

## WARNING--BE ON THE LOOKOUT FOR HERBICIDE CONTAMINATION

Evidence is mounting that herbicide contamination may now be considered the number one potential incurable problem for ornamental plant growers: growers should be constantly aware of potential herbicide contaminants in every aspect of plant culture.

**Atmospheric Contamination** - Herbicide "drift" from aerial applications of weed killers or atmospheric contamination due to volatilization of highly volatile herbicides (i.e. 2,4-D) have damaged adjacent crops, both field and greenhouse.

**Contamination of Growing Medium** - In one instance the grower had avoided using field soils because of possible contamination and had obtained his soil from the irrigation ditch banks: .06 ppm 2,4-D and 0.1 ppm Banvel-D were detected in the mix (the bedding plants were a total loss); the irrigation company had sprayed the ditch right-of-way with herbicides. In a second instance, the grower had inadvertently set a can of herbicide concentrate on the potting bench -- the last drip on the edge of the can ran down and contaminated the bench area; weeks later poinsettia soil was mixed on the bench, and two months after potting, malformed poinsettias were observed.

**Fertilizer Contamination** - Several instances of crop plant malformations have been observed after application of di-ammonium phosphate (DAP) fertilizer. State and private pesticide laboratories identified the cause as the presence of Dinoben, an herbicide form that may be introduced into the diammonium phosphate fertilizer during the manufacturing process. In another case, after using a new ammonium nitrate shipment, several growers observed malformed plants; the pesticide analysis laboratory found concentrations as high as 16.7 ppm 2,4-D and 2.9 ppm Banvel-D in the fertilizer. In still another case, a pot plant grower included a bone and blood meal fertilizer in the potting medium; within a short time, all the plant materials were distorted, indicative of a hormone type weed killer. The pesticide laboratory found 10.9 ppm 2,4-D in the bone and blood meal; the source of contamination is not known, but was possibly ingested by the animals prior to slaughter.

**Water Contamination** - New breaks on a grower's poinsettia stock plants were malformed. The original soil and other media components were analyzed and found to be non-contaminated; a water analysis was performed and .01 ppm Banvel-D identified. The contaminated water was from a shallow irrigation well.

The following actions by the grower may reduce/eliminate potential herbicide hazards or help diagnose a problem:

1. Field soils should always be tested for nutrient content. A second test should involve the germination and growing of beans in small soil samples. The plants only need to obtain the

first true leaves. If the presence of leaf malformation is questionable, have the soil in which they were growing analyzed at the State Department of Agriculture laboratory.

2. Shallow well water should be frequently monitored for changes in chemical content. The presence of herbicides should also be considered. Beans or tomatoes germinated and grown in perlite will respond rapidly to contaminated water. If questionable malformations exist, have the water analyzed at the Agriculture laboratory.
3. Many growers-and/or grower co-ops purchase fertilizers in large lots. One bag of each type of fertilizer should be retained until the next lot is received. If contamination is questionable, never release the full bag. Each bag should be marked with the analysis and lot number.
4. Never use the same spray tank for both weed killers and insect or fungicide spraying. Some people recommend washing out tanks that have contained an herbicide with a household ammonia solution -- don't take the chance.
5. Never store or use weed killers in or near facilities where any materials used in the culture of plants are stored.

Chemical engineers have often indicated that herbicide contamination can be overcome by mixing activated charcoal in the growing media. Judd (1973) recommends the application of 1 tablespoon of activated charcoal per flat and planting oats as an indicator. If the plants become yellow and tips turn gray, the presence of an herbicide should be expected.

*Note: This summary was prepared from the article, "The Herbicide Era," found in Colorado Flower Growers Association Bulletin, 316, 1976.*

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**Pesticide Use** - Due to constantly changing laws and regulations, no liability for the suggested use of chemicals in this Newsletter is assumed by the ONW Newsletter. Pesticides should be applied according to label directions on the pesticide container.

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