

Herbicide Spraying in Hot, Dry Conditions

Challenging spraying conditions lay ahead with the extreme weather that's forecasted. Drift potential may be higher under these conditions, and additionally herbicide performance and crop tolerance are influenced by environmental conditions.

High temperatures usually mean low humidity, which affects spray droplet evaporation. Smaller droplets are more susceptible to drift offsite, potentially damaging sensitive plants nearby and reducing effectiveness where you sprayed. In addition to particle drift, where spray moves off-target, vapour drift occurs with certain pesticides (dicamba, 2,4-D ester) and increases with higher temperatures. Avoid spraying these formulations at high temperatures. Temperature inversions can occur under a number of circumstances including large temperature swings between day and night. Spray droplets are not dispersed in an inversion and can flow downhill or laterally with light winds. Monitor the weather closely as it can change quickly, there are many sites available to check local weather.

Manitoba Agriculture and Resource Development's - [Weather conditions and Reports](#)

For local spray conditions use [Spray Cast](#)

Herbicides are generally most effective when plants are growing vigorously, and we need to be cautious when applying herbicides under hot dry conditions. Many herbicide labels have warnings about spraying under extreme environmental conditions or stress, as spraying under less than ideal conditions can lead to reduced weed control and increased crop injury. Spraying restrictions are listed on the product label and on each product page in the 2021 Guide to Crop Protection under the heading "Effects of Growing Conditions".

Weeds growing in hot dry conditions can develop a thicker wax layer on the leaf surface, which is a barrier to herbicide absorption. Under any stressful conditions, plant metabolism slows down and herbicide movement to the site of actions is slower. Weed control can be compromised, and additionally crop tolerance is reduced possibly leading to crop damage.

How can we mitigate this? When temperatures are extreme its time to shut off the sprayer and wait for cooler weather. Generally by 27 or 28 degrees its time to stop spraying herbicides, consult each product for specific recommendations. Contact herbicides can usually be sprayed at higher temperatures, but the trade-off is potentially more crop injury. For both systemic and contact herbicides use lots of water, go to the maximum recommended water volume on the label. Use appropriate adjuvants and surfactants, this will enhance droplet retention on the leaf and dissolve the wax for better absorption. Larger droplets dry slower so spray coarser droplets if possible, keeping the spray on the leaf longer. For systemic herbicides avoid spraying low rates, and spray in the morning when plants are more hydrated and leaves are more open and erect (less droopy) so the spray has a bigger target. Humidity is usually higher in the morning, slowing droplet drying rate and giving the herbicide longer time on the leaf. Contact herbicides can work better under higher temperatures; weed control is good so use the lower labelled rates to decrease crop injury. Spraying contact herbicide in the evening can minimize crop injury, as cooler weather overnight is easier on the crop. Monitor the weather carefully and know the applications restrictions of the herbicides you plan to spray. In adverse conditions its best to wait until conditions improve.