

# Summer Knockdown Guide

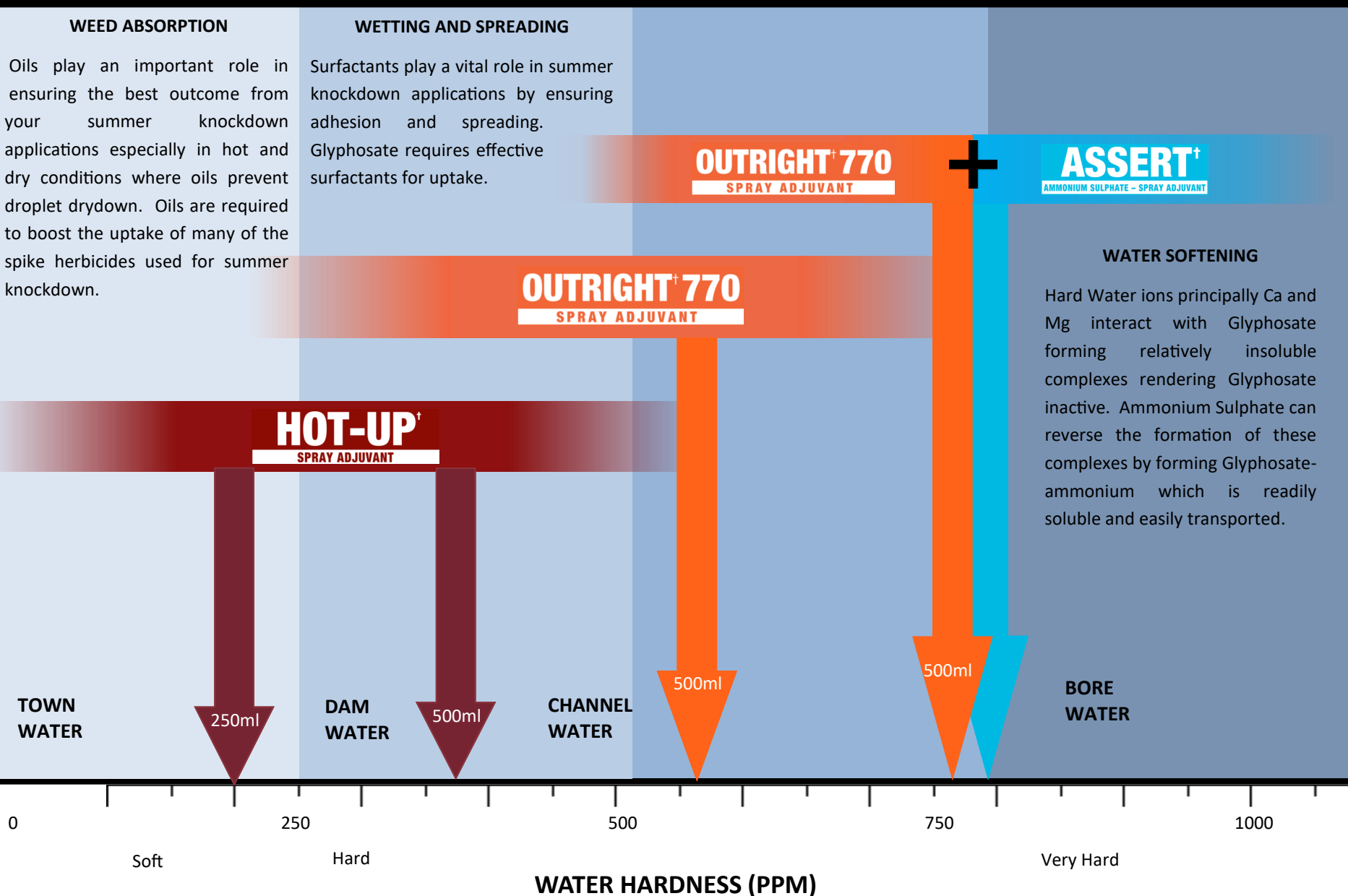
# Adjuvants for Hard Water

**VICCHEM**  
The Right Chemistry

**Victorian Chemical Company Pty. Limited**  
83 Maffra Street, Coolaroo, Victoria 3048, Australia  
Telephone: (03) 9301 7000  
Facsimile: (03) 9309 7966  
Website: www.vicchem.com  
Email: products@vicchem.com

For Information Purposes Only  
Disclaimer: Whilst Victorian Chemical Company PTY Ltd has taken reasonable care in the preparation of this document, the material contained herein is for general information purposes only and should not be used in substitution for the detailed Directions for Use shown on the product labels. Victorian Chemical Company Pty Ltd accepts no responsibility for any consequences whatsoever arising from the use of this information save as may be imposed under any applicable laws.

Part# 80210 Jan2018



**WEED ABSORPTION**  
Oils play an important role in ensuring the best outcome from your summer knockdown applications especially in hot and dry conditions where oils prevent droplet drydown. Oils are required to boost the uptake of many of the spike herbicides used for summer knockdown.

**WETTING AND SPREADING**  
Surfactants play a vital role in summer knockdown applications by ensuring adhesion and spreading. Glyphosate requires effective surfactants for uptake.

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

**ASSERT<sup>†</sup> AMMONIUM SULPHATE - SPRAY ADJUVANT**

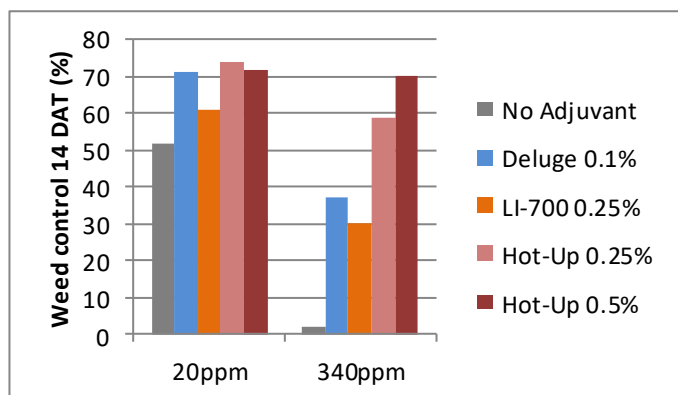
**WATER SOFTENING**  
Hard Water ions principally Ca and Mg interact with Glyphosate forming relatively insoluble complexes rendering Glyphosate inactive. Ammonium Sulphate can reverse the formation of these complexes by forming Glyphosate-ammonium which is readily soluble and easily transported.

0 250 500 750 1000  
Soft Hard Very Hard  
**WATER HARDNESS (PPM)**

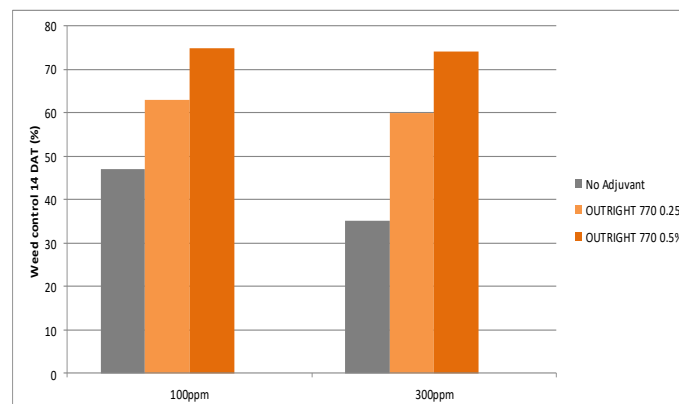
\* Adjuvant rates are ml/100L of water

# Trial data for Adjuvants in Hard Water

## Hot-Up Glasshouse Trial



## Outright 770 Glasshouse Trial



### Glasshouse Trial 1:

Roundup CT applied at 70g a.i./ha with 11001 nozzle @ 145L/ha to Oats at 1-1.5 leaf. Assessment by fresh weight 14 DAT.

Trial 1 shows that the sub-lethal rate of Glyphosate can easily be deactivated by hard water. The addition of wetting agent adjuvants DELUGE 1000 or LI-700 improve the efficacy of Glyphosate in soft water but do not prevent the hard water deactivation. HOT-UP applied at 0.25% works well in soft water and offers partial hard water suppression in the hard water but when applied at 0.5%, HOT-UP protects effectively against the hard water (340ppm hardness)

Recommendation: When using HOT-UP in hard water, use 250ml of HOT-UP for up to 250ppm of Hardness (as CaCO<sub>3</sub>) or 500ml of HOT-UP for up to 500ppm of Hardness.

### Glasshouse Trial 2:

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

Trial 2 similarly 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 1000ppm 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.



National Sales & Marketing Manager— Ag  
Vic - Gippsland/Goulburn Valley/Western District  
**Owen Connelly**  
Phone: 03 9301 7003  
Mobile: 0427 129 572  
Email: owenconnelly@vicchem.com

Vic - Mallee/Sunraysia/Wimmera  
**Steve Williams**  
Mobile: 0427 632 097  
Email: stevenwilliams@vicchem.com

W.A. & N.T.  
**Peter Julian**  
Mobile: 0438 773 171  
Email: peterjulian@vicchem.com

S.A.  
**Mick Bellenger**  
Mobile: 0400 861 988  
Email: mickbellenger@vicchem.com

N.S.W. - Central/Southern  
**Jeshua Smith**  
Mobile: 0428 710 400  
Email: jeshuasmith@vicchem.com

Qld - Central/Southern & N.S.W. - Northern  
**Dugald Macfarlane**  
Mobile: 0421 901 424  
Email: dugaldmacfarlane@vicchem.com

Qld — Northern  
**Jim Wark**  
Mobile: 0429 149 039  
Email: jimwark@vicchem.com

Tasmania  
**David Rann**  
Mobile: 0437 120 937  
Email: davidrann@vicchem.com