

 **BASF**
We create chemistry

Crystal[®]



MAPP 13914

An emulsifiable concentrate containing 60 g/l flufenacet and 300 g/l pendimethalin. A herbicide with residual and contact activity for the control of black-grass, annual grasses and broad leaved weeds in winter wheat and winter barley.

The (COSHH) Control of Substances Hazardous to Health Regulations may apply to the use of this product at work.

SAFETY PRECAUTIONS

Operator protection

Spray equipment must only be used where the operator's normal working position is within a closed cab on a tractor or on a self-propelled sprayer.

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES AND FACE PROTECTION (FACESHIELD) when handling the concentrate.

WEAR SUITABLE PROTECTIVE GLOVES when handling contaminated surfaces.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS) during application.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows that they provide an equal or higher standard of protection.

WHEN USING DO NOT EAT, DRINK OR SMOKE.

IF YOU FEEL UNWELL seek medical advice (show the label if possible).

WASH ALL PROTECTIVE CLOTHING thoroughly after use, especially the insides of gloves.

WASH HANDS before meals and after work.

Environmental protection

Do not contaminate water with the product or its container.

Do not clean application equipment near surface water.

Avoid contamination via drains from farmyards and roads.

DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5 metres of the top of the bank of a static or flowing water

body, unless a Local Environmental Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone, or within 1 metre from the top of a ditch which is dry at the time of application.

DO NOT ALLOW DIRECT SPRAY from hand-held sprayers to fall within 1 metre of the top of the bank of a static or flowing water body.

Aim spray away from water.

This product qualifies for inclusion within the Local Environmental Risk Assessment for Pesticides (LERAP) scheme.

Before each spraying operation from a horizontal boom sprayer, either a LERAP must be carried out in accordance with CRD's published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for inspection for three years.

RISK TO NON-TARGET INSECTS OR OTHER ARTHROPODS. See Directions for Use.

Storage and disposal

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.

KEEP OUT OF REACH OF CHILDREN.

STORE IN ORIGINAL CONTAINER tightly closed, in a safe place.

Do not re-use container for any other purpose.

RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times.

Add washings to sprayer at time of filling and dispose of container safely.

Keep dry and frostproof in a suitable pesticide store.

This label is compliant with the CPA Voluntary Initiative Guidance



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10 L

Supplied by: BASF plc, Agricultural Solutions
PO Box 4, Earl Road, Cheadle Hulme, CHEADLE,
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Emergency Information: (24 hours freephone): 0049 180 2273112,
Technical Enquiries: 0845 602 2553 (office hours)



The
Voluntary
Initiative

Crystal®

An emulsifiable concentrate containing 60 g/l flufenacet and 300 g/l pendimethalin.

Danger

Harmful if swallowed.

May be fatal if swallowed and enters airways.

Causes skin irritation.

Very toxic to aquatic life with long lasting effects.

If medical advice is needed, have product container or label at hand.

Wear protective gloves/clothing/eye protection.

IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.

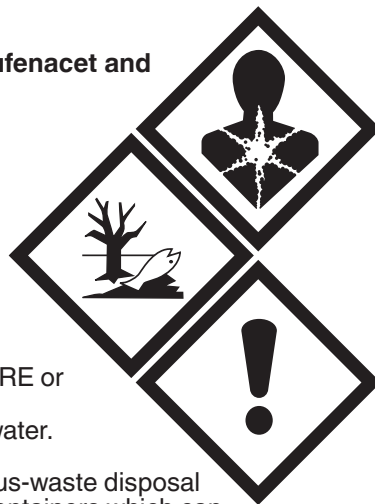
IF ON SKIN (or hair): Wash with plenty of soap and water.

Store locked up.

Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

Contains pendimethalin, flufenacet, benzaldehyde and octanal. May produce an allergic reaction.

To avoid risks to human health and the environment, comply with the instructions for use.



IMPORTANT INFORMATION

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE, as directed below:

CROPS:	Winter Wheat and Winter Barley
MAXIMUM INDIVIDUAL DOSE:	4 l/ha
MAXIMUM TOTAL DOSE:	4 l/ha per crop
LATEST TIMING:	Before third tiller stage (GS 23) of the crop

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.

DIRECTIONS FOR USE

IMPORTANT: This information is approved as part of the Product Label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

Crystal is a herbicide with residual and contact activity for the control of black-grass, annual grasses and broad leaved weeds in winter wheat and winter barley.

Restrictions/Warnings

Efficacy

Good even spray cover of the target is essential.

Crystal is slow acting and the final level of weed control may take some time to appear.

Some soil moisture is required for Crystal to be activated. Best results will be obtained if rain falls within 7 days of application. Residual control may be reduced under prolonged dry conditions.

Crystal is not recommended for the post-emergence control of weeds on the following soil types; sandy clays, clays and silty clays (Natural England Technical Information Note TIN037).

Transplanted or established weeds present after completion of seedbed preparation should be controlled by an approved contact or translocated herbicide prior to the use of Crystal.

Do not disturb the soil after application.

Soil types

Do not use on soils with more than 10% organic matter.

Weed control may be reduced on soils with more than 6% organic matter.

Do not use on stoney or gravelly soils.

Do not use on water-logged soil or soils prone to water logging.

Seedbed preparation

Seedbeds must have a fine, firm tilth.

Loose or cloddy seedbeds must be consolidated otherwise reduced weed control or crop damage from inadequate seed cover may occur.

For effective weed control, seedbed preparations should include the even incorporation of any trash, straw and ash to a depth of 15 cm.

Crop safety

Do not apply Crystal to crops suffering from stress, which may be caused for example by pests, disease, water logging, poor seedbed conditions or previous chemical treatment.

For pre-emergence treatments, seed should be covered with a minimum of 32 mm of settled soil.

Shallow-drilled crops should only be treated post-emergence.

Do not apply Crystal pre-emergence to crops drilled after 30 November.

Do not soil incorporate Crystal.

Do not spray undersown crops.

Weather conditions

Reductions in crop vigour, which may result in yield reductions, may occur where there is very wet weather before and after application, particularly where soils become water-logged.

Avoid spraying during periods of prolonged or severe frosts.

Spray drift

Avoid spraying within 6 metres of the field boundary to reduce effects on non-target insects or other arthropods.

Other Restrictions/Warnings

Concentrated or diluted Crystal may stain. Avoid spillage.
 Staining is minimised or completely removed if skin/clothes are washed immediately.
 Wash down machinery immediately after use, using a proprietary spray tank cleaner.

Weed control

Susceptibility of weeds to single applications of Crystal.

Weeds controlled both pre-emergence and post-emergence up to the size specified.

WEEDS	Dose	
	2 l/ha	4 l/ha
Grass Weeds		
Annual Meadow Grass	S (up to 2 lvs)	S (up to 1 tiller)
Black-grass	-	*S (up to 2 lvs)
Italian Ryegrass	-	S (up to 3 lvs)
Perennial Ryegrass	-	S (up to 2 lvs)
Loose Silky-bent	-	S (up to 1 lf)
Rough Meadow-grass	-	S (up to 2 lvs)
Sterile Brome	-	MS (up to 2 lvs)
Broad-leaved Weeds		
Cleavers	-	MS (up to cotyledon)
Common Chickweed	S (up to 2 lvs)	S (up to 5 cm)
Common Field Speedwell	S (up to 2 lvs)	S (up to 2 lvs)
Common Orache	-	MS (pre-em only)
Common Poppy	S (up to 4 lvs)	S (up to 4 lvs)
Corn Marigold	-	S (pre-em only)
Fat-hen	-	MS (pre-em only)
Field Forget-me-not	-	MS (pre-em only)
Field Pansy	MS (up to 2 lvs)	MS (up to 2 lvs)
Hemp-nettle	-	S (pre-em only)
Henbit Dead nettle	-	S (pre-em only)
Ivy-leaved Speedwell	S (up to 2 lvs)	S (up to 2 lvs)
Knotgrass	-	MS (pre-em only)
Mayweeds	-	MS (pre-em only)
Parsley-piert	-	S (pre-em only)

WEEDS	Dose	
	2 l/ha	4 l/ha
Red Dead-nettle	S (up to 2 lvs)	S (up to 2 lvs)
Scarlet Pimpernel	-	S (pre-em only)
Shepherd's Purse	MR	S (up to 4 lvs)
Smooth Sowthistle	-	MS (pre-em only)

S = Susceptible

MS = Moderately susceptible

MR = Moderately resistant

(*) = Black-grass is moderately susceptible pre-emergence on the following soil types; sandy clays, clays and silty clays (Natural England Technical Information Note TIN037).

Resistance Management

WRAG Guidelines advise that application to small Black-grass aids in control of resistant Black-grass. However, application of 'Crystal' to small Black-grass will not improve control of resistant populations that can metabolise a range of herbicides, as both flufenacet and pendimethalin can be affected. The efficacy of both flufenacet and pendimethalin can be reduced by the enhanced metabolism resistance mechanism of Black-grass; this can happen even when treating black-grass at the early growth stages recommended for treatment with Crystal.

Strains of some annual grasses (eg Blackgrass, Wild-Oats, and Italian Ryegrass) have developed resistance to herbicides, which may lead to poor control. A strategy for preventing and managing such resistance should be adopted. Guidelines have been produced by the Weed Resistance Action Group and copies are available from the HGCA, CPA, your distributor, crop adviser or product manufacturer.

Populations of black-grass and Italian ryegrass with high levels of enhanced metabolism resistance will not be fully controlled.

Key elements of the resistance management strategy for Crystal:

- Always follow WRAG guidelines for preventing and managing herbicide resistant weeds.
- Maximise the use of cultural control measures wherever possible (e.g. crop rotation, ploughing, stale seedbeds, delayed drilling, etc).
- Use tank mixes or sequences of effective herbicides with different modes of action within individual crops, or successive crops.
- For the control of herbicide resistant grassweeds, always use Crystal in tank mix or sequence with other effective graminicides with different modes of action.
- Apply pre-emergence of weeds wherever possible. If applications are delayed, apply post-emergence products/mixtures to small, actively growing weeds, especially where high levels of resistance are suspected and to reduce the risk of resistance development.
- Monitor fields regularly and investigate the reasons for any poor control.

Crop Specific Information

Crystal can be used on all varieties of Winter Wheat and Winter Barley

Time of application

From pre-emergence to before third tiller stage (GS 23) of the crop.

Rate of application

Apply Crystal at 2 or 4 l/ha in 200 litres of water/ha.

Following Crops

Following crops after normal harvest

There are no restrictions on following crops when Crystal is used alone.
Plough to at least 15 cm before planting all following crops except for potatoes, peas, wheat and barley.

In the event of crop failure

Plough to at least 15 cm. The following crops may then be sown: potatoes, peas, wheat and barley.

Mixing and Application

Mixing

Never prepare more spray solution than is required.
Half fill the tank with clean water and start the agitation.
To ensure thorough mixing of the product, invert the container several times before opening.
Add the required quantity of Crystal to the spray tank while re-circulating.
Fill up the tank with water and continue agitation until spraying is completed.
When tank mixes are to be used, take due note of any instructions given as to the order of mixing.
Each product should be added separately to the spray tank and fully dispersed before the addition of any further product(s).
On emptying the container, rinse container thoroughly by using an integrated pressure rinsing device or manually rinsing three times.
Add washings to sprayer at time of filling and dispose of container safely.

Application

Apply as a **MEDIUM** spray, as defined by BCPC.
A travel speed of 6 to 8 km/h is advised for tractor-mounted and trailed sprayers.
High speeds increase the risk of uneven cover due to excessive boom whip and bounce.
The slower speed is recommended where the target is in a thick crop or weed cover, or where travel conditions are rough.

Tank cleaning

After spraying, thoroughly clean and flush out application machinery with a minimum of three rinses, to ensure that all traces of product are removed.

Compatibility

For details of compatibilities contact your distributor, local BASF representative or the BASF Technical Services Hotline. Alternatively, visit our website at www.agricentre.basf.co.uk.

The following does not form part of the authorised label text.

With many products there is a general risk of resistance developing to the active ingredients. For this reason a change in activity cannot be ruled out. It is generally impossible to predict with certainty how resistance may develop because there are so many crop and use connected ways of influencing this. We therefore have to exclude liability for damage or loss attributable to any such resistance that may develop. To help minimise any loss in activity the BASF recommended rate should in all events be adhered to.

Numerous, particularly regional or regionally attributable, factors can influence the activity of the product. Examples include weather and soil conditions, crop plant varieties, crop rotation, treatment times, application amounts, admixture with other products, appearance of organisms resistant to active ingredients and spraying techniques. Under particular conditions a change in activity or damage to plants cannot be ruled out. The manufacturer or supplier is therefore unable to accept any liability in such circumstances. All goods supplied by us are of high grade and we believe them to be suitable, but as we cannot exercise control over their mixing or use or the weather conditions during and after application, which may affect the performance of the material, all conditions and warranties, statutory or otherwise, as to the quality or fitness for any purpose of our goods are excluded and no responsibility will be accepted by us for any damage or injury whatsoever arising from their storage, handling, application or use; but nothing should be deemed to exclude or restrict any liability upon us which cannot be excluded or restricted under the provisions of the Unfair Contract Terms Act 1977 or any similar applicable law.

Section 6 of the Health and Safety at Work Act

Additional Product Safety Information

The product label provides information on a specific pesticidal use of the product; do not use otherwise, unless you have assessed any potential hazard involved, the safety measures required and that the particular use has “off-label” approval or is otherwise permitted under the Plant Protection Products Regulations.

The information on this label is based on the best available information including data from test results.

Safety Data Sheet

To access the Safety Data Sheet for this product scan the QR code or use the weblink below:



bit.ly/Crystal_sds

Alternatively, contact your supplier.

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