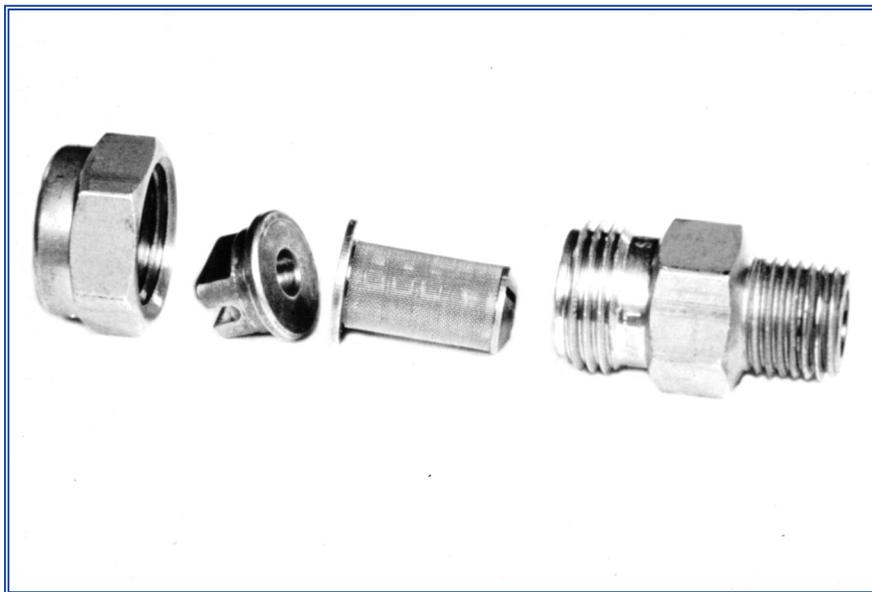


Farm Mechanization FACTSHEET

SUGGESTIONS FOR FIELD SPRAYER OPERATION AND MAINTENANCE

Field reviews consistently demonstrate the need for better sprayer maintenance. Following the suggestions in this factsheet will help ensure accurate and economical chemical application.



Nozzle tips and screens: two of the many sprayer components which must work together to ensure accurate chemical applications.

NOZZLES

1. Never mix different sizes and types of nozzle tips, discs and cores. Each combination delivers a different amount of liquid and pattern, and accurate chemical application will be impossible.
2. When using hollow cone nozzles, use only disc and core combinations that are listed in the manufacturer's catalogue. Improper combinations of discs and cores can cause rapid core wear and/or distorted spray patterns.
3. Even stainless steel nozzles may corrode if left in the sprayer over winter. Nozzles and nozzle screens should be removed and cleaned each fall and stored in a can of light oil or diesel fuel over the winter.
4. For maximum nozzle life and chemical application accuracy, consider using colour-coded molded, ceramic, metal oxide, or tungsten carbide nozzles. These are more expensive but, if properly maintained, will outlast brass and stainless steel. Molded nozzles are becoming more popular because they perform with greater

- consistency in droplet size across a wider range in pressures. Air induction nozzles are an option in situations where drift needs to be kept to an absolute minimum.
5. Spraying Systems Company sells two nozzles which produce a hollow cone spray pattern: the disc-core nozzle and the *ConeJet* nozzle. The *ConeJet* nozzle is for use with clear liquid chemicals only, at pressures below 150 psi. For applying abrasive chemicals at higher pressures, the disc-core nozzles should be used.
 6. The output of each individual spray nozzle should be checked regularly. Over half of the nozzles tested in field tests required replacement.
 2. Maintain and clean the suction screen between the tank and the pump. If it is bent or torn or does not fit properly, it will not screen debris out of the water. When replacing a screen, be sure that the new one fits perfectly. Otherwise, it will not filter the water.
 3. Many sprayer tanks have an external clear plastic hose that lets the operator see how full the tank is. This hose should be replaced annually, so that the tank level is always easy to read. A custom dipstick also helps to check tank volume accuracy for varying water levels.
 4. Larger sprayers can experience a pressure drop of more than 20 psi between the pump and the side spray booms. This can be caused by hoses and boom shutoff valves that are too small. Pressure drop can be easily tested by temporarily replacing the nozzle at the end of the spray boom with an accurate spare pressure gauge. There should be no more than a 5 psi difference between the two gauges at normal spraying pressure and volume.

PRESSURE GAUGES

1. Pressure gauge testing often reveals that gauges are not performing within expected accuracy margins. Keep a spare gauge on hand and interchange them at the start and middle of each spraying season.
2. Use a low pressure gauge (0 – 100 psi) for herbicide spraying and a high pressure gauge (0 – 400 psi or 0 – 600 psi) for insecticide and fungicide spraying.
3. Use only high quality oil-filled gauges designed for use with spraying equipment. The gauge should have a large dial, with numbers that are easy to read.
4. Keep your spraying pressure within the range shown in the nozzle manufacturer's catalogue. Exceeding these limits will result in droplet sizes that are too small, excessive pesticide drift and rapid nozzle wear.
5. Wash your sprayer off carefully before winter storage to minimize rusting of the frame. The pump and associated components must be drained to prevent damage in freezing conditions.
6. Install a tap in the side of a 20-litre pail, fill the pail with fresh water and mount it on your sprayer. When you want to rinse off a plugged nozzle or wash you hands, you will have clean water available.
7. The power takeoff (PTO) shield must completely cover the PTO shaft. It should also spin freely independent of the shaft. If your clothing is accidentally caught on a rotating PTO shaft, or on a faulty shield that will not stop rotating, loss of limb or life is very likely.

OTHER COMPONENTS

1. Install a screen basket in the tank's large top opening. This screen will keep coarse material out of the system and also helps to ensure that wettable powders are thoroughly mixed before being added to the tank.
8. Your tractor tachometer and speedometer must be in good working condition. Accurate chemical application is only possible if the tractor's ground speed is known and consistent. Global positioning equipment is also helpful in checking such parameters.

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