

An innovative non-ionic paraffinic oil blend surfactant

NOT ALL SURFACTANTS ARE CREATED EQUAL

In recent years the surfactant market has become increasingly congested and confusing with numerous formulations and variations entering the market. Unfortunately, it is often hard to understand how these various surfactants will perform in the field. What we do know is that Gateway™ adjuvant provides quality and performance.

As an industry leader in Research and Development, Corteva Agriscience™ has undertaken an initiative to put some of these surfactants to the test in comparison to Gateway adjuvant.

WHY DO WE USE SURFACTANTS?

It is well established that many herbicides require the addition of a surfactant to improve efficacy. Increased efficacy comes from improved spray retention on the target weed, greater droplet spreading across the leaf surface and improved herbicide uptake into the target species.

Target grass and broadleaf weed species differ in leaf structure, size and growth habit. Their leaf surfaces can vary widely from hairy (such as black henbane), to smooth and waxy (such as leafy spurge). Surfactants help to reduce the impact of these physical barriers to herbicide entry into the plant.

If a surfactant is not used with certain herbicides then the water in the spray solution, which has a high surface tension, forms discrete droplets on the leaf surface causing uneven herbicide coverage.

For best herbicide performance, a spray droplet must wet foliage, spread out and cover the leaf. Surfactants reduce surface tension of the spray droplet and the interfacial tension between that droplet and the leaf, improving herbicide uptake and translocation for better weed control.

THE LATEST RESEARCH

Corteva Agriscience conducted a study¹ with an independent laboratory in New Zealand to compare Gateway adjuvant with Hasten spray adjuvant. They were applied to broadleaf species in combination with Garlon® 600 herbicide*. Tests were run to assess spray droplet retention, spray droplet spreading and herbicide uptake.

¹ Gaskin, R., Horgan, D., and Steele, K. (2013). Comparison of four crop oils: their effects on spray retention, droplet spreading and herbicide uptake. Plant Protection Chemistry NZ. www.ppcnz.co.nz

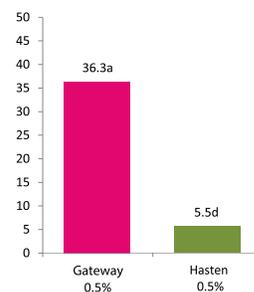
* Garlon® 600 herbicide is a triclopyr registration registered in New Zealand, this product is not registered in Canada.

SPRAY RETENTION TEST

The surfactants had a significant effect on the level of retention of herbicides on broadleaf species. Overall, Gateway provided the highest level of spray retention.

HERBICIDE SPREADING TEST

Gateway resulted in the highest level of herbicide spreading on broadleaf species.



Graph 1. Surfactant spreading on broadleaf spp.

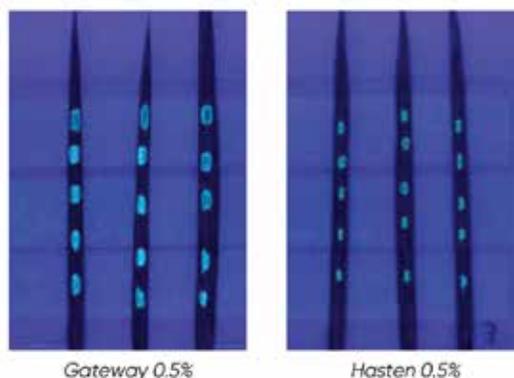


Figure 1. Photographs of herbicide spread

THE RESULTS ARE IN

Gateway adjuvant contains a proprietary blend of components.

Gateway provided the highest level of spray retention overall of the surfactants tested on broadleaf species. Gateway also promoted the greatest spreading of herbicide spray droplets of the surfactants tested.

Corteva Agriscience has conducted research since the early 1990s to develop Gateway adjuvant as a premier surfactant for use with a wide range of herbicides and the above data continues to support this research.