# MCPA / PHENOXY USE IN GRASSLAND WEED CONTROL

# Brief Back Ground to Phenoxy Herbicides

Phenoxy herbicides were first identified back in the 1940's.

Phenoxies mimic the effects of natural plant hormones called auxins.

*These hormones can only be found in plants. Auxins regulate the growth of the plant and one of their functions is to make the plant grow towards the light. Phenoxies have the same mode of action as auxins, overdosing the plant leading to un-controlled growth, thickening and twisting causing the plant to grow itself to death.*

Phenoxies are truly systemic and travel throughout the plant.

# Main Phenoxy herbicides used in permanent grassland

2,4-D
MCPA
Mecoprop-P (mixtures only)

Often plant protection products contain a mixture of phenoxy / other chemical groups giving better control for difficult to control weeds e.g

2,4-D /Triclopyr / Dicamba
Mecoprop-P / Dicamba
MCPA / Mecoprop-P / Dicamba

# Key benefits of Phenoxy Herbicides

- Broad spectrum of activity (only effective rush control option).
- Control some specific weed problems not well controlled by other actives
- No effects on grass yield.
- No major resistance problem.
- Fully passed the EU registration system.
- Economical – “does exactly what it says on the tin”.
- You can chose a mixture product or Tank-mix to best control the weeds present in the field- Flexibility

# What are the main concerns with Phenoxies?

- Phenoxies are very mobile in water.
- MCPA is the active substance of choice for the control of rushes (there are no alternatives to phenoxies for rush control).
- Rushes grow where there is an abundance of water thus increasing the risk of MCPA turning up in water.
- As Ireland have a significant number of drinking water extraction points(800+) from surface water (streams / lakes), the likelihood of MCPA turning up in catchment areas where rushes grow are high.

# Rushes

- There are  many different types.
- The soft rush (*Juncus effusus*) or common rush is the most common type. MCPA/ 2,4-D will give good control of this species.
- Identification Key page 150 of the weed control handbook.
- The hard rush (*Juncus inflexus*) is resistant to most weed killers.
- Dormant seeds lie in the soil and will germinate in moist conditions if brought to the surface or exposed to light - avoid poaching wet land.

# Rushes – cultural control

- Both poor drainage and high rainfall contribute to a dense rush growth.
- Poor Drainage we can possibly remedy???
- High rainfall we can not remedy!!!
- Rushes are indicators of poor drainage. Cutting will reduce their vigour but they will rapidly re-grow if drainage is not improved. Liming will also tend to reduce establishment of rushes.
- In high rainfall areas rushes may be prevalent on reasonably well drained soils because of poor vigour of the sward due to poor fertility
- Well managed healthy competitive grass will help compete to keep weeds out.
- Cutting approx. 4 weeks after spraying will help the sward develop over the dead rush clumps.

# RUSH CONTROL PRODUCTS

MORTONE
AGROXONE 50
NU 46
AGRITOX 500
LUPO
EASEL 750 MCPA

# Main MCPA Products

## MCPA 250 g/L Products

| Product Name | Authorization Holder | Marketing Company | PCS No. | Formulated to: |
|---|---|---|---|---|
| MCPA | Bandon Agricultural Products Ltd | Bandon Agricultural Products Ltd | 90675 | Potassium Salt |

## MCPA 300 g/L Products

| Product Name | Authorization Holder | Marketing Company | PCS No. | Formulated as: |
|---|---|---|---|---|
| Hempacide 30 | Hygeia Chemicals Ltd | Goldcrop Ltd | 90734 | Potassium Salt |
| Mortone | Hygeia Chemicals Ltd | Hygeia Chemicals Ltd | 91881 | Potassium Salt |

## MCPA 500 g/L Products

| Product Name | Authorization Holder | Marketing Company | PCS No. | Formulated as: |
|---|---|---|---|---|
| Agritox | Nufarm UK Limited | Nufarm UK Limited | 4160 | Dimethylamine Salt |
| Agritox 50 | Nufarm UK Limited | Nufarm UK Limited | 3505 | Dimethylamine Salt |
| Agritox 500 | Nufarm UK Limited | Nufarm UK Limited | 5318 | Dimethylamine Salt |
| Agroxone 50 | Nufarm UK Limited | Hygeia Chemicals Ltd | 3523 | Dimethylamine Salt |
| M 50 | DHM Agrochemicals Ltd., | DHM Agrochemicals Ltd., | 4169 | Dimethylamine Salt |
| Mastercrop MCPA 50 | Hygeia Chemicals Ltd | Glanbia plc. | 4222 | Dimethylamine Salt |
| MCPA 50 | Nufarm UK Limited | UPL Europe Ltd | 4170 | Dimethylamine Salt |
| NU46 | Nufarm UK Limited | Nufarm UK Limited | 3504 | Dimethylamine Salt |
| NuOxone 50 | DHM Agrochemicals Ltd., | DHM Agrochemicals Ltd., | 4937 | Dimethylamine Salt |
| POL-MCPA 500 SL | Zaklady Chemiczne "Organika-Sarzyna" Spolka Akcyjna | Zaklady Chemiczne "Organika-Sarzyna" Spolka Akcyjna | 4471 | Dimethylamine Salt |

## MCPA 750 g/L Products

| Product Name | Authorization Holder | Marketing Company | PCS No. | Formulated as: |
|---|---|---|---|---|
| Easel | Nufarm UK Limited | Nufarm UK Limited | 4617 | Dimethylamine Salt |
| Larke | Nufarm UK Limited | Nufarm UK Limited | 4185 | Dimethylamine Salt |

* Always check label for recommended application rate

# BREAKING NEWS – APPLICATION RATES ARE CHANGING

- **Maximum application rates are being reduced on all straight MCPA Products.**
- **New application rate 1350 grams active substance per hectare.**

  For example:

  - Mortone application rate 4.5 litres per hectare.
  - Agroxone50 / NU46 application rate 2.7 litres per hectare.

- **There may be some old stock still in circulation with old recommended rates. Read label carefully for Maximum Application Rate.**
- **Obey the Buffer Zone!!**

# Implications of Reduced Application Rate

Results of three independent trials carried out using Mortone - MCPA POTASSIUM SALT

% Control Soft Rush

| | Rate (L/ha) | MCPA potassium (g/ha) | Trial 1 (90 days after treatment) | Trial 2 (91 days after treatment) | Trial 3 (88 days after treatment) |
|---|---|---|---|---|---|
| Mortone | 3.6 | 1080 | 81.3 | 88.8 | 91.3 |
| Mortone | 6.0 | 1800 | 91.8 | 95.8 | 93.8 |

# Future Measures

- If exceedances continue use of MCPA may disappear which could lead to domino effect for other phenoxies and other plant protection products.

➢ **NO RUSH SPRAY CONTROL OPTION**

**ALTERNATIVEY RESPONSIBLE USE:**

- 5 metre buffer zone from water body
  Within buffer zone control by topping
- Only Spray when land is dry. If tractor tyres leave a mark then it is too wet.
- Don’t spray if rain is forecast.

# Future measures cont.

- Always Spray when the rush is most susceptible.
  - Growing well (fertilise two weeks before)
  - Young soft leaf (cut and spray regrowth)

- Use good quality adjuvant

- NEVER EXCEED THE APPLICATION RATE and abide by Buffer Zones.

# Measures to date to educate on correct use

## Sprays for rushes threaten changes to use

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Incidents of grassland herbicides, those used for spraying rushes, etc, being found in rivers and waterways threaten changes to the continued use of these products. If incidents of contamination continue to occur, then it seems likely that restrictions will be placed on their use to help prevent their occurrence in rivers and waterways destined for drinking water.

There have been a number of incidents of herbicides such as MCPA, CMPP and 2,4-D being found in water at levels significantly above the tolerable values (*de facto* zero) in rivers this year alone.

There have been many more instances of products found in water at or close to the legally allowed levels.

These instances are being recorded in grassland regions where these actives are widely used. However, it should be noted that the bulk of these breaches do not involve any consumer health issues,

As well as the current findings, there is also mention of pesticides in an EPA report recently released for the 2010 to 2012 period. The report states that a number of pesticides, including Mecoprop (CMPP), MCPA and 2 4-D were detected at low concentrations at a large number of river monitoring sites during routine monitoring.

It states that "the significance of the pesticide levels detected will be assessed and may require the implementation of further controls through, *inter alia*, the development of environmental quality standards and associated measures for these substances in water".

### Further restrictions

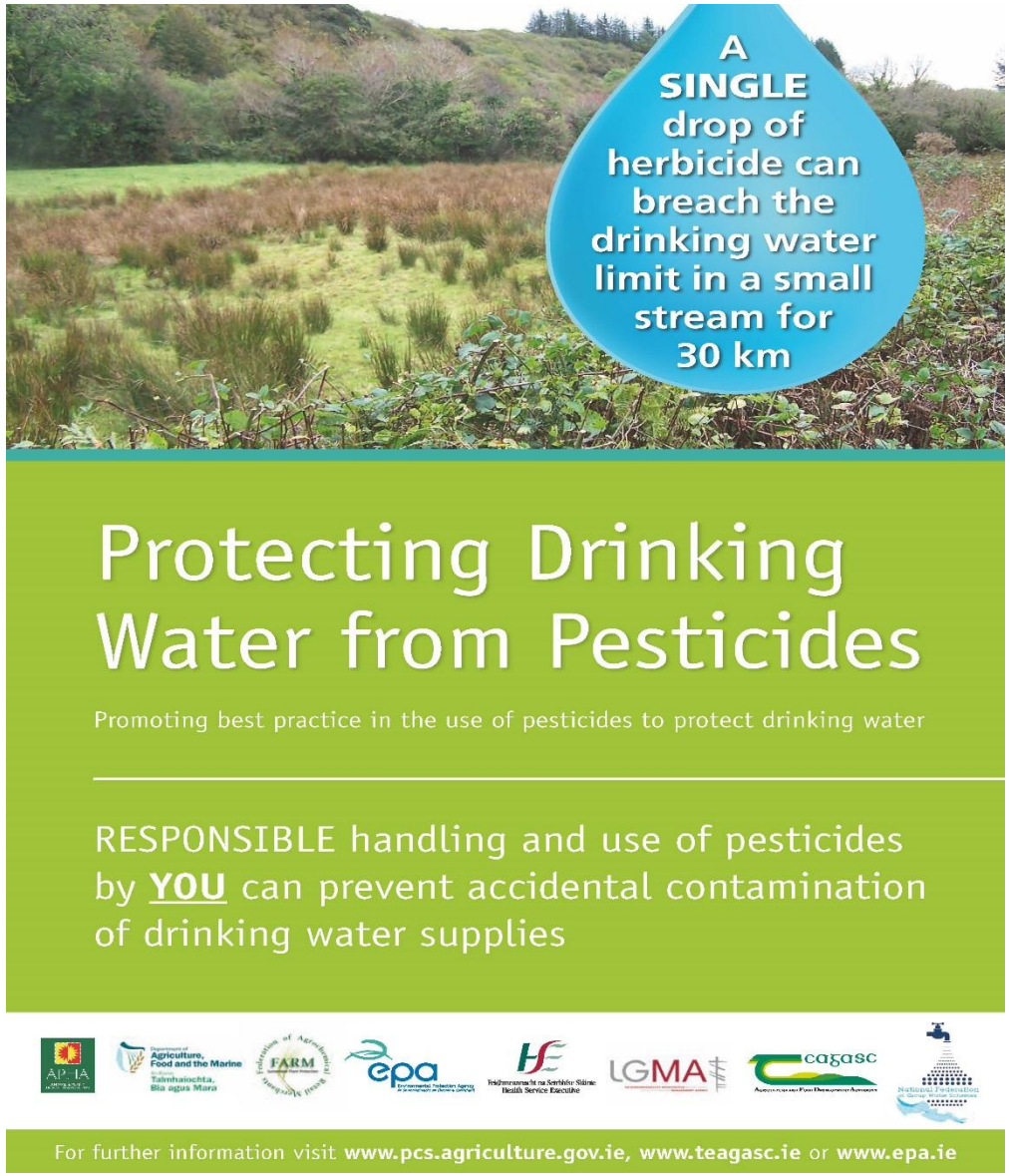
If water samples continue to contain levels of these pesticides, it is likely that further restrictions will be put on their use.

Some of the products being found in water samples are mainly used to control rushes in grassland, which need to be controlled to comply with cross-compliance requirements.

It is essential that farmers are water aware when applying herbicides and are conscious of the necessity to keep all pesticides away from waterways, buffer zones, etc. This means paying attention to label rates, where the spray is being placed and not filling sprayers directly from streams or rivers.

The main herbicides concerned – MCPA, 2,4-D and CMPP – provide economical weed control options for grassland and, in some instances, represent the only option for certain troublesome weeds such as rushes. Failure by farmers to keep these products away from water sources may result in severe restrictions on their use or the disappearance of these products. The safe use of pesticides is essential for everyone.

# Measures to date to educate on correct use



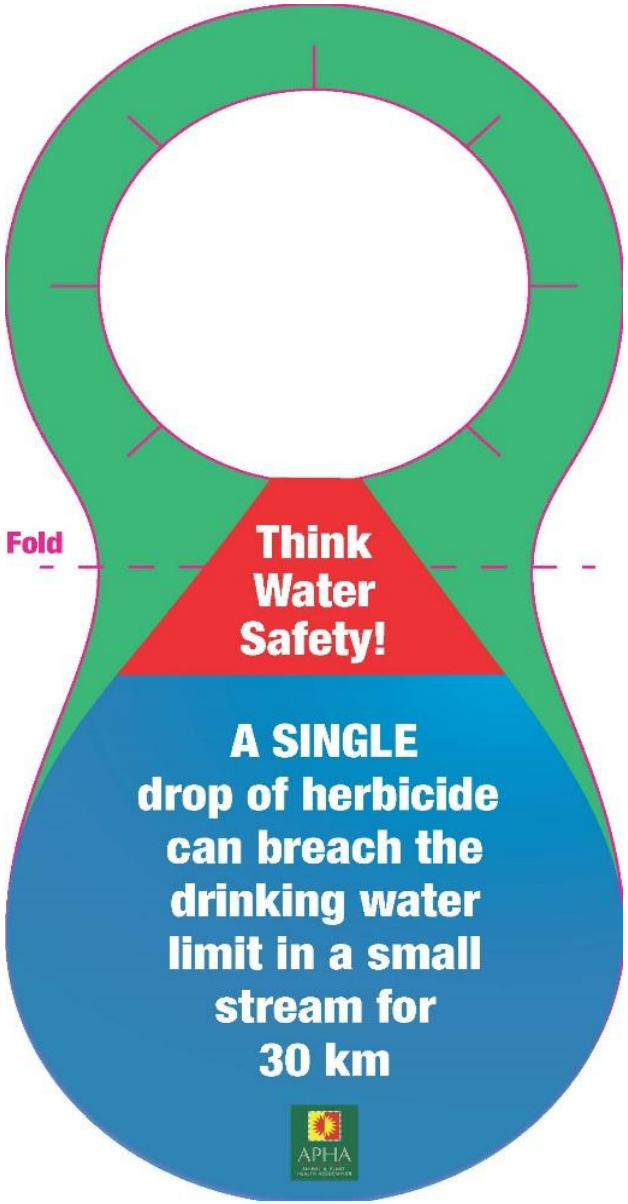
# Measures to date to educate on correct use

## Rush Control

### PROTECT WATERWAYS FROM CONTAMINATION

- Farmers if you want to retain cost effective products for rush control – use mcpa products safely
- Keep spray 5 metres back from water courses (buffer zone for mcpa products)
- Do not use on waterlogged fields (if tyre marks are visible – the field is too wet)
- Do not exceed the maximum application rate (if you do you could cause water contamination / face a penalty).
- Do not use if rainfall is expected for 24 hours and only apply when growing conditions are good and on a calm day.

# Measures to date to educate on correct use



## Focus on MCPA and rush control

**BEWARE!** Spraying rushes can very easily lead to breaches of the drinking water standard for pesticides, particularly if using MCPA products.

### Why?

- MCPA is water soluble and takes several weeks to break down.
- Rushes thrive in poorly drained areas (with a water table near the surface) which are prone to runoff to nearby water bodies.

### What to do?

- Use non-chemical control methods e.g. cutting, drainage, sward improvement.
- If spraying, target only the rush affected areas.
- If spraying, cut rushes one month before or one month after spraying to improve the effect of the spray.
- Consider weed wiping with an appropriate herbicide as a rush control option.

## REMEMBER!

- A **SINGLE** drop of pesticide lost to a water body such as a typical small stream (1 metres wide, 0.3 metres deep), for example, can be enough to breach the legal limit for pesticides in drinking water of 0.1 part per billion along 30 km of its length.
- Always read and follow the product label.
- Be aware of how near water bodies (ditches, streams, ponds, rivers, lakes, etc.), drains or wells are to where you are working.
- Find out if the treatment area is in the vicinity of a drinking water abstraction point or well.

**For further information** on related topics such as container storage, triple rinsing, Integrated Pest Management or a list of approved Pesticide Advisors visit:

**www.pcs.agriculture.gov.ie, www.teagasc.ie** or **www.epa.ie**


# Protecting Drinking Water from Pesticides

# Herbicide Use in Grassland

Promoting best practice in the use of pesticides to protect drinking water

## Herbicides* and drinking water

Drinking water monitoring results for Ireland show that a number of herbicides commonly used on grassland, such as MCPA, are being detected more frequently in recent years. Careless storage, handling or use of pesticides can easily cause breaches of the legal limit for pesticides in drinking water.

**It is essential to take great care and follow best practice procedures when using any pesticide and particularly so in the case of herbicides used on grassland.**

## How do herbicides get into drinking water?

Herbicides can enter water bodies from:

- **Point sources** (mainly in the farm or farmyard) – leaks from storage areas; spills or drips from handling operations such as mixing, filling and washing; or
- **Diffuse sources** (mainly in the field) – inputs arising during or after application from processes such as spray drift, runoff and drainage.

## Weeds in Grassland

Low levels of weeds do not affect grass production and are beneficial to the environment.

A vigorously growing grass sward can out-compete weeds and prevent new weeds growing.

Don't underestimate basic grassland husbandry such as lime, fertiliser, topping or reseeding as weed control measures.

Spraying at the right time doubles the effect of the spray.

## DOs when using herbicides:

- **DO** read the product label instructions carefully and plan the treatment in advance, taking care to ensure strict compliance with the specified conditions of use. Follow all health and safety instructions.
- **DO** inform yourself of the location of all nearby water bodies (ditches, streams, ponds, rivers, lakes and springs).
- **DO** find out if any groundwater body or surface water body in your locality is used as a drinking water source and, if so, the location of the nearest abstraction point. Ensure compliance with the safeguard (no-use) zones around drinking water abstraction points.
- **DO** ensure that pesticide products are stored in a secure, dry area which cannot result in accidental leaks or spills. Empty, triple-rinsed containers should be disposed of in accordance with the Good Practice Guide for Empty Pesticide Containers.
- **DO** ensure that application equipment is properly calibrated and in good working order.
- **DO** take every precaution during mixing and preparation to avoid spills and drips. Minimise water volumes (rain and washings) on the handling area.
- **DO** consider using drift-reducing nozzles if spraying. Keep the spray boom as low as possible to the ground and use the coarsest appropriate spray quality.
- **DO** clean and wash down the sprayer at the end of the day, preferably in the field and well away from water bodies or open drains. Tank washings should be sprayed onto the previously sprayed area, on a section far away from any water body, observing the maximum dose for that area.

** Herbicides are one of a number of pest control agents encompassed by the broad term 'pesticides'. The term also covers various other agents such as fungicides, insecticides, seed dressings and rodenticides.*

## DON'Ts when using herbicides:

- **DON'T** perform handling operations (filling, mixing or washing the sprayer) near water bodies, open drains or well heads. Maintain a distance of at least 10 metres and preferably 50 metres, where possible.
- **DON'T** fill the sprayer directly from a water body.
- **DON'T** spray if the grass is wet or if heavy rain is forecast within 48 hours after application. DON'T spray during windy conditions.
- **DON'T** spray near open drains, wells or springs.
- **DON'T** spray on waterlogged or poorly draining soils that slope steeply towards a water body, drain, well or on any other vulnerable area that leads directly to water.
- **DON'T** discard sprayer washings down a drain or onto an area from which they can readily enter a water body.

## ! Safeguard Zones !

Statutory 'no-use' zones (called safeguard zones) apply around drinking water abstraction points, ranging from 5 metres to 200 metres depending on the size of the supply. Your Local Authority or The National Federation of Group Water Schemes can advise on this.


**S**urface water

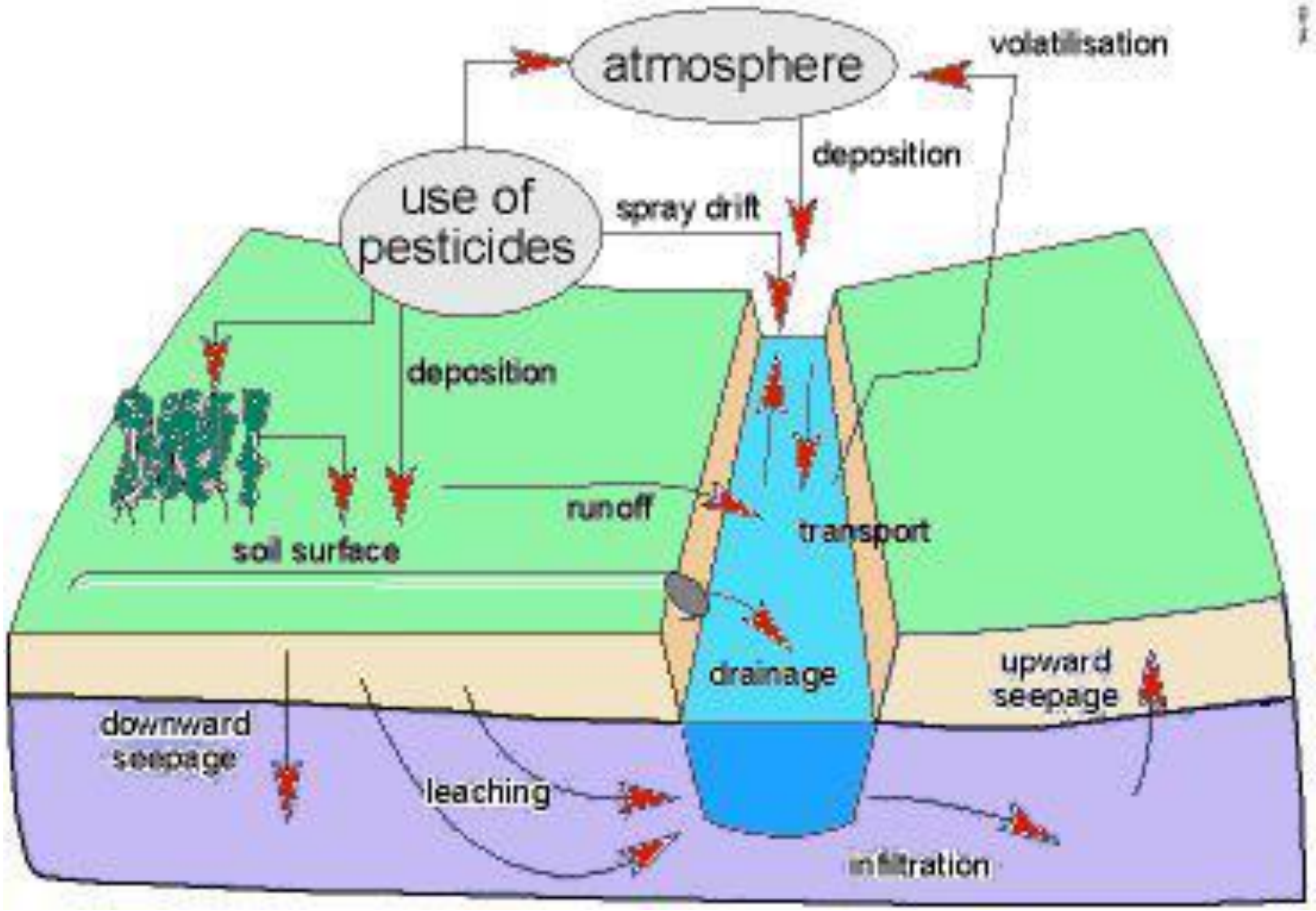
**T**ool for

**R**educing the

**I**mpact of

**P**esticides on the

**E**nvironment


atmosphere
volatilisation
deposition
use of pesticides
spray drift
deposition
runoff
soil surface
transport
drainage
upward seepage
downward seepage
leaching
infiltration

# Buffer zones

- Buffer zones can be either areas adjacent to water (mainly) or hedgerows which cannot receive direct application of a particular pesticide(s). In recent years, the majority of products being authorised in the EU require an unsprayed area to be maintained adjacent to rivers, lakes and drains etc… The extent and size of these buffer zones vary considerably and can range from 1m to 70m. In all instances PPPs must not be applied within 1m of any surface water body, i.e., a minimum buffer zone of 1m applies to all PPPs regardless of rate of application, type of nozzles used and whether water is present in the surface water body. **(A surface water-body is a feature which is capable of holding water permanently or at any stage during the year.)**

# Low Drift Nozzles

- Low drift nozzles are designed to produce larger spray droplets than ordinary nozzles. The production of these larger droplets is achieved by either incorporating air into the droplets or by using a pressure reducing chamber inside the nozzle itself. These larger droplets are heavier and are less prone to drift and so reduce the loss of valuable PPP from the target area.

# Buffer zone reduction by using drift reducing nozzles and reducing product application rate

- It is frequently the case that product authorisations require a buffer zone of greater than 1m to be left between the edge of the application area of the crop and the surface water body (river, lake, drain, ditch, gripe, sheugh etc.). Where a product authorisation attracts such a buffer zone, professional users/farmers are required to respect this buffer zone in its entirety.
- When using the STRIPE there are only three instances where this is not necessarily the case.
- 1. When using DAFM approved drift reducing nozzles
- 2. When using reduced application rates
- 3. When using DAFM approved drift reducing nozzles and reduced application rates

# Example

- **Product label requires the professional user/farmer to leave an unsprayed buffer zone of 10m. If the farmer is using drift reducing nozzles it may be possible to reduce this 10m buffer zone.**
- e.g.Professional user/farmer wishes to use **“Product XYZ” and the label indicates that a 10m buffer zone is required. However, the professional user/farmer is using “Super Low Drift” nozzles on his sprayer, capable of reducing the drift by 90%, consequently by following the STRIPE instructions, the professional user/farmer is able to reduce this buffer zone width down to 1m or 2m.**
- **Case**

# Safeguard Zones

- It should also be noted that statutory ‘no-use’ zones (called safeguard zones) apply around all drinking water abstraction points (public and private boreholes and rivers/lakes), ranging

  from 5 metres to 200 metres depending on the size and extent of the supply. Each Local Authority or The National Federation of Group Water Schemes can advise on precise locations of such abstraction points.

# Example : NU 46 Buffer zone

- Contained in the Additional Safety Phrases

- Do not allow direct spray from horizontal boom sprayers to fall within 5 m of the top of the bank of a static or flowing water-body or within 1 m of the top of a ditch which is dry at the time of application.

# NU46

A soluble concentrate containing 500 g/L (44.25% w/w) MCPA as the dimethylamine salt. A selective herbicide for the control of many broad-leaved weeds in cereals and established grassland.

**FOR USE ONLY AS AN AGRICULTURAL HERBICIDE**

| Crops | Maximum individual dose | Maximum total dose | Latest timing |
|---|---|---|---|
| Winter Wheat | 3.3 L/ha | 3.3 L product/ha/crop | Before 3rd node detectable (GS 33) |
| Spring wheat, winter and spring barley, rye and oats | 3.3 L/ha | 3.3 L product/ha/crop | Before 1st node detectable (GS 31) |
| Undersown cereals (listed above) With red clover | 1.4 L/ha | 1.4 L product/ha/crop | Before 1st node detectable (GS 31) |
| Undersown cereals (listed above) With grass only | 2.7 L/ha | 2.7 L product/ha/crop | Before 1st node detectable (GS 31) |
| Established Grassland | 3.3 L/ha | 6.6 L product/ha/year | N/A |
| Grass seed crop | 3.2 L/ha | 3.2 L product/ha/year | 5 weeks before heading |

***Other specific restrictions:***
Do not apply by hand-held equipment.
This product must not be applied before the end of February in the year of harvest.
Do not apply in volumes less than 200 litres of water per hectare.

**Additional Safety Phrases:**

- Extreme care must be taken to avoid spray drift onto non-crop plants outside the target area.
- Livestock must be kept out of treated areas until poisonous weeds such as ragwort have died and become unpalatable.
- 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 5m of the top of the bank of a static or flowing waterbody or within 1m of the top of a ditch which is dry at the time of application
- Direct spray away from water

**Nufarm UK Limited, Wyke Lane, Wyke, Bradford, West Yorkshire BD12 9EJ. UK.**
**Technical helpline telephone number:**
**+44 (0)1274 694714.**
**24-hour emergency telephone number:**
**+44 (0)1274 696603.**

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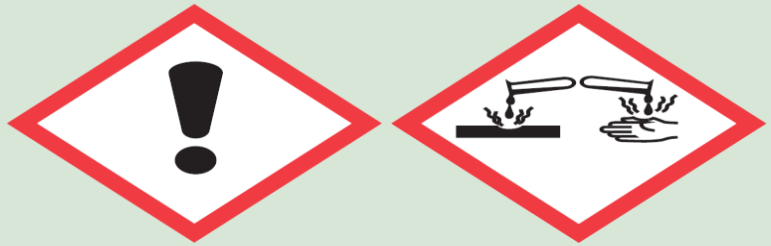
**Safety Information**



## DANGER

**Harmful if swallowed.**
**Causes serious eye damage.**
Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
IF IN EYES: Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do so. Continue rinsing.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
Rinse mouth.
Dispose of contents/container to a licensed waste disposal contractor or collection site except for empty triple rinsed containers which can be disposed of as non-hazardous waste.

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

**PCS No. 03504**

**10 Litres e**

**PROTECT FROM FROST.**
**FOR PROFESSIONAL USE ONLY.**

Nufarm

PEEL BACK FOR DIRECTIONS FOR USE LEAFLET

# Key Points

- Only apply when conditions are right.
- Read label – apply at the recommended rate.
- Abide by 5 metre Buffer Zone.