



Tip of the Month

January 2021

AMMONIUM SULPHATE AND MAGNESIUM ANTAGONISM

There have been various recent allegations that ammonium sulphate is not effective because it is unable to overcome magnesium antagonism from spray water. It has further been alleged that magnesium is an extremely prevalent cation that must be neutralized to ensure adequate glyphosate efficacy. Villa agrees that magnesium should be neutralized, but we do not agree that ammonium sulphate is unable to do so. We also believe that there are other cations that are just as important, or even more important than magnesium. Magnesium should therefore not be seen in isolation, but as a part of the antagonistic cations, namely calcium, sodium, magnesium, potassium and even iron in some cases. We still recommend the use of the Villa ammonium sulphate adjuvants with our glyphosate products as well as with our other salt-sensitive herbicides like glufosinate and clethodim.

Ammonium sulphate is effective

Calcium and magnesium are the two major cations in water that contribute to hardness. Both these cations are divalent (double positive charge) and can deactivate a large portion of a glyphosate application. Scientific research has proved that ammonium sulphate restores glyphosate efficacy in both calcium and magnesium-containing spray water. The standpoint that ammonium sulphate is unable to neutralize magnesium antagonism is therefore not supported by Villa!

The importance of magnesium in perspective

A massive emphasis is currently being placed on magnesium but unfortunately the other, often more important antagonistic cations, have been forgotten. An effective water-conditioning agent should at least account for calcium, sodium, magnesium and potassium. It is therefore not just hard

water that antagonizes glyphosate and certain other herbicides, but also water that contains sodium as the primary cation. Sodium is the most important glyphosate antagonist in many instances. The sodium cation, at a similar concentration, is not as antagonistic as calcium or magnesium cations because it is monobasic (single positive charge). However, in many water carriers, sodium is a much bigger threat than both calcium and magnesium! This is because it is found at such elevated levels in many South African water sources. Therefore, agents and growers need to have a balanced approach to antagonism by dissolved cations. One needs an adjuvant that can overcome the big three cations, namely calcium, sodium and magnesium. An added bonus to ammonium sulphate use is that it also overcomes potassium antagonism and can increase efficacy in high iron-containing water. Therefore, ammonium sulphate is still the only water-conditioning agent that is endorsed for use with all the Villa glyphosate and salt-sensitive herbicides. The Villa approach to salt antagonism of herbicides is backed up by international research.

Villa's stance

Spray water antagonism of the Villa glyphosate and other salt-sensitive herbicides should be addressed. Use the Villa ammonium sulphate adjuvants to achieve this. It is the tried, tested and registered method that has been used successfully and effectively for decades. We are in good company because Winfield United, one of the world's biggest adjuvant companies, recommends precisely the same in die USA!

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