

Backpack Sprayers

Video 7 Companion Handout

Supplies for safely measuring small quantities of crop protection chemicals

Measure and transfer crop protection materials from large product containers into backpack sprayers using syringes and extension tubing.

Nasco Farm & Ranch Supplies

Home page: <http://www.enasco.com/farmandranch/>

Syringes, plastic, small size 10 cc; 10/box, product no. C13044N

<http://www.enasco.com/product/C13044N>

Syringes, plastic, mid size, 60 cc, 10/box, product no. C16791N

<http://www.enasco.com/product/C16791N>

Extension tubes, 18" plastic disposable, 25/bag, product no. C08273N

<http://www.enasco.com/product/C08273N>

Backpack Sprayers

Video 4 & 7 Companion Handout

Video 4 - Backpack sprayers apply products accurately with proper calibration

Video 7 - Measuring small quantities safely

Calculate product mixing rate per spray gallon

Products have legal recommended application rates. Determine the product mixing rate (in pounds, ounces, or fluid ounces per gallon) with water in the backpack sprayer tank using this equation:

Product Mixing Rate = AR ÷ GPA where

AR = product Application Rate in pounds, ounces, or fluid ounces per acre

GPA = the sprayer output in gallons per acre

Typical Example: Treat crop rows on plastic mulch

10 single rows of a crop on plastic mulch 250 feet long

A crop protection product recommended application rate of 1 pint (16 oz.) per acre

Walking practiced at 2.5 MPH

TeeJet nozzle with 0.2 GPM output flow with 20 psi CF valve and 20" width

We have all the information needed

Sprayer output GPA = (Nozzle GPM x 5,940) ÷ (MPH x W spray width)

= (0.2 GPM x 5,940) ÷ (2.5 MPH x 20") = 1,188 ÷ 50 = 23.8 gallons per acre

Treated Area

= 10 rows x 250 feet x 20" width = 10 x 250 x 1.6' = ~ 4,000 sq. feet

Sprayer output GP 1,000 sq. ft. = (Nozzle GPM x 136) ÷ (MPH x W spray width)

= (0.2 GPM x 136) ÷ (2.5 MPH x 20") = 27.2 ÷ 50 = 0.55 gallons per 1,000 sq. ft.

= 4,000 sq. ft. at 0.55 gal per = 2.2 gallons total spray volume

Mixing Rate = AR ÷ GPA

= 16 oz./A ÷ 23.8 gallons/A = 0.67 ounces per gallon spray mix

Note: Product application rates specified in pounds, ounces, or fluid ounces per 1,000 square feet need to be converted to pounds, ounces, or fluid ounces per acre before performing the calculation above. Multiply pounds per 1,000 square feet by 44 to convert to pounds per acre.