



# Tip of the Month

February 2019

## SPRAY WATER - MORE THAN JUST A CARRIER

Water is used as a carrier to apply crop protection products (CPP). The CPP are dissolved (SL & SG formulations), suspended (SC formulations), emulsified (EC formulations), dispersed (WDG formulations) etc. in the spray water in order for them to be applied evenly and effectively over an area.

However, the spray water should be regarded as much more than just a carrier. Spray water has a chemistry of its own and it should be regarded as the highest volume of chemical in the spray tank! Therefore, it is important to answer the following questions with all spray mixtures.

- Is the water muddy and is there an alternative water source that is cleaner?
- Do I know what the salt content and the pH of the water is? If not, must I consider having the water analysed at a laboratory or have the EC (electrical conductivity) and pH measured?
- Do I realize that a high pH does not necessarily mean the water is hard?
- Are any of the CPP in the tank prone to alkaline hydrolysis (degradation in high pH water) and must I consider using a buffer to stabilize these products?
- Are any of the CPP antagonized by an excessively low pH or will a low pH contribute to incompatibility? If this is the case, up to what level can the pH be decreased?
- Do I know what the buffering capacity of the water is as this will influence the pH of the spray mixture when buffers are used?
- Are any of the CPP antagonized by either hard (calcium + magnesium) or brackish (sodium) water and must I use a salt adjuvant like ammonium sulphate?
- Are there any other ions, like iron, that are present at high levels?
- Do I know what the quality of the water-conditioners are as this will determine the salt-binding capacity of a salt adjuvant and the final pH of the spray solution when a buffer is used?
- Do I realize that low salt content water has a unique set of challenges like pH levels that may decrease too much or excessive foaming with surfactant-containing products?
- Is the water cold as this could lead to physical incompatibility with certain combinations like glyphosate + phenoxy herbicides, especially when applying low spray volumes?
- Have I followed the label instructions concerning water quality requirements and adjuvants?

### Villa's stance

Water normally makes up the bulk of the spray mixture, so it is vitally important to know what influence it has on the CPP. If one fails to rectify the water quality issues, the CPP will be ineffective or it can even lead to problems like physical incompatibility or phytotoxicity.

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