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EC186 A Weed Sprayer Guide

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a weed sprayer Guide
Here's a little information on weed sprayers. Just a few points to watch for if you're planning to build or buy one... It won't be too technical.

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There are many kinds of Weed Sprayers - Jeep Sprayers

These are used primarily by weed districts and commercial operators.

- Rather expensive for the average farmer

High Pressure Rigs

- Can be used for all types of spraying
- With minor changes they can be adapted to lower pressure spraying
- The price is usually in excess of $500
Tractor Mounted Sprayers

Insist on rigid construction!
Some are so flimsy they're likely to fall apart before you get them in the field.

They cost between $90 and $350.

- Most spray booms are mounted on the front of the tractor.

Investigate the simplicity of attaching and detaching from the tractor. A tractor-mounted sprayer that is easy to mount and take off will save you time and will be used more frequently.

Tractor Trailer Sprayers

- Cost a little more than mounted sprayers.
- They are not quite so handy for contoured rows and tight corners.
- They spray behind the tractor.
High Clearance Sprayers

- Are used for late applications of herbicides and insecticides to corn
- Many hybrid corn companies use this type machine
- Can be converted to detasseling machines

Airplane Sprayers

- They do the job in a hurry and get it done at the right time
- Ideal for mature crops or where the ground is too wet for ground rigs
- Efficient for large acreages
Hand or Knapsack Sprayers

Better have two of these around — one for garden spraying with insecticides and the other for 2,4-D

- Work well on lawns and other small areas

- A boom with two or three nozzles may be desirable for more uniform coverage and increased efficiency

Here is a little dope on some of these weed sprayers....
Supply Tanks

- A clean, 55-gallon drum is satisfactory as a container for the spray material.

- Can be mounted on either the rear or the sides of the tractor, but locate it as near the rear axel as possible.

- Sometimes they are mounted on trailers.

Suction Strainers

- It is used to keep abrasive material and other foreign material out of the pump and nozzles.

- Be sure it is small enough to fit in the 2-inch bung of the barrel.

- 100 mesh screen is fine enough.
The next few pages will deal with **PUMPS**

they're the "HEART" of the sprayer

**There's a trend towards pumps with intakes and outlets of ½ inch or larger because** —

1. They will be more likely to furnish adequate gallonage in case you wish to lengthen the spray boom or higher gallonages.

2. The supply tank can be filled more quickly.

3. They will furnish greater agitation in case it is needed.

4. For utility jobs around the farm, a little larger pump may be desirable.

*And don't forget — hose connections between the pump and boom should be easily removed so the pump can be used to fill the supply tank.*
- Low in cost
- They can be operated at low RPM (600 or less)
- Can be connected directly to the power take-off or belt pulley
- Abrasive materials are rather rough on the metallic gears
- Some of these pumps have greaseless bearings
Centrifugal Pumps

- Enclosed impeller types with added stages can be used for high pressure spraying
- Piston pumps can be used for high or low pressure spraying
- Abrasive material is rough on the open impeller types

Piston Pump
A pressure regulator enables you to select the correct pressure and maintain it.

On some pumps they are built in.

Locate the pressure regulator between the pump and the spray boom.

Bypass prevents excessive pressure when the liquid flow to the boom is stopped.

**Pressure Gauges**

- Insist on a pressure gauge.
- Use 30 to 40 pounds pressure for low gallonage spraying.
- A steady pressure is essential for even application of the spray material.
- An increase in pressure causes an increase in gallonage. An increase in pressure causes the water droplets to be smaller and more easily carried by the wind.
- Gauges should be equipped with snubbers (check screws) to avoid pulsation of the gauge needle.
- Pressure fluctuations may be due to dirt in the pressure regulator or suction strainer.
Line Strainers

(THEY REMOVE DIRT FROM THE SPRAY MATERIAL)

- Make sure they have adequate capacity
- They should be constructed so they can be easily cleaned

Cut-off Valves

They are used to stop the flow of spray material to the spray boom.

- Should be accessible from the tractor seat
- Should be located between the pressure regulator and the boom
- Quarter-turn type valves permit a quicker shutoff
Almost any kind of common metal appears to be satisfactory.

- Non-corrosive materials are preferred by many.
- Consider strength of the metal and the ease of repair.
- 20" nozzle spacing is the most popular. Spacing may be governed by width of the corn rows.
- On rough land short booms of a rod or less are most satisfactory.
- On level land longer booms can be used successfully.
- Each section should be equipped with a cut-off so spray material is not wasted when spraying fence rows, ditch banks, roadsides, and other narrow strips.
- Distance between the ground and boom should be adjustable so both big and small weeds can be sprayed.
- Proper adjustment of the height of the boom is necessary to get uniform coverage.
- Generally, the spray boom should be set at least 15" above the tallest weeds.
Nozzles

- Removable tips will enable you to vary the volume of water per acre simply by changing tips and adjusting pressure.
- Nozzles which can be taken apart are easier to keep clean.
- Nozzle screens help keep nozzle tips from plugging.
- No drip gadgets are available for some nozzles.
- To avoid damage, pocket knives or wire should not be used to clean nozzles.

Hose

- Garden hose can be used satisfactorily on low pressure weed sprayers.
- Chemical resistant hose is preferred by some.
- On high pressure rigs use special high pressure hose.

Use an old toothbrush to keep the screen and tip clean.

After you use it on the weed sprayer, don't use it to water the posies.
Hand Gun Attachments

- A hand gun is for weeds in "hard to get at places" and for small patches on the other side of the fence.
- Several types of hand guns are available.
- A garden hose nozzle is an inexpensive substitute.

Road Side Booms

- Many weed districts and commercial operators are finding roadside booms cut spraying costs along irrigation ditches and roadsides.
Suggested Arrangement of Sprayer Parts

- Hinge
- Boom
- Cut-off Valves
- Pressure Gauge
- Line Strainer
- Pressure Regulator
- Tractor Seat
- Bypass to Tank
- Pump
- Supply Tank
- Suction Strainer
Good Spraying Results are Dependent Upon—

1. Quality equipment suitable for the job.
2. An alert, efficient operator.
3. Proper calibration and adjustment of the sprayer. It is impossible to know how much chemical you are applying per acre if you do not know how many gallons of water the sprayer is applying.
4. Proper dosage of the chemical—see E. C. 179.
5. Growing conditions—a lush, tender weed which is growing rapidly is generally more easily killed with 2,4-D than one which is stunted or mature.

Things To Do Before You Calibrate Your Sprayer—

By "CALIBRATE", I MEAN TO FIND OUT HOW MANY GALLONS PER ACRE THE SPRAYER WILL APPLY.

1. Remove the nozzles from the spray boom.
2. Flush the weed sprayer with plenty of clean water.
3. Replace the nozzles.
4. Start the sprayer, being sure there is water in the supply tank.
5. By adjusting the pressure regulator, select the pressure you will be using for your spraying operations.
6. Make sure all nozzles are spraying.
7. Check all connections for leaks.
8. Decide in what gear and at what speed you are going to be operating your tractor during the spraying operations. Drive the sprayer around the yard to make sure everything is working. If everything is in proper working order, you are ready to calibrate the machine.
Steps in Calibrating a Sprayer

1. Measure the width of the boom in feet.
2. Divide the width of the boom into 43,560 (the number of square feet in an acre) and you will get how many feet you will have to travel to cover one acre.

\[
\frac{2640}{16.5} = \frac{43560}{330} = \frac{1056}{990} = \frac{660}{660}
\]

3. Measure off the number of feet you need to travel.
4. Fill your supply tank full of water.
5. Set the sprayer in operation exactly as if you were spraying in the field and then travel down the course you have measured.
6. When you get to the end of the course, shut off the sprayer.
7. Measure carefully the number of gallons of water required to refill the supply tank. Let's say it requires 7½ gallons.
8. The number of gallons required to fill the tank (in this case, 7½) is the number of gallons this particular sprayer is applying per acre.
9. Now, for every 7½ gallons this supply tank holds, add the number of pints of chemical recommended per acre. (See E. C. 179 for the recommended amounts.)