

# Crop protection for arable and livestock farms



CAMPAIGN  
FOR THE FARMED  
ENVIRONMENT.





# SOILS

Well managed soils can help reduce the risk of pesticides reaching water from soil erosion, surface run-off and drain flow. The ideal conditions for herbicide application are a dry soil profile with a moist soil surface. Best practice advice on pesticide applications for different types of soil moisture content is as follows:

## DRY CRACKED SOILS

Avoid applications of pesticides to soils that are dry and cracked as water carrying pesticides can move into the drains. Cultivations will help to break up the large cracks and reduce the direct passage of water carrying pesticides into drains. If soils are cracked wait until they have re-hydrated and cracks have sealed before applying pesticides.

## DRY SOILS

Risk of pesticide movement through soils that are dry but not cracked is lower. If soils are very light and heavy rain is expected delay application until the rain has passed.

## SATURATED SOILS

Saturated soils are more likely to have run-off problems, especially along tramlines, resulting in the movement of pesticides off the field, while small amounts of rain on saturated soils will result in losses through field drains. Wait until drains have stopped flowing before applying pesticides.

# TRAMLINES

On an arable farm, the shape of wheel imprints in tramlines can channel rain water. If tramlines become compacted, this can create pathways for water run-off. Run-off carries soil, nutrients and pollutants to the edge of the field and, potentially, to waterways. Research has shown that 80% of run-off in arable fields on sloping land comes from compacted tramlines.

Options to reduce the impact of tramlines include:

- Try to create tramlines that follow contours
- Loosening tramlines
- Sowing tramlines
- Delaying drilling
- Using GPS and not establishing tramlines
- Sporadic tramlining
- Use of ultra-low ground pressure tyres.

Use a combination of these techniques, together with 6 metre grass buffers, to minimise water and soil run-off.

# WILDLIFE

Choosing the right measures, putting them in the right place, and managing them in the right way will make all the difference to your farm environment. The general principles given here should be considered in conjunction with local priorities for soil and water protection, and wildlife conservation. This approach complements best practice in soil, crop, fertiliser and pesticide management.

Clear guidance can be found in the CFE arable and grassland guides.

For arable or livestock businesses alike, it is important to create a balance of environmental measures that contribute to each of the steps outlined in the CFE guides to achieve improved environmental benefits.

See the CFE guides: 'Conservation management advice for your arable business' and 'Conservation management advice for your livestock business'.

# POLLINATORS AND BEES

Finding food and a home (sites for nesting and hibernation) is a challenge that faces all pollinators. Farming can provide these resources by taking-up relevant voluntary measures under the CFE and ensuring best practice is followed whenever insecticides are used.

By encouraging pollinators, farmers and growers can also improve crop productivity and quality.

Pollen and nectar are a vital part of the diet for bees, various flies and midges, beetles, wasps, bugs, butterflies and moths.

Farmers can encourage pollinators by providing: summer food; food in spring and autumn; a home.

See the CFE guide: 'Pollinator management for your farm business'

Pollinators are at particular risk when insecticides are used in, or close to, flowering crops or wild flowers. You should make sure local beekeepers are informed before you plan to use a pesticide at a time of year when bees are at risk or whenever a pesticide labelled as 'harmful,' or 'dangerous' or 'high risk' to bees is intended to be used. If possible spray in the evening, early morning or on a cloudy day when bees are not flying. Be aware that bumblebees might be active later in the evening than honeybees. For more advice refer to the VI leaflet 'Insecticides: Best Practice advice for farmers and operators'.

## The Campaign for the Farmed Environment (CFE) is encouraging farmers and land managers across England to protect and enhance the environmental value of farmland, through environmental measures that sit alongside productive agriculture.

CFE helps farmers and land managers choose the right environmental measures, put them in the right place and manage them in the right way – to protect soil and water, and benefit wildlife.

CFE is a partnership approach, supported by many organisations engaged in agriculture and the environment. All recognise the importance of managing the farmed environment. By working with CFE, a number of voluntary industry led initiatives (Greenhouse Gas Action Plan, Tried & Tested and The Voluntary Initiative (VI)) demonstrate how the industry collectively takes responsibility for environmental issues.

Modern farming needs to control weeds, pests and diseases to avoid yield loss, reduced quality and spoilage in store, through a range of techniques such as crop rotation, cultivation, varietal choice as well as biological and chemical controls. Usually these techniques are integrated in the farming system and supported by expert advice from a BASIS-registered agronomist.

Pesticides are an important element. Their potential impact on operators, consumers, wildlife and the wider environment means they are highly regulated and use on farm requires the utmost diligence.

Effective and integrated crop protection management using a range of techniques helps control insect pests, weeds and diseases while minimising environmental impacts.



Good crop husbandry and a healthy crop can ensure that pesticide use is minimised. A soil with good structure, organic matter content and diverse soil biology will help ensure a well-rooted crop and good yields. It will also reduce the risk of run-off and erosion, help protect the environment, provide resilience to weather effects, such as floods and drought as well as helping to reduce inputs by ensuring nutrients and water are utilised correctly.

### **See the CFE guide: 'Soil management for your farm business'**

Good crop nutrition, based on soil testing, helps ensure that crops are competitive, able to cope with low levels of pest pressure and respond effectively to any pesticide inputs.

### **See the CFE guide: 'Nutrient management for your farm business'**

## WHAT IS A PESTICIDE?

**'Pesticide' is a very broad definition which includes herbicides/weed killers, fungicides, insecticides, molluscicides, growth regulators and soil sterilants among others. Under more recent UK and European legislation pesticides are now also called plant protection products. Every pesticide used in the UK has to hold an existing approval and will have a MAPP number demonstrating its approval. As approvals change regularly, check with the supplier when buying whether a product has a use up restriction. Stores should be checked at least annually to ensure stored products are still approved. This can be done at [www.pesticides.gov.uk](http://www.pesticides.gov.uk).**

**When using a pesticide, it is important to follow the label recommendations, especially operator safety and environmental protection measures, target crops and maximum dose rates.**

## PROFESSIONAL PESTICIDES

Most pesticides used in agriculture are 'professional products' ('amateur products' are those found in garden centres). Professional products require a high standard of expertise, which means users are expected to take advice from a BASIS-registered agronomist, operators are trained and application equipment is well maintained, calibrated and regularly tested. 'From 26 Nov 2015 operators using a professional pesticide product must have a 'specified certificate' (a list of specified certificates which are recognised as valid can be found at [www.pesticides.gov.uk](http://www.pesticides.gov.uk).) and mandatory testing is required for mounted sprayers. High storage standards are needed and spray records need to be kept for 3/5 years. Best practice advice is available in the Code of Practice for Using Plant Protection Products and from The Voluntary Initiative (VI).

## RODENTICIDES

Rodenticides are classed as 'biocides' under similar but different regulations; in all respects their use requires the same high professional standards. New qualifications for farmers and those working in the pest control industry are being developed. More information on these qualifications and advice on rodenticide use are available from the Campaign for Responsible Rodenticide Use (CRRU).



# LEGISLATION AND CROSS COMPLIANCE

All countries in the European Union are implementing the Sustainable Use of Pesticides Directive which sets minimum standards for the safe use of professional plant protection products (pesticides). For more details see [www.cfeonline.org.uk/campaign-themes/crop-protection](http://www.cfeonline.org.uk/campaign-themes/crop-protection) or [www.voluntaryinitiative.org.uk](http://www.voluntaryinitiative.org.uk)

**Three new measures that directly affect farmers:**

## **1. Demonstrate IPM practices are being followed from 2014**

This can be done by completing an Integrated Pest Management plan. Links to a standard plan can be found at [www.voluntaryinitiative.org.uk](http://www.voluntaryinitiative.org.uk). Completing a plan will help make the most of IPM and shows different control options have been considered. The plan may also be useful evidence for farm assurance schemes and cross compliance inspections.

## **2. Ensure operators hold a Recognised Certificate from 26 Nov 2015**

To meet the requirements of the Directive, operators should hold existing certificates (e.g. PA1+PA2), or a new certificate that can be taken by holders of Grandfather Rights, available from City & Guilds at [www.nptc.org.uk](http://www.nptc.org.uk).

Professional pesticide products must not be used after 26th Nov 2015 unless the operator who is applying that product has a Recognised Certificate.

## **3. From 26 Nov 2016 application equipment must hold a valid NSTS certificate when it is next used**

Find an approved National Sprayer Testing Scheme examiner at [www.nsts.org.uk/](http://www.nsts.org.uk/) Subsequent testing for boom sprayers over 3m will be required every five years from 26th Nov 2016; and every three years from 26th November 2020. Granule applicators and boom sprayers less than 3m wide need to be tested every six years. Handheld equipment does not need to be tested but should be regularly checked against a checklist and a record kept.

## **Other options**

**1.** Use a contractor or neighbouring farmer who holds an appropriate Recognised Certificate and has a tested sprayer. (It is your responsibility to check all the legal requirements are met). A BASIS Registered Crop Protection adviser may be able to help with IPM plans.

**2.** Some amateur pesticides, available from garden centres, country and DIY stores, may be used without a recognised operator



certificate. Check the label first; appropriate training and a CoSHH assessment is still required when these pesticides are used at work.

## **Cross compliance and Farm Assurance**

As these legal deadlines pass, cross compliance and farm assurance inspectors will expect to see all farmers using professional pesticides meeting these requirements. However it is currently understood that specific written guidance for RPA inspections will not be introduced until 2018. Other legal requirements such as only using approved pesticides, keeping application records and good storage practice are already legal requirements.

# GRASS BUFFER STRIPS

**Some pesticides used on winter oilseed rape and winter beans reach water as a result of soil erosion and surface run-off, poor application practice, as well as drain flow. Grass buffer strips can reduce run-off losses by at least half. Grass buffer strips should be a minimum of 6m wide measured from the top of the watercourse bank. The wider the better. Fields with slopes of more than 5% or with long runs to the field edge may need buffers of up to 20m or more.**

## **Aquatic Buffers**

Aquatic buffers are part of the approved product label and are designed to protect aquatic life by keeping pesticides away from surface water. Depending on the type of aquatic buffer, it may be possible to reduce the buffer zone according to local circumstances

and the type of application equipment. The continuing approval of some products depends on farmers and growers fully complying with the aquatic buffer zones on the label.

## **The LERAP (Local Environmental Risk Assessment for Pesticides) scheme is the most widely known scheme:**

- Category A products require a minimum 5m buffer zone adjacent to water.
- Category B products may have the 5m buffer zone reduced subject to the use of low drift nozzles, lower dose rates and watercourse width.

Following a review of the LERAP scheme, other aquatic buffer systems may be introduced. Check [www.voluntaryinitiative.org.uk](http://www.voluntaryinitiative.org.uk) for the latest information.



# WATER

Pesticides reaching water can affect both aquatic life and drinking water quality. Large areas of farmed land in England are drinking water sources and tiny quantities of pesticides accidentally reaching water can have a huge impact on water quality (requiring significant expenditure from water companies to clean water to meet legal drinking water standards). Therefore, farmers, as good citizens, must make every effort to ensure pesticides do not reach water.

Pesticide losses come from both arable and grassland farms with the farmyard being thought to account for 40% of losses (or more in grassland areas) and field losses through drain flow and run-off 60% (or more in arable areas). Ensure that best practice is followed in both the farmyard and the field. Pesticide specific advice is available in Water Protection Advice Sheets (WPAS).

## FARMYARD - ORGANISE FILLING AND CLEANING TO PREVENT POINT SOURCE POLLUTION

- Choose formulations and packaging designs that minimise the risk of spills and splashes and ease container cleaning and disposal.
- Remember not all pesticides are applied as sprays. In particular, take great care when applying slug pellets, nematicides and treated seed.
- Check application equipment is in good working order. Use the National Sprayer Testing Scheme (NSTS) and operator checklist.
- Mixing and handling is best done on an impermeable surface where drainage is collected and drained to grass/soil (apply to vegetated land in line with a groundwater permit) or via a lined biobed. (Subject to agreement from the Environment Agency).
- Do not use the field entrance as a filling point if it is adjacent to or could cause run off into a watercourse. For example, a road, track or other feature, which could channel run-off water.
- Use a bowser or separate storage tank and ensure the water supply is connected via a double check valve.
- Never take water direct from the mains, troughs, watercourses or ponds.
- Never leave application equipment unattended whilst filling.
- Check for drips and leaks before leaving the mixing area.
- Fill using the induction bowl or closed transfer system where available.
- Pressure or triple wash containers and drain into the induction bowl. Rinse seals and lids over the induction bowl. Keep any cardboard clean.
- Store empty containers safely and upright after use. Follow disposal contractor's advice on segregating clean packaging material and ensure all packaging materials including seals and lids are correctly disposed of/recycled.

## FIELD - APPLY CAREFULLY TO PROTECT WATER

- Establish at least a 6m grass buffer strip or 5m no-spray zone adjacent to any watercourse (see the Grass Buffer Strips box)
- Do not spray if ground is waterlogged or frozen.
- Do not apply pesticides if heavy rain is expected within 48 hours of application.
- Avoid conditions where spray drift can occur - use nozzles and a spray quality which reduce drift.
- Do not overspray buffer zones & watercourses.
- Spray headlands last to avoid driving over sprayed area and picking up mud and pesticides on tyres.
- Spray tank washings on to the crop or target area.
- Wash the outside of the sprayer before leaving the field.
- Clean mud from tyres before leaving the field, keep tyres as mud-free as possible, as mud on tyres can carry pesticides out of the field.

### Remember

- Clear up all spills, no matter how small, immediately.
- Never wash any spray or spills into farm
- Remember prompt action can stop a serious incident.

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- Ensure all cleaning activities take place away from watercourses
- At the end of the day park the sprayer under cover

## Working in partnership

Encouraging farmers and land managers to protect and enhance the environmental value of farmland alongside productive agriculture. Protecting wildlife, protecting natural resources, enhancing biodiversity

Campaign for the Farmed Environment partners – Agriculture & Horticulture Development Board, Agricultural Industries Confederation, Association of Independent Crop Consultants, Central Association of Agricultural Valuers, Country Land and Business Association, Environment Agency, Game and Wildlife Conservation Trust, Linking Environment And Farming, Natural England, National Farmers Union, RSPB, The Wildlife Trusts, Water UK – working in partnership with Defra.

Web: [www.cfeonline.org.uk](http://www.cfeonline.org.uk)

Twitter: @cfeonline

This document was developed in partnership with the Voluntary Initiative



The Voluntary Initiative (VI) promotes responsible pesticide use by encouraging operator training through NRoSO, sprayer testing via NSTS and careful management of pesticides using an integrated approach supported by BASIS registered advice.

[www.voluntaryinitiative.org.uk](http://www.voluntaryinitiative.org.uk)



Tried & Tested, (created by the industry for the industry), provides tools and resources designed to assist farmers and their advisers in improving farm nutrient management in an environmentally friendly, cost effective and practical way.

[www.nutrientmanagement.org](http://www.nutrientmanagement.org)



The industry-wide Greenhouse Gas Action Plan (GHGAP) for agriculture focuses on improving resource use efficiency in order to enhance business performance whilst reducing GHG emissions from farming.

[www.cfeonline.org.uk/home/about-us/greenhouse-gas-action-plan/](http://www.cfeonline.org.uk/home/about-us/greenhouse-gas-action-plan/)

## CAMPAIGN FOR THE FARMED ENVIRONMENT®



Many of the measures in this guide will provide significant benefits for farm wildlife, as well as protecting soil and water. Further advice is available in other CFE guides. These are available on the CFE website or from your local CFE coordinator and include:

- **Conservation management advice for your arable business**
- **Conservation management advice for your livestock business**
- **Nutrient management for your farm business**
- **Pollinator management for your farm business**
- **Soil management for your farm business**

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