

Reducing The Risk Of Phenoxy Damage

1. Consider using a herbicide with a different active ingredient, such as glyphosate (Roundup), when you are trying to control difficult weeds such as blackberry or poison oak.
2. Fall applications of glyphosate tend to be more effective than spring applications.
3. If you need to use a phenoxy herbicide, decrease the risk of volatilization by using an amine (dimethylamine salt) formulation instead of an ester formulation.
4. Consider making applications in early spring before grapevines begin to grow or in the fall after their leaves have dropped.
5. Always use extreme caution when making applications when desirable vegetation is present and temperatures start warming up.
6. Monitor wind speed and direction closely.
7. Read and follow all label directions and precautions before using any pesticide.
8. Adding a spray-thickening agent (drift retardant) may reduce spray drift, although recent evidence suggests some drift retardants may break up or lose their chemical integrity when agitated or repeatedly passed through a spray pump.

Communicate With Your Neighbor

Let your neighbors know you have grapevines and that they are very sensitive to some herbicides. Recommend spraying before the vines bloom or use an alternative to phenoxy herbicides. Suggest spraying when the wind is calm or blowing away from your vineyard.

Who to Call If You Think Your Grapes Have Herbicide Effects

If you suspect that your vineyard is affected by a herbicide drift, contact the Pesticide Section of the Plant Industry and Consumer Services of the Oklahoma Department of Agriculture, Food, and Forestry at 405-521-3864 for assistance. . or visit our website to download a complaint form.

Use pesticides safely!
Read and Follow Directions



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Protecting Oklahoma's Vineyards from Phenoxy (Hormone) Herbicide Effects



Figure 1. New leaves and growing tips show the most severe damage. Affected leaves are small, narrow, and misshapen.

Wine grapes are a small acreage crop in Oklahoma, and are often surrounded by field or turf crops. Grapevines are very susceptible to certain herbicide drift. Many farmers do not realize the hazard that herbicides present to grapes.

Damaged Vines By Phenoxy Herbicide:

Damage is often caused by Phenoxy (hormone) type herbicides which include 2,4-D, 2,4-DB, MCPA, MCPB, MCPP, Dicamba, Picloram, Clopyralid, and Triclopyr. Some of the trade names are Banvel, Basagran-M, Thistrol, Crossbow, Garlon, Grazon ET, GrazonPC, Reclaim, Redeem, Remedy, Rhonox, Tordon,

Weed-B-Gone, Weedone, and Weedmaster to name a few. They also are the active ingredient (2,4-dichloro-phenoxyacetic acid, 2-methyl-4-chloro-phenoxyacetic acid, triclopyr, or dicamba) in many "weed and feed" and brush control products for use in home landscaping.

This family of pesticides includes many very effective broadleaf weed killers. They are used on lawns, golf courses, rights-of-way, and agricultural fields. They are very popular for controlling blackberries and poison oak. These products come in containers ranging from 1-quart bottles of ready-to-use solution to 5-gallon drums of highly concentrated active ingredient.

Some of these pesticides do not require a pesticide license for purchase and are readily available from department stores, home improvement stores, co-ops, retail nurseries, and farm chemical dealers.

Grapevines Are Highly Sensitive.

Grapevines and many ornamental plants are extremely sensitive to herbicides containing phenoxy-type active ingredients. These plants are sensitive to phenoxy herbicides throughout the growing season, but **grapevines are most vulnerable from the early growing season through the bloom period (early April to mid-July)**. During the active shoot growth period, phenoxy damage often causes growth to stop temporarily and to be retarded for several weeks. If the effects are not too severe, normal growth will resume either the same or following year. Severely injured vines may not recover for 2 years or more.

Flower clusters are particularly sensitive; exposure to hormone herbicides during bloom can greatly reduce fruit set. Injured

vines also may have delayed fruit ripening. Severe injury can prevent complete maturation of the fruit.

The delayed maturation effect may exist in a vine for 1 to 3 years before normal ripening resumes. **Slight injury may have little or no effect upon fruit maturity.**

Vineyards in other states have experienced significant crop loss and long-term damage to vines that were inadvertently exposed to phenoxy herbicides applied to distant targets. In contrast, **minor symptoms on grape leaves probably do not cause crop loss**, but it can take significant time and energy to resolve the issue with a neighbor.

How Damage Occurs

Vines are damaged when herbicide drift and/or volatilization occurs. Herbicide particles or vapors are moved by the wind, shifting air currents, climatic inversions, or spraying at high pressure (which causes a very fine mist). Even small amounts carried by the wind can create symptoms in grapevines.

Grapevines, or other sensitive vegetation in close proximity to a sprayed area, are at highest risk. However, even grapevines some distance from a phenoxy-treated area can be damaged under certain conditions, and even slight winds can carry small spray droplets toward a vineyard. Temperatures above 70°F allow ester formulations of phenoxy herbicides to volatilize (vaporize) and be carried by the wind several days after application.

Symptoms Of Phenoxy Injury

The symptoms of phenoxy herbicide damage are most dramatic on the youngest leaves and the tips of

growing shoots (Figures 1 and 3). Affected leaves are small, narrow, and misshapen and have closely packed, thick veins that lack chlorophyll as compared to a normal leaf (Fig.2). Farther down the shoot, damage symptoms are progressively less severe; leaves have a distinctive fan-shape appearance with parallel, strap-like, clear veins (Figure 3).

The leaves sometimes are cupped and the leaf margins often terminate in sharp points. Small, puckered, interveinal spots retain some green chlorophyll. Damaged flower clusters set very few or no berries.



Figure 2. Normal grape leaf



Figure 3. Grape leaf exposed to phenoxy type herbicide.