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Organisation de Coopération et de Développement Economiques
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**ENVIRONMENT DIRECTORATE
JOINT MEETING OF THE CHEMICALS COMMITTEE AND
THE WORKING PARTY ON CHEMICALS, PESTICIDES AND BIOTECHNOLOGY**

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**OECD SERIES ON PESTICIDES
Number 24**

**Report of the OECD Pesticide Risk Reduction Steering Group Seminar on Compliance and Risk
Reduction**

10 March, 2003, Paris

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English - Or. English

**Report of the
OECD Pesticide Risk Reduction Steering Group
Seminar on Compliance and Risk Reduction**

**Paris
10 March 2003**

Also published in the Series on Pesticides

- No. 1 *Data Requirements for Pesticide Registration in OECD Member Countries: Survey Results* (1993)
- No. 2 *Final Report on the OECD Pilot Project to Compare Pesticide Data Reviews* (1995)
- No. 3 *Data Requirements for Biological Pesticides* (1996)
- No. 4 *Activities to Reduce Pesticide Risks in OECD and Selected FAO Countries. Part I: Summary Report* (1996)
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- No. 17 *OECD Guidance for Country Data Review Reports for Pheromones and Other Semiochemicals and their Active Substances (Monograph Guidance for Pheromones and other Semiochemicals), (2003)*
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- No. 23 *OECD Guidance for Industry Data Submissions for Microbial Pest Control Products and their Microbial Pest Control Agents (Dossier Guidance for Microbials)*

Published separately

OECD Guidance for Country Data Review Reports on Plant Protection Products and their Active Substances - Monograph Guidance (1998, revised 2001)

OECD Guidance for Industry Data Submissions on Plant Protection Products and their Active Substances - Dossier Guidance (1998, revised 2001)

Report of the Pesticide Aquatic Risk Indicators Expert Group (2000)

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ABOUT THE OECD

The Organisation for Economic Co-operation and Development (OECD) is an intergovernmental organisation composed of 30 industrialised countries in North America, Europe and the Pacific. The OECD works to co-ordinate and harmonise government policies, address issues of mutual concern, and respond to international problems.

The Pesticide Programme was created in 1992 within the OECD's Environmental Health and Safety Division to help OECD countries:

- harmonise their pesticide review procedures,
- share the work of evaluating pesticides, and
- reduce risks associated with pesticide use.

The Pesticide Programme is directed by the Working Group on Pesticides, composed primarily of delegates from OECD Member countries, but also including representatives from the European Commission and other international organisations (*e.g.* United Nations Food and Agriculture Organization, United Nations Environment Programme, World Health Organization, Council of Europe), and observers from the pesticide industry and public interest organisations (NGOs).

In addition to the **Series on Pesticides**, the Environment, Health and Safety (EHS) Division publishes documents in five other series: **Testing and Assessment; Good Laboratory Practice and Compliance Monitoring; Risk Management; Harmonization of Regulatory Oversight in Biotechnology;** and **Chemical Accidents**. More information about the Environment, Health and Safety Programme and EHS publications is available on the OECD's World Wide Web site (see next page).

This publication was produced within the framework of the Inter-Organization Programme for the Sound Management of Chemicals (IOMC). It was approved for derestriction by the Joint Meeting of the Chemicals Committee and the Working Party on Chemicals, the governing body of the Environment, Health and Safety Division.

The Inter-Organization Programme for the Sound Management of Chemicals (IOMC) was established in 1995 by UNEP, ILO, FAO, WHO, UNIDO and the OECD (the Participating Organizations), following recommendations made by the 1992 UN Conference on Environment and Development to strengthen co-operation and increase international co-ordination in the field of chemical safety. UNITAR joined the IOMC in 1997 to become the seventh Participating Organization. The purpose of the IOMC is to promote co-ordination of the policies and activities pursued by the Participating Organizations, jointly or separately, to achieve the sound management of chemicals in relation to human health and the environment.

This publication is available electronically, at no charge.

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Health and Safety publications, consult the OECD's
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Introduction

This report presents the results of an OECD seminar on an issue fundamental to pesticide risk reduction: compliance by pesticide users, distributors and retailers with the legal requirements and voluntary codes governing pesticide use. The seminar was held on 10 March 2003 at the OECD Secretariat in Paris. It was chaired by Wolfgang Zornbach of the German Ministry of Consumer Protection, Food and Agriculture.

This was the first in a series of seminars to be organised by the OECD Pesticide Risk Reduction Steering Group, a sub-group of the OECD Working Group on Pesticides. The seminars will focus on key issues in pesticide risk reduction of concern to OECD governments. The seminars are intended to provide an opportunity for OECD governments to discuss the issues together and with non-governmental stakeholders.

The Steering Group chose the subject of compliance for the first seminar because of its importance to risk reduction and to the proper functioning of pesticide regulatory system. Compliance was defined as handling and applying pesticides in accordance with the directions and precautions on pesticide product labels, as is legally required, and with non-legal instruments such as protocols and other voluntary codes. Label directions and precautions are based on a government assessment of the risks and judgement about how to keep them at an acceptable level. Non-compliance may therefore result in risks to human health or the environment that the government would consider unacceptable.

Participants

Nineteen people attended the seminar, including:

- representatives of the pesticide regulatory authorities of Denmark, Germany, the Netherlands, Switzerland, the United Kingdom, and the United States
- officials from the European Commission Directorate-General for Environment and for Health and Consumer Protection
- representatives of CropLife International (the international association of pesticide manufacturers) and Pesticide Action Network-Europe (an international “NGO” working to eliminate pesticide hazards)
- representatives of four stakeholder groups from the food production and distribution chain: the French and UK Farmers Unions, the German Working Group on Integrated Pest Management, Co-op UK, and the European Consumers Union (BEUC).

A participant list is attached in Annex 1.

Structure and Scope of the Seminar

The seminar was organised in two parts.

In the morning, selected participants gave presentations to describe their experience with and perspectives on compliance. The speakers were asked to consider:

- where and why non-compliance occurs;
- what areas are most important for risk reduction; and
- what approaches to improving compliance have been most successful.

Copies of their power point presentations and papers are attached in Annex 2.

The afternoon was devoted to discussion of the same questions, as well as consideration of what could be done internationally to improve compliance. A summary of the discussion follows.

It should be noted that both the presentations and the discussion addressed primarily the problem of non-compliance in pesticide use on farms, while acknowledging that non-compliance also occurs in the use of home and garden pesticides. The most common types of non-compliance were considered to be:

- failure to adhere to label recommendations and restrictions, e.g.:
 - use of pesticides on crops or other sites for which they are not authorised;
 - use of an incorrect dose;
 - incorrect timing or pre-harvest intervals;
 - exceeding the number of applications allowed per season;
 - failure to leave a required untreated buffer to protect water courses;
- use of recently banned products;
- use of products imported directly from other countries that are not authorized or have labels in a foreign language;
- unsafe storage of pesticide products; and
- stocking of obsolete products.

Why non-Compliance Occurs

The seminar participants identified four principal reasons why non-compliance occurs:

1. Farmers' Economic Priorities and Habits

The group noted that economic priorities are often the cause of non-compliance, leading farmers to:

- use pesticides in ways or on crops for which they are not authorised if they cost less than pesticides that *are* authorised for the crops or if farmers in neighbouring countries are allowed to use them;
- use unauthorised products or too many applications of authorised products if there seems to be no other way to save the crop or secure the yield (this is especially thought to be the case for “minor uses”); and
- try to avoid the expense and/or discomfort of protective equipment, proper cleaning of pesticide residues in spray equipment, and proper storage of pesticide products.

Farmers' habits can also create “cultural hurdles” that lead to non-compliance. Three important factors cited by CropLife International are:

- tradition – farmers' reluctance to change from “tried and true” chemicals and practices;
- familiarity breeds contempt – the long-time experience with farm chemicals that leads to ignoring hazard warnings; and
- “label fatigue” – especially when seeing a new and different (and sometimes overly complicated) label on an old and familiar chemical;

2. The Pesticide Regulatory Process

The group agreed that certain trends in the pesticide approval process contribute to non-compliance. In particular, the group highlighted:

- the increasing complexity of risk assessment, which has led to a corresponding increase in the quantity of information put on pesticide labels, including both hazard/risk warnings and complex use restrictions that may be unclear to users. (Some seminar participants observed that labels now seem to be written for enforcement purposes or to record all results of complex risk assessments, rather than for helping the user); and
- reliance on complicated, expensive, or problematic restrictions that many users are unlikely to follow.

Examples of the trend toward information overload (provided by CropLife International) and of incoherent restrictions (provided by the German IPM Working Group) are given in Annex 2.

Inspections carried out by the European Commission have also identified cases of:

- incorrect labelling (e.g. inaccurate identification of the level of active substance);
- confusing and/or contradictory risk and safety phrases; and
- labelling in a foreign language.

Pesticide Action Network and BEUC also noted that some countries have insufficient disposal facilities for leftover home and garden pesticides, which leads to non-compliance in product storage.

3. The Enforcement System

The group agreed that weak enforcement contributes importantly to non-compliance, while acknowledging that controlling the use of pesticides is a difficult and resource-demanding task. The group noted that most countries' enforcement systems have insufficient resources, too few inspectors, inadequate scope, weak penalties, and insufficient follow-up, e.g. to seize pesticides being used illegally. Individual participants also cited:

- insufficient, slow, and poorly co-ordinated communication and information exchange between enforcement and regulatory authorities;
- lack of co-ordination and centralised planning of monitoring activities;
- potential conflicts of interest when farm extension agents are asked to act as policemen in addition to giving advice;
- a general failure to create a clear, strong, universally accepted motivation to comply.

4. Outreach and Training

The group agreed that insufficient communication, education and training contribute importantly to non-compliance, as many farmers do not receive:

- the information, education and on-going training they need to appreciate the hazards of pesticides, to understand the laws, and to keep abreast of changes in pesticide authorisations and restrictions, in agricultural practice, and in pesticide application technology;
- sufficient advance notice of upcoming changes, and an opportunity to be involved in decision-making; or
- sufficient explanation for the conflicting risk evaluations and pesticide approvals made by different countries.

Approaches for Improving Compliance

The participants identified several approaches for improving compliance.

Awareness Raising through Farmer Education and Training

The group agreed that raising awareness was often the most effective approach, in view of the difficulty and expense of enforcement, and that it should involve:

- education and continuous training for farmers, supported by partnerships with stakeholders along the food chain; and
- provision of clear, easy-to-understand information about pesticides, their risks, and the proper way to handle them, for both farmers and amateur users.

Several participants also emphasized the importance of:

- independent advice and support for farmers (including decision support for pesticide applications and advice on improving spray equipment);
- better support to help farmers: reduce dependence on pesticides, increase use of integrated pest management, and improve management of the farm landscape (e.g. with hedgerows and buffer zones to protect water courses); and
- including farmers themselves in projects to develop IPM alternatives and using lead farmers to demonstrate the benefits of IPM.

Some participants noted that awareness raising might not be effective when economic priorities are the cause of non-compliance.

Communication

The group agreed that more and earlier communication is needed to farmers and other stakeholders along the food chain about upcoming decisions and changes affecting pesticide use. Pesticide distributors also need to increase and improve communication to amateur users, who often receive no advice.

Label Improvement

The group agreed that labels need to be simpler, clearer, better adapted to farmers' needs, and more realistic – i.e. attuned to what farmers can practically do.

“Realistic” Pesticide Approvals

The group agreed that the pesticide approval process should leave out scenarios that will likely lead to non-compliance. The group agreed that pesticide approvals should be based on risk prevention and should not rely primarily on control measures and enforcement. Several participants argued that registrations that would have to be conditioned upon costly or unrealistically complicated risk mitigation measures should not be granted at all, as pesticide users would be unlikely to follow them.

Strong Enforcement

The group noted that that when farmers believe there is a good chance of being caught, and that the consequences will be severe, they are much more likely to comply. The group therefore concluded that a rigorous enforcement system needs to be in place that conveys a strong message, has sufficient staff,

carries out regular inspections, and imposes serious penalties for non-compliance would convince many farmers to comply. The group also agreed that regular gathering of field data is important for targeting future inspections and analysing the impact of pesticide programmes.

Information Sharing and Co-operation

The seminar participants agreed that information sharing and co-operation among stakeholders would help to improve compliance. The group agreed that co-operation with supermarkets and food retailers may be useful, as some of these companies have close relations with farmers and have set their own criteria for pesticide use and residues. The group also noted that closer co-operation among stakeholders could facilitate sharing of resources (e.g. sharing or co-ordinating inspections) and of data (e.g. data on pesticide use and residues). The group noted that a co-operative approach would also facilitate participation of small farmers, who are sometimes difficult for governments to reach.

Public Awareness Raising

Several participants suggested that governments should give more attention to pesticide use in homes and gardens, and that both governments and NGOs should use the media to disseminate information about pesticides to the public.

The Policy Context

Several participants argued that tackling compliance problems must be done in the context of a strong and comprehensive policy that focuses on promoting integrated pest management and reducing dependence on pesticides. Such a policy could provide incentives for compliance, for example by tying certain subsidy payments to proof of compliance. The German IPM Working Group presented its view that IPM is the best solution to the problem of non-compliance. Pesticide Action Network argued that taking a preventive approach to risk reduction would help improve compliance by removing the most important risks (e.g. not approving particularly hazardous pesticides) rather than depending on mitigation (e.g. personal protective equipment or buffer zones).

Next Steps

The participants identified several possible activities that could be undertaken to follow up on the compliance seminar:

- Hold an international stakeholder meeting to set targets for improving compliance;
- Develop recommendations on best practice, or guidance on compliance for risk reduction;
- Undertake a survey to determine what governments and stakeholders are doing to promote compliance (or best practice), how many compliance inspections are done, and what they find;
- Compile case studies of success in improving compliance;
- Consolidate existing data, and collect more data, on compliance with requirements for personal protective equipment and other risk mitigation measures.

The group also agreed that even if resources do not permit follow-up, the seminar had nevertheless provided a useful occasion to discuss an important issue.

Annex 1

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ANNEX 2

SEMINAR PRESENTATIONS AND PAPERS

(Available on the Pesticide Risk Reduction Steering Group Password Protected Web Page for the Compliance Seminar)

Government Experience and Perspectives

European Commission Food and Veterinary Inspection Office
United States Environmental Protection Agency
Australian Department of Agriculture, Fisheries and Forestry
Netherlands Ministry of the Environment

Stakeholder Experience and Perspectives

Pesticide Action Network
CropLife International
National Farmers' Union, UK
Working Group on Integrated Crop Management, Germany
Co-op Supermarket, UK
BEUC, the European Consumers' Union

European Commission Food and Veterinary Inspection Office



**Control of marketing and use of
plant protection products in EU
Member States**

Outcome of FVO pesticides missions

OECD Pesticide Risk Reduction Steering Group
Seminar on Compliance, 10 March 2003, Paris

24-Mar-2004 Denis de Froidmont FVO 1



European Commission

- Health and Consumer Protection Directorate-General
 - Food and Veterinary Office (**FVO**)
 - Food of Plant Origin, Plant Health; processing and distribution (unit 4)

pesticides	GMO
contaminants	organic farming
food hygiene	plant health

24-Mar-2004 DdeF FVO 2 / 14



FVO statement

to promote effective control systems in the food safety and quality, veterinary and plant health sectors

- + to check on compliance with the requirements of EU food safety and quality, veterinary and plant health legislation within the European Union and in third countries exporting to the EU
- + to contribute to the development of EU policy in the food safety and quality, veterinary and plant health sectors
- + to inform stakeholders of the outcome of evaluations

24-Mar-2004 DdeF FVO 3 / 14



The FVO's missions

(carried out following a Manual of Procedure)

- **Planning** (formal letter, evaluation plan, pre-mission questionnaire)
- **Performance** (meeting with CA's, participation to inspection visits, visit of laboratories, collection of evidences)
- **Reporting** (draft + CA comments = final report, publication)
- **Follow-up** (action plan, closeout note)

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Objectives of FVO Pesticides missions

To **evaluate control systems for the placing on the market and use** of plant protection products and for residues in foodstuffs of plant origin

From 1998 to date: all Member States visited including 4 missions on specific pesticide residue problems.
Reports published on http://europa.eu.int/comm/food/fs/inspections/fnaoi/reports/pesticides/index_en.html

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Directive 91/414/EEC

concerning the placing of plant protection products on the market

Control measures : Article 17

- Member States shall make the **necessary arrangements** for plant protection products which have been placed on the **market and for their use to be officially checked** to see whether they comply with the requirements of this Directive and **in particular** with the requirements of the **authorisation** and information appearing on the **label**.

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Control activities evaluated by FVO

- registration of wholesalers and retailers
- licences for retailers / users + training
- records keeping at retailer and user levels
- authorisation of the product, label
- authorisation of the use (sampling)
- storage conditions, packaging
- formulation
- pesticide residues in foodstuffs

01-Apr-2004 DdeF FVO 7 / 14



Various Member States in EU

**crop, climate, number of retailers,
number of farms....**

- PPP authorised: between **300** and **8000**.
- a.s. authorised: between **150** and **500**.
- PPP used: 232 377 tonnes of a.s. in EU-15,

France: 35.6 %	UK: 4.9%	Denmark: 0.8 %
– Italy: 21.9 %	– Portugal: 3.4%	– Sweden: 0.4 %
– Spain: 13.6 %	– The Netherlands: 1.8 %	– Finland: 0.3 %
– Germany: 9.4 %	– Belgium: 1.3 %	– Ireland: 0.2 %
– Greece: 5.5 %	– Austria: 0.9 %	– Luxembourg: n/a

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Purposes and types of controls carried out by MS

<ul style="list-style-type: none"> • Worker safety • Environment protection • Consumer protection 	<ul style="list-style-type: none"> * protective clothes * water / soil samples * sprayers * risk mitigation measures * <u>authorisation of the product,</u> * <u>labels</u> 	<ul style="list-style-type: none"> * <u>license,</u> * <u>training</u> * <u>packaging</u> * <u>storage / disposal</u> * <u>formulation</u> * <u>pesticide residues</u>
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24-Mar-2004
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FVO
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Competent Authorities for control

Ministry of / Agency for:

<ul style="list-style-type: none"> – Agriculture... – Health – Environment 	<ul style="list-style-type: none"> – Consumer Protection, Food and Agriculture – Finances – Customs officers
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Control activities carried out by MS

- Control of **retailers**, of **users** (licences, records, storage conditions).
- Control of plant protection products
 - **label**
 - **authorisation** (+ or - list)
 - **sampling** for formulation analysis
- Control of **use** (samples from the field)

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Control materials of MS inspectors

- Check list (storage conditions, ...)
- Approved labels (for comparison)
- **Database / list** of authorised / banned products and uses
- Sampling material (for formulation analyses)

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Major non compliances identified by MS

<ul style="list-style-type: none"> • non authorised uses • recently banned products • presence of obsolete products • storage conditions 	<ul style="list-style-type: none"> • label in a foreign language (direct import from outside EU) • label: risk + safety phrases • formulation ([a.s.]< level mentioned)
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Major non compliances identified by FVO

- communication between CA's
- limited scope of control activities
- follow up (seizure)

24-Mar-2004 DdeF FVO 14 / 14

PESTICIDE USE COMPLIANCE IN THE UNITED STATES

Environmental Protection Agency

Office of Pesticide Programs

I. Introduction

Each year nearly a billion pounds of conventional use pesticides are applied in the United States (U.S.). All new pesticides must go through an extensive pre-marketing registration process to ensure that their use will not pose an unreasonable risk to people or the environment. In addition, all old pesticides registered before November 1, 1984 must undergo reassessment to ensure that these pesticides are registered based on data that meet up-to-date scientific standards. If a product review concludes that the product can be used without posing excessive risk to the user, the environment or to the public, labelling statements are devised to reduce or remediate potential risks, and the product is registered or reregistered as applicable.

The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and its accompanying regulations set out the registration requirements for pesticides in the U.S., and include specific labelling requirements. Each registered pesticide must bear a label which clearly and prominently displays the use directions and warning or precautionary statements as well as other label requirements. Section 12(a)(2)(G) of FIFRA states, "It shall be unlawful for any person to use any registered pesticide in a manner inconsistent with its labelling."

That statement is, in fact, the cornerstone of pesticide use compliance in the U.S.; it is a violation for any person to use, ship, store or dispose of any pesticide contrary to label directions. It is commonly said that "the label is the law." In the U.S., most farmers and commercial applicators undergo professional training in the safe use of pesticides and are aware that they are required to follow label directions. Others in the general public or in businesses that rarely use pesticides may be unaware, however, that not only should they read the labels on the pesticides they use, but they are required by law to comply specifically with the directions for use.

This paper presents a brief overview of pesticide use compliance in the United States as it relates to pesticide use and management in the field. It discusses factors that can lead to non-compliance and summarizes the practices and programs the U.S. employs to manage use compliance.

II. Factors Influencing Use Compliance

For purposes of this paper, use compliance is defined as the handling and application of pesticides in full and complete accordance with all precautions and use directions on the pesticide product label. It may seem that compliance with label directions should be relatively simple and straightforward. This is not always the case, unfortunately. For some pesticides, the use directions and precautions can be very specific and restrictive. Applicators can be required to perform a number of steps to ensure correct applications. For example, the label may include instructions such as : shake well before using; wear personal protective equipment; wash soiled clothing in a prescribed manner; flush exposed skin immediately with water; do not apply within x feet of wells or bodies of water. Labels may also include different instructions for different soil types, different crop/pest combinations and different application equipment. Strict compliance with the label can require careful attention to detail.

Factors that can affect whether or not a pesticide is applied in compliance with the label include:

Labelling

The complexity of product labelling is a big factor in use compliance. The trend is for labels to become more specific, and therefore more detailed and complicated. For example, chemicals that are biologically active at very low rates require very specific precautions to prevent damage to non-target organisms. They may also require prescriptive safety equipment for the applicator to wear at different stages of handling or use. Compliance with these new labels often requires more attention than to older more generic labels.

Weather

Weather-created circumstances can make it challenging for applicators to apply pesticides correctly. Poor weather conditions can mean that growers have to perform field operations in conditions they normally would avoid. For example, applying pesticides in high wind is usually prohibited, yet some years experience windy conditions throughout the normal spraying season, making it difficult to adhere to label directions and precautions. Unusual weather conditions can also create exceptional pest pressures on growing crops. Under these circumstances, producers may be tempted to go beyond permitted applications on a pesticide product's label in order to save their crop. Producers may be tempted to apply pesticides for uses or at rates not specified on the label.

Economics

Similarly, when profit margins are very slim, commercial applicators and growers may be tempted to use less-expensive products that may not be labelled for the use intended by the applicators. Applicators may be aware that the active ingredients in the cheaper product are the same as those in a fully approved product, or they simply may have heard that the cheaper product will control the pest, so they decide to try it. In other cases, growers may decide because of price differences to buy pesticides from outside the U.S. that are not labelled for use in the US. They may think the economic savings are worth the risk of being caught or that any illegal residue on a food product will have dissipated by the time the crop goes to market.

Equipment / Technology

Pesticide application equipment and applicator techniques change constantly. Applicators may find a new method, or a new diluent, carrier or rate of application that works well with one product, but has not been approved for all the products the applicators use or the crops they grow. Applicators may adapt equipment or experiment with applications in a way that can lead to label violations.

Technological gaps can also make detection of use violations challenging, in some cases. New active ingredients are required to have valid laboratory analytical methods available for food residues prior to registration. Methods may not be available for environmental samples, such as samples from foliage, soil, water, clothing or others.

Industry Practice

Often pest control practices are established through years of successful application based on using certain chemicals at specified rates, with standardized equipment. When new products or revised labelling with new application instructions are introduced, applicators may be reluctant to change their established practices. When the applicator industry does not have sufficient information about new practices or is unwilling to adapt and change to new methods, they can find themselves in non-compliance.

III. Inspections / Investigations

FIFRA allows EPA to give the primary responsibility for monitoring pesticide use compliance to the States. States train and certify pesticide applicators, and are better positioned to regulate end users of labelled products. EPA provides grant money to states to assist them in inspections, investigations and enforcement. Most states add funding from state appropriations and fees, often making EPA funds a relatively small part of their program funding. This relationship between state and federal regulators regarding pesticide use compliance is unique compared to other EPA programs. Federal authority to enforce pesticide misuse is limited compared to what the states can do. EPA funds and works cooperatively with tribal governments to enforce FIFRA, as it does for states and territories. Tribes with EPA-approved pesticide programs work to ensure compliance with pesticide laws by conducting inspections and recommending enforcement actions to EPA. In some cases, tribal code permits direct enforcement by the tribe.

The majority of regulatory resources for compliance monitoring are spent on what are called “follow-up inspections.” Essentially, these are any pesticide use investigations that originate from a complaint. Some states are bound by law to investigate every complaint that comes to their attention. Others have such heavy workloads that they send an inspector out only on the more significant complaints, and try to resolve the minor or frivolous ones over the phone. Follow-up inspections that involve personal property damage can take several days to investigate and can consume considerable inspection and laboratory resources.

In fiscal year 2001, states conducted 2546 agricultural follow-up inspections and 6415 non-agricultural follow-up inspections. Enforcement action was taken on 45% of the agricultural inspections and 53% of the non-agricultural inspections. These enforcement actions ranged from warning letters, to monetary penalties and all the way up to criminal convictions. The majority of the violations detected during these inspections involved the use of pesticides contrary to label directions. Most states have newsletters or other mechanisms to report serious enforcement cases back to the applicator industry to help them avoid further misuse.

States also conduct use inspections that are planned in advance so that regulators can establish a “presence in the field.” Much like a policeman walking down the sidewalk, having pesticide inspectors routinely observe and collect information on applications raises awareness of the need to follow label directions. In fiscal year 2001, state inspectors conducted “planned use inspections” i.e., inspections that were not in response to complaints, at 8670 agricultural sites and 18,324 non-agricultural sites. Planned use inspections benefit both applicators, by pointing out minor problems and making recommendations for improvement, and regulators, by keeping them informed about new techniques and practices and highlighting labelling problems.

Both planned use inspections and follow-up use inspections are a critical part of the government’s effort to enforce pesticide use in strict accordance with labelling. Pesticide inspections can serve as a deterrent to purposeful pesticide misuse. Inspections can also serve as educational tools that help applicators avoid mistakes and stay in compliance. Inspections alone, however, cannot ensure compliance. The regulated universe is very large, with approximately 693,000 private applicators (farmers) and 42,100 commercial applicators (essentially persons applying pesticides for hire). It is not possible for state and tribal agencies, even with assistance from the federal government, to conduct enough inspections to ensure total compliance. The objective is to create and maintain a culture of compliance where compliance with the label becomes the expected norm for pesticide users.

IV. Managing Use Compliance - Creating a Culture of Compliance

In the U.S., one of the biggest advantages to regulators in managing use compliance is that most people want to do the right thing. The American public is very concerned about risks from pesticide residues in their food, homes, and public places. They are especially concerned about risks to their children. Most people who use pesticides generally try to use them correctly.

Also, most professional applicators know that they face extensive financial liability if they cause an illegal residue on food, or misapply a chemical on a lawn, near a stream or any place else that may eventually impact man or the environment. The majority of applicators are reluctant to knowingly violate pesticide laws and regulations. They are aware that widespread misuse and increased risks can result in the cancellation of popular pesticide products.

Aided by these general public and pesticide user concerns, preventing pesticide misuse continues to be a priority for federal and state regulators. Efforts to manage use compliance include:

Strengthened National Pesticide Program Partnership

Effective use compliance depends on a strong partnership among the regulatory compliance/enforcement agencies and offices responsible for pesticides in the U.S. Within EPA, the Office of Pesticide Programs (OPP) and the Office of Enforcement and Compliance Assurance (OECA) work closely with pesticide staff in the ten regional offices. OPP registers all pesticides and approves labels. OECA provides overall guidance on compliance and enforcement. EPA regions work directly with state and tribal partners. EPA's partnership with states and tribes supports uniform compliance and enforcement practices focused on national and state priorities. Feedback from EPA regions, states and tribes is essential for OPP to learn about label and user concerns. The State FIFRA Issues Research and Evaluation Group (SFIREG) and the Tribal Pesticide Program Council, funded by OPP, provide an opportunity for dialogue and problem resolution among national pesticide program partners. OPP and OECA jointly issue cooperative agreement guidance in consultation with other partners, that is the foundation for annual cooperative agreement negotiations between EPA regions and state and tribal pesticide lead agencies. These partners are committed to mutual accountability to ensure steady improvement in program delivery.

Applicator Training and Certification

Applicator training and certification programs are an important part of compliance. In the US, all farmers and commercial applicators who use Restricted Use Pesticides (RUPs), must be certified to purchase and use these chemicals. Most states exceed federal certification regulations which require general training for applicators, and require that applicators attend training classes developed specifically for the types of pesticide applications they plan to conduct. Applicators must pass a written exam, as well. Generally, the training is conducted by the State Land Grant University Extension Service and the exams and certification are the responsibility of the state agency designated as the State Lead Agency (SLA) for pesticide regulatory administration. These SLAs are also responsible for enforcing use compliance. By incorporating examples of noncompliance into their annual training courses, states try to ensure that applicators know what use violations have been committed and how to avoid them.

Worker Safety and Training

Use compliance also involves worker safety and training regulations. All agricultural pesticide labels reference worker protection standard requirements and make it a violation of FIFRA if worker protection regulations are not complied with. Requirements can include pesticide safety training, notification of pesticide applications, use of personal protective equipment, restricted entry intervals following pesticide application, and the presence of decontamination supplies and emergency medical equipment. EPA has

established a comprehensive program to educate pesticide users regarding worker protection requirements and to help users comply with the standards.

Compliance Assistance

Other types of education are important, as well. The regulated industry needs regular information on label changes, policy changes, and new rules to help them understand what needs to be done. Government and state agencies take the opportunity to promote use compliance through outreach and education activities. For example, EPA and its state and tribal regulatory partners often make presentations on issues affecting compliance at grower/applicator meetings. They also use direct mailings, e-mail, bulletins and web sites to keep the regulated industry informed. One of the key resources available to farmers and agricultural applicators is the National Agricultural Compliance Assistance Center, which provides a wide variety of information and technical assistance to all interested parties, including a comprehensive Web site: (www.epa.gov/agricultural/news/index/html.)

Generally, when regulatory changes are made regarding a pesticide's use, the applicator industry is afforded a transition period to adopt the new practices. Regulators try to use this transition to reach out and help industry learn how to get themselves into full compliance by the implementation date of the new regulation.

State Tracking

Most states and tribes keep track of the numbers and types of complaints they work on each year. If in a given growing season, they have an unusually high number of incidents related to a specific product on a specific site, they will highlight that during their next years' training sessions. Additional planned use inspections can then be targeted in the problem areas.

Incident Reporting

FIFRA requires that pesticide registrants notify EPA of adverse effects resulting from the use of their companies' products. Although the data that come to EPA are often generic (specific sites are not required and incidents do not require verification), they do allow EPA to identify the most serious incidents as well as general trends of negative impacts. This information can be used to identify use patterns that may need additional compliance monitoring, or products that may need specific label changes to improve safety.

National Database

EPA has recently completed and is assessing the results of a pilot to determine the feasibility of creating a National Pesticide Field Database that will enable states and tribes to download use and violation information from a myriad of software systems into a centralized database. The goal is for regulators to be able to access up-to-date real world information collected by hundreds of pesticide inspectors throughout the country. Having access to this information would make it easier for EPA to develop policies to remediate individual product risks, using actual field data. Additionally, the database would assist the enforcement program in targeting field activities in future years and in setting overall priorities based on real need.

V. Conclusion

Pesticide regulators face a number of challenges to preventing pesticide misuse. State and federal resources for monitoring use compliance are limited and the regulated industry is very large. It is possible to inspect only a fraction of the huge number of applications made each day. Many factors can contribute to misuse including difficult weather conditions, economics, changes in use patterns or equipment and

increases in the complexity of labelling. The need to educate and train pesticide applicators increases as pesticide labels and use become more complex.

To meet these challenges, the U.S. has established a comprehensive use compliance program. The strong working relationship between EPA and its state and tribal regulatory partners is a great advantage in managing pesticide misuse. Established communication networks help to ensure that all regulators are made aware of any widespread compliance problems that occur so they can adjust their programs accordingly. Routine inspection activities conducted by state regulators maintain a “field presence” that keeps applicators constantly aware that label compliance is important to both regulators and the public at large. The most effective compliance tool the US relies upon is the longstanding program to educate and certify pesticide applicators. Enforcing violations against one individual is very resource intensive compared to training a classroom full of applicators. Lastly, EPA and its state and tribal partners make use of every opportunity to disseminate information about using pesticides correctly. As citizens become more informed about pesticides and the need to follow label directions carefully, they become better able to make decisions about using pesticides correctly in their homes, on their farms and in their communities.

Agricultural and Veterinary Chemicals Compliance in Australia

Introduction

The overarching goal of compliance activities for agricultural and veterinary (agvet) chemicals within Australia is to ensure that there is no harm to humans, animals, plants or the environment or prejudice trade or commerce between Australia and places outside Australia.

Responsibility for managing compliance within Australia is divided between Federal and State/Territory jurisdictions. The Australian Pesticides and Veterinary Medicines Authority (APVMA) which was established under Federal legislation (the *Agricultural and Veterinary Chemicals Code Act 1994* [Agvet Code Act]) is responsible for compliance to the point of retail sale. The State and Territory Governments regulate the second area encompassing the control of use of agvet chemicals. Control of use compliance is enabled through the various State and Territory Governments control of use legislation. Although there is a division of powers, the APVMA and the State and Territory Governments work closely together to ensure a sound interface between the division of responsibilities.

Compliance to the Point of Retail Sale

Pre-market activities are an integral component within Australia's regulatory risk framework. This framework supports many of the post registration activities and, to some degree, assists in targeting post-regulatory activities. Activities under this area are generally directed towards prevention and quality assurance. The basis of most post-registration activities is focused on the monitoring and surveillance of agvet chemical products and active substances. Here the focus is on manufacturers, importers and suppliers of agvet chemicals including distributors and retailers.

The role of the APVMA in compliance is to ensure that manufacturers, importers and suppliers of agricultural and veterinary chemicals are aware of, and exercise, their responsibilities with regard to compliance requirements of Australia's agricultural and veterinary chemicals legislation to the point of retail sale. The APVMA's compliance regime focuses on three primary strategies including, *prevention, quality assurance and surveillance and enforcement*.

1. Preventative Measures

The APVMA's prevention strategy is based on the principle that education deters acts of non-compliance and provides assurance to those who do comply. This preventative strategy includes a variety of activities aimed at improving the awareness and understanding of the National Registration Scheme and compliance obligations by the various stakeholders. An emphasis is placed on:

1. industry liaison through general consultative and subject or program specific committees and groups;
2. the publication and dissemination of targeted information and educational material for key stakeholder groups (chemicals industry, retailers, wholesalers, agricultural and livestock industry, the public);
3. providing an educational forum through seminars and training sessions, in partnership with other agencies and industry;
4. working with industry to achieve desired outcomes through co-regulation and control of the promotion and advertising of agricultural and veterinary chemicals;
5. selected promotion of enforcement outcomes; and
6. enhanced border control of imports and management of interfaces with other regulatory authorities such as Australian Customs Service, Therapeutic Goods Administration (TGA), and Australian Quarantine and Inspection Services (AQIS).

2. Quality Assurance

Quality assurance of agricultural and veterinary chemicals in the marketplace is facilitated through the publication of various standards, codes and guidelines. The purpose of these activities is two fold, firstly to satisfy regulatory requirements for registration of agvet chemicals ensuring an acceptable level of quality in the regulatory process and, secondly, they provide for the basis of post-market compliance giving a reference standard against an approval. Having this approach enables the focus on quality using a 'whole of system approach', from pre-registration, during manufacture and post-registration.

In addition, programs such as the Manufacturers Licensing Scheme (MLS) and the Adverse Experiences Reporting Program (AERP) are operated by APVMA in respect of veterinary chemical products. An AERP for agricultural products is currently being developed. The MLS is designed to ensure chemical products are manufactured consistently, by reproducible methods, under appropriate supervision and with effective quality control procedures. For veterinary chemical products, the APVMA has prescribed 'Manufacturing Principles' that include Codes of Good Manufacturing Practice (GMP). The Codes of GMP are the standards against which Australian-based manufacturers of veterinary chemical products are licensed under the APVMA's MLS. Overseas-based manufacturers of veterinary chemical products must, as a pre-requisite to product registration, demonstrate that their product is manufactured to a standard comparable to the relevant Australian Code of GMP.

The AERP is a post-registration quality assurance program for identifying corrective action necessary to assure continued safety, quality and effectiveness of registered veterinary chemical products in the Australian marketplace. Reporting under the Program includes a mandatory obligation on the Registrants under Section 161 of the Agvet Codes and voluntary reporting is encouraged for veterinarians, animal owners, farmers and other users of veterinary chemical products. Reports received are evaluated in consultation with the registrant and the manufacturer to determine whether the adverse experience is related to the product formulation, manufacturing processes, use practices or product labelling. The program also looks at whether any changes to the registration status of the product involved are necessary.

3. Surveillance and Enforcement

Routine surveillance is currently conducted by the APVMA only in respect of Hormonal Growth Promotants (HGP) as part of the National Monitoring and Control Scheme managed by AQIS in support of Australia's beef exports to the European Union. This takes the form of audits of importer and retailer premises and records. The NRA also conducts surveillance campaigns in respect of specific chemical products. These are generally undertaken in partnership with the relevant State/Territory control-of-use agencies.

Compliance enforcement action is targeted using intelligence gathered from reports of non-compliance submitted by industry, the general public, other agencies such as Australian Customs Service, AQIS, TGA and police, and APVMA and State field officers. Industry is by far the greatest source (constituting some 70%) of reports of non-compliance received by the APVMA. After acknowledging receipt of the report, the APVMA assesses the actual and potential risk posed by the non-compliance bearing in mind APVMA's legislative obligations for public health, the environment, trade and product efficacy, by examining the:

- validity of the report's claims (status of registration/approval/permit/consent to import, conditions of registration and approved label details etc);
- potential or actual severity of the consequences of the product's presence in the marketplace (for example, animal deaths, harm or pain and suffering, crop damage etc);
- history of the matter (for example, previous non-compliances or responses to previous requests for compliance action); and

- completeness of the information provided and the potential to obtain relevant evidence that is legally admissible.

Depending on the assessed risk and the resources available and required to pursue the matter, the APVMA may take one of a number of actions in pursuit of compliance:

- administrative action,
- investigation with a view to prosecution, and/or
- recall of the product in question.
- The matter may also be referred for consideration of whether it would be appropriate to suspend or cancel the registration and/or approvals for the relevant product.

Control of Use

The States and Territories are responsible for the control of use of agvet products beyond the point of retail sale. The legislative basis underpinning control of use of chemicals varies in each State and Territory due to differing agricultural production systems and of climatic conditions.

Areas where non-compliance may differ include things such as off-label use of chemicals. Off-label use essentially refers to the use of a chemical for purposes other than those for which it is registered. Some States and Territories, there may be differences regarding the conditions under which off-label use can occur. In almost all jurisdictions, chemicals must be used only in accordance with the conditions specified on the label. Some variations to label use conditions may be allowed by permit (or by legislation) but these generally apply to low risk uses only.

Control of use compliance activities presently include licensing of pest control operators, spraying and aerial spraying operators and pilots, the investigation of adverse incidents, the monitoring programs for the detection of violations against residues standards and veterinarian's rights to prescribe and use veterinary drugs. Increasingly, the definition of control of use is also being extended to include control over use in respect to user safety (OH&S) and environmental protection.

Conclusion

Regulators face a variety of challenges in ensuring compliance of agvet chemical products, from the importation, manufacture and sale of unregistered chemicals to the off-label use of chemicals. Government resources for agvet chemical compliance are limited by other competing regulatory obligations and Australia's market size. With this in mind, the focus of compliance activities is predominantly on minimising risk by maximising the impact of activities undertaken within a minimal resource base. The integrity of Australia's compliance program relies heavily on education/training and upfront strategies to reduce risk and to educate the importers, manufacturers and users of agvet chemicals, complemented by quality assurance systems and, to a lesser degree, monitoring.

Introduction to Documents on the Certification System of the Dutch Auction of Vegetables

Based amongst others on the demand of retailers with regard to product quality standards, the Dutch auctions have joined an international program called Eurep GAP (Euro Retailer Produce Working Group Good Agricultural Practice), launched by “Food plus”. The system was introduced 3 years ago and is now used in more than 10 countries.

The program constitutes a system between retailers and producers. The producers demonstrate to retailers their commitment and ability to produce safe and clean food. To do so, the producers use the system of Good Agricultural Practise, which incorporates Integrated Crop Management and Integrated Pest Management practices in their daily routine.

To enforce the system, each producer is visited once a year by a controller. This is a person from an independent company, certified by a national certification authority. A number of producers will receive a second, surprise visit. Besides these “control” visits, there is also the possibility to have visits from advisors, for example to address questions on how to deal with certain plagues.

The system is made up of an extensive number of rules and requirements. A part of these is dealing with use of pesticides.

Although based on the same system, the interpretation may be different from country to country. On top, some requirements refer to the demand to comply with national law which is different from country to country. For example, the pesticides allowed to be used for a certain crop differ within European countries.

The two documents are both linked to Eurep GAP. The first one is to be used by the farmers. It defines the way they are supposed to handle pesticides. The first two pages contain general information, the next pages focus on the specific demands on crop protection and the use of pesticides, and finally there is information on audits and sanctions.

The second document is a checklist that controllers have to complete during a visit of a company. It consists of a long list with different qualifiers. “Should” is recommended but not required, “minor must” is obliged but it is allowed to have a maximum of five times no. “Major must” is a must.

The document is a pdf file of all items to be checked, the pages 13-21 refer to pesticides.

Self-audit relating to the EUREPGAP components of The Greenery UK Standard

Each grower must perform an audit at least once a year, using The Greenery UK Standard checklist. This self-audit must be performed before the external audit. If the self-audit reveals that some points have not been put into effect correctly, you must take appropriate measures.

Registration

Registration forms the basis of The Greenery UK Standard. The system includes the following types of registration:

Daily and frequently updated registration:

- daily registration of pesticides;
- registration of fertilizer application;
- registration of chemical vermin control;
- registration of daily glass inspection in sorting room;
- registration of weekly inspection of glass in glasshouse;
- registration of glass breakage;
- harvest record form;
- registration of equipment maintenance;
- registration of cleaning;
- registration of complaints and emergencies;
- registration of harvesting instruments;
- registration of temperature of cold rooms;
- registration of reservoir water
- registration of use of blue plaster.

Non-recurring registration

- registration of waste flows;
- accident procedure.
- new property risk analysis form;
- nature conservation action plan;
- nature policy plan;
- record of the inventory of all pesticides;
- record of the inventory of fertilizers;
- registration of initial stock of pesticides;
- registration of initial stock of fertilizers;
- cleaning schedule;
- maintenance schedule.

Statements

- statement on personal hygiene of personnel;
- statement by consultant;
- statement on crop protection performed by third parties;
- statement on plant material;
- statement on personnel training course in chemicals and hazardous equipment;
- statement of external carrier

You will also find a number of appendices:

- appendix 1, Personal hygiene rules;
- appendix 2, Visitors rules;
- appendix 3, The Greenery statement on crop protection and food safety (residue);
- appendix 4, The Greenery genetic modification statement;
- appendix 5, Useful addresses;
- appendix 6, Banned Pesticide List;
- appendix 7, HACCP plan and hazard analysis.

Registration must take into account the following;

- Each business must submit its business data annually;
- The records must be updated daily and, if requested, must be presented at The Greenery within 24 hours. The Greenery may use the records for trading purposes, for example;
- In principle, all records must be saved. They must be kept for at least two years;
- You will find registration forms in the enclosed file. You are not obliged to use these forms. You can also use your own (computerized) registration method. In that case, at least the minimum data must be provided, as recorded on the enclosed registration forms;
- Growers who start to use the EUREPGAP/The Greenery UK Standard for the first time must have kept all the required registers, in accordance with the requirements, for at least three months before the first external audit takes place.

Keeping relevant documents

All relevant documents showing that you work in accordance with The Greenery UK Standard must be filed and kept for at least 2 years.

Amongst other records, this includes:

- All registration forms;
- Purchase receipts for pesticides, disinfectants and fertilizers;
- Reports on maintenance, repairs and equipment inspections;
- Spraying licence(s);
- Purchase receipts for seeds and propagation material.

Auditors are entitled to examine the data. We recommend you to keep these documents (or copies of them) and all the associated records in The Greenery UK Standard folder.

Tracking and Tracing

External

- Any product that leaves the business's premises must bear the correct markings, such as telephone number, date code, etc. in accordance with the directions;
- The products must be traceable to the plot/department level;
- The products with various origins (different treatments) must be marked separately.

Internal

- Various registration schemes in the business enable any complaints that have arisen in the trade channel to be traced to various business activities and the registrations that have been made (traceability).

Crop protection

General

Minimum use should be made of chemical pesticides. As far as possible, diseases and pests must be avoided by preventive measures. If action is necessary, non-chemical pest treatments are preferred. If chemical action is required, it must be carried out in a way that minimizes the environmental impact and so that there is no risk to the safety of the product or the operator.

Choice of chemical crop protection

If chemical crop protection is required, your choice of pesticide must take into account the following points, amongst others:

- Only permitted pesticides may be used on the crop;
- You must take into account the harvest intervals;
- The environmental impact should preferably be as low as possible. For more information about this, see the “milieumeetlat” (graduated environmental scale), which is available from the CLM in Utrecht. This information is available at www.gewasbescherming.nl (the “milieumeetlat” option);
- Harm to useful organisms, preferably use a selective pesticide;
- Prevent resistance, vary the use of pesticides;
Temperature, wind speed, humidity and method of application, to achieve the optimum effect.

Integrated pest management for fruit & vegetables under glass (incl. strawberries)

- Integrated pest management of pests in fruit & vegetables is compulsory. All pests for which a common and reliable biological method of management is available are managed using natural enemies;
- Integrated pest management means that certain pesticides must not be used, may only be used subject to restrictions (e.g. site basis) or only at the end of cultivation. Consult your cultivation adviser about this, if necessary;
- Preventive use of chemical agents must be followed within six weeks by the deployment of natural enemies;
- After chemical curative action, biological management remains the basis of pest management.

Assessments are made in relation to this on the basis of biological indicator standards (thresholds). The standards are provided below.

Amblyseius cucumeris and *Amblyseius degenerans*: A Thrips mite is present on 75% of the leaves (relevant parts of plant). All stages of development count.

Gall wasps: 5% full mummies in the plant louse congregations.

Plant louse predators: Larva of the predator present on every plant in the plant louse congregation.

Encarsia and *Eretmocerus*: 50% visible in the parasitized pupa on the leaf layer with emerging pupa.

Macrolophus: One present on each plant.

Leaf-miner-fly ichneumon wasps: 40% parasitizing and/or host feeding on lava of leaf miner fly.

Orius species: At least 50 specimens per 100 flowers and/or growing points.

Phytoseiulus persimilis and *Amblyseius californicus*: A red spider mite is present on 75% of the leaves with webs. All stages of development count.

Exceptions

Integrated pest management is the starting point of The Greenery UK Standard. However, there are times (start of cultivation, end of season, etc.) and circumstances during which a biological balance (temporarily) cannot be maintained. In the case of a number of short cultivation periods, it is also difficult to comply with the biological indicator standards. In the event of cultivation temporarily not being integrated and/or the biological indicator not being achieved, it must be possible to provide proper reasons. In such a case, a check will also be made of the deployment of insects in relation to the chemical agents used.

Work instruction use of crop protection

Activity and result of the activity

This involves marketing products that comply with the Dutch admission legislation (crop protection), residue legislation and/or supplementary requirements of export destinations or specific requirements of the market.

Detailed description of the activity

One person in the business is appointed as the person with responsibility for crop protection. This person's deputy is also appointed. The person with responsibility for crop protection ensures that the product is grown in accordance with the Netherlands Residue and Admission Legislation on the use of pesticides and permitted residues.

Preparation of spray mix

- Always read the label;
- Take into account restrictions on a number of specific destinations (including the USA and the United Kingdom). If applicable, written copies of these supplementary requirements must be available at the business. With regard to exports to the United Kingdom, you will find the "banned pesticides list" in the appendices. The pesticides referred to on the list must not be used for exports to the United Kingdom;
- Use the right protective clothing, as indicated on the label;
- The required quantity of spray must be measured accurately using a weighing machine or measuring jug. Properly functioning measuring and weighing equipment must be available;
- At least every six months, the weighing equipment must be checked using calibration weights or on the basis of a service contract with the supplier. The calibration weights or the service contracts must be available. Measuring equipment must be clearly readable. A record must be kept of the inspection of both. You can note the data on the "Equipment maintenance" registration form;
- Empty containers must be cleaned in accordance with the statutory requirements. This entails using a rinsing device, or rinsing at least three times with water. Return the rinsate to the tank;
- Do not place pesticides in the vicinity of products that have been harvested or are awaiting harvesting;
- If a permanent mixing location is used, at least the following emergency facilities must be available for the operator:
 - First aid box;
 - eye washing facilities and running water;
 - absorbent material (for example sand or cat litter);
 - accident procedure.

Equipment

- Pesticides must only be used with appropriate equipment designed for that purpose. If possible, this equipment must be calibrated and officially approved (field sprays, for example). If testing is not possible, ensure, in any case, that annual maintenance is performed;
- You must regularly check that the equipment is still working properly. It must be calibrated at least once a year. Proof of calibration must be available and must be registered. A competent person (who at least possesses a spraying licence) must perform the calibration. Also keep a record of repairs, replaced parts, maintenance and cleaning of equipment. The “Equipment maintenance” form is included in the file for this purpose. Keep all invoices of maintenance work.

Performing crop protection operations

- Operators of the sprayers (and those who make preparations for this) must have a valid spraying licence;
- Use the right protective clothing;
- The above also applies to third parties who perform spraying operations (including contract workers). This must be demonstrable. To this end, you can use the enclosed standard statement “crop protection performed by third parties”;
- Clean clothing that has been worn. The clothing must be stored neatly and separately from the pesticides;
- Check also during the performance of the operations that the equipment is working properly;
- All activities involving pesticides must be recorded within 24 hours of their performance;
- A record must be kept for all the activities of the actual quantities used and not the quantities per hectare.

Residues of pesticides, removal of empty containers and other matters

- Prevent spray residue;
- Store the empty and cleaned containers in a secure place (not in the cupboard containing the pesticides) until their disposal;
- Prevent reuse; make holes in containers;
- Pesticides that are no longer used or permitted to be used must be taken, in accordance with statutory regulations, to recognized firms (information from local authorities) or the supplier. Request a receipt on handing over the containers and keep it.

Pesticides list and harvest record

- Growers must have lists of all statutorily permitted pesticides for all the crops normally grown in the business. The list must be regularly updated and show the current situation. The information is usually obtainable on the Internet and in advice books. You can request a list of this kind from The Greenery;
- Growers must have a completed list showing which pesticides they normally have or may have in storage. To this end, please find the enclosed “record of the inventory of all pesticides”;
- You must be able to demonstrate that the harvest interval has been taken into account for all crop protection activities. To this end, you must keep a harvest record. The “harvest record” form is enclosed in the file for this purpose.

Post harvesting treatments using pesticides

A record must be kept of the following details, if post harvesting treatments are carried out: crop, product, location, date of application, reason for application, trade name, type of treatment, quantity used, equipment used to apply it and the name of the operator.

Advice on pesticide

Consultants must be competent and qualified. Growers must be able to produce evidence of this. At your request, many consultants will be able to provide you with a statement. In addition, the file also contains a consultant's statement. You can use this, if your consultant is unable to provide you with a statement. Ensure that your consultant correctly completes and signs this statement. Your information official must provide the statement annually.

Inspection activities and frequency

The person with responsibility for crop protection ensures that the method of working is implemented correctly in the business.

Appendices

- Record of the inventory of all pesticides;
- Registration of pesticides form;
- Registration equipment maintenance form;
- Consultant's statement.

Storage of pesticides

Pesticide storage must meet the following requirements:

- The storage place (cupboard) must be clean, fire resistant, well lit, locked and clearly recognizable as a storage place for pesticides;
- The construction material of the storage place (cupboard) must not be absorbent;
- If the storage room is accessible, it must also have proper ventilation and lighting;
- The cupboard or room must only contain pesticides, including spreaders and vermin control agents. Do not keep protective clothing, filters and so forth in this room;
- The pesticides must be stored in the original container;
- The label must be legible;
- Powders must be stored higher than liquids;
- Liquid pesticides must be placed in collection trays;
- Access doors must display signs warning of potential hazards;
- There must be both running water and eye washing facilities within 10 metres of the storage place;
- Absorbent material must be available in the vicinity of the storage place;
- The location of the absorbent material must be clearly indicated;
- Only employees with a spraying licence are allowed access to a key to the cupboard containing the pesticides;
- An accident procedure must be displayed in the direct vicinity of the cupboard. You will find an "accident procedure" appendix in the file. Fill in the appendix for your specific business situation and display the procedure at the required places (possibly make copies);

- A record of the inventory of all pesticides must be hung near the cupboard; a form is enclosed for this purpose;
- There must be a complete first aid box within 10 metres of the storage place;
- Only pesticides may be stored that are permitted for one of the crops that the business normally cultivates.

All other statutory requirements concerning the storage of pesticides must, of course, also be observed.

Storage of disinfectants

- Disinfectants must be stored in a clean and locked room;
- All contact with the product must be prevented.

Audits

Audits will be conducted to guarantee satisfactory compliance with The Greenery UK Standard. A distinction is made here between site visits and residue tests. All participating businesses will be audited. All businesses will be audited in accordance with the EUREPGAP and the hygiene code protocol, amongst others.

Site visit

The site visits are made by both an external, accredited organization as well as The Greenery's internal auditors.

External audit

All businesses will be audited at least once a year by the external audit organization. More audits per year are possible. Audits will usually be announced in advance. The visits will cover all relevant parts of the indicated system.

Moreover, all businesses will receive a visit from one of The Greenery's auditors. The Greenery may also request audit registration forms.

Residue monitoring

Random samples taken at The Greenery and/or at the cultivation site will be analyzed for residues. In such cases, the business's pesticides register may be requested.

Sanctions

Sanctions will be imposed, if a site visit or residue test reveals a failure to comply with the set requirements. There are three types of failures:

1. minor failures that can be rectified and/or that do not result in an immediate threat to food safety;
2. major failures that cannot be rectified and that affect product safety, such as glass in the product;
3. exceeded residue limits.

In the first case, the grower must rectify the failure.

- In the second case, the grower will no longer be permitted to supply the product. The grower will only be permitted to start supplying the product again after taking action to prevent the failure from occurring. These businesses may possibly be audited again.
- If a sample reveals a failure to comply with the residue legislation, an urgent sample of the product will be taken at the site immediately. If it emerges that the product does not comply with the residue legislation, an immediate (temporary) sale prohibition will be imposed. The grower will only be permitted to start supplying the product again when subsequent samples have shown that the residues that are present have fallen below the statutory limit/detection limit. The business concerned will be charged for the costs of resampling. The Greenery may decide not to further purchase product from the grower concerned, depending on the severity of the failure.

Any failure by a business to comply with the conditions of the system, may prevent the product being sold in certain market segments. This may have consequences for the price paid for the product.

In accordance with the EUREPGAP audit protocol, if an audit reveals that the business has failed to fully comply with the EUREPGAP standards, it will not be possible to certify the business, or any certificate that has been granted will be withdrawn. Besides the EUREPGAP sanction (refusal to certify or withdrawal of certificate), the aforementioned sanctions relating to risks to product safety and breaches of the residue standards will remain fully effective.

A second audit may be required before the EUREPGAP certificate can be issued. The business concerned will be charged the costs of the second audit.

Pesticide Action Network

Pesticide Action Network (PAN) Perspective on Pesticide Compliance

*Stephanie Williamson
PAN Europe Coordinator and
PAN UK International Project Officer*

PAN Germany

- Info exchange slow and poorly coordinated between agencies
- Conflict of interest between giving advice and acting as "policemen"
- Neither users nor enforcers appreciate the hazards or understand the laws
- 30% pesticides used in Bavaria imported by farmers from other countries
- Inadequate control and training of retailers

PAN North America

- 1/3 pesticide operations failed to meet requirements for PPE
- Fines issued for <20% of documented violations , most only US\$150-400
- In 38% of reported poisoning cases, no relevant violations found
- In 21%, DPR failed to determine whether violation had occurred
- Pesticide approval process leads to unacceptable risks

PAN UK

- 22% arable landholdings sprayed under "grandfather" rights
- Voluntary Initiative failing to deliver the changes in behaviour and practice
- No clear, strong, universally accepted motivation for compliance
- Very limited provision of appropriate disposal for home and garden pesticides
- Lindane purchased 6 months after all lindane products were supposed to have been removed

Key areas for risk reduction

- Accept pesticides are going to be used improperly
- Stronger messages and commitment from enforcement agencies
- Targets for Pesticide Use Reduction are the most effective way to reduce negative impacts
- Home and garden use is a neglected area
- Consequences of July 2003 phase-out ?
- How best to foster co-operation ?

Successful approaches

- User-friendly information on regulations and their rationale
- Independent pest management advisory services
- Prioritise protection of human/environmental health
- New attitudes in regulatory departments and among stakeholders
- Achieve the right mixture of legal, financial and social incentives
- Actively involve food chain stakeholders and farmers with experience in using less pesticides

Croplife International

**Some (incomplete) thoughts on
(non) compliance**

Bernhard Johnen
March 2003

Labels

Simple labels improve compliance but:

- problem with size and complexity
- litigious systems produce more complex labels
- credibility of label recommendations (“over protection”)
- lack of clarity on PPE

Training / Certification

- Improve Education and Training
- Build on existing certification schemes
 - Farmer
 - Distributor / retailer
 - Equipment maintenance / calibration
- Certification creates compliance culture

“Cultural Hurdles”

- Label fatigue - e.g. E.U. DPD:
 - chemical not changed
 - label very different
- Tradition
- Lack of recognition of hazard / problem
- Familiarity breeds contempt

Product Choice

- Individual use registration
- Loss of uses
- Loss of products
- Loss of compounds

CURRENT LABEL

- HARMFUL IF SWALLOWED
- HARMFUL IN CONTACT WITH SKIN
- IRRITATING TO EYES AND SKIN



LABEL AFTER DPD

- VERY TOXIC BY INHALATION
- HARMFUL IF SWALLOWED
- DANGER OF SERIOUS DAMAGE TO HEALTH FROM PROLONGED EXPOSURE
- HARMFUL IN CONTACT WITH SKIN
- IRRITATING TO EYES AND SKIN
- VERY TOXIC TO AQUATIC ORGANISMS
- CONTAINS SUBSTANCES WHICH ARE DANGEROUS FOR THE AQUATIC ENVIRONMENT



National Farmers' Union, UK

**"Risk Reduction – to operator, consumer or
the environment?"**

OECD seminar 10 March



General

- *A direct correlation between risk reduction and use reduction is not sound.*
- *What does society really want?*
- *"in the can" versus "downstream" use*



Risk reduction

- *Training and provision of information to farmers*
- *Adoption of 'Best Agricultural Practices'*
- *Pan-European GAP standards*
- *Harmonising EU maximum residue levels*
- *Improving the co-ordination of residue monitoring programmes*



Strengthening the controls on the use and distribution of plant protection products

- *Categorisation of products*
 - *Open use*
 - *Prescription only by qualified persons*
- *Equivalence for non- agricultural uses*
 - *Domestic*
 - *Industrial*
 - *Amenity*



CRA & Substitution

- *Harmonisation under 91/414*
- *Comparative risk assessment*
 - *at farm level*
- *Substitution*
- *non-chemical alternatives*



Conversion to “ low-use husbandry”

- *Who’s pushing or pulling?*
- *perception of IFM/ICM/IPM*
 - *by growers*
 - *by society*
- *Organic production*
- *What price sustainability?*



Production Protocols

- *National schemes*



- *EUREP – GAP*



The International Dimension

- *Distortions at WTO level*
 - exports
 - imports
- *Minor crop production*
 - cost of production
 - local socio-economic impact



OECD request

Identify:

- *where and why non-compliance occurs*
- *areas that are most important for risk reduction*
- *successful approaches for improving compliance*



Working Group on Integrated Crop Management, Germany

Paris, 10th of March 2003
 OECD Pesticide Risk Reduction Steering Group

“Seminar on Compliance and Risk Reduction”

Dr. Erich Jörg

LPP - State Agency for Agronomy and Crop Protection, Mainz
 AGIL - Working Group for Integrated Crop Production, Mainz

1. Where and why non-compliance ?
2. Important areas for risk reduction
3. Successful strategies for improving compliance



Non-compliance with rules for PPP applications

1. Application rates

- insignificant; fruit production; problem solved in early nineties
- wrong calculations (vol. spray liquid, concentrations, target area)

2. Restrictions: Safety distances, max. number of applications

- significant problem

NG: 313, 401, 402, 404, 408, 410, 411...
NS: 6121.. NT: 101, 102, 103, 107, 109, 125, 139...	Amistar Zen 20m
NW: 467, 468, 469, 600, 601, 602, 603, 605, 606, 609...	AZUR 15m
NZ: 102, 107, 112... VZ: 450, 453, 454...	Bacara 10m
	Bardos 5m

- too complex; unclear; unintelligible
- especially herbicide use: infestation with perennial weeds, harvest problems

⇒ sometimes non-compliance

Non-compliance with rules for PPP applications

1. Application rates

- insignificant; fruit production; problem solved in early nineties
- wrong calculations (vol. spray liquid, concentrations, target area)

2. Restrictions: Safety distances, max. number of applications

- significant problem

Slope ? Clay content of soil ?...

...excluding watercourses occasionally filled with water, but including periodically water - filled ones ...

Drift reducing equipment ? Risk category ?...

- too complex; unclear; unintelligible
 - especially herbicide use: infestation with perennial weeds, harvest problems
- ⇒ sometimes non-compliance

Areas for Risk Reduction

1. Reducing the need for PPP applications

2. Improving decision support for PPP applications

3. Improving spraying quality and handling of equipment

4. Landscape management

(protection of watercourses by creating linear structures, e.g. hedgerows, buffer zones)

Successful strategies for improving compliance

...and the winner is: IPM

1. Preventive Measures

- rules for crop rotation: lowering disease risk
- exploiting the benefits of cultivar choice:
 - shorter life span of cultivars
 - ..bye-bye „Ritmo“, hi „Tommi“ !
 - trend to more resistant cultivars
 - ⇒lower disease risk

2. Determining the need for PPP applications

- infection pressure
- action thresholds

⇒ increased acceptance via decision support systems (DSS).

The screenshot shows a software interface with a dark background. On the left, there are five stacked buttons labeled 'Cereals', 'Potatoes', 'Vegetables', 'Fruit', and 'Sugar Beet'. Below these is a 'Quit' button. On the right, there are three stacked buttons labeled 'SSPHYT1', 'FOLPW', 'SSPHYT2', 'SSPHYT3', 'SMLEP1', and 'SMLEP2'. Below these are two buttons labeled 'Met. stations' and 'Framer Setup'. At the bottom right, there is a 'Language' dropdown menu with 'German' and 'English' options, and two small icons.

DSS help in estimating the necessity for PPP use, reduce labour for field inspections and reduce fungicide and insecticide use.

3. PPP applications

- choice of products least toxic and persistent, selective
- reduced dosage rates herbicides often less than 50%

- improved spraying equipment
 - cabins
 - nozzles

Improving compliance with safety distance rules !

- cleaning of spraying equipment
- regular maintenance and calibration of equipment

**Drift deposit on leaf surfaces in a meadow
(% of nominal dose (500 ng/cm²) in sprayed area)
dose 50g/ha in 200 l/ha, fieldsprayer**

	sprayed area	drift area			
		1m	3m	5m	10m
standard flat fan (03) 56 results	500ng/cm ²	1,515	0,414	0,188	0,051 %
Nozzle classified as 50 % drift reducing (AI 025) 46 results		0,139	0,022	0,014	0,005 %
Nozzle classified as 90 % drift reduction (ID 05) 20 results		0,109	0,015	0,011	0,003 %

**Results 2001/2002
! Wind speed: 2 - 5 m/sec !**

H.Koch, Landesanstalt für Pflanzenbau und Pflanzenschutz, Mainz 2-2003



Co-Op Supermarket, UK



Kevin Barker

Quality Assurance Manager
The Co-operative Group

CO-OPERATIVE GROUP

- Co-operative Retail working alongside:
 - Farmcare, our farming division and the country's largest farm manager
 - Our suppliers
- Developing alternative approaches
- Providing advice to improve controls
- Controls and advice

CONTROLS AND ADVICE

- Pesticide application controlled by
 - Prohibition of use of certain chemicals
 - Restriction on use of additional pesticides
- Based on risk evaluation
- Data not always available
- Where approval is required, given when other cultural, biological and alternative, more benign chemical alternatives not available or exhausted
- Applied worldwide

MONITORING

- Regular pesticide usage checks on farms
- Traceability audits on produce
- Supplier residue testing
- Independent residue testing
- Results posted on website

ADVICE TO GROWERS

- Developing advisory sheets to indicate pesticides controlled by Co-op Retail
- Emphasises cultural and biological controls as preference
- Easily understandable format
- Risk assessment protocols being developed further

ASSURANCE SCHEMES

- Continue to support Assured Produced and EUREP/GAP

But ...

- Can these deliver more value for growers, rather than just “police” the system?
- Can they help develop, communicate and implement improvements?

THE APPROVALS PROCESS

- Mutual recognition
- Products on the periphery of the definition
- Support comparative risk assessment

NEXT STEPS

- Continue to review current “controlled lists”
- Develop review programme and framework with Technical Advisory Group
- Technical, farming and consumer group input
- Develop alternatives for those pesticides causing concern
- Consideration of cocktail effect and LoD effects

AND

- Collective approach will help develop improvements in controls
- Helping to reinstate consumer confidence on those controls
- Effective support to growers
- Alternative styles of control

BEUC, The European Consumers' Union

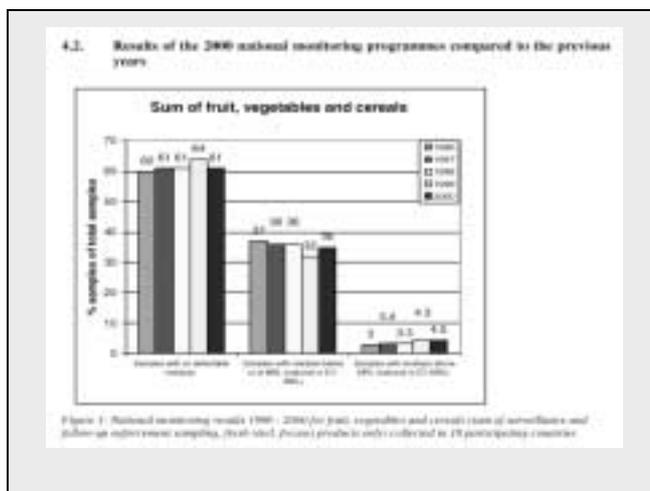


Seminar on Compliance and Risk Reduction

Consumer Perspective
B. KETTLITZ, Food Policy Adviser
European Consumers' Organisation

**Pesticides and Pesticide Residues
3 Topics**

- ◆ Pesticide registration
- ◆ Pesticide residues
- ◆ Monitoring and control of pesticide residues

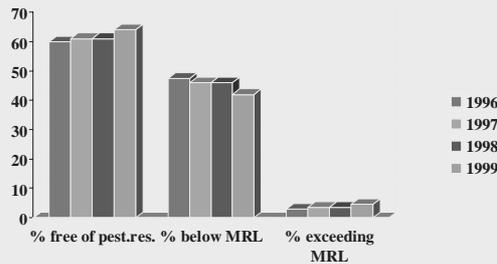


The Netherlands - Paprika Tests

publ. CONSUMENTENGIDS, September 2002

- ◆ Dutch Food Inspection Services (2000) test results of paprika:
53% free of residues; 31% residues above limits
- ◆ Test Consumentenbond 2002
Dutch products: 75% free of residues, all other products not exceeding limits
Import products: 18 % free of pesticides, 33% above limits
Bio Products: 50% containing residues of for organic farming permitted products

Evolution of Residues in Belgium Fruit, Vegetables, Cereals*



Belgium (2) Test Results

ref. TEST ACHATS, March 2002 no.452

- ◆ Lettuce
 - 70 % with residues, of which 80 % with more than one pesticide; 1 sample exceeding the MRL
- ◆ Grapes
 - 47% with residues, of which 61 % with more than one residue and more than 9 samples = 70 % exceeding the MRLs

Italy Test Results

ref: ALTROCONSUMO*, March 2002, no 147

◆ Strawberries

- 58 % with residues, of which 36 % with multiple residues, non exceeding MRLs, but one with a forbidden substance

◆ Grapes

- 92 % with residues; of which 60 % containing multiple residues and 34 % exceeding the MRLs

Portugal Test Results

ref: PRO TEST*; March 2002, no223

◆ Tomatoes

- none contained pesticide residues

◆ Pears

- 24 % with residues, with 1 sample containing multiple residues, but none exceeding the MRLs

UK Test Results

ref. -WHICH*- September 2001

◆ Grapes

- 67 % with residues, of which 29% with multiple residues; 7 % exceeding MRLs and one sample containing 5 different pesticides

◆ Strawberries

- 80 % with residues, of which 42 % with multiple residues; 1 UK sample with 5 different pesticides and 1 with a fungicide not allowed in UK

Germany

ref. various mag. STIFTUNG WARENTEST

- ◆ Organic Vegetables (10/2000)
 - at most traces of residues
- ◆ Fruit Teas (e.g. dogrose, hibiscus, apple) (12/2001)
 - high levels of residues, PCP as a post-harvest contaminant
- ◆ Baby Food (03/2002)
 - free of pesticide residues

The Challenges (1)

- ◆ Realistic consumption data
- ◆ Vulnerable population groups
- ◆ Bound residues of pesticides and pharmaceuticals
- ◆ If residues are ubiquitary spread, there is no control group for epidemiological studies
- ◆ Combined effect of multiple pesticide residues
 - Possibly synergistic effects of multiple residues
- ◆ Multiple sources of exposure to pesticides

The Challenges (2)

- ◆ Harmonized monitoring and data collection systems, including the identification of results from imported products to get objective national reports and to check for the success of national measures
- ◆ Harmonisation of allowed substances and MRLs throughout Europe

Action Points

Levels of residues and contaminants should be **As Low As Reasonably Achievable**.

Shared with other factors the following should be considered:

- national pesticide reduction plans
- promotion of alternative pest control methods
- use less harmful alternatives
- control over unsafe pesticide application practices.

Publication of test results in an easily accessible way.

The way forward

◆ For the use of pesticides

One should set:

- Objectives for reduction of use and dependency,
- Targets and preferably timetables for reduction

Conclusions

- ◆ Specific targets should be designed at national levels to progressively achieve more stringent qualitative and quantitative reductions in the use of pesticides on specific crops and overall.
- ◆ Principles for Good Agricultural Practices (GAP) should be developed which specifically aim at reducing the dependency of agriculture on plant protection chemicals. This may be facilitated by establishing an EU-supported 'GAP research facility'.
- ◆ Least-harmful plant protection practices should be developed and promoted wherever feasible and practicable.
 - Best environmental practices should be applied.
- ◆ The use of pesticides should ultimately give rise to **appropriate** control measures of the residue levels