

7. Knapsack sprayer calibration

Four steps to good knapsack spraying

- Check sprayer for leaks with clean water (always before use)
- Calibrate sprayer output (at least once per season)
- Ensure an even and uniform application
- Clean sprayer after each use

Your 4 STEPS to good knapsack Spraying ✓

<p>1 Check sprayer with clean water</p> <ul style="list-style-type: none"> • Check for damage • Check for leaks • Check spray pattern • Check nozzle and filter 	<p>3 Application</p> <ul style="list-style-type: none"> • Follow best practices • Use appropriate protective clothing • Avoid water contamination • Avoid spray drift
<p>2 Calibrate sprayer output</p> <ul style="list-style-type: none"> • Read product label • Follow instructions on Kalibottle • Measure swath width • Adjust water volumes (l/ha) according to crop canopy • Fit appropriate nozzle 	<p>4 Cleaning of sprayer after use</p> <ul style="list-style-type: none"> • Clean equipment • Triple rinse • Avoid water contamination • Spray washings over field

1. Check sprayer with clean water

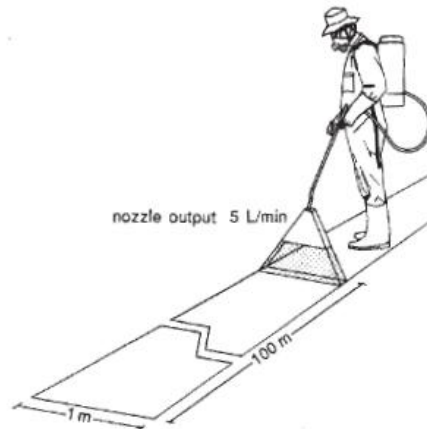
<p>Check for damage and leaks</p>		
<p>Check straps</p>		<p>Check spray pattern Clean nozzles with brush</p>
<p>Clean nozzles and filters</p>		

2. Calibration

All hand-operated sprayers need to be calibrated at the start of the spray season and kept in good operating condition. This will ensure that the correct rate of chemical is applied to the target plant.

Follow these steps to calibrate a knapsack sprayer:

- 1) Measure the spray width of the nozzle on a dry surface (in meters).
- 2) Spray a test area at the intended pressure and walking pace. Record distance (in meters) covered in one minute (min).
- 3) Measure the nozzle output in liters over one minute in a measuring jug (L/min).



The spray volume can be calculated by the following formula:

$$\text{Application rate (L/ha)} = \frac{\text{nozzle output (L/min)} \times 10,000}{\text{spray width (m)} \times \text{walking speed (m/min)}}$$

For example:

Nozzle output in 1 minute:	= 5 L
Spray width:	= 1 m
Walking speed:	= 100 m/min
Application rate (L/ha)	= $5 \times 10,000$
	1×100
	= 50,000

$$\frac{100}{200} = 500 \text{ L/ha}$$

How much to put in a tank

The following formula can be used to determine the amount of product needed for each tank.

$$\text{Product/tank (L or kg)} = \frac{\text{recommended rate (L/ha or kg/ha)} \times \text{tank size (L)}}{\text{application rate (L/ha)}}$$

For example:

Recommended product dosage	= 5 L/ha
Application rate	= 500 L/ha
Tank size	= 20 L
Product/tank (L/ha)	= 5 x 20
	500
	= 100
	500
	= 0.2 L or 200 ml



In this example 200 ml of the product is added to a 20 L knapsack sprayer to give the recommended rate of 5 L/ha.

3. Application

Wear appropriate protective clothing		
	Avoid water contamination	
Spray downwind and avoid drift		

Keep constant height

4. Cleaning of sprayer after use

Avoid contaminating water sources			Clean sprayer inside and out
			Triple rinse
			Spray washings back onto crop

DIAGRAM

