

The Convention for the Protection of the Marine Environment of the North-East Atlantic (the “OSPAR Convention”) was opened for signature at the Ministerial Meeting of the former Oslo and Paris Commissions in Paris on 22 September 1992. The Convention entered into force on 25 March 1998. It has been ratified by Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland and the United Kingdom and approved by the European Union and Spain.

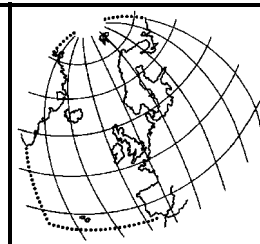
La Convention pour la protection du milieu marin de l'Atlantique du Nord-Est, dite Convention OSPAR, a été ouverte à la signature à la réunion ministérielle des anciennes Commissions d'Oslo et de Paris, à Paris le 22 septembre 1992. La Convention est entrée en vigueur le 25 mars 1998. La Convention a été ratifiée par l'Allemagne, la Belgique, le Danemark, la Finlande, la France, l'Irlande, l'Islande, le Luxembourg, la Norvège, les Pays-Bas, le Portugal, le Royaume-Uni de Grande Bretagne et d'Irlande du Nord, la Suède et la Suisse et approuvée par l'Espagne et l'Union européenne.

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OSPAR Background Document on Best Environmental Practice (BEP) for the Use of Pesticides on Amenity Areas

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BACKGROUND

The 1992 Action Plan of the Oslo and Paris Commission recognised the need to reduce pesticide inputs to the marine environment. OSPAR subsequently agreed PARCOM Recommendation 94/7 on the Elaboration of National Action Plans and Best Environmental Practice (BEP) for the Reduction of Inputs to the Environment of Pesticides from Agricultural Uses. In addition the 1996 OSPAR report on the Use of Pesticides in Agriculture, Horticulture and Forestry by Contracting Parties to the Paris Commission provided information on the agricultural uses of certain pesticides. The report noted that there were other important non-agricultural uses of pesticides which were not covered by the review. It was subsequently agreed that there should be a similar report covering the non-agricultural use of pesticides which was agreed for publication at OSPAR 1998.

Recognising the importance of the non-agricultural uses of pesticides, DIFF 1996 agreed to a proposal to develop a BEP on the use of non-agricultural pesticides which might reach the marine environment. It was agreed that the BEP should be targeted towards a specific use rather than develop an umbrella-type measure which would cover the wide range of non-agricultural uses. Contracting Parties highlighted three main areas for a targeted BEP:

- antifouling paints, and more specifically, tri-organotin (TOT) compounds;
- wood preservatives;
- use in amenity area (e.g. roads, railways and parks).

Following discussion at DIFF 1997, it was agreed that in view of the current work being undertaken by other international organisation on TOT compounds and wood preservatives, amenity use would be the most appropriate area for OSPAR to target its efforts. The recently published OSPAR report "Non-Agricultural Use of Pesticides by OSPAR Contracting Parties" (OSPAR Commission 1999) clearly indicates that residue levels from this use can exceed those that are considered to be desirable for the aquatic environment. Data from Belgium highlighted contamination of the aquatic environment due to the non-agricultural use of herbicides such as diuron and simazine. The UK identified a similar problem with the use of atrazine and simazine and, therefore, considers that action in the field of amenity pesticides is an important issue.

DEFINITION OF USE OF PESTICIDES ON AMENITY AREAS

DIFF 1998 agreed a preliminary definition of 'use on amenity areas', derived from current UK definitions, which could be used as basis for the development and consideration of a BEP for this sector. However, comments from other Contracting Parties indicate that the definition of 'use on amenity areas' can vary. For example in the UK applications of pesticides to forestry and water are not considered to be such uses whereas in the Netherlands they are. It is not therefore possible to create a BEP to cover all pesticide applications regarded as

uses on amenity areas by the different Contracting Parties. However, there is a large core of applications which may be regarded by all Contracting Parties as 'use on amenity areas'. A definition of 'use on amenity areas' covering this core area is given in Appendix 1. This will inevitably mean that certain types of application considered by some Contracting Parties as 'uses on amenity areas' may not obviously fall within the remit of the BEP. To address this it is suggested that a statement be included within any ensuing OSPAR Recommendation requiring Contracting Parties to take separate measures to ensure that Best Environmental Practice is followed for these types of applications. Such applications are often of a specialised nature, such as those made to watercourses, and may already be adequately covered by existing regulations, codes of practice and guidelines. For example use on ornamental plants in parks in Finland is strictly controlled by local health authorities and may only be carried out by trained operators.

PATTERN OF USE ON AMENITY AREAS

Information has been provided by the UK, the Netherlands and Finland on the scope and nature of the use of pesticides on amenity areas. In the UK there have been two studies of pesticide use conducted in 1989 and 1995. The studies showed that by 1995, 92% (by weight of active ingredient) of pesticides applied in this sector were herbicides. A comparison between the two studies shows a 13% increase in the weight of herbicide active ingredient used. However this may be attributable to the UK ban on non-agricultural uses of atrazine and simazine, with more applications being made of non-residual alternatives in order to achieve the same level of control. The later study also revealed an increasing reliance in this sector on a smaller number of compounds. In 1995, glyphosate and diuron products represented 69% of all herbicides used. In 1989, this level of market share was occupied by six different compounds. The 1995 study also indicated that scope existed for raising awareness of pesticide related issues amongst non-agricultural pesticide users.

Data available in the Netherlands covers the use of pesticides on amenity areas by Government institutions. As is the case in the UK, herbicides make up the vast majority of pesticides used in this sector (92% - data from 1995). Unlike the UK however, use has shown a consistent decline over recent years (73% reduction by weight of active ingredient between 1986 and 1997). Again the use of glyphosate and diuron based products represents a significant proportion of the herbicides used (58%). The decline in use may be attributable to the tighter controls imposed on Government institutions regarding the use of pesticides on amenity areas. It may also reflect changes in practice such as cessation of applying pesticides to railways via spray trains (the reduction in use on Dutch railways accounts for 22% of the total reduction). The decline may not be as strongly reflected in the more loosely controlled private sector.

Available information on the pattern of use for amenity pesticides in Finland suggests that the principle uses are in ornamental parkland and golf courses. Use of pesticides on hard surfaces such as road sides and railways are not routine and are restricted to those areas where

there is an identifiable need. In the case of railways, the need for pesticides has been significantly reduced through the employment of modern building techniques for embankments.

The 1995 UK survey indicated that hard surfaces and gravel area accounted for some 45% of use of pesticides on amenity areas. The remaining 55% were made to grassland or other vegetated surfaces. The data from the Netherlands reflects a similar pattern with 53% (64% for 1997) of the use relating to roads and pavements. No data on use is available in Finland.

POLLUTION INCIDENTS INVOLVING USE OF PESTICIDES ON AMENITY AREAS

Water can be polluted by pesticides from a variety of point and diffuse sources. Point sources of pollution include effluent from pesticide production or spillage of pesticides. Diffuse sources include spray drift or accidental over-spray of pesticides, atmospheric deposition and rainfall, leaching and surface runoff and subsurface drain flow after a rainfall event. It is this last category which is thought to be particularly important when considering use of pesticides on amenity areas. Of particular importance is the consideration of what happens to rain when it reaches the ground. In the case of hard surfaces such as roads, railways and urban surfaces, water will generally run into drains which lead it directly or indirectly (via water treatment plants) to rivers or other surface waters, or into the ground via soakaways.

Flow characteristics of impermeable hard surfaces mean water and pesticides may reach drains and water bodies, normally with little chance of sorption to organic matter or clay. The consequence of this is, although the amenity market is small, pesticides used pose a proportionately large risk to water by the manner in which they are used and the substrate on which they are used. Degradation to metabolites can occur in agricultural systems because the chemical is held in the vegetation and soil. However the application to run off time is often so short on hard surfaces that there is little opportunity for these processes to occur. Persistent metabolites and parent products are the biggest risk to water quality. Whilst there will be some partition between sediment and water, it is minimal.

Whilst use of pesticides on amenity areas represents only a small proportion of total usage (approximately 3% in the UK), the risk to the aquatic environment is greater than in other sectors due to the proportion applied to hard or gravelly surfaces. The use of amenity pesticides, and in particular diuron, has been shown to cause problems in aquatic environments in both the UK and the Netherlands. Research in Finland indicates that the use of pesticides on turf areas such as golf courses did not result in any significant pesticide residues in surface or ground water.

CONTROL OF NON-AGRICULTURAL PESTICIDES

In the UK the use of pesticides are regulated by the Control of Pesticides Regulations (as amended) and the Plant Protection Product

(Basic Conditions) Regulations 1997. These impose a general duty on those who use pesticides in the course of their work to ensure that they have received adequate instruction, training and guidance in the safe, efficient and humane use of pesticides and are competent for the duties which they are called upon to perform. They also place a general duty of care upon users to take all reasonable precautions 'to safeguard the environment and in particular avoid the pollution of water'. In addition, the Regulations require certain categories of pesticide user to have a Certificate of Competence which is recognised by Ministers or to apply the pesticides under the direct and personal supervision of a person who holds such a Certificate. These obligations are met by attending training courses and/or in-house training.

Among the topics covered by training are an up to date knowledge of the following aspects of pesticide use:

- the relevant legislation;
- the hazards and risks posed by pesticides;
- safe working practices;
- record keeping;
- the correct use of application equipment.

In addition to more general training on pesticides there are also specific courses targeted at amenity users such as the Amenity Pesticide Management Certificate which is an awareness certificate for managers but would also be helpful for those responsible for arranging that pesticides should be used.

In the UK, guidance for amenity users is also available in the form of a Code of Practice for The Use of Approved Pesticides in Amenity and Industrial Area. The Code has recently been updated (1998) and is endorsed by Government. The Code gives detailed advice on all aspects of pesticide use from storage to use and disposal. Whilst it has no formal legal status, it is possible that the Courts would take the Code into account as recognised good industry practice. Failure to comply with the advice contained within the Code could make it difficult to show that legal obligations have been met.

In the Netherlands the use of pesticides and environmental pollution caused by the use of pesticides is regulated in two ways:

- The first way is registration of pesticides. Pesticides may only be used as they are registered for specific applications. So also the use of a pesticide on amenity areas needs to be registered. For this registration a specific pesticide has to meet the environmental criteria as laid down in the Uniform Principles under Council Directive 91/414/EEC. In 1999 there were only two active ingredients registered in the Netherlands for use on hard surfaces.
- The second way to control the use of pesticides and environmental pollution caused by the use of pesticides in the Netherlands is the implementation of a national policy document called Multi-Year Crop Protection Plan. This

document not only addresses the agricultural use but also the use of pesticides on amenity areas. For the implementation of this policy document on the use on amenity areas, a wide variety of Government institutions have signed a covenant to control the use of pesticides on amenity areas. This covenant covers:

- a reduction of overall use (use in 2000 should equate to 43% of the use in 1986);
- a target for reducing discharges/losses of pesticides to watercourses by 2000 by 90% compared to 1986 levels;
- improvement of working practices.

The target for the reduction of the use is specific to the sector concerned (hard surfaces, amenity vegetation, managed amenity turf, etc.).

Finland is in the process of producing guidance on the use of amenity pesticides in public areas. Such uses are currently controlled through the product registration process. Additionally, many products may only be used in a professional capacity. Those using such products are required to have undergone relevant training and to have passed a special examination on handling hazardous pesticides.

FACTORS TO BE INCLUDED WITHIN A BEST ENVIRONMENTAL PRACTICE FOR THE USE OF PESTICIDES ON AMENITY AREAS

From information supplied by Contracting Parties, the structure of a Best Environmental Practice for the use of pesticides on amenity areas can be divided into five distinct areas. These are:

- assessment of relevant risks;
- production of a code of practice;
- training and certification;
- monitoring;
- active management.

Risks associated with Pesticide Use, Handling and Application

Many of those using amenity pesticides may already employ some form of procedure to analyse the need to use these pesticides and the risks involved. Nevertheless, the introduction of a more formal structure for such procedures will help promote a more widespread use of this type of approach. Table 1 gives details of how this procedure for the use of pesticides on amenity areas could be formulated.

Table 1.

Assessment procedure	Questions to address	Explanation
<i>Establish the need for control</i>	What is the objective behind the need to control a problem?	The purpose of this question is to formally identify the intention of the control operation.
	Is that need justifiable in terms of safety, environment, aesthetics or suitability for use?	Often operations within the amenity sector are carried out according to a set schedule as part of standardised operational procedures. For example, local/municipal authorities may apply pesticides to all footpaths twice yearly. Justification of the need for control will help highlight whether the routines adopted are actually necessary.
<i>Check statutory restrictions</i>	Are there any existing statutory restrictions in the area concerned regarding the application of the selected pesticide?	
<i>Define the standard to be met.</i>	Is total control necessary or will partial control suffice?	Having identified the need for control, the next stage in the assessment is to ascertain the degree of control required. In many instances, such as in certain industrial situations, full control is not required. This may consequently influence the type of product to be applied and the number of applications carried out.
	For how long a period is the control required?	Unlike in the agricultural sector, the situation may arise where control may only be required for a short period of time. Where only short-term control is required, it may be more appropriate to use alternate methods of control or, for example, a non-residual pesticide in place of one which is residual, or a non-chemical method such as flaming.
<i>Identify whether alternative control/prevention methods may viably be used in place of pesticides.</i>	Can action be taken to prevent the problem in the first place, thereby removing the need for control?	In some situations, it is possible to take preventative action to stop the problem occurring in the first place.

Table 1, continued

Assessment procedure	Questions to address	Explanation
<i>Assess the risk to operators and the public</i>	Does the situation where the pesticide application is to take place expose the operator to any unacceptable risk, for example where the site may be partially enclosed?	The application of amenity pesticides, particularly in urban areas, may involve additional risk to operators. It may therefore be necessary to take additional precautions or to use an alternative method of control.
	Does the application of a pesticide present any unacceptable risk to the public?	The nature of use on amenity areas often means that applications take place in areas accessed by the general public. Use of a pesticide may therefore present an additional risk which would not be present with agricultural applications. It may therefore be necessary to take additional precautions or to use an alternative method of control.
<i>Assess the impact on water and the environment.</i>	Are there any watercourses near to the area being treated which may be contaminated directly or indirectly (e.g. via groundwater)?	Because pesticides applied to hard surfaces present a potentially higher risk to the environment than those applied to vegetated surfaces, consideration should be given to avoiding applications near watercourses where possible. When treating hard surfaces such as streets and gullies, special consideration should be given to avoid street drains.
	Is rain forecast closely following the application?	Because of the risk of run off from hard surfaces, applications should not be carried out if rain is forecast following the application.
	Will the flora and fauna around the area to be treated be adversely effected by the application?	The nature of amenity applications means that they can sometimes be applied to areas not accessed by the public or intensively managed, such as railway embankments and roadside verges. Such areas are often host to rare or sensitive species of flora and fauna which may be particularly at risk from pesticide applications.
	Can a non-residual pesticide be used rather than one which is residual?	The use of non-residual pesticide presents a lower risk to the environment. Use of such products should therefore be promoted where possible.

Code of Practice

The development of a code of practice represents the key path through which the principles of a Best Environmental Practice of Amenity Pesticides will be communicated to those carrying out the applications. As such it will need to incorporate all aspects of the BEP.

Because each Contracting Party has a different legislative structure governing the use of amenity pesticides, it is not possible to prescribe the exact content. However, the experience of the UK, Netherlands and Finland suggest that the following areas should be covered:

- assessment of relevant risks;
- legal obligations;
- environmental protection – consideration of sites of particular vulnerability/sensitivity;
- storage of pesticides;
- transport of pesticides;
- selection and use of different application techniques;
- action before/after pesticide application;
- disposal of waste pesticide and pesticide containers;
- monitoring – post application impact on environment/health;
- record keeping;
- training.

The development and distribution of a Code of Practice should be carried out in such a way so as to ensure that it is adopted by the relevant users/operators as best practice. Although the BEP is restricted in scope to the definition of use on amenity areas outlined in Appendix 1, Contracting Parties should be able to include guidance which may be specific to that country within the Code of Practice.

Training and certification

If the aquatic environment is to be safeguarded, it is important that those carrying out the application of amenity pesticides are competent to do so and are aware of the potential hazards associated with this type of application. This can be best achieved through a formalised structure of training and certification.

Many Contracting Parties already have a regulatory requirement for users of certain types of product to have obtained some form of certificate of competence. Such a regulatory approach may not, however, be necessary for all Contracting Parties. Where the industry structure is such that compliance through administrative means can be achieved, then a regulatory approach may not be appropriate.

Monitoring

Once a framework for introducing a Best Environmental Practice has been established by Contracting Parties, it is important to ensure that it achieves the set objectives. In order to do this effectively, it is necessary to have appropriate information on which to base the decision making process? It is therefore important that Contracting Parties develop adequate monitoring procedures covering the amenity pesticide sector.

Data produced as a result of monitoring programmes should be examined to identify trends in use and potential contamination problems. The strategy adopted through the structure of the BEP can then be reviewed and adapted to address any difficulties experienced.

Active Management

Many pesticide applications carried out within the amenity sector are conducted by private contractors on behalf of municipal authorities. Whilst the main responsibility for ensuring that such applications do not have any adverse effect on the environment lies with the contractor, those contracting out the work also have a responsibility to maintain environmental protection. This can be achieved through the use of active management procedures.

Such procedures could include:

- to ensure that there is a contractual obligation upon those carrying out the work to comply with the requirements of best environmental practice;
- to monitor the work being conducted to ensure that required standards are met;
- to establish a formal strategy on the use of pesticides within the relevant area of responsibility and to communicate that strategy to those on whom it will have an effect;
- to incorporate preventative control methods within project development procedures.

CONCLUSION

The use of pesticides within the amenity sector has conclusively been shown to contribute to marine pollution, particularly when applications occur on hard surfaces. Action already taken by Contracting Parties shows that much can be achieved to restrict this contribution. However, to achieve a significant reduction in this source of diffuse marine pollution, a consistent approach is needed across all participating countries. Because of the differing situation which exists amongst Contracting Parties, the approach adopted cannot be prescriptive. Therefore the most appropriate way forward is to develop a high level framework which can be adapted and used for all concerned. From the issues discussed in this paper, the framework should take the form of Best Environmental Practice on the Use of

Pesticides on Amenity Areas. This should include those factors highlighted within this paper.

APPENDIX 1

DEFINITIONS OF NON-EDIBLE CROP AND AMENITY SITUATIONS

The following definitions relate to a core area of amenity uses. It is not an exclusive list and does not prevent the principles set out in this document from being applied to other areas by Contracting Parties.

However, all the definitions provided concern those areas which will not bear produce intended for human or livestock consumption. There may be some adventitious grazing by livestock or wildlife but if grass is being treated where the intention is that it will be fed to livestock it is then classified as agricultural grassland and hence does not fall within the scope of this document. Contracting Parties should restrict their application of the principles set out in this document to other fields of use to those that conform to this overriding definition.

***Managed Amenity Turf* – frequently mown, intensively managed turf**

This includes turf in public parks, golf courses, sports fields and turf etc. where the grass is frequently mown.

***Amenity Grassland* – Semi natural or planted grassland with minimal management**

This includes minimally managed areas such as found on some railway embankments, motorway verges or embankments, airfields and grassland nature reserves which are not intended for grazing.

***Amenity Vegetation* – Areas of semi-natural or planted herbaceous plants, trees and shrubs, if only one type is allowed this will be specified e.g. amenity vegetation – trees & shrubs**

This includes vegetation, or an area of land bearing such vegetation and the surrounding soil, it can include small grassy areas mixed with other vegetation. It also includes planted areas such as rose beds, ornamental gardens and tree and shrub plantings, as well as semi-natural areas such as heathland as long as they are not intended for grazing.

***Land not Intended to Bear Vegetation* – Soil or man made surfaces where it is intended that no or minimal vegetation will be grown for several years. It does not include the land between rows of crops.**

This may be bare soil but is often covered by a surface such as gravel, hard-core, tarmac, concrete or railway ballast. It includes public

access areas such as pavements and tennis courts, industrial areas such as pipelines, or any other area where no or minimal vegetation is required. Land between rows of crops, between plants in row crops and between trees in orchards is excluded.

***Green Cover on Land Taken out of Production* – This includes fields covered by natural vegetation or by a planted green cover crop which will not be consumed by humans or livestock or used as raw materials for any processes. However, it does not include land lying fallow as part of a cycle of production.**

This is one of the types of land that may occur under the ‘set aside’ arrangements. This phrase covers only that use and not the various others that set aside land may be put to such as grassland, production of industrial crops, or woodland.

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