Crop Protection Association

NFU

CLA

NFUScotland

A.E.A. ESTD. 1875

NMC

WATER UK

UKASTA A FORCE IN FOOD AND FARMING

Ulster Farmers' Union – The Land First

LEAF LINKING ENVIRONMENT AND FARMING Integrated Farm Management

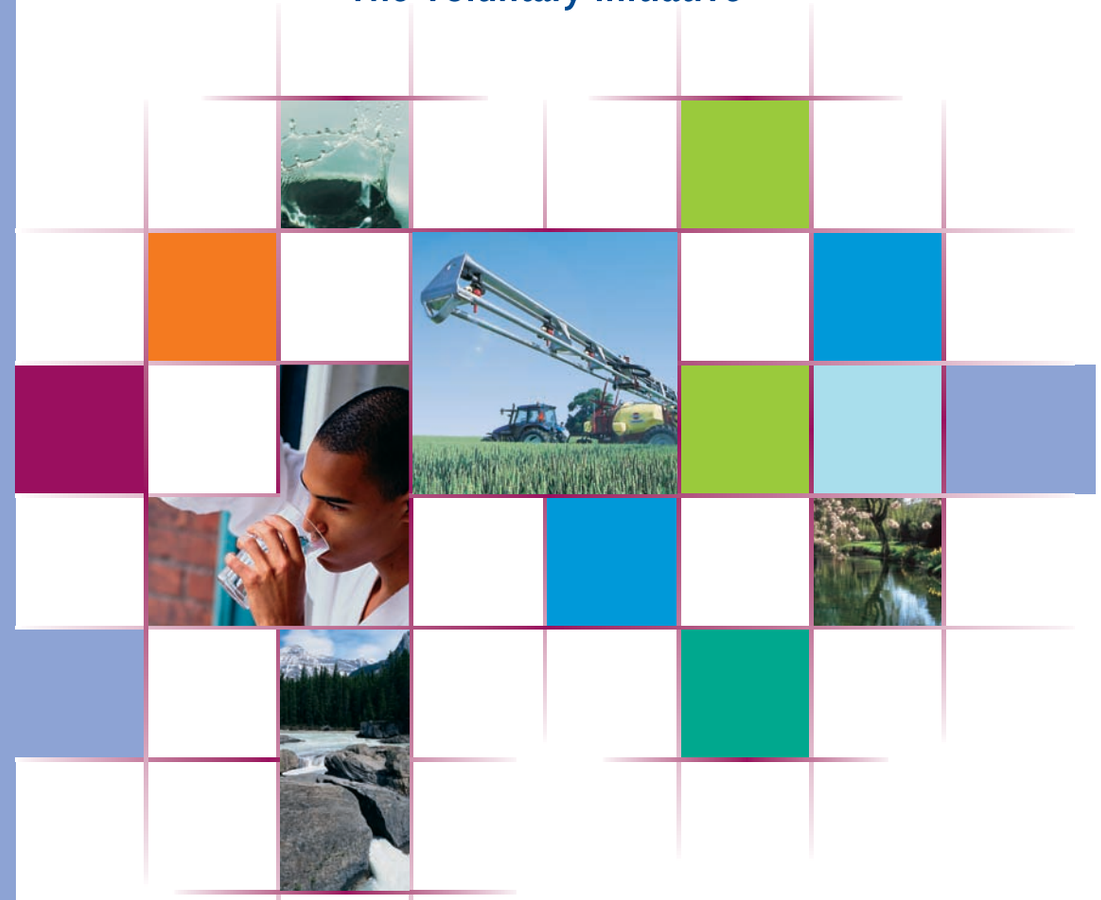
Environment Agencies 24 hour Emergency Hotline
for England, Wales, Scotland and Northern Ireland:

0800 80 70 60

The Voluntary Initiative is a programme of measures, agreed by Government, to minimise the environmental impacts of pesticides.

Printed April 2002

The Voluntary Initiative



every **drop** counts:
keeping **water** clean

practical advice for pesticide users

Crop Protection Association

NFU

CLA

NFUScotland

NMC

A.E.A. ESTD. 1875

UKASTA A FORCE IN FOOD AND FARMING

WATER UK

ULSTER FARMERS' UNION LAND FIRST

LEAF LINKING ENVIRONMENT AND FARMING *Integrated Farm Management*

This leaflet has been produced by the Crop Protection Association as part of the Voluntary Initiative. If followed, the practical guidance in it will help to reduce water pollution. For further advice consult your agronomist or contact the CPA at 4 Lincoln Court, Lincoln Road, Peterborough PE1 2RP, telephone 01733 349225 or fax 01733 562523.

the **eight essentials** to protect water

1 Planning: Know where the water is on your farm and where it drains to;

2 Consider whether using a pesticide is necessary in the first place;

3 Talk to your agronomist about the products you use, their risk to water and how to keep them out of water;

4 Clean up any spills or splashes immediately;

5 Pick your filling site with care – 40% of water contamination by pesticides is caused by run-off from farm yards;

6 Maintain your sprayer properly; stop leaks and drips;

7 When spraying, keep well away from watercourses, use a bufferstrip and prevent drift;

8 Clean everything carefully afterwards and dispose of wastes safely and legally.

what can **you** do**?**

- Read through this booklet and check that you are following best practice before, during and after spraying;
- Think about water protection throughout the whole operation;
- Look for new ways of doing things and remember the most practical solutions usually come from the people who do the job, such as putting a tray under the induction bowl to catch splashes and drips;
- Finally, if you have an idea, let the Crop Protection Association know so that we can spread the word.

What is a pesticide?

'Pesticide' is a very broad definition within the Food and Environment Protection Act 1985 which includes herbicides, fungicides, insecticides, growth regulators, soil sterilants, rodenticides and wood preservatives among others.

every drop counts

When it comes to water protection, splashes and drips from farmyard operations can have a bigger effect than you might think.

The Cherwell study in Oxfordshire found that 40% of surface-water contamination can come from farmyard operations. Sprayer filling, poor management of empty packages and machinery maintenance were the major culprits. Why should this be the case?

To answer this question, it is important to understand that each drop of undiluted product can contain up to half a gram of active ingredient.

That might sound like a very small amount – and it is – but because the standard specified by the European Union (EU) for the amount of pesticide in water is almost zero – just 0.1 parts per billion (0.1ppb) or one part in 10,000 million in our drinking water – even such small amounts can be significant.

To put the standard into context, it is the equivalent of one gram of concentrate in 10 million litres of water. Look at it another way as little as 500ml of concentrate could be enough to cause the daily supply to a city the size of London to exceed the permitted levels.

Why worry?

Of course the water companies can, and do, remove pesticides from our drinking water so that it meets this strict EU and national standard. Levels in rivers can be many times this standard, though there is no evidence to suggest that higher residues are bad for people. So why should you worry?

- To begin, not all pesticides are alike. Some are toxic to fish and to other aquatic life, even when diluted to below the drinking water standard. Others are extremely mobile and so can find their way more easily into rivers and streams;
- Secondly, whilst pesticides are undoubtedly valuable tools in cost-effective food production, consumers have made it clear that they do not want them in their water, even though the amounts involved may be harmless.
- Thirdly, to meet the very tough European quality standards for drinking water, the water companies are obliged to spend many millions of pounds annually to remove pesticides from raw water, a cost passed on to the consumer;
- Finally the environment agencies already have extensive powers to prosecute those who pollute watercourses, lakes, lochs, canals, coastal waters or groundwater, whether deliberately or accidentally.

Doing nothing is not an option. It will result in further restrictions and very likely the loss of some popular products. The prospect of a tax on pesticides to focus farmers' attention on water pollution is very real.

before you spray

Well before the sprayer comes out of the shed, there are a number of key actions to take:

- Think about the water on your farm and where it goes to. Map out your environmentally vulnerable areas, such as watercourses and drainage systems;
- Check with the relevant environment agency or water company for information on source protection and groundwater vulnerability maps. Find out what local problems exist;
- Plan ahead so that you do not use pesticides unnecessarily. Look at the big picture using rotations, different varieties of crops and other integrated techniques to optimise their use;
- Have an emergency or contingency plan to deal with accidents, spills and drips. Make sure everyone involved knows what's in the plan and how to implement it. Have suitable equipment available, such as absorbent material to soak up any spills or leaks;
- Make sure the sprayer has been properly maintained and calibrated; check all nozzles and pipe work for drips and leaks. Replace if necessary;
- Choose formulations that minimise spills such as water-soluble bags or tablets;
- Consider upgrading to a direct-injection sprayer when your sprayer is due to be replaced so that only clean water is carried in the tank.

Store products safely

- Site the store away from watercourses, ponds, ditches and drains;
- Ensure there is no risk of flooding;
- Make sure the store has an impermeable floor and is bunded to contain spills or run-off from a fire;
- Check the store contents regularly for leaking containers and for products with lapsed approval. If you do find old leaking or unapproved product in stock, you must dispose of it via a reputable waste disposal contractor;
- BASIS can provide further advice on best practice for pesticide storage.

No-spray zones and LERAPs

No-spray buffer strips alongside watercourses are a good idea even if products do not require one. They protect the water from accidental contamination and also provide valuable wildlife habitat;

- Despite the fact that farm tracks are not vegetated, they still separate spraying operations from watercourses;
- Tall, tussocky grasses make a much better buffer for wildlife than a sterile or carefully mown strip – trim occasionally in late autumn but resist the temptation to be too neat and tidy;
- Where possible, make use of Countryside Stewardship, Rural Stewardship Scheme (in Scotland) or Countryside Management Scheme (in Northern Ireland) to introduce two - or six-metre strips by water or use set-aside which is now down to a minimum width of 10 metres. In Northern Ireland the strips should be 5m wide.

If the product calls for a buffer zone, either apply it in full or do a LERAP (Local Environmental Risk Assessment for Pesticides) if you want to reduce it.

The minimum width of the buffer zone will depend on whether you are using a horizontal boom sprayer in arable crops or a broadcast air-assisted sprayer in orchards.

Both assessment schemes allow use of nozzles which have star-ratings according to their performance – the higher the star-rating, the lower the risk of spray-drift occurring and the more you are able to reduce the buffer zone.

However, various other factors differ for the two schemes and for more detailed advice, go to the LERAP section of the 'Farmers and Growers' page on the Pesticide Safety Directorate's web site at www.pesticides.gov.uk. Here you can download the two LERAP guidance booklets, the one for horizontal boom sprayers (PB 5621, 2002 edition) and the one for broadcast air-assisted equipment (PB6533, 2002 edition). A full list of products and their LERAP status is on the same web site. Alternatively contact your crop protection adviser.

The statutory buffer zones may not be adequate in all cases for protection of particularly sensitive habitats such as freshwater Sites of Special Scientific Interest (SSSI) or Areas of Special Scientific Interest (ASSIs) in Northern Ireland. If you are in doubt about protection of a neighbouring SSSI, consult English Nature, Countryside Council for Wales, Scottish Natural Heritage or the Environment and Heritage Service in Northern Ireland.

Don't leave it to others

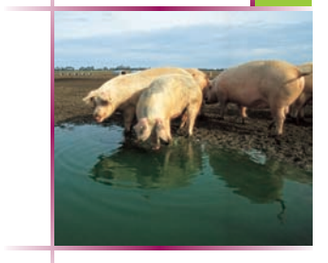
Remember that many farms in the neighbourhood, and therefore in the same water catchment area, are likely to be using similar products at the same time. This increases the risk to the water environment more than if products were used over a much longer time-frame.

Don't leave it to others. If everyone stops just a few grams from getting into water, there will be an improvement overall and the threat of tough regulations and taxes might recede.

when mixing **and** filling

Mixing and filling are crucial operations since it is then that most spills and splashes of concentrate are likely to occur, so:

- Take great care when mixing and filling as spills and splashes on the yard can present a major risk of pollution due to run-off;
- Avoid filling sprayers in areas anywhere near drains where drainage water could contaminate rivers, streams or ditches. Protect drains if your only option is to fill the sprayer close by, for example by impermeable kerbing or bunding;
- If possible, set aside a special area for mixing where spills cannot enter watercourses or drains because spills that are washed into yard drains can reach ground or surface water directly;
- Providing you are not in an area vulnerable to groundwater pollution, fill the sprayer on an area of grass and soil, (strengthened with 4-10cm of medium-sized gravel, hardcore road planings to take frequent traffic), rather than on concrete. Make sure the area is not underlain by drains;
- Never handle open pesticide containers on an unsteady platform;
- Always use closed-transfer or induction systems where fitted (they can be retro-fitted to the sprayer);
- Consider filling the sprayer in the field using a water bowser although, of course, make sure you are well away from watercourses and ponds;
- Never take water directly or indirectly from a stream or other water course;
- Do not fill the tank direct from a domestic water supply;
- Fit hose connections with a siphon-break device so that spray is not back-siphoned into water supplies;
- Do everything you can to prevent glugging; even very tiny splashes can contaminate water. For example, put a tray beneath the induction hopper to catch any small spills and splashes. On the last fill, wash the tray into the induction bowl;



- Rinse seals and lids and put them back into the cardboard box ready for disposal and not on to the ground;
- Clean each empty container well for at least 30 seconds, either using the rinsing device on the sprayer or by manual triple-rinsing. Drain any rinsate into the induction bowl;
- Do not put rinsed containers upside down in their cardboard boxes; reseal them and store them upright;
- Do not wash spills down drains or leave them to dry so that rain washes them into the drains later;
- Do not over-fill the sprayer;
- Try to choose products in convenient pack sizes or formulations to reduce the need for measuring;
- Calculate the exact quantity of spray required and plan to mix slightly less than this to allow you to spray out tank-rinsings once the job is complete.

Further research on filling and mixing areas is going on; watch for new advice in the future.

Getting to the spray site

- Take care to avoid spillage during transit. Drive at a steady pace, gently accelerating and braking to prevent the contents of the spray tank slopping out;
- Make sure all valves isolating the spray tank are firmly closed;
- Ensure all covers on tanks and hoppers have been closed;
- Have a copy of the product label to hand in case of an emergency;
- If an accident does occur, take prompt action to limit the effects, advise the relevant environment agency and warn others who might be affected, such as angling and recreational interests;
- Take extra care when crossing streams and ditches. Use bridges or tunnels rather than fords.

For major spills, contain the liquid to prevent it from entering yard drains or waterways. Ring the environment agencies on their emergency hotline on freephone 0800 807060. Do **not** hose down but absorb it with fine sand or dry soil.

as you **spray**

Even though the spraying operation itself will involve diluted product, it is still essential that every care is taken to prevent drift or accidental over-spraying of water and other non-target areas such as hedges and conservation areas.

- Always follow the instructions on the product label;
- Be prepared to deal with spillages.

Preventing drift

- Check wind speed and direction to prevent drift. The safest conditions for spraying are in a light Force 2 breeze. Do not spray if the wind speed is greater than Force 4 (Force 3 for herbicides);
- Remember that, the bigger the crop, the more capable it is of taking up the spray so be aware that there is a greater drift potential in the autumn when crops are small;
- Use the correct nozzles to obtain the best spray quality for the job in hand. Avoid use of FINE sprays (unless recommended on the label) and, if conditions are marginal, use the coarsest spray recommended for the product;
- Consider using low-drift nozzles;
- Maintain a constant speed and pressure;
- Keep the boom height as low as possible – the higher the boom, the greater the risk of drift;
- When spraying next to a watercourse, work in an upstream direction and consider reducing your operating pressure. Remember that to maintain the dose you must also reduce your speed;
- Watch for changes in wind speed and direction and if necessary adapt your work plan.

In just one second, two nozzles can deliver enough pesticide to contaminate 1.5 miles of water in a good-sized brook.

No-spray zones

- If a no-spray zone or a buffer zone is specified on the label, you must leave an unsprayed strip. Its width will vary depending on the results of your LERAP (see pages 7 and 8).

Good advice is essential

Selecting the right product and applying it at the right dose and the right time requires specific expertise. It often pays to consult a suitably qualified agronomist or adviser before deciding which product, if any, to apply.

The recognised qualification for advisers is the BASIS Certificate of Competence . Many advisers now see holding the BASIS certificate as a minimum standard but, to be sure that your adviser has remained up to date, it is worth checking that they are on the BASIS Professional Register.

Other advice

- When using spray contractors, ensure they have all the necessary information relating to the site to ensure that spraying is carried out safely;
- Do not spray if heavy rain is expected, particularly if field drains are running;
- Do not apply when ground is waterlogged, heavily cracked or frozen;
- When soils are wet, spray headlands last to reduce the mud on sprayer wheels, which can be seriously contaminated with spray solution;
- Do not apply residual herbicides to steep slopes, drains or gullies;

- Do not apply pesticides over ditches or watercourses unless the product is specifically approved for use ‘in or near water’. Such products may only be used if you have specific permission from an environment agency;
- Wash gloves and spray equipment before spraying the final load and add the washings to the spray tank.

Training plays a vital role in safe use

Under the Food and Environment Protection Act 1985 (FEPA), nobody is allowed to use pesticides unless they have received adequate instruction and guidance in the safe, efficient and humane use of pesticides and are competent for the duties they are called upon to perform.

To achieve this, most users will be expected to have undergone some formal training and to have obtained a recognised Certificate of Competence relevant to the type of equipment they will be using. Regular refresher training is also strongly recommended.

Contact BASIS, NPTC or Scottish Skills Testing Service (SSTS) for further details.

after you have sprayed

Once spraying is complete there are still several major areas where care is required to safeguard water. It is in your best interests to eliminate or reduce any dilute waste pesticides. Not only could this save costs, it will also avoid the need for an authorisation under the Groundwater Regulations 1998 issued by the appropriate environment agency.

- Before leaving the last field rinse the sprayer and the boom. In-tank devices reduce the volume of tank rinsings considerably;
- Leave an area of the crop such as the headland unsprayed or under-dosed so that you can spray out the rinsings there. Alternatively you can use the tank rinsings in further batches of the same spray, making sure that the maximum concentration is not exceeded;
- Soakaways must **never** be used;
- Wash the outside of the sprayer in the field, not the yard. Remember the outside of the sprayer can be coated with as much as 10 grams of product after a few hours of work. This level will increase every time the sprayer is used if it is left uncleaned so clean it regularly;
- If tractor and sprayer wheels pick up mud, clean them immediately before leaving the treated field;
- Do not discharge the sprayer in the yard – even after rinsing, the sprayer sump can contain up to 25 grams of product;
- If at all possible, store the sprayer undercover, even overnight, so it is out of the rain; make sure any drips from the sprayer are prevented from entering any drain or contaminating water;
- Record details of the application and retain for reference.

Disposal options

- Minimise the chances of having surplus spray mix by careful calculation of the amount required. If you do have to dispose of a surplus, the options are:
  - Apply the product to another untreated crop provided the product is approved for that use and the maximum permitted dose will not be exceeded;
  - Collect the waste and use a waste disposal contractor;
  - Use effluent-treatment equipment;
  - Under the Groundwater Regulations 1998, you may be able to spray such waste on to an sacrificial area of land. However, to do so, you must have a site authorisation from the environment agencies and follow the guidelines given;
  - Dispose of empty containers as soon as you can. Use the CPA-designed incinerator to burn cleaned packs or the services of a specialist waste contractor;
  - Do not store empty packs outdoors prior to disposal.

Make a difference

- Small changes in the way you behave can make a big difference to the total amount of pesticide reaching our water, even if you only ever get the sprayer out of the shed once or twice a year. At Cherwell, a reduction in water contamination from the farmyard of almost 95% was achieved by some simple management changes.
- We are not talking expensive, complicated practices here. For example, if a nozzle drips once every five seconds you're soon totting up pesticide volumes which will break the EU limit for pesticide in water. The same goes for leaky hoses, carelessly discarded foil seals and practices like putting empty containers back into their boxes upside down thus allowing any last dregs to seep through the cardboard into the environment.

Please remember every drop of pesticide that you can keep out of water really does count.

Useful enquiry numbers

Crop Protection Association: 01733 349225

National Farmers Union: 0207 331 7200

NFU Scotland: 0131 472 4000

Ulster Farmers Union: 02890 370222

Environment Agency: 0845 9333111

Scottish Environment Protection Agency: Contact details in phone book or www.sepa.org.uk

English Nature: Contact local teams; details in phone book