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Malformed soybean leaves appearing

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Abstract

In the past 2 weeks there have been numerous reports of soybean plants developing symptoms characteristic of damage from growth regulator herbicides. In most cases the symptoms, which include leaf cupping and distorted veins, developed shortly after postemergence herbicides were applied to the field; in other situations, there was no apparent reason for the response.

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INTEGRATED CROP MANAGEMENT

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[1] **Soybean leaf cupping can be triggered by growth regulator herbicides.**

Leaf cupping in soybean is not well understood. Growth regulator herbicides (e.g., 2,4-D and dicamba) will trigger this response if these herbicides drift onto soybean or if a sprayer used to treat the field was contaminated with these materials. The first step in dealing with this situation is to rule out the possibility of the soybean coming in contact with a growth regulator herbicide.

The number of problems associated with leaf cupping has increased with the increase in postemergence applications in soybean. Roundup Ready soybeans seem to be as likely to show the response as traditional varieties. Although sprayer contamination with dicamba or 2,4-D sometimes is responsible, it has become apparent that growth-regulator-type symptoms can develop in the absence of growth regulator herbicides. Leaf cupping has been observed following applications of all types of herbicides, thus, the response does not appear to be related to the mode of action of the herbicide. The response may be due to the inert ingredients in the herbicide formulation, the herbicide, or the spray additives used with the herbicide.

Soybean plants also may develop cupped leaves in the absence of herbicide applications. This most commonly occurs during conditions of rapid growth. Under these conditions, the balance of naturally occurring hormones in the plant apparently is disrupted, resulting in symptoms characteristic of growth regulator herbicide damage. When this situation develops, the entire field will probably demonstrate symptoms and there will not be any indication of a "drift" pattern.

When dicamba is not involved, soybean plants typically resume normal growth shortly after the cupped leaves are observed. Frequently, two or three leaves will develop symptoms and then normal growth resumes. Soybean yield should not be impacted under these situations. The potential for a yield response is greater when a growth regulator herbicide is involved, however, it is impossible to determine the extent of yield loss by examining symptoms that develop after the exposure. Research has shown that low levels of injury early in the season

from growth regulator herbicides usually do not impact yields. The only reliable method of determining a yield response is comparing the yield of the injured soybean to an area of the same field that is unaffected by the herbicide. In many situations, a valid comparison is not available to help determine the cost of the herbicide damage.

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