



Laeveld Agrochem

Saam boer ons vooruit

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Van die tenk tot op die blaar

Deur Brian de Villiers

Die persepsie bestaan dat enige negatiewe effek wat watergehalte en tenkmengsels op die effektiwiteit van 'n gewasbeskermingsproduk (GBP) mag hê, net in die tenk gebeur. Dit is egter nie die geval nie; die chemiese of fisiese prosesse waardeur GBP'e gebind of afgebreek word om hul beheervermoë te verlaag, kan egter voortduur tot ná die spuitdruppel die blaar bereik het. 'n Mens behoort water te beskou as net nóg 'n chemikalie in die spuittenk. Dit het 'n pH, dit bevat antagonistiese katione en soms modder, en dit het 'n hoë oppervlakspanning. Dit word ook teen 'n hoë volume toegedien. Al hierdie watereienskappe het 'n effek, of dit onmiddellik in die spuittenk is, of heelwat later wanneer die GBP sy werk op die blaar doen.

Antagonistiese katione en troebel water

Opgeloste katione in spuitwater bind aan sekere na-opkoms onkruidodders. Hierdie chemiese reaksies vind in die waterfase plaas totdat die spuitdruppel uitgedroog het. Die rede dat hierdie onkruidodders egter swak opgeneem word is nie net a.g.v. 'n chemiese reaksie nie. Die residue van onkruidodder-spuitdruppels wat aan katione in water bind, kan 'n dik en taai tekstuur hê wat swak deur onkruid opgeneem word. Dit is waarom ammoniumsulfaat-byvoegmiddels gebruik word, om hierdie verbindings te vermy en om 'n druppelresidu te vorm wat geredelik opgeneem word. Aan die ander kant kan troebel spuitwater modderige spuitdruppel-residue vorm, wat fisies die opname en ander metodes van werking van die GBP versper. Daarom is dit krities om skoon spuitwater te gebruik, asook die korrekte waterkondisioneerder om spuitdruppel-residue te vorm wat geredelik opgeneem word deur die

teikenonkruid, sonder 'n afname in opnametempo.

Tenkmengsels

Antagonistiese tenkmengsels en onsuierhede in water het baie in gemeen. Daar is 'n persepsie dat indien alles goed in 'n bekertoets meng, die toediening goed sal gaan en dat daar geen onverenigbaarheid of 'n verlaging in beheer sal wees nie. Die probleem is dat nie alle onverenigbare spuitmengsels in 'n bekertoets opgetel word nie, omdat verroering dikwels die katalisator van onverenigbaarheid is. Selfs indien tenkmengsels effektief met verroering meng, kan daar nog steeds antagonisme en 'n verlaging in effektiwiteit plaasvind. Dit is nie altyd weens 'n chemiese reaksie tussen produkte nie, maar dit kan ook 'n fisiese verlaging in opname wees wat deur 'n problematiese spuitdruppel-residu veroorsaak word. Enige aspek van die druppel-residu wat opname of ander metodes van werking beperk, is 'n resep vir swak effektiwiteit of, in sekere gevalle, selfs fitotoksisiteit.

Villa se mening

Opgeloste katione, troebel water en tenkmengsels kan almal die effektiwiteit van GBP'e beïnvloed. Dit is nie net as gevolg van chemiese reaksies nie, maar ook a.g.v. versperrings binne die spuitdruppel-residu. Vermoed troebel water en antagonistiese tenkmengsels. Gebruik altyd ammoniumsulfaat wanneer dit met onkruidodders geregistreer is. Kontak jou Villa landboukundige vir meer inligting oor byvoegmiddels en watergehalte.



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Together cultivating success

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From the tank to the leaf

By Brian de Villiers

There is a common perception that any negative effect that water quality and tank mixtures may have on the efficacy of a crop protection product (CPP) only happens in the tank. However, the chemical processes whereby CPPs are bound or degraded to reduce their control can continue beyond the tank and have a secondary effect once the droplet is on the leaf. Water should be regarded as just another chemical in the spray tank. It has a pH, it contains antagonistic cations and mud in some cases, and it has a high surface tension. It is also applied at a high volume. All these properties of the water have an effect, which could occur immediately in the spray tank, or much later once when the CPP is doing its job on the leaf surface.

Antagonistic cations and turbid water

Dissolved cations in spray water bind to certain post-emergence herbicides. These chemical reactions occur in the water phase until the spray droplet has dried out. However, the reason that these herbicides are poorly absorbed is not only because of a chemical reaction. Spray droplet residuals of herbicides which have bound to cations in water can have a viscous and sticky texture that is poorly absorbed by weeds. This is why ammonium sulphate adjuvants are used, to avoid these complexes and to produce a droplet residual that is readily absorbed. On the other hand, turbid spray water can form muddy spray droplet residuals, with a physical barrier to absorption and other modes of action. Therefore, it is crucial to use clean spray water and the correct water conditioner to ensure that spray droplet residuals are absorbed readily by the target weed, without a reduction in absorption rate.

Tank mixtures

Antagonistic tank mixtures and impurities in water often have a lot in common. There is a perception that if everything mixes well in a jar test, the application will go well and there will be no incompatibility or reduction in efficacy. The problem is that not all incompatible spray mixtures are picked up in a jar test, because agitation is often the catalyst of incompatibility. Even though tank mixtures mix effectively with agitation, there can still be antagonism and a reduction in efficacy. This is not always due to a chemical reaction between the products but could also be a physical reduction in absorption caused by a problematic spray droplet residual. Any aspect of the droplet residual that limits absorption or other modes of action, is a recipe for poor efficacy or even phytotoxicity in some cases.

Villa's stance

Dissolved cations, turbid water, and tank mixtures can all influence the efficacy of CPPs. This is not only the result of chemical reactions, but also because of barriers in the spray droplet residual. Avoid turbid water and antagonistic tank mixtures. Always use ammonium sulphate when it is registered with herbicides. Contact your Villa agronomist for more information about adjuvants and water quality.