

DEPOSITED
DOCUMENT

Sprayer Field Wash System



Vern Hofman
Extension Agricultural Engineer

Field Wash System

When a spraying job is finished or when the spraying season ends, several gallons of mixed spray may be left in the tank, hoses and booms. The spray solution should not be flushed out and dumped on the ground near a well when the sprayer is cleaned. When pesticides are dumped in one place whether in a field or near a well, it may pose an extreme hazard to the environment.

A practical solution is to rinse the sprayer in the field and apply the rinsate to an approved crop. Care must be used so that the total amount of pesticide active ingredient does not exceed label recommendations. This requires accuracy when the last tankful is being measured and mixed.

A field wash system can easily be added to almost any field sprayer. Equipment that will be needed is:

- 30- to 50-gallon clean water tank
- 2 tank wash nozzles (low pressure irrigation nozzles)
- 2 ball valves
- 2 tank adapters
- Hose and fittings
- 1 check valve
- 1 optional drain valve

Many applicators use field nurse tanks to refill sprayers. This method works well and eliminates the need for purchasing a 30-50 gallon water tank, tank saddle and one ball valve.

The fresh water tank should be large enough to provide two to three rinsings of the sprayer. It should be mounted above the pump so gravity will prime the pump. This is especially important with centrifugal pumps. Plumb the water line from the tank into the intake side of the sprayer pump with a ball valve installed in the line to control the flow. A check valve is recommended to

prevent any chance of pesticide entering the clean water tank. The line should be 1 inch or larger to prevent starvation or cavitation of the pump and to get the water transferred in a short period of time.

Plumb another line into the outlet (pressure) side of the pump to provide flush water to two tank wash nozzles (low pressure irrigation nozzles) mounted in the top of the spray tank. These nozzles are designed so that a stream of water is directed through an orifice against a splash plate which deflects water out in a spray to wash the sides of the tank. Two nozzles are recommended to eliminate "dead spots" that might develop around the fill opening. Low pressure irrigation nozzles are available from various irrigation equipment manufacturers.

Irrigation nozzles are available with various size orifices. It is suggested to install nozzles with a flow rate of three to four gpm per nozzle. Various splash plates are available, but a concave plate is best as it helps deflect more water up to wash the top of the tank. It is recommended to use a 5/8 inch hose or larger to supply the two wash nozzles. A smaller hose will restrict flow and may not provide sufficient flow to wash the tank properly.

Washing Procedure

Proper cleaning of sprayer tanks and equipment is extremely important. Field rinsing can eliminate the problem of chemical contamination of the soil or well water if the sprayer is cleaned in the same place for several years. Field rinsing can also reduce the problem of storing or disposing of rinsate collected at a mixing/loading area. If rinsate can be used as spray mix make-up water for another spraying job, it can be stored. Be sure to label the container and store in a secure area where other pesticides are kept. Do not store mixed pesticide or rinsate for more than a few days.



NDSU EXTENSION SERVICE

North Dakota State University, Fargo, ND 58105

NDSU LIBRARIES

APRIL 1992

S
544.3
.N9
A8
no. 1091

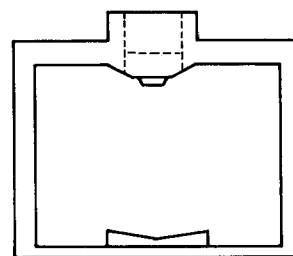
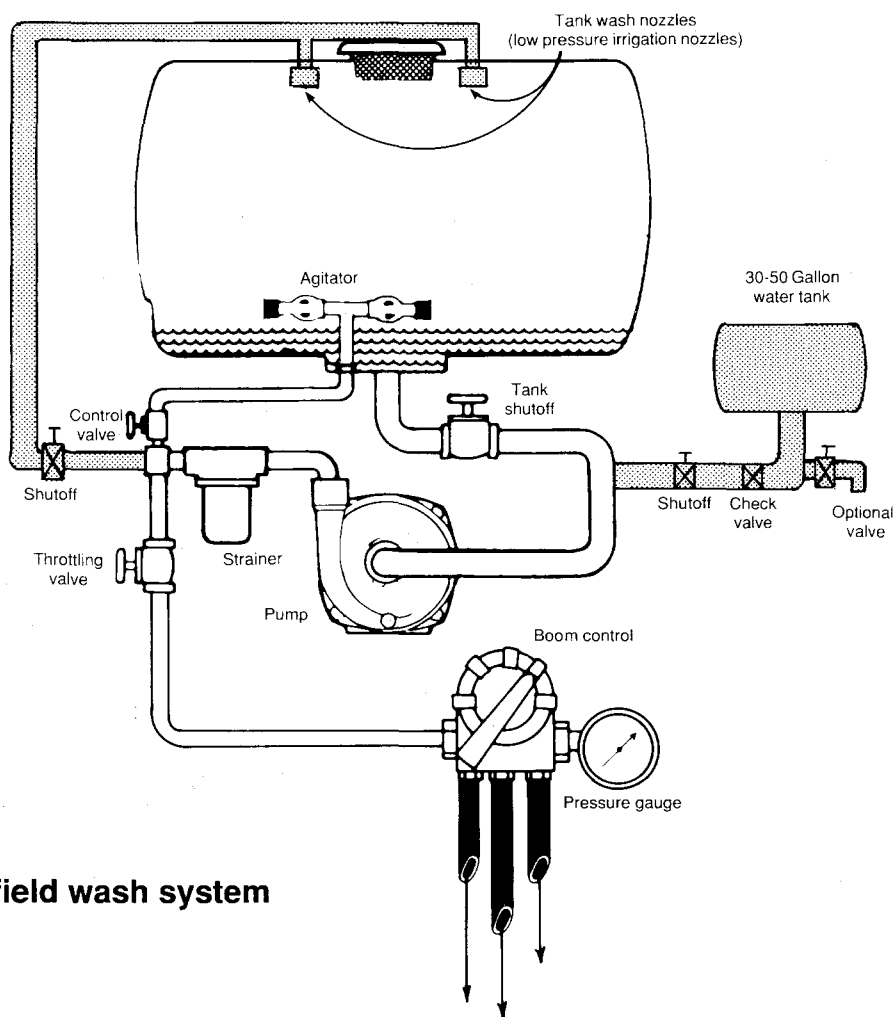
The proper cleaning procedure is:

1. Spray until the tank is empty - that should be the end of the job if the sprayer load was calculated properly and the sprayer was calibrated correctly. Good planning can eliminate a big disposal problem.
2. Stop in the field, add about one-third of the clean water (about 10 to 15 gallons) from the holding tank. Start the sprayer pump and circulate rinse water through the tank rinse nozzles for 1-2 minutes to thoroughly wash the tank walls and sprayer lines. Spray the rinsate onto an approved crop. If the amount of mixed pesticide was figured correctly for the field, the active chemical from the washing operation should be applied to the field being sprayed.
3. Repeat step 2 two more times. Most of the active chemical should now be removed from the spray tank.
4. Follow the cleaning procedure as recommended on the chemical label. It may suggest use of a commercially available cleaning solution.

Summary

Disposal of leftover pesticide spray mixtures and rinsate may pose a serious risk of groundwater contamination if dumped on the ground. Field rinsing of sprayers by carrying clean rinse water to the field or using water from a nurse tank is a practical way of disposing of leftover pesticide. Cleaning the sprayer in the field takes little time and can eliminate a potential disposal problem.

It is recommended to carry soap on the sprayer, so if some chemical was spilled on the applicator, the clean water supply and soap is available to wash the pesticide off. Always follow chemical label recommendations for proper personal protective equipment to wear and procedure for proper chemical handling.



Enlarged view of wash nozzle

Sprayer field wash system

Helping You Put Knowledge To Work