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CLEANING PESTICIDES FROM AGRICULTURAL SPRAY EQUIPMENT

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NDSU EXTENSION
SERVICE

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It Is available online From Purdue for \$5.50
@ <https://mdc.itap.purdue.edu/newsearch.asp>



“Cleaning Pesticides From Ag Spray Equipment”

“Follow the Cleaning Instructions in the Sprayer Operators Manual”

“ Make a Checklist to Carry on the Sprayer to avoid Missing Something”



“Invest a little now; avoid bigger costs later”

- ▶ Make sure to rinse out the sprayer completely
 - ▶ Even with time constraints due to weather delays



“Follow Proper procedures on Mixing Pesticides to Avoid Compatibility Issues”

➤ “If Specific Instructions are not Available” “Follow the A.P.P.L.E.S. Method”

- Agitate
- Powders “Soluble”
- Powders “Dry”
- Liquid flowables and Suspensions
- Emulsifiable Concentrates
- Solutions

“What is wrong?”



“Spray was not cleaned out of boom”



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“Factors that lead to herbicide injury”

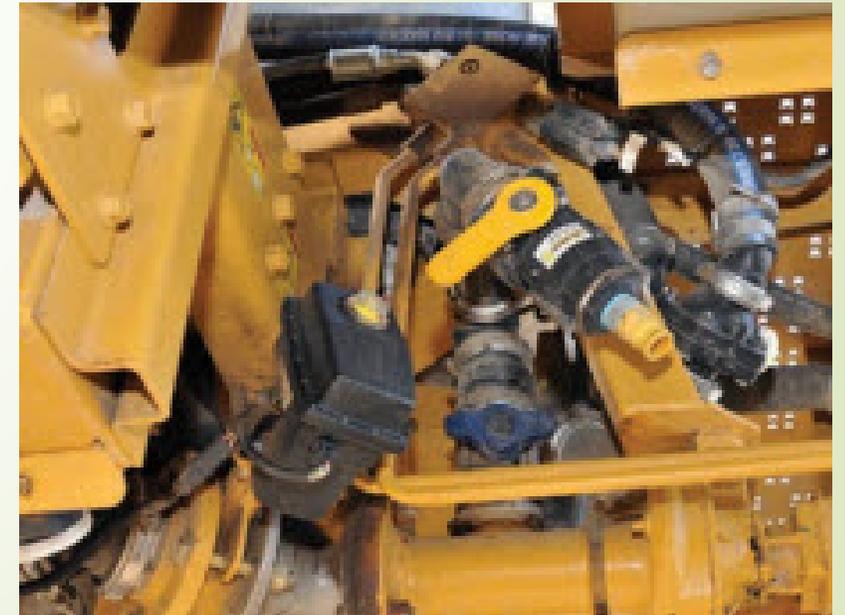
- “Applicators that don’t follow directions when cleaning spray equipment between spray jobs may buy a crop and produce a poor business reputation”



“Factors that lead to herbicide injury”

► Cleaning equipment

- Herbicides can be active at low concentrations
- Post-emergence herbicide is a more common problem
- Products can be incompatible
- Application timing is more crucial than ever
- Plumbing is complicated and interconnected



“Use Proper Personal Protective Equipment”

- Gloves
- Goggles
- Boots
- Long Pants
- Apron
- Use what the Pesticide Label Recommends



“Where does residue hide?”

- “Complicated plumbing systems underneath self-propelled sprayers as well as pull type sprayers”



“Where does Pesticide Residue hide?”

- “Spray tanks, hoses, valves as “blind” alleyways, booms, screens, end caps or cleanout caps”
- “ Cleaning Pesticides from spray equipment requires water and usually a cleaning compound”



“Tank cleanout: Turning a lot into a little”

- “Cleanout: removing enough to safe levels”
- “Impossible to get rid of all residue”
- “Some highly active chemicals such as Dicamba and ALS herbicides may persist in sprayers and cause damage after “good” cleaning jobs”
- “Be sure to clean hoses that have a small drop in them”



“Sprayer cleanout: turning a lot into a little”

- “Create and use checklist, make sure to check areas easily missed”



"The steps for removing herbicide residue"

- "Clean out booms every night"
- "Clean Tank Out"
- "Clean Line Filters and Nozzle Screens"
- "Clean the Hoses"
- "Don't leave spray set in the sprayer overnight!"



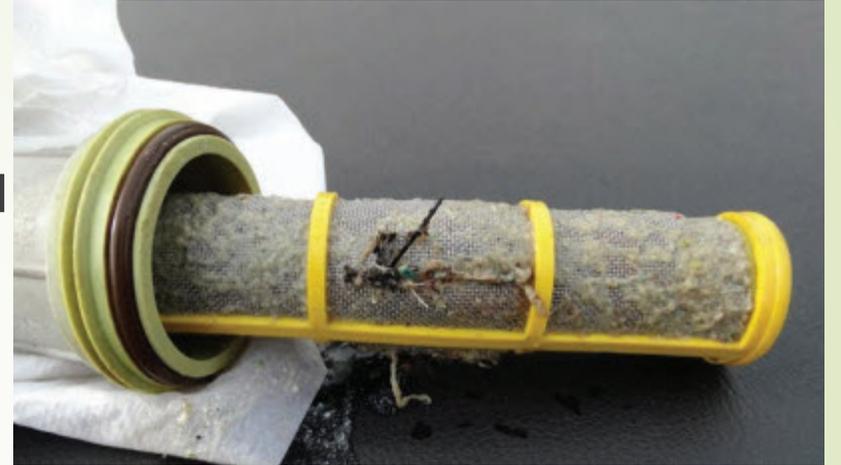
“The steps for removing herbicide residue”

- ▶ “Perform first rinse in the field with clean water”
 - ▶ “What to do with sprayer rinse water”
 - ▶ “Apply to sprayed field”



“The steps for removing herbicide residue”

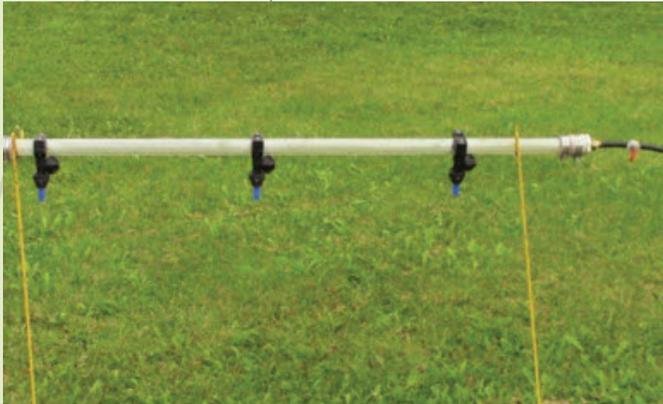
- “Remove and clean all screens in Recommended Sprayer Cleaning Solution”
- “Remove and clean boom end caps”



Removing Herbicide Residue from Sprayers

“Using only water is like washing grease from your hands with only water.”

“A few herbicides only require water. Others require commercial cleaners. Be sure to follow the chemical label for cleaning instructions”



“Some Applicators do not use Nozzle Screens”

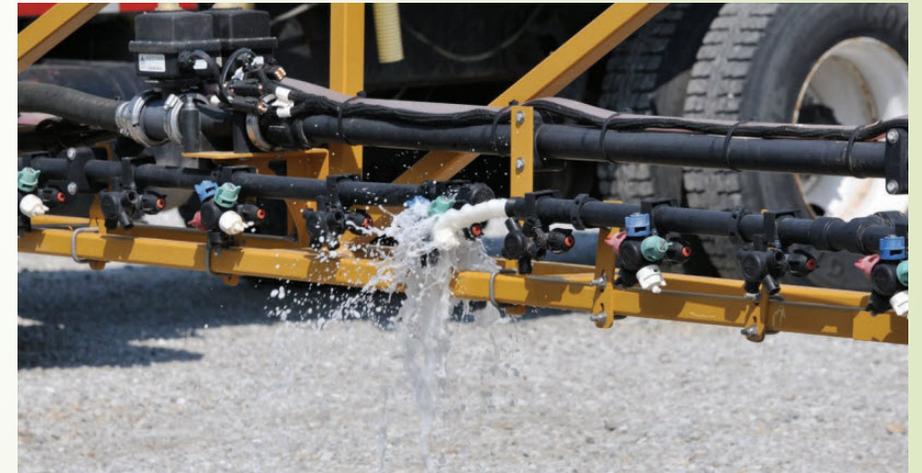
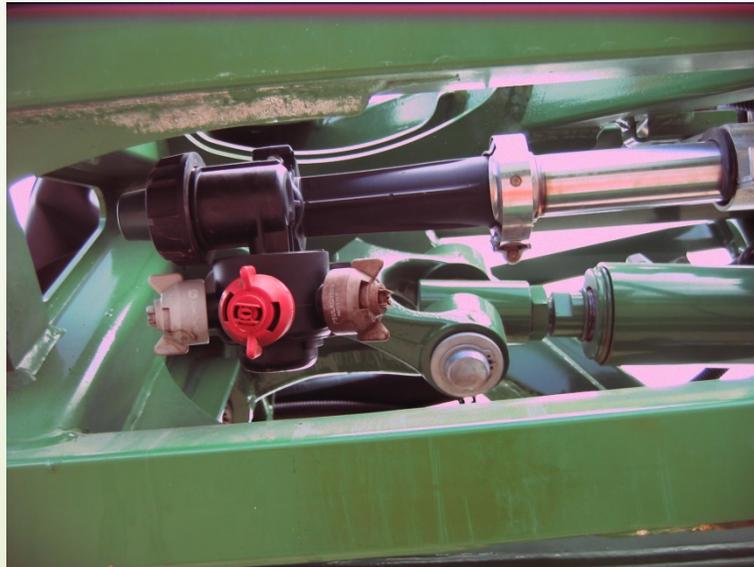
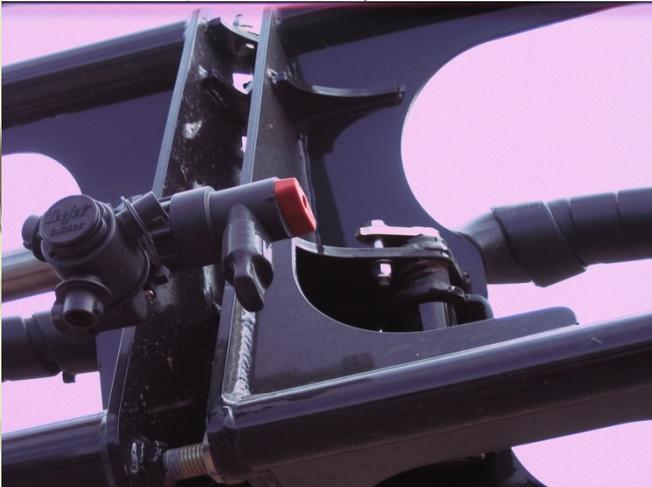
“They Depend Upon the Line Screen to filter out dirt”

- A 120 ft. sprayer has 96 Nozzles and Screens
- Operating without Nozzle screens will almost always lead to plugged or partially plugged nozzles



“The steps for removing herbicide residue”

- “Perform second rinse with water”
- “Some Newer Sprayers have Ball Valves at the end of the Boom or the end Nozzle is Built into the end of the Boom”



"The steps for removing herbicide residue"

- "Add tank cleaner"
- "How much cleaner to use – Follow Instructions "
- "Some herbicides require only water"
- "Some require Ammonia or commercial tank cleaner + water"
- "Some require Detergent or commercial tank cleaner + water"
- "Some require Bleach + Water"
- "Circulate Through Sprayer"
 - "How long to let cleaners work" "Sometimes 8 hours or more is recommended"



“The steps for removing herbicide residue”

- “Perform final rinse and flush”
- “Clean Outside of Sprayer”



“Eliminating residue from tender or nurse trucks and inductors”

- “Clean tender trucks like Sprayers”
- “Use Recommended tank cleaners”
- “Clean Closed Handling Systems or inductor cones Like You Would a Sprayer”
- “Sight tubes are often overlooked”



“Use A procedure checklist for cleaning a sprayer”

- Use standard operating procedure (SOP) for cleaning process
- Cleaning Procedure is in the Sprayer Operators Manual



“Water is your friend”

- “Use plenty of water”
- “Weather always plays a factor – Don’t cheat on cleaning procedures”



“Conclusion: Water is your friend”

- ▶ “Remember not to skip steps when bad weather limits your time”
- ▶ “Use recommended sprayer cleaning methods”

