



Tip of the Month

February 2017

General claims about adjuvants are dangerous!

There is a disturbing trend in South Africa to make more and more general claims about adjuvants. It is quite common to hear statements like....."my adjuvant has superior spreading properties so it will **always** be the most effective" or "my adjuvant is the best because it reduces the spray solution pH to levels where **all** pesticides are at their most effective" or even "my adjuvant is so effective that it can be used as a standard practice with **all** applications." These general claims may give the wrong impression that certain adjuvants are universal and can be used with all pesticide applications. A few dangers of believing general claims about adjuvants, without the necessary proof, will be discussed briefly with specific examples.

Claim 1: Effective spreading adjuvants are always the best

When one hears this statement it makes sense as more effective spreading will mean more coverage and effective control. It is true that effective spreading can be advantageous when applying pesticides that benefit from being spread out on the leaf surface. This is particularly relevant for contact products, but may also be helpful when trying to increase coverage, for instance on large weeds or weeds with hairy or waxy leaf surfaces. However, it has been proved that certain products like glyphosate may perform more effectively when the droplets do not spread too much. The reason for this is quite simple as there could be a dilution effect with spread out droplets that may even decrease efficacy. Obviously, the other disadvantage of excessive spreading could be run-off or even burn damage on fruit crops.

Claim 2: Adjuvants that reduce pH are always beneficial

It is a common practice to acidify pesticide spray solutions. The reasons for this are varied, but the main reasons are to decrease alkaline hydrolysis of insecticides, and to increase the activity of pesticides in general. If the specific pesticide or tank-mixture's efficacy is enhanced by lower pH, then pH reduction is justified. However, there are products that are either not enhanced, or can even be antagonized by low pH. The sulfonylurea herbicides come to mind as their solubility is reduced drastically by reducing the spray solution pH. Lower solubility could then mean less absorption of the herbicide and reduced weed control. It is also widely

believed that once glyphosate spray solution pH has been reduced, it will then insure effective weed control, because of less salt antagonism. This is not true as reducing glyphosate pH will do little to reduce salt antagonism. The chemistry of the adjuvant determines if salt antagonism of glyphosate will be reduced!

Extremely low pH spray solutions could also have some other negative side effects, like reduced compatibility. This occurs because of the lower solubility of certain pesticides and also less stability of certain product formulation components. Low pH is often one of the main culprits when it comes to precipitation, flocculation, separation of spray solutions, and blocked nozzles. Buffers play a very important efficacy enhancing role with numerous pesticides, but they must be used wisely.

Claim 3: Certain adjuvants can be used as a standard practice

It is true that certain adjuvants have a wider use potential and can be applied with many pesticides. However, no adjuvant is universal and certain pesticides or tank mixtures require specific adjuvants. Glyphosate, and a few other herbicides like clethodim, do exceptionally well with ammonium sulphate adjuvants. The reasons for this have been discussed in previous issues. However, this does not mean that ammonium sulphate can be used with all pesticide applications. The same principle applies to oil adjuvants which may be extremely effective with certain pesticides, but oils have also been proven to be antagonistic to certain water soluble pesticides.

Villa's point of view

General claims and statements about adjuvants are very dangerous. It is important to select adjuvants that are effective for a specific situation. If you would like to use one adjuvant for multiple situations, please use a product that has been tried and tested, and which has enough data to prove that it is effective for a specific situation.

Contact Brian de Villiers
for more information on adjuvants
and water quality
082 880 0974 or
bdevilliers@villacrop.co.za