



BERRY HERBICIDES, WEEDS AND RAIN

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Herbicides and weeds react to rain in several ways. The rains have activated germination of many annual weeds, which is important for root absorption of herbicides. However, rain can affect herbicide performance in both good ways and bad.

Soil-Applied Herbicides: Generally soil-applied herbicides like Casoron, Dacthal, Devrinol, Dual II Magnum, and Princep give better weed control when at least 1/2" of rain falls shortly after application. This moisture dissolves the herbicide in soil water solution so that developing weed seedlings can absorb the herbicides as they take up water. For herbicides sensitive to photodegradation, a good shower will give shallow incorporation. However, excessive rains can leach soil-applied herbicides below the weed-seed germination zone, especially if heavy rains fall shortly after application and before herbicides get bound to soil particles. The effect of leaching depends on the characteristic of the herbicide. The layer of herbicide may be washed just below the soil surface, allowing weed seeds to germinate on the surface. § The layer of may be diluted from a narrow band (i.e. 2 cm at the soil) to a wide band (i.e. 6 cm), which effectively dilutes the concentration where the weeds are germinating § The herbicide may be leached below the cropping zone on sandy soils, allowing both shallow and deep seeds to germinate. If the end result of heavy rain is a low or nil concentration of herbicide on the soil surface or in the incorporation layer, the level of weed control will be reduced. This information on soil-applied herbicides for horticultural crops is from the Herbicide Handbook, Weed Science Society of America:

Herbicide	Soil Mobility Leaching	Main dissipation route
Casoron	Low mobility; moderately adsorbed by soil OM.	Microbial breakdown: will volatilize from soil surface if not incorporated
Dacthal	Does not leach from any soil type. Adsorbed by soil OM.	Microbial breakdown: rapidly hydrolyzed
Devrinol	Slightly leachable (Rain required for incorporation)	Highly photodegradable; Slowly degraded by soil microbes
Dual II Magnum	Moderately adsorbed to the soil; Less leaching potential on higher OM soils; moves < 4" deep	Microbial breakdown
Princep/Simazine	Limited leaching potential Strongly adsorbed to clay particles	Microbial breakdown in high pH soils; hydrolysis in low pH soils
Sinbar	Weakly adsorbed to soil particles; Moderate to high leaching potential	Microbial breakdown
Treflan	Low to negligible leaching potential due to strong adsorption to the soil.	Degraded by light: also microbial breakdown (more rapid in flooded anaerobic conditions)

Where soil erosion by water is a problem, any herbicides bound to soil particles will also be moved. Be cautious of higher herbicide residues where ponding and settling has occurred. Another reason to implement erosion control measures!

Note: If herbicides have moved down in the soil profile, crop injury may increase. Repeat applications are not recommended even if weed escapes appear.

Post-emergent Herbicides: Spring rains have pushed a strong germination of many annual weeds, and active growth in many perennial weeds. These are good conditions for effective control with post-emergent herbicides. Rain is a concern for post-emergent herbicides if it falls too soon after application. Table 4-6 in Publication 75, Guide to Weed Control outlines the time intervals required after application for absorption of the herbicide into the plant. The full version of this table is also online at

<http://www.gov.on.ca/OMAFRA/english/crops/pub75/4table6.htm>

Table 4-6: Interval Before Rainfall (Post-emergence)

Time Interval	Herbicides Affected
0 to 15 minutes	Gramoxone
1 Hour	Poast Ultra
2 Hours	Venture L
3 Hours	Goal 2XL
4 Hours	2,4-D amine, Ignite, Lontrel, Roundup Transorb, Touchdown iQ,
6 Hours	Roundup

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