

2019 MN Nursery Landscape State FFA CDE Problem Solving – 70 pts.

11. You have been hired to provide treatment for prevention of oak wilt in a backyard stand of four (4) mature northern red oaks (*Quercus rubra*) located in Sherburne County. You have decided to use a low-volume macro infusion treatment using a product containing propiconazole (Figure 1). You forgot your diameter tape that day but were able to measure the circumference of the trees at 4.5 ft above the ground using your regular tape measure. Here are the circumference measurements:

Tree 1: 113.1 in
Tree 2: 138.2 in
Tree 3: 88.0 in
Tree 4: 119.4 in

Formula: diameter = circumference / π

$\pi = 3.14159$

Calculate the diameter at 4.5 ft above the ground (DBH) for each tree.

Answer Format = Tree 1, Tree 2, Tree 3, Tree 4
(Round to the nearest inch)

- A. 38 in, 28 in, 44 in, 36 in
- B. 36 in, 44 in, 28 in, 38 in
- C. 36 in, 42 in, 28 in, 39 in
- D. 355 in, 434 in, 276 in, 375 in

12. Based on the location of the stand and heavy pressure from oak wilt nearby, you've decided to treat the trees with 20 mL of product per inch of diameter at breast height (DBH).

Your client isn't sure if they can afford to treat all four trees so they want a quote for Tree 2 and Tree 4 and a second quote for Tree 1 and Tree 3. How much product is required to treat each pair of trees?

Answer Format = Tree 2 + Tree 4; Tree 1 + Tree 3
(Round to nearest milliliter)

- A. 16180 mL; 12620 mL
- B. 1620 mL; 1280 mL
- C. 1640 mL; 1280 mL
- D. 1280 mL; 1640 mL

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13. Based on your calculations above, and a treatment cost of \$12.00 per diameter inch, how much will you quote your client for the treatment?
Answer Format = Tree 2 + Tree 4; Tree 1 + Tree 3
(Round to the nearest dollar)

- A. \$984.00; \$768.00
- B. \$16180.00; \$12620.00
- C. \$972.00; \$1280.00
- D. \$768.00; \$984.00

14. Your client has decided to hire you to treat all four trees. After injecting the trees you are required to fill out your application records and need to record how much of the active ingredient you applied. Based on your calculations above, how many pounds of active ingredient (propiconazole) will you inject into this stand of oaks (all four trees combined)? (See Figure 1). (Round to nearest hundredth-pound)

- A. 9.89 lbs
- B. 1.00 lbs.
- C. 1.03 lbs.
- D. 1.01 lbs.

15. What form of personal protective equipment (PPE) should you use for applying this product? (See Figure 1).

- A. Long-sleeved shirt and long pants, chemical-resistant gloves, shoes plus socks
- B. Ball cap, Ray Bans, and brown Jersey gloves
- C. Tank top and Bermuda shorts, weight-lifting gloves, flip-flops
- D. Long-sleeved shirt and long pants, shoes plus socks

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16. Your aunt needs your help reseeding some areas in her lawn, she insists that you use the **Master P's Fast N' Full Seed Mixture** that she purchased. The seed label below is attached to the 50 lb bag of seed. Using this label, determine how many pounds of actual seed for each species listed is included in that bag.

| Master P's Fast N' Full Seed Mixture | |
|---|-------------|
| Creeping Red Fescue | 27% |
| VNS Perennial Ryegrass | 27% |
| Annual Ryegrass | 26% |
| VNS Kentucky Bluegrass | 20% |
| Total | 100% |

- A. 27, 27, 26, 20
- B. 13.5, 13.5, 13, 10
- C. 12.5, 12.5, 13, 12
- D. 20, 20, 19, 17

17. Your aunt wants to test your knowledge and asks which one of the species will germinate first and also wants to know the meaning of 'VNS':

- A. Annual Ryegrass, Variety Not Stated
- B. Perennial Ryegrass, Variety Not Stated
- C. Annual Ryegrass, Very Notable Seed
- D. Perennial Ryegrass, Variety New Seed

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Figure 1. Pesticide Specimen Label

| | | |
|---------------------------|--------------------|-----------------|
| ACTIVE INGREDIENT: | | % BY WT. |
| Propiconazole: | | 14.30% |
| OTHER INGREDIENTS: | | 85.70% |
| | Total | 100.00% |

PROPICONAZOLE 14.3 SELECT contains 1.3 lbs. of active ingredient per gallon.

Personal Protective Equipment (PPE)

PERSONAL PROTECTIVE EQUIPMENT (PPE)
Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instruction for Category C on an EPA chemical-resistance category selection chart.

Applications and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC), or Viton
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

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Key

- 11. B
- 12. C
- 13. A
- 14. B
- 15. A
- 16. B
- 17. A