



## Villa Adjuvant Tip of the Month

### THE OTHER BENEFITS OF AMMONIUM SULPHATE

The use of water conditioners with herbicides such as glyphosate, clethodim, glufosinate, halosulfuron, certain phenoxyes, and various others is an established practice. In most cases, ammonium sulphate adjuvants are registered and used for this very purpose. Ammonium sulphate's goal is to neutralise antagonistic cations in hard and brackish water before they can antagonise herbicide efficacy. This is the reason why Villa recommends ammonium sulphate adjuvants as a standard practice with many of these herbicides. Yet, ammonium sulphate's benefits go further than just binding antagonistic cations. We discuss the other benefits in detail below.

#### Efficacy

Ammonium sulphate often increases the efficacy of these herbicides, even in water with low levels of antagonistic cations. You see this phenomenon with glyphosate and clethodim, but it may also be relevant to other herbicides. The exact reason for this is unclear, but the ammonium ion probably plays an important role in increased absorption. We do not believe it is because of the fertiliser's effect on plant vigour but rather a physical or chemical reaction at a spray deposit level. It is crucial to use ammonium sulphate as a standard practice when the label recommends it, and not only when the water quality is poor. It is a highly effective method to optimise and stabilise herbicide efficacy.

#### Tank mixtures

Herbicides are often registered in combinations to increase the weed spectrum or the efficacy on hardy weeds. However, sometimes the tank-mix herbicide can be mildly antagonistic and

decrease the effectiveness of the other product. One such example is the combination of either 2,4-D AMINE 480 SL or MCPA 400 SL with glyphosate. Although this is normally a very effective combination, the phenoxy herbicide can decrease the efficacy of glyphosate. Certain ammonium sulphate adjuvants can overcome this antagonism and restore efficacy. Do not use an ammonium sulphate adjuvant that acidifies the mixture too much, as this could cause sediment that blocks sieves and nozzles. In a few cases, ammonium sulphate also improves the physical compatibility in certain tank mixtures to reduce the chance of flocculation and precipitation. These are very specific cases. Never use ammonium sulphate as a reason to justify unregistered tank mixtures.

#### Villa's stance

Villa only recommends premium quality ammonium sulphate as a water conditioning adjuvant with these herbicides. It is highly effective at neutralising antagonistic cations in poor spray water, but it also increases efficacy with low salt content water sources. Importantly, use an ammonium sulphate adjuvant if the herbicide label recommends it. Our experience is that the efficacy of these herbicides often improves with the use of ammonium sulphate, and that is why it is our adjuvant of choice. Never apply ammonium sulphate that has only been registered as a fertiliser (K-number) because the quality may not be acceptable for adjuvant use.

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