Adjuvant

Tip of the Month

July 2018

VILLA GLYPHOSATE PRODUCTS AND LOW pH

Glyphosate reacts strongly to adjuvants. This reaction can be either positive or negative, depending on the adjuvant selection. Because of the chemical properties of glyphosate, pH-reducing adjuvants are frequently used to enhance weed control.

These acidifying adjuvants can be acid-containing ammonium sulphate formulations, buffers or ammonium sulphate replacements. However, there are many factors that should be considered before adding pH-reducing adjuvants to glyphosate spray mixtures. If all these factors are not taken into account, there is a chance of poor weed control.

Glyphosate pH

It is not well-known that most glyphosate formulations have an acidic pH that is frequently lower than 5. Because glyphosate is used at relatively high rates, the herbicide on its own may already acidify the spray solution adequately.

In tests that were done by Villa, it was found that the Villa glyphosate products on their own, reduced the spray solution pH to the desired range. This was also valid for spray water that had an incredibly high buffering capacity and resisted a reduction in pH. Therefore, if the purpose is solely to reduce the spray solution pH, first establish whether the glyphosate alone has acidified the spray solution adequately.

Type of acid

In certain cases, it is not the acidification that is the important thing, but rather the type of acid that is used to reduce the pH. It has been proved in research that certain acids have the ability to neutralize antagonistic cations in water, if used at adequate rates. However, there are other acids that have no effect on salt antagonism. A huge point of concern is that there are even acids that may be antagonistic to glyphosate and will result in reduced weed control!

pH Side effects

Low pH glyphosate spray solutions can sometimes be the cause of incompatible spray mixtures. This is normally not a problem when glyphosate is the only pH-reducing component in the spray tank. However, if buffers or low pH ammonium sulphate adjuvants that further decrease the pH are used, then reactions with other components in the tank can occur.

This will cause flocculation or jelly-like spray mixtures. The classic example is glyphosate in combination with MCPA, but this problem can also occur with other glyphosate tank mixtures. This problem is further compounded when applying low water volumes, when using cold water and when using low salt content water (low in bicarbonate) where the pH is reduced easily.

Villa's stance

Villa still believes that the most effective adjuvant for glyphosate is high quality ammonium sulphate. Please be aware of the fact that certain acids antagonize glyphosate weed control. These acids occasionally occur in buffers or may even be part of other adjuvant formulations.

When using pH-reducing adjuvants with glyphosate, be 100% sure that the product contributes positively to weed control. Please also make sure that these adjuvants are approved by Villa.

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