Adjuvant

Tip of the Month

April 2017

Steps for effective adjuvant selection

We so often hear that the standard or registered adjuvant has not been used, but has been replaced by another product. This happens for various reasons, but the results could be disastrous. One thing that we have learned over the past few seasons is that the correct adjuvant choice does make a difference. In the ensuing discussion, some typical steps to choose effective adjuvants, will be listed. This should encourage agents and growers to use tried and tested adjuvant products. Obviously, the first step would be to establish if the adjuvant is registered. Then the following questions should be asked before selecting an adjuvant.

Is the pesticide affected by high pH?

pH-reducing adjuvants are often used as a standard practice. However, the correct approach to follow is rather to ask if the specific pesticide is indeed influence by a high pH. One first needs to determine if the pesticide is degraded by alkaline hydrolysis, or whether a low pH is beneficial to pesticide absorption. If the answer to these questions is yes, then one can use a pH-reducing adjuvant. However, one must always bear in mind that the adjuvant needs to reduce the pH sufficiently in all water qualities. It must not decrease the pH too little with certain water qualities and decrease the pH too much with others. If the answer to the question is no, please stay away from pH-reducing adjuvants! Please also bear in mind that different buffers may have different buffering ability and that some products contain other formulation components that may be beneficial or detrimental to specific pesticides.

Is the pesticide affected by antagonistic ions in water?

Many herbicides are antagonized by hard and/or brackish spray water. In these cases, salt binding adjuvants like ammonium sulphate, are beneficial. However, be aware not to used salt binding adjuvants as a standard practice with all herbicides. Some herbicides are not affected by dissolved ions in spray water and the use of these adjuvants will be a waste of money. Please also keep in mind that the registered ammonium sulphate products in South Africa differ tremendously in the formulation components that they contain. Some contain only ammonium sulphate, while others may also contain a limited amount of surfactant and/or acid and/or humectant. Make sure that these other formulation components are necessary and enhance the efficacy of the herbicide.

Will the pesticide benefit from increased retention (coverage)?

Most pesticides will benefit from increased retention. The correct choice of surfactant, oil adjuvant or deposition-aid is critical to ensure an increase in coverage and effective droplet spreading. The flip side to this coin is that increased retention of an already highly effective pesticide could result in crop damage. Choose an adjuvant that has been tested widely and has a history of increased efficacy with no increase in crop damage.

Will the adjuvant increase the absorption of systemic pesticides?

One can go through all of the above-mentioned steps and deliver the pesticide in large quantities to the target, but if the surfactant or oil with which it is applied does not ensure adequate absorption, the pesticide will not be effective! It is often assumed that different registered surfactants or oils are exactly the same and will perform equally. Unfortunately, this is not the case and a poor choice of adjuvant could ruin all the above-mentioned steps.

Villa recommendation

Please use tried and tested adjuvant products that have quality research to back up claims. Incorrect adjuvant choice can have disastrous consequences!

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