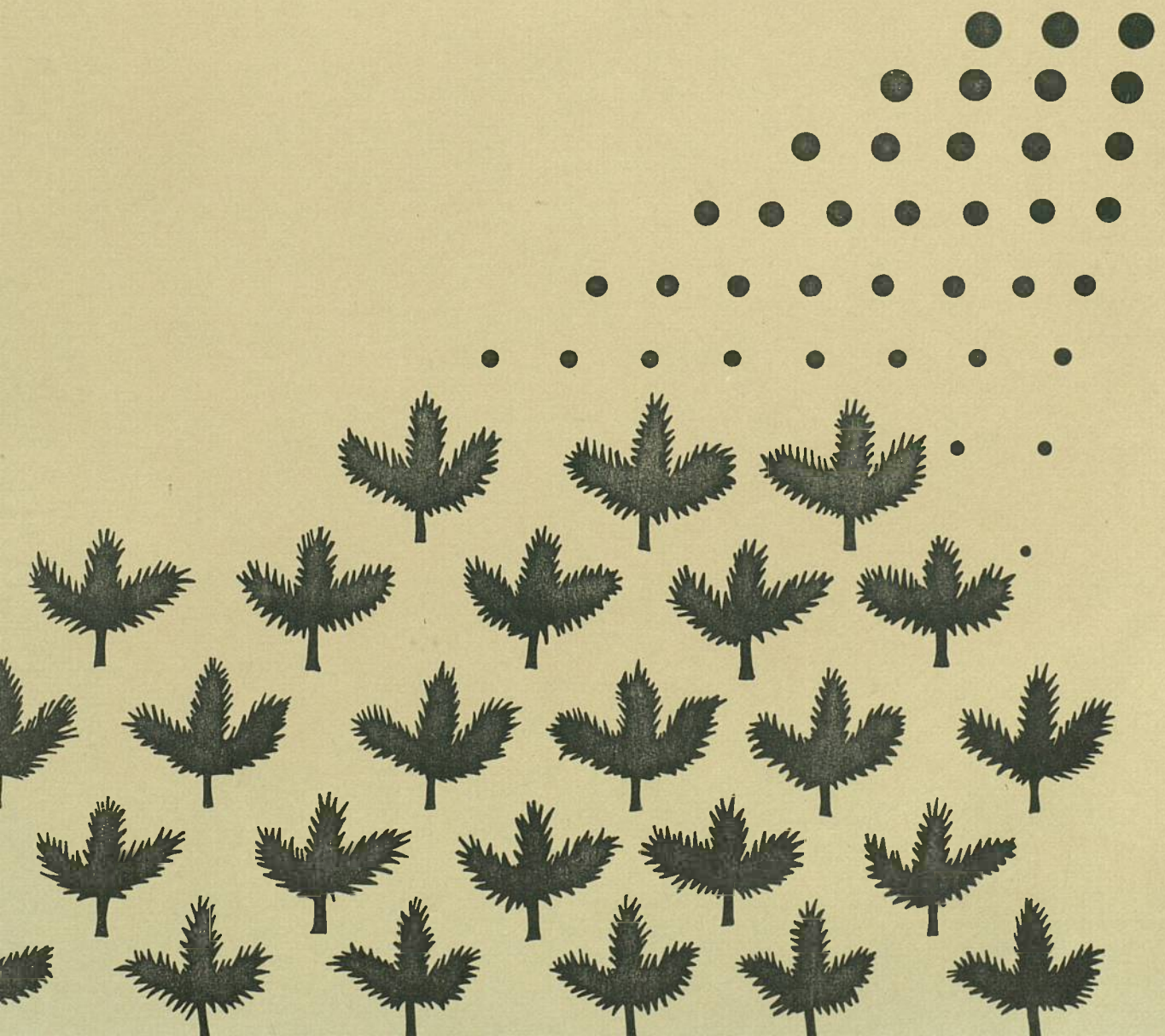




Provisional Code of Practice for the use of Pesticides in Forestry

1989



BODIES CONSULTED IN COURSE OF PREPARATION OF THIS PROVISIONAL CODE

A previous draft, prepared following a joint initiative between the Forestry Commission, the Timber Growers United Kingdom and the Institute of Chartered Foresters, was circulated widely. Comments were invited and were received from:-

Ministry of Agriculture
Health and Safety Executive
Department of the Environment
Nature Conservancy Council
Countryside Commission
Countryside Commission (Scotland)
Northern Ireland Department of Agriculture
Civil Service Occupational Health Service

Timber Growers UK
Scottish Woodlands Ltd

Institute of Chartered Foresters
Association of Professional Foresters

Forestry Training Council
Forestry Safety Council
National Proficiency Test Council
National Association of Agricultural Contractors
British Agricultural Standards Inspection Scheme Ltd
National Farmers Union
National Farmers Union of Scotland
National Turfgrass Council
British Agrochemicals Association Ltd

Association of Directors and River Inspectors of Scotland
Thames Water

Dalmeny Estate
Fountain Forestry Ltd
Oliver and Lang Brown
Northern Forestry Consultants
Schering Agriculture
NUAAW
TGWU

March 1989

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PROVISIONAL
CODE OF PRACTICE FOR THE USE
OF PESTICIDES IN FORESTRY

Forestry Commission, Edinburgh

Code of Practice on the Use of pesticides in Forestry

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Bodies and Individuals Commenting on Second Draft Forestry Code.

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PREFACE

This Provisional Code of Practice for the Use of Pesticides in Forestry has been prepared taking account of:-

- the comments received on the second draft Forestry Code, issued in January 1988; (a list of bodies and persons commenting is given in Appendix VI);
- MAFF revised draft statutory codes of practice issued during 1988, and 'Consents' under the 'Control of Pesticides Regulations, 1986' issued in January 1989, replacing the 'Consents' published in October, 1986;
- the 'Control of Substances Hazardous to Health (COSHH) Regulations, 1988' made in October 1988, to come into force on 1 October 1989, and the associated COSHH Draft Code of Practice for control of exposure to pesticides at work.

It has been widely recognised that practising foresters (and farmers and horticulturists too) do not want to have to cope with 2 codes covering very much the same subject. The present Provisional Code for Forestry is a first attempt to provide guidance combining the requirements of the 'Control of Pesticides Regulations, 1986' and the 'Control of Substances Hazardous to Health Regulations, 1988' for this aspect of rural land husbandry.

Initial 'assessments' have to be made under the COSHH Regulations by 31 December 1989. At the same time, the current review of pesticide waste disposal in rural land husbandry in respect of both the Control of Pollution Act 1974 and recent European Community Directives on water quality, has delayed the final revision of the MAFF Code of Practice for the Use of Pesticides in Agriculture and Horticulture. It was therefore decided to issue this revised Code of Practice for the Use of Pesticides in Forestry as a 'Provisional' Code as the best guidance that can be given at the present time.

A substantive forestry code should be expected after the issue by MAFF of statutory Codes of Practice for Pesticides in Agriculture and Horticulture for 'Sale and Supply' and for 'Use'.

J R Aldhous
Head of Silviculture Division
March 1989

INTRODUCTION

1. Scope

- a.
 - i. This Code of Practice is made for the guidance of users of pesticides in forestry. It amplifies the requirements both of the Control of Pesticides Regulations 1986 and the Control of Substances Hazardous to Health Regulations, 1988.
 - ii. This code is intended to cover the use of pesticides for the protection of growing trees in forests, woodlands, shelterbelts etc from attack by pests and competition from weeds, and the protection of round timber between felling and receipt by an industrial processor or end user, corresponding with the scope of the 'forestry' field of use. See 2e below.
- b. Relationship to Other Guides and Codes
 - i. The guidance given in this Code is without prejudice to any other Codes or guidance published by:
 - The Ministry of Agriculture, Fisheries and Food in respect of the use of pesticides in Agriculture or Horticulture, including the Code of Good Agricultural Practice (on pollution of water) made for the purposes of Section 31(2)(c) of the Control of Pollution Act 1974.
 - The Health and Safety Executive in furtherance of the Health and Safety at Work etc Act 1974.

The guidance given here cannot deal with every situation; users should not assume that strict observance of the code will always suffice to meet their legal obligations. Other sources of guidance are listed in Appendix I.

- ii. The Control of Substances Hazardous to Health Regulations, (COSHH) 1988 include many provisions for the safe use of pesticides. This code outlines provisions in the COSHH regulations most relevant to forestry. Extracts from the regulations are given in the appropriate Guidance Notes. When in doubt, refer to the full regulations.
 - iii. Forestry consultants or contractors who in addition buy, store and sell pesticides with no responsibility for the subsequent application, or who advise clients should also observe relevant requirements of 'Consent B' made under the 'Control of Pesticides Regulations, 1977' (see Appendix IVa) and recommendations in the 'MAFF Code of Practice on the Sale and Supply, including Storage for Sale and Supply, of Pesticides Approved for Agricultural Use'.
- c. Enforcement

A failure on the part of any person to follow the guidance given in this Code will not render that person liable to proceedings of any kind.

2. Definitions

a. Pesticide

In this Code, 'pesticide' has the same meaning as in Sections 3(1) and 3(2) of the 'Control of Pesticides Regulations 1986', and includes liquids, granules etc that destroy pests and also those which offer protection against attack. 'Pests' includes insects, fungi, plants, mammals and birds (excluding domestic animals and livestock).

b. Use

The 'use' of pesticide includes all related activities and measures commencing with the decision to use a pesticide and ending when the treatment is completed, reusable equipment cleaned ready for further use, surplus or waste chemicals, containers and other materials safely disposed of, operator and environment safety procedures completed, and records maintained.

c. Users

- i. The 'user' of a pesticide is anyone with responsibility for 'use' of a pesticide, whether as an 'employer' or in a 'managerial', 'supervisory' or 'operational' capacity.

- ii. Under 'Control of Substances Hazardous to Health Regulations' various duties are assigned to 'employers' and 'employees'. These terms should be related to users as seems most appropriate in any given context. However, it should be noted that firstly, while employers may delegate responsibilities to managers, supervisors or operators, the responsibility to be satisfied that delegated responsibilities are being properly met, remains with the employer. Secondly, 'employees' under the COSHH Regulations may include persons who are not users but who work near the site of pesticide applications.
- iii. Managers have a responsibility for deciding, with competent advice if they themselves are not competent to decide, what pesticides should be used in any given circumstance and for ensuring that proper arrangements are made for the proposed pesticide use. This will usually include any formal assessment required to be made in compliance with 'Control of Substances Hazardous to Health Regulations'.
- iv. Supervisors have a responsibility for ensuring that the day-to-day application of pesticides is properly done, with correct procedures for preparing, applying and clearing up after applying a pesticide.
- v. Operators have a responsibility for following laid down procedures in respect of pesticides they are required to apply.
- vi. An individual may in particular circumstances, undertake user responsibilities of employer, manager, supervisor or operator, or several types of responsibility at one time if for example, a self-employed contractor.

d. Commodity Chemicals

Certain materials are used not only as pesticides but for other unrelated purposes. Such materials may be designated 'commodity chemicals'.

Commodity chemicals need only be treated as pesticides when actually in use for this purpose. Guidance by MAFF as to any specific conditions of approval relating to commodity chemicals is expected shortly (see p.xxi, MAFF Reference Book 500, Pesticides 1988).

Urea is classed provisionally as a commodity chemical, its status being currently reviewed by MAFF. Recommendations for use are given in FC Booklet 52 'Use of Chemicals (Other than Herbicides) in the Forest'. The specific recommendations for urea will shortly be reissued as a 'Research Information Note'.

e. Fields of Use

Pesticides are segregated for the purposes of granting approval under the Control of Pesticides Regulations 1986 according to their "field of use". These are listed in Appendix III.

Product approvals relate to specific fields of use or groups of fields of use. Many products are approved for use in agriculture, horticulture and forestry. However, it should be noted that vertebrate poisons such as warfarin fall within the 'Vertebrate Control' field of use; provisions for pesticides available for agricultural use do not necessarily apply to such products. See Section 6 of Consent C(i) in Appendix IVb.

Forest nurseries are considered a branch of horticulture and are covered for product approvals by the Agriculture and Commercial Horticulture field of use.

3. Sources of Information

Further information on the use of pesticides in forestry is available in the publications listed in Appendix I of this Code.

PART 1 — GUIDANCE NOTES

Guidance Note 1

Safe Use of Pesticides in Forestry

1. Introduction

Safe and successful use of pesticides depends on following the basic principles for such use and organising an effective system of operation, supervision and control.

2. Principles for Safe Use of Pesticides

Consider alternatives to pesticides in the initial evaluation of the need for and method of controlling pests.

Consider the factors of the locality, eg wildlife habitats, windiness of the site, water supplies etc, and recent experience, when selecting a pesticide.

Consider the risks to the operator, in relation to the hazard of alternative products, the timings and methods of application that are feasible and the circumstances of the site.

Use minimum quantities and treat the minimum area to achieve the pest control necessary for healthy crop growth.

Ensure that all persons who specify, supervise or apply pesticides are competent, and know their responsibilities.

Follow approval conditions and recommendations on approved product labels or other approved guidance relating to safe use.

Comply with all other relevant legislation.

Review all operations regularly, making changes in practice where necessary.

3. Foundations of Practice

- a. Good pesticide practice is founded on effective and timely preparation in respect of:-

correct identification of pest;

identification of appropriate pesticides (see Guidance Note 2);

competent operators (see Guidance Note 3);

protection for the operator; this includes completion of any assessment of the risk of health to operators and/or employees under the Control of Substances Hazardous to Health Regulations 1988. (See Guidance Note 4);

protection for the environment (see Guidance Note 5);

safe systems for storing and handling pesticides (see Guidance Note 6);

suitable equipment for pesticide application (see Guidance Note 7);

specification of pest control operations; (Para 4 below)

liaison and notification; (Para 5 below)

record keeping; (Para 6 below)

monitoring applications; (Para 7 below)

emergencies and unexpected occurrences. (Para 8 below)

- b. If aerial application of pesticides is being considered, the requirements of Schedule 4 of the Control of Pesticide Regulations must also be observed. See Guidance Note 5, Section 7 and Appendix IVc.

4. **Specification of Pesticide Operations**

a. A full job specification should be readily available to those concerned, in good time for preparations to be completed. Where possible, the specification should be written.

b. The Job Specification should cover:-

The objective of the treatment: product: rate of application and diluent: equipment: calibration: method of use: suitable weather conditions: safety procedures, including protective clothing: monitoring procedures: notifications: disposal of containers and wastes: emergency procedures.

5. **Liaison and Notification**

a. A list should be maintained and kept readily available, of names, addresses and telephone numbers of local contacts that may be required in the course of pesticide applications. These should include:-

neighbours: local bee keepers or their coordinator: Nature Conservancy Council local office: other local conservation bodies: local Water Authority or River Purification Board: local doctor: local Fire Service: Local Agricultural Inspector of the HSE.

This list should be checked at the beginning of each year and kept up to date as long as pesticides are being used. Guidance Note 5 gives recommendations on the timing and the nature of notifications and liaison.

6. **Protection of Water**

a. Principles

In planning and applying pesticides, all concerned must take necessary steps:-

- i. to protect water supplies for industrial and domestic needs;
- ii. to maintain water quality and aquatic life in streams, lakes and reservoirs;
- iii. to avoid pollution of ground water aquifers.

b. Water Catchments

For the purposes of the use of pesticides (and other chemicals) in forests,

- i. A 'utilised' surface water catchment can be defined as that area of land, from which surface water run off is abstracted at a defined point for domestic or commercial use. Water may be stored above the abstraction point in a reservoir.
- ii. 'Sensitive' utilised surface water catchments are those yielding water with little impurity and requiring minimum processing before use. Such water supplies are produced at relatively low cost.
- iii. 'Unutilised' surface water catchments. These and utilised catchments between them cover the whole of the UK land area. 'Unutilised' catchment water has to be protected in order to maintain healthy fish stocks and other aquatic life (as far as industrial and other pollutants allow).

The steps necessary to maintain high quality water for drinking and commercial use in utilised catchments will also cover the requirements of fish in respect of pesticides.

- iv. Ground water catchments are those where precipitation percolates into porous underground strata. Such water may subsequently be drawn on to replenish wells and bore holes and may also re-appear on the surface as spring water.

c. Liaison with Water Authorities

- i. In England and Wales, responsibility for water supply and pollution control currently rests with 10 Regional Water Authorities established under the 'Water Act, 1973'. In some parts of the country, Water Companies supply water on behalf of the Water Authority. In Scotland, under the Water (Scotland) Act 1980, Local Authorities

(Regional and Island Councils) are responsible for public water supplies and River Purification Boards for water pollution control.

ii. Managers of upland forests should establish a liaison with the relevant Water Authority or River Purification Board to ascertain the sensitivity of the catchments in which their forest blocks are located, not solely in respect of pesticides but also other aspects of forestry practice that may affect water. Managers of other areas should know who to contact should an emergency arise.

iii. 'Guidelines for Forest Management and Water' (Forestry Commission 1988) together with the 'The Use of Herbicides in Forestry in Potable Water Catchments' by J K Fawell, (available from Medmenham Laboratory, PO Box 16, Marlow, Bucks, SL7 2HD) and this document provide a basis for such liaison.

iv. Liaison is recommended before embarking on any substantial spraying programme in sensitive catchments.

v. Where aerial spraying is envisaged, Water Authorities or River Purification Boards should be given prior preliminary notification before the formal consultation legally required under the 'Control of Pesticides Regulations 1986'. Where aerial application is for the purpose of controlling aquatic weeds or weeds on the banks of watercourses or lakes, the formal consent of these organisations is required.

d. Private Water Supplies

In rural areas, farms and other households may obtain water supplies for domestic use and for livestock from private springs, streams or underground reservoirs. The supply for such small groups of users could be heavily tainted by an amount of chemical that might not be detectable in a catchment supplying a large reservoir. Forest managers should ensure that such sources are known and are not adversely affected by use of pesticides or any other forestry operation. Some Environment Health Depts of Regional Councils in Scotland are in the process of compiling registers of private water supplies used for human consumption.

e. See also Guidance note 5, Protection of the Environment, Section 4.

7. Record Keeping

a. Stock in Store

Users should keep records of current stocks of pesticide in store (See also, Guidance Note 6, Section 4).

b. Records of Pesticide Use

When application of pesticides has finished for the day, sufficient note should be made of the operation to enable a permanent record of pesticide spraying to be maintained. (See Guidance Note 4, Section 7.)

c. Records of Illness and Accidents

i. A record should be kept of any ill-effects and accidents experienced by operators and others, which might have been caused by the use of pesticides as detailed in Guidance Note 4, Section 6c.

ii. Full notes must also be taken of any accident involving spillage leading to contamination of watercourses, harm to wildlife, etc associated with pesticide application.

8. Monitoring Application

The person authorising use of a pesticide must arrange for its application to be monitored so as to be satisfied that it is properly done and that crop, operator and environment are adequately safeguarded at the outset and for the whole duration of the application.

9. Emergencies and Unexpected Occurrences

a. Managers must identify the more important emergencies that might occur in the circumstances of the woodlands they manage and should ensure that procedures appropriate to the locality are laid down in a written contingency plan and are made known to supervisors and operators. These should include provision for major spillage, contamination of an operator by pesticide concentrate, operator illness, outbreak of fire in or near pesticide stores, etc.

b. Accidental Poisoning or Illness

Managers must ensure that the following guidance is widely available:-

In the event of accidental poisoning, or if a person who has been using pesticides becomes ill, apply appropriate first aid measures immediately and seek medical advice as quickly as possible. For the more toxic pesticides, specific first aid measures may be found on pesticide product labels and associated material. Remember to tell the Doctor or the Hospital the name of the chemical used and show them any available label or leaflet.

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) 1985 requires the reporting and recording of such incidents. See Guidance Note 4 Section 6. A guide to these Regulations is available from HSMO. General advice is also set out in HSE leaflet MS(B)7.

c. Managers must ensure that:-

- i. appropriate facilities are available to deal with emergencies, eg supply of materials to absorb spillage, water for drinking and for washing, means of extinguishing fires, first aid equipment;
- ii. there is a current list of emergency services to contact;
- iii. there is an established contact with the Water Authority or River Purification Board for immediate reporting of any accidental spillage which could lead to the contamination of surface or ground water.

d. Supervisors and operators must be familiar with the emergency procedures and equipment, and must ensure that relevant materials and equipment needed in emergency are readily accessible while operations are in progress. (See also Guidance note 5.)

e. Unexpected Occurrences

'Conditions of approval for use' are based on data from tests representative of the main hazards associated with pesticide use. Such data are backed up by extensive field trials. Nevertheless, users have to be aware that it is impossible for all combinations of circumstance to have been fully tested prior to approving a use. If any unexpected harmful side effect is encountered in the use of any pesticide in forestry, the user should promptly notify the product manufacturer and the local HSE Agricultural Inspector, or Pesticides Surveillance Division, MAFF Hatching Green Laboratory, Harpenden, Herts, as appropriate.

Guidance Note 2

Product Approvals

1. Approved Products

- a. Under the "Control of Pesticides Regulations 1986" only those products approved for use as pesticides can lawfully be used to control pests. The conditions of approval must be observed. They may specify
 - the approved use; ie, the crops and pests that can be treated
 - the maximum dose rate, number of treatments and treated area or quantity
 - the minimum interval between application and harvest. (This is of more significance for agricultural crops than forest crops)
 - safeguards for operator protection and the environment
 - restrictions of applications to trained/qualified personnel
 - other specific restrictions particular to the product.
- b. The dilution of certain approved products may legitimately be reduced below the volumes stated on the label, if the reduction is in accordance with Guidance Note 8 in this code.
- c. The label may in addition contain advice on application methods, timing of treatment in relation to the stage of growth etc.

2. On-Label Approvals

The label on the containers of any approved pesticide states the conditions of approval for its major uses. These are 'On-label' conditions of approval.

3. Off-Label Approvals

In addition, users may apply to MAFF for approval for additional uses on pests or on crops which may be of local rather than national importance. If accepted, such minor uses are given 'off-label' approvals. The Forestry Commission and Timber Growers UK, among others, have applied for 'off-label' approvals covering several minor uses of pesticides for forestry, and Christmas tree growing. There will normally be a leaflet or other source of information describing the approved off-label usage.

Users seeking approval for an off-label use should apply to 'Ministry of Agriculture Fisheries and Food, Pesticides Registration and Surveillance Department, Harpenden Laboratory, Hatching Green, Harpenden, Herts AL5 2BD.' Details of information required is in Appendix V. A check should be made before an application is submitted, on how long it is currently taking for applications to be processed. It may often be necessary to find a currently approved control method if serious damage seems imminent.

4. Check before Use

The following checking procedure is recommended.

- Examine the manufacturer's pesticide label recommendations or approved 'off-label' recommendation for the forestry use in mind.

Further information on approved uses of pesticides in forestry may be obtained from:

- Forestry Commission Publications listing approved uses of pesticides in forestry eg FC Handbook 8;
- MAFF lists of approved uses, both 'on-label' and 'off-label';
- Manufacturers supplementary recommendations;
- Other bodies known to have been seeking 'off-label' approvals such as HTA, TGUK.

Alternatively, advice may be sought from the Forestry Commission Research Division either at the Forestry Commission Research Station, Alice Holt Lodge, Farnham, Surrey, (Tel 0420 22255) or at the Northern Research Station, Roslin, Midlothian, (Tel 031 445 2176).

Work may proceed *only* if it can be undertaken in accordance with approved 'off-label' conditions or manufacturers' label recommendations or for legitimate experimental purposes.

5. Adjuvants and Tank Mixes

Adjuvants such as wetting agents may be added, and two or more pesticide products mixed, only if permitted on the product label, on any approved list of adjuvants, or if allowed under a current 'consent'.

Guidance Note 3

Competence Skills and Knowledge of Users

1. Legal Obligations

- a. Consent given under the Control of Pesticides Regulations, 1989 C(i) states:

Conditions subject to which consent to the use of pesticides is given

- i. It shall be the duty of every employer to ensure that any person in his employment who may be required to use a pesticide during the course of that employment, is provided with such instruction and guidance as is necessary to enable that person to comply with the requirements in and under the regulations.*
- ii. Any person who uses a pesticide shall take all reasonable precautions to protect the health of human beings, creatures and plants, to safeguard the environment, and in particular to avoid pollution of water.*
- iii. No person shall use a pesticide in the course of his business or employment unless he has received adequate instructions and guidance in the safe, efficient and humane use of pesticides and is competent for the duties which he is called upon to perform.*

The full text of the consent is given in Appendix IVb.

- b. Regulation 12(1) of the Control of Substances Hazardous to Health Regulations 1988 (COSHH) states:

An employer who undertakes work which may expose any of his employees to substances hazardous to health shall provide that employee with such information, instructions and training as is suitable and sufficient for him to know:-

- i. the risks to health created by such exposure; and*
- ii. the precautions which should be taken.*

2. Competence

Employers must ensure that:-

- a. Managers are competent to:-
 - i. identify those aspects of legislation which apply to pesticides that may be used in forestry, in particular under the Control of Pesticides Regulations 1986, and Control of Substances Hazardous to Health Regulations, 1988;
 - ii. identify the nature of occurrence or threat of occurrence of a pest;
 - iii. identify appropriate prescriptions, materials, time, rate, method of application, safety and emergency procedures;
 - iv. and to instruct operators and make other arrangements accordingly.
- b. Supervisors and operators, when instructed to apply a given pesticide, are competent to:-
 - i. check and follow the approved recommendations, the method appropriate to the site, pest and crop, and the rate and dilution to be used;
 - ii. recognise the factors which determine whether or not conditions are suitable for pesticide application;
 - iii. know safe working and emergency procedures.

3. Operator Competence and Certification

- a. All individuals who apply pesticides should be skilled and knowledgeable, to a standard sufficient to meet the requirements of certification of operators under the Control of Pesticides Regulations 1986.

b. Those born after 31 December 1964, and also all individuals who apply pesticides as part of a commercial service, must after 1 January 1989 either hold relevant certificates of competence or work under the direct and personal supervision of a holder of such certificates. 'Personal supervision' means working within sight and sound of the supervisor. See Appendix IV(b) Sections 6, 7 and 8.

c. Pesticide operations for the purposes of certification of competence are grouped into 'modules'. Full details are set out in a 'Pesticide Application Test Schedule' available, price £1.50, from the National Proficiency Test Council, 10th Street, National Agricultural Centre, Stoneleigh, Kenilworth, Warwickshire CV8 2IG or Chief Education and Training Officer, Forestry Commission, 231 Corstorphine Road, Edinburgh EH12 7AT.

The modules relevant to forestry are listed at the table at the end of this Guidance Note.

4. Training in Skills and Competence

a. Details of training courses available for supervisors and operators likely to be involved in applying pesticides to forest and woodland may be obtained from:

Secretary, Forestry Training Council, 231 Corstorphine Road, Edinburgh, EH12 7AT.

b. Details of training available to individuals wishing to apply pesticides in agricultural, horticultural or amenity areas should be sought from The Agricultural Training Board or local agricultural advisors (ADAS) in England and Wales or from advisors in Scottish Agricultural Colleges.

c. Operator training in all cases should be designed to ensure that the trainee on successful conclusion of his training, should be able to pass the relevant modules of certification required under the 'Control of Pesticides Regulations 1986'.

5. Risks to Health and Precautions to be Taken

The information provided in accordance with Regulation 12 of COSHH to employees and other persons likely to be affected by a pesticide application, should include in particular:-

- a. the nature and degree of the risks to health arising as a consequence of exposure to particular pesticides, including any factors that may influence that risk, such as smoking;
- b. the control measures adopted, the reasons for these, and how to use them properly;
- c. the reasons for personal protective equipment and clothing, its selection and the jobs for which these are necessary;
- d. any health monitoring procedures, including arrangements for access to results;
- e. the role of health surveillance, their duty to attend for health surveillance procedures, and arrangements for access to the records and results of health surveillance (see Regulation 11).

This information should also be made available to employees' safety representatives.

6. Contractors, Salesmen and Advisers

a. Under Section 16(12) of the Food and Environment Protection Act, 1985, it is an offence, without reasonable excuse, . . . to cause or permit any other person to contravene any provision of the regulations or any condition of approval of a pesticide . . .

b. Contractors who sell pesticides or who advise on the use of pesticides they subsequently supply and apply, should refer to 'Consent B' made under the Control of Pesticide Regulations, 1986 (see Appendix IV 6a) and the 'Code of Practice on the Sale and Supply, Including Storage for Sale and Supply, of Pesticides Approved for Agricultural Use' issued by MAFF for a description of their responsibility for:

- competence and certification of any of their staff who may sell and/or advise on the use of pesticides in forestry;
- competence and certification of staff who are responsible for storage of pesticides.

- c. Advisers with no responsibility for sale, supply or application of pesticides must be competent for their duties but are not required by law to be certificated.
- d. Details of arrangements for certification of salesmen, advisers and storemen under the British Agricultural Standards Inspection Scheme (BASIS) may be obtained from BASIS Ltd, 2 St John Street, Ashbourne, Derbyshire DE6 1GH or trade associations (eg the British Agrochemical Association and the United Kingdom Agricultural Supply Trades Association).

TABLE 1: PESTICIDE APPLICATION PROFICIENCY MODULES APPLICABLE TO FORESTRY

Module and Summary of Requirements	Operations
<p>1. Foundation Module</p> <p>Awareness of legislation: Use of information on manufacturers labels and 'off-label' approvals;</p> <p>Features of equipment, protective clothing and practice that protect operator, public, environment.</p> <p>Features of practice that ensure efficacy of treatment.</p> <p>Care of chemicals, application equipment and protective clothing.</p> <p>Maintenance of simple records.</p>	<p>All operators requiring certification must have obtained a foundation module and in addition, certificates for those modules directly relevant to their work.</p>
<p>2. Ground Crop Sprayers</p> <p>a. Tractor-mounted or trailed boom sprayers:</p> <ul style="list-style-type: none"> — hydraulic nozzles — high and medium volume sprays <p>b. Tractor mounted boom sprayers:</p> <ul style="list-style-type: none"> — rotary atomisers — low and very low volume sprays. 	<p>Forest nursery application of a wide range of pesticides. Occasional use in the forest on level ground and in farm woodlands.</p> <p>Control of weeds in forest plantation especially pre-planting.</p>
<p>4. Tractor Mounted or Trailed Granule Spreader</p>	<p>Granules for forest weed control.</p>
<p>6. Hand Held Applicators</p> <p>a. Hydraulic nozzle and rotary atomiser applicators, including Knapsacks, Herbicator, Ulva, Herbi, lances from tank on tractor.</p> <p>c. Hand held granule applicators: Moderne or pepper pot</p> <p>d. Hand held applicators requiring minimum calibration — eg Weed wipe</p>	<p>Forest and Forest Nursery treatments, overall, band and spot treatment. Most pesticides recommended for forestry, using liquid or wettable powder or similar formulation.</p> <p>Approved granules.</p>
<p>10. Dipping Plants</p>	<p>Forest and Forest Nursery application of Lindane and Permethrin. Also treatment with 'Electrodyn Sprayer Conveyor'.</p>

The Proficiency Modules not relevant to forestry or forestry personnel are:-

- 3: Air Assisted Sprayers (excluding pedestrian controlled machines);
- 5: Boat Mounted Applicators;
- 6b: Applications to water using Alginate Applicators;
- 7: Aerial Application;
- 8: Mixer/Loader;
- 9: Fogging, Misting and Smokes;
- 11: Seed Treatment.

No module is specified for

a. Handling and planting
treated plants on areas
liable to attack by *Hylobius* and *Hylastes* spp.

After treatment with Lindane or Permethrin
by Electrodyn or conventional dipping.

b. Stump treatment after
felling.

Urea and Peniophora for protection against
Fomes.

c. Rodent control using gassing tablets,
powders or bait poisons.

Managers must ensure nevertheless that operators involved with these treatments are competent to do so within the terms of the uses approved for forestry.

Guidance Note 4

Protection of the Operator

1. Legal Requirements

The Control of Substances Hazardous to Health Regulations, 1988 (COSHH Regs) state:-

a. Regulation 6 (part)

i. an employer shall not carry out any work which is liable to expose any employees to any substance hazardous to health unless he has made a suitable and sufficient assessment of the risks created by that work to the health of those employees and of the steps that need to be taken to meet the requirements of these Regulations.

ii. Such assessments shall be reviewed forthwith if there is reason to suspect the assessment is no longer valid, or there has been a significant change in the work to which the assessment relates. Where as a result of the review, changes in the assessment are required, these changes shall be made.

b. Regulation 7(1), (2) and (3)

(1) Every employer shall ensure that the exposure of his employees to substances hazardous to health is either prevented or, where this is not reasonably practicable, adequately controlled.

(2) So far as is reasonably practicable, the prevention or adequate control of exposure of employees to substances hazardous to health shall be secured by measures other than the provision of personal protective equipment.

(3) Where measures taken in accordance with paragraph (2) do not prevent, or provide adequate control of exposure to substances hazardous to health of employees, then, in addition to taking these measures, the employer shall provide those employees with such suitable personal protective equipment as will adequately control their exposure to substances hazardous to health.

c. Regulation 8

(1) Every employer who provides any control measure, personal protective equipment or other thing or facility pursuant to these Regulations shall take all reasonable steps to ensure that it is properly used or applied as the case may be.

(2) Every employee shall make full and proper use of any control measure, personal protective equipment or other thing or facility provided, pursuant to these Regulations and if he discovers any defect therein, he shall report it forthwith to his employer.

2. Assessment Under COSHH Regulations (Reg 6)

a. i. There is no body of established practice yet on which to base recommendations for making "Assessments" under COSHH. Nevertheless, it is clear that use of pesticides in forestry differs from the use of the majority of substances defined as "hazardous" under COSHH in that:

- the application is out of doors, to pests and on sites which may not require the same treatment for many years subsequently;
- there has been a substantial programme of testing before any pesticide product is marketed. The approved product label provides guidance, both as to the hazard and how to minimise risk of exposure to that hazard.

ii. Many employers may adequately therefore meet their obligations towards pesticides under COSHH if their assessments are made in 2 stages.

The first stage would comprise an initial survey of the range of reasonable possibilities for use of pesticides in the specific circumstances of the employers business or activity. This should lead to the setting up of the capability to minimise the hazards and risks associated with those possibilities. This capability would be manifest in terms of ensuring competent, and if necessary certificated staff, well maintained storage facilities and equipment, proper systems for maintaining records, provision for liaison, emergencies etc., as set out in this code.

The second stage would relate specifically to a site and pest, and would assess whether any special local circumstances should cause the standard practice identified in Stage 1, to be modified because of increased risk of exposure.

The first stage assessment might be done initially and reviewed annually; the second stage assessments would be required for each main pesticide application and would be made a few days before the provisional date of commencement of application.

iii. It would be prudent to ensure that the Stage 1 assessment is formally recorded in writing; whether or not the Stage 2 assessment would need to be recorded would depend on the circumstances. For example, a change in practice because of local circumstances might be recorded, whereas it might not be necessary to record any assessment which revealed no need for divergence from the conclusions of the Stage 1 assessment.

b. The approved label of pesticide products will constitute the principal source of information on which to base the first stage assessment of the hazards associated with individual pesticide products. This should be supplemented by relevant information from any associated off-label approval, and from publications from bodies such as the Forestry Commission, HSE, MAFF, manufacturers etc on the risks to employees health and the steps necessary to minimise exposure.

All this information should be considered in the context of possible future use, reviewing:

- i. circumstances which affect the control of exposure of operators;
- ii. whether an alternative less hazardous product or application technique might be as effective;
- iii. information from previous similar spraying operations, any experience from neighbours, press reports etc;
- iv. opportunities to reduce risk during preparation for and in the course of use. These could include:
 - use of formulations or packs requiring less pouring and measuring and in packs designed for smooth pouring;
 - use of mechanical metering systems for dispersing concentrates;
 - use of as low pressure and large droplet size spray as is compatible with control of the pest target and the minimisation of the overall rate of pesticide applied.

c. Assessment of Local Factors (Second Stage Assessment)

Shortly before any specific pesticide application is made, a brief assessment should be made considering the possibility of local factors affecting health of operators and other employees. For example:

- have employees only limited experience of the proposed use and so may be more at risk from error;
- is the use proposed likely to continue for longer than is normal, leading to possibilities either of chronic exposure, or of over-familiarity and a consequent drop in the standard of personal protection achieved;
- is the site exceptionally sloping, exposed to gusting winds or other factors which may accentuate hazards of operator exposure during work;
- is there anything unusual about the size, quantity or distribution of the target pest;
- etc

3. Principles of Design and Operation of Application Equipment etc

a. Systems of application should be designed and used to minimise so far as is reasonably practicable, the risk of contact between pesticide and the person applying it (the 'operator').

Protective clothing should be a second and not the first line of defence for the operator.

b. Handling and application techniques should minimise risk of contaminating operators by incorporating high standards in:-

- i. storage and transport of pesticides, emphasising the need for clean, tightly and securely closed containers — for both concentrate and diluted pesticide, and adequate securing of containers when in transit;
- ii. provision and maintenance of suitable protective clothing;
- iii. diluting pesticides, avoiding splashing and spillage;
- iv. maintenance of equipment, especially the avoidance of leaks;
- v. application, to minimise operator exposure, eg by using as coarse droplets and low pressure as possible to avoid drift, and directing spray away from the operator;
- vi. health surveillance where appropriate, eg when using organo-phosphorus pesticides.

c. Operator Protection and Product Toxicity

Currently approved pesticide product labels show one of the following health hazard categories:-

Very Toxic;

Toxic;

Harmful;

Irritant;

Unclassified (ie less hazardous than the previous categories).

See Table 3, page 36

Products may in addition be designated 'Flammable', or 'Corrosive', with supplementary qualifying phrases such as 'Irritating to the skin', 'Irritating to the eyes' etc.

All products classified as Very Toxic, Toxic, Harmful, Irritant or Corrosive are *de facto* substances harmful to health.

Where there is a practical choice:-

prefer application systems which least expose operators to a pesticide;

prefer less toxic and non-irritant products.

d. Under the provisions of the HSC Approved Code of Practice "Preventing Accidents to Children in Agriculture" no person below school leaving age should handle, use or be exposed to any pesticide.

4. Application Equipment

Those features of application equipment designed to prevent exposure of operators, employees and others to pesticides must be kept under regular, frequent observation to ensure their effectiveness.

These include

pumps, pipework, joints (no leaks)
spray jets (not blocked or worn)
pressure regulators (correctly adjusted)
etc.

5. Protective Clothing

a. Protective clothing is prescribed in order to reduce the risk of harm to the user from the pesticide in use, where full engineering control of exposure is not reasonably practicable.

b. Legal obligations arise from 2 sources

- i. Certain pesticides may be subject to a requirement stated on the product label, or in any specific 'off-label' approval, for the operator to wear protective clothing when handling the concentrate or during application of

when handling treated plants. Such requirements are enforceable under the 'Control of Pesticides Regulations 1986' made under the 'Food and Environment Protection Act 1985'.

- ii. The 'Health and Safety at Work Act 1974' and the 'Control of Substances Hazardous to Health Regulations 1988' impose obligations (Regulation 8) on employers, employees and the self-employed, to keep pesticide usage under scrutiny to ensure that standards of practice and hygiene are maintained, so that protective clothing can fulfil its intended role.

Where personal protective clothing and equipment is specified in a label or off-label approval, 'adequate control' required under the terms of a 'COSHH assessment' can be achieved by its use, provided that clothing and equipment is properly used and maintained, and its effectiveness is not reduced by local malpractice.

The Forestry Commission in its publication on pesticides recommends protective clothing for specific situations in the forest. These should be considered as repeating and sometimes supplementing requirements given on product labels. However, they have no formal legal status.

c. Clothing for the Job or Clothing for all Purposes

Managers and operators have the choice whether to have a range of protective clothing and to select the minimum protective clothing for each individual operation or to have clothing to a specification that can be used for all operations, simplifying supervision and maintenance, but accepting that for some operations, the protection provided will be above the essential minimum.

d. Response to Site Conditions and Duration of Treatment

Care must be taken to minimise the exposure of operators. For example, where walking through freshly sprayed ground vegetation, picking up pesticide on trouser legs and boots cannot be avoided; chemical resistant wellington boots and trousers or leggings would therefore normally be appropriate protection.

Additional risks of exposure can arise, for example, when using hand held applicators to treat targets above waist height eg scrub, bracken, stacks of timber. Full waterproof protective clothing will normally be required in such circumstances together with suitable respiratory protection (filtering face-piece respirators) and/or face shields.

Where a pesticide application continues for any length of time, standards of protection must not be allowed to slip.

e. Cleaning Protective Clothing

Protective clothing including gloves must be regularly cleaned, so that it does not itself contaminate operators.

Concentrate splashes must be washed off clothing (and exposed skin and from eyes), immediately.

Frequency of cleaning depends on the product in use and the nature of the clothing. Manufacturers' recommendations should be followed.

Waterproof protective clothing should be washed down at least at the end of each day in use and more often if required under the terms of any product approval.

Cotton and similar material overalls should be cleaned at least weekly, or sooner if heavily contaminated. Operators should change out of heavily contaminated overalls without delay.

Where reasonably practicable, provision should be made to avoid the need to take protective clothing home. All protective clothing should always be kept separate from domestic clothing before and while being washed.

f. Replacing damaged Protective Gloves and other clothing

Gloves must be examined frequently as well as being cleaned regularly. Any glove which becomes punctured or torn must be replaced immediately, so as to avoid risk of contamination.

Other protective clothing must also be replaced immediately it becomes unserviceable. Respiratory protective equipment (face masks etc) must be renewed at the intervals specified for the particular use.

g. Breaks

Operators require time for meals, personal needs, rest etc. Some may wish to smoke during a break period.

Clear instructions must be given whenever there are additional precautions to be followed, beyond the routine careful removal of gloves etc and washing of hands prior to breaks.

6. Health Surveillance

a. Regulation 11 (part) of the Control of Substances Hazardous to Health States

(1) Where it is appropriate for the protection of the health of his employees who are, or are liable to be, exposed to a substance hazardous to health, the employer shall ensure that such employees are under suitable health surveillance.

(2) Health surveillance shall be treated as being appropriate where -

the exposure of the employee to a substance hazardous to health is such that an identifiable disease or adverse health effect may be related to the exposure, there is a reasonable likelihood that the disease or effect may occur under the particular conditions of his work and there are valid techniques for detecting indications of the disease or the effect.

(3) The employer shall ensure that a health record, containing particulars approved by the Health and Safety Executive, in respect of each of his employees to whom paragraph (1) relates is made and maintained and that that record or a copy thereof is kept in a suitable form for at least 30 years from the date of the last entry made in it.

(8) On reasonable notice being given, the employer shall allow any of his employees access to the health record which relates to him.

(9) An employee to whom this Regulation applies shall, when required by his employer and at the cost of the employer, present himself during his working hours for such health surveillance procedures as may be required for the purposes of paragraph (1). 3

b. Ill Health During a Period of Work Involving Pesticides

i. Any minor symptoms of ill-health should be reported by workers and should be noted on the daily record of spray operations. Where there is any doubt about a worker's current state of health or if pesticide poisoning is suspected, he should see a doctor immediately and should mention the types of pesticide with which he has recently been working. Copies of container labels (including year of purchase) and the relevant records of work should be made available on request.

ii. Serious Illness or Accident

Under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1985 (RIDDOR):

- where a person dies; or
- suffers either acute illness requiring medical treatment or loss of consciousness, resulting in either case from the absorption of any substance by inhalation, ingestion or through the skin; or
- where injury results in the person injured being admitted immediately into hospital for more than 24 hours;
- or where the uncontrolled or accidental release or the escape of any substance from any equipment, storage vessel, tank etc which having regard to the nature of the substance and the extent and location of the release or escape, might have been liable to cause the death of or any other damage to the health of any person

the responsible person (defined in the Regulations) is required

1. forthwith to notify the Health and Safety Executive (HSE) by the quickest practicable means and
2. within 7 days to send a report on the appropriate form to the HSE.

c. Organophosphorus and carbamate pesticides

- i. These groups of pesticides are very seldom used in the forest. However, advice of a HSE Employment Medical Advisor should be sought before operators are exposed to more than occasional use of products containing these pesticides.
- ii. Surveillance in this case may involve assessment of enzyme activity in blood.
- iii. Whenever the use of these types of material is under consideration, the workers likely to be involved should be asked if they have been in contact with other organophosphorus or carbamate pesticides during the preceding 2 or 3 months. If so, or if sustained use in the forest is expected, advice of the local Employment Medical Advisor of the HSE should be sought as to the scale and method of health monitoring of the workers involved.

d. General Medical Advice

Advice on the medical aspects of safe use of any pesticide in forestry, may be had from local offices of the Employment Medical Advisory Service. These are based in the same premises as Health and Safety Executive Inspectors. See HSE Guidance Note HSE5, M20 and HS17.

Records

- a. Adequate records should be kept of all operations and staff involving the application of pesticides. Such records are necessary not only as a matter of good management practice, but also as a source of reference in the event of accidental contamination of people, land, water or non-target crops or later illness which might be attributed to use of particular pesticides.
- b. Records should include a note of the year of purchase of pesticides for dating the container label and for control of pesticides in store.
- c. Figure 1a and b give model record forms for recording the use of pesticides, and for the handling of pesticide treated plants.
- d. For records relating to aerial spraying, see Guidance Note 5 section 7c.
- e.
 - i. A record containing the following particulars should be kept for every person undergoing formal health surveillance:-
 - Surname, forenames, sex, date of birth, permanent address, post code, National Insurance number, date of commencement of present employment and a historical record of jobs involving exposure to substances requiring health surveillance in this employment.
 - Conclusions of all health surveillance procedures and the date on which and by whom they were carried out. The conclusions should be expressed in terms of the person's fitness for his work and will include, where appropriate, a record of the decisions of the employment medical adviser or appointed doctor, or conclusions of the occupational health nurse or other suitably qualified or responsible person, but not confidential clinical data.
 - Such records have to be kept for 30 years.
 - ii. Where health surveillance consists only of keeping an individual health record, the particulars required are those in the first sub para of e.i. above.

RECORD OF PESTICIDES USED AT (Location Name)
(Note: This is a permanent record and must not be destroyed)

PESTICIDE (Common Chemical Name) (Product Name)

Overall/Band/Spot

[illegible]

Form 1 (Pesticides) (January 1989)

In columns 9 and 10, E = essential, D = discretionary

* Delete as appropriate.

[illegible][illegible]

In columns 9 and 10, E = essential, D = discretionary

21.

Guidance Note 5

Protection of the Environment and Neighbours' Crops

1. Avoidance of Damage

- a. Where pesticides are to be used, managers must identify those particular aspects of the environment, including visual amenity, which may be placed at risk.
- b. Environmental protection measures specified in any approval must be strictly complied with.
- c. Wherever there is doubt, competent local advice should be sought.

2. Drift of Pesticide onto Neighbouring Crops

- a. Note should be made of crops growing in the vicinity of the area to be treated. Appropriate steps should be taken to avoid risks to neighbours' crops through drift or through malfunctioning of equipment, especially if growth-regulating herbicides are to be used near greenhouses, or where insecticides are to be applied to or near areas which bees may visit.
- b. As well as the obvious risk of drift when spraying in strong winds, there is also a serious risk of drift in periods of settled warm weather with little wind, especially where more volatile formulations or fine sprays are being used. They may remain suspended in the air for considerable periods and may not be dispersed as effectively as on a breezy day.
- c. Spraying should immediately be suspended if there is a change in windspeed or direction, which could lead to drift damage to susceptible crops down wind. Operations should only be resumed when the risk is minimal.

3. Wildlife

- a. Sites of Special Scientific Interest

Where use of a pesticide is identified as a 'potentially damaging operation' for any particular SSSI, under the Wildlife and Countryside Acts 1981 written agreement must be sought from the Nature Conservancy Council giving 4 months prior notice.

- b. Local Nature Reserves and other Wildlife Conservation Areas

The basis for use of pesticides should be included in any agreement setting up local nature reserves or similar areas. Subsequent practice should conform to the terms of the agreement.

- c. Elsewhere

The effects of pesticides on wildlife should be considered wherever pesticides are used. Liaison should be maintained with local naturalists, so as to minimise the risk of inadvertent damage to local wildlife not protected by a national or regional designation.

4. Water Supplies (See also Guidance Note 1, Section 6)

- a. Risks to Water

There are 3 principal sources of risk to surface and ground water.

- i. Spillage leading to run-off into streams.

This can arise by accidental spill in the course of work or in transit, or as a consequence of fire and the use of water to fight it.

Spillage on the scale likely to occur in normal forest operations should be soaked up as far as possible by absorptive materials which should then be disposed of safely.

Emergency procedures should have been drawn up to cover these eventualities and should be followed in the event of an accident.

ii. Careless disposal of waste

Proper techniques for handling surplus and waste pesticide and empty containers are set out in detail in Guidance Note 6, Sections 9-11 of this code and in MAFF Booklet B2198 'Guidelines for the Disposal of Pesticides and Containers on Farms and Holdings'.

In forestry practice, particular care has to be taken to dispose safely of residues resulting from dipping plants in insecticide prior to planting on felled conifer sites.

Risks to ground water arise where substantial quantities of persistent pesticides are leached and carried by percolating water through porous sub-soil and underlying strata.

Risks can be minimised by ensuring that any substantial quantity of waste pesticide is disposed of through a reputable disposal contractor or local authority and is not buried where there is a risk of leaching into ground water.

iii. Careless Application

This can result in spraying into water courses and consequent direct pollution of running water. (This is an offence under the Control of Pesticide Regulations.)

Careless application can be avoided by ensuring that operators are competent, well motivated and properly supervised for the job in hand.

Bundles of plants, treated with insecticide prior to planting must on no account be placed in or near water courses to avoid being dried out or to be freshened up. Any insecticide washed off in these circumstances will pollute water downstream and may cause serious harm to fish.

b. Vulnerability of Fish and other Aquatic Life

Fish and aquatic invertebrates are particularly susceptible to certain insecticides. The product label draws attention to this risk where appropriate. Special care must be taken when using such products to avoid pollution in any watercourse or standing water, especially head waters of fishing rivers and upstream of fish farms.

'Dangerous/Harmful to Fish' ratings shown on product labels are summarised in the right hand column of the table of products given in Appendix II.

c. Use of Pesticides In or Near Water

i. Certain weedkillers are approved for use in or near water. Where it is necessary to employ approved products on the banks of streams and lakes, the terms of the approvals for such uses must be followed rigorously.

ii. Where a protective riparian strip has been defined by forest managers following 'Forest and Water Guidelines', only those pesticides approved for use in or near water should be used on such strips.

Where no such strip has been designated, a strip up to 10 metres wide along each bank should be allowed as a similar 'cordon sanitaire'.

iii. Around reservoirs and lakes, the width of such a strip should be increased to 20 metres.

iv. A further 10 metre safety margin should be allowed up wind, between an operator and a lake or stream, when the operator is using a ULVA or controlled drop incremental applicator (CDIA) or other equipment producing fine droplets which are expected to drift on to their target.

v. Very few insecticides are approved for use in or near water.

vi. Streams and lakes must not be used for washing equipment.

vii. Boreholes, wells and mine shafts must not be used for disposing of waste pesticide or containers, nor must surplus or waste pesticide or residues be sprayed onto ground within 50 m of any well, or 100 m of any borehole.

5. Bees

a. Risk to Bees

Bees are potentially at risk from the use of pesticides in the following situations:-

- in crops which when sprayed, are flowering or close to flowering and are attractive to bees;
- in crops with weeds eg heather, which when sprayed are flowering or close to flowering and are attractive to bees;
- in crops which when sprayed are under heavy attack from aphids which leave foliage sticky with honey dew;
- in crops adjacent to permanently or temporarily located hives where bees are travelling through such crops to reach suitable forage. Such hives may also be vulnerable to spray drift from nearby spraying operations.

b. Potentially Dangerous Pesticides

- i. The label of every approved product gives some guidance as to the danger of the product to bees. Products may be marked 'Dangerous to Bees' or 'Harmful to Bees'.
- ii. Certain products that may be used in forests or forest nurseries are listed in Appendix II of this code; for such products, those carrying warnings on the labels in respect of danger to bees are indicated.
- iii. Where a spraying operation may offer a potential threat to bees:
 - consider whether an alternative less potentially hazardous product can be used;
 - ensure that local beekeepers are notified in reasonable time before the spray is applied.
- iv. Spraying of herbicides as well as insecticides may be a direct threat to bees.
- v. Spraying early, or better, late, in the day reduces the risk to honey bees and other pollinating insects.

c. Notification of Beekeepers

- i. Contact with secretaries of local beekeeping associations and with known local beekeepers should be maintained. Beekeepers should be encouraged to inform neighbours of the presence of hives. Local MAFF, DAFS and WOAD offices should have details of any Beekeepers Spray Warning Scheme notified to them.
 - ii. Notification of spraying likely to harm bees should normally be made 48 hours and in no case less than 24 before the intended spraying, so that hives may be closed or removed.
- d. Should any bees be thought to have been poisoned as a result of a pesticide application, contact should be made with the 'National Beekeeping Unit' MAFF, Luddington Experimental Horticultural Station, Stratford-on-Avon, Warwicks, CV37 9SJ (Tel: 0789-750601), as to what details should be reported.

6. Amenity Areas

- a. Where practicable, the timing of spraying operations should avoid popular recreational periods.
- b. In areas where brambles, bilberries etc are likely to be in fruit and visited by the general public shortly after pesticides have been in use in the immediate vicinity, warning signs should be put out. Such signs should remain in position as long as treated fruit appears sound and wholesome.
- c. Pest control operations should be designed so as to have the minimum adverse effect on local scenery.

7. Aerial Application of Pesticides

- a. Applications of pesticides from the air are subject to additional legal conditions under the Control of Pesticides Regulations 1986. These are set out in Schedule 4 of the Regulations and in 'Consent C(ii)' made under the Regulations (see Appendix IVc); they require the person undertaking the aerial application or a person acting on his behalf to consult The Nature Conservancy Council and the local Water Authority or River Purification Board prior to

spraying and to notify neighbours and the Chief Environmental Health Officer for the district where the spraying is to be done, shortly before spraying. In addition, requirements are laid down in relation to wind speed, ground markers, ground staff and record keeping.

b. A manager of a woodland may frequently find it expedient to undertake preliminary consultations with environmental authorities, before deciding whether or not to engage a contractor to apply pesticides from the air. If he subsequently decides to proceed, he should ensure that any consultations and notifications undertaken by the contractor are clearly related to the previous preliminary enquiries.

c. Records of application of pesticides from the air are subject to rules described in the Civil Aviation Authority's Guidance notes (CAP 414) on the Aerial Application Certificate. Copies are available from the Authority's Printing and Publication Section at Greville House, 37 Grattan Road, Cheltenham, Glos GL50 2BN.

d. Consent of the Nature Conservancy Council has to be obtained if aerial spraying is proposed within half a nautical mile distance from a Site of Special Scientific Importance.

- ii. Clean, dry clothing should be stored in a cool dry place, hung up or loosely folded.
- iii. Clothing which is clean but damp should be hung in a space where it can safely dry.
- iv. Clothing which is contaminated must be stored separately from any clean clothing.
- v. Personal clothing must be stored separately.

h. Store for Equipment

Application, calibration and maintenance equipment should where reasonably practicable be stored separately from protective clothing and pesticides.

j. Store for Empty Containers

- i. Facilities are required to store empty pesticide containers prior to safe disposal. If there is space, empty containers can be held in the main pesticide store. Otherwise they should be kept in a secure pound.
- ii. See Section 11, following, for disposal of empty containers.

k. Advice on Storage Facilities

If in doubt about any aspect of safety or security, consult the local Agricultural Inspector of the Health and Safety Executive, Crime or Fire Prevention Officer of local Police and Fire service as appropriate.

5. Transport

- a. Materials, equipment and men may on many occasions have to be transported together for a number of miles between the pesticide store and the application site in the forest or wood.
- b. Pesticide containers and equipment must be carried in a compartment separate from the driver and passengers, whether a road vehicle or tractor. A secure closed vented box is often suitable for this purpose.
- c. Fertilisers, animal feed and absorbent materials must not be carried in the same compartment as pesticides.
- d. Safety checks should be made to ensure:
 - containers are sound (no leaks), lids, caps or other closures are tight and effective, and labels intact and legible;
 - pesticides are securely held, so as not to be crushed in transit, nor to be able to topple over;
 - pesticides in paper sacks or cardboard cartons are stowed so that they remain dry;
 - couplings of any trailer are secure and with locking pins or other safety devices properly fixed.
- e. A container which is known to be leaking must not be carried to a work site.
- f. 'Clean up' procedures following spillage must be specified beforehand; supervisors and operators must be familiar with these, understanding that any spillage running into streams is likely to have a serious effect upon fish and other aquatic wildlife. 'Clean up' materials must be carried and be immediately to hand.
- g. Transport Requirements under the 'Poisons Rules 1982'

When transported, materials covered by these rules must be:-

- i. consigned in packing sufficiently stout to avoid leakage arising from the ordinary risks of handling and transport;
- ii. labelled conspicuously on the outside of the container with the name of the poison and a notice indicating that it is to be kept separate from food and from empty containers in which food has been contained.

6. Storage at Work Site

Pesticides brought to a site must at all times be sufficiently secure as not easily to be interfered with. Mixing sites and storage sites must be well away from watercourses so that any spillage can be controlled before it reaches the watercourse.

7. Preparing Spray Liquid

- a. Spillage risks are greatest while pesticide concentrates are being poured. 'Clean up' procedures must be specified beforehand and 'Clean up' materials must be immediately to hand.
- b. Water for diluting pesticides should have been drawn from a tap within 48 hours prior to use. Stream water should not normally be used.
- c. Preparation must not be done next to inlets to piped drainage systems, running drains or watercourses.
- d. Depending on the scale of the operation, the pest and the product, pesticides may be diluted at depot and the dilute pesticide transported to the forest; otherwise, concentrate and diluent may be kept separate during transport and mixed on site.
- e. No more dilute spray liquid should be made up than is certain to be used. If in doubt make up too little rather than too much. (This may be more than a day's supply if it is *certain* to be used and can be kept safely overnight.)
- f. Any directions for preparation on the product label or in approved 'off-label' conditions for use must be followed.
- g. In the absence of specific instructions:-
 - put on appropriate protective clothing (gloves, face visor, waterproof overall and rubber boots);
 - ensure containers for the diluted pesticide are on firm level surfaces or are otherwise securely held and are clearly marked or are unmistakably identifiable as holding dilute pesticides;
 - fill container with one-third to one-half of the required volume of water or other diluent;
 - measure out concentrate required, pouring it slowly and smoothly to avoid splashes, replacing concentrate cap or closure immediately, and cleaning up any spillage immediately;
 - add concentrate to diluent, pouring smoothly, mix well;
 - rinse measures and empty containers well, adding rinsings to spray tank;
 - make up to required total volume, mix well;
 - clean off any concentrate from the outside of any container or protective clothing.

h. Risk of Back-syphonage

Water for dilution should not be transferred from a mains water supply or from a water course to any tank containing pesticides in any way which could result in back-syphonage of the tank contents to the mains supply or to the watercourse.

8. Control of Pollution

The provisions under the Control of Pollution Act, 1974 for the disposal of pesticide wastes remaining after application in agriculture, horticulture and forestry are currently (March 1989) under review. Checks should be made periodically to find out if any changes to practice are necessary because of the terms of any revised legislation.

9. 'Clean up'

- a. Any pesticide on the outside of equipment or containers should be wiped off or rinsed off before stowing onto transport to go to the depot.

- b. Protective clothing worn for a pesticide application will have become contaminated. 'Clean-up' procedures specified for the pesticide must be followed in cleaning, removing and storing such clothing.
- c. Water used at the application site for washing down protective clothing and for personal washing should be spread over the ground in the locality. It must not be poured into gulleys, ditches or streams, or spread on stream banks or around springs, wells or boreholes.

10. Disposal of Surplus Pesticide

a. Unused Dilute Pesticides

- i. In a well controlled application, there will be very little unwanted dilute pesticide at the end of a day's work. Small volumes of pesticide should be sprayed onto adjacent ground, avoiding susceptible crop trees, areas specially rich in wild flowers, and water-saturated ground. Unused dilute pesticide must not be spread on stream or lake banks or into or around wells, boreholes or springs.

The spray tank should be completely drained.

- ii. Larger volumes of dilute pesticide, not used because of machine failure or increased wind speed, should be returned overnight to a safe store and utilised as soon as possible thereafter for the original intention. If, however, manufacturers advise that dilute pesticide may denature if kept for more than a day or so, and the pesticide cannot be used in this time, the excess liquid should be sprayed safely onto waste ground, as in the preceding paragraph.

iii. Surplus dilute pesticides remaining from plant dipping operations should be disposed of either:-

- by spraying over absorbent waste ground at a rate of application corresponding to forest spraying; or
- by transfer to sound drums or other containers (which must be clearly marked with their contents) which containers are subsequently disposed of by a reputable waste disposal contractor or by the local authority; or
- by draining into a sump or other watertight underground tank capable of being emptied periodically by a reputable waste disposal contractor.

iv. Drained sediment from dipping tanks should either:-

- be transferred to containers and disposed of in the same way as drums of surplus dilute pesticide outlined in the preceding paragraph; or
- be spread very thinly over dry waste ground, avoiding sites where sediment has previously been spread.

b. Surplus Pesticide Concentrate

- i. Unopened sound containers of pesticide, surplus to user's requirement, should be offered back to the supplier as soon as it is apparent that a material is surplus.
- ii. Any surplus material which a supplier will not take back should be disposed of either by prior arrangement with the local authority or by a reputable waste disposal contractor.

c. Old or Deteriorated Pesticide Concentrate

- i. Pesticides should not be kept beyond any date given in a 'Use Before' label or, if there is no such label or manufacturer's recommendation, for more than 2 years from the date of purchase.
- ii. Pesticide concentrates showing signs of change (eg loss of solvent, leading to shrinkage of the container, irreversible settling out, etc) must not be used.
- iii. Old or deteriorated pesticide concentrates should be disposed of as for surplus pesticide concentrates.

d. The disposal of unused, surplus or old pesticides to specially dug soakaways is not recommended. The prior consent of the Local Water Authority or River Purification Board is required for any disposal by this method.

11. **Used Containers on Work Site**

a. Empty containers, cartons and bottles in which pesticide concentrate has been supplied, sacks in which granules have been supplied, polythene bags used to move plants treated with insecticide prior to planting, paper towels used for washing or cleaning etc should be gathered up for return to the pesticide store/empty container pound.

b. Part-full concentrate containers (except Phostoxin tablet containers) should be checked to ensure they are securely closed. The outside of such containers should be wiped as clean as possible with disposable paper towels before leaving the site. The containers should be returned to the store, their contents being estimated for stock control purposes and entered in the stock ledger.

c. Phostoxin tablet containers should not be resealed.

Any phostoxin tablets left at the end of an operation should be emptied from the container and securely buried. The empty container should be filled with soil and buried separately from any tablets. Neither unwanted tablets nor empty containers should be pushed down burrows.

12. **Disposal of Empty Containers**

a. Empty pesticide containers should never be re-used. Prior to safe disposal, containers should be emptied and cleaned following any special instructions on the label. They should then be punctured or crushed and kept securely.

b. Prior arrangements to dispose of empty containers, contaminated paper and polythene sacks and bags must be made with the local authority Environmental health officers of local authorities or a reputable waste disposal contractor.

c. Burning of containers in the forest or in forest depots is not recommended because of the danger of producing hazardous fumes.

d. Where there is no alternative, arrangements must be made for empty clean pesticide containers, contaminated sacks and bags etc to be buried either:

- on a licensed land fill site (local authorities can advise); or
- on land owned or occupied by the person disposing of the pesticide provided the site is carefully chosen to prevent pollution of surface and ground water.

e. Wastes should always be buried to a depth of at least 0.8 m, the area marked and a record kept of the site and substances buried.

f. Pesticide wastes should never be dumped on public rubbish tips, down mine shafts, swallow holes etc.

g. Empty containers having contained hydrogen cyanide gassing powders (Cymag), aluminium or zinc phosphides (Phostoxin), require special treatment as follows.

- Handle in the open air;
- Do not rinse out;
- Having checked that they are empty, puncture and fill with earth;
- Bury securely on site, immediately after use.

Guidance Note No 7

Application Equipment

1.
 - a. Equipment used in forestry has usually been adapted to a greater or lesser extent from machines initially designed to apply pesticides for use in horticulture or agriculture. The principle categories are listed at the end of this note.
 - b. Before any further local modifications to manufacturers' equipment are considered, the user must check whether their effect will be to take the use outside the scope of current approvals. If it does, the manufacturer, or the MAFF Pesticides Registration and Surveillance Department, Hatching Green, Harpenden, Hertfordshire, should be approached for advice.
 - c. Equipment must be well maintained. Spares of perishable or easily damaged items, eg washers, nozzles and valves must be readily available. Nozzle orifices may suffer heavy abrasion in use; their output and spray pattern should be checked frequently and nozzles replaced as soon as performance changes appreciably.
 - d. Equipment should never be allowed to continue to be used while leaking from joints, valves or any other source.

2. Calibration of Equipment

- a. Each type of equipment has particular characteristics affecting its performance and the large majority require calibration on site at the start of each working day. Rotary atomiser equipment is sensitive to viscosity of the sprayed liquid and may need to be recalibrated several times during the day if the temperature changes substantially.
- b. Descriptions of calibration methods are contained in makers' instructions supplied with new equipment and in Forestry Commission Handbook 8 and Booklet 52 for the materials recommended there.

3. Repair of Faulty Equipment

- a. There must be a clear system in being to ensure that any faults developing in applicators, protective clothing etc are repaired promptly and that subsequent applications are deferred until any faults that may threaten the effectiveness or safety of the operation have been put right.
- b. The person responsible for arranging the application of a pesticide must ensure that anyone called upon to maintain or repair that equipment is fully informed beforehand of the precautions to be taken. This is especially important when a mechanic is called out to deal, on site, with spraying equipment which is malfunctioning. Equipment returned to depot for maintenance or repair should be cleaned by the operator and left in a condition such that repair or maintenance personnel can work without the need for protective clothing. If for any reason, this has not been possible, the maintenance staff must be told of the precautions to be taken to clean the equipment before maintenance or repair work can start.

4. Equipment Used for Applying Pesticides in Forestry

- a. Tractor mounted equipment, operated from tractor cab:
 - i. The conventional agricultural boom sprayer carrying a number of evenly spaced hydraulic nozzles has only a small place in forestry, primarily because the terrain over which the tractor runs is too rough for a consistent nozzle height above the ground to be maintained. The system is used nevertheless in flatter parts of the country. The performance of individual jets in such equipment must be regularly checked.
 - ii. Ulvaforest: a special gimbal-mounted boom carrying rotary atomisers for approved low volume applications of sprays in bands or overall. The boom design enables sprays to be applied evenly on rougher terrain than a conventional boom can be used on. Regular calibration checks are essential.
- b. Manually operated portable equipment

These have in common that the operator controls the direction and duration of application manually. Some require an external power source or manual pumping to generate spray pressure, others operate solely under the force of gravity.

i. Pressurised systems

- Lance systems include a hand-held and operated trigger, and nozzle specified according to the pesticide rate of application of approved products (or active ingredient) and rate of dilution. The liquid is forced through the nozzle under pressure generated either in the reservoir tank, in a pump device attached to the outlet of the reservoir or incorporated in the trigger mechanism.

The reservoir of dilute spray solution may be carried on the back in a knapsack or may be machine mounted (eg tractor).

All lance systems require specific calibration, according to the pesticide to be used, nozzle operating pressure and dilution.

ii. Unpressurised Systems

- Rotary atomisers (Controlled Droplet Applicators). These produce even sized droplets from a spinning disc, and reach their target under the force of gravity. Regular calibration checks are required to ensure they are working within the designed speed range. The correct nozzle must be selected for the required flow rate.
- Mist blowers. These generate droplets by suction of a powerful stream of air passing a spray orifice. The droplets are then carried and distributed by the same air stream. Dilute pesticide solution is carried in the same frame as the motor generating the air stream. Mist blowers normally require calibration of the flow rate setting.

Gravity feed liquid systems

- Pesticide liquid transferred by contact by a saturated wick (Weedwipe);
- Brush and bottle systems, eg for applying urea etc to stumps of freshly felled trees;
- Liquid flow into cuts in the bark of tree stems (tree injectors).

iii. Dry Pesticide Applications

Hand operator granule spreaders (pepper pot; Moderne applicator).

Hand placed dry herbicide (ammonium sulphamate crystals).

iv. Vertebrate Poisons

Hand placed vertebrate poison equipment (Warfarin, Cymag, Phostoxin etc). Special precautions are required when handling these materials. See product label.

v. Manually operated static equipment

Plants used to restock clear felled areas of conifers, liable to attack by *Hylobius* and *Hylastes* may require pre-planting insecticide dipping or spraying treatment in other locations than forest nurseries. Dipping is carried out in specially designed tanks; sprays may be applied hydraulically or by an electrostatic (electro-dyn) system.

vi. Aircraft

Helicopters (and fixed wing aircraft) are only occasionally used in forestry and require special procedures laid down in the 'Control of Pesticide Regulations 1986'. See Appendix IV.

e. Mechanical systems applying pesticides to tree stumps, in association with tree felling

i. Mechanical tree harvesters

These may be fitted with a liquid feed system, causing eg urea solution to be spread on the freshly cut stump surface.

ii. Clearing saws

These may be fitted with a liquid feed system causing herbicide to be spread on freshly cut stump surfaces.

Current information on equipment suppliers can be obtained from:—

Information Officer, Forestry Commission Research Station, Alice Holt Lodge, Wrecclesham, Farnham, Surrey.

Guidance Note No 8

Reduced-Volume Spray Application of Pesticides from Ground-based Machinery

INTRODUCTION

1. This guidance note advises users of spray application equipment on the extent to which they may decrease volume rates when pesticides are applied as 'Reduced-Volume' treatments, that is, applying the concentrate at the recommended rate but in less volume of water than is specified in the approval.

It gives practical advice on the steps to be taken to ensure that pesticides are applied in accordance with the Control of Pesticides Regulations 1986 when the pesticide label gives no instructions relating to Reduced-Volume use. It is relevant to users of rotary-atomiser spraying devices as well as to those using the more common hydraulic spraying machinery. It gives guidelines on acceptable combinations of spray quality, spray application rate and hazard classes of pesticides, permitted to be applied by certain types of spray equipment in particular situations where there are no label instructions. This part of the Code at present does not cover air assisted spray applications, eg mistblowers.

2. If you are making Reduced-Volume applications you should have received adequate instruction and guidance to ensure your competence in interpreting precisely this guidance note; if you are required to hold Certificates of Competence after 1 January 1989 you should of course obtain a certificate which is relevant for the machinery you are using. It is essential that 'Reduced-Volume' applications are made strictly in accordance with provisions for protection of the environment and operator safety given elsewhere in this Code.

3. Spraying equipment selected for making Reduced-Volume applications must have operating instructions stating exactly how to produce 'FINE', 'MEDIUM', 'COARSE', or 'VERY COARSE' sprays, consistent with the spray quality and output limits set out in Table 2.

Rotary atomisers must have stated 'Volume median diameter' (VMD) droplet output specifications so that the equipment can be related to Table 2.

4. Operational limits given in Table 2 define acceptable spray qualities for 'Reduced-Volume' applications; their observance should ensure no hazard to operators, bystanders or the environment. Particular attention should be paid to the precautions and directions for use on the product label. Precautions against drift and other safety conditions contained elsewhere in this draft Code of Practice should be strictly observed.

Further precautions set out in this guidance note to protect the operator during 'Reduced-Volume' applications are in addition to those on the product label. The maximum product dose indicated on the approved label for the intended crop must not be exceeded.

Guidance

5. You should read ALL of the following to ensure compliance with the guidance note. If Reduced-Volume application is permitted for the product chosen, the protective clothing identified in paragraph 8 must be worn. Reduced-Volume application is conducted at the users own risk with regard to the efficacy of the treatment.

6. Consult the product label or off-label approval to establish the following:

- a. approval for use on intended crop
- b. dose
- c. recommended minimum application volume
- d. minimum interval between treatment and harvest
- e. hazard classification (see Table 3)
- f. protective clothing requirements to handle the concentrate or diluted spray
- g. other conditions or precautions to be observed during spraying.

7. Reduced-Volume Application is NOT PERMITTED if:-

- a. the hazard classification states that the product is 'Corrosive', 'Very Toxic' or 'Toxic' or that there is a risk of 'Serious Damage to Eyes';
 - b. the label states that protective clothing (which includes gloves for adjusting nozzles and handling the spray boom) is required to be worn when applying diluted spray at the label recommended volume rate;
 - c. reduced-volume spraying is specifically prohibited on the label.
8. Reduced-Volume Application is permitted for other products down to one-tenth of the recommended minimum application volume rate provided that the following protective clothing is worn;
- a. for vehicle mounted sprayers (spray equipment carried or trailed by a vehicle and which is operated by a person on the vehicle)
 -) WEAR SUITABLE GLOVES
 -) when adjusting nozzles and
 -) handling spray boom
 - b. for hand held sprayers (spray equipment, self propelled or not, which is operated by a person on foot)
 -) WEAR SUITABLE PROTECTIVE CLOTHING
 -) (COVERALLS), GLOVES AND BOOTS
9. If faceshield or eye protection is required for handling the concentrate, similar protective equipment must be worn if using 'Reduced-Volume' spraying through hand-held equipment.
10. If tractor spraying operations are conducted without a cab, the protective clothing requirements should be the same as those prescribed for the operators of hand-held sprayers.
11. Acceptable spray qualities within the ranges of (reduced) spray volume rates can be identified from Table 1.

Table 2 Spray qualities considered as 'acceptable' within the ranges of spray volume rates

Spray Quality	a. HYDRAULIC NOZZLES				
	Very Fine	Fine	Medium	Coarse	Very Coarse
Spray Droplet Volume Median Diameter (VMD)	< 90 μm	91-200 μm	201-300 μm	301-440 μm	450 + μm
Spray Volume Rate (litres/ha)					
Less than 250	X	(/)*	/	/	/
251 - 400	X	X	/	/	/
401 - 600	X	X	X	/	/
601 - 1 100	X	X	X	X	/

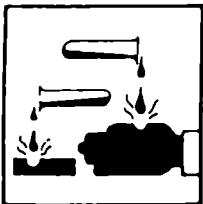


X = NOT acceptable / = acceptable

(/)* FINE Spray quality applicable to vehicle mounted spraying only

Using Table 2 to select acceptable spray qualities at reduced spray volumes of 250 litres or less in practice, vehicle mounted sprays must not be used with VERY FINE nozzles ($< 90 \mu\text{m}$ VMD for rotary atomisers) and hand-held sprays must not be used with VERY FINE or FINE nozzles ($< 201 \mu\text{m}$ VMD for rotary atomisers), unless specifically covered by label approvals.

Table 3 EC Hazard Classification of Pesticide Formulations

The following symbols and words which appear on approved pesticides labels should be identified and interpreted in the context of para 7.a. of this guidance note.

SYMBOLS			
WORDS	CORROSIVE	VERY TOXIC	HARMFUL
		TOXIC	IRRITANT

PART II — CHECKLISTS

Checklist 1

THE DECISION TO USE A PESTICIDE

1. Assessing the Balance of Risks

The decision whether or not to prescribe use of a pesticide should be taken only after consideration of:—

- the risk to the crop from the pest;
- alternative methods of control; risk of damage and the costs of treatment;
- the risks to man (both operator and anyone visiting the treated area or handling treated plants or wood);
- the risks to wildlife and the environment, in particular bees, fish, water supplies, and the landscape.

2. Ensuring Acceptably Low Risk Systems of Work

The decision to proceed to apply a pesticide should be taken only when all the requirements listed below can be met.

Satisfactory completion of any assessment necessary under the Control of Substances Hazardous to Health Regulations 1988.

A current approval under Pesticides Regulations 1986.

Identified measures to minimise risks to crop, operator or other humans, water supplies, wildlife and livestock (including bees) environment, landscape.

Operators competent to follow prescribed practice.

Suitable equipment and spare parts.

Procedures to ensure equipment is maintained and repaired promptly.

Effective protective clothing and means for cleaning up after each day in use.

A sufficient water supply for drinking, personal washing and washing down equipment, as well as for diluting the pesticide concentrate and for emergencies.

An adequate store for pesticides.

A system for recording current stock.

Emergency procedures specified, relevant to local practice and circumstance.

Supervisory arrangements that monitor use, operator safety and environmental factors at risk.

Checklist 2

WORKING CHECKS FOR OPERATORS

1. At start of application day

- a. Does everyone involved understand what has to be done to achieve the specification for the job including safe working procedures for the particular pesticides to be used?
- b. Is the weather forecast favourable?
- c. Have last minute notifications been made eg to local bee keepers, neighbours with livestock etc?
- d. Is everything present:- equipment, tools and spare parts including replacement nozzles, pesticide calibration measures/instruments, protective clothing, diluent, containers, first aid and emergency materials?
- e. Is the equipment in working order, with enough spare nozzles, washers etc?
- f. Do containers of concentrate appear sound and clean outside: are their caps or container closures tightly in place: are labels intact?
- g. Is there plenty of fresh water for dilution, drink, washing, first aid: are stocks of soap, towels etc adequate?
- h. Has the transport all the facilities for securing equipment, pesticide concentrates, diluent, protective clothing etc safely while in transit?
- i. Has pesticide been logged out from the store?
- j. Is there a book and pencil to record operators' names and times of work, pesticide used, location, crop and weather conditions?

2. On arrival at site

- a. Are the crop trees, pests, weather conditions in accordance with the specification set out for the job?
- b. Are there potential risks to water courses, straying livestock, public on rights of way that need to be guarded against?
- c. If there is more than one person applying pesticides, has a safe team working method been agreed?
- d. Is the mixing site safe against casual vandalism?
- e. Is there any other reason why treatment should not take place?

3. Checks during work

Operators must be alert for

- a. Signs of malfunction of equipment, especially nozzle or feedpipes becoming blocked; resist temptation to take risks; never try to clear a nozzle by blowing or sucking; follow procedures for repairs within your competence; seek help for more serious breakdowns. Stop work with any equipment that develops a leak until the leak has been properly repaired.
- b. Change in weather increasing risk of drift or risk of unexpected rain.
- c. Intrusion of persons or livestock into the treatment area.
- d. Checking the calibration of the sprayer periodically through the day.

4. Before leaving the site

- a. Have all unused materials been safely disposed of, or loaded onto transport?
- b. Are all used planting bags, dirty paper towels, empty containers etc collected up and safely loaded?

- c. Are any warning notices for the general public in place/removed as necessary?
 - d. Has a note been made of the day's work and any incidents, for the permanent record of pesticide use?
 - e. Is the load secure on the vehicle taking materials, equipment etc to the depot?
 - f. Have all operators followed the proper personal decontamination procedures?
5. **On return to depot**
- a. Have unused concentrates been unloaded, and returned to store and booked in.
 - b. Is any dilute pesticide safely stored?
 - c. Has equipment been cleaned and any routine maintenance carried out and returned to store?
 - d. Have any unrepaired defects in equipment been reported/noted for action?
 - e. Has protective clothing been cleaned and put to dry or put away into clean store or if dirty put into dirty store for cleaning prior to next use?
 - f. Have any incidents been reported/noted for action/acted upon, as appropriate?
 - g. Have notes of the day's work been handed in for inclusion in the permanent records of pesticide operations?

SOURCES OF INFORMATION ON THE USE OF PESTICIDES IN FORESTRY — MARCH 1989

FC Publications (Publications Department, Forestry Commission, Alice Holt Lodge, Wrecclesham, Farnham, Surrey GU10 4LH)

Fieldbook 8	Use of Herbicides in the Forest (1989)
Booklet 52	Use of chemicals other than Herbicides in Forest and Nursery (Under Revision)
Leaflet 56	Grey Squirrel Control (1980)
Leaflet 67	Rabbit Management in Woodlands (1976)
Leaflet 73	Chemical Repellants (1978)
Research Information Note 126	Enhancement of Lowland Forest Roadsides and Ridesides to Benefit Wild Plants and Butterflies

MAFF Publications (Lion House, Willowburn Trading Estate, Alnwick, Northumberland NE66 2PF)

UL79 Pesticides. Guide to New Controls

Draft Code of Practice on the Agricultural and Horticultural Use of Pesticides (1988 — under Revision)

Revised Draft Storage Code of Practice: A Draft FEPA Part III Code of Practice on the Sale and Supply including Storage for Sale and Supply of Pesticides Approved for Agricultural Use. (September 1988).

B2272 Guidelines for applying Crop Protection Chemicals (Revised 1983)

B2078 Guidelines for the Use of Herbicides in or near watercourses or lakes

B2198 Guidelines for the Disposal of Unwanted Pesticides and Containers on Farms and Holdings (Revised 1984)

Code of Good Agricultural Practice (England and Wales))

Guide to the Code of Good Agricultural Practice (England and Wales)) in relation to Control of Pollution Act 1974

Code of Good Agricultural Practice (Scotland))

Reference Book 500 Pesticides 1989: Pesticides approved under the Control of Pesticides Regulations 1986 UL 111

HSE Publications (Local Area Office, Health and Safety Executive)

AS6 Crop Spraying (Leaflet)

AS25 Training in the Use of Pesticides (Leaflet)

AS26 75M Protective Clothing for Use with Pesticides (Leaflet)

MS(B)7 Poisoning by Pesticides (Pocket Card)

MS17 Biological Monitoring of Workers Exposed to Organophosphorous pesticides (Guidance Note)

Health and Safety Commission

Control of Substances Hazardous to Health (COSHH) Regulations 1988: Approved Code of Practice (1988)

FSC Publications (Forestry Safety Council, 231 Corstorphine Road, Edinburgh EH12 7AT)

FSC2 ULV Herbicide Spraying

FSC3 Application of Herbicides by Knapsack Spraying

FSC4 Application of Granular Herbicide

Sports Turf Council

Code of Practice for the Use of Pesticides in Amenity Areas (February 1988)

British Crop Protection Council (20 Bridport Road, Thorton Heath, CR4 7QC)

Nozzle Selection Handbook

Civil Aviation Authority

Information and Requirements to be met by applicants and holders of aerial application certificates

Other

Essex Beekeepers Association: Spray Liaison

LIST OF PESTICIDES POTENTIALLY OF USE IN FORESTRY AND FOREST NURSERIES

1. The attached list has been compiled in January 1989 from various sources. The list is not claimed to be exhaustive nor have all the products listed necessarily a current approval for use in forests or forest nurseries. Nevertheless, the list is believed to contain most of the more important products recommended for use in forests and forest nurseries.

2. The list has been compiled to provide the basis for guidance on assessments required under the 'Control of Substances Hazardous to Health regulations, 1988' (COSHH Regs).

3. The list columns are as follows:—

Col 1 — Pesticide product name listed in MAFF Reference Book 500 — 'Pesticides 1988'.

Col 2 — Classification of products:— F = fungicide, H = herbicide, I = insecticide, S = solvent (a component of some products), T = soil fumigant V = vertebrate control.

Col 3 — The active ingredient in each named product as listed in MAFF Reference Book 500.

Cols 4 and 5 — Data extracted from the Health and Safety Commission (HSC) approved lists of 'Information approved for classification, packaging and labelling of dangerous substances for supply and conveyance by road.' ('CPL Lists'). These lists are the basis for defining 'Substances Hazardous to Health' under COSHH Regs.

Col 4 — The toxicity rating given in CPL 'List 1A1 — List of substances dangerous for supply' is shown unbracketed. Where the product is not listed by HSC but there is a hazard rating on the product label, this is shown in brackets. Products with active ingredients neither on the HSC list nor with a hazard rating on the product label are marked 'not listed' in Col 4.

Col 5 — For those active ingredients listed as pesticides dangerous for supply (CPL List VI), the acute oral LD 50 value given in list VI is tabulated.

Cols 6 — 10 refer only to those active ingredients listed on HSE Guidance Note 40/88. This Guidance Note contains data chiefly defining risks from inhalation of hazardous substances. While the Note's first list itemises substances for which standards are obligatory, there are no pesticides used in the forest on this list and only one (Formaldehyde) which occasionally has been used in forest nurseries.

Cols 6 — 10 set out recommended exposure limits, given in list 2 of the HSE Guidance Note 40/88.

Cols 6 and 7 — Long Term Exposure Limit (LTEL) respectively in parts per million and milligrams per cubic metre of air.

Cols 8 and 9 — Short Term Exposure Limit (STEL) respectively in parts per million and milligrams per cubic metre of air.

Col 10 — shows (Y against product name) those substances listed in HSE Guidance Note 40/88 which are identified as able to be readily absorbed by the skin.

Col 11 — identifies those products containing substances classed as 'organophosphorus' or 'carbamate', marked P or C respectively, with a * if the product is rated 'toxic'. Regular users of the more toxic of these products may require medical surveillance.

Col 12 — identifies those pesticide products marked on the label as 'dangerous/harmful to bees' (shown by B and b respectively) or 'dangerous/harmful to fish' (shown by F and f respectively).

LIST OF PESTICIDE PRODUCTS

PRODUCT	USE	ACTIVE INGREDIENT	HAZARD RATING	LD 50	LTEL	STEL						
1	2	3	4	5	6	7	8	9	10	11	12	
2, 4-D Amine	H	2,4-D	Harmful	375		10		20			f	
A.Aterra	F	Etridiazole	Not Listed									
Algofen	F	Dichlorophen	Not Listed								f	
Ambush C	I	Cypermethrin	(Irritating)								BF	
Amcide	H	Ammonium Sulphamate	Not Listed								f	
Aphox	I	Pirimicarb	Toxic							C		
Ashlade 4% Atgran	H	Atrazine	Not Listed			10						
Ashlade Atrazine 50 FL	H	Atrazine	Not Listed			10						
Asulox	H	Asulam	Not Listed							C		
Atlas Atrazine	H	Atrazine	Not Listed			10						
Atlas Dalapon	H	Dalapon	(Irritating)									
Atlas Lignum (Granules)	H	Atrazine & Dalapon	(Irritating)									
Atlas Solan 40	H	Pentlanochlor	(Harmful)									
Atraflow	H	Atrazine	Not Listed			10						
Basamid	H	Dazomet	Harmful (Irritating)	640								
BASF 2, 4-D Ester 480	H	2, 4-D	Harmful (Irritating)	375		10		20			f	
Basudin 40 WP	I	Diazinon	Toxic	300		0.1		0.3	Y	P*	Bf	
Bayleton	F	Triademefon	Not Listed								f	
Benlate Fungicide	F	Benomyl	Not Listed			10		15				
BH 2, 4-D Ester 50	H	2, 4-D	Harmful (Irritating)	375		10		20			f	
BH Prefix D	H	Dichlobenil	Not Listed								f	
Broadshot	H	2, 4-D+Triclopyr+Dicamba	(Harmful/Irritating)								F	
Butisan	H	Metazachlor	(Harmful/Irritating)									
Carbo Craven Tar Oils	I	Tar Oils	(Harmful/Irritating)								F	
Cercorbin	F	Thiophanate-Methyl-	Not Listed									
Clanex	H	Propyzamide	Not Listed									
CMPP Amine 60	H	Mecoprop	(Harmful)									
Cornox Plus	H	Dicamba+MCPA+Mecoprop	(Harmful/Irritating)								f	
Croptex Bronze	H	Pentanochlor	(Harmful)									
Cunitex	V	Thiram	(Irritating)							C		
Cyclohexanone	S	Cyclohexanone	Flam + Harmful		25	100	100	400				
Cymag	V	Sodium Cyanide	Very Toxic			5			Y		F	
Dacthal	H	Chlorthal-Dimethyl	Not Listed									
Destox	H	2,4-D Ester	Harmful (Irritating)	375		10		20			f	
Devrinol	H	Napropamide	(Irritating)								f	
Dextrone X	H	Paraquat	Toxic			0.1						
Dicofen	I	Fenitrothion	Harmful	503						P	Bf	
Dicofol 20	I	Dicofol	Harmful (Irritating)	690								
Dimilin	I	Diflubenzuron	Not Listed			5			Y			
Dow Shield	H	Clorpyralid	(Irritating)									
Dursban 4	I	Chlorpyrifos	Toxic	135		0.2		0.6	Y	P*	BF	
Electrodyn/Ambush 6 ED	I	Permethrin	(Irritating)								BF	
Elosal	F	Sulphur	Not Listed									
Elvaron	F	Dichlofluanid	Harmful								f	
Enide 50W	H	Diphenamid	Harmful	970							f	
Farmon PDQ	H	Diquat & Paraquat	(Toxic)									
Formalin 40%	T	Formaldehyde	Toxic		2	2.5	2	2.5				
Fungus Fighter	F	Thiophanate-Methyl	Not Listed									
Fydulan	H	Dalapon + Dichlobenil	(Irritating)									
Gamma HCH Dust	I	Lindane	Toxic	88		0.5		1.5	Y		Bf	
Gamma-col	I	Lindane	Toxic	88		0.5		0.5	Y		BF	
Gardoprim A 500 FW	H	Terbuthylazine+Atrazine	(Harmful)			Mix		Mix			f	
Garlon 4	H	Triclopyr	(Irritating)								BF	

LIST OF PESTICIDE PRODUCTS

PRODUCT	USE	ACTIVE INGREDIENT	HAZARD RATING	LD 50	LTEL	STEL						
1	2	3	4	5	6	7	8	9	10	11	12	
Gesaprim 500 FW	H	Atrazine	Not Listed			10						
Gesalop 50 WP	H	Simazine	Not Listed									
Gesalop 500 FW	H	Simazine	Not Listed									
Gramoxone 100	H	Paraquat	Toxic			0.1	Y					
Hollox	H	Atrazine+Cyanazine	(Harmful)								f	
Karathane Liquid	F	Dinocap	Harmful (Irritating)	980							f	
Karathane WP	F	Dinocap	Harmful (Irritating)	980								
Kelthane	I	Dicofol	Harmful (Irritating)	690								
Kelthane 20	I	Dicofol	Harmful (Irritating)	690								
Kerb 50W	H	Propyzamide	Not Listed									
Kerb Flo	H	Propyzamide	Not Listed									
Kerb Granules	H	Propyzamide	Not Listed									
Krenite	H	Fosamine Ammonium	Not Listed									
Kumulus S	F	Sulphur	Not Listed									
Lindane 20	I	Lindane	Toxic	88		0.5		1.5	Y		Bf	
Lindane Dust	I	Lindane	Toxic	88		0.5		1.5	Y		Bf	
Lindane Flowable	I	Lindane	Toxic	88		0.5		1.5	Y		Bf	
Malathion 60	I	Malathion	Harmful	885		10			Y	P	Bf	
Maneb 80	F	Maneb	(Harmful/Irritating)							C		
Manzate	F	Maneb	(Harmful/Irritating)							C		
Marks Brushwood Killer	H	2,4,5 T	Harmful	500		10		20			f	
Methyl Bromide 98	T	Methyl Bromide+Chloropicrim	Very Toxic		5	20	15	60	Y		B	
Morteg Emulsion	I	Tar Oils	(Harmful/Irritating)								F	
MSS Simazine 50	H	Simazine	Not Listed									
Murphy Captan 83	F	Captan	(Irritating)			5		10			f	
Murphy Malathion 60	I	Malathion	Harmful	885		10			Y	P	Bf	
Murphy Maneb	F	Maneb	(Harmful/Irritating)							C		
Parable	H	Diquat & Paraquat	(Toxic)									
Peniophora Gigantea	F	Peniophora Gigantea	Not Listed									
Permasect 25 EC	I	Permethrin	(Irritating)								BF	
Permit	I	Permethrin	(Irritating)								BF	
Phostek	V	Aluminium Phosphide	(Very Toxic)									
Phostoxin	V	Aluminium Phosphide	(Very Toxic)									
Pirimor	I	Pirimicarb	Toxic							C*		
PP Captan 83	F	Captan	(Irritating)			5		15			f	
Primatol AD 85 WP	H	Amitrole+Atrazine+2,4-D	(Irritating)									
Primatol SE 500 FW	H	Amitrole + Simazine	Irritating									
RCR Grey Squirrel Conc'te	V	Warfarin	Toxic	3		0.1		0.3				
Rentokil Phostokin	V	Aluminium Phosphide	(Toxic)									
Ronstar Granules	H	Oxadiazon	(Irritating)								F	
Ronstar Liquid	H	Oxadiazon	(Irritating)								F	
Root-Out	H	Ammonium Sulphamate	Not Listed									
Roundup	H	Glyphosate	(Irritating)								f	
Rovral	F	Iprodione	(Irritating)								f	
Silvapron D	H	2,4-D	Harmful	275		10		20			f	
Simazine 500 FL	H	Simazine	Not Listed									
Simflow	H	Simazine	Not Listed									
Spannit	I	Chlorpyrifos	Toxic	135		0.2		0.6	Y	P*	BF	
Sterilite Hop Defoliant	H	Tar Oils	(Harmful/Irritating)								F	
Sterilite Tar Oil	I	Tar Oils	(Harmful/Irritating)								F	
Surflan	H	Oryzalin	Not Listed								f	
Temik 10G	I	Aldicarb	Toxic							C*	F	
Thiovit	F	Sulphur	Not Listed									

LIST OF PESTICIDE PRODUCTS

PRODUCT	USE	ACTIVE INGREDIENT	HAZARD RATING	LD 50	LTEL		STEL				
1	2	3	4	5	6	7	8	9	10	11	12
Timbrel	H	Triclopyr	(Irritating)								BF
Tracker	H	Dicamba	Not Listed								
Trimangol 80	F	Maneb	(Harmful/Irritating)							C	
Tripart Sulphur 80	F	Sulphur	Not Listed								
Tripomol	F	Thiram	Harmful (Irritating)	560		5		10		C	
Tritoftorol	F	Zineb	(Irritating)							C	
Turbair Dinocap	F	Dinocap	Harmful (Irritating)	986							F
Turbair Resmethrin Extra	I	Resmethrin	(Irritating)								bF
Unicrop Flowable Atrazine	H	Atrazine	Not Listed			10					
Unicrop Flowable Simazine	H	Simazine	Not Listed								
Unicrop Maneb	F	Maneb	(Harmful/Irritating)							C	
Urea	F	Urea	Not Listed								
Velpar Liquid	H	Hexazinone	(Irritating)								
Vitax Malathion 60	I	Malathion	Harmful	885		10			Y	P	BI
Volunteered	H	Dalapon	(Irritating)								

FIELDS OF USE

Each pesticide approved under the Control of Pesticide Regulations is classified as falling within one or more of the following "Fields of Use":-

Agriculture and horticulture, including amenity horticulture.
Forestry.
In or near water.
Amateur gardening.
Animal husbandry.
Food storage practice.
Vertebrate control, including repellents.
Home kitchen and larder.
Other domestic use.
Wood preservative.
Masonry treatment.
Public hygiene/nuisance (excluding products for vertebrate pests).
Industrial herbicides.
Other industrial biocides.
Anti-fouling paint.
Other.

FOOD AND ENVIRONMENT PROTECTION ACT 1985

Control of Pesticides Regulations 1986

CONSENT B. SALE, SUPPLY AND STORAGE OF PESTICIDES

In exercise of the power conferred by Regulation 6(b) of the Control of Pesticides Regulations 1986 (S.I. 1986/1510) (hereinafter referred to as "the regulations") and of all other powers enabling them in that behalf the Minister of Agriculture, Fisheries and Food and the Secretary of State (hereinafter referred to as "the Ministers") hereby jointly give their consent to the sale, supply and storage of pesticides, in replacement of Consent dated 6th October 1986, which is hereby revoked, subject forthwith to the conditions set out below:

Conditions subject to which consent to the sale, supply and storage of pesticides is given

1. It shall be the duty of every employer to ensure that a person in his employment who may be required to sell, supply or store a pesticide during the course of that employment, is provided with such instruction and guidance as is necessary to enable that person to comply with the requirements in and under the regulations.

2. Any person who sells, supplies or stores a pesticide shall:

- (a) take all reasonable precautions, particularly with regard to storage and transport, to protect the health of human beings, creatures and plants, to safeguard the environment, and in particular avoid the pollution of water; and
- (b) be competent for the duties which is called upon to perform.

3. No person shall sell, supply or otherwise market to the end-user an approved pesticide other than in the container supplied for that purpose by the holder of the approval of that pesticide, and under a label approved by the Ministers.

4. No person shall store for the purpose of sale or supply a pesticide approved for agricultural use in a quantity in excess of, at any one time, 200 kilogrammes or 200 litres or a similar mixed quantity unless he has obtained a certificate of competence recognised by the Ministers, or he stores that pesticide under the direct supervision of a person who holds such a certificate.

5. No person shall sell, supply or otherwise market to the end-user a pesticide approved for agricultural use unless he has obtained a certificate of competence recognised by the Ministers, or he sells or supplies that pesticide under the direct supervision of a person who holds such a certificate.

6. For the purposes of conditions 4 and 5, "a pesticide approved for agricultural use" means a pesticide (other than one with methyl bromide as an active ingredient) approved for use within one or more of the following fields of use:

Agriculture and horticulture (including amenity horticulture), forestry, in or near water (products for other than amateur, public hygiene or anti-fouling uses), industrial herbicides (such as weedkillers for use on land not intended for cropping).

G. M. Trevelyn, Assistant Secretary for the Minister of Agriculture, Fisheries and Food.

N. J. King, Authorised by the Secretary of State for the Environment.

Appendix IVb

FOOD AND ENVIRONMENT PROTECTION ACT 1985

Control of Pesticides Regulations 1986

CONSENT C(i): USE OF PESTICIDES

In exercise of the power conferred by Regulation 6(c)(i) of the Control of Pesticides Regulations 1986 (S.I. 1986/1510) hereinafter referred to as "the regulations") and of all other powers enabling them in that behalf, the Minister of Agriculture, Fisheries and Food and the Secretary of State (hereinafter referred to as "the Ministers"), hereby jointly give their consent to the use of pesticides, subject forthwith to the conditions set out below. This Consent replaces Consent 2 dated 6th October 1986, which is hereby revoked, (other than the conditions relating to aerial application).

Conditions subject to which consent to the use of pesticides is given

1. It shall be the duty of every employer to ensure that any person in his employment who may be required to use a pesticide during the course of that employment is provided with such instruction and guidance as is necessary to enable that person to comply with the requirements in and under the regulations.

2. Any person who uses a pesticide shall take all reasonable precautions to protect the health of human beings, creatures and plants, to safeguard the environment, and in particular to avoid pollution of water.

3. No person shall use a pesticide in the course of his business or employment unless he has received adequate instructions and guidance in the safe, efficient and humane use of pesticides and is competent for the duties which he is called upon to perform.

4. Until 31st December 1991 no person shall combine or mix for use two or more organophosphorus pesticides or an organophosphorus pesticide and a carbamate pesticide unless the approved label of at least one of the pesticide products states that the intended mixture may be made; and no person shall combine or mix for use two or more pesticides if all the conditions of approval relating to their use cannot be complied with.

5. No person shall use a pesticide in conjunction with an adjuvant except in accordance with the conditions of the approval given originally in relation to that pesticide or as varied subsequently by lists of authorised adjuvants published by the Ministers.

6. No person shall use in the course of a commercial service a pesticide approved for agricultural use, unless:

- (i) he has obtained a certificate of competence recognised by the Ministers; or
- (ii) he uses the pesticide under the direct and personal supervision of a person who holds such a certificate; or
- (iii) he uses it in accordance with an approval, if any, for use in one of the following fields of use:

home garden (amateur gardening), animal husbandry, food storage practice, vertebrate control (e.g. rodenticides and repellents), home kitchen and larder, other domestic use, wood preservative, masonry biocides, public hygiene/nuisance, "other" industrial biocides, anti-fouling paint, "other" (as may be defined by the registration authority).

7. No person who was born later than 31st December 1964 shall use a pesticide approved for agricultural use, unless:

- (i) he has obtained a certificate of competence recognised by the Ministers; or
- (ii) he uses the pesticide under the direct and personal supervision of a person who holds such a certificate; or
- (iii) he uses it in accordance with an approval, if any, for one of the fields of use listed under paragraph 6(ii) above.

8. For the purposes of these conditions:

(a) "adjuvant" has the meaning ascribed to it in Regulation 2(1) of the regulations.

(b) "commercial service" means the application of a pesticide by a person:

- (i) to crops, land, produce, materials, buildings or the contents of buildings not in his or his employers' ownership or occupation; and
- (ii) to seed other than seed intended solely for use by that person or his employer.

(c) "a pesticide approved for agricultural use" means a pesticide (other than one with methyl bromide as an active ingredient) approved for use within one or more of the following fields of use:

agriculture and horticulture (including amenity horticulture), forestry, in or near water (products for other than amateur, public hygiene or anti-fouling uses), industrial herbicides (such as weedkillers for use on land not intended for cropping).

G. M. Trevelyn, Assistant Secretary for the Minister of Agriculture, Fisheries and Food.

N. J. King, Authorised by the Secretary of State for the Environment.

FOOD AND ENVIRONMENT PROTECTION ACT 1985

Control of Pesticides Regulations 1986

CONSENT C(ii): AERIAL APPLICATION OF PESTICIDES

In exercise of the power conferred by Regulation 6(c)(ii) of the Control of Pesticides Regulations 1986 (SI 1986/1510) (hereinafter referred to as "the regulations") and of all other powers enabling them in that behalf, the Minister of Agriculture, Fisheries and Food, and the Secretary of State (hereinafter referred to as "the Ministers"), hereby jointly give their consent to the application of pesticides from an aircraft in flight subject forthwith to the conditions set out below. This Consent replaces the provisions within Consent 2 dated 6th October 1986 relating to aerial application.

Additional conditions subject to which consent to the use of pesticides applied from an aircraft in flight is given.

1. No person shall undertake an aerial application unless he or his employer or main contractor holds an aerial application certificate granted under Article 42(2) of the Air Navigation Order 1985 (SI 1985/1643); and unless the pesticide to be used has been approved for the intended aerial application.

2. No person shall undertake an aerial application unless he, or a person on his behalf, has:

- (a) not less than 72 hours before the commencement of the aerial application, consulted the relevant authority if any part of land which is a Site of Special Scientific Interest, a National Nature Reserve, a Local Nature Reserve, or a Marine Nature Reserve, lies within a distance of three-quarters of 1 nautical mile from any part of the land to which the pesticide is to be applied;
- (b) not less than 72 hours before the commencement of the aerial application, consulted the water authority for the area in which he intends to apply the pesticide if the land to which he intends to apply the pesticide is adjacent to water;
- (c) obtained the consent of the water authority for the area in which the aerial application will take place if he intends to apply the pesticide for the purpose of controlling aquatic weeds or weeds on the banks of watercourses or lakes;
- (d) not less than 24 hours and (so far as is practicable) not more than 48 hours before the commencement of the aerial application, given notice of the intended operation to the Chief Environmental Health Officer for the district in which he intends to apply the pesticide;
- (e) not less than 24 hours and (so far as is practicable) not more than 48 hours before the commencement of the aerial application, given notice of the intended operation to the occupants of each building within 75 feet of any boundary of the land to which he intends to apply the pesticide, and to the owner, or his agent, of any livestock or crops within 75 feet of any boundary of the land on which he intends to apply the pesticide;
- (f) not less than 24 hours and (so far as is practicable) not more than 48 hours before the commencement of the aerial application, given notice of the intended operation to the person in charge of any hospital, school or other institution any part of the curtilage of which lies within 500 feet of any flightpath that he intends to use for the aerial application of the pesticide;
- (g) not less than 48 hours before the commencement of the aerial application, given notice of the intended operation to the appropriate reporting point of the local beekeepers' spray warning scheme operating within the district in which he intends to apply the pesticide.

A notice of an intended aerial application under paragraphs (c) or (f) of this condition shall be in writing and include details of the name, address and telephone number (if any), of the person intending to carry out the aerial application, the pesticide to be applied, the intended time and date of application and also an indication that similar details have been given to the Chief Environmental Health Officer for the district.

3. No person shall undertake an aerial application of a pesticide unless:

- (a) the wind velocity at the height of application at the place of intended application does not exceed 10 knots, unless the approval given in relation to that pesticide permits aerial application thereof when such wind velocity exceeds 10 knots;
- (b) before the aerial application, he has provided and put in place within 200 feet of the land to which he intends to apply the pesticide signs adequate to warn pedestrians and drivers of vehicles of the time and place of the intended application; and

(c) before the aerial application he has provided ground markers in all circumstances where a ground marker will assist the pilot to comply with the provisions of paragraph 5 below.

4. Any person who undertakes the aerial application of a pesticide shall:

- (a) keep and retain for not less than 3 years after each application, records of the nature, place and date of that application, the registration number of the aircraft used and the name and permanent address of the pilot of that aircraft, the name and quantity of pesticide applied, its rate of product and volume of application, type and specification of application system eg nozzle and its size, the method of application, the flight times of the aerial application, the speed and direction of the wind during that application and any unusual occurrences which affected that application;
- (b) provide by the end of January 1989, summaries of the records required by paragraph (a) of this condition relating to the 1988 calendar year, to Ministers, in a manner required by them under section 16 (11) of the Food and Environment Protection Act 1985;
- (c) provide within 30 days of the end of the calendar month to which the records required by paragraph (a) of this condition relate, summaries of those records to the Ministers, in a manner required by them under section 16(11) of the Food and Environment Protection Act 1985.

5. The pilot of an aircraft engaged in an aerial application shall:

- (a) maintain the aircraft at a height of not less than 200 feet from ground level when flying over an occupied building or its curtilage;
- (b) maintain the aircraft at a horizontal distance from any occupied building and its curtilage, children's playground, sports ground or building containing livestock of:
 - (i) not less than 100 feet, if he has the written consent of the occupier; and
 - (ii) not less than 200 feet, in any other case;
- (c) maintain the aircraft at a height of not less than 250 feet from ground level over any motorway, or of not less than 100 feet from ground level over any other public highway, unless that public highway has been closed to traffic during the course of the application; and
- (d) confine the application of the pesticide to the land intended to be treated.

6. For the purposes of these conditions:

- (a) each of the following expressions has the meaning ascribed to it in Regulation 2(1) of the regulations—"aerial application", "approval", "curtilage", "local beekeepers' spray warning scheme";
- (b) each of the following expressions has the meaning ascribed to it in paragraph 7 of Schedule 4 to the regulations—"ground marker" and "water";
- (c) "Local Nature Reserve" means a nature reserve established by a local authority under section 21 of the National Parks and Access to the Countryside Act 1949 and "the relevant authority" in regard thereto shall be the local authority which is providing or securing the provision of the reserve;
- (d) "Marine Nature Reserve" means an area designated as such by the Secretary of State under section 36 of the Wildlife and Countryside Act 1981, and the "relevant authority" in regard thereto shall be the Nature Conservancy Council;
- (e) "National Nature Reserve" means any land declared as such by the Nature Conservancy Council under section 19 of the National Parks and Access to the Countryside Act 1949, or under section 35 of the Wildlife and Countryside Act 1981, and "the relevant authority" in regard thereto shall be the Nature Conservancy Council;
- (f) "Site of Special Scientific Interest" means any area of land designated as such by the Nature Conservancy Council under section 28 of the Wildlife and Countryside Act 1981, or in respect of which the Secretary of State has made an Order under section 29 of the Wildlife and Countryside Act 1981, and "the relevant authority" in regard thereto shall be the Nature Conservancy Council.

G. M. Trevelyan, Assistant Secretary for the Minister of Agriculture, Fisheries and Food.

N. J. King, authorised by the Secretary of State for the Environment.

20th January 1989.

GUIDANCE OF INFORMATION NEEDED TO ACCOMPANY APPLICATIONS FOR OFF-LABEL APPROVALS OF PESTICIDES

It should be noted that this is not a checklist of information which would be required for all products. For instance, in the case of items 6-9 it would be acceptable for the applicant to refer to the conditions applicable to a similar crop; eg if approval was sought for use on cane fruits of a product approved and recommended on the label for use on raspberries, it would be sufficient to state "as for raspberries". Obviously not all cases would be this straightforward but an application under this procedure would not necessarily fail because all questions had not been answered. However the more information provided, the easier it is likely to be for the safety and efficacy of the proposed use to be assessed.

1. PRODUCT (Details as on label)

- 1.1 **Name**
- 1.2 **Active Ingredient(s)**
- 1.3 **Manufacturer/Distributor**
- 1.4 **Formulation Type** (eg granule, wettable powder, liquid)
- 1.5 **Whether Regulated under the Poisonous Substances in Agriculture Regulations 1984**

2. PURPOSE OF PROPOSED USE

eg Pest(s), disease(s), weed(s) to be controlled. If herbicide state whether for general weed control or for control of specific problem weeds.

3. REASON FOR THINKING PRODUCT WILL BE EFFECTIVE FOR THIS PURPOSE

eg Recommended for same or similar pest on another crop, some evidence from experimental work/observation

4. CROP DETAILS

4.1 Identity of crop

Identify individual crops if edible, if non-edible either (if few) state individual crops or (if many) give general description, eg turf, bedding plants, pot plants, cut flower crops, herbaceous perennials, ornamental shrubs, hedges, ornamental or forest trees, etc.

4.2 Situation of Crop

ie outdoors, protected-glasshouse or walk-in tunnels, protected-cloches or low tunnels, other (specify).

4.3 Height of target

If product may at least sometimes be applied with knapsack/handheld applicator state whether target will be

- (a) Entirely below operators' waist level.
- (b) Partly or wholly at or above operators' waist level.

5. PROPOSED APPLICATION METHOD(S)

Indicate clearly if any of the proposed methods are already recommended on the product label for use on other crops in similar situations. If the proposed method(s) is/are not already recommended on the product label give full details

Examples of descriptions of methods:-

- (i) Tractor mounted/handheld granule applicator.

- (ii) Tractor mounted/knapsack/handheld sprayer.
 - (a) hydraulic nozzles — fine/medium/coarse spray
 - (b) spinning disc (state details)
 - (c) air assisted sprayer (state details)
 - (d) electrostatic (specify)
 - (e) other (describe in detail)

For soil applied chemicals indicate whether application is to be followed by incorporation into the soil and if so state method(s) to be used.

6. APPLICATION RATE

Should be expressed (as appropriate) as either:

- (a) Application rate of product per unit and volume of spray per unit area. (State if diluent used is not water or if product is not diluted.)

or

- (b) Dilution rate of product (g/kg/m/litres product per 10/100/1000 litres of water).

or

- (c) both (a) and (b).

or

- (d) other appropriate units.

7. APPLICATION TIMING AND MAXIMUM FREQUENCY

(Days from sowing or planting/date(s)/growth stage(s) etc, as appropriate.) Give details for each crop if there are differences.

8. USE IN MIXTURES

State if it is proposed to add wetters/oils/other spray additives or if it is proposed to use the product as a mixture with (an) other pesticide(s).

9. MINIMUM INTERVAL BETWEEN APPLICATION AND EXPOSURE OF THE PUBLIC

(a) Edible crops

State what would normally be the minimum interval between last application and harvest if the product was applied in accordance with the details of timing and frequency proposed under Section 7, above.

(b) Non-edible crops

State what would normally be the minimum interval between last application and putting plants on display/sale, allowing public access to treated areas, etc (as applicable) if the product was applied in accordance with the details of timing and frequency proposed under Section 7, above.

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