

sumup

- Powerful formulation with 50% more glyphosate per litre than standard 360 formulations
- Less packaging, handling and waste
- Packed in easy-pour, anti-glug containers
- When partnered with Companion Gold :
 - Rainfast from 1 hour on annuals and Common Couch
 - Turnaround in just 6 hours for annuals, 2 days for Common Couch
 - Effective in Hard water
 - Reduction of drift

backup

- For further information contact the Monsanto Technical Helpline on 01954 717575, e-mail technical.helpline.uk@monsanto.com or visit our website at www.monsanto-ag.co.uk

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Roundup Ultimate

Quick guide to weed control



ULTIMATE

ULTIMATE

Crop specific information

Roundup Ultimate is a soluble concentrate containing 540g/l glyphosate, present as 662g/l (48.7%) of the potassium salt of glyphosate. MAPP number 13081

Compliance with the following conditions of use is a legal requirement

Crops/situations:	Maximum individual dose (litres product/hectare):	Maximum total dose (litres product/hectare)	Latest time of application:
Harvest management of winter wheat, winter barley, winter oats, spring wheat, spring barley, spring oats, durum wheat, combining peas, field beans	2.6	2.6 l/ha/crop	7 days before harvest
Post planting and pre-emergence of listed cereals, oilseed rape, combining peas, vining peas, field beans, mustard, linseed, sugar beet, swedes, turnips, bulb onions and leeks	1.0	1.0 l/ha/crop	pre-emergence
Harvest management of oilseed rape and linseed	2.6	2.6 l/ha/crop	14 days before harvest
Harvest management of mustard	2.6	2.6 l/ha/crop	8 days before harvest
Stubbles (of all crops)	2.6 l/ha/crop or 1.0 l/ha/crop	2.6 l/ha/crop or 1.0 l/ha/crop	5 days before drilling or planting the following crop or 2 days before the drilling or planting of the following crop or 24 hours before cultivating
Grassland (destruction)	4.0	4.0 l/ha/crop	5 days before harvest grazing or drilling
Apple and pear orchards	3.3	3.3 l/ha/crop	After harvest but before green cluster stage
Cherry, plum and damson orchards	3.3	3.3 l/ha/crop	After harvest but before white bud stage
Green cover on land not being used for crop production	3.3	4.0 l/ha/crop	24 hours before cultivating

NB. Each line in the table represents a new situation and where more than one situation occurs for the same crop it can be sprayed once for each situation. For example in winter wheat you can apply up to 1l/ha after planting but before emergence, another maximum of 2.6l/ha before harvest and up to a further 2.6l/ha in the autumn on the stubble.

Cross compliance and environmental schemes

Cross compliance requirements apply to anyone who receives direct payments under Common Agricultural Policy (CAP) support schemes or receives payments under certain Rural Development schemes. Compliance with both European legal requirements, known as Statutory Management Requirements (SMRs) and with domestic legal requirements requiring land be kept in Good Agricultural and Environmental Condition (GAEC) is required and any breach may result in reductions of EU payments.

SMR9 & SMR11: Relate to the use of Plant Protection Products

SMR9 states users must use approved PPPs in accordance to the approval, the label and the Code of Practice for Using Plant Protection Products. There are also requirements for record keeping under SMR11. Following the recommendations in this Quick guide should ensure you do not breach SMR9.

GAEC 11: Relates to weed control

Farmers are required to take all reasonable steps to prevent the spread on their land and on to adjoining land of 'injurious' weeds listed under the 1959 Weeds Act; Common Ragwort, Spear Thistle, Creeping Thistle, Field Thistle, Broad-leaved Dock and Curled Dock; and of the 'invasive' weeds; Rhododendron, Japanese Knotweed, Giant Hogweed and Himalayan Balsam.

GAEC12: Relates to the management of non-cropped land

Although a cover should be established asap after March 1st in the year after the land was last cropped, there are few restrictions on the use of herbicides. In general Roundup Ultimate can be used on non-cropped land at any time under GAEC11 or to clear vegetation in preparation for the next crop with a maximum of 4 l/ha of Roundup Ultimate used in any one year. However, non-cropped land designated for management as 'Bare fallow' can only be sprayed with certain selective graminicides, so Roundup Ultimate should not be used on bare fallow.

GAEC14: Relates to the management of hedgerow and watercourse buffer strips

Buffer strips apply for 2 metres from the centre of any hedgerow, watercourse or field ditch, (including those which are temporarily dry) and land within 1m of the top of the bank of a ditch or watercourse. (There are some exceptions, refer to Cross Compliance handbook for details). Since management of the buffer strips involves maintenance of a green cover and prohibits the use of fertilisers and pesticides, the use of Roundup Ultimate is only allowed for spot treatment under GAEC11 to control invasive and injurious weeds. Roundup Ultimate can be used for spot treatment to control any of these weeds without being in breach of GAEC 14. Any damage to cover surrounding the treated weeds can be re-sown with grass or other cover from 5 days after application.

Roundup Ultimate can be used through weed-wipers or through hand held sprayers, For advice on rates and timing for these weeds see pages 4 and 8.

Over Wintered Stubbles

Farmers who enter land into overwintered stubble options under the ELS will need to be careful to comply with restrictions to the use of herbicides laid down in the ELS Handbook.

The use of Roundup Ultimate is not allowed as a pre-harvest desiccant or to clean up the stubble over the autumn and Roundup Ultimate can only be applied after 15th February in preparation for a spring crop.

Caution: Perennial weeds like Docks, Thistles and Couch grass are not at a very susceptible stage in early spring and Roundup Ultimate treatment will give good suppression to allow the crop to grow away but not the high levels of control associated with pre-harvest or stubble treatment.

ALWAYS REFER TO THE CURRENT CROSS COMPLIANCE HANDBOOK OR ENVIRONMENTAL SCHEME DETAILS



Grassland renewal

Where permanent pasture may be classed as semi-natural areas, e.g hay meadows, they may be subject to the Environmental Impact Assessment Regulations, 2006. If in doubt consult Natural England before destroying permanent pasture. For spot treatment of grassland weeds see page 8.

Grassland rate

Situation	Roundup Ultimate rate l/ha	Application timing and guidance
Short rotation Rye-grass	2.0	Treat annual weeds in June–October, when growth is 30–60cm, not dense and lacking mature seeds, or after 3 weeks re-growth after grazing/mowing.
Leys 2–4 years old with perennial grass weeds	2.6	Grass may be conserved or grazed by cattle, dairy cows or sheep 5+ days after spraying. REMOVE POISONOUS PLANTS BEFORE GRAZING/MOWING.
Long leys 4–7 years old with perennial broad-leaved weeds	3.3	Only direct drill grass and clover either into 1- to 2-year leys without mat, 5+ days after spraying, or long leys with some mat, in the spring following autumn application.
Permanent pasture	4.0	Select the application rate which controls the least susceptible weed and grass species present in the sward from the grassland species table. For perennial broad-leaved weeds apply at the start of flowering but before seed is set. Provided seeds have not matured, treated seeds will be killed and will ensure minimum seed return.

Grassland species

Roundup Ultimate rate l/ha	Grassland weed species			
2.0	Annual Meadow-grass Common Chickweed Common Mouse-ear	Dock seedlings Italian Rye-grass Mayweed species	Meadow Fescue Meadow Foxtail Rough Meadow-grass	Speedwell species Timothy
2.6	Black-bent Broad-leaved Dock Cock's-foot	Common Bent Common Couch Creeping Bent	Creeping Soft-grass Curled Dock Perennial Rye-grass	Plantains Soft Brome Yorkshire Fog
3.3	Bracken* Common Sorrel Common Nettle Creeping Buttercup	Creeping Thistle Daisy Dwarf Thistle Perennial Sow-thistle	Red Clover Sedges Sheep's Sorrel Soft Rush	Spear Thistle Tufted Hairgrass Yarrow
4.0	Common Ragwort Hard Rush Heath Rush	Jointed Rush Molinia (Purple Moor-grass)	Nardus (Mat grass) Red Fescue White Clover†	Yellow Rattle Sheep's Fescue

* At full frond expansion. † White Clover is best cut in June and sprayed 1 month later.

Grassland application guidance

Water volume: 150-250l/ha, Droplet size: Medium-coarse (BCPC definition). Cultivation interval: 5 days

Important Note: Poisonous weeds (including Ragwort, Hemlock, Hogweed, Water Dropwort and Bracken) can become palatable as they die back after treatment and must be removed or allowed to completely degenerate before re-grazing or conserving.



Pre-harvest

Do not use on any crops where seed may be saved for re-sowing.

Pre-harvest rate guidance

	Roundup Ultimate rate l/ha
Harvest management – cereals: Crop stems, leaves and annual grasses, Above plus annual broad-leaved weeds – Standard rate	0.7* 1.0*
Above plus difficult annual broad-leaved weeds – Annual Sow-thistle, Cut-leaved Cranesbill, Fat-hen, Orache, Fool's Parsley, Redshank, Pale Persicaria, Knotgrass and Black Bindweed High weed density	2.0 2.0
Desiccation – oilseed rape, mustard and linseed: Desiccation plus control of annual weeds and medium levels of Common Couch	2.0
Weed control – peas and beans: (Unsuitable for crop desiccation) Control of annual weeds and low–medium levels of Common Couch	2.0
Weed control – Common Couch: Low levels of Common Couch (<25 shoots/m ²), cereals only Medium levels of Common Couch (26–75 shoots/m ²) High levels of Common Couch (>75 shoots/m ²)	1.3 2.0 2.6
Other perennials in all crops: Perennial broad-leaved weeds, other perennial grasses	2.6

* Always add Companion Gold at 0.5 l/ha.

Pre-harvest application guidance

Application details	Water volume oilseed rape All other crops Droplet size (BCPC definition)	200–250l/ha 80–250l/ha Medium-coarse
Harvest intervals	Cereals, peas, beans Oilseed rape Linseed Mustard	7+ days 14-28 days 14-21 days 8-10 days
Timing	Grain/seed moisture 30% or less (see page 6)	



Timing – cereals

The peduncle test

When the peduncle, situated at the top of the stalk, immediately below the ear, starts to lose its green colour and turns brown, the moisture level should be ideal for spraying. This test applies to wheat and barley.



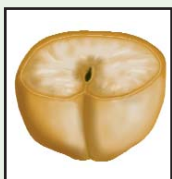
The thumbnail test

Collect 20 grains from various areas in the crop (taken from the centre of each ear). Carry out the following test: press the thumbnail firmly into the grain; if the indentation holds on all the grains, the crop is ready for spraying. This test applies to wheat, barley and oats.



The split grain test

Cut the grains in half to confirm moisture content. If 75% of the grains have a dark brown pigment strand in the crease, as illustrated, the grain has reached 30% moisture. If all the grains are marked, moisture is less than 30%. This test applies only to wheat.



Timing – oilseed rape

1. Select an area of the crop which is representative of the field as a whole. Pick, at random, a total of 20 pods from the middle of the main raceme.

2. Open each pod. If a colour change from green to brown is seen in at least two thirds* of the seeds per pod in at least 15 of the pods picked, the earliest correct stage for spraying has been reached.

3. Repeat the procedure in other areas of the crop to check that the assessment is applicable to the entire field. Spray within 4 days, unless the weather is very cool, then the window can be extended to 7 days.

4. An interval of 14–21 days is necessary before combine harvesting.

* If approximately half of the seeds are turning brown, the crop should be ready to spray in 3 days, but repeat the procedure to check that the correct stage has been reached. N.B. Spraying too early will lead to poor desiccation.



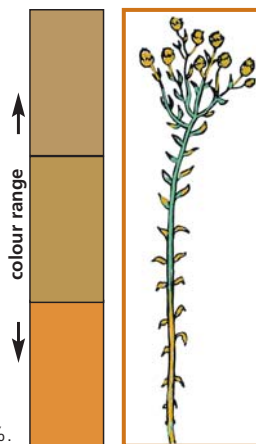
Timing – linseed



1. Linseed grown for oil production should be desiccated at the brown capsule stage. Seeds are light brown and rubbery, lower leaves are withered but the upper leaves and stem are still green/yellow.
2. Confirm by sampling 40 seeds from four representative points in the field and at least 24 should be in the mid range.
3. An interval of 21-28 days is necessary before combine harvesting.

Timing - Peas and Beans

1. Crops may be treated when the average moisture of the seeds is below 30%. At this stage pods of both crops will be mature.
2. In peas, the lower and middle pods will be dry and brown and the upper pods yellow and wrinkled, and seed rubbery. In beans, the stems are usually green/brown and the pods are black.
3. A minimum interval of 7 days should be allowed before combining.



Stubbles and cultivated land

Species susceptibility guide for annuals in stubbles and cultivated land

Weed	Weed size and other comments	Roundup Ultimate application rate l/ha
Annual grasses: Volunteer cereals, annual grasses Black-grass, Bromes, Meadow grasses, Wild-oats	Spray prior to stem elongation	1.0*
Perennial grasses Common Couch 1-75 shoots/m ² Common Couch >75 shoots/m ² Other Perennial grasses	Minimum of 10-15cm of new growth	2.0 2.6 2.6
Most annual broad-leaved species: Charlock, Cleavers, Common Chickweed, Common Fumitory, Common Orache, Common Poppy, Dead Nettles, Fat-hen, Forget-me-not, Field Pansy, Groundsel, Mayweeds, Parsley Piert, Shepherd's Purse, Speedwells	Up to 15cm	1.0*
	Greater than 15cm	1.3*
'Tough' annual broad-leaved species: Black Bindweed, Knotgrass, Pale Persicaria, Redshank, Small Nettle	Up to 2 true leaves	1.0*
	3 true leaves to 15cm Greater than 15cm	1.3* 2.0
Volunteer oilseed rape	Up to 6 true leaves Greater than 6 true leaves	1.0* 2.0
Volunteer peas/beans, clover species	These species are not well controlled unless small and non-waxed. Control in the following crop may be necessary, especially if no further cultivations take place	2.0
All perennial broad-leaved weeds Including volunteer potatoes (autumn only)		2.6
Post sowing but Pre-emergence of crop Cereals, oilseed rape, mustard, linseed, peas, field beans, sugar beet, turnip, onion and leek	Tank mix as appropriate	1.0†

† Add Grounded at 1.0 litres/ha with residual herbicides (see Compatibility Recommendations)

* Always add Companion Gold at 0.5 l/ha.

Stubbles and Cultivated land application guidance

Water volume: 80-250l/ha, Droplet size: Medium-coarse (BCPC definition).
For cultivation intervals see page 9.

Perennials

Allow volunteer potatoes to make ample top-growth before spraying in autumn.
Perennials: Allow at least 21 days of new growth in the spring before spraying. Only partial control of perennials will be obtained in the spring.

Stale seedbeds

Cultivate top down to conserve moisture and consolidate well. Wait 10–20 days for weed growth. Cultivate immediately after harvest for volunteer oilseed rape, Barren Brome or Great Brome, Black-grass, Meadow-grasses, Wild-oats and cereal volunteers, but leave 1 month before creating a stale seedbed for Meadow Brome, Soft Brome and Rye Brome. To maximise out of crop control of resistant annual grasses encourage several flushes of seedlings and spray with the annual rate up to a maximum total dose of 2.6l/ha.

Tank mixes physically compatible with Roundup Ultimate

Physically compatible		Physically incompatible	
Basagran SG, Butisan + Companion Gold, Butisan S + Treflan, Carbetamex, Cadou Star, Centium, Centium +Treflan, Defy, Defy + Stomp 400, Defy + Treflan, Defy + Tolugan, Duplosan KV*, Dursban WG, Firebird, Fiesta T, Flight/Orient, Goltix Flowable + Grounded, Katamaran + Centium, Katamaran + Treflan,	Katamaran + Grounded, Kerb Flo, Lexus, Lexus + Firebird, Lexus + Liberator*** + Treflan, Lexus + O'Tan, Lexus + Stomp, Lexus + Trooper, Liberator + Grounded, Liberator + Stomp + Grounded, Liberator + Tolugan 700, Liberator + Treflan, Liberator + Treflan + Grounded, Liberator + Uranus, Liberator + Uranus + Grounded, MCPA*, Nirvana, Nirvana + Cirrus + Grounded, Novall + Grounded, Novall + Treflan, Omex Suspension Fertiliser,	PDM330, Pyramin DF, Ramrod Flowable, Springbok, Springbok + Centium, Springbok + Treflan, Stomp + Cirrus, Sumimax, Takron + Goltix Flowable, Tolugan 700, Treflan, Trooper, Trooper + Grounded, Trooper + Stomp + Grounded, Trooper + Treflan + Grounded, Trooper + Uranus + Grounded, Uranus + Grounded, Uranus + Stomp + Grounded, Volcan Combi	Alpha Chlorotoluron 500, Ashlade CP, Bacara Bullet, Butisan + Centium, Butisan S**, Goltix WG, Katamaran †, Katamaran + Centium, Katamaran Turbo, Liberator †, Liquid Fertiliser, Novall, Oryx, Skirmish, Takron, Stomp 400** Magnum, Newtron, Nimbus, Venzar Flowable

* Antagonism when used at high rates (see label recommendations)

** Becomes compatible with Companion Gold at 0.5 l/ha. Add the Companion Gold first

*** Minimum of 200 litres water

† Becomes compatible with Grounded at 1.0 l/ha. Add Grounded first

This list is valid at the time of printing. Please phone the Technical Helpline to check for any updates.

Application methods for selective weed control

Knapsack Sprayers; A full 20l knapsack sprayer with standard deflector nozzles giving 200l/ha output will cover 1,000m² when walking at 1m/sec. Use 13 ml/l water or 260ml/20l water to control perennial weeds. At least 10-15cm of new growth is required.

Weed Wiping; Weed wipers may be used on any recommended crop where the wiper or chemical does not touch the growing crop. Weeds must be >10cm taller and the wiper >5cm higher than desired

vegetation. Wipe dense populations twice, in opposite directions

- **Hectacare or Microwipe rope types:** 1:2 dilution with water or 1:3.5 in hot dry conditions
- **New generation types** e.g. rotary, carpet, brush or pressure pads: 1:14 to 1:30 dilution

Cultivation intervals and rainfast properties

	Rainfastness		Cultivation intervals	
Roundup Ultimate	Common Couch	3 hrs	Annuals	24 hrs
	Annuals	3-4hrs*	Common Couch	5 days
	Broad-leaved crops	4 hrs	Other perennial weeds	5 days
	Other perennial weeds	6 hrs		
Roundup Ultimate + Companion Gold	Common Couch	1 hr	Annuals	6 hrs
	Annuals	1-4 hrs*	Common Couch	2 days
	Broad-leaved crops	4 hrs	Other perennials	5 days
	Other perennial weeds	4 hrs		

* Lower figure relates to grasses and seedling blw

LERAP Rating

Roundup Ultimate is a highly concentrated formulation and because of its high activity on algae it triggers LERAP B rating. This means a Local Environmental Risk Assessment will have to be carried out if there is watercourse near the field to be sprayed. There are opportunities to reduce the buffer zone from 5m down to 1m according to the equipment used and the rate applied. Even with standard equipment, the buffer can be reduced to 1m at a quarter dose and on watercourses >3m wide at half dose.

The reference rate to be used for reducing aquatic buffer zones for grassland is 4.0 l/ha and all other crops 2.6 l/ha.

Consult DEFRA booklet for full details 'LERAPs -Horizontal boom sprayers A step-by-step guide to reducing aquatic buffer zones in the arable sector'

Companion Gold

A unique adjuvant containing a patented formulation of spray drift retardants and water conditioning agents. Companion Gold has a 6-way mode of action to enhance the efficacy of Roundup Ultimate. Companion Gold is fully compatible with Roundup Ultimate and Monsanto support its use to reduce spray drift and combat difficult use conditions.

Dose rate

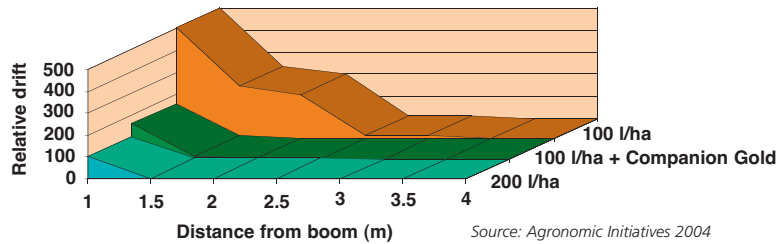
Always add Companion Gold to the spray tank first.

- **0.5% (0.5 l/ha/100 litres)**
drift reduction / spray retention / rainfastness/ water conditioning /pH buffer / anti-foam
- **0.25% (250ml/100 litres)**
water conditioning /pH buffer / anti-foam

Function 1: Spray drift retardant

Reducing spray drift onto non-target areas (e.g. grass margins) is a key benefit of Companion Gold. The long chain polymers increase the spray droplet surface tension reducing the formation of driftable fine spray droplets under 100 microns in diameter. Reducing spray water volume from 200l/ha to 100 l/ha, increases spraying efficiency (ha/hour) by one third, but can result in increased spray drift. The addition of Companion Gold (0.5%) significantly reduces drift.

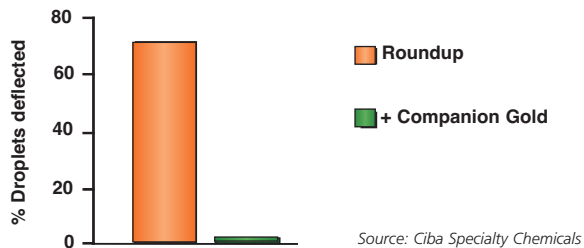
The effect of water volume and Companion Gold on relative spray drift.



Function 2: Improved spray retention

This is particularly important when treating waxy leaves. The addition of Companion Gold reduces spray droplet bounce and run-off from the target surface. This improves spray retention and increases efficacy.

The effect of Companion Gold on spray droplet retention

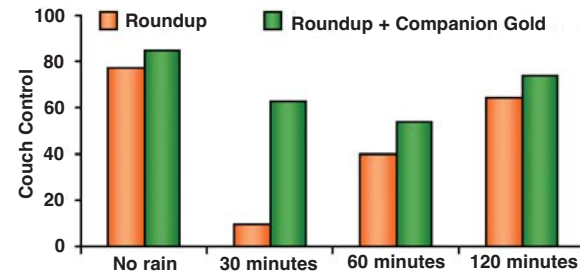


Pea leaves, droplets 500 µm, impact angle 45° to maximise bounce

Function 3: Improved rainfastness

The long chain polymers improve Roundup Ultimate spray retention and droplet adhesion to the leaf surface, increasing efficacy.

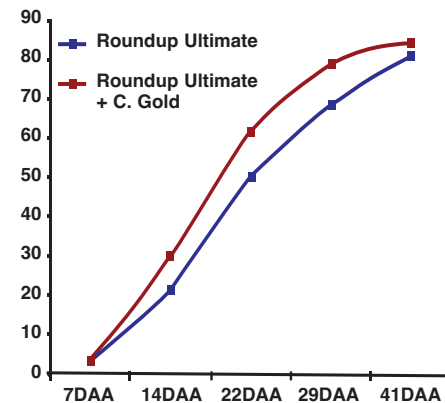
The effect of rainfall after spraying on couch control and the benefit of Companion Gold



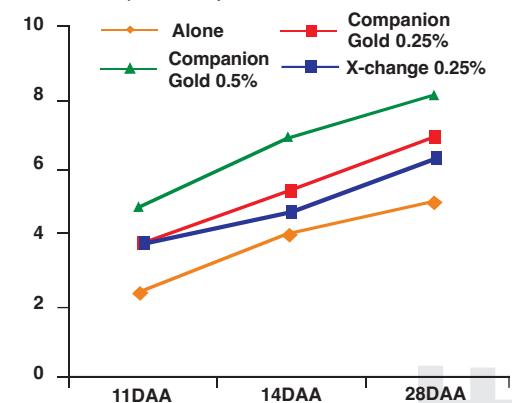
Function 4: Water conditioner

In hard water areas dissolved Calcium and Magnesium salts can reduce the activity of glyphosate. Companion Gold sequesters these salts in a soluble form, and leaves Roundup Ultimate free for absorption into the target. A reduced dose of 0.25% (250ml/100 litres) can be used solely for water conditioning if no spray drift reduction is required.

% Control



Score 0-10 (10 = dead)



Function 5: pH buffer

The inclusion of Companion Gold reduces and stabilises the pH of the spray solution (c pH 5.5) the optimum for absorption. This reduces salt formation and aids compatibility.

Function 6: Effective anti-foam

Companion Gold, unlike some other adjuvants, contains anti-foam to ensure that time is not wasted as a result of excessive foaming when filling the spray tank.

Summary

Companion Gold is the ideal partner for Roundup Ultimate, reducing spray drift, improving spray retention and rainfastness (just 1 hour on annuals and common couch), and maintaining efficacy in hard water areas.