



Tip of the Month

June 2018

ADJUVANTS SHOULD WORK IN UNITY

We so often hear about adjuvant systems to stabilize and increase pesticide performance. An adjuvant system normally comprises multiple adjuvants that are used in an application to enhance pesticide activity. To illustrate this, a herbicide that is antagonized by dissolved cations in water and is also prone to poor absorption, can be used as an example. In this case it may be necessary to use three adjuvants in the application.

Therefore, the adjuvant system will include (1) a water conditioner to neutralize the antagonistic salts, (2) a deposition agent to increase the droplet coverage on the crop or weed and (3) a surfactant or oil adjuvant to increase droplet spreading and absorption.

The products in the adjuvant system must complement the herbicide and each other, without causing any adverse reactions. This is easier said than done and it has become increasingly important to choose adjuvants wisely in order to obtain the best possible pest control.

Physical and chemical incompatibility between tank mix components are common and often occur because of incorrect adjuvant selection.

Physical Incompatibility

Physical incompatibility is becoming an ever-increasing problem as more components are mixed together in the spray tank. This problem is further compounded by the reduction of spray volumes as growers try to save on application costs. Less water, means more concentrated solutions (or emulsions or suspensions), and more chance of unwanted reactions between chemicals.

For instance, when applying emulsifiable concentrate (EC) formulations, the emulsifier from one product could react with other components in the tank to create a reaction that could lead to blocked sieves and nozzles.

Buffers or other adjuvants with a low pH could limit the solubility of certain tank mix components, like MCPA. This will result in similar physical incompatibility issues that could include

jelly-like spray mixtures or flocculation. It is important that adjuvant systems do not contribute to physical incompatibility problems.

Chemical Incompatibility

Chemical incompatibility could be even more dangerous than physical incompatibility because the reactions between products cannot be seen. However, the biological efficacy of one or more of the components in the application may be affected. Certain herbicides are extremely prone to these invisible, efficacy limiting, interactions.

Products like the -fops, -dims and glyphosate are particularly prone to antagonism by unregistered tank mixtures and the incorrect choice of adjuvant system. The tank mixture components may mix well without any physical incompatibility problems, but the invisible chemical reactions that occur may decrease the activity to such an extent that there is poor weed control or crop damage.

The adjuvant system that is applied with these herbicides must therefore enhance herbicide efficacy without increasing the risk of biological incompatibility and poor weed control.

Villa's stance

The use of multiple adjuvants to optimize pesticide efficacy is going to escalate in the near future as new adjuvant technology is developed. The correct adjuvant choice will become more important to eliminate any potential physical or chemical antagonism, while optimizing pesticide control.

Use adjuvants wisely and choose products that have been extensively tested with the specific pesticides in the tank mixture. This becomes even more important when applying adjuvant systems that contain multiple adjuvant products.

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