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Problem: Broadleaf Herbicide Damage to Garden Plants

Plants Affected: Numerous plants affected but tomato, potato, grape, and redbud very sensitive.

Description: Leaves on affected plants are cupped, thickened or leathery, and develop an uncharacteristic fan shape. Severely distorted leaves often have a mosaic pattern of light and dark green areas. Leaf stems (petioles) are twisted in a curly-Q fashion, and the lower stem of tomatoes may develop small, light colored bumps. Gardeners often mistake these symptoms for a virus infection, but damage is almost always caused by exposure to broadleaf herbicides. To determine whether herbicide damage is to blame, look at surrounding herbicide-sensitive plants such as potato, pepper, grape and redbud to see if they also show twisting or distortion. Virus diseases usually affect one or two plants and certainly would not be causing the damage to the diversity of plants mentioned above at the same time. Furthermore, virus diseases rarely cause the curly-Q twisting of the new growth.

Plant growth-regulating herbicides are commonly used in home lawns early in the season to control dandelions and other broadleaf weeds. If misapplied and accidentally sprayed on sensitive plants, they cause severe injury or even plant death. Unfortunately, these plants don't have to be sprayed directly with herbicides to cause damage. Some broadleaf herbicides such as 2,4-D are volatile, especially during hot weather, and may drift across the yard or even from adjacent yards in concentrations sufficient to cause injury. Therefore, you don't necessarily have to be using broadleaf herbicides in your yard to suffer damage. Herbicides may be introduced into the garden by other methods. Grass clippings collected from a herbicide-treated lawn and used as mulch around tomatoes may result in damage. Composting manure piles are often treated with herbicides to keep down weeds. These herbicides may carry over into the garden if you amend the garden soil with compost.

Recommendations: To reduce the chances of herbicide injury, avoid applying herbicides near the vegetable garden. Apply products during calm mornings and cool temperatures. If you use clippings or manure as mulches or amendments, make sure they are free of herbicide residues. Composting these materials for a couple of months is usually sufficient to reduce any potential residue problems. However, lawns treated with quinclorac (commonly used crabgrass killer), can be affected up to 18 months after application. Severely stunted or distorted plants may not die, but they often don't produce well. If you find badly damaged plants when they are young, it may be best to replace them. Tomatoes showing only mild twisting will usually grow out of herbicide damage.

References:

1. Herbicide Drift, In the Backyard Blog, June 11, 2009, University of Illinois
2. Herbicide Drift Injury, Iowa State University, Horticulture & Home Pest News, 6/13/2012

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