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**REVIEW OF THE IMPLICATIONS OF
CHANGES IN EU PESTICIDES LEGISLATION
ON THE PRODUCTION AND EXPORT OF
FRUITS AND VEGETABLES FROM
DEVELOPING COUNTRY SUPPLIERS**

Final Report

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List of acronyms

ACP	African, Caribbean and Pacific countries
ADI	Average Daily Intake
AI	Active Ingredient
COLEACP	Comité de Liaison Europe Afrique Caraïbes Pacifique pour la promotion des fruits tropicaux, légumes de contre-saison, fleurs, plantes ornementales et épices
CPHP	DFID's Crop Post Harvest Research Programme
DFID	Department for International Development
DG Sanco	EU Directorate responsible for Consumer Health
DG VIII	EU Directorate responsible for Development
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
FFS	Farmer Field School
FPC	Fresh Produce Consortium (UK)
GAP	Good Agricultural Practice
GEP	Good Efficacy Practices
GLP	Good Laboratory Practices
HACCP	Hazard Analysis Critical Control Point
ICM	Integrated Crop Management
IPM	Integrated Pest Management
LOD	Limit of Determination
MAFF	Ministry of Agriculture, Food and Fisheries (UK)
MRL	Maximum Residue Level
NGO	Non-government organisation
NRET	Natural Resources and Ethical Trade Programme, Natural Resources Institute
NRI	Natural Resources Institute (University of Greenwich)
PAEA	Projet d'Appui aux Exportations Agricoles, Madagascar
PFM	Participatory Farm Management
PMO	Primary Marketing Organisation
PSD	Pesticides Safety Directorate, executive agency of MAFF
RLD	Rural Livelihoods Department
UK	United Kingdom

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Summary

THE EU MRL HARMONISATION PROGRAMME

Since 1993 the European Union (EU) has been implementing a programme to establish harmonised Maximum Residue Levels (MRLs) for pesticide residues in foodstuffs sold in the EU. Between 1993 and July 2000, the EU has been aiming to establish MRLs for 102 pesticide active ingredients. However, acceptable data for establishment of MRLs has not been available for a significant number of crop/active ingredient combinations. In such situations, the EU has left the MRL position as an "open position" for a limited period of time. During this period, data can be submitted to the EU to provide for the establishment of an MRL – this is usually done by agrochemical companies, but can also be done by other interested parties. If the period expires and no acceptable data has been received, the MRL is set at the analytical Limit of Determination (LOD) i.e. analytical zero.

The establishment of harmonised MRLs is an ongoing process, with some MRLs having already been set, and levels for a further 704 active ingredients due to be established in batches in the future. Once EU MRL positions have been established (closed off), EU member states are obliged to incorporate these MRLs into their national legislation within 12 months.

Out of the many exported fruit and vegetables important to developing countries, only bananas and citrus are considered as "major crops" by the agrochemical companies, and in general they have not considered it commercially worthwhile to defend MRLs for minor crops. For this and other reasons, MRLs for many of the first 102 active ingredients used by developing country growers on tropical, sub-tropical and out-of-season fruit and vegetables have been set at LOD, or will be by July 2000. Proportionately more MRLs have been set at LOD for these fruits and vegetables, as compared to temperate crops grown in the EU. Some of these chemicals are currently seen by growers to be essential for producing crops for export, e.g. post-harvest fungicides required to preserve fruit during shipping.

This EU programme has caused serious concern amongst importers and retailers of imported fresh produce in EU member states, and amongst exporters and growers in developing countries. Importers and retailers in the UK are under particular pressure because the government allows results of the government's residue monitoring programme to be published each year, along with the names of the retailers from whom each sample is taken. This has the effect of "naming and shaming" retailers who are selling products with residues exceeding permitted MRLs. In response to concerns about negative publicity, UK retailers are putting in place particularly strict requirements on their suppliers to be able to demonstrate compliance with MRLs.

Resulting problems faced by developing country industries have been exacerbated by the fact that communication of the EU legislative position, and its implications for farming practices, has been poor, with the result that even the largest producers in some of the larger exporting countries remain insufficiently informed to respond effectively to the legislative requirements.

In many developing countries, export of horticultural products not only constitutes an important source of national income and foreign exchange, but also provides cash income for many smallholders and employment for many other poor people. It is estimated that 45 million people in ACP countries are dependent on horticultural exports to the EU for their livelihoods. The implementation of the EU harmonisation programme, and the potential for a consequent fall in export production, therefore raises specific concerns about its impact on poor people who depend on export horticulture for their livelihoods. In response to these concerns, the UK's Department for International Development (DFID) Rural Livelihoods Department (RLD) commissioned the Natural Resources and Ethical Trade (NRET) Programme of the Natural Resources Institute (NRI) to conduct a study to obtain the appropriate information to allow informed assessment of the problem, and to allow DFID to consider whether or not they can offer any targeted assistance and what form that assistance should take. A summary of key findings and recommendations from this study is presented below.

KEY PROBLEM AREAS IDENTIFIED

Impact on industries

The legislation is likely to lead to:

- *A fall in overall production of fruit and vegetables for export to the EU*
- *Increased costs of production (although adoption of integrated pest management/IPM approaches may lead to a fall in costs in the long run in certain cases)*
- *A higher risk of crop wastage and/or crop failure*
- *Smaller growers no longer being able to export*
- *Smaller exporting countries being excluded from the supply chain.*

Impact on smallholders

The EU MRL regulations are likely to have the following impacts on smallholders:

- *Importers will cut back on sourcing from exporters who rely largely on smallholder production for their supply of produce*
- *Exporters will cut back on their sourcing from smallholders if alternative sources of supply are available*
- *Exporters are likely to discontinue sourcing from independent smallholders (i.e. those that are not attached as outgrowers to particular exporters)*
- *Smallholders will face increased costs of production (more expensive pesticides, and costs of control, monitoring, training etc. may be passed down by exporters)*
- *Exporters are likely to tighten control over their smallholder suppliers, and in general smallholders will become more dependent on exporters and/or other outsiders.*
- *Those smallholders with an option to produce cash crops for the local market instead may choose to switch (back) to local market production.*

Impact on horticultural workers

The MRL regulations are likely to lead to:

- *Substantial loss of jobs, especially for those working for smallholders or for medium-scale growers.*
- *Increased seasonality of remaining jobs, which may have the effect of further reducing job security.*
- *Possible expansion of job opportunities on the largest farms and exporting operations, and in monitoring, control and training of outgrowers. However, any resultant increase in jobs is unlikely to compensate for the general downward pressure on employment, especially in the smaller exporting countries where there are no large-scale commercial operations.*

Crops most affected by the legislation

The following is a preliminary list of priority crops (using EU product classification):

- *Miscellaneous fruits (including avocados, pineapples, passion fruit and mangoes)*
- *Yams*
- *Other roots and tubers*
- *Peas and beans*

Information and communication

- *The whole MRL issue is highly complex, both from a technical and legislative perspective, making it extremely difficult for non-experts to understand and explain.*
- *The official channels for consultation and communication of the legislation in developing countries have not been effective, in part due to inadequate local government capacity.*

- *Trade/growers' associations in developing countries can be an important conduit for information, and a mechanism for co-ordinating responsive action. However, not all developing countries involved in export have such associations, and where they do exist they vary greatly in their effectiveness.*
- *Growers and exporters have therefore relied on diverse sources of information, which have tended to provide information which has been inaccurate, inconsistent, piecemeal, and too late*
- *Compared to the industry in Europe, growers and exporters in developing countries have been at the end of longer communications chains, often depending on their importers for information, leading to further delays and greater room for misinterpretation*
- *Developing countries are faced in general with much poorer communications infrastructure, which poses a further constraint to receiving information.*

SUMMARY OF RECOMMENDATIONS

Immediate activities (within 12 months)

1. *Modify or augment current official procedures for consultation with developing countries on proposed EU directives affecting livelihoods in developing countries.*
2. *Implement a comprehensive information provision and awareness-raising campaign, targeting exporters and growers in developing countries who export fresh produce to the EU.*
3. *Modify current procedures such that there is sufficient time for the fresh produce industry and public sector bodies to prepare datasets for establishment of MRLs, after the full list of crop/active ingredient combinations to be defended by the agro-chemical companies is made available.*
4. *Initiate data collection for establishment of MRLs for post-harvest fungicides used on the preliminary list of priority crops.*
5. *Develop a suitable mechanism for future prioritisation of crop/active ingredient combinations for establishment of MRLs and of import tolerances, which responds directly to the priorities of developing country industries.*
6. *Initiate programmes in vulnerable developing countries to provide support to exporters who source from smallholders, providing assistance in setting up appropriate management systems as well as technical assistance in pest management.*
7. *Conduct a rapid review of proven non-chemical control techniques for key horticultural crops in affected developing countries.*
8. *Carry out an assessment of implications of the EU Review of Approvals process for developing countries, and develop appropriate strategies to address key threats. Specifically, ensure that the lists of approved and revoked active ingredients to be finalised in December 1999 are promptly communicated to developing country industries and other relevant bodies.*
9. *Initiate discussions with manufacturers of generic pesticides, or their representatives (e.g. Global Crop Protection Federation), on opportunities for joint funding to defend prioritised generic pesticides important to developing country growers.*

Medium-term activities (within 5 years)

10. *Set up appropriate institution(s) to ensure effective two-way communication between the EU and the fresh produce industry in developing countries, and to co-ordinate the prioritisation of crop/active ingredient combinations and establishment of MRLs and import tolerances for these combinations.*
11. *Establish programmes for developing country exporters and producers to promote and build capacity for Integrated Pest Management (IPM) as a component of Good Agricultural Practice (GAP).*
12. *Raise awareness amongst European consumers about the implications of high cosmetic quality standards on crop wastage, and the consequent impact on livelihoods of smallholders.*

I. Background to the study

BRIEF DESCRIPTION OF THE PROBLEM

The importance of export horticulture

In many developing countries, export of horticultural products constitutes an important source of national income and foreign exchange, and provides cash income for smallholders and employment for many poor people. Access to the export market for smallholder farmers has always been difficult, but substantial efforts have been made in recent years to improve their standards of production and to open up higher value export opportunities, bringing additional money into rural households.

The EU MRL harmonisation programme

Since 1993 the European Union (EU) has been implementing a programme to establish harmonised Maximum Residue Levels (MRLs) for pesticide residues in foodstuffs sold in the EU. MRLs are based on the level of residues resulting from good agricultural practice (GAP), the toxicity of the chemical, and the average daily intake (ADI) of the foodstuff. Both GAP and ADI vary from crop to crop, so MRLs are set for specific crop and pesticide (active ingredient) combinations. Between 1993 and July 2000, the EU has been aiming to establish MRLs for 102 active ingredients. However, acceptable data to establish MRLs has not been available for a significant number of crop/active ingredient combinations. In such situations, the EU has left the MRL position as an “open position” for a limited period of time. During this period, data can be submitted to the EU to provide for the establishment of an MRL – this is usually done by agrochemical companies, but can also be done by other interested parties. The data must have been collected in accordance with strict procedures defined by the EU. If the period expires and no acceptable data has been received, the MRL is set at the analytical Limit of Determination (LOD) i.e. analytical zero.

The establishment of harmonised MRLs is an ongoing process; some MRLs have already been set, and levels for a further 714 active ingredients due to be established in batches in the future. Once EU MRL positions have been established (closed off), EU member states are obliged to incorporate these MRLs into their national legislation within 12 months. Thus, for example, all the EU MRL positions established in July 2000 will have to be approved and implemented as national legislation by all EU Member States by July 2001.

Out of the many exported fruit and vegetables important to developing countries, only bananas and citrus are considered as “major crops” by the agrochemical companies, and in general they have not considered it commercially worthwhile to defend MRLs for minor crops. For this and other reasons, MRLs for many of the first 102 active ingredients used by developing country growers on tropical, sub-tropical and out-of-season fruit and vegetables have been set at LOD, or will be by July 2000. Proportionately more MRLs have been set at LOD for these fruits and vegetables, as compared to temperate crops grown in the EU. For example, MRLs for 66 of the 102 active ingredients have been set at LOD for mango, 63 out of 102 for pineapples. Some of these chemicals are currently seen by growers to be essential for producing crops for export, e.g. post-harvest fungicides required to preserve fruit during shipping.

This EU programme has caused serious concern amongst importers and retailers of imported fresh produce in EU member states, and amongst exporters and growers in developing countries. Importers and retailers in the UK are under particular pressure because the government allows results of the government’s residue monitoring programme to be published each year, along with the names of the retailers from whom each sample is taken. This has the effect of “naming and shaming” retailers who

are selling products with residues exceeding permitted MRLs. In response to concerns about negative publicity, UK retailers are putting in place particularly strict requirements on their suppliers to be able to demonstrate compliance with MRLs.

Resulting problems faced by developing country industries have been exacerbated by the fact that communication of the EU legislative position, and its implications for farming practices, has been poor, with the result that even the largest producers in some of the larger exporting countries remain insufficiently informed to respond effectively to the legislative requirements.

Rationale for DFID Study

The implementation of the EU harmonisation programme has raised a number of concerns in terms of its impact on the livelihoods of poor people in developing countries involved in export horticulture:

- Concern that developing country producers and exporters are not sufficiently informed about the legislative changes and their implications, despite the fact that the harmonisation programme began 7 years ago.
- Concern that the export horticulture industries in exporting developing countries may be quite seriously affected by the legislation, with consequent negative impacts on employment and smallholder livelihoods, but inadequate knowledge about the nature and extent of this impact.
- Concern that smallholders will in particular be hurt by the legislation, due to the additional constraints they face both in getting appropriate information about the legislation, and in responding to its demands.

In response to these concerns, the UK's Department for International Development (DFID) Rural Livelihoods Department (RLD) commissioned the Natural Resources and Ethical Trade (NRET) Programme of the Natural Resources Institute (NRI) to conduct a study to obtain the appropriate information to allow informed assessment of the problem, and to allow DFID to consider whether or not they can offer any targeted assistance and what form that assistance should take. This document reports on the findings and recommendations from this study. Details of the agreed outputs and activities are presented below.

AGREED OUTPUTS AND ACTIVITIES

Intended **outputs** as detailed in the project proposal were as follows:

1. A risk analysis of the effects of the legislative position on horticultural production.
2. An assessment of the impact of the changes on the poor whose livelihoods are dependent upon crop production for the export market.
3. An assessment of the opportunities for co-operation between public and private sector bodies in developing strategies to meet the challenges brought about by the more stringent legislation.
4. A preliminary review of the functioning and efficiency channels of North-South information exchange on agricultural issues, and their strengths and weaknesses in terms of ensuring that sustainable livelihood issues are considered in the policy-making process.

Proposed **activities** were:

- Data collection of production statistics (volume, value) for key commodities affected by the changes. Crops will be chosen based on their volume and value in the selected countries, and/or

their significance to different types/scales of producer (smallholder, medium or estate-scale production).

- An assessment of pesticide regimes utilised for the above crops/commodities (pre and post harvest) in the selected countries.
- An assessment and analysis of the contribution these crops make to sustainable livelihoods of poor people, and the implications of EU changes for poor people.
- A preliminary estimate of the cost and time-scale for setting MRLs for these crops, and a prioritisation of crops for which MRLs need to be set based on both volume/value and significance to sustainable livelihoods. (This will make reference to different types of testing.)
- A preliminary analysis of channels of information exchange on technical and policy/regulatory issues within the horticulture industry between UK, other European and developing country stakeholders.
- A provisional analysis of institutions and processes involved in developing changes to legislation, and how these are influenced by different stakeholders (North and South).

ADAPTATION OF AGREED ACTIVITIES AND REASONS

All of the intended outputs have been met, although Outputs 1 and 2 have not been covered in as much detail as hoped for initially, due to the reasons identified below. Output 3 is written up in the report as recommended response strategies for the EU Commission, and for bilateral agencies including DFID.

Activities were adapted due to the following factors that lay outside NRI's control:

Legislative position complex; reliable and understandable information difficult to find

The outputs and activities were designed based on an assumption that the actual legislative position was already understood, or that at least it would involve negligible amounts of time and effort on the part of the NRI research team to find relevant documents and become familiar with the exact content of the legislation. In fact, it has proven extremely difficult to access reliable and comprehensible information about the legislation position. Primary sources (a string of EU Directives)¹ use highly legalistic language and are incomprehensible to the layman, and secondary sources vary in their interpretations of the legislation, so that it has been very difficult to get an accurate and comprehensive picture. Thus, considerable amounts of time had to be spent in learning more about the legislative position itself, before it was possible to enter into a meaningful assessment of its impact on the case study and other developing countries. This issue of lack of availability of reliable information is discussed in more detail in the study findings, below.

Parallel activities of the Pesticides Working Group

Other organisations, in particular COLEACP, FPC and AUDAX Audits (members of the Working Group on Pesticide Residues), have throughout the period of the project been working quite intensively on closely related issues concerning the impact of the harmonisation programme on trade, and devising means of tackling some of the immediate problems for ACP producers and exporters. As a result, some of the intended activities for this project (assessment of pesticides regimes, prioritisation of crop/active ingredients for which MRLs need to be set) were already being covered by these other organisations, so it was felt that NRI should not duplicate their efforts. To ensure effective co-ordination between these different organisations, the NRI researchers spent unanticipated time in meetings with Working Group partners. Moreover, the Working Group/COLEACP has during the study period been in a process of dialogue with the EU Commission in Brussels, and has been asked to put together an action plan to address key threats to ACP countries arising from the MRL

harmonisation programme. COLEACP has asked for continued inputs from NRI in putting together this action plan.

COLEACP complementary survey

After the NRI visits to Zimbabwe and Kenya, COLEACP decided to conduct a wider survey of ACP exporters and producers to collect information on the impact of the legislation. They adapted the checklists used by NRI for interviews in Kenya and Zimbabwe into a questionnaire which was sent out to exporters and producers in a range of ACP countries. NRI has been able to use the findings from the returned questionnaires to supplement its own findings from the two original case study countries.

Adjustment of case study countries

It was initially intended that a third case study would be carried out in Jamaica. Given the limited time available for the study, this third case study was dropped in favour of spending extra time gaining a more detailed understanding of the legislation, and analysing the data from additional ACP countries collected from the COLEACP survey.

2. Methodology

SOURCES OF INFORMATION

During the course of the study, information was obtained from:

- Producers, exporters and industry associations in 11 developing countries (10 in Africa);
- Relevant government authorities in Zimbabwe and Kenya
- Primary Marketing Organisations (PMOs) and supermarkets in the UK
- The UK's Fresh Produce Consortium (FPC)
- COLEACP
- EU Commission (DG Sanco and DG VIII)
- Written documents and Websites (see reference list).

The author has also drawn on her knowledge of the export horticulture sectors in Zimbabwe and Kenya from on-going research in both countries under the CPHP-funded Export Horticulture and Ethical Trade Project of the Natural Resources and Ethical Trade (NRET) Programme.

A detailed list of organisations and companies contacted during the course of the study is included in **Appendix 1**.

DATA COLLECTION TECHNIQUES

Kenya and Zimbabwe

During field visits to the two case study countries, information was mainly collected through **semi-structured interviews** with producers, exporters and relevant organisations. Wherever possible, a checklist of key questions (**Appendix 2**) was sent to the interviewee beforehand together with a 4-page document explaining the background to the EU harmonisation programme and the purpose of our study (adapted from the concept note). The purpose of this was to give the interviewees a chance to familiarise themselves with the issues, and collate any relevant written documentation before the interview.

The selection of producers and exporters was based on the following:

- Recommendations from the industry associations
- Obtaining a cross-section of smaller and larger exporter-producers
- Covering the range of key fruit and vegetable crops in each country (i.e. crops which are economically important to the countries, and/or are likely to be particularly affected by the MRL legislation).

Producers and exporters in other developing countries

Detailed information about the export horticulture industry in Uganda was collated and supplied by a consultant based in Uganda⁷. Information from producers and exporters outside of Kenya and Zimbabwe was collected through the complementary questionnaire sent out by COLEACP to their ACP members. A copy of this is attached in **Appendix 3**.

UK PMOs and supermarkets

A questionnaire (see **Appendix 4**) was sent out to 8 supermarkets and PMOs, selected according to the following criteria:

- Have been previously contacted by NRET. This was seen as necessary because the MRL issue is a sensitive one for PMOs and supermarkets, and it was therefore felt that the only chance of getting a response was to target individuals with whom a relationship of trust had already been built.
- A balance of PMOs and supermarkets
- The list specifically included a number of companies who import from Kenya and/or Zimbabwe.

In the covering letter sent out with the questionnaire, the respondent was given the choice of responding directly in a written format, or to arrange a face-to-face meeting. One of the four respondents chose to have a face-to-face meeting, the others responded directly.

FPC

Information was exchanged with FPC in meetings of the Working Group on Pesticide Residues, and at the FPC Convention 2000 (20th and 21st March, Grantham).

COLEACP

Information has been shared with COLEACP through Working Group meetings, phone calls, email correspondence, and at a meeting with the EU Commission (25th February, Brussels).

EU Commission

The NRI researchers attended a meeting at the EU Commission in Brussels on 25th February, at which a number of representatives from DG Sanco and DG VIII were present.

3. Overview of export horticulture in developing countries

MACRO-ECONOMIC IMPORTANCE OF EXPORT HORTICULTURE

Horticultural exports are an increasingly important contribution to the economies of many developing countries. While the share of developing countries in total world agricultural trade has decreased between the 1960s and 1980s, their share of the world horticultural trade has grown considerably,

accounting for nearly 37% by the 1980s². Sub-Saharan Africa's horticultural exports currently exceed \$2 billion, exceeding the region's exports for coffee (\$1.84 billion) and cotton (\$1.52 billion), and for all other individual commodities other than cocoa³. **Table 1**, below, indicates the value of horticultural exports and their contribution to foreign exchange earnings for selected case study countries.

Table 1: Value of horticultural exports and their contribution to foreign exchange earnings

	Value of horticultural exports (US\$ '000s)	Contribution to foreign exchange earnings (percentages refer to the value of horticultural exports as a percentage of total exports)
Zimbabwe	3.5 – 4.5% of GDP ⁴	2 nd largest forex earner ⁴
Kenya	68,274 ⁵	3.5% ⁵ (3 rd largest forex earner ⁶)
Uganda	20,000 ⁷	No data found
South Africa	612,921 ⁵	2.7% ⁵
Jamaica	74,120 ⁵	5.5% ⁵

The main fruits exported from ACP countries into the European Union are bananas, pineapples, citrus fruit, coconuts, mangoes, avocados, melon and papaya. The main type of vegetables exported are peas and bean crops⁸. Volumes exported in 1996 are summarised in **Table 2**, below:

Table 2: Volumes of fruits and vegetables exported from ACP countries to the EU (1996)

	Volumes exported from ACP countries into the EU (tons)⁸
Fruits:	
Bananas	801,595
Pineapples	190,384
Citrus fruits	51,755
Coconuts	30,155
Mangoes	8,504
Avocados	8,383
Melon and papaya	4,975
Other fruits	17,352
Vegetables:	
Peas and beans	39,920
Other vegetables	21,631

SMALLHOLDER PRODUCTION

Smallholders (i.e. farmers who depend primarily on family labour) play a significant role in the supply of export horticultural products in ACP countries, in some countries being the dominant source of supply. **Table 3** indicates the importance of smallholder supply in selected countries:

Table 3: Importance of smallholders in export production

	Percentage contribution of smallholder production to total exports
Côte d'Ivoire	Approx. 90% of exported pineapples are produced by smallholders ⁹
Ghana	45% of pineapples produced by smallholders ¹⁰
Kenya	75% of fruit and vegetable volumes derived from smallholder production ^{2 a}

Reliable statistics on numbers of smallholders involved in export horticulture are not available. However, based on available figures on smallholder involvement for the industries in Kenya, Uganda and Zimbabwe, and for individual companies in 6 other countries responding to the COLEACP questionnaire, one can extrapolate that **at least 0.5 million smallholder households in ACP countries depend on horticultural exports to the EU for their livelihoods**^{6 10 11 12}.

In countries such as Zimbabwe where large-scale commercial farms are pre-dominant, only some of the vegetable crops are grown by smallholders (mainly mange tout peas and baby corn in Zimbabwe). However, considering the ACP group as a whole, smallholders are involved in the production of all the key fruit and vegetables crops⁹. For example, while pineapple is grown on large-scale plantations in some countries, smallholder production is predominant in a number of West African countries, including in the key producing countries in the region (Ghana and Côte d'Ivoire). Therefore, in assessing the impact of the EU harmonisation programme on smallholders, it is necessary to look at the whole range of crops being exported from developing countries, since all of them are important to a greater or lesser extent to smallholder livelihoods.

The sale of export horticultural crops can be a significant source of cash income to smallholder households. For example, in Meru District in Kenya, it is estimated that average annual income from sale of french beans accounts for over 20% of total household income (inclusive of off-farm income and remittances from relatives)^{6 b}.

EXPORT HORTICULTURE AS A SOURCE OF EMPLOYMENT

Compared to other agricultural crops, horticultural crops are characterised by their labour intensity, and hence the horticultural export industry is an important employer in developing countries where the industry is significant. It has not been possible to find reliable and accurate statistics on the number of people employed in export horticulture in ACP countries as a whole. However, based on available employment figures for the industries in Kenya, Uganda and Zimbabwe, together with data from individual companies responding to the COLEACP questionnaire, one can extrapolate that **approximately 7 million people are employed in the export horticulture industry in ACP countries**^c. The majority of these workers are likely to come from the poorest sectors of society, often from households who don't have access to enough land to be self-sufficient. Moreover, it is an important source of employment for women, with women constituting the majority of the labour force in many of these countries – see **Table 4**, below:

^a This percentage excludes pineapple production, and refers to an estimated figure for 1998.

^b Figures from her own field work during 1994-1995 (Average household income was 35,021 Ksh, average annual income from french beans was 7,864 Ksh)

^c Due to insufficient information about the bases on which the various figures were calculated, it is unclear as to whether workers on smallholder farms are taken into account in this estimate. It is therefore possible that the figure could be considerably higher.

Table 4: Proportion of horticultural employees who are women

	PERCENTAGE OF TOTAL EMPLOYEES WHO ARE WOMEN
Zimbabwe	90% ¹³
Uganda	75% ^d
Ivory Coast	50% ^e
South Africa	59% ^f
Jamaica	70% ^g

KEY IMPLICATIONS FOR THE STUDY

Contrary to the initial expectations of DFID and the research team, this analysis of the structure of the industry indicates that an assessment of the impact of the legislation on poverty needs to be broad-based – it is not simply a question of assessing the impact on a few crops grown by small-scale producers. Because smallholders are involved in growing many of the export crops, the impact of the legislation on a broad range of crops needs to be considered. Moreover, since large-scale commercial farms as well as smallholder farms are an important source of employment for the rural poor, the impact on large- and medium-scale producers as well as on smallholders needs to be considered in order to gauge the overall impact on poverty.

Assuming that each smallholder and worker has 6 household members or other dependants who rely to a greater or lesser extent on their income ^h, then one can estimate that there are **45 million poor people in ACP countries dependent on horticultural exports to the EU for their livelihoods.**

4. The legislation, its implementation, and the key implications for developing countries

THE MRL HARMONISATION PROGRAMME

Since 1993 the European Union (EU) has been implementing a programme to establish harmonised Maximum Residue Levels (MRLs) which restricts levels of pesticide residues in foodstuffs sold in the EU.

MRLs for foodstuffs are established both nationally and internationally with three key objectives in mind:

1. To control the correct use of pesticides in terms of the registered use (e.g. application rates and pre-harvest intervals)
2. To permit the free circulation of food commodities that have been treated with pesticides and comply with the established MRLs.
3. To minimise the exposure of consumers to harmful or unnecessary intakes of pesticide residues ⁸.

^d This figure applies to employees in the fruit and vegetable sector only.

^e This figure is based on employment figures from two exporting companies only (176 out of 350 employees were women).

^f This figure is based on employment figures from two exporting companies only (6,420 out of 10,937 employees were women).

^g This figure is based on employment figures from only one exporting company (70 out of 100 employees were women).

^h A household with 7 members is a conservative estimate of the average household size in ACP countries

The establishment of MRLs is based on the balancing of three different types of data:

1. Levels of residues resulting from what is termed “good agricultural practice” for the particular crop in the producing country;
2. The toxicity of the chemical (active ingredient) involved;
3. The average daily intake (A.D.I.) of the particular crop by the target consumers.

Since agricultural practices and A.D.I.’s vary from crop to crop, MRLs are established for each crop/active ingredient combination.

The stated aims of the EU harmonisation programme are to iron out current inconsistencies in national MRLs in the different EU member states, by establishing obligatory and common MRLs for all active ingredients approved for use within the EU, based on scientific and systematic procedures. Currently, there are 816 active ingredients approved for use within the EU. Between 1993 and July 2000, the EU has been aiming to establish MRLs for 102 active ingredients – these are listed in **Appendix 5**. In relation to fruits and vegetables, the programme has been codified in the following EU Directives:

- Framework Directive 90/642/EC
- Council Directives 93/57/EEC, 93/58/EEC, 94/29/EC, 94/30/EC, 95/38/EC, 95/39/EC, 96/32/EC, 96/33/EC and 98/82/EC.

The latter group of Council Directives establishes obligatory MRLs within the framework directive for crop/active ingredient combinations where sufficient data has been available, and also establishes residue data requirements where there is insufficient data. In situations where insufficient data is available, the EU has left the MRL position as an “open position” for a limited period of time. During this period, data can be submitted to the EU to defend the establishment of an MRL – this is usually done by agrochemical companies, but can also be done by other interested parties. The data must have been collected in accordance with strict procedures defined by the EU. If the period expires and no acceptable data has been received, the MRL is set at the analytical Limit of Determination (LOD) i.e. analytical zero.

The establishment of harmonised MRLs is an ongoing process, with some MRLs having already been set, and levels for a further 714 active ingredients due to be established in batches in the future. Once EU MRL positions have been established (closed off), EU member states are obliged to incorporate these MRLs into their national legislation within 12 months. Thus, for example, all the EU MRL positions established in July 2000 will have to be approved and implemented as national legislation by all EU Member States by July 2001.

After MRLs have been closed off at LOD, there remains the possibility that appropriate data submitted to defend the establishment of a MRL could be considered on a case by case basis. However, the time it takes to establish an MRL can take several years. If there is an established MRL for a similar crop grown under similar conditions, it may be acceptable to extrapolate e.g. extrapolating an MRL for pears based on an existing one for apples grown under similar conditions. When extrapolation is not possible, then an absolute minimum of one year of trials needs to be conducted. Even once data has been submitted, subsequent discussions over the final establishment of the MRL can take 2 to 3 years¹⁴.

THE PESTICIDE APPROVALS REVIEW PROGRAMME

During the course of the study, it became clear that the MRL Harmonisation Programme needed to be considered in conjunction with a parallel programme being implemented by the EU, i.e. the pesticide approvals review programme. This programme aims to review all the 823 active ingredients that were approved for use within the EU prior to the 25th July 1993. This was the date on which the EU **Pesticide Authorisation Directive 91/414/EEC** became effective. This Directive has three main aims:

1. To remove barriers to trade
2. To harmonise data requirements, protocols for data generation, data assessment criteria and decision making
3. To ensure high standards of safety to consumer, operator and environment ⁸

This directive also established a process whereby “old” active ingredients, i.e. those approved before 25th July 1993, could be reviewed. An initial list of 90 AIs for review, called **Annex 1**, was drawn up. The second list for consideration contains 148 AIs and subsequent lists will contain the balance of 585 AIs. The practical arrangements for the systematic review of these old AIs are codified in a supplementary directive called the **Review Regulation 3600/92**.

It is planned that the review process for all old AIs will be completed by 2003. The review of Annex 1 is now complete, resulting in 8 withdrawals and 3 approvals. The second list of 148 AIs were due for consideration from March 2000. Moreover, by the end of 2000, interested parties must indicate their support for any of the remaining 585 AIs, failing which, by July 2003, all remaining undefended pesticides will be withdrawn. At the meeting with the EU Commission in Brussels in February, the DG Sanco representative anticipated that only 200 – 250 of the remaining AIs would be defended, resulting in approximately 350 of the 585 AIs being withdrawn after July 2003.

However, for these 350 pesticides which are likely to be withdrawn from use by growers within the EU, there is the possibility for import tolerances to be granted subject to the submission of appropriate data. The requirements for imported produce (i.e. crops grown outside the EU) are much less stringent, because the EU would only consider the toxicity aspects (hazard to consumers) and not the operator and environmental safety aspects.

In the future, it is intended that the process of introducing harmonised MRLs will be incorporated into the 91/414/EEC review programme. However, in the meantime the separation of the two processes has caused problems for the fresh produce and agro-chemical industries, since there is the risk of investing in defending an MRL for an AI that will ultimately be withdrawn.

Table 5: Summary timetable of implementation

Date	MRL Harmonisation Programme	Approvals Review Programme
1993	Initiation of the programme	Initiation of the programme.
February 2000		Review of Annex 1 containing first 90 AIs completed, leading to 8 withdrawals and 3 approvals.
March 2000		Second list of 148 AIs due for consideration.
July 2000	All remaining open positions will be closed off at LOD for the 102 AIs included in the first phase of the programme.	
July 2001	Deadline for all EU member states to implement the EU MRLs established in July 2000 for the first batch of 102 AIs.	
December 2000		Closing date for indications of intention to defend remaining 585 AIs.
July 2003		Withdrawal of approximately 350 AIs.
The indefinite future	Establishment of MRLs for all remaining AIs. It is intended that this process will be incorporated into the Approvals Review Programme.	

KEY IMPLICATIONS OF THE MRL HARMONISATION AND APPROVALS REVIEW PROGRAMMES

It is clear that the two programmes will together lead to:

- Withdrawal of approximately 350 of the 823 old active ingredients from the approved list (although for non-EU producers there is the potential for granting of import tolerances on some of the 350);
- A substantial increase in the number of crop/a.i. combinations for which MRLs will be set at LOD.

While these programmes are causing and will continue to cause problems for EU growers, the impact on developing country growers exporting to the EU is likely to be particularly harsh.

IMPLICATIONS FOR DEVELOPING COUNTRIES

For a number of reasons, described below, MRLs for many of the first 102 active ingredients used by developing country growers on tropical, sub-tropical and out-of-season fruit and vegetables have been set at LOD, or will be by July 2000. Many more MRLs have been set at LOD for these fruits and vegetables, as compared to for temperate crops grown in the EU.

Few MRLs for crop/active ingredient combinations important to developing country producers have been defended for the following reasons:

1. Agrochemical companies are the main players in submitting datasets for establishment of MRLs, since they need MRLs to be able to sell their products. However, while it is commercially worthwhile for them to invest in defending MRLs for what they consider to be major economic crops, it is usually not worth their while to defend MRLs for minor crops. According to their classifications, out of the fruit and vegetable crops exported by ACP countries, only bananas and citrus fruit are considered as major crops – the rest are classified as minor crops.
2. It is commercially more important for an individual agrochemical company to invest in defending MRLs for newer, patented pesticides, rather than older, out-of-patent generic pesticides which are formulated and sold by many companies other than their own. Unfortunately, for economic reasons and issues of availability, most developing country producers rely much more on such older generic pesticides, compared to their European counterparts.
3. In theory, developing country industries and governments could themselves collect and submit data to defend establishment of MRLs for key crop/active ingredient combinations. However, due to problems with existing communication channels, until very recently there has been little awareness amongst developing country industries, and even less awareness amongst relevant government authorities, of the EU legislation and its implications for producers and exporters (see Section 7, below).
4. Now, with increasing awareness, affected developing countries are considering this option. However, in many cases local industries, government and research institutions in these countries are constrained by limited financial resources, technical capacity, equipment and organisational capacity to compile the necessary data themselves.

As a result, developing country producers and exporters are being hit particularly hard by the legislation. Moreover, if the harmonisation programme continues without special measures being taken to protect the interests of developing country industries, the current system of relying on the commercial interests of agrochemical companies to defend MRLs will continue to work to the disadvantage of developing countries. Nevertheless, compared to their European counterparts, developing country growers do face greater leniency on two counts:

- Procedural requirements for data for establishment of MRLs for minor crops are much less stringent than those for major crops, requiring only Good Efficacy Practices (GEP) compared to Good Laboratory Practice (GLP) standards for major crops.
- Import tolerances can be considered for active ingredients which are withdrawn for use by growers within the EU.

INTERPRETATION AND IMPLEMENTATION BY EU MEMBER STATES

A key area of concern for developing country industries is that different EU member states have up until now interpreted and implemented the EU legislation on MRLs in different ways. One particular area of divergence has been how different national governments are dealing with current open positions. Aside from anecdotal evidence, the research team was unable to find out in detail about how the legislation is implemented in EU member states other than the UK. It appears however that the UK government has stood out from other national governments both in terms of its interpretation of the legislation, and how it has chosen to enforce it.

In terms of interpretation, it appears that with regard to the treatment of MRLs set at LOD the UK government has taken a more stringent approach than is required by the EU legislation. Some data submissions indicate that after treatment of a crop with a particular pesticide under good agricultural practice, no detectable residues are found at the point of consumption. In such cases, the EU committee would allot this crop/pesticide combination with an MRL at LOD. For such combinations, EU legislation does not require member states to revoke approval of use of such pesticides, since in

fact there is data to indicate that its use under GAP is safe. However, the UK government has automatically revoked all crop/active ingredient combinations where the MRL is set at LOD, regardless of whether this is due to unavailability of data, or due to data indicating that residue levels are negligible. This has the perverse effect of banning the use of some of the safest chemicals.

The UK government has also taken a unique position in terms of the mechanisms it has chosen for enforcement. The PSD has a monitoring programme for pesticide residues, the results of which are published each year. To provide further information to UK consumers, the names of the retailers from which samples tested were purchased are now also published. This has the effect of “**naming and shaming**” retailers who sell products that have residues of non-approved pesticides, and/or residue levels of approved chemicals that exceed MRLs. Given the level of concern over residues amongst consumers and NGOs, this policy has the effect of putting keen pressure on retailers to ensure compliance with the regulations. Apparently, other EU member states have so far taken a more relaxed approach to enforcement.

The relevant UK statutory instruments are as follows:

MRLs: The Pesticide (Maximum Residue Levels in Crops, Food and Feedingstuffs) Regulations 1994, 1995, 1996, 1997 and 1999.

Review of approvals: The Plant Products Protection (amendment) Regulations 1998.

5. Impact on export horticulture industries in developing countries

The intended approach for the impact assessment as outlined in the original proposal was to focus on a few crops which are or will be most affected by the legislation, and to assess to what extent the restrictions imposed by changes in MRLs will impact on the production of these crops. In the event, the research team decided to take a broader approach to the impact assessment, focusing on:

- What are the factors influencing the vulnerability of a crop to the EU legislation;
- What are the different ways in which growers and exporters are being affected by the legislation;
- What alternatives are available to growers and exporters in responding to these pressures, and what are the associated costs (and benefits) and constraints.

This modified approach was adopted for the following reasons:

- Prioritising crops in terms of how seriously they are affected by the legislation proved to be a more complicated task than anticipated, and was not possible to do before the actual field visits took place. Since a good prioritisation of crops is critical for the MRL establishment process, it was felt that it would be more important to ensure that the prioritisation criteria were correct, rather than to obtain more detailed information about a few specific crops which may have turned out not to have been the critical ones;
- Since most of the exporters and producers interviewed were not fully conversant with the details of the legislation, and many had only received relevant information very recently, they had not properly analysed the situation and were not yet in a position to take decisions about how they would respond to the restrictions. Thus, they were not able to say, for example, that as a result of the restrictions they would stop producing mangoes completely, or that they would cut mangetout production by, say, 50%. For this reason, it was not possible to go into the details of the extent of

the impact of the legislation on production, and therefore on smallholder and workers' livelihoods.

PRESSURES ON EXPORTERS AND GROWERS AS A RESULT OF THE LEGISLATION

From the viewpoint of exporters and growers in developing countries, the EU legislation is enforced via the decisions and actions of their customers (PMOs and supermarkets) in EU member states. Responses from PMOs and supermarkets indicated that they are taking or would take the following measures *vis-à-vis* their overseas suppliers in order to ensure compliance with the legislation:

1. **Reduce the number of permitted active ingredients** that can be used on any one crop
2. Put in place much **stricter requirements on control and documentation** of pre and post harvest pesticide use, including pressure for improved traceability of product
3. Reduce purchase of crops produced under conditions which cause high susceptibility to pest and disease incidence. This may lead to a shortening of buying seasons for a particular crop in a given country, and no longer buying certain crops from particular countries or regions. Passion fruit has already been taken off the shelves of some leading UK supermarkets due to fear of repercussions from MRL exceedences. One PMO respondent stated that fruit exports from countries who rely on post-harvest fungicides “will shrink rapidly if they are solely reliant on export to EU countries”.
4. Further **consolidation of their supply chains**, i.e. a further reduction in the total number of suppliers. This is in response to the need to increase control over suppliers – by cutting down on the number of suppliers, the cost of control can be reduced.
5. Costs of **increased residue testing** passed down to exporters.

It is likely that these pressures will be passed down the supply chain by exporters placing stricter requirements on their suppliers (outgrowers), and cutting back on the numbers of outgrowers in order to reduce their own costs associated with maintaining control over production operations.

ABILITY OF GROWERS AND EXPORTERS TO RESPOND TO THESE PRESSURES

There is little that growers and exporters can do in the face of (3) and (4) above. With regard to (2), the largest and most sophisticated businesses relying mainly on their own production or a small number of outgrowers will probably not find it too difficult to meet these requirements, especially if they already have effective systems of quality control and traceability in place (e.g. HACCP). However, for the many smaller exporting companies, especially those relying on large numbers of small-scale farmers to make up their export volumes, they are likely to face serious difficulties in meeting these requirements. Establishment of effective systems which would allow them to better control pesticide use amongst a large number of small-scale growers would necessitate significant changes to the way they currently operate, and would involve a significant increase in costs. Smallholders themselves will not be able to establish the required monitoring and documentation systems on their own farms without outside guidance and assistance. (The particular constraints faced by smallholders in this respect are covered in more detail in **Section 6**, below).

The immediate risk for these smaller growers and exporters is that they will be abandoned by their clients if they cannot put these systems in place in time, given that PMOs and supermarkets are seeing further reduction in numbers of suppliers as a key response towards the implementation of the EU legislation.

Assessment of alternative strategies for responding to a reduction in the number of permitted pesticides

Farmers theoretically have the following options in responding to the MRL requirements:

- Continue producing the same crop, but change their agronomic practices by switching to use of alternative permitted pesticides, reduce pesticide use and increase reliance on non-chemical pest control measures (integrated pest management – IPM), or switching to non-pesticidal organic production.
- Diversify or switch into other crops which are less affected by MRL restrictions.
- Diversify or switch to less demanding non-EU markets.

The feasibility, constraints, costs and benefits of each option are considered in turn, below.

Switch to alternative pesticides currently permitted by the EU

This is an option being considered by many growers (67%, or 14 out of the 21 respondents). However, there are a number of serious limitations to this approach:

- The remaining permitted pesticides are likely to be considerably **more expensive** than those that are currently in use. This opinion, expressed by many producers, is supported by the way in which MRLs are established. Since agrochemical companies have been largely responsible for putting together datasets for establishment of MRLs, those MRLs that have been defended tend to be those which are commercially important to the agrochemical companies, i.e. the newer, patented, more specialised and more expensive active ingredients. In contrast, producers in developing countries tend to rely on older, generic pesticides that may be produced locally, and are therefore cheaper. Such pesticides are likely to be out of patent and therefore of little if any commercial value to agrochemical companies, so MRLs for such active ingredients are most likely to be closed off at LOD because they will not be defended.
- The permitted, newer pesticides are **may be more difficult to obtain** for developing country producers. They will almost certainly be imported because they will not be produced locally, and may not be registered with the government authorities, in which case it will be illegal to use them. The official process of registering a new pesticide may take a lot of time, although it is sometimes possible for large producers to speed up this process considerably by offering to do the necessary trials of the pesticide on their own farms. This option is however an unlikely one for smaller growers.
- Furthermore, if the EU Commission continues with the implementation of the MRL harmonisation programme as planned, it is inevitable that MRLs for an increasing number active ingredients will be closed off at LOD, so in any case **this will become an increasingly limited option for all farmers.**

Reduce pesticide use and increase reliance on non-chemical control measures (IPM)

This is an option being considered by all but one of the growers who participated in the study (23 out of 24 respondents). In the long run, adopting a successful IPM approach can reduce costs of pest control for growers. However, there are a number of short-term constraints and costs against which potential benefits need to be balanced:

- Some pest and crop combinations have no known non-chemical control alternatives. Even for those crops/pests and diseases where effective non-chemical control methods exist, they may not be transferable to other regions or conditions. Therefore, this option is not always available.
- Following Integrated Pest Management (IPM) or more broadly Integrated Crop Management (ICM) guidelines or protocols does not guarantee meeting the MRL requirements. These approaches specify minimum use of pesticides, so in cases where there are no alternatives to

using pesticides without causing unacceptable crop damage, pesticides are permitted. ICM/IPM constitute a sensible long-term strategy to help reduce the risk of MRL exceedences, but in itself it does not necessarily solve the problem.

- IPM is a site-specific approach. That is, whether or not a specific control technique is effective depends on climatic and soil conditions, surrounding crops and ecology, and other agronomic constraints. Developing effective IPM systems for a given cropping system therefore takes time and specialised technical expertise. Even some of the most sophisticated growers said that they would need external technical assistance in developing appropriate IPM systems. They can afford the costs involved, but bringing in external consultants is a much less viable option for smaller growers.
- Not only is a high level of technical knowledge needed to develop systems, but also implementing IPM on a day-to-day basis generally requires a high level of expertise and experience, and therefore requires extensive training of staff as well as farmers.

Convert to organic production

About half of the farmers participating in the survey (12 out of 21 respondents) considered this as an option. Some farmers have already been asked by their customers to supply some organic products, so had been doing some organic trials. The perceived benefits of organic production are the premium price and possibly relaxed cosmetic quality standards. However, there were concerns that the organic premium would fall over the next few years, and the farmers tended to be unconvinced that the benefits would outweigh yield reductions occurring as a result of conversion. Most of the farmers considering conversion were only considering organic production for some, not all, of their crops, and/or only a small proportion of any given crop. Thus, even if conversion took place as planned it would not solve the problem of meeting MRL requirements for all current crops.

There may nevertheless be more potential for financially successful organic production than presently anticipated by growers. Compared to some of the existing intensive farming systems in Zimbabwe, for example, yields under organic systems may well be lower. However, experience in the organic movement and studies show that over a longer period yields may stabilise close to previous levels prior to conversion, and cost savings can be made on inputs and loans. Smaller, less intensive farms may indeed find it easier to convert, and may experience higher yields under organic production¹⁵. However, realising these benefits depends on access to the right knowledge and expertise, and costs involved in acquiring certification can also be a serious constraint. Moreover, obtaining organic certification requires a minimum of a 2 year conversion period so it is not a viable short term strategy for dealing with the MRL regulations.

Diversify/switch into other crops

About a third of the respondents (7 out of 21 respondents) said that they were considering diversifying into other crops as a response to the EU legislation. In particular, some exporters in Zimbabwe said that they would consider discontinuing certain high volume-low value crops and switch to higher value and more specialised horticultural products where profit margins are higher, so that increased costs of pest control could be better absorbed. However, while larger producer-exporters would be able to make such a switch relatively rapidly, smaller producers and outgrowers would find it more difficult to switch. Moreover, while it may be relatively easy for those growing annual crops such as peas to switch crops from one season to the next, those growing perennial crops such as citrus, mango etc. have much less flexibility in this respect. Furthermore, this may be a sensible strategy for a limited number of producers in the short run, but it is not a viable long term strategy if the EU harmonisation programme proceeds as planned, since these alternative crops will also be increasingly affected by more and more MRLs being set at LOD.

Switch to non-EU markets

Approximately 50% of the participating exporters (11 out of 20 respondents) said they are trying to expand supply to non-EU markets, since with the implementation of the MRL harmonisation programme the EU has much stricter residue regulations than many other export markets. The main alternative markets mentioned were the relatively few high-income regional (African) countries such as South Africa and the Middle East; Asian markets (Japan, Hong Kong); North America; and Australia and New Zealand. Geographically, African producing countries are clearly at an advantage in supplying the African markets; however, the capacity of these markets is seen to be quite limited. As for the Asian, American and Australian markets, African producing countries have to compete against producing regions which are geographically much closer to these markets, and who may therefore have the advantage of cheaper freight costs. There is increasing horticultural export production in growing Asian economies such as China, which are increasingly supplying the regional markets as well as Australia; and Southern American producers are geographically well placed to supply the North American markets.

Therefore, while African producers may well be able to expand supply to alternative markets to a certain extent, they are unlikely to be able to switch completely out of the EU market and will therefore still need to find alternative strategies for dealing with the MRL requirements.

WHICH CROPS WILL BE MOST AFFECTED BY THE LEGISLATION?

The extent to which production of a given crop is or will be affected by the EU legislation, and the resultant economic impact, depend on the following factors:

1. How many active ingredients have had MRLs set at LOD (this varies between different crops)
2. Economic importance of the crop
3. Susceptibility of the crop to pests and diseases, and therefore level of dependence on pesticides in a general sense
4. Profitability of the crop
5. Whether or not the exportation of the crop relies on the use of specific **post harvest fungicides** for shipment. Post harvest fungicides are often essential to prevent fungal diseases developing during shipment, yet the establishment of strict MRLs is seen as particularly critical since the timing of application means a higher risk of residues remaining at the time of consumption. This is exacerbated by the fact that the *raison d'être* of these fungicides is that they should stay active throughout the transportation and storage periods.

COLEACP have prioritised crops for which MRLs need to be established based on their vulnerability to the legislation as determined by criteria (1), (2) and (5) above. This prioritisation has been based on an analysis of EU MRL positions per crop, and feedback from a limited number of questionnaire returns responding to a COLEACP survey of ACP growers. This survey asked growers to list what active ingredients they used per crop, and for each active ingredient to state which were considered essential for production, and if so whether or not there were any available alternative control measures. On the basis of this, the following crop categories (see **Appendix 6** for details of these categories) have been prioritised:

- **Miscellaneous fruits** (especially mango, papaya, passion fruit, pineapple and avocado)
- **Yams**
- **Other roots and tubers** (especially sweet potato)

In terms of economic importance to developing countries, bananas constitute the single most important crop by volume, followed by pineapples and citrus⁸. However, bananas and citrus are seen

as less vulnerable because unlike the rest of the fruit and vegetable crops produced by developing countries they are considered as major rather than minor crops by the agrochemical companies i.e. they are of sufficient economic significance to have made it commercially worthwhile for them to defend MRL positions for key active ingredients.

NRI interviews with farmers and exporters in Kenya and Zimbabwe revealed that factors (3) and (4) – the profitability of the crop, and its susceptibility to pests and diseases in a general sense – are also critical factors in determining the extent to which production of the crop will be affected by the EU legislation. The establishment of MRLs at LOD for an increasing number of chemicals will push up costs of production by forcing farmers to rely on much more expensive, EU-permitted pesticides. If profit margins are already low, farmers say that they may well abandon these crops. Moreover, if crops are generally highly susceptible to pests and diseases, an increasing number of MRLs being set at LOD will restrict the pest control options available to farmers, which will make production a higher risk operation. This could also push farmers to abandon such crops.

On the basis of such concerns, as well as in terms of national economic importance, farmers, exporters and industry associations in Kenya and Zimbabwe included **beans and peas** as a group of crops which were seen as particularly vulnerable to the legislation.

KEY IMPLICATIONS FOR GROWERS AND EXPORTERS

Key implications of the EU MRL regulations on growers and exporters in developing countries can be summarised as follows:

1. The regulations will lead to **increased costs of production** in a number of ways:
 - Increased costs of monitoring, documentation and control of pesticide operations
 - Increased costs of residue-testing (costs from in-country testing plus costs passed down by importers)
 - Reduced options for pest and disease control, causing greater risk of crop wastage and crop failure from uncontrolled pest and disease incidence
 - Increased costs of purchasing permitted pesticides, which tend to be more expensive than those for which MRLs are being set at LOD
 - Initial investment costs of developing IPM systems, although these may lead to cost savings in the long run.
2. Consolidation of supply chains. Large operators are more likely to be able to meet the increased costs involved, but **smaller growers and smallholders** will find it much more difficult and are likely to “fall out” in the consolidation process.
3. **Smaller exporting countries** which have less well developed distribution systems, are less well organised as an industry, and who depend to a large extent on smallholder production, are also likely to be dropped from supply chains.

6. Impact on poverty

The pressures on horticultural production in developing countries resulting from the EU legislation will not only have a negative impact on national economies, they will also threaten in particular the livelihoods of many of the poorer households in these countries, who depend on the export horticulture sector for a living either through employment on other people’s farms and exporting businesses, or by small-scale production of horticultural products for sale to exporters.

IMPACT ON SMALLHOLDERS

All of the pressures on growers mentioned above apply equally to smallholders. However, for a number of reasons these pressures are likely to hit smallholders harder than other growers. As a result, there is a serious risk that the legislation will cause a drastic reduction in the numbers of smallholders involved in export production of fruits and vegetables, with consequent impacts on the livelihoods of smallholders and their families. The impact of these various pressures on smallholders is detailed below.

Supermarket concerns about the reliability of smallholder production

Many supermarkets tend to be dubious about the ability of smallholders to produce fruit and vegetables to high and consistent quality standards. While this is in part due to misconceptions about smallholder production systems, it is also based on poor experiences in the past with unreliable supply, problems with smallholder co-operatives etc. Whether or not their concerns are valid, the new pressures on UK supermarkets to comply with the MRL requirements, and the pressure this has on buyers to further tighten control over suppliers, may well exacerbate these existing concerns. This may mean that exporters sourcing from smallholders will have to fight extra hard to combat these fears if they want to continue supplying to supermarkets.

Heightened pressure to monitor, document and control pesticide use

The increased demand from buyers for suppliers to be able to demonstrate appropriate use of pesticides, through implementation of appropriate monitoring and control systems, is likely to cause immediate and serious problems for smallholders.

Monitoring and documentation of pesticide applications will pose problems for many smallholders, since a large proportion of them may be illiterate or semi-literate. Monitoring methods have been developed which can be used by illiterate farmers (e.g. Participatory Farm Management/PFM methods developed by researchers at Reading University, UK), but outside assistance would be necessary to help establish such systems and train smallholders to use them. One way around this is for a group of farmers to assign responsibility for monitoring and documentation to a trained individual or individuals. However, this presupposes effective group management and trust, and/or facilitation and training from outsiders.

Thus, without external assistance, exporters will have to invest considerable effort and resources into organising, training, supporting and monitoring smallholders in order to ensure that they have an effective control system for pesticide use in place. Faced with these additional complications and costs, many exporters who are in a position either to expand their own production and/or to concentrate their outsourcing to a few larger outgrowers, are likely to cut down on smallholder supply.

More specifically, the numbers of smallholders who operate independently (rather than as outgrowers for particular exporters) are likely to fall drastically, since exporters have least control over these producers. They are likely to be either assimilated as outgrowers, or “cast off” from the supply chain. While the situation varies from country to country, independent smallholders can constitute a substantial proportion of smallholder supply e.g. in Kenya and Ghana.

Consolidation of the supply chain

For the reasons outlined above, smallholders are likely to feel the brunt of any accelerated consolidation process. Importers are most likely to “dump” exporters who rely heavily on smallholder supply, and exporters themselves are likely to cast off smallholder suppliers if they have alternative sources of supply.

Ability of smallholders to implement various response strategies

Switch to alternative pesticides currently permitted by the EU

Smallholders will face much greater hurdles in obtaining newer, more specialised pesticides, especially if they are imported. As mentioned above, smallholders are not in a position to obtain and use new, unregistered pesticides on a trial basis – an option open to the larger commercial farmers. Many smallholder farmers already struggle to afford the cheaper pesticides, so even if they can get hold of newer, permitted pesticides they may be prohibitively expensive for them. Smallholders tend to rely on a much smaller range of generic pesticides compared to their large-scale commercial counterparts, so a ban on any one of these pesticides is likely to cause relatively more serious problems to smallholders.

Currently, many but by no means all outgrowers do obtain pesticides through their exporters, but the substantial numbers of independent smallholders tend to obtain their inputs independently. It would appear that as a result of the EU legislation smallholders will have to rely increasingly on their exporters to supply them with the appropriate pesticides. This will solve the problem of access, but will also make smallholders even more dependent on their buyers.

Reduce pesticide use and increase reliance on non-chemical control measures (IPM)

Many smallholders in developing countries use little or no pesticides on their farms, especially for subsistence crops. However, the rigorous quality standards imposed by export markets require more sophisticated pest control techniques. Effective IPM systems suitable for smallholders have been developed for a number of fruit and vegetable crops (e.g. FAO farmer field schools on a range of vegetables in a number of Asian and African countries), and there are examples where adoption of IPM has given smallholders improved yields, lower production costs as well as other benefits¹⁶. However, since IPM is knowledge intensive and site-specific, it requires a considerable investment in time and resources to develop/adapt suitable techniques and train smallholders. While the work of FAO (IPM Farmer Field Schools) and others have clearly demonstrated that smallholders are quite capable of learning and managing IPM systems, the fact that the majority of them have little formal education means that training them requires proportionately more time and effort.

Thus, while IPM is an attractive option for a number of reasons, once again smallholders need outside assistance to meet the challenges. The question is whether or not exporters would be willing to make this investment. It is likely that for a significant number of exporters, this is yet another reason to stop sourcing from smallholders.

Convert to organic production

Organic production is a potential option for smallholders as it is for larger growers, and there are examples of African smallholders successfully producing organic crops for export markets (e.g. cotton from Benin and Zimbabwe¹⁷, and bananas from the Dominican Republic). However, the monitoring and certification procedures and costs associated with successful organic marketing are more difficult to implement in a smallholder setting, since it generally requires a group certification system, with the associated organisational difficulties and costs. Such costs may often be prohibitive to smallholders, although this is likely to be less of a constraint where certification fees are worked out as a percentage of total output.

Diversify/switch into other crops

Commercial farmers interviewed in Zimbabwe and Kenya believed that smaller growers and smallholders would have much more difficulty switching to other crops if currently grown crops became unviable. Certainly, smallholders will not be able to compete with larger growers on any

capital-intensive crops. Moreover, the problems they will increasingly face in obtaining EU-permitted pesticides will equally affect production of alternative crops for export.

Diversify/switch to other markets

Smallholders have the option of switching to producing fruit and vegetables for local urban markets. Since demands on control over hygiene standards and residues are generally much less strict in these local markets, many smallholders may well switch (back) to producing for local markets if they are cast off by exporters, or if increased costs of monitoring and control passed down to smallholders make export production unattractive/unviable. However, in most developing countries demand for high price/high quality fruit and vegetables is likely to be limited.

Conclusions

The legislation has the potential to cause a drastic reduction in smallholder involvement in the export horticulture industry, and could therefore have a serious impact on the livelihoods of smallholders who currently depend on export production as a source of income. In response to the need to implement much tighter control over supply chains, importers are likely to reduce supply from exporters who depend heavily on smallholders, and exporters themselves are likely to reduce their reliance on smallholders if they have other alternatives in order to reduce costs of monitoring and control.

Even where smallholders will continue to have the opportunity to supply to exporters, they will face greater difficulties in getting hold of permitted pesticides, more expensive pesticides where they are available, and greater dependence on their exporters and other outsiders to provide pesticides, IPM training and/or support in setting up appropriate monitoring and documentation systems.

As a result, many smallholders may choose to switch out of export production. However, in often depressed local economies alternative income-earning opportunities are likely to be limited.

IMPACT ON AGRICULTURAL WORKERS

Compared to other agricultural crops, horticultural crops are characterised by their labour intensity, and hence the horticultural export industry is an important employer in developing countries where the industry is significant. The majority of horticultural workers are likely to come from the poorest sectors of society, often from households who don't have access to enough land to grow their own crops. Moreover, it is an important source of employment for women, with women constituting the majority of the labour force in many of these countries.

Due to the seasonality of production of horticultural export crops, the majority of employees are employed on a seasonal basis, and therefore tend to have very little job security. It is also not uncommon that even workers who are employed more or less year round are not employed on a permanent basis (loopholes in national employment legislation often allow this to happen), so they also have little security of employment. It is therefore relatively easy for employers to lay off workers.

The findings from this study strongly indicate that the legislation will lead to a significant fall in production amongst smaller growers and smallholders, and even a significant number of the larger growers responding to the survey predicted a reduction in production of some crops. Due to the high dependence on labour coupled with insecurity of employment, it is clear that any reduction in export volumes/production would lead to a more or less proportionate reduction in numbers of employed. This was verified by the responses from growers and exporters participating in the survey. On a

general level, it is therefore likely that the legislation will contribute towards a significant fall in employment in the export horticulture sector.

In addition, the implementation of the legislation is also likely to have the effect of increasing the seasonality and therefore instability of employment for those who do manage to remain employed in the sector. Importers' responses indicate that likely changes in their sourcing policy in response to the legislation would result in a shortening of the supply season for many crops in any given country. For exporters who can currently employ people year-round due the seasonal spread of different crops, the shortening supply seasons plus the possibility of a reduced range of crops is likely to lead to increased seasonality of employment. This risk was confirmed by responses from a number of exporters.

Most survey respondents thought that alternative sources of employment were very limited, should horticultural workers be laid off, as indicated by the national unemployment rates in a selection of these countries:

Table 6: Unemployment rates in the case study countries

	NATIONAL UNEMPLOYMENT RATES
Zimbabwe	50% ⁱ
South Africa	> 40% ^j
Jamaica	16% ¹⁸

Counterbalancing this general downward pressure on employment are two specific areas where employment opportunities may increase:

- The trend towards consolidation of supply chains may lead to increased employment opportunities on the largest commercial farms, whose operations may expand at the expense of smaller growers going out of business or being cut off from the export supply chains. The legislation may therefore contribute to a process of an increasing proportion of employment being on large-scale commercial farms (associated with more formal systems of employment), and a decreasing proportion of employment on smallholder and smaller farms (associated with informal types of employment).
- As a result of increased pressure for more effective control of supply chains and production processes, there may be increased demand for semi-skilled and skilled staff to set up and run monitoring, documentation and traceability systems for outgrowers. Insofar as the legislation will push growers to shift towards more integrated approaches to pest control, there may also be more demand for staff to develop and implement IPM systems, and train others (especially smallholders) to implement them. However, this is likely to provide jobs for better-educated workers, rather than for the general workers who would bear the brunt of job losses.

PRIORITY CROPS FOR SMALLHOLDERS AND WORKERS

Crop categories most affected by the legislation are listed in **Section 5**, above. If this list is to be used as the basis for prioritising action on establishment of MRLs and other ameliorative strategies, consideration needs to be given as to whether such a priority list would need to be modified if the priorities of smallholders and workers were specifically taken into account. In order to reflect the particular needs of these two groups, the following issues were considered:

ⁱ From anecdotal evidence during fieldwork in Zimbabwe

^j Information from one of the exporter's responses to the questionnaire

- Some crops may be very important for smallholders, but not so important for the industry as a whole;
- Smallholders tend to rely on a much smaller range of pesticides than large-scale commercial farmers, so may find the same set of MRLs more debilitating;
- Some crops may not be the most important at a macro-economic level, but may be important as a source of employment because production and processing are particularly labour-intensive.

Unfortunately, in the time available the research team were not able to follow up these issues in depth. However, informal discussion of these issues with COLEACP indicated that smallholder production is important for all of the key fruit and vegetable crops exported from developing countries. Crops prioritised at the industry level are therefore likely to be a reasonable starting point for addressing smallholder priorities, although there may be additional crops where EU MRL restrictions pose a serious threat to smallholder production.

In Kenya and Zimbabwe, where significant proportions of export volume are made up by commercial farms, **peas and beans** are particularly important as smallholder crops. They are also amongst the most labour intensive crops, and export volumes of both crop categories are sufficiently large in Kenya and Zimbabwe, as well as amongst the ACP group as a whole, to justify their specific prioritisation in terms of protecting smallholder and worker interests. Based on numbers of smallholders and workers involved in the production of peas and beans in Madagascar, and assuming an average of 6 dependants per smallholder/worker, it is estimated that **at least one million poor people in ACP countries are dependent on export of peas and beans to the EU.**

7. Information and communication

The following section focuses on the state of awareness of the legislation amongst exporters and growers in developing countries, the communication channels they rely on for this information, problems associated with the current situation and a consideration of options for its improvement. However, through the course of our research it became clear that problems in accessing appropriate information about the EU programme are not limited to developing countries. For example, UK PMOs as well as the NRI research team have also found it very time-consuming and difficult to obtain reliable information, and have been faced with often conflicting and patchy interpretations of the legislation. The EU Directives themselves are incomprehensible to those who are untrained in legalistic terminology.

Thus constraints in communication have affected European as well as developing country stakeholders. Nevertheless, the analysis below shows that developing countries have faced particular difficulties in this respect, and measures designed to improve information flows to these people need to address these specific characteristics.

CURRENT STATE OF AWARENESS AND EXISTING COMMUNICATION CHANNELS

State of awareness

It was striking that at the time of our field visits to Kenya and Zimbabwe – seven years after the harmonisation programme was initiated – that some of the largest exporters and growers in both countries did not have sufficient knowledge of the legislation to be able to make rational decisions about future use of pesticides on their horticultural crops. While all of the responding growers and exporters were aware that changes in EU legislation had taken place, and that as a result many MRLs were being set at a lower level, many did not have comprehensive nor detailed knowledge of the exact implications for their growing and export operations. Given that the group of respondents disproportionately represent the larger operators and did not include any smallholders, and that smaller growers and smallholders in general face even greater constraints to accessing information, it can be assumed that the state of awareness amongst smaller growers and smallholders is even lower. The poor state of awareness must in part be attributable to the fact that relevant information has only been reaching developing countries very recently. Of the 15 growers and exporters who responded to the specific question, 13 first heard about changes in the EU legislation only in 1998 or later, i.e. 5 years after the harmonisation programme was initiated.

Official channels of communication

During the visit to Zimbabwe, the research team was informed by the Horticultural Promotion Council (HPC) of what they had been told was the official channel for informing Zimbabwean growers of ratified changes in EU legislation. This channel also serves as the conduit for informing growers of proposed legislation before it is ratified. It was reported that under EU procedures there is a 6-month period after new legislation has been proposed during which it is possible to make an appeal against its content. However, the chain of communication (presented schematically below) involves 5 intermediary bodies before information reaches growers, and information can take up to 2 years to filter from the top to the bottom of this chain.



Existing sources of information on EU MRL positions

Not surprisingly, growers and exporters have in fact received information about the status of and changes in the EU legislation and MRL positions from a range of other sources. These are summarised in the table below.

Table 7: Numbers of respondents who mentioned the following sources as their original source of information about changes in the EU pesticide legislation regarding MRLs.

	Importers	Agents	Local Trade/ Growers Association	Local government authorities	COLEACP	Direct from EU Commission /Delegation	Other sources *
Côte d'Ivoire	1		3		2		3
Ghana					1		
Jamaica	1				1		
Kenya	2		1				
Madagascar					1		1
Mali					1		
Sénégal							
South Africa	2				1	1	
Zambia		1					1
Zimbabwe	1	2	2				2
TOTALS:	7	3	6	0	7	1	7

* Other sources of information listed were: company headquarters, Banador, professional meetings, *Projet d'Appui aux Exportations Agricoles (PAEA, Madagascar)*, local press, Fresh Produce Consortium (FPC, UK).

It is striking that none of the respondents mentioned local government authorities as the initial source of information about changes in the legislation, despite the fact that according to official procedures it would be the relevant government department who would be responsible for passing on information to growers. In the COLEACP questionnaire, an additional and broader question was asked regarding sources of information in general on authorised pesticides in target export markets. Out of the 30 responses to this question, only 4 referred to local government authorities, and all four were South African operators referring to the South African National Department of Agriculture. Not a single respondent in the other 9 countries mentioned a government source.

It is also noticeable that growers and exporters are receiving information from quite a wide range (different types) of sources/organisations, and many of them have relied on more than one source of information. Given the variety of information sources, none of which are the official one, and all of which are secondary sources, it is perhaps unsurprising that many growers and exporters feel confused and/or uninformed about the legislation and its relevance for their own operations.

KEY PROBLEMS ARISING

The key factors exacerbating the availability of good quality information to exporters and producers can be summarised as follows:

- The EU Directives themselves are incomprehensible to those unfamiliar with the legalistic and technical terminology, and there is no single body which is officially responsible for interpreting and processing the Directives and the legislative process into formats that are easily understood and acted upon by growers and exporters (as well as importers, buyers etc.). Instead, each EU member state has made its own interpretation of the legislative requirements, and ACP countries are supposed to rely on the ACP Secretariat and local Ministries of Foreign Affairs to interpret the legislation and take appropriate actions.

- As a result, growers and exporters who are exporting to more than one EU member state have to contend with currently different legislative requirements in the various member states, which exacerbates the confusion.
- In addition, from the countries represented in the survey, it appears that the ACP Secretariat and/or local governments (with the exception of South Africa) have not been effective at communicating the legislative requirements to the industry, due in part to the lack of relevant technical capacity to interpret the legislation and recognise its implications for local industries.
- As a result of failure in the official channels of communication, growers and exporters have had to rely on a range of non-official sources of information, who themselves may have received information from secondary sources, and consequently are not necessarily reliable or accurate.

Poor quality of available information

These factors have led to the following problems with available information:

- Information has often been **inaccurate**
- Information has been received sporadically **in dribs and drabs**, so that exporters and growers have are **not** confident that they have a **comprehensive** overview of the situation
- Information has tended **not** to be made available in a **user-friendly** or clear format, often provided in a too technical or legalistic language for growers and exporters to fully understand.
- Information received from different sources has often been **inconsistent**.
- Growers and exporters feel that information came **too late**, so that they have not had enough time to investigate alternatives and take appropriate responsive action.

Consultation process ineffective

From the information obtained from HPC in Zimbabwe, it appears that the official mechanisms for obtaining consultation and feedback from ACP governments and industries on draft EU pesticides legislation have been ineffective. The actual time it takes for information to get to the industry via the official channel of communication – up to 2 years – far exceeds the period of appeal (6 months). Thus, if this situation is typical of other ACP countries, in effect the EU legislation on pesticide residues is being made without taking into account the needs, views and priorities of developing country stakeholders.

PARTICULAR INFORMATION CONSTRAINTS FACED BY DEVELOPING COUNTRIES

As stated at the beginning of this section, stakeholders in Europe as well as those in developing countries have faced problems with accessing useful information. However, findings from the study indicate that developing countries are facing particular constraints:

- Developing country growers and exporters are at the end of **communication chains** which tend to be longer/have more links than those for European stakeholders. This means that there has been even greater room for mis-interpretation of original information, and further delays in receiving information.
- The latter point has been exacerbated by often **poor and unreliable communication infrastructures** in developing countries.
- Whereas importers and supermarkets in the UK have in large part been able to get information on the legislation from the relevant authorities in the UK government (Pesticides Safety

Directorate), **developing country operators have not been able to rely on their government authorities** for this information (with the exception of South Africa).

- **Trade or growers' associations** appear to have been an important source of information, but they do not necessarily exist in all exporting countries, and where they do they vary greatly in their capacity and effectiveness.

PRACTICAL SUGGESTIONS FROM GROWERS AND EXPORTERS FOR IMPROVING COMMUNICATION

In both the interviews in Kenya and Zimbabwe, and in the COLEACP questionnaire, growers and exporters were asked for their views on how communication could be improved. The following is a selected list of practical suggestions made by respondents:

- Announcements in local languages in national media (TV, newspapers);
- Publication of a specialised bulletin with summarised information on restrictions by product and by EU importing country;
- Establishment of a Web page, with user-friendly search facilities and a registration option to allow notification by email of any changes in legislation. The Web page needs to be well publicised amongst growers and exporters in developing countries.
- Information should be sent directly to growers' associations where they exist, who can then be responsible for circulating to their members.
- Holding of national seminars and workshops for growers and exporters.
- Sufficient funds to be set aside by the EU for EU representatives to go to exporting countries and consult with growers about what they consider to be reasonable or not, before legislation is enshrined.

8. Perspectives from developing country exporters and producers

This study was commissioned in response to concerns about the implications of the implementation of a single area of EU legislation, i.e. legislation affecting pesticide MRLs. However, interviews and informal discussions with both African growers/exporters and with UK PMOs and supermarkets have clearly shown that neither group see the MRL legislation and the process through which it has been implemented as an isolated incident. While this legislation has caused particularly severe problems on both sides of the fence, these types of problems are not new, and the legislation is viewed as part of wider trends and processes. Thus, since some of the problems identified in this report are potentially symptomatic of wider problems, the author felt that these wider issues need to be taken into account when considering what are the practicable and effective ways forward. The following two sections therefore summarise the key points raised by growers and exporters (**Section 8**) and by UK PMOs and supermarkets (**Section 9**).

The majority of farmers included in the survey **expressed willingness to reduce pesticide use through adoption of more integrated approaches** to pest and disease control (Integrated Pest Management – IPM). A significant number have already taken practical steps to do so. This is in spite of the various constraints they face in adopting IPM approaches, as identified in **Section 5**.

None of the respondents challenged the need for setting strict MRLs in the interests of consumer health and safety, and some explicitly expressed strong support for this process. However, amongst those farmers and exporters that were interviewed, there was a **strong feeling that it is unfair to restrict pesticide use while at the same time maintaining the high cosmetic quality standards for exported fresh produce**. They felt that buyers should consider lowering these standards a little in order to give growers a bit more flexibility in meeting the MRL requirements, with the understanding that this would in no way threaten consumer health and safety standards.

There was also a **wide-spread perception that the legislative process has in effect acted as a trade barrier** – whether intentionally or not – and has served to protect the interests of EU growers at the expense of non-EU growers. In the particular case of exporting countries in the ACP regions, it was felt that this process went against the stated EU intentions of supporting ACP economies through the EU-ACP Partnership Agreement. Nevertheless, respondents stressed that this was not a unique case, in that it is not the first time that regulations have been imposed by the EU without appropriate consultation.

While growers and exporters were undoubtedly concerned about the implications of pressures from their customers to restrict and monitor pesticide use, it was evident that their customers are putting other demands on them that are threatening the viability of their operations to an equal if not greater extent. It would seem that **the challenge of meeting MRL requirements needs to be put in the context of a more general trend of increasing pressures from supermarkets** in particular to meet ever stricter quality and sanitary requirements, and to improve traceability of produce to allow greater control. Over the last year, the appearance of Walmart on the UK supermarket scene has been a particular challenge to suppliers to the UK supermarkets, due to a bitter price war the take-over has triggered between the leading UK supermarkets.

Thus, growers and exporters feel that the EU harmonisation programme has dealt a serious blow to their businesses, but that both in the case of the EU Commission and of customers (particularly UK supermarkets), it needs to be seen as part of more general systems and trends. Growers and exporters are aware that they have little choice but to comply with the requirements, but **they feel that both the EU and customers should make at least some effort to consult them before decisions are made**. Prior consultation would increase the chances of arriving at more practical solutions that would meet the required European standards and at the same time to avoid at least some of the more critical costs that are currently being borne by developing countries.

9. Perspectives from UK importers and retailers

PMOs

Responses from PMOs have highlighted the fact that the **MRL legislation has led to significant costs and difficulties for PMOs as well as for developing country exporters and growers**. Technical staff have spent considerable time and resources tracking down and processing information about the legislation, communicating this to their suppliers, and working out how their operations need to be modified in order to meet the new requirements.

PMOs have responded to the regulations by imposing stricter control measures on their suppliers regarding pesticide usage, and in the longer term are likely to further consolidate their supply (i.e. reduce number of suppliers). However, increasing control and consolidation of supply are trends that are taking place in any case in response to other pressures, so once again the **MRL legislation** is not an isolated incident, but is rather something that is **accelerating processes already in motion**.

Supermarkets are not only demanding that PMOs take responsibility for ensuring the quality and reliability of the produce they supply, but they are also being pressurised to cut costs. This combination of pressures means that PMOs are in any case being forced to consolidate their supply chains to allow greater control of their own suppliers at lower cost.

In the current situation where supply outstrips the UK demand for imported fresh produce, PMOs probably have enough flexibility in sourcing to cope with the MRL restrictions. However, since in future many developing country suppliers may have great difficulty in meeting the MRL requirements, PMOs are likely to face much more limited supply options.

Supermarkets

For supermarkets, imported fruit and vegetables are not that significant in terms of their absolute contribution to total sales/profit. However, they are a strategically important product line in terms of competition to attract and retain customers. Being able to sell a wide range of good-looking fruit and vegetables with a consistent supply throughout the year is therefore strategically important for supermarkets. **The MRL restrictions do therefore have quite significant implications for supermarkets, since the constraints they place on developing country suppliers may for example lead to reduced product range, and difficulties in providing year-round supplies of certain products.**

However, **a much more immediate and potentially serious threat to UK supermarkets is the “Name and Shame” policy** that has been adopted by the UK government, according to which names of retailers are published along with the pesticide residue test results. Given the level of concern over pesticide residues amongst consumers and NGOs, supermarkets are erring on the side of caution, with some preferring to ban certain products (e.g. passion fruit) rather than risk bad publicity.

10. Key problem areas identified

GENERAL PROBLEMS

- MRLs for many of the active ingredients on the first priority list have been set at LOD for export crops important to developing countries. These include some pesticides which are essential for export production of certain key crops, especially some post-harvest fungicides which are necessary to protect produce during shipment. This situation has arisen because most of these crops are considered “minor crops” by agro-chemical companies, so they have not considered it commercially worthwhile to defend MRLs. For a number of reasons, no-one else has defended these MRLs.
- Growers and exporters in developing countries are poorly informed about the legislative situation and its implications for their operations.
- The official process for consultation and appeal against proposed EU directives has not been effective for ACP countries, with the result that ACP countries have had little say in the content and process of establishing this legislation.
- The harmonisation programme will continue to cause further and more serious problems for developing countries if it develops according to the current intentions and *modus operandi*.
- The review of approvals process is equally important in terms of posing a threat to livelihoods in developing countries, and needs to be tackled in tandem with the MRL issue.

- Different EU member states have interpreted the legislation in different ways, and there are concerns that the UK government in particular has developed a stance which is more punitive to the trade than is required by the EU legislation.
- The European trade is asking growers to tighten up on pesticide use while at the same time maintaining the same high cosmetic quality standards. This is likely to cause proportionately higher crop wastage as pest control options become more restricted, and the full cost of this will be borne by growers and exporters.

IMPACT ON DEVELOPING COUNTRY INDUSTRIES

The legislation is likely to lead to:

- A fall in overall production of fruit and vegetables for export to the EU
- Increased costs of production (although adoption of IPM approaches may lead to a fall in costs in the long run in certain cases)
- A higher risk of crop wastage and/or crop failure
- Smaller growers no longer being able to export
- Smaller exporting countries being excluded from the supply chain.

IMPACT ON SMALLHOLDERS

The EU MRL regulations are likely to have the following impacts on smallholders:

- Importers will no longer source from exporters who rely largely on smallholder production for their supply of produce
- Exporters will cut back on their sourcing from smallholders if alternative sources of supply are available
- Exporters are likely to discontinue sourcing from independent smallholders (i.e. those that are not attached as outgrowers to particular exporters)
- Smallholders will face increased costs of production (more expensive pesticides, and costs of control, monitoring, training etc. may be passed down by exporters)
- Exporters are likely to tighten control over their smallholder suppliers, and in general smallholders will become more dependent on exporters and/or other outsiders.
- Those smallholders with an option to produce cash crops for the local market instead may choose to switch (back) to local market production.

IMPACT ON HORTICULTURAL WORKERS

The MRL regulations are likely to lead to:

- Substantial loss of jobs, especially for those working for smallholders or for medium-scale growers.
- Increased seasonality of remaining jobs, which may have the effect of further reducing job security.
- Possible expansion of job opportunities on the largest farms and exporting operations, and in monitoring, control and training of outgrowers. However, any resultant increase in jobs is

unlikely to compensate for the general downward pressure on employment, especially in the smaller exporting countries where there are no large-scale commercial operations.

CROPS MOST AFFECTED BY THE LEGISLATION

- The following is a preliminary list of priority crops:
 - Miscellaneous fruits
 - Yams
 - Other roots and tubers
 - Peas and beans

INFORMATION AND COMMUNICATION

- The whole MRL issue is highly complex, both from a technical and legislative perspective, making it extremely difficult for non-experts to understand and explain.
- The official channels for consultation and communication of the legislation in developing countries have not been effective, in part due to inadequate local government capacity.
- Trade/growers' associations in developing countries can be an important conduit for information, and a mechanism for awareness-raising and responsive action. However, not all developing countries involved in export have such associations, and where they do exist they vary greatly in their effectiveness.
- Growers and exporters have therefore relied on diverse sources of information, which have tended to provide information which has been:
 - Inaccurate
 - Inconsistent
 - Piecemeal
 - Too late
- Compared to the industry in Europe, growers and exporters in developing countries have been at the end of longer communications chains, often depending on their importers for information, leading to further delays and greater room for misinterpretation etc.
- Developing countries are faced in general with much poorer communications infrastructure, which poses a further constraint to receiving information.

II. Recommended strategy for addressing the key problems identified

In order to make the recommendations as practical as possible, they are divided into **immediate actions** i.e. those which are considered most urgent, and **medium-term actions** i.e. those which are longer-term activities which will take some time to develop and implement. Both immediate and medium-term actions are classified as **centralised** or **country-level** activities. By **centralised** activities is meant those roles or activities that need to be taken up either by the EU Commission itself, or in direct consultation with the EU; or activities that require co-ordination between all developing countries. By **country-level** activities is meant roles or activities that can be taken up independently by bilateral donor agencies, and/or by developing country bodies themselves.

IMMEDIATE ACTIONS (WITHIN 12 MONTHS)

<u>Recommended action</u>	Centralised activity	Country-level activity
<p>1. Modify or augment current official procedures for consultation with developing countries on proposed EU directives affecting livelihoods in developing countries:</p> <ul style="list-style-type: none"> • Develop a “fast-track” communication channel which gets information direct from the EU Commission to the affected industries in developing countries; • Provide and publicise a clear and transparent mechanism for appealing against proposed legislation, with clearly specified criteria against which an appeal can be made; • Extend the period of consultation and appeal (currently 6 months) so that a realistic timescale is provided for developing countries to respond. 	✓	
<p>2. Implement a comprehensive information provision and awareness-raising campaign, targeting exporters and growers in all developing countries who export fresh produce to EU:</p> <ul style="list-style-type: none"> • Organise meetings in target countries, through trade associations where these exist, to raise awareness amongst producers and exporters and answer their specific questions; • Prepare and distribute an information pack which contains: <ul style="list-style-type: none"> ○ Description of the legislative process, current situation and future plans; ○ Summary of key implications for developing country growers and exporters; ○ Crop information sheets, detailing current EU MRL positions (and different MRL positions for various EU member states if possible) by crop; ○ Guidance on where to get further information and advice, and what urgent actions need to be taken in response to the legislative requirements. 	✓	✓

<u>Recommended action</u>	Centralised activity	Country-level activity
3. Modify current procedures such that there is sufficient time for the fresh produce industry and public sector bodies to prepare datasets for establishment of MRLs, after the full list of crop/active ingredient combinations to be defended by the agro-chemical companies is made available.	✓	
4. Initiate data collection etc. for establishment of MRLs for essential post-harvest fungicides used on the priority crops (key miscellaneous fruits, yams, other roots and tubers, peas and beans).	✓	✓
5. Based on consultation with developing country industries, develop a suitable mechanism for prioritising crop/active ingredient combinations for establishment of MRLs and of import tolerances, which responds directly to priorities put forward by developing country industries. This will require establishment of clear and transparent criteria against which proposed crop/a.i. combination will be considered.	✓	
6. Initiate programmes in target countries which will provide support to exporters who source from smallholders, providing assistance in setting up appropriate control, monitoring and documentation systems, as well as technical training in IPM and appropriate pesticide use. These programmes should where possible work in partnership with local trade associations and any existing smallholder support projects.		✓
7. Conduct a rapid review of tried-and-tested non-chemical control techniques and systems for key horticultural crops in the affected developing countries, looking separately at effective systems for (a) smallholders, and (b) large-scale commercial farms.	✓	✓
8. Carry out an assessment of the implications of the EU Review of Approvals process for developing countries, and develop appropriate strategies to address key threats. Specifically, ensure that the lists of approved and revoked active ingredients to be finalised in December 1999 are promptly communicated to developing country industries and other relevant bodies.	✓	
9. Initiate discussions with manufacturers of generic pesticides, or their representatives (e.g. Global Crop Protection Federation), on opportunities for joint funding to defend prioritised generic pesticides important to developing country growers.		

MEDIUM-TERM ACTIVITIES (WITHIN 5 YEARS)

<u>Recommended action</u>	Centralised activity	Country-level activity
<p>10. Institution-building: based on consultation with relevant stakeholders, set up a streamlined co-ordinating unit which will act as a two-way communication channel to inform the industry (in Europe as well as developing countries?) of current and planned EU legislation, and feed back industry concerns to the EU.</p> <p>This unit will have the following specific responsibilities:</p> <ul style="list-style-type: none"> • Ensuring that its target audience is fully aware of its existence, how it can be contacted, and what are its responsibilities. • Establishing effective channels for communicating with exporters and growers in the various target countries, making use of existing institutions (e.g. trade associations) and mechanisms (e.g. journals, agricultural programmes on local TV). • Collating and interpreting EU Directives and related technical information and “translating” this into clear, accurate and user-friendly materials (e.g. database of MRL positions, texts describing legislative process), and getting this out quickly to the industry in target countries. • Providing regular updates on the legislative position and other relevant information and advice to the target audience. • Answer any specific queries about the legislation and its implications from growers and exporters. • Reviewing and prioritising crop/a.i. combinations for MRL establishment and for establishment of import tolerances, based on requests from developing country industries as communicated through agreed mechanism (see above). • Co-ordinating work necessary to establish MRLs and import tolerances for prioritised combinations. 	✓	

<u>Recommended action</u>	Centralised activity	Country-level activity
<p>11. Establish (or augment existing) training programmes to promote and build capacity for Integrated Pest Management (IPM) as a component of Good Agricultural Practice (GAP): The training programmes should cover 3 components:</p> <ul style="list-style-type: none"> • Top-up funds to industry associations (or other intermediaries?) to provide specialised technical advice and training to large and medium-scale producers; 2 Programme for technical (pest management techniques) and management (i.e. how to establish effective monitoring systems) training for smallholder groups producing for export, working through trade associations, exporters, NGOs and/or government extension services; • Training for exporters to assist them in managing and training smallholders in their supply chains. 		
<p>12. Raise awareness amongst representatives of European consumer interests about implications of high cosmetic quality standards for crop wastage, and consequent impact on livelihoods of smallholders Target relevant NGOs, media, development education programmes etc.</p>		✓

Appendix I: Sources of information/people contacted

PRODUCERS AND EXPORTERS IN DEVELOPING COUNTRIES

COUNTRY	NUMBER OF EXPORTER/PRODUCERS	SOURCE OF INFORMATION
Côte d'Ivoire	6	COLEACP Questionnaire
Ghana	1	COLEACP Questionnaire
Jamaica	1	COLEACP Questionnaire
Kenya	4	Interviews
Madagascar	1	COLEACP Questionnaire
Mali	1	COLEACP Questionnaire
Sénégal	1	COLEACP Questionnaire
South Africa	4	COLEACP Questionnaire
Uganda	?	Steven Humphries
Zambia	1	COLEACP Questionnaire
Zimbabwe	6	Interviews

OTHER ORGANISATIONS IN DEVELOPING COUNTRIES

Kenya

ATIF (K) Ltd.

Dow AgroSciences

Global Crop Protection Federation

Horticultural Crops Development Authority

Kenya Plant Health Inspectorate Service

Pesticide Products Registration Board

Zimbabwe

Horticulture Promotion Council

Government Pesticide Registrar, Plant Protection Research Institute.

Uganda

Data was collated and supplied by a consultant, Steven Humphreys, in late 1999 from Ugandan Flower Exporters Association (UFEA) and HORTEXA (association of Ugandan fresh produce exporters).

IMPORTERS AND SUPERMARKETS IN THE UK

- Detailed responses to questionnaire from 2 importers and 2 supermarkets.
- Informal discussions at FPC Conference.
- Discussions with FPC.

OTHER EUROPEAN ORGANISATIONS

- COLEACP
- EU Commission DG Sanco
- EU Commission DG 8

Appendix 2: Kenya and Zimbabwe Checklist

1. What are your main crops?
2. Which of these crops do you think will be most affected by the EU pesticide legislation?
3. How would you respond to any loss in your present range of export crops:
4. If you are forced to change the range of crops you grow, what effect will this have on your labour force (and on that of your suppliers)?
 - (a) diversify into other crops
 - (b) look for other markets
 - (c) change agronomic practices (alternative pesticides, IPM, organic)
5. What impact do you consider the legislation will have on rural livelihoods?
6. When did you first hear about the changes in the EU pesticide legislation?
7. Could you reduce the range of pesticides you use?
8. Who provides you with technical information on horticultural pesticides and crop protection recommendations?
9. What effect do you think the EU legislation will have on smallholders?
10. Do you think the establishment of an in-country pesticide residue laboratory for pre-shipment testing of produce is a good idea and would you be prepared to contribute towards its cost?

Appendix 3: COLEACP Supplementary questionnaire for exporters and producers

Questionnaire for ACP Exporters

Study of the effects of changes in European regulations concerning pesticide residues on the production and export of fruit and vegetables in developing countries.

1.DETAILS OF PRODUCTION AND EMPLOYMENT.

1.1. Your average annual exports of fresh fruit and vegetables to the EU :

- quantity :.....tonnes
- value :.....

1.2. Your main * exported products (* those for which the application of pesticides in cultivation or as post-harvest treatment is essential to ensure adequate export quality) :

- By crop, percentage of own production, average annual quantities and values :

..... %T

..... %T

1.3. Number of wage-earners employed by your company **:

- Permanent staff :of which Men : Women :
- Seasonal workers : ... of which Men ::..... Women :.....

1.4. Number of smallholders supplying to you, by product :

Product 1 :..... Number :.....

Product 2 :..... Number :.....

Product 3 :..... Number :.....

1.5. Minimum monthly agricultural wages :

- Basic wages :/ month
- Trained worker :/ month

1.6. Estimate of the annual income of a smallholder

By export crop / % of annual income :

Product 1 :.....Average annual income :

Product 2 :.....Average annual income :

Product 3 :.....Average annual income :

Portion of annual income derived from export crops :

(estim.)%

2.DETAILS OF PESTICIDE USE.

(If you have not already returned the COLEACP questionnaire on the pesticides you use for each crop, please use the tabular form attached to this document).

Additional questions :

2.1. Where do you obtain information on the pesticides permitted in your targeted markets ?

.....
.....

2.2. Who supplies your pesticides ? :.....

Are your employees well-trained in the correct usage of pesticides and well supervised ?
Yes No In progress

Do you supervise the use of pesticides by your smallholder suppliers ?
Yes No

If yes, how ?.....

1.1. Do you have a system of product traceability in place :

- **A “complete” system from the production plot to the point of sale ?**
Yes No
- **A “partial” system from the packhouse to the point of sale ?**
Yes No
- **No system of traceability whatsoever ?**

1.2. Do you consider that :

- **you are fully informed about the EU regulations applicable to pesticide residues ?**
Yes No Other :.....
- **you apply in all your operations the principles of Good Agricultural Practice ensuring that permitted Maximum Residue Levels of pesticides are not exceeded ?**
Yes No Other :.....
- **the smallholders who supply you also follow the same principles of Good Agricultural Practice ?**
Yes... .. No Other :.....
- **you have the necessary resources to control effectively the usage of pesticides in your export crops?**
- human resources : Yes No
- material resources : Yes No

1.3. Which of your export crops are most vulnerable to restrictions of pesticide usage under the changes in the regulations in the EU. ?

List the most sensitive “combinations” (eg. pineapples x ethephon)

.....

2.LONG AND SHORT TERM STRATEGIES FOR CONSIDERATION.

3.1. In the short term, do you plan :

- **to modify your pesticide application programme ?:**
 Yes No Not yet :.....

- **to :**
 - use different active ingredients ?
 - lengthen the harvest interval ?
 - reduce the application frequency ?
 - reduce dosage rates ?
 - others :.....

- **to carry out residue analysis :**
 - pre-export ? : Yes No
 - on arrival in the EU ? : Yes No

- **to abandon production of products in which pesticide usage cannot be reduced ?**
 Yes :..... No :.....
 If yes, which ?.....

- **to modify your smallholder supply programme ?**
 Yes :..... No :.....
 If yes, how ?.....

- **to export elsewhere than to the EU ?**
 Yes :..... No :...
 If yes, to where ?.....

- **to continue to export to the EU without any changes ?**
 Yes :..... No :...

- **other short-term responses ?**

3.2. In the medium term do you plan :

- **to modify your agricultural practices in order to continue exporting to European markets ?**

Yes :..... No :.....

- **to adopt Integrated Pest Management ?**

Yes :..... No :.....

- **to convert to organic production ?**

Yes :..... No :.....

If yes, which product(s) seem(s) possible to you :

.....

- **to diversify into non-consumable horticultural products (e.g. flowers, plants ornamentals) ?**

Yes :..... No :.....

- **other medium-term responses ?**

4 SUPPLEMENTARY QUESTIONS

4.1. Employment

- **As a result of your new strategic planning, are any farm/packhouse workers likely to be laid-off ?**

Yes No

If yes how many ?

- **Will the local employment situation enable laid-off workers to find other employment opportunities ?**

Yes No

- **If your crop supply programmes from them are abandoned or reduced, are viable alternative open to smallholders?**

Yes No

If yes what?

.....

4.2. Information

- **When did you first hear about the EU regulation changes and from what source ?**

.....
.....

- **How could the communication of information be improved ?**

.....
.....
.....
.....

4.3. Are there any other important implications to your business of the regulation changes that we should be aware of ?

.....
.....

Questionnaire completed onThursday, 10 February 2000.....

By :.....

On behalf of

(Country :.....).

Thank you for having given some minutes of your time to complete this additional COLEACP enquiry on the impact of changes in pesticides regulations in the EU.

The details that you have provided will be treated with complete confidentiality. They are essential to COLEACP to provide argument for the strategic document that will be submitted to the European Commission at the beginning of 2000 and which will contain proposals to alleviate the restrictions affecting the ACP – EU horticultural trade.

Appendix 4: Questionnaire sent to UK supermarkets and PMOs

- 1. What do you see to be the main implications of the EU pesticide regulation harmonisation programme, in particular the current process of setting MRLs at LOD for many active ingredients used on tropical, sub-tropical and out-of-season fruit and vegetables?**
- 2. In what specific ways have you changed your sourcing practices for fruit and vegetables in response to the EU MRL legislation and the UK government's "Name and Shame" policy, with particular reference to your relations with developing country exporters and producers?**
 - Different strategies for different crops?
 - Different strategies for different exporting countries?
- 3. What other changes in sourcing policy and practice are you likely to make in the future in response to this legislation?**
- 4. In what other ways have you been responding/do you intend to respond to the threats arising from the legislation?**

e.g. compiling databases of MRL positions for relevant crops; supporting establishment of MRLs for key crop/active ingredient combinations
- 5. What is your current policy towards exporters sourcing from smallholders in developing countries ? How will the legislation affect your willingness to buy from exporters where part/all of the produce is sourced from smallholders?**
- 6. What changes would need to take place in order for you to adopt a more favourable approach to sourcing from smallholders?**
 - Is there anything exporters could do to convince you to continue/expand sourcing from smallholders?

- 7. How do you get hold of information about changes in EU pesticide legislation and its implications for your business?**
- 8. Are you satisfied with the timeliness and quality of information you have been receiving on EU pesticide legislation? If not, how can it be improved?**
- 9. Are you fully aware of planned future changes to EU legislation on permitted MRLs for the crops you are concerned with?**
- 10. How do you decide what information you pass on to your exporters? How long does it take you to process the information you receive before passing it on to your exporters?**
- 11. Are there any other important implications of the EU legislation on your relationships with developing country exporters and producers that we should know about?**

Appendix 5: list of 102 active ingredients for which MRL positions will be closed off in July 2000

Acephate	Dithiocarbamates	Propoxur
Aldicarb	Dioxation	Propyzamide
Aldrin Dieldrin	Endosulphan	Quintozene
2-Amino-Butane	Endrin	2,4,5-T
Amino-triazole	Ethephon	Tecnozene
Amitraz	Ethion	TEPP
Atrazine	Fenarimol	Thiabendazole (TBZ)
Azinphos-methyl	Fenbutatin oxide	Triazophos
Benalaxyl	Fentin	Triforine
Benfuracarb	Fenchlorphos	Vinclozolin
Binapacryl	Fenitrothion	
Bitertanol	Fenvalerate	
Bromophos-ethyl	Fluazifop	
Bromopropylate	Flucythrinate	
Chormequat	Flurochloridone	
Camphechlor (Toxaphene)	Furathiocarb	
Captan	Glyphosate	
Captafol	Haloxifop	
Carbaryl	Heptachlor	
Carbendazim/Benomyl	H-C-Hexane (gamma)	
Carbofuran	Imazalil	
Carbosulphan	Inorganic bromide	
Carbophenothion	Ioxynil	
Cartap	Iprodione	
Chlordane	Lambda-cyhalothrin	
Chlorfenvinphos	Malathion	
Chlorobenzilate	Maleic hydrazide	
Chlorothalonil	Mecarbam	
Chloropyrifos	Mercury compounds	
Chloropyrifos-methyl	Metalaxyl	
Cyfluthrin	Methamidophos	
Cypermethrin	Methidathion	
Daminozide	Methyl Bromide	
DDT	Methomyl thiodicarb	
Deltamethrin	Mevinphos	
Diazinon	Omethoate	
Dibromoethane (1,2-)	Parathion	
Dichlofluanid	Parathion-methyl	
Dichlorvos	Paraquat	
Dichlorprop	Permethrin	
Dicofol	Phorate	
Diflubenzuron	Phosalone	
Dimethipin	Pirimphos-methyl	
Dimethoate	Procymidone	
Dinoseb	Profenophos	
Disulfoton	Propiconazole	

Appendix 6: EU Product Classification

Reference	Category	Species	Group	Variety
1	FRUIT	Citrus		Grapefruit
2	FRUIT	Citrus		Lemons
3	FRUIT	Citrus		Limes
4	FRUIT	Citrus		Mandarins
5	FRUIT	Citrus		Oranges
6	FRUIT	Citrus		Pomelos
7	FRUIT	Citrus		Others
8	FRUIT	Tree nuts		Almonds
9	FRUIT	Tree nuts		Brazil nuts
10	FRUIT	Tree nuts		Cashew nuts
11	FRUIT	Tree nuts		Chestnuts
12	FRUIT	Tree nuts		Coconuts
13	FRUIT	Tree nuts		Hazelnuts
14	FRUIT	Tree nuts		Macadamia nuts
15	FRUIT	Tree nuts		Pecans
16	FRUIT	Tree nuts		Pine nuts
17	FRUIT	Tree nuts		Pistachios
18	FRUIT	Tree nuts		Walnuts
19	FRUIT	Tree nuts		Others
20	FRUIT	Pome fruit		Apples
21	FRUIT	Pome fruit		Pears
22	FRUIT	Pome fruit		Quinces
23	FRUIT	Pome fruit		Others
24	FRUIT	Stone fruit		Apricots
25	FRUIT	Stone fruit		Cherries
26	FRUIT	Stone fruit		Peaches
27	FRUIT	Stone fruit		Plums
28	FRUIT	Stone fruit		Others
29	FRUIT	Berries and small fruit	(a) Grapes (table and wine)	Grapes (table)
30	FRUIT	Berries and small fruit	(a) Grapes (table and wine)	Grapes (wine)
31	FRUIT	Berries and small fruit	(b) Strawberries (not wild)	Strawberries
32	FRUIT	Berries and small fruit	(c) Cane fruit (not wild)	Blackberries
33	FRUIT	Berries and small fruit	(c) Cane fruit (not wild)	Loganberries
34	FRUIT	Berries and small fruit	(c) Cane fruit (not wild)	Raspberries
35	FRUIT	Berries and small fruit	(c) Cane fruit (not wild)	Others
36	FRUIT	Berries and small fruit	(d) Small fruit and berries (not wild)	Bilberries
37	FRUIT	Berries and small fruit	(d) Small fruit and berries (not wild)	Cranberries
38	FRUIT	Berries and small fruit	(d) Small fruit and berries (not wild)	Currants (red, black and
39	FRUIT	Berries and small fruit	(d) Small fruit and berries (not wild)	Gooseberries
40	FRUIT	Berries and small fruit	(d) Small fruit and berries (not wild)	Others
41	FRUIT	Berries and small fruit	(e) Berries and wild fruit (wild)	Berries and fruit (wild)

Reference	Category	Species	Group	Variety
42	FRUIT	Miscellaneous fruit		Avocadoes
43	FRUIT	Miscellaneous fruit		Bananas
44	FRUIT	Miscellaneous fruit		Dates
45	FRUIT	Miscellaneous fruit		Figs
46	FRUIT	Miscellaneous fruit		Kiwi fruit
47	FRUIT	Miscellaneous fruit		Kumquats
48	FRUIT	Miscellaneous fruit		Litchis
49	FRUIT	Miscellaneous fruit		Mangoes
50	FRUIT	Miscellaneous fruit		Olives
51	FRUIT	Miscellaneous fruit		Passion fruit
52	FRUIT	Miscellaneous fruit		Pineapples
53	FRUIT	Miscellaneous fruit		Pomegranates
54	FRUIT	Miscellaneous fruit		Others
55	VEGETABLES	Root and tuber		Beetroot
56	VEGETABLES	Root and tuber		Carrots
57	VEGETABLES	Root and tuber		Celeriac
58	VEGETABLES	Root and tuber		Horseradish
59	VEGETABLES	Root and tuber		Jerusalem artichokes
60	VEGETABLES	Root and tuber		Parsnips
61	VEGETABLES	Root and tuber		Parsley root
62	VEGETABLES	Root and tuber		Radishes
63	VEGETABLES	Root and tuber		Salsify
64	VEGETABLES	Root and tuber		Sweet potatoes
65	VEGETABLES	Root and tuber		Swedes
66	VEGETABLES	Root and tuber		Turnips
67	VEGETABLES	Root and tuber		Yams
68	VEGETABLES	Root and tuber		Others
69	VEGETABLES	Bulb		Garlic
70	VEGETABLES	Bulb		Onions
71	VEGETABLES	Bulb		Shallots
72	VEGETABLES	Bulb		Spring onions
73	VEGETABLES	Bulb		Others
74	VEGETABLES	Fruiting	(a) Solanacea	Tomatoes
75	VEGETABLES	Fruiting	(a) Solanacea	Peppers
76	VEGETABLES	Fruiting	(a) Solanacea	Aubergines
77	VEGETABLES	Fruiting	(a) Solanacea	Others
78	VEGETABLES	Fruiting	(b) Cucurbits (edible peel)	Cucumbers
79	VEGETABLES	Fruiting	(b) Cucurbits (edible peel)	Gherkins
80	VEGETABLES	Fruiting	(b) Cucurbits (edible peel)	Courgettes
81	VEGETABLES	Fruiting	(b) Cucurbits (edible peel)	Others
82	VEGETABLES	Fruiting	(c) Cucurbits (inedible peel)	Melons
83	VEGETABLES	Fruiting	(c) Cucurbits (inedible peel)	Squashes
84	VEGETABLES	Fruiting	(c) Cucurbits (inedible peel)	Watermelons
85	VEGETABLES	Fruiting	(c) Cucurbits (inedible peel)	Others

Reference	Category	Species	Group	Variety
86	VEGETABLES	Fruiting	(d) Sweet corn	Sweet corn
87	VEGETABLES	Brassica	(a) Brassicas (flowering)	Broccoli
88	VEGETABLES	Brassica	(a) Brassicas (flowering)	Cauliflower
89	VEGETABLES	Brassica	(a) Brassicas (flowering)	Others
90	VEGETABLES	Brassica	(b) Brassicas (head)	Brussels sprouts
91	VEGETABLES	Brassica	(b) Brassicas (head)	Head cabbage
92	VEGETABLES	Brassica	(b) Brassicas (head)	Others
93	VEGETABLES	Brassica	(c) Brassicas (leafy)	Chinese cabbage
94	VEGETABLES	Brassica	(c) Brassicas (leafy)	Kale
95	VEGETABLES	Brassica	(c) Brassicas (leafy)	Others
96	VEGETABLES	Brassica	(d) Kholrabi	Kholrabi
97	VEGETABLES	Leaf and fresh herbs	(a) Lettuce and similar	Cress
98	VEGETABLES	Leaf and fresh herbs	(a) Lettuce and similar	Lamb's lettuce
99	VEGETABLES	Leaf and fresh herbs	(a) Lettuce and similar	Lettuce
100	VEGETABLES	Leaf and fresh herbs	(a) Lettuce and similar	Scarole
101	VEGETABLES	Leaf and fresh herbs	(a) Lettuce and similar	Others
102	VEGETABLES	Leaf and fresh herbs	(b) Spinach and similar	Beet leaves (chard)
103	VEGETABLES	Leaf and fresh herbs	(c) Watercress	Watercress
104	VEGETABLES	Leaf and fresh herbs	(d) Witloof	Witloof
105	VEGETABLES	Leaf and fresh herbs	(e) Herbs	Chervil
106	VEGETABLES	Leaf and fresh herbs	(e) Herbs	Chives
107	VEGETABLES	Leaf and fresh herbs	(e) Herbs	Parsley
108	VEGETABLES	Leaf and fresh herbs	(e) Herbs	Celery leaves
109	VEGETABLES	Leaf and fresh herbs	(e) Herbs	Others
110	VEGETABLES	Legume		Beans with pod
111	VEGETABLES	Legume		Beans without pod
112	VEGETABLES	Legume		Peas with pod
113	VEGETABLES	Legume		Peas without pod
114	VEGETABLES	Legume		Others
115	VEGETABLES	Stem		Asparagus
116	VEGETABLES	Stem		Cardoons
117	VEGETABLES	Stem		Celery
118	VEGETABLES	Stem		Fennel
119	VEGETABLES	Stem		Globe artichokes
120	VEGETABLES	Stem		Leeks
121	VEGETABLES	Stem		Rhubarb
122	VEGETABLES	Stem		Others
123	VEGETABLES	Fungi		Mushrooms (not wild)
124	VEGETABLES	Fungi		Mushrooms (wild)
125	POTATOES	Potatoes		Potatoes (early)
126	POTATOES	Potatoes		Potatoes (ware)
102A	VEGETABLES	Leaf and fresh herbs	(b) Spinach and similar	Spinach and similar
102B	VEGETABLES	Leaf and fresh herbs	(b) Spinach and similar	Spinach
102C	VEGETABLES	Leaf and fresh herbs	(b) Spinach and similar	Others

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- ¹ See for example the Council Directive 93/58/EEC, published on the EU Website (http://www.europa.eu.int/eur-lex/en/lif/dat/1993/en_393L0058.html)
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