



Laeveld Agrochem

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WATERGEHALTE: WAARVOOR OM TE TOETS

Deur Brian de Villiers

Watergehalte is een van die grootste sondebokke as dit kom by die swak prestasie van verskeie gewasbeskermingsprodukte (GBP'e). Faktore soos kationonvlakke, pH en alkaliniteit kan die beheer van onkruid, insekplae en siektes verlaag. Dit is belangrik om te besef dat spuitoplossings grootliks uit water bestaan, maar die impak daarvan word dikwels onderskat. Daarom is dit noodsaaklik om 'n basiese begrip van water te hê en waarom dit nodig is om waterontledings te doen. Dit is ook krities om te besef waarom waterkondisionerende byvoegmiddels gebruik moet word om die effek van water te neutraliseer.

Katione en elektriese geleidingsvermoë (EG)

Verskeie na-opkoms sistemiese onkruidodders word benadeel deur katione, wat natuurlik in water voorkom. Hierdie katione vorm bindings met die onkruidodder op die blaaroppervlak en beperk opname. Dit verleng ook die opnametyd, wat die onkruidodder aan nadelige weerstoestande soos lae humiditeit en uiterste temperature blootstel. Waterontledings wat op onkruidodertoedienings gemik word, moet al die vernaamste katione insluit. Dit sluit kalsium, magnesium, natrium, en kalium in. Indien jy in 'n area met 'n hoë ystervlak werk, is dit wys om dit ook in te sluit. As 'n ontleding nie gedoen kan word nie, sal 'n eenvoudige EG meting ook die totale kation- en aniooninhoud aandui. 'n Hoë EG meting sal ten minste aandui dat een of meer van die antagonistiese katione teen 'n hoë vlak teenwoordig is.

pH en anione

pH verlaag die effektiwiteit van GBP'e op verskeie maniere en dit moet altyd in 'n ontleding ingesluit

word. Hoë pH stel sekere insekdoders aan hidrolise bloot, waar die produk in alkaliese water afgebreek word. Aan die ander kant, kan lae pH die oplosbaarheid en effektiwiteit van sommige onkruidodders beperk en tot fisiese onmengbaarheid van spuitmengsels bydra. pH moet egter nie in isolasie gesien word nie omdat sekere anione bepaal hoe geredelik pH gemanipuleer kan word. Bikarbonaat en karbonaat bepaal die alkaliniteit of bufferkapasiteit van water. 'n Hoë bikarbonaatvlak sal die bufferkapasiteit van water verhoog, wat dit moeilik maak om die pH met buffers te manipuleer. Aan die ander kant kan 'n baie lae bikarbonaatvlak die rede vir 'n uitermatige lae pH wees. Dit is daarom krities belangrik om 'n aanduiding van die bufferkapasiteit van spuitwater te hê.

Villa se mening

Die bogenoemde katione, anione en ander faktore behoort in 'n waterontleding ingesluit te word. Dit sal 'n goeie aanduiding gee van watter byvoegmiddels gebruik moet word. Villa het die kundigheid om selfs die ammoniumsulfaat-dosis te bepaal, gebaseer op die vlak van die vier hoofkatione. Die standaardgebruik van byvoegmiddels, ondanks watergehalte, verminder die behoefte vir ontleding. Dit is egter altyd nuttig om die potensiële kation-antagonisme, alkaliese hidrolise, GBP oplosbaarheid en fisiese mengbaarheid te bepaal. Gebruik asseblief net die spesifieke waterkondisioneerder wat op die GBP etiket aanbeveel word. Kontak jou Villa landboukundige vir meer inligting oor byvoegmiddels en watergehalte.



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Together cultivating success

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By Brian de Villiers

Water quality is a major contributing factor to the poor performance of various crop protection products (CPPs). Factors such as cation levels, pH and alkalinity can reduce the control of weeds, insect pests and diseases. It is important to understand that water makes up the bulk of spray solutions, however its impact is often underestimated. Therefore, it is essential to have a basic understanding of water and why it is necessary to do water analyses. It is also crucial to understand why water conditioning adjuvants must be used to negate the effect of water quality.

Cations and electrical conductivity (EC)

Many post-emergence systemic herbicides are antagonized by cations that occur naturally in water. These cations form complexes with the herbicide on the leaf surface and inhibit absorption. They also prolong the absorption time, leaving the herbicide exposed to adverse weather conditions like low humidity and extreme temperatures. Water analyses aimed at herbicide application must include all the major cations. This includes calcium, magnesium, sodium, and potassium. If you work in an area with a high iron level, it is wise to also include this. If an analysis cannot be performed, a simple EC measurement will also indicate total cation and anion content. A high EC measurement will at least show that one or more of the antagonistic cations is present at a high level.

pH and anions

pH reduces the efficacy of CPPs in various ways and it must always be included in an analysis.

High pH exposes some insecticides to hydrolysis, where the product is degraded in alkaline water. On the other hand, low pH limits the solubility and efficacy of some herbicides and can contribute to physical incompatibility of spray mixtures. However, pH should not be seen in isolation because certain anions determine how readily the pH can be manipulated. Bicarbonate and carbonate determine the alkalinity or buffering capacity of water. A high bicarbonate level will increase the buffering capacity of water, making it difficult to manipulate the pH with buffers. On the other hand, a very low bicarbonate level can be the reason for an excessively low pH. Therefore, it is vitally important to have an indication of the buffering capacity of spray water.

Villa's stance

The abovementioned cations, anions and other factors should be included in a water analysis. This will give a good indication of which adjuvants should be used. Villa has the expertise to even determine the rate of ammonium sulphate, based on the level of the four major cations. The standard use of adjuvants, regardless of water quality, reduces the need for analysis. However, it is always a useful tool to determine the potential cation antagonism, alkaline hydrolysis, CPP solubility and physical compatibility. Please only use the specific water conditioner that is recommended on the CPP label. Contact your Villa agronomist for more information about adjuvants and water quality.



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