



## Dicamba and 2,4-D Spray Drift Control and Prevention Methods

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Dicamba, Dicamba + 2,4-D and 2,4-D (amine and LV forms) are used to control broadleaf weeds. Except in extreme cases, such as spraying in very windy conditions and using nozzles and pressures that create very fine droplets, spray drift normally is observed only over short distances. However, Dicamba and 2,4-D sprays are the exception.

Some 2,4-D formulations can vaporize and drift without seeing droplets. Dicamba and 2,4-D amine formulations don't vaporize; the LV esters of 2,4-D Vaporize.

The three leading causes of Dicamba and 2,4-D injury are:

- Spray drift,
- Volatilization (or vapor drift); and,
- Spray rig contamination.

The potential for injury from each of these causes can be greatly reduced by adhering to best management practices as described in the following paragraphs.

### How Does Non-Target 2,4-D Injury Occur?

**Spray drift**..... 2,4-D injury can occur by spray drift. Spray drift means physical movement of spray droplets by wind as opposed to vapor drift. Spray drift can occur with any formulation of Dicamba and 2,4-D (or any herbicide). Spraying during windy conditions and using nozzles and pressures that result in the creation of fine spray droplets increase the risk of spray drift.

**Vapor drift**..... Vapor drift or volatility, is the airborne movement of the pesticide as a gas, or vapor, to the non-target site, but then



volatilizes (evaporates) as a gas, which is not visible and can cause damage to sensitive plants some distance away from the application site. The potential for vapor drift is chemical specific and based on the herbicides' vapor pressure. Vapor pressure is affected by temperature, temperature inversions and relative humidity. 2,4-D LV formulations can volatilize readily.

**Spray Rig**..... Dicamba and 2,4-D residual left in the spray rig can injure other crops due to incomplete tank clean out after spraying with Dicamba and 2,4-D products. Cleaning the complete tank, inside and out, and flushing hoses, nozzles and booms and inspecting them is essential to avoid any crop injury.

### How can Growers prevent Non-Target Injury?

First, try Communication. This is a very good step in preventing non-target injury.

- Growers should communicate to their neighbors, local commercial pesticide applicators, and landowners the exact location of their susceptible crops that may be **affected by off-target movement of herbicides**.
- Growers should be especially mindful of neighboring wheat fields, pastures, and rangeland that may receive applications of volatile 2,4-D formulations.
- Growers should also communicate to county or state highway

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departments that may spray roadsides with Dicamba and 2,4-D formulations.

- Growers should attempt to locate plantings of sensitive crops away from property borders that use Dicamba and 2,4-D.

## What can Applicators do to prevent 2,4-D Injury?

Following are some prevention items to consider preventing 2,4-D injury.

Temperatures - Injury may be increased if temperatures are too high during or shortly after applications. The risk of volatilization is directly related to air temperatures, and as air temperatures increase, the potential for off-target movement increases. The majority of volatilization occurs within a few days of application with increasing temperatures increasing the potential for volatilization.

Increase droplet size & use low spray pressures - Select nozzles that produce the largest droplet size while providing adequate coverage at the intended application rate and pressure to minimize drift.

Wind speed - A portion of the herbicide may evaporate from the surface it lands upon and then move from the treated field with wind currents. Avoid applying Dicamba and 2,4-D if wind speeds are lower than 2 mph or greater than 12 mph. Herbicides sprayed in calm (no wind) situations may increase drift potential due to temperature inversions.

Maintain a buffer - If possible, maintain a buffer from the edge of the field being treated. There are no fixed guidelines as this safe setback distance will depend on wind direction and speed, air temperature, topography, acres treated, etc., but two to three hundred feet of buffer is usually adequate if other good drift control practices are utilized.

Properly timed applications - Herbicides should be applied when weed control can be maximized and drift potential minimized. When possible, try to control weeds when the crops are in less susceptible growth stages, such as prior to flowering.

Choose the right formulation - Dicamba (one brand name is Banvel) and Dicamba + 2,4-D, and 2,4-D amine formulations are not as volatile as are the 2,4-D LV ester formulations. Ester and ester-acid formulations of 2,4-D are popular because they mix well with liquid nitrogen. Dicamba and 2,4-D Amine formulations also can be mixed with liquid nitrogen if the 2,4-D is premixed with water before adding it to the liquid nitrogen.

*Again, the Dicamba and 2,4-D amine formulations are non-volatile, whereas ester (LV) formulations are prone to vapor drift. LV Ester formulations of 2,4-D are the most volatile, and the spray techniques described above should be strongly observed to avoid spray drift. Vapor drift is not a problem with amine formulations of 2,4-D. Avoid Droplet drift..*

Growers and Applicator's should review the herbicide product labels and discuss the formulations with ag-dealer reps or county agents when determining which formulation of Dicamba or 2,4-D to use. Dicamba formulations usually are combined with 2,4-D as one product. The amine salt, is not volatile, but droplets still can carry in the wind from those formulations. The LV esters are the ones that can volatilize, or vaporize.

## Atlantic-Pacific Ag's HOOK Adjuvant was Designed to Control Drift and Droplet Size

Choose **HOOK** as your partner in controlling spray drift and droplet size in your spray tank. **Hook** has been tested and proven to be the best drift control product you can use. **HOOK** gets into the plant canopy by controlling the drift of particles, keeping the spray particle size in the correct range to effectively deliver the pesticide to the target site with minimal drift.

## Soybeans become 2,4-D Resistant:

Eventual approval and use of soybean varieties that are tolerant of the herbicides 2,4-D and Dicamba is spurring discussion and debate. Environmentalists and weed scientists and specialty crop growers are concerned about 2,4-D- and dicamba-resistant crops. Others say that 2,4-D and Dicamba have been used for over 50-years and no widespread damage has occurred. More to come on this eventual approval and use.

## A Clean Spray Rig Can Assure the Next Spray Will Not Be Contaminated —

Dicamba and 2,4-D lurks in spray rigs after spraying. Simple rinsing-out is not effective in removing residues. Clean the spray rig from top to bottom, inside and out, including the inside-top of the tank. Use a tank-hose from the rig and force water into the top and around any creases in the tank where Dicamba and 2,4-D residues may hide. Take off nozzles and tips to thoroughly clean. When the cleanup is complete, spray the final rinsate onto some sensitive plants and observe their health overnight.



## Choose WORK-HORSE as your Tank Cleaner of Choice —

- ⇒ Effectively cleans Dicamba and 2,4-D in your tank from top to bottom.
- ⇒ Is an effective, superior grade spray tank cleaner for agricultural use.
- ⇒ Will remove pesticide and adjuvant residues and hold them in the rinse solution.
- ⇒ Effectiveness is not reduced by hard water, which contributes to accumulation of residues in sprayer tanks and plumbing.
- ⇒ Is miscible and compatible with all sprayer equipment and contains corrosion inhibitors.
- ⇒ Also contains ingredients to minimize wear and damage to sprayer pump seals.

**All-Purpose Rigs:** lessens contamination when changing from one chemical to another.

**Single Purpose Rigs:** assures accurate dosage by removing chemicals from the previous batch.

You may also want to use **WORK-HORSE** before using the rig to:

- Remove scale, dirt, etc.
- Protect pump and valves
- Reduce strainer clogging
- Minimize nozzle wear.

Work-Horse neutralizes acidic-type chemicals.