

Herbicide Applications in Hot, Dry Conditions

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Herbicides will work best when a plant is actively growing, vigorously growing plants.

Herbicide labels caution against spraying when plants are stressed or under extreme environmental conditions.

However, unfortunately, weeds continue to grow in droughty

conditions, while our crops continue to suffer. How are herbicides affected in these hot, dry conditions? How does it affect the activity of the herbicides? We know that for a residual to work that moisture is needed to activate them. Always refer to your product labels but residuals in general need 0.25 inch of rain or irrigation to be properly activated. If you don't have irrigation, that doesn't help very much right now unless you blessed to be in one of the few areas that is getting some rain.

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Weeds adapt to hot, dry conditions. They develop a waxy surface in order to hold more water. This also prevents the absorption of herbicides into the plant. Many weeds don't develop deep roots in dry weather, but shallow roots. Others develop deeper roots searching for water. They also slow down their metabolism which causes translocation of herbicides to be slower. This can cause reduced herbicide activity however, adjuvants such as crop oil concentrates and non-ionic surfactants help to aid in absorption issues. In addition the weed adapting to hotter, drier weather, whether it is a contact or systemic herbicide can also make a difference in how it performs. Dust is another issue. Dry conditions make field conditions dusty and dust causes herbicides not to work effectively. It can inactivate herbicides which is why poor control can be found behind tractor tires and along gravel roads.

A contact herbicide would be like Gramoxone (paraquat) that only kills the plant in the area where the spray touches. This is why spray coverage is so essential to contact herbicides. Most contact herbicides become more active as temperatures increase. This also means that they can cause more crop injury. The best control with contact herbicides is when weeds are small so it is important to apply them in a timely fashion.

Immediately following an application of a contact herbicide is the most critical time for crop injury. If applications of a contact herbicide are made in the afternoon, then cooler temperatures will follow, often limiting the injury. However, if applications are

made in the morning, hot temperatures will follow, which can increase crop injury.



Systemic herbicides are more of a problem in hotter, dry weather. The optimum time to apply these herbicides is when you have the most moisture which is in the early morning. There is often a heavy dew on the ground. This means that the

weeds are taking in water and translocation is occurring. This also means that the weeds will take in herbicides rapidly and translocate them to all areas of the plant. The weeds

are not as stressed as they are later in the day when the sun is hot and their stomates close to conserve water.

The question may be asked if you should delay a herbicide application until a rain or to spray drought-stressed weeds. Generally, weeds that are stressed generally won't be controlled as well, however, as discussed above, there are a few strategies that you can use to obtain better control. Delaying an application will only allow the weeds to get bigger and harder to control. If rain is in the immediate forecast, it would be wise to wait to make a postemergence application so that the weeds won't be drought-stressed. Always try to apply when weeds are small. If rains do start to fall, new flushes of weeds are likely to come.

