Sprayer Cleanout

Your Way To Grow 2019
Why We Need to Rinse

• Growers are using Correct Weed Resistance Management Practices
  
  • Tank-mixing multiple Modes of Action in all crops
  • Increasing use of different Active Ingredients

Pictures from Vern Hofman NDSU and Purdue Extension
Sprayed Dual Magnum + glyphosate + Stinger + etho + Flame. Beets had speckling from the DM and etho but also significant necrosis. Sprayer sat for two hours due to breakdown. The down time may have provided an opportunity for Fierce (Zidua + Valor) to break loose and dissolve in the tank. First load the next day also had issues which suggested ‘sitting’ did something. Injury was less over time.
Harness Max was applied to corn. Max is Harness plus mesotrione. Sprayer was not cleaned properly and HPPD evidence was seen on sugarbeet. Four loads across the field. The first two loads caused stand loss and need to replant. Stands were good in load 3 but there was growth reduction. Load 4 was fine.
Where Pesticide Residue Hides

<table>
<thead>
<tr>
<th>Primary Locations</th>
<th>Secondary Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tanks</td>
<td>• Inductor Cones</td>
</tr>
<tr>
<td>• Hoses</td>
<td>• Water Hoses</td>
</tr>
<tr>
<td>• Boom Lines</td>
<td>• Sprayer Tires</td>
</tr>
<tr>
<td>• Valves</td>
<td>• Sprayer Frame</td>
</tr>
<tr>
<td>• Screens</td>
<td>• Nurse Tanks</td>
</tr>
<tr>
<td>• Nozzle Bodies</td>
<td></td>
</tr>
<tr>
<td>• Pumps</td>
<td></td>
</tr>
<tr>
<td>• End Caps</td>
<td></td>
</tr>
</tbody>
</table>
Sprayer cleanout

Cleaning a sprayer is like washing dishes

– Use the correct detergent (solvent)
– Don’t allow the hard stuff to solidify
– Be thorough; take your time
– Rinsing properly before relaxing
Seven Steps of Sprayer Tank Cleanout

1. Flush Sprayer Every Night
   • Don’t let spray solution sit overnight
   • Flush spray solution from tank, lines, boom

2. 1st rinse in field
   • Removes concentrated spray mix before cleaning process
   • Rinse until water exiting nozzles is clear

(Purdue Extension PPP-108)
Seven Steps of Sprayer Tank Cleanout

3. Remove and Clean all Screens
   • Use a brush and soapy water

4. Remove and Clean Boom End Caps
   • Scrape away any residue inside

5. 2nd Rinse with Water
Seven Steps of Sprayer Tank Cleanout

6. Add Tank Cleaner
   • Agitate and circulate
   • Let the cleaner sit
   • Flush the cleaner from the system

7. Final Rinse and Flush with Water
   • Clean outside of sprayer
These steps are general for all sprayers, but...

• Know your sprayer
  – Where can residues hide? Where are my valves? Screens? Hoses?
  – Consult your operators manual

• Develop a checklist

• Know the physical properties of the chemical you’re applying
  – Granular vs. EC vs. Solution
  – Jar mix to test incompatibility
Choosing the Right Tank Cleaner

- Refer to label for correct cleaner
- Know what chemical you’re spraying & its properties
- Know the condition of your sprayer

Xtendimax Label with cleanout procedures
Types of Tank Cleaner

- Ammonia - increases the pH of the solution
- Bleach - lowers the pH of the solution
- Detergents – cleaners
- Commercial tank cleaners – usually contain ammonia and a detergent
## List of Tank Cleaners for Herbicides

- **Authority MTZ** - Ammonia with TC
- **Authority Assist** – Ammonia or TC
- **Cadet** - Ammonia and TC
- **Raptor** – Water
- **Flexstar** – Tank Cleaner
- **Valor** – Ammonia or TC
- **Armezon Pro** – Tank Cleaner
- **Harness Max** - Ammonia or TC
- **Tripleflex** – Ammonia or TC
- **Callisto** – Ammonia
- **Capreno** – Bleach
- **Gramoxone** – Tank Cleaner
- **Dicamba** – Ammonia with TC
- **2, 4-D** – Ammonia
- **Harmony** – Water
- **Express** - Water
- **Affinity Broadspec** - Water
- **Sentrallas** – Ammonia
- **Supremacy** - Ammonia
- **Huskie Complete** – Ammonia
- **Goldsky** – Ammonia
- **Everest** – Ammonia
- **Varro** – Ammonia
- **Widematch** - Ammonia
Methods to Prevent Sprayer Contamination

- Mixing Correctly
- Don’t let solution sit
- Rinse Rinse Rinse
  - Dilution is Key!
- Use proper cleaner
- Be thorough on cleaning

Incorrect mixing can lead to nasty messes
Methods to Prevent Sprayer Contamination

- Replace worn out parts
- Keep tender equipment clean
- Have Dedicated Sugar Beet Sprayer
- Have Separate Nozzles, Screens, In-line Screens
Helpful Equipment Add-Ons

- Stainless Steel Tanks & Boom Lines
- Polyethylene Hoses
- Direct Injection
- Tank Rinse Nozzles
- Continuous Rinse System
- Nozzle Endcaps
- Clean Water Reservoirs
How Clean is Clean Enough?
Questions?