## Avoid Spray Tank Contamination

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I received the first call of the season about potential spray tank contamination, which is not surprising considering the major role postemergence herbicides play in many corn and soybean weed management programs. With these postemergence herbicides, remember to take extra time and care to clean your sprayers. In the past, we only really needed to be careful when switching between corn and soybeans or other sensitive crops. However, we now need to be careful and clean herbicide residues out of the sprayer even when switching between different corn or soybean types. For example, a conventional corn hybrid could be damaged by a sprayer contaminated with glyphosate after spraying Roundup Ready corn.

How much contamination is safe? I can make some pretty good guesses on how much contamination it takes with different herbicides to cause visible crop damage, but it also depends on weather conditions, crop growth stage, adjuvants, etc. It's much harder to predict how much contamination that it would take to affect yield. In either case, I would not want to find out if the level of contamination was safe or not. See guideline #1 below for my reasoning.

Guidelines to consider regarding tank contamination:

1. Once injury occurs, there is no fix.

2. Postemergence-applied herbicides are more likely to injure crops than herbicides applied preemergence because the herbicide is applied directly to the leaves rather than being diluted in the soil. Also, several preemergence herbicides have little or no foliar activity. Therefore, be especially careful to clean postemergence herbicide residues from spray equipment.

3. Systemic herbicides like glyphosate, dicamba and other growth regulators, ALS inhibitors (Accent, Raptor, etc) and ACCase inhibitors (Assure, Poast, etc.) are a greater concern than contact herbicides because systemic herbicides damage the growing point. Contact (non-mobile) herbicides only damage sprayed leaves. Relatively high concentrations of contact herbicide residues are required to cause long-term damage in most cases. However, low concentrations of systemic herbicides can cause serious damage.

4. The most serious contamination problems are **glyphosate injury to corn** and **dicamba injury to soybeans**. Both of these crops are very sensitive to these herbicides. If you have suspected dicamba injury, we have a bulletin (Dicamba Injury to Soybeans) with a description and photos of injury. Contact me if you need copies.

5. Just spraying until a tank is empty does not mean that all the herbicide is removed from the spraying system (sump, filters, pump, lines, etc.). Proper cleaning and rinsing is needed to remove the remaining spray solution or herbicide residues.

6. Clean spray equipment as soon as possible after use. Dried residues are more difficult to clean and remove.

7. Follow the label's directions for the best cleaning agent to use. On several labels, you will note that the cleaning procedures recommend that the cleaning solution stand in the sprayer for several hours to overnight. Cleaning a spray tank is not a job that should be rushed, especially with certain herbicides that are highly active on sensitive crops.

8. Never add chlorine bleach to ammonia or liquid fertilizers that contain ammonia because toxic chlorine gas can be formed.

I have summarized the cleaning agents that are recommended on the following herbicide labels. I have not attempted to summarize and simplify the exact cleaning steps because the specific details differ among labels and I would not want to omit any of the labeled steps.

Cleaning agent recommendations for common postemergence corn and soybean herbicides

| Herbicide | Recommended cleaning agent |
|---|---|
| Accent | ammonia* |
| Accent Gold | ammonia* |
| Aim | detergent |
| Assure II | ammonia* |
| Atrazine | detergent |
| Banvel | ammonia |
| Basagran | detergent or commercial tank cleaner |
| Basis | ammonia* |
| Beacon | ammonia or commercial tank cleaner |
| Buctril | none listed |
| Callisto | ammonia or commercial tank cleaner |
| Celebrity Plus | detergent or commercial tank cleaner |
| Clarity | detergent or commercial tank cleaner |
| Classic | ammonia* |
| Cobra/Phoenix | none listed |
| Distinct | detergent or commercial tank cleaner |
| Extreme | water |
| FirstRate | ammonia |
| Flexstar | commercial tank cleaner |
| Fusion | commercial tank cleaner |

| | |
|---|---|
| Glyphosate | most labels recommend water; Touchdown labels recommend commercial tank cleaner |
| Harmony GT | ammonia* |
| Hornet WDG | ammonia or commercial tank cleaner |
| Impact | detergent or commercial tank cleaner |
| Liberty | commercial tank cleaner |
| Liberty ATZ | commercial tank cleaner |
| Lightning | detergent or commercial tank cleaner |
| Marksman | detergent or commercial tank cleaner |
| NorthStar | ammonia or commercial tank cleaner |
| Option | ammonia |
| Permit | ammonia |
| Poast Plus | detergent or commercial tank cleaner |
| Priority | ammonia |
| Pursuit | water |
| Raptor | water |
| Resolve | ammonia* |
| Resource | none listed |
| Select Max | none listed |
| Sequence | commercial tank cleaner |
| Steadfast | ammonia* |
| Steadfast ATZ | ammonia* |
| Stout | ammonia* |
| Stinger | ammonia |
| Synchrony XP | ammonia* |
| Ultra Blazer | detergent or commercial tank cleaner |
| Yukon | detergent then ammonia |
| 2,4-D | ammonia |

*DuPont has an approved list of tank cleaners that may also be used with their products.