

# VICCHEM

*The Right Chemistry*

# OUTRIGHT<sup>+</sup> 770

## SPRAY ADJUVANT

# MAKES HARD WATER EASY.



### CONTAINS HASTEN<sup>+</sup> TECHNOLOGY

HASTEN<sup>+</sup> Technology keeps herbicides active on weeds for longer by delaying their drying. This results in improved control and more time for weeds to absorb the herbicide.



### ADDED AMMONIUM SULPHATE

OUTRIGHT<sup>+</sup> 770 Spray Adjuvant is your solution to hard water challenges, ensuring herbicides remain effective in high-mineral content water, preventing deactivation.

# OUTRIGHT<sup>†</sup> 770

## SPRAY ADJUVANT

**Vicchem is an Australian Manufacturing, Research and Development organisation focused on developing proprietary products that add value for Australian growers through innovation. Our first major innovation came through the breakthrough development of Hasten in 1994, with the registration of Hasten being finalised in 1996.**

One of our next major innovations was the creation of our first 3-in-1 Adjuvant, our Fallow Specialist Hot-Up which was registered in 2000. One of the major patents around Hot-Up is around the dissolution of Ammonium Sulphate in an Oil-based product, with the right emulsifiers required to bring it into solution and more importantly keep it in solution. With more of an understanding in the industry around Mineral Oils because they had been in use for far longer, our Chemists found our original solution in Hot-Up using a Mineral Oil.

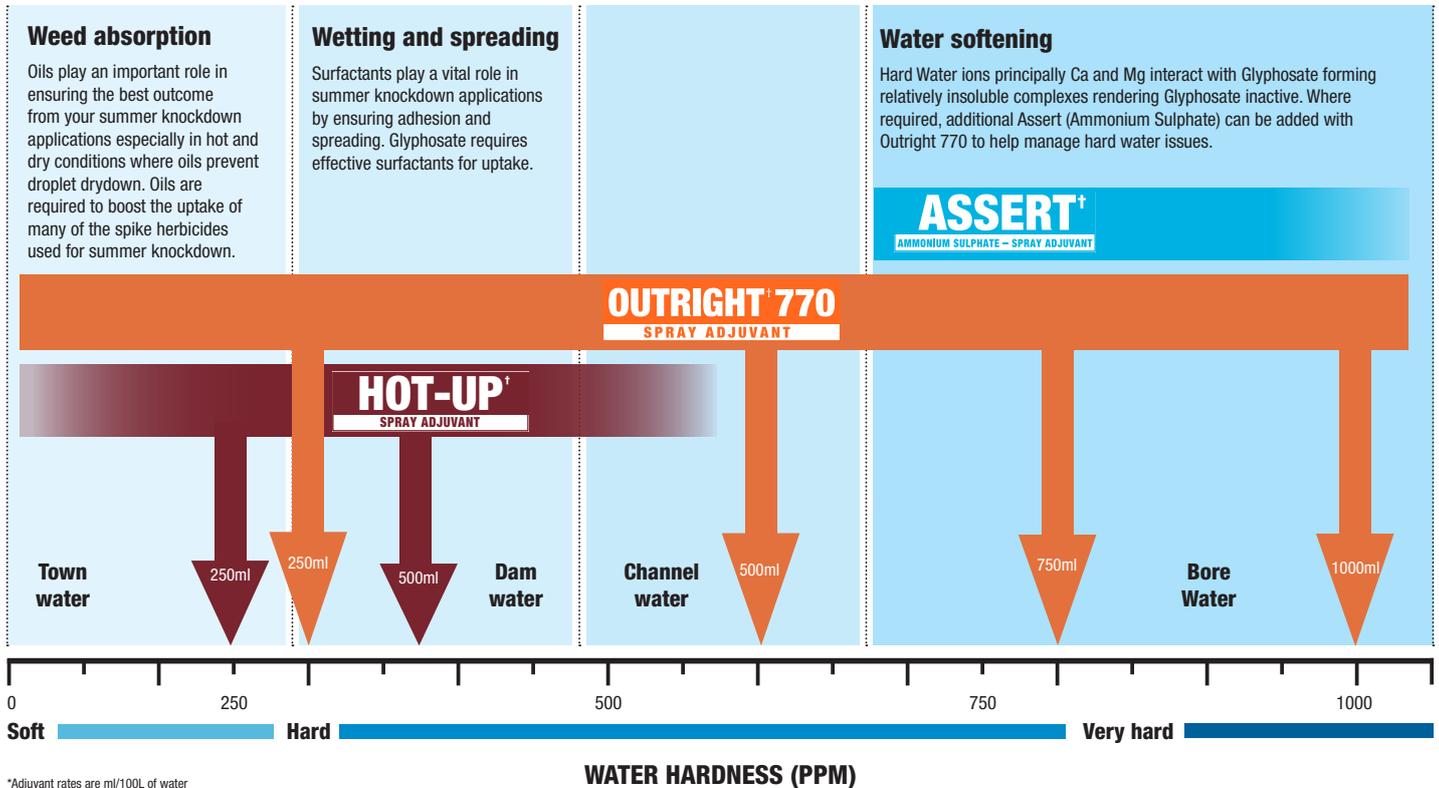
Through our Chemists and R&D team we have a focus on continuous improvement for adjuvants and wetting agents. Through this approach we combined our innovative Hasten technology with the concept of creating a 3-in-1 solution to provide farmers with the best adjuvant technology on offer. In 2013 the search and efforts came to fruition through the registration of our second 3-in-1 Adjuvant Outright 770.

Our products Hot-Up and Outright 770 creates a one drum solution that combines the best attributes & advantages of Surfactants, Oils and Ammonium Sulphate. These one drum solutions are highly compatible and provide a quality balanced product to improve your fallow herbicide performance.



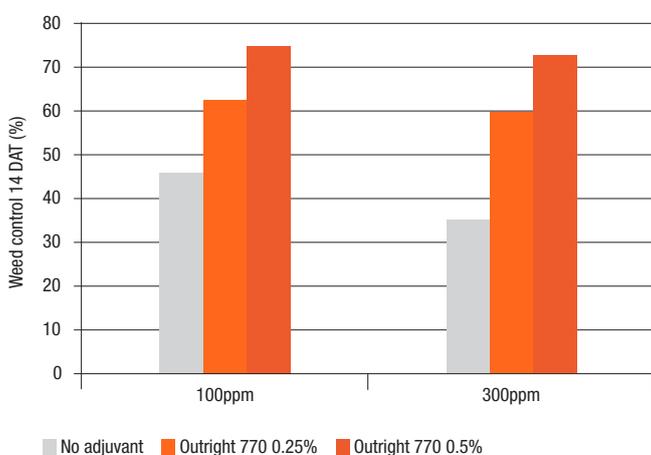
# SUMMER KNOCKDOWN GUIDE

## ADJUVANTS FOR HARD WATER



## TRIAL DATA FOR ADJUVANTS IN HARD WATER

### Outright 770 Glasshouse Trial



### Glasshouse Trial:

RoundUp CT applied at 222g a.i./ha with 11001 nozzle @ 64L/ha to Oats at 1.5-2 leaf. Assessment by fresh weight 14 DAT.

The trial shows that increased water hardness results in reduced efficacy when Glyphosate is applied without suitable adjuvants. In this trial OUTRIGHT 770 when applied at either 0.25% or 0.5% effectively softens the water and provides the efficacy enhancement from its surfactants and oils.

### Recommendation

When using OUTRIGHT 770 in hard water, use 250ml of OUTRIGHT 770 for up to 500ppm of Hardness (as CaCO<sub>3</sub>) and 500ml of OUTRIGHT 770 for up to 750ppm of Hardness. OUTRIGHT 770 0.5% + ASSERT 0.5–2.0% can be used for any commonly encountered Hard Water or where water hardness is not known.

**OUTRIGHT<sup>770</sup>**  
SPRAY ADJUVANT

# TECHNICAL INFO

**Outright 770 has three key components being a Wetter, AMS and Hasten technology formulated together to create an advanced 3-in-1 spray adjuvant solution.**

## Outright 770 as a Wetter

Outright 770 is a unique three-way mix of surfactants, penetrating oil and Ammonium Sulphate specifically designed for use in Australia. Each of the three components performs different functions, combining to create an ideal adjuvant for use in many situations.

A third of Outright 770 is a high-quality surfactant (334g/L non-ionic surfactant blend) that provides several important functions to how Outright 770 works.

Initially, the surfactant component enables the oil (136g/L Vegetable Oil Ester) and aqueous ammonium sulphate (300g/L Ammonium Sulphate) components of Outright 770 to combine in a uniform and easy to use liquid by forming a stable low viscosity micro-emulsion of the oil in an ammonium sulphate solution. This is not easy to achieve as oils and salty solutions are typically in-compatible; however, innovative Vicchem formulations created an excellent solution. Importantly, the surfactants in Outright 770 provide genuine performance benefits as adjuvants for many herbicides, particularly Glyphosate.

## Ammonium sulphate (AMS) as a water conditioner

The water quality used as a spray carrier can greatly influence the performance of herbicides such as glyphosate. Cations such as calcium, magnesium, zinc, iron, and manganese (the main contributors to hard water ions) can bind and deactivate herbicides like glyphosate however the addition of AMS conditions spray water by reacting with the dissolved cations to form insoluble sulphates that will not react with glyphosate.

The amount of AMS required to neutralise the effects of Cations will vary depending on the cation and amount that is present in the spray water, meaning that a water test is important. Adding more AMS than required to neutralise the effects of spray water cations may also improve glyphosate activity by providing extra Ammonium ions that combine with weak acid herbicides like glyphosate to form the very soluble and mobile form of glyphosate, glyphosate-ammonium which is most easily translocated. Example: Applying Outright 770 at 500ml/1000L will neutralise the effects of water hardness up to about 750ppm (as CaCO<sub>3</sub>) – see chart.

## Hasten Oil Technology

The addition of Hasten Oil technology (136g/L Vegetable Oil Ester) is particularly important for assisting the uptake of lipophilic herbicides such as triclopyr, metsulfuron-methyl, carfentrazone-ethyl and many others which require the addition of an oil-based adjuvant for optimum performance. Vegetable Oil Esters have proven to be the most effective adjuvant type for cuticle penetration of many oil-based systemic herbicides. The Vegetable Oil Ester also provides the benefits of reduced evaporation from spray deposits and droplet adhesion.



### Other benefits include:

**Adhesion:** The surfactants in Outright 770 provide low to moderate dynamic surface tension for the spray mix which enables greater adhesion of droplets to target weed surfaces, reducing bounce and run-off.

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**Wetting:** The same surfactants also provide low to moderate kinematic surface tension to the droplets after application enabling spread and coverage across even difficult to wet or hairy targets.

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**Humectancy:** The non-ionic surfactants in Outright 770 will hold on to some water of the spray mix and won't dry out as quickly. Instead of allowing the actives to dry to immobile crystalline deposits, surfactants will ensure the spray deposit remains as a mobile liquid, increasing the time it is active and its ability to penetrate.

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**Penetration:** Furthermore, low kinematic surface tension is critical for enabling aqueous herbicides such as Glyphosate to penetrate the leaf cuticle via aqueous pores. The Vegetable Oil ester is critical for uptake of lipophilic spike herbicides.

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# OUTRIGHT 770 USE RATES AND COMPATIBILITIES

**Outright 770 is a multi-component adjuvant formulation that provides various benefits to knockdown herbicides in different conditions. It is particularly effective at improving herbicide efficacy under stressed conditions such as hard water or in hot, dry conditions.**

Outright 770 contains ammonium sulphate which may reduce the antagonism when Glyphosate products are tank-mixed with certain herbicides and hard water.

For most knockdown herbicides applications, the usage rate for Outright 770 is specified as a volume % in the range from between 0.25 – 1.0L.

The typical spray volume for these applications is in the range of 40 – 100L/ha. Refer to herbicide product labels for specific directions.

For guidance on use rates of Outright 770 consult the agricultural product label and/or the table below. Outright 770 is registered for use with the following herbicides, including glyphosate.

Product	Outright 770 rate per 100L of spray volume
2,4-D	between 0.25 – 1.0L
MCPA	between 0.25 – 1.0L
Clopyralid	between 0.25 – 1.0L
Glufosinate	between 0.25 – 1.0L
Metsulfuron-Methyl	between 0.25 – 1.0L
Paraquat	between 0.25 – 1.0L
Triclopyr	between 0.25 – 1.0L

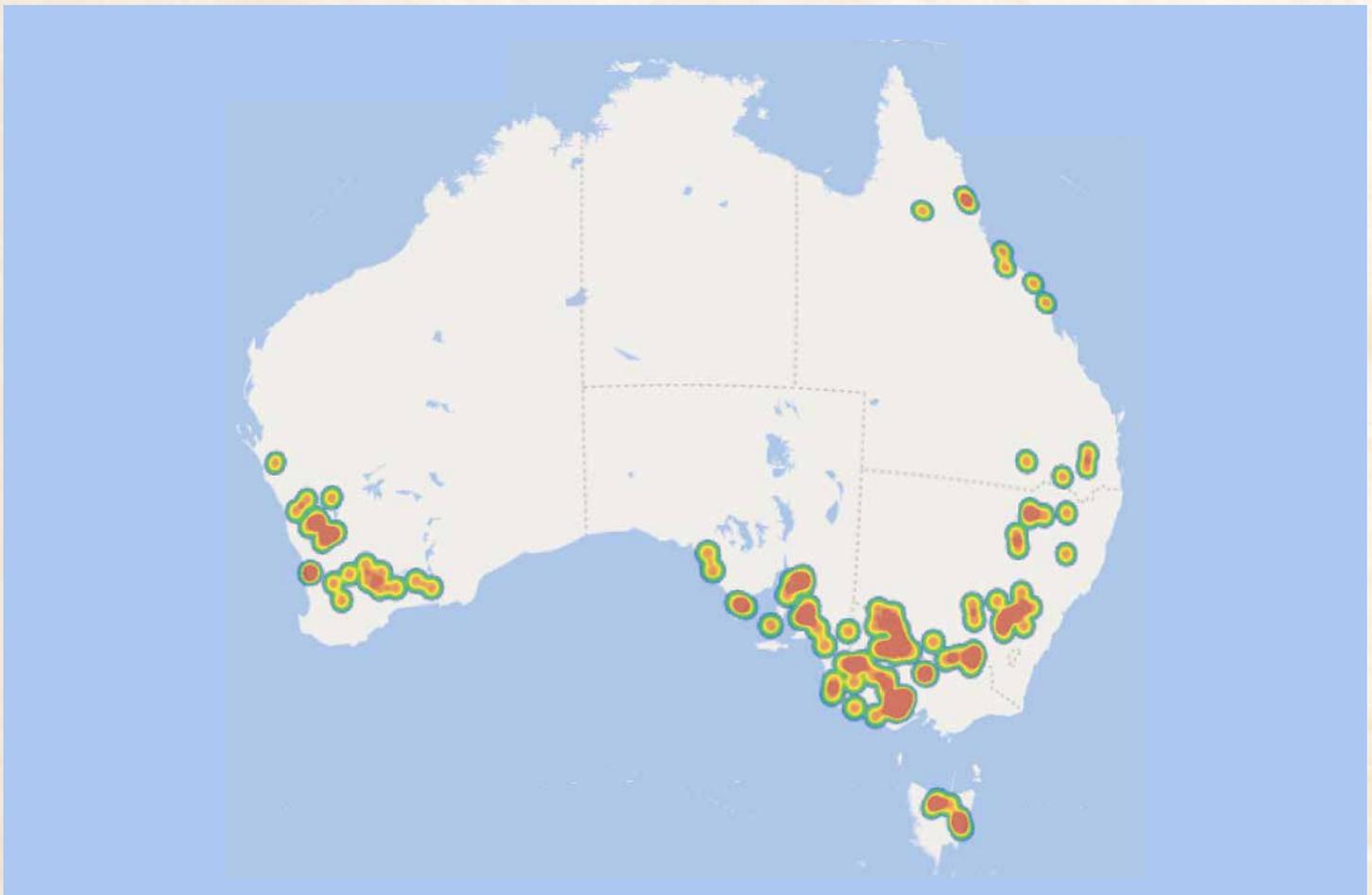
Use higher label rates when mixing in hard water (>340ppm hardness) or treating difficult to control weeds in during hot and/or dry conditions.

Outright 770 is also compatible with products containing the following active ingredients; Atrazine, Carfentrazone-ethyl, Chlorsulfuron, Dicamba, Fluroxypyr, Oxyflurofen, Propyzamide, Pyresta Xtreme, Simazine, Paraquat/Diquat, Tiafenacil, Triasulfuron and Trifluralin.

# VICCHEM WATER TESTING

Over the last three years, more than 1,200 tests have been conducted across Australia's Agricultural regions, helping customers to get the best from farm sprays. Below is a Heat map showing the locations of water samples tested by Vicchem.

## Locations of Water Samples Tested by Vicchem



The highest number of water testing samples tested by Vicchem.

Results of our water testing show that Hard Water has been found in all agricultural regions which can benefit from the addition of Outright 770.

# TESTIMONIALS

Growers and agronomists have introduced Outright 770 Spray Adjuvant into their fallow spray programs with excellent results. The following product feedback across Australia from growers and agronomists.



## SCOTT WALTON – WA

“Our farming program benefits using the Nurse Truck set up and Outright fits the bill as the mixer for Glyphosates. Outright mixes well with all Glyphosates and it works well. Having a product like Outright 770 with SOA, some wetter and Hasten technology in one drum is a blessing and at similar cost.”

## ZACK ZWECK – KADINA SA

“Outright greatly simplifies summer and knockdown spraying for our growers. It combines 3 adjuvants into one easy to use formulation, reducing warehouse space. I don't have to waste time weighting and handling bags of SOA. Outright gives consistent and effective results time and time again, superior to competitive adjuvants.”



## TIM COWCHER – WA

“I'm very comfortable selling Outright 770 as it works well and is compatible with all my offered herbicides. It offers my farmers convenience in the shed and out in the field. Outright 770 has been a good fit into our spray programs and the uptake locally has been excellent.”

## RUPERT BOUCKAERT – WA

“Outright 770 is very convenient with its 3 in 1 formulation and working very well particularly on Melons and Wild Turnips. The cost is slightly higher than what we were mixing before, although the convenience covers this slight cost difference.”





**JASON BONANNO – QLD**

“I was introduced to Outright 770 as a great adjuvant for summer knockdown spraying, by Wayne Squires, our agronomist from Ag N Vet Rural at Ayr. We had outstanding spraying results across a wide range of climatic conditions! and the ease of use makes Outright 770 an easy decision. As an added bonus, there are no bags of ammonium sulphate to lug and only one adjuvant to tank mix.”



**JASON SCOTT – VIC**

“We have been using O770 exclusively over summer spraying for several years now with outstanding results. Even though I am only 50 I don't want to handle any bagged AMS again. For our operation its just a winner”.

**HARRY SAUNDERS – QLD**

“Outright 770 has been an extremely useful adjuvant in our knockdown fallow spray mixes. The addition of a vegetable oil in the formulation has given us much better efficacy on hard to kill grasses like Feathertop Rhodes and the ammonium sulphate component saves the annoying task of lugging bags of AMS around.”



**BEN ROMEO – NSW**

“With Outright 770 I can go from paddock to paddock knowing the balance of Outright 770 will be effective for spreading and knockdown across my spectrum of weeds, grasses and broadleaf”.  
“Previously I have used a 700 spray adjuvant, the Outright 770 with its balance of ethylated oil and surfactant is more effective over all weed types”.



**TIM WALKER – TASMANIA**

“Outright 770 works really well in Cressy Tasmania where the majority of the water used for spraying is hard. Outright 770 makes a fast kill easy. Outright 770 is simple to use, cost effective and the results speak for themselves.”



# INVESTING IN PROPRIETARY RESEARCH

**Victorian Chemical Company has been an Australian pioneer in spray adjuvant technology since the early 1990's. Now known as Vicchem, after its founding in 1933 it launched its first successful agricultural product Voullaires<sup>†</sup> Ee-Muls-Oyle<sup>†</sup> in 1939 that is still used in the Mildura region to this day to improve the quality of dried fruit.**

This research focus became a hallmark of this family owned company which went on to launch Vicol Winter Oil in the 1980's, widely used to protect orchard trees from winter pests. In the early 1990's, VICCHEM developed HASTEN<sup>†</sup>, the first ethylated Canola oil adjuvant to be launched in Australia. Many innovative studies and field trials later - often in partnership with Australian universities - Hasten has grown to become one of the most popular spray adjuvants on the market.

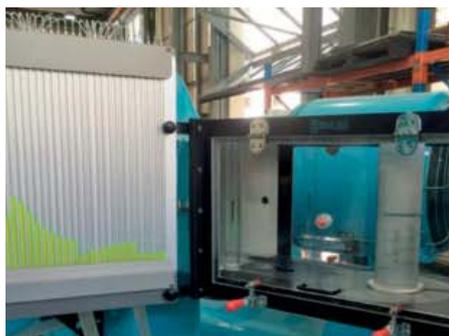
The direction of Vicchem's research has been guided by the plant production issues faced by farmers - and the challenging environments in which many operate. This includes spray droplet size and its effect on spray drift, with many studies employing the innovative wind tunnel at the University of Queensland's Gatton campus to produce robust results and recommendations for farmers.

VICCHEM has completed toxicology studies to determine adjuvant effects on multiple crops, mites, beneficial insects and aquatic organisms, all of which have been crucial to enhancing the safety profile of Hasten.

A research partnership with Monash University in Melbourne, produced valuable data on the interactions that may take place between adjuvants and active ingredients in some of Australia's most widely used agrichemicals.

VICCHEM has pioneered unique adjuvant formulations for speciality adjuvants containing ammonium sulphate, oils and surfactants in Hot-Up<sup>†</sup> and the recently released Outright 770<sup>†</sup>. These multi-component adjuvants provide all the ingredients needed for successful summer weed control. Key features include hard water suppression, wetting and spreading properties, penetration and reduced evaporation under hot dry conditions.

A leader in adjuvant research globally, VICCHEM frequently publishes and presents its research findings at international conferences including the International Symposium for Agricultural Adjuvants.



# THE COMPANY



**A primary goal of VICCHEM is to provide our customers and industry partners with products and service that increase their profitability and the well being of the communities where they operate.**

We have an unrelenting commitment to; integrity in our relationships; the health and safety of people; care for the environment and innovation, development and continuous improvement which is the foundation of our quality system ISO 9001:2015.

VICCHEM has also achieved HACCP and GMP accreditation.

We look forward to working with you in the days ahead for our mutual prosperity.



AVAILABLE FROM YOUR LOCAL RURAL RETAILER

**VICCHEM**

*The Right Chemistry*

For further information visit [OUTRIGHT770.COM.AU](http://OUTRIGHT770.COM.AU) OR CALL 03 9301 7000  
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# OUTRIGHT<sup>†</sup> 770 MAKES HARD WATER EASY.

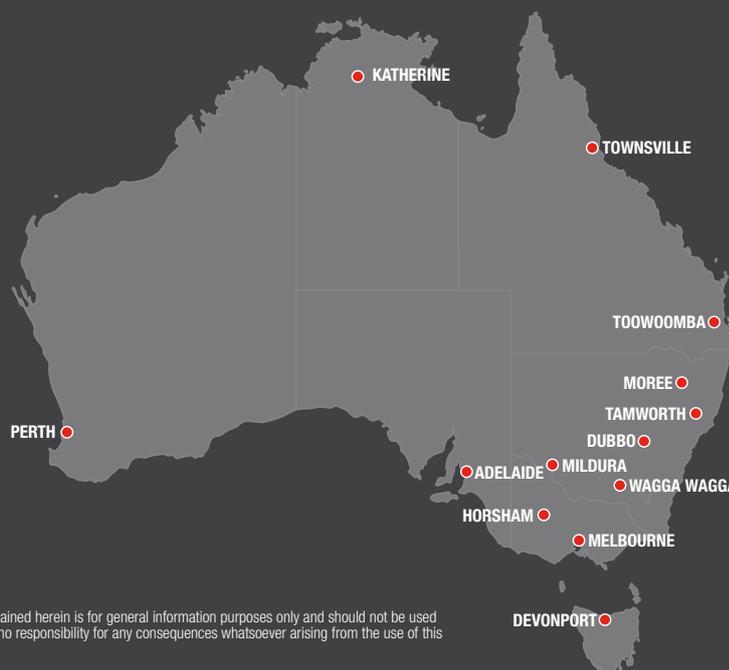
**SPRAY ADJUVANT**

Water quality plays a pivotal role in farm management decisions. VICCHEM's Free Water Testing service empowers growers to better understand their spray composition, and assist you make informed decision that enhance overall farm productivity.

To order your Free Hard Water Test visit [OUTRIGHT770.COM.AU](http://OUTRIGHT770.COM.AU)



## VICCHEM WAREHOUSE LOCATIONS



VICCHEM is Australian owned and manufactured  
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