1. A home gardener wants to control common purslane (*Portulacca oleracea*) in her tomato beds. The county extension agent recommends using Devrinot 2EC preplant incorporated in 25 GPA at a rate of 0.75 gallons of product per acre. The herbicide will be applied with a 1.5 gallons hand sprayer with one tip that covers 30 inches. The garden is 50 feet long and 50 feet wide and the gardener will walk 1.5 miles per hour while spraying.

A) How much spray solution (in gallons) will she need to cover the garden?

B) How much formulated product (in fluid ounces) should be added to the sprayer?

C) How much active ingredient (in pounds) is being applied per acre?

D) How long will it take her to spray the garden (in minutes)?

2. An Oregon wheat grower wants to use Finesse herbicide at 0.4 ounces per acre to control broadleaf dock (*Rumex obtusifolius*) in a 640 acre continuous winter wheat field. Finesse is a dry flowable pre-mix composed of 62.5% chlorsulfuron and 12.5% metsulfuron methyl and has a recommended spray volume of 15 gallons per acre. The herbicide sprayer has a 60 foot boom with nozzles on 20 inch spacing and a 350 gallons tank. The operator will drive 4.5 miles per hour.

A) How many pounds of Finesse should be added to the spray tank?

B) How many pounds of each active ingredient will be applied to the field?
C) How many times will he have to re-fill his spray tank to complete the application?

3. A farmer has a 75-acre field of sorghum he wishes to treat with 2 lb/A of atrazine. To save money and to reduce the danger from “carry-over” residues, he only wishes to treat a 15 inch band on a 30 inch row. Each nozzle emits 200 ml per 100 ft of row, and his ground speed is 4 MPH.

A) How many minutes will it take him to cover 100 feet?

B) How many gallons of spray solution will be emitted in 100 feet?

C) What portion of the field will be treated?

D) How many gallons of spray solution will he need to treat the field?

4. Farmer Billy Bob wants to apply Staple (85% pyrithiboc-sodium) to his cotton at a rate of 1.5 ounces per acre with 0.25% v/v non-ionic surfactant. His spray volume will be 15 gallons per acre. His tractor is calibrated at 4 MPH and the average output per nozzle is 500 ml per minute. The farmer’s boom has 8 nozzles.

A) How wide is the boom swath (in feet)?

B) How many water soluble packets of herbicide should Billy add to his 300 gallon tank if Staple comes in 6 ounce packets?

C) How many gallons of non-ionic surfactant will he need to spray his 40 acre field?
ANSWERS

1. A) 1.43 gallons solution  
   B) 5.76 fluid ounces Devrinol  
   C) 1.5 pounds active ingredient  
   D) 7.576 minutes

2. A) 0.583 pounds Finesse  
   B) 10 pounds chlorsulfuron  
      2 pounds metsulfuron  
   C) 32 times

3. A) 0.284 minutes  
   B) 0.053 gallons solution  
   C) 50 %  
   D) 692.826 gallons solution

4. A) 8.719 feet  
   B) 5 packets Staple  
   C) 1.5 gallons NIS