



Tip of the Month

April 2020

ABSORPTION - THE FINAL HURDLE

Crop protection products (CPP) must overcome various hurdles, before controlling the pest or weed.

They are initially exposed to the spray water that contains antagonistic cations and often has an incorrect pH. Then they are mixed with the other tank mixture components that could be antagonistic or physically incompatible.

During application a percentage of droplets never reach the target due to incorrect droplet sizing. Many droplets are then lost to droplet bounce and coverage is decreased.

There are adjuvants that improve most of these situations. However, we often forget about the absorption process that has to take place over an extended period of time, long after the excess water has evaporated from the droplet residual. This absorption process often occurs under sub-optimal climatic conditions. Antagonism may occur here because of incorrect adjuvant and tank mixture choices. Therefore, antagonism doesn't only occur in the spray solution, but it is also prevalent at droplet residual level.

In the ensuing discussion, the state of the droplet residual will be examined in more detail pertaining specifically to adjuvants and tank mixtures.

Antagonism on the leaf

We often warn about using unregistered oil adjuvants with certain water-soluble herbicides like glyphosate. These adjuvants don't cause any tank mixture issues and they may even increase coverage and spreading.

However, it is important to know that they may have an influence on the absorption process. It may become a situation where the adjuvant forms a physical barrier and inhibits and delays the absorption process. It could also be that the replacement adjuvant

has the incorrect humectant properties, thereby limiting absorption.

If the CPP and adjuvant don't blend at droplet residual level, separation could occur forming high concentrations of CPP on certain areas. This could increase the chance of scorch.

Inefficacy and leaf scorch

The main result of reduced absorption is obviously inefficacy and poor control.

However, delayed absorption and increased salt concentration of the CPP can also cause physical scorch on the leaf surface. When systemic products cause leaf scorch, we need to look for the reasons why. In certain cases, it is as a result of delayed absorption because of incorrect adjuvant choice or antagonistic tank-mixture partners.

Villa's stance

It is important to rectify water quality, reduce droplet evaporation, obtain effective coverage on the target plants and to increase the droplet spreading. However, this is only part of the efficacy story. If the final absorption hurdle is not overcome, the control will be poor or there may even be crop damage.

Adjuvant selection is crucial to ensure effective absorption. Villa recommends the correct adjuvant combinations to enable adequate absorption.

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