



Tip of the Month

September 2019

HOW MUCH AMMONIUM SULPHATE IS ENOUGH?

Ammonium sulphate adjuvants have been used with herbicides like glyphosate, clethodim, glufosinate and halosulfuron for years. The main reason for this is to neutralize the antagonistic cations in water and to increase the absorption of herbicides.

Villa endorses the use of our adjuvants with these herbicides, as we have seen a huge improvement in efficacy and more stable control over different water qualities. The question arises how much ammonium sulphate is needed?

The neutralization of antagonistic cations

Research with glyphosate has made it possible to determine how much ammonium sulphate is needed. For example, water that contains 600mg/L sodium, 80mg/L magnesium, 100mg/L calcium and 10mg/L potassium will require a minimum amount of 600g of ammonium sulphate per 100 litres, just to neutralize these four antagonistic cations.

Because a water analysis may not measure all the metallic ions, more ammonium sulphate may then be needed to make sure that all the cations, and especially metals like iron, have been neutralized. It is extremely risky to use a low rate of ammonium sulphate if the ionic content of the spray water has not been determined. If the ammonium sulphate rate is too low to address these cations, a certain amount of herbicide will be de-activated and poor weed control will be achieved.

This antagonism will be much more evident under poor environmental conditions that limit herbicide absorption.

Can the ammonium sulphate rate be too high?

Villa's ammonium sulphate adjuvants are registered at a maximum rate of 1% (dry ammonium sulphate equivalent), if a water analysis is not available. If one uses a higher label rate than what is required by the specific water quality, no negative response will occur. Therefore, one can use the highest recommended rate of ammonium sulphate, if the salt content of the water is unknown, without expecting any negative repercussions. We therefore encourage the standard use of ammonium sulphate with herbicides like glyphosate and clethodim.

Some Villa glyphosate products may contain a small amount of ammonium sulphate in the formulation. Please note that this will not be nearly enough in most cases. An ammonium-sulphate adjuvant will still be needed to obtain optimal glyphosate weed control.

Villa's stance

Ammonium sulphate is still the most effective cation-neutralizing adjuvant. However, it is important to use enough adjuvant to neutralize all the antagonistic cations. If the quality of the water has not been determined, use the highest registered rate of ammonium sulphate adjuvant.

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