

Close Attention to Spray Tools Is Key to Economical Operation

Weed-spraying equipment has to be shipshape to achieve an efficient job. It is obviously important for CAs to formulate carefully and diagnose thoroughly the infestation to be treated, but these precautions are of no avail if machinery isn't properly cared for.

Sprayers usually have about nine essential parts: sprayer tank, measuring device for tank, filler hole for tank, pump, filter between tank and boom, by-pass valve, pressure gauge, boom, and nozzle.

Here are some pointers, from the Saskatchewan Department of Agriculture, which give CAs some short cuts to economy and efficiency:

Tank. Aluminum or galvanized tanks of 150 to 200 gallons have been found quite satisfactory for certain big jobs. CAs who use a tractor-mounted tank may want to stick to 80 or 90 gallons. These recommendations are for large projects (like golf courses or highway medians) where the application is similar to agricultural work. (In the USA, many prefer tanks of larger capacity.)

Measuring devices. For a money-saver, measuring devices can be as basic as an ordinary stick calibrated in gallons. These sticks can be homemade by pouring a specified amount of chemical into the tank, and marking the measuring stick accordingly.

Filler hole. This hole should be some 8 inches across, big enough to sweep sediment from the corner of the tank. Frequently there is a screen over this hole to remove impurities from fluids poured in.

Pump. Most common types of sprayers for pumps are the gear-type and the machine with nylon rollers. Preference is for the latter, because the gear-type tends to wear faster and lose pressure. Suspended material tends to wear a gear pump.

Capacity of most pumps in widespread use is 5-10 gal/min.

It's also convenient to have a clean-out valve in the bottom of the tank so cleaning is rapid and easy. A sump collects material for

easy disposal. It is best to have the outlet slightly above the bottom of the tank so sediment doesn't fill up the drain hole.

Filters. Chemical should be filtered between tank and boom.

By-pass valve. This device both holds pressure of chemical evenly on the boom and passes excess material back into the tank again. This returning fluid flows back into the tank and keeps chemical mixed up in the water.

Pressure gauge. This is the last mechanism solutions pass through before going to the boom, and is the gauge used to determine pressure in the boom. A handy shut-off valve should be attached so the flow of material can be turned off from the tractor or from the cab of the truck. The suck-back shut-off valve is best.

Boom. Booms should be easy to raise and lower, and should have a good range of height. It's essential the boom is just high enough so spray patterns overlap. With 20-inch nozzle spacings, this is usually 21-23 inches above the ground to be sprayed.

A sturdy boom prevents uneven spray patterns which may result when booms whip back and forth. It is desirable to keep the boom from bobbing up and down because if the boom is too low, there is no spray overlap, and if too high, too much overlap. A stiff brace will help hold the boom steady.

It's easy to see how a swinging boom can cause an uneven spray pattern. If the vehicle is traveling 4 miles an hour and the boom is swinging forward at 4 miles an hour, the net effect is a boom traveling 8 miles an hour.

Conversely, a boom that swings back 4 miles an hour at the same vehicle speed gives a net boom speed of 0 miles an hour, and an uneven spray pattern results.

Most booms have a clean-out valve at the end. Water should be pumped through the boom before it is used to flush out sediment. Hose connections should, of course, be tight so spray cannot escape.

Nozzles. Common nozzles for

weed control chemicals have 80 to 100 mesh screens to keep small bits of chemical from plugging up the nozzle tip.

Nozzles send out a fan-shaped spray. When nozzles are placed at a 5° angle on the boom, sprays run parallel without any turbulence. Each nozzle is designed to put out a specific amount of chemical per minute.

Worn nozzles can be costly because too much chemical is applied to the area. If these nozzles spray more than 10% over the recommended rate, replace tips.

Rate of spray of each nozzle can be checked by running water through the sprayers. The amount of material any type nozzle should apply at a given pressure is listed in the manufacturer's specifications. In one minute, the cup should fill to the recommended rate. Then measure the rate of the next nozzle and so on through the entire sprayer. Badly worn nozzles should have their tips replaced.

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