

## SMALL SPRAYERS FOR SMALL-SCALE VEGETABLE FARMS

Andrew Landers  
Cornell University  
New York State Agricultural Experiment Station  
Geneva, NY 14456  
<http://www.nysaes.cornell.edu/ent/faculty/landers/pestapp>

There are many important points to consider before purchasing a sprayer, not least of which is the area to spray, the proximity of the local supplier, standard of manufacture etc. There are many growers with small vegetable farms who don't require large boom sprayers and have a need for spraying equipment ranging from simple backpack sprayers to small truck or ATV mounted machines.

### 1. Backpack sprayers

Small capacity (4-5 gallon) sprayers will produce up to 100 psi pressure. Weight is an important consideration and growers should select a sprayer with good, wide, padded straps to ease the load. Correct nozzle selection according to the target is very important to ensure even coverage. A good size filling hole at the top is also important.  
\$95-150 approx.

Maintaining a constant flow is crucial for good application. The use of a spray management valve such as a CF valve will ensure a constant output irrespective of hand pump action.  
\$12 approx.

An alternative to the hand pump backpack is the electric backpack, which utilises a small rechargeable battery. Max. pressure is quite low.  
\$265 approx.

### 2. Portable gas sprayers

If weight is a problem, and ground conditions are relatively smooth, a sprayer with a small 1/4hp gas engine, 12 gallon tank and 16" wheels is available from Damm.  
\$930

Larger capacity tanks (14—100 gallons) are often trailed and can be pulled by a lawn tractor, ATV or small tractor. Often fitted with a small electric, battery powered pump or a 4-10hp gas engine.  
\$289-3000

### 3. Portable Mist and air blower backpacks

Knapsack mistblowers are also available and comprise a small fan driven by a petrol engine and a tank and nozzle assembly. The airflow from the fan is emitted via a tube and a nozzle provides the droplets, the resulting spray is blown into the canopy and gives better penetration and deposition than a traditional knapsack sprayer.

Where motorised sprayers are used, good maintenance must be practised as they often use two-stroke engines which are notorious for poor starting qualities. Besides creating fine drift-prone droplets, they are noisy and you are walking into a mist.

\$800- 900

#### 4. Small mounted sprayers

Ideal for mounting onto the carrier rack of an ATV, 15-25 gallons, they use a small electric pump to provide up to 70 psi.

\$230-350

#### 5. Large skid mounted sprayers

Ideal for fitting into the back of a pick-up truck these sprayers have a tank capacity of 35-200 gallons, and electric or gas engine power.

\$400-2700

#### 6. Small trailed airblast sprayers

Very small airblast sprayers, such as the interestingly named Lil' Squirt from PMB sprayers with a tank up to 110 gallons, a 5.5hp gas engine and which can be towed by an ATV are available. Larger tank capacity up to 300 gallons is also available. Remember the larger the gas engine, the more important it is to buy an electric start option.

\$5000

#### 7. Small mounted airblast sprayers

Three-point hitch, PTO driven models with a 22 or 24" fan, for fitting onto 25hp tractors are available. Beware of drift, consider models which direct the air via deflectors.

\$3700+

#### Alternatives

The use of Controlled Droplet Applicators (CDA) will considerably reduce the need to carry vast amounts of water. A spinning disc (battery powered) will produce 95% of the same-size droplets, thus reducing chemical rates by 50% and water rates. Herbi and Mantis (trade names) are hand-held sprayers

\$200-400

ATV or tractor mounted shielded CDA sprayers such as the Environmist from BDi also reduce spray rates.

\$2100

#### Wick wipers

Where occasional weeds are a problem, the use of a hand-held wick wiper is an easy-to use, effective option.

\$35 -55

**Please note:** *Where trade names, manufacturers or distributors names appear, no discrimination is intended and no endorsement by the author or Cornell University is implied.*