

### OILS AIN'T OILS

In recent years the crop spraying oil and adjuvant market has become increasingly congested and confusing with numerous formulations and variations entering the market. Unfortunately, it is often hard to understand how these products will perform in the field.

Uptake Spraying Oil is a thoroughly researched and highly trusted brand with a reputation for quality and performance in the Australian crop protection market for more than 25 years. Corteva Agriscience has continued to test Uptake Spraying Oil with new products that have come to market, to ensure it continues to provide consistent performance and excellent crop safety.

### WHY DO WE USE ADJUVANTS?

Many pesticides require the addition of a crop oil or adjuvant to improve efficacy. Increased efficacy is achieved by improved spray retention on the target weed, or greater droplet spreading across the leaf surface and improved herbicide uptake into the leaf.

Target grass and broadleaf weed species differ in leaf structure, arrangement, surface, size and growth habit. Leaf surfaces can vary widely from hairy (wild radish), to smooth and waxy (annual ryegrass). Adjuvants help to reduce the impact of these physical barriers to pesticide entry into the plant.

If a crop oil or adjuvant is not used with certain pesticides then the water in the spray solution, which has a high surface tension, forms discrete droplets on the leaf surface causing uneven pesticide coverage.

For best pesticide performance, a spray droplet must wet foliage, spread out and cover the leaf. Adjuvants 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.

### ONGOING RESEARCH

#### Global Research

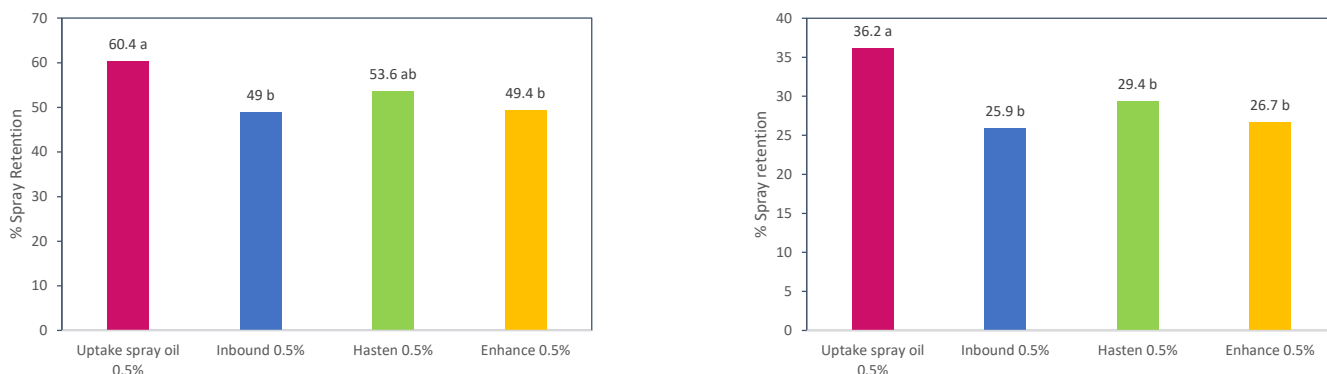
Corteva Agriscience conducted a study with an independent laboratory to compare Uptake Spraying Oil with other commonly used crop oil concentrates. Uptake Spraying Oil, Inbound<sup>®</sup> Spray Adjuvant, Hasten<sup>®</sup> Spray Adjuvant and Enhance<sup>®</sup> Spray Adjuvant were applied to a broadleaf species and a grass species (wheat) in combination with Verdict<sup>®</sup> 520 Herbicide, Broadstrike<sup>®</sup> Herbicide, Garlon<sup>®</sup> 600 Herbicide and Gesaprim<sup>™</sup> Granules 900 WG Herbicide. Tests were run to assess spray droplet retention, spray droplet spreading and herbicide uptake and treatments were applied at 50 L/ha spray volume to simulate commercial broadacre spraying.

### SPRAY RETENTION TEST

The crop oils had a significant effect on the level of retention of herbicides on both broadleaf and grass species; more so on the grass species as it was harder to wet due to its growth habit than the broadleaf species (figure 1).

Overall, Uptake Spraying Oil provided the highest level of spray retention on both species and significantly more than any other adjuvant on the grass species.

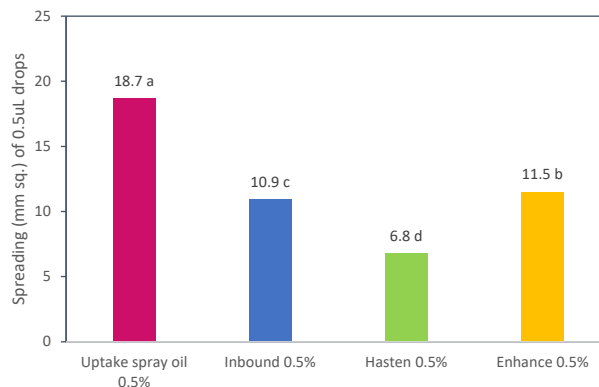
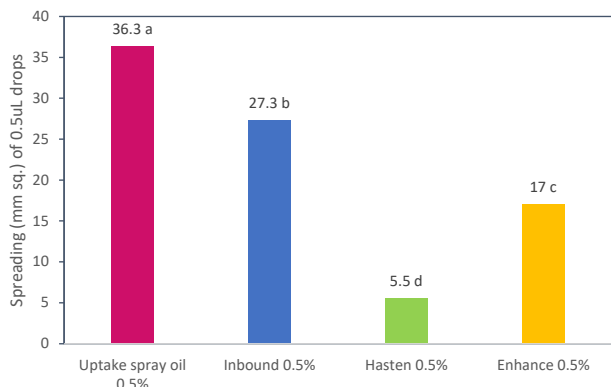
Figure 1. Spray retention means for adjuvant - broadleaf (left) and grass (right)



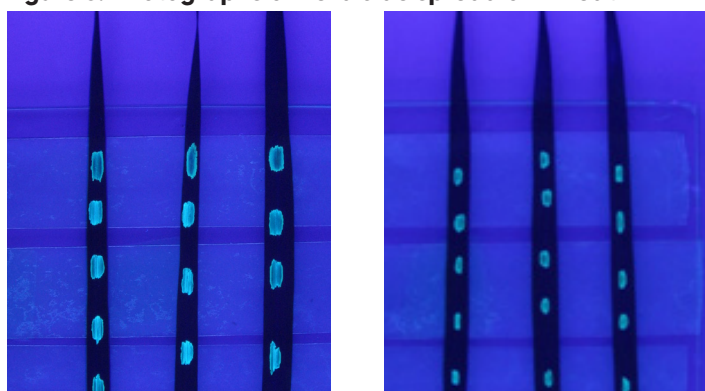
## HERBICIDE SPREADING TEST

Uptake Spraying Oil resulted in the highest level of herbicide spreading on both broadleaf and grass (refer to figure 2 and 3). This information supports research previously done by Corteva Agriscience to establish the single use rate of 0.5% v/v of Uptake Spraying Oil. Other adjuvants tested often need to be used at higher rates depending on the application.

**Figure 2. Spreading means for adjuvants – broadleaf (left) and grass (right)**



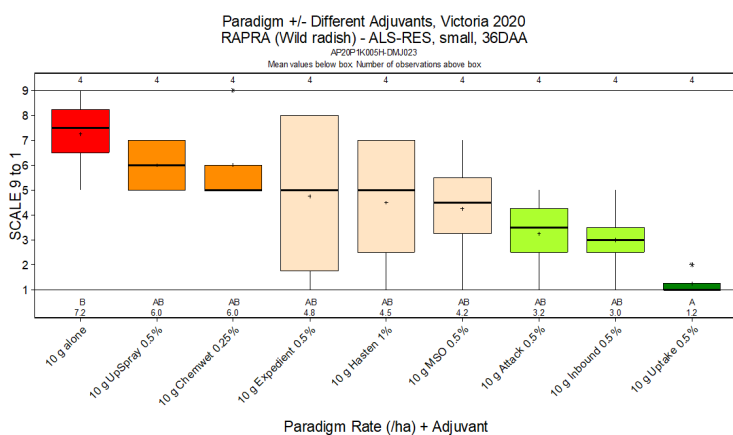
**Figure 3. Photographs of herbicide spread on wheat**



Verdict + Uptake 0.5%

Verdict + Hasten 0.5%

**Figure 4. Effect of Uptake on wild radish control by Paradigm herbicide, Tarranyurk, Victoria.**



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MSO™ with Leci-tech™ spray is a registered product of Loveland Products Inc  
Smart Up Spray Oil is a product by CropSmart  
Enhance™ registered trademark of Sacoa Pty Ltd

## NEW BROADACRE RESEARCH – WILD RADISH

Further research was conducted by Birchip Cropping Group, Victoria with Paradigm® Arylex® active herbicide plus various adjuvants. Paradigm was applied at 10g/ha (40% of the labelled use rate) with adjuvants at recommended concentrations, to wild radish at up to three leaf stage. A low rate of Paradigm was used to try to tease out adjuvant differences in the trial. (Wild radish was suspected of reduced sensitivity to ALS mode of action). Uptake Spraying Oil gave the highest level and most consistent wild radish control of the adjuvants tested. (Rating scale used was 9 = no control, 1 = complete death).

## CONCLUSIONS

Uptake Spraying Oil contains a proprietary blend of ingredients that allows it to perform reliably across a range of spraying conditions, including in cold water.

In global research, Uptake Spraying Oil gave the highest level of spray retention or droplet spreading of four adjuvants tested.

In Australian research Uptake Spraying oil has again consistently improved grass weed control when used with Paradigm herbicide for wild radish control.

Corteva Agriscience has conducted research since the early 1990s to develop Uptake Spraying Oil as a premier adjuvant for use with a wide range of herbicides, fungicides and insecticides and the above data continues to support this research.

Uptake Spraying Oil can be trusted for consistent performance which gives peace of mind and avoids possible spray failures which could require retreatment costing time and money.