

Oilseed rape herbicides and water protection



Experimental monitoring

Weed control in winter rape

Effective control of weeds, especially annual grasses, in winter oilseed rape and within winter cereal/rape/field bean rotations depends on very few herbicides (Table 1).

Table 1. Key oilseed rape herbicides

Herbicide	Example products
Carbetamide	Crawler
Clopyralid	Dow Shield, Galera
Metazachlor	Butisan S, Novall, Shadow, Springbok, Sultan 50SC
Propyzamide	Kerb Flo, Flomide

All four herbicides are being detected more frequently in water at levels that regularly exceed the EU Drinking Water Directive limit for each active ingredient (0.1 µg/L). This puts the UK at risk of non-compliance with Water Framework Directive objectives for drinking water catchments.

These peaks reflect both increased use of the products and a larger area of oilseed rape (Figure 1). Treating drinking water is costly and some rape herbicides cannot be removed with existing technology.

Key points

Establish grass buffer strips of at least 6m width beside water courses in the seasons before oilseed rape.

Only spray in suitable, settled weather, preferably when soil is moist.

Minimise dose rate, if possible.

Do not spray when heavy rain is forecast; or when soil is very wet and drains are running.

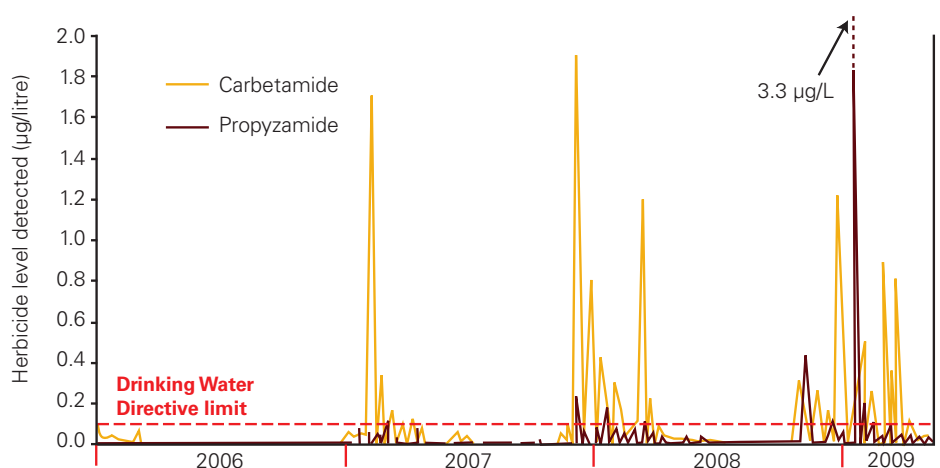
Do not spray when soil is very dry and cracked.

Do not treat fields that have been mole drained or sub-soiled below plough depth before sowing rape.

Consult the Voluntary Initiative website (www.voluntaryinitiative.org.uk)

Always consider your local conditions and consult a BASIS-qualified adviser if necessary.

Figure 1. Example of herbicides in water abstraction (River Waveney)



The Voluntary Initiative (VI) already promotes practices aimed at reducing movement of pesticides to water.

Unless the industry adopts new measures to minimise oilseed rape herbicides reaching water, these products may be withdrawn. An HGCA-funded review indicates that this would threaten the viability of growing oilseed rape in the UK and would also impact severely on cereal production in areas infested with annual grass weeds.

To avoid further use restrictions, or even a ban, the industry must change field management practices.

How herbicides reach water

... from fields

'Diffuse pollution' arises from herbicide loss by: movement through the soil to drains; surface run-off; and spray drift.

- Herbicides that are particularly soluble in water (eg clopyralid) can move off treated plants and soil into streams and water systems either directly (run-off) or indirectly through drainage and general movement through the soil profile.
- Herbicides that are less soluble in water (eg propyzamide) can bind onto soil particles. Flooding or run-off after heavy rainfall can move these particles into streams, especially down tramlines.
- Loss from drainage and run-off applies to all these herbicides to varying extents.

...from filling and washing areas

'Point-source' pollution arises from poor choice of filling site as well as from poor handling, cleaning and disposal practices. These can lead to herbicide concentrate and/or diluted spray reaching water.

To avoid point source pollution:

- Mix herbicides and fill sprayers on a bunded concrete surface where drainage is collected and can be disposed of, or use a lined biobed.
- Adopt Voluntary Initiative best practice on filling, emptying and washing sprayers.

General advice

Before drilling

- Ensure a 6m buffer zone (grass strip or biodiversity mixture) has been established between the field edge and any adjacent water course to reduce herbicide run-off. This zone should be well-established (ideally at least for a season) before rape is drilled. A buffer will also minimise spray drift reaching streams etc.

- Establish wider buffers (up to 20m) on more steeply sloping fields (where slope exceeds 5%; 1m in 20m).
- Control erosion. Loss of soil particles and pesticides is greater on sloping fields where tramlines run up and down contours.
 - Locate tramlines across the slope, if possible.
 - If using GPS guidance, do not establish tramlines at drilling (they are not essential). Plants in wheelings reduce erosion.
- Consider an alternative crop (not winter beans) if the measures outlined in this Information Sheet are impractical on a specific field.

At drilling

- Avoid early autumn treatments on fields recently mole drained or sub-soiled below plough depth which leads to more rapid water (and herbicide) movement.
- Cultivate dry, cracked fields pre-drilling to prevent rain washing herbicides rapidly down cracks to field drains.
- Prepare a good seedbed. A well-established, vigorous rape crop will suppress many weeds.

In the crop

- Use Met Office rolling five day forecasts to plan applications.
- **Do not** spray when heavy rain or snow is predicted.
- **Do not** spray if drains are already running and soil is waterlogged; wait for soil to dry. *Residual herbicides require moist; but not excessively moist, soil.*
- Delay treatment on dry, cracked fields until rain has re-wetted soil and closed cracks.
- Spray headlands last to avoid driving on sprayed areas, and picking up mud with herbicides on tyres.
- Use minimum dose needed for desired weed control.
- Do not spray when drift is likely. Use appropriate nozzles to reduce risk.



There is now broad agreement that grass buffers should be established beside water courses to help reduce surface run-off. For best effect these strips need to be established in the season before oilseed rape is sown. Such measures will also assist the 'Pelletwise' campaign to keep metaldehyde out of water.

Further information

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The Voluntary Initiative
www.voluntaryinitiative.org.uk

National Register of Sprayer Operators – NRoSO
<http://nroso.nptc.org.uk/>

www.biobeds.info

www.pelletwise.co.uk

www.naturalengland.org.uk

www.sepa.org.uk

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