



Laeveld Agrochem

Saam boer ons vooruit

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BOUSTENE VIR EFFEKTIWITEIT

Deur Brian de Villiers

Die twee boustene vir die effektiwiteit van sistemiese gewasbeskermingsprodukte (GBP'e) is deposisie en opname. Deposisie is nutteloos sonder genoeg aktiewe bestanddeel opname. So ook is opname nutteloos sonder genoeg deposisie. Vanaf die oomblik wanneer die spuitdruppel die spuitpunt verlaat, word dit aan verskeie hindernisse blootgestel, onder meer deur wegdrywing, behoud en opname deur die wasagtige lae op die blaar. Dit is krities dat die aktiewe bestanddeel in genoegsame hoeveelhede gedeponeer en opgeneem word om beheer te verseker.

Deposisie

Die GBP behoort in genoegsame hoeveelhede op alle dele van die plant-blaredak gedeponeer te word. Om dit te verseker moet verskeie hindernisse oorkom word. Eerstens mag 'n groot persentasie spuitdruppels a.g.v. wegdrywing nooit die teiken bereik nie. Tweedens mag die druppels wat wel die teiken bereik, afspat a.g.v. 'n hoë oppervlakspanning. Derdens mag druppels nie genoeg versprei om ordentlike bedekking te verseker nie. Die regte neerslaghulpmiddel behoort gebruik te word om wegdrywing te verminder en om meer druppels op die teiken te kry. Die korrekte benatter of oliebyvoegmiddel moet toegedien word om te verseker dat druppelafspat verminder word en dat die druppels wat behou word, genoegsaam versprei. Sekere neerslaghulpmiddels bevat alreeds benatters en olies in die formulering. Indien daar genoeg deposisie is, aktiveer dit die volgende stap vir effektiewe beheer.

Opname

Wanneer genoeg druppels op die blaar behou is, begin die opnameproses. Dit is wanneer antagonistiese katione, wat natuurlik in water

voorkom, aan sekere sistemiese onkruidodders bind en die opname beperk. Dit is ook waar antagonistiese tenkmengsels met mekaar reageer en oneffektiwiteit veroorsaak. Daarom is dit belangrik om ammoniumsulfaat-byvoegmiddels te gebruik wanneer dit met sistemiese onkruidodders geregistreer is om met die antagonistiese katione te bind voordat dit met die onkruidodder kan reageer. Dit is ook belangrik om ongeregistreerde en antagonistiese tenkmengsels te vermy. Die GBP wat vir opname beskikbaar is, moet dan deur die wasagtige lae op die blaar beweeg, dikwels ten tye van lae humiditeit en uiterste temperature. Dieselfde benatters en olie-byvoegmiddels wat druppelafspat verlaag en verspreiding verhoog, speel nou 'n verdere rol om opname te verbeter. Hierdie byvoegmiddels hidreer die waslae op die blaaroppervlak om die hoeveelheid aktiewe bestanddeel te verhoog wat opgeneem en na die plek van werking in die plant getranslokeer word.

Villa se mening

Beide deposisie en opname is krities om sistemiese GBP effektiwiteit te verseker. GBP'e is aan verskeie hindernisse in die hele proses blootgestel, daarom is dit belangrik om die korrekte byvoegmiddels te gebruik om beheer te optimaliseer. Indien deposisie óf opname deur die verkeerde byvoegmiddel benadeel word, sal dit die GBP effektiwiteit verlaag. Hierdie afname in effektiwiteit sal duideliker word namate die omgewingstoestande versleg. Kontak jou Villa landboukundige vir meer inligting oor byvoegmiddels en watergehalte.



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Together cultivating success

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BUILDING BLOCKS FOR EFFICACY

By Brian de Villiers

The two building blocks for the efficacy of systemic crop protection products (CPPs) are deposition and absorption. Deposition is useless without enough active ingredient absorption. Similarly, absorption is useless without enough deposition. From the moment that the spray droplet leaves the nozzle, it is subjected to various obstacles. These include drift, retention, and absorption through the waxy layers on the leaf. It is crucial that the active ingredient is deposited and absorbed in sufficient quantities to ensure control.

Deposition

The CPP should be deposited in adequate amounts on all parts of the plant canopy. To ensure this, various obstacles must be overcome. Firstly, a large percentage of spray droplets may never reach the target because of drift. Secondly, the droplets that do reach the leaf, may bounce off because of a high surface tension. Thirdly, droplets may not spread enough to ensure decent coverage. The correct deposition agent should be used to reduce drift and to get more droplets on the target. The correct surfactant or oil adjuvant should be applied to ensure that droplet bounce is reduced and that the retained droplets spread adequately. Certain deposition agents already contain surfactants and oils in the formulation. If there is enough deposition, it activates the next step to effective control.

Absorption

Once enough droplets have been retained on the leaf, the absorption process begins. This is

where antagonistic cations, that occur naturally in water, bind to certain systemic herbicides to limit absorption. This is also where antagonistic tank mixtures react with each other to cause inefficacy. Therefore, it is important to use ammonium sulphate adjuvants when registered with systemic herbicides to bind the antagonistic cations before they react with the herbicide. It is also important to avoid unregistered and antagonistic tank mixtures. The CPP that is available for absorption, must then move through the waxy layers on the leaf, often during periods of low humidity and extreme temperatures. The same surfactants and oil adjuvants that decrease droplet bounce and increase spreading, now play a further role to improve absorption. These adjuvants hydrate the waxy layers on the leaf surface to increase the amount of active ingredient that is absorbed and translocated to the site of action in the plant.

Villa's stance

Both deposition and absorption are crucial to ensure systemic CPP efficacy. CPPs are exposed to many obstacles during the whole process, therefore it is important to use the correct adjuvants to optimise control. If either deposition or absorption is impaired by the incorrect adjuvant, it will decrease the CPP efficacy. This decrease in efficacy will be more pronounced as the environmental conditions deteriorate. Contact your Villa agronomist for more information about adjuvants and water quality.