the high rate for fire ants, bees, wasps, yellow jackets and hornets.
- Use high rate for severe infestations, faster knockdown, and longer residual.

HOW TO APPLY

(Also see APPLICATIONS FOR OUTDOOR/ PERIMETER PESTS)

- Perimeter Treatment: To help prevent infestation of structures, treat area adjacent buildings in a band up to 10 feet wide. Also treat the building foundation to a height of 2 to 3 feet in areas where pests are active or can find entrance.
- Apply just enough dilution to adequately cover the area without excessive dripping or runoff. Volume can vary depending on the surface type treated. For example, mulch requires more spray than bare soil. If mulch is heavy, rake it back to expose soil before treating.
- Avoid contact with treated surfaces until dry.

WHEN TO APPLY

- When pests are seen or found
- Re-apply every 7 to 10-days if needed.

MIXING INFORMATION

- Add product when filling spray tank with water; shake or agitate mixture.
- Diluted spray mixture can be stored overnight. Agitate before using.
Can be tank mixed with other pesticides currently registered for similar uses. To be sure of physical compatibility, first prepare a sample in a small jar using the proper proportions of water and products. Follow the most restrictive of labeling directions and precautions. Do not exceed label rates.

Table 1: Mixing Directions for Outdoor/Perimeter Applications

Application Volume: Gallons/ 1,000 sq ft	Use Rate: Milliliters/ 1,000 sq ft	Milliliters of Tempo SC Ultra Diluted to These Volumes of Finished Spray			
		3 gal.	10 gal.	15 gal.	25 gal.
2	8	12	40	60	100
	16	24	80	120	200
5	8	--	16	24	40
	16	--	32	48	80
10	8	--	8	12	20
	16	--	16	24	40

Formula for Determining the Percent Concentration in the Finished Spray

$$\frac{11.8 \text{ X (Milliliters of Tempo SC Ultra)}}{\text{(Gallons of finished spray)}} = \text{Percent Concentration}$$

APPLICATION FOR OUTDOOR/PERIMETER PESTS	
ANTS	Locate and treat ant nests, if possible. Follow trails of foraging workers, check under objects near the structure, and inspect other likely nest sites. If ants are nesting in the soil, thoroughly drench or inject the nest and surrounding soil. Treat ant trails around windows and doors, along sidewalks, or other areas where seen. Apply a perimeter treatment as described above.
BEEES, WASPS, YELLOW JACKETS, HORNETS	Use Rate: 0.05% concentration. Make pin stream applications directly to the nests. To help avoid stings treat nests in the evening when the insects are inside the nest. For best results, check nests within one or two days to ensure complete kill. Remove and destroy treated nests to prevent emergence of newly hatched insects, secondary pest problems, and possible staining from honey. If removal is not possible, retreat nests if necessary.
BOXELDER BUGS	Apply directly to boxelder bugs that have congregated around doors and windows and similar areas where they may enter structures. Apply perimeter treatment as described above. For best results, treat infested trees early in the season. Tree spraying may require ornamental license – check with your local regulator.
CENTIPEDES, MILLIPEDES, PILLBUGS, SOWBUGS	Apply perimeter treatment to reduce the number of insects from entering the structure. Thoroughly treat mulched areas. Reduce moisture areas from around the structure.
FIRE ANTS	Use Rate: 0.05% concentration Thoroughly drench or inject the entire mound. When using injection treatment, you must treat the bottom of the mound. Apply dilution or foam using a downward and upward motion of the injector tool. For complete distribution, inject in several points throughout the mound. Treat new mounds as they appear. Do not use in pastures or areas of food crop production.
FLEAS & TICKS	Make a perimeter treatment, concentrating on areas where pets rest or run. For ticks, treat likely harborage areas like along paths, tall grass and other vegetation. For best results, treat the entire area where ticks could be present. Begin treating in the spring. Ticks may be re-introduced from surrounding areas by host animals. Continue treating until frost to control both larvae and adult ticks.
FLIES	Use Rate: 0.025% to 0.05% Apply low-volume mist or spray to outside surfaces of buildings, porches, patios, garages, fences, and other areas where flies rest. CLUSTER FLY: Treat in late summer or fall, just before flies begin looking for winter shelter. Spray siding, eaves, around windows and doors, window screens, and attics. To help reduce infestations, treat cracks and crevices, attics and other indoor winter hiding places. Note: Cluster flies may appear during winter warm spells, while snow is still on the ground.
MOSQUITOES	Use Rate: 0.025% to 0.05% (8 to 16 ml of Tempo SC Ultra per gallon of water). Apply at the rate of one gallon of dilution per 1,000 square feet as a general spray around landscapes, lawns and buildings to control adult mosquitoes. For higher volume applications, Tempo SC Ultra may be diluted at lower concentrations and applied in greater volumes of water to deliver the desired amount of product per area (refer to Table 1: Mixing Directions for Outdoor/Perimeter Applications). Spray around landscape plants, turf and ground cover, under decks, around building foundations and other places where mosquitoes may rest.
SCORPIONS	Treat around piles of firewood and other areas where scorpions may hide. When possible, remove piles of materials that can harbor the pests. Apply a perimeter treatment.

STRUCTURAL PESTS

WOOD-INFESTING PESTS

<u>Beetles</u>	Carpenter ants	Carpenter bees	<u>Termites</u>
Ambrosia Deathwatch False powderpost Old house borer Powderpost			Subterranean Formosan Drywood
WHERE TO APPLY	<ul style="list-style-type: none"> Apply where pests have been seen or found, or can find shelter. 		
USE RATE	<ul style="list-style-type: none"> 0.05% -- 16 ml(0.54 fl oz) / gal water 		
HOW TO APPLY (Also see Application section)	<ul style="list-style-type: none"> Apply spray or foam as described in application section. Avoid contact with treated surfaces until dry. 		
WHEN TO APPLY	<ul style="list-style-type: none"> When pests are seen or found Re-apply every 7 to 10-days if needed. 		
MIXING INFORMATION	<ul style="list-style-type: none"> Add product when filling spray tank with water; shake or agitate mixture. Diluted spray mixture can be stored overnight. Agitate before using. <p>Can be tank mixed with other pesticides currently registered for similar uses. To be sure of physical compatibility, first prepare a sample in a small jar using the proper proportions of water and products. Follow the most restrictive of labeling directions and precautions. Do not exceed label rates.</p> <ul style="list-style-type: none"> <u>Foam applications:</u> Mix End-use dilution with manufacturer's recommended volume of foaming agent for 0.025 to 0.05% concentration. 		

APPLICATION FOR WOOD-INFESTING PESTS

CARPENTER ANTS	<p><u>In houses and other structures:</u> Apply around doors and windows and other places where carpenter ants may enter. Spray or foam into cracks & crevices, or spray, mist or foam through small drilled holes into voids where ants or nests are present. Use enough spray or foam to cover the area. Do not exceed 1 gallon of dilution per 1000 square feet.</p> <p>Inside trees, utility poles, fencing and decking materials and similar structural members: Drill to find the interior infested cavity and inject dilution or foam using an appropriate treatment tool with a splashback guard.</p> <p><u>Tunneling in soil:</u> Apply as a soil drench or inject the dilution or foam in the soil at intervals of 8 to 12 inches. Use 1 gallon of dilution per 8 square feet. Establish a uniform vertical barrier at the edge of walls, driveways or other hard surfaces where ants are tunneling beneath the surfaces.</p> <p><u>Protecting firewood from carpenter ants:</u> Treat soil beneath firewood before stacking at 1 gallon of dilution per 8 square feet.</p> <p>Do not treat firewood with this product.</p>
(Continued on next column)	
CARPENTER BEES	<p><u>In structures:</u> Spray or foam directly into gallery entrance holes. Leave entrance open for 24 hours to be sure that returning adult bees are killed. When there is no activity, the hole may be sealed with a suitable sealant.</p>
WOOD-INFESTING BEETLES	<p>On surfaces in homes, apartments, and other structures</p> <p>For small areas, brush or spray evenly on wood surfaces.</p> <p>For large or overhead areas, thoroughly cover wood surfaces with a coarse spray.</p> <p>Protect surfaces below the treated area from accidental dripping by covering with disposable plastic sheeting or other material that can be thrown away after treatment.</p> <p><u>In localized areas:</u> Apply dilution or foam to voids and galleries in damaged wood, in spaces between wooden structural members, and between the sill plate and foundation. Apply to inaccessible areas by drilling, and then injecting, spraying, or misting the dilution or foam into the damaged wood or wall voids.</p>

APPLICATION FOR WOOD-INFESTING PESTS (continued)

DRYWOOD AND ABOVE-GROUND SUBTERRANEAN TERMITES

This type of application is intended to be a supplemental treatment for control of drywood and above-ground subterranean termites and other wood-infesting insects.

In localized areas: Apply dilution or foam to voids and galleries in damaged wood, to spaces between wooden structural members, and between the sill plate and foundation. Apply to inaccessible areas by drilling, and then injecting, spraying, or misting the dilution or foam into damaged wood or wall voids.

Swarming or reproductive stages: Apply dilution to the swarm or area on which the termites collect. Make applications to attics, crawl spaces, unfinished basements or man-made voids with a coarse fan spray to control exposed reproductive forms of termites.

Above-ground termites inside trees, utility poles, fencing and decking materials and similar structural members: Drill to find the infested cavity and inject dilution or foam using an appropriate tool with a splashback guard.

Termite carton nests: Inject dilution or foam into building voids or tree cavities using a pointed injection tool. Several injection points to varying depths may be needed. For best results, remove carton nest material when possible.

Protecting firewood from termites: Treat soil beneath firewood before to stacking at 1 gallon of dilution per 8 square feet.

Do not treat firewood with this product.

TURF PESTS

TEMPO SC ULTRA controls designated pests on landscape and recreational turf.

TURF PESTS

USE RATE

Ants	Cutworms	Japanese beetles (adult)	4 to 8 ml (0.135 to 0.270 fl oz) per 1000 sq ft or 6 to 12 fl oz per acre Use high rate for severe infestations, faster knockdown, and longer residual.
Armyworms	Earwigs	Sod webworms	
Crickets	Grasshoppers	Ticks (including deer ticks)	
Black turfgrass atenioides (adults)	Chiggers	Hyperodes weevil (adult)	8 ml (0.270 fl oz) per 1000 sq ft or 12 fl oz per acre
Bluegrass billbug (adult)	Fire ants (aids in control)	Mole crickets	
Chinch bugs	Fleas	Scorpions	

WHERE TO APPLY

For use on landscape and recreational turfgrass. Not for use on turf grown for research, commercial seed production, sale, or other commercial use.

Not for use on golf course turf.

Apply where pests have been seen or found, or can find shelter. Permitted areas include but are not limited to: home lawns, business complexes, apartment buildings, airports, cemeteries, parks, playgrounds, recreational fields, institutional grounds, athletic fields, and other landscape turf grass.

HOW TO APPLY

(Also see APPLICATION FOR TURF PESTS)

Use an accurately calibrated sprayer. Apply uniformly using spray nozzles with a coarse droplet size such as flood jet nozzles.

Keep children and pets off treated areas until lawn has dried.

WHEN TO APPLY

Apply when pests first appear. Reapply as needed based on pest reinfestation. Do not treat more than 6 times per year. Consult your state Cooperative Extension Office for the specific timing in your area.

MIXING INFORMATION

- Add product when filling spray tank with water; shake or agitate mixture.
- Diluted spray mixture can be stored overnight. Agitate before using.

Can be tank mixed with other pesticides currently registered for similar uses. Follow the most restrictive of labeling directions and precautions. Do not exceed label rates.

COMPATIBILITY: Compatible with commonly used fungicides, miticides, liquid fertilizers and other insecticides. To be sure of physical compatibility, first prepare a sample in a small jar using the proper proportions of water and products.

RESTRICTIONS

- **Do not** apply this product by aerial application or by any type of chemigation system.
- **Do not** apply when the average wind speed is greater than 15 mph.
- **Do not** allow drift onto ponds, streams, or lakes.
- **Do not** apply when turf grass areas are water logged or the soil is saturated with water (i.e., will not accept irrigation).

APPLICATION FOR TURF PESTS	
ARMYWORMS, CUTWORMS, SOD WEBWORMS	Do not water or mow for at least 24 hours following application.
BILLBUGS	Apply when adults first appear in the spring. In temperate climates, this application will also control overwintering chinch bugs.
CHINCH BUGS	For best results, water the turf immediately after application to aid in the penetration of the active ingredient into the thatch layer where chinch bugs dwell.
TICKS (Including ticks that transmit Lyme Disease and Rocky Mountain Spotted fever)	For best results, treat the entire area where ticks could be present. Begin treating in the spring. Ticks may be re-introduced from surrounding areas by host animals. Continue treating until frost to control both larvae and adult ticks.

ORNAMENTAL PESTS				
TEMPO SC ULTRA controls designated pests on trees, shrubs, foliage plants and flowers in outdoor landscaped areas and interior plantscapes where these plants are grown.				
Ants	Clover mites	June beetles(adult)	Peppertree psyllid	Striped oakworms
Aphids	Cockroaches	Lace bugs	Pillbugs	Tent caterpillars
Armyworms	Crickets	Leaf-feeding caterpillars	Pine shoot moths	Thrips
Azalea caterpillars	Cutworms	Leafhoppers	Pine tip moths	Ticks (including deer ticks)
Bagworms	Elm leaf beetles	Leafrollers	Plant bugs	Tussock moth larvae
Black vine weevil (adult)	Emerald Ash borer	Leaf skeletonizers	Redhumped caterpillars	Wasps
Boxelder bugs	(Adult)*	Mealybugs	Sawfly larvae	Walnut caterpillars
Bristly rose slugs	Elm spanworms	Midges	Scale insects (crawler stages)	Webworms
Budworms	Flea beetles	Mosquitoes	Sowbugs	Whiteflies
California oakworms	Flies	Oleander moth larvae	Spiders	Yellownecked caterpillars
Cankerworms	Fungus gnats	Orchid weevil	Spittlebugs	
Casebearers	Grasshoppers	Pear psylla	Striped beetles	
	Gypsy moth larvae			
	Japanese beetles (adult)			
*For emerald ash borer, make a minimum of two applications per season. The first application should be made in late-May/early June or when adult beetles begin flying. Subsequent applications should be made approximately one month after the previous application.				
WHERE TO APPLY	Use in landscapes and interiorscapes. Permitted areas include but are not limited to: parks, recreational areas, athletic fields, institutional grounds, hotels, malls, office buildings, and airports. Not for use on plants or turf grown for research, commercial seed production, sale, or other commercial use. Not for use in greenhouses or nurseries. Apply where pests are seen, have been found, or can find shelter among trees, shrubs, evergreens, ground covers, flowers, and foliage plants. No phytotoxicity has been observed on a wide range of ornamentals tested under various environmental conditions. If in doubt, first try this product on a small sample.			
USE RATE	<ul style="list-style-type: none"> 45 to 160 ml (1.5 to 5.4 oz) Tempo SC Ultra per 100 gallons of water Use high rate for severe infestations, faster knockdown, and longer residual. 			
HOW TO APPLY (Also see APPLICATION FOR ORNAMENTAL PESTS)	<p>Apply as a dilute spray just to the point of run-off but do not allow excess run-off. For hard-to-wet foliage such as holly, pine, or ivy, adding a spreader-sticker may enhance knockdown and residual activity. For best results, spray thoroughly for good coverage including the underside of leaves for pests that feed or rest there.</p> <ul style="list-style-type: none"> Spray plants in bloom at times when pollinating insects are not present, such as early morning or late evening. Remove any animal feeding dishes prior to treatment. <p>Avoid contact with treated surfaces until dry.</p>			
(continued on next column)				

ORNAMENTAL PESTS (continued)	
WHEN TO APPLY	<ul style="list-style-type: none"> Apply when pests first appear. Reapply as needed based on pest infestation. Consult your state Cooperative Extension Office for the specific timing in your area.
MIXING INFORMATION	<ul style="list-style-type: none"> Add product when filling spray tank with water; shake or agitate mixture. Diluted spray mixture can be stored overnight. Agitate before using. <p>Can be tank mixed with other pesticides currently registered for similar uses. Follow the most restrictive of labeling directions and precautions. Do not exceed label rates.</p> <p>COMPATABILITY: Compatible with commonly used fungicides, miticides, liquid fertilizers and other insecticides. To be sure of physical compatibility, first prepare a sample in a small jar using the proper proportions of water and products.</p>
RESTRICTIONS	<ul style="list-style-type: none"> Do not apply to any food crop. Do not allow drift onto ponds streams or lakes.

APPLICATION FOR ORNAMENTAL PESTS	
ANTS, CRICKETS, SPIDERS, MIDGES, WASPS AND FLIES	Apply as a general spray, concentrating on damp areas beneath shrubbery, around foundations and in areas of tall grass or weeds in ornamental areas and areas adjacent to buildings.
BAGWORMS	Spray when bagworms first begin to hatch. If possible, apply directly to the larvae. Young larvae are easier to control.
BLACK VINE WEEVIL (adult)	<p>Use rate: 60 to 160 ml (2 to 5.4 fl oz) per 100 gal</p> <p>Apply as needed when adults and damage are first noticed in spring and at 3 to 4 week intervals while weevils and notching are observed. Addition of a spreader/sticker at recommended rates may enhance control of insects on certain species of ornamentals having difficult to wet foliage.</p>
COCKROACHES	Spray hiding or resting places such as under shrubbery, in ground covers and mulching materials, in hollow trees, etc.
SCALE (CRAWLERS)	Spray thoroughly, including foliage, trunk, limbs, and twigs.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Storage:

- Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, or feed.
- Protect from freezing.
- Store in original containers and out of the reach of children, preferably in a locked storage area.
- Handle and open container in a manner as to prevent spillage.

Pesticide Disposal:

- Pesticide wastes are hazardous.
- Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law.
- If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal:

- **Do not** use container in connection with food, feed, or drinking water.
- Completely empty container into application equipment. Triple rinse, or equivalent.
- Dispose of container by offering for recycling or reconditioning. Or puncture and dispose of container in a sanitary landfill, or by incineration, or, if allowed by state and local authorities by burning. If burned, stay out of smoke.

Spills:

- If the container is leaking or material is spilled for any reason or cause, carefully dam up spilled material to prevent runoff. Refer to Precautionary Statements on label for hazards associated with the handling of this material.
- **Do not** walk through spilled material.
 - Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides above.
 - Keep unauthorized people away.
 - You may contact the Bayer Environmental Science Emergency Response Team for decontamination procedures or any other assistance at 1-800-334-7577 or contact Chemtrec at 800-424-9300.

APPENDIX

Use Tempo SC Ultra as a general surface, spot, mist, or crack and crevice treatment.

Permitted areas of use in buildings, structures, and modes of transport include, *but are not limited to*:

- | | | |
|---|--|--|
| • apartment buildings | • granaries | • meat and produce canneries |
| • bakeries | • greenhouses (structures only) (non commercial) | • nursing homes |
| • bottling facilities | • hospitals | • pickle factories |
| • breweries | • hotels | • poultry houses |
| • buses | • houses | • processing and packing plants |
| • cafeterias | • industrial buildings | • restaurants |
| • candy plants | • kitchens | • schools |
| • cereal processing and manufacturing plants | • laboratories | • spice plants |
| • correctional facilities, | • livestock housing | • stores |
| • dairies and dairy product processing plants | • pet kennels | • warehouses |
| • frozen food plants | • manufacturing establishments | • wineries and similar structures |
| • grain mills | • mausoleums | • transportation vessels such as aircraft - cargo areas only, buses, trucks, trailers, rail cars, and marine vessels |

IMPORTANT: READ BEFORE USE

Read the entire Directions for Use, Conditions, Disclaimer of Warranties and Limitations of liability before using this product.

If terms are not acceptable, return the unopened product container at once. By using this product, user or buyer accepts the following conditions, disclaimer of warranties and limitations of liability.

CONDITIONS: The directions for use of this product are believed to be adequate and should be followed carefully. However, because of manner of use and other factors beyond Bayer Environmental Science's control it is impossible for Bayer Environmental Science to eliminate all risks associated with the use of this product. As a result, crop injury or ineffectiveness is always possible. All such risks shall be assumed by the user or buyer.

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08/13/03, Notification 06/15/04

2016 Iowa FFA Floriculture CDE
Phase VI: Problem Solving

You have 25 minutes to complete the Problem Solving Practicum. Circle the best answer for each question. Each question is worth 10 points.

1. You're ordering bags of substrate for your greenhouse operation. Your pots are 4-inch square and 4.5 inches tall. If you need 7,000 pots filled, how many 3 ft³ bags of substrate should you buy?
 - a. 72 bags
 - b. 97 bags
 - c. 98 bags
 - d. 292 bags

2. You are spacing out your fall chrysanthemum crop. Each 8" pot needs to be spaced on 18" centers. How many square feet will you need to space 13,000 pots?
 - a. 324 ft²
 - b. 722 ft²
 - c. 5,777 ft²
 - d. 29,250 ft²

3. You need to incorporate dolomitic limestone at a rate of 6 lbs per cubic yard into enough substrate to fill 4,000 4.5-inch pots. Each pot will hold 60 in³. How many pounds of lime will you need?
 - a. 5.1 lbs
 - b. 30.9 lbs
 - c. 138 lbs
 - d. 828 lbs

4. You are packaging marigold seeds – 1,000 seeds per packet. Before packaging them you conducted a germination test. You sowed 6,500 seeds and 5,982 seeds germinated. What germination rate will you report on the outside of the seed packet?
- 0.92%
 - 15%
 - 51%
 - 92%
5. Your greenhouse grew 10,500 4.5-inch Angelonia plants. Each plant retails for \$4.99. Given the expenses for each plant, shown below, how much profit will you make for the entire crop if you sell 95% of the plants but have to discard the remaining plants?
- One bag of substrate will fill 75 pots
 - A bag of substrate contains 3 ft³ and sells for \$23.50
 - The actual pot cost is \$0.06 each
 - The Angelonia cuttings were \$0.73 each
- \$38,190.25
 - \$38,769.50
 - \$40,810.00
 - \$49,775.25

Answers: 1) C 2) D 3) B 4) D 5) A

2016 Iowa FFA State Floriculture Team Event

It is a beautiful summer day in June in Ely, IA. You and your co-workers are having a very busy day at your flower shop, Sydney's House of Flowers. You are all helping customers, answering phones, and working on different pieces for the big Henkley wedding this weekend.

The Wedding pieces needing made and delivered are:

- A table centerpiece
- Fresh flowers on a grapevine wreath
- A floral halo
- A hand tied bridal bouquet

The bride, Jessica, will be coming into the shop soon to see the beautiful designs you have made for her. You have 40 minutes to get everything finished, you must work together to get it all done. Have fun and good luck!