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## Managing 2,4-D for No-Till Burndown Treatments

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**By Bob Hartzler, Department of Agronomy**

2,4-D is commonly added to glyphosate for burndown of existing vegetation in no-till fields. The advantages of including 2,4-D include:

- better activity on dandelion, horseweed and many winter annual broadleaves than glyphosate alone,
- more consistent than glyphosate during cool conditions, and
- reduces selection pressure for glyphosate resistant horseweed.

However, as weather delays compress the time available to complete planting and associated field operations, the wisdom of including 2,4-D in burndown treatments may be questioned.

The risk associated with 2,4-D use is injury to emerging corn or soybean plants. For soybeans, a 7-day interval between application of 0.5 lb 2,4-D/A (2/3 pt of a 6 lb LVE formulation) and planting is required. For corn, most labels recommend applying up to 1 lb ae 2,4-D/A (1.3 pt LVE 6) 7 to 14 days prior to planting or 3 to 5 days after planting. Following these label restrictions minimizes, but does not eliminate, the threat of crop injury. The risk of injury to both crops is determined by how much herbicide reaches the depth of the germinating seed and developing seedling. This is determined by several factors, including

- depth of planting,
- 2,4-D rate and formulation,
- soil type, and
- rainfall.

Planting the seed at the proper depth reduces the risk of injury by providing a more favorable environment for germination and minimizing the amount of herbicide reaching the seed.

Shallow planting or failing to close the seed furrow increases the risk of injury. Ester formulations are recommended for burndown applications because they are less mobile in the soil than amines, thus they are less likely to reach the seed. Adsorption of 2,4-D to soil colloids minimizes movement through the profile, thus injury is most likely to occur on coarse textured soils or soils with little organic matter.

Finally, rainfall is required to move the herbicide through the profile to the depth of the emerging seedlings. Since 2,4-D breaks down relatively quickly in the soil (approx. 10 day half-life), it is the rainfall that occurs within the first two weeks after application that determines the threat of injury. After this period the 2,4-D should have degraded to levels unlikely to injure the crop. Corn is most sensitive to 2,4-D when the herbicide is present in the water that is initially imbibed by the seed, this is why 2,4-D can be applied shortly after planting.

2,4-D is a valuable tool in no-till systems, but it must be used properly to manage the risk of crop injury. In situations where the planting interval restrictions cannot be followed, alternative products are available. Alternatives may not be as broad-spectrum as 2,4-D, thus their selection must be based on the specific weeds present in individual fields.

*Bob Hartzler is a professor of weed science with extension, teaching and research responsibilities.*

**Category:** Pesticide Education

**Tags:** 2 4-D burndown treatment

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Bob Hartzler is a Professor of Agronomy and an Extension Weed Specialist. Hartzler conducts research on weed biology and how it impacts the efficacy of weed management programs in corn and soybean. He also teaches undergraduate classes in weed science and weed iden...

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