



DE SANGOSSE

WATER
CONDITIONERS



SMARTER WATER FOR CLEANER GLYPHOSATE KILLS

Water Conditioner for hard water and glyphosate performance

X-Change is a specialist water conditioner designed to protect glyphosate from hard water interference. It works by binding the antagonistic cations (calcium, magnesium and iron) that reduce glyphosate performance.

X-Change helps ensure your glyphosate stays active, available, and ready for uptake – delivering cleaner kills and more consistent weed control, even in touch conditions.

Why use X-Change?

- Prevents **hard water lock-up** that reduces glyphosate performance
- Helps **glyphosate effectively translocate** into the plant
- Avoids **sub-lethal doses** that increase the risk of resistance
- Improves **weed control consistency** across variable water sources
- Supports **smarter stewardship** and more reliable results.

**~70% OF
FARMS IN
ENGLAND ARE
USING MODERATELY
TO VERY HARD
WATER – OFTEN
WITHOUT
KNOWING IT**

**Example
of failed
glyphosate
control**

source ADAS



PROTECTS & ACTIVATES

- ✓ Reduces lock-up with hard water cations (calcium, magnesium, iron).
- ✓ Water conditioning effectively enhances glyphosate availability.
- ✓ Helps reduce glyphosate losses of up to 30% in hard water conditions.
- ✓ Delivers faster, more complete weed control.

Why X-Change over Ammonium Sulphate (AMS)?

Ammonium sulphate is often used to support glyphosate, but it is a risky strategy because it only offers partial protection. AMS doesn't remove hardness ions – it simply provides ammonium, which serves as a competition agent for divalent cations to form glyphosate salts.

Feature	Ammonium Sulphate	X-Change
Binds Ca^{2+} , Mg^{2+} , Fe^{2+}	☒ Partial	✓ Yes
Enhances glyphosate availability	☒ Partial	✓ Yes
Reduces resistance risk	☒ Sub-lethal dose	✓ Cleaner kill

☒ Partial protection = partial kill

- ✓ X-Change delivers complete water conditioning for glyphosate success



Cation control



pH buffering



Humectancy



Anti-foam



IF YOU'RE
NOT
MEASURING,
YOU'RE
GUESSING

APPLICATION GUIDANCE

Test spray water regularly

Above 150 ppm calcium carbonate is the danger zone and you could be losing valuable efficacy.

Water quality can vary significantly between sources – and even throughout the season. To ensure consistent glyphosate performance, it's essential to know what's in your water. Regular testing with a digital test meter helps:

- Identify water risks that affect performance
- Adjust X-Change rates to suit local hardness levels
- Avoid resistance pressure
- Maximise glyphosate efficiency across all applications.

Dose based on test results

Since cations in water are the target and not the glyphosate, **rates of X-Change should be adjusted according to the water hardness and as a % of overall water volume** as follows:

Hard Water (TDS ppm)	X-Change Rate		Very Hard Water (TDS ppm)	X-Change Rate	
<125	0.10%	Spray Volume	<425	0.30%	Spray Volume
<200	0.15%		<500	0.35%	
<275	0.20%		<575	0.40%	
<350	0.25%		<650	0.45%	



**NEVER
ADD
GLYPHOSATE
BEFORE
CONDITIONING
– OR YOU RISK
WASTING THE
CHEMISTRY**

Condition water first

To get the full benefit from X-Change and avoid glyphosate lock-up, **always add X-Change to the tank first – before glyphosate** and other actives. This ensures:

- Hard water ions are neutralised before they can bind to glyphosate
- Spray water is properly conditioned – cations chelated
- Glyphosate remains fully available for uptake by target weeds.

Glyphosate Stewardship – Follow WRAG Guidelines

- Always use the right dose
- Treat weeds at the right time
- Use the right water quality
- Minimise the number of applications
- Use alternatives where possible
- Monitor, record, and respond.

Use X-Change as part of an integrated glyphosate stewardship programme to ensure every litre delivers a clean and consistent kill.

Available in 5L pack size.

ALWAYS FOLLOW THE PESTICIDE LABEL

All trademarks duly acknowledged. All information correct as of August 2025

Facebook Instagram Twitter 01223 811215 • support@desangosse.co.uk • www.desangosse.co.uk

DE SANGOSSE