

Factors Affecting A Spray Application

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To have a successful spray application, a number of factors must be considered. Controlling these factors is more important for a herbicide application than for applying insecticides or fungicides. These factors are:

1. Nozzle spray pattern and discharge rate.
2. Boom and hose capacity.
3. Accurate pressure control.
4. Speed of travel.
5. Chemical and water mixtures.
6. Spray swath overlap or skip.
7. Boom stability and boom height above the target area.
8. Wind and climatic conditions.
9. Timing.

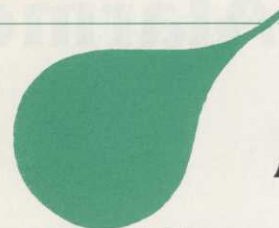
Nozzles wear with use which increases their discharge rate and narrows their spray fan. This can happen quite quickly with the old style fan nozzle with a sharp oval shaped orifice. The flooding type fan nozzle will retain its accuracy and fan width much longer. It also produces larger droplets which are less affected by wind. The larger droplets also give better control of broad leafed weeds by actual University tests.

The boom and hoses should be of sufficient size and smoothness so that all nozzles will discharge the same quantity of fluid. This becomes increasingly critical for higher gallonage applications. For low pressure spraying, 30 to 60 lbs., a low pressure regulator must be used. A high pressure regulator is not sensitive enough for low pressure work. If the sprayer has the pump and hose capacity for high pressure use (500 to 600 lbs.) then both high and low pressure regulators should be used in the system with valving, so either system can be used. A sprayer of this type with a piston pump is useful for cleaning machinery, tree spraying, fire fighting, etc.

Accurate travel speed is essential for a herbicide application. A good slow speed speedometer (0-10 m.p.h.) would be very helpful. This speedometer can be obtained as a sprayer accessory and is equipped with a small rubber tired wheel which can be mounted against any wheel that rolls on the ground — even cleated tractor tires — and will register accurate ground travel speeds.

Chemical and water mixing must be done accurately especially when topping off a partially filled tank. Spray swath skip or overlap is especially difficult to control. For accurate application, the outer nozzle on the boom on the return trip would have to be held 20 inches over from its previous position — for a boom with 20 inch nozzle spacing, this is imprac-

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tical under field conditions. For agricultural spraying, with sensitive grain crops, a die marker is used. However, for golf course use this would be objectionable. Therefore, as grass is not as sensitive to the spray chemical as grains it is better to overlap the spray swath.

The boom should be held rigid when spraying. It should not be free to swing. Also it should be held above the spray target at least 20 inches so the nozzle pattern can spread to give a uniform coverage.

Wind and climatic conditions can have a detrimental effect on spray application. For weed control, a clear, warm, sunshine day with no prospect of an immediate shower are ideal conditions. Timing refers to the growth stage of the weed when the spray application will be most effective.

A word on the use of a hand gun for spraying greens or other broadcast applications. For an accurate application, a hand spray boom should be used and be at least 20 inches above the spray target unless 10 inch nozzle spacing is used. Then the boom could be 12 inches above the target. The support wheels for the spray boom should be one-half the spray nozzle spacing beyond each end nozzle. Then you can use the wheel tracks as a guide on the return trip. A pressure gauge should be on the hand spray boom to indicate the pressure there.