



Workshop



In co-operation with PAN Europe

Pesticide Reduction Programmes in Germany and the UK

**Experiences and Contributions
within a Europe wide Approach**

Hamburg, 5 July 2005

Acknowledgements

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- 5 Explanatory note

Welcome & Introduction

- 6 *Introducing the background and reason for this workshop from the PAN point of view*
Carina Weber, Executive Director PAN Germany, Chair PAN Europe Board
Stephanie Williamson, PAN UK, PAN Europe Board Member

Session 1: Background

- 9 *The history and rationale of pesticide use reduction programs in Europe*
Catherine Wattiez, Pesticide Action Network Europe

Session 2: Approaches and Experiences in Germany and the UK

- 13 *The German approach*
Wolfgang Zombach, Federal Ministry of Consumer Protection, Food and Agriculture
- 16 *NGO Statement*
Carina Weber, PAN Germany
- 19 *The UK approach*
Clare Butler-Ellis, PAN UK
- 23 Questions and discussion
- 25 *Farmers' experience: Germany*
Erich Jörg, Agricultural Public Service Centre Rhineland
- 31 *Retailer and Food Companies' experience: Germany*
Gerhard Ostermann, Langnese-Iglo
- 36 *Retailer and Food Companies' experience: UK*
Kevin Barker, Co-op
- 43 *Farmers' experience: UK*
Simon Bowen, Solanum
- 46 Questions and discussion

Session 3: Elements for success – Experiences in other European Countries

- 51 *Denmark*
Hans Nielsen, The Ecological Council
- 55 *The Netherlands*
Hans Mulierman, Natuur en Milieu

- 58 *Belgium*
Esmeralda Borgo, Bond Beter Leefmilieu
- 61 *Austria*
Helmut Burtscher, Global 2000
- 63 Questions and discussion

Session 4: Creating and agenda for success

- 65 Lessons to learn? What are the different circumstances for pesticide use reduction programmes in different European Countries? What should be avoided? What are the elements of success that are applicable in other countries?
- 69 Participants list

Explanatory note

On 5 July 2005 PAN Germany and PAN UK, in cooperation with PAN Europe, conducted the workshop “Pesticide Reduction Programmes in Germany and the UK – Experiences and Contributions within a Europe wide Approach”. The aim of the workshop was an exchange of views and identify elements for successful pesticide use reduction programmes.

Thirty two participants attended the workshop and discussed the pesticide reduction policies in Germany and the UK against the background of the development of a “Thematic Strategy on the Sustainable Use of Pesticides” in Europe, as well as experiences in different European countries.

In the first session the European political framework for national pesticide policies and also the history of the development of pesticide reduction programmes in Europe were highlighted. The main topic of the second session was a detailed view of the official German and the official British pesticide reduction policies and to look at these national policies from the retailers and from the farmer points of view. In the third session other European pesticide reduction experiences were taken into account (Denmark, Netherlands, Belgium and Austria). The final session served to draw conclusions.

In this publication we provide the contributions made by the speakers of the workshop to all those who are interested but who have not been able to attend the workshop. The contributions are copied from the original presentations in Power Point Presentation. The original presentations are available on-line at PAN Europe website at <http://www.pan-europe.info/conferences/index.shtm>. In order to give an insight into the discussion at the workshop we add notes on the questions and discussions which came up during the workshop.

The Pesticide Action Network is a network of over 600 non-governmental organisations, institutions and individuals in over 60 countries worldwide, working to replace the use of hazardous pesticides with ecologically sound alternatives.

Welcome & Introduction

Introducing the background and reason for this workshop from the PAN point of view

Carina Weber, Executive Director PAN Germany, Chair PAN Europe Board

Pesticides are an important issue as they are released into the environment deliberately. They are one specific tool for agricultural production and they are toxic. Therefore it goes without saying that their use is being questioned. Especially from the environmental, consumer and also from the agricultural workers point of view there is a strong need for alternatives. And there are strong indications that pesticide use reduction can save money at the farm level as well as nationally and internationally. The aim of this workshop is to have an exchange of views on options for pesticide reduction and to identify elements for successful pesticide use reduction programmes.

I am pleased that we can welcome representatives from important stakeholders: from the governmental side, the farmers side, the food companies side as well as – and this is the largest group - the NGO side.

And I want to say “thank you” to those, who financially supported this workshop:

- the Anglo German Foundation;
- the European Commission and the Rausing Trust;
- and also the German Federal Environmental Agency (the UBA).

We meet here to discuss Pesticide Use Reduction Initiatives. This workshop will have at least a small but real effect regarding pesticide use reduction: The food we will consume today has been produced organically.

And now some words about the question “Why this workshop”. PAN, the Pesticide Action Network, is a network of over 600 participating non-governmental organizations, institutions and individuals in over 90 countries. PAN works to replace the use of hazardous pesticides with ecologically sound alternatives. Therefore, pesticide use reduction has always been and still is a key issue for PAN all over the world.

However, the approaches to achieve pesticide use reduction are quite different in the different regions and countries, as the social, economic and political conditions are quite diverse. On the European level, the first initiatives for a pesticide use reduction started at the very beginning of the 1990s. At national level this happened even earlier, as will be reported today. Right from the start PAN intently watched these developments. And already from the very beginning PAN used quite different means to support the development of pesticide use reduction programmes on European as well as on national level. Catherine Wattiez will report on the diversity of activities from the PAN Europe point of view.

In Brussels as well as in the European countries the discussion was either quite vague or dominated by defensive battles. The best example of a constructive and positive approach is probably from Denmark (PAN Europe has just published a pamphlet on the

Danish reduction programme). But step by step more farmers, food companies and governments started thinking, and also working towards concrete action on pesticide use reduction. We think, therefore, that it might be the right time to have a look at promising initiatives towards pesticide use reduction and discuss some of the challenges and lessons in a small group of supportive colleagues from NGOs, public and private sectors.

Bearing in mind that PAN's aim is to avoid the use of pesticides as much as possible, the intention of this workshop is to have a closer look at those initiatives which go ahead, which took steps most of the others didn't take up till now and which have been successful in reducing the use of pesticides.

And we organised this workshop to enable a discussion about the question whether the "success stories" available are transferable – transferable within countries as well as via national borders.

Stephanie Williamson, PAN UK, PAN Europe Board Member

Wearing my PAN UK hat on, I'd like to give a few words of explanation on why we have no government speaker from the British side. It's been quite interesting over the last 2 or 3 years to compare how the British and German governments have each been developing national strategies on pesticide reduction but I have to confess that the Germans have clearly overtaken us and are now racing ahead in terms of use reduction! The British government has been proposing and consulting for at least 2 years on what our national strategy should cover but it looks extremely vague. We did invite both the UK Food Standards Agency who have been talking about a residue minimisation strategy, and our regulatory agency, the Pesticides Safety Directorate, to speak at this workshop but neither were able to accept. So instead, my colleague Clare Butler-Ellis will have a longer slot to tell us about the various processes and initiatives in Britain and how far they have progressed or not in the last couple of years, as well as our assessment of the situation from PAN UK's perspective.

And wearing my PAN Europe board member hat, I'd also remind everyone of the diversity of agricultural and political situations in the enlarged Europe and what this might mean for pesticide use reduction strategies. I'm very pleased to have a good participation of NGOs from Eastern and Mediterranean Europe today, this is really important for us as historically PAN Europe has been dominated by northern and western countries. One example of how we need to think Europe-wide is our PURE campaign which includes a target for 50% reduction in pesticide use within 10 years. What does this mean for Central and Eastern European countries where economic conditions over the last decade have resulted in far lower pesticide consumption figures in terms of kg per hectare than in intensive farming in Western Europe? But we also know that this average hides important differences between many thousands of small-scale farmers whose use of pesticides is very limited, while a few large-scale farms are rapidly increasing their use.

A further issue is the way that our food is sourced and distributed across Europe- most of us are aware of the concerns about high and frequent use of very hazardous insecticides in Spanish vegetables, for example, which are often picked up in residue monitoring. But I recently found out that Poland is now the largest producer of tomato in Europe- so what will this mean for pesticide use in those cropping systems? So finally, I hope we can generate some good discussion on what kind of strategies we need to promote effective pesticide reduction programmes in our various countries and support the millions of farmers operating in very different agro-ecological, economic and food chain contexts to change to safer and more sustainable pest management.

The history and rationalism of pesticide use reduction programs in Europe

Catherine Wattiez, Pesticides Action Network Europe

Title of the presentation:

The Thematic Strategy on the sustainable use of pesticides

Historical background and PAN Europe actions

- 5th Environmental Action Programme "to achieve a substantial reduction of pesticide use per unit of land under production". No action was taken but there were 7 studies made during the 1990's to prepare a Directive. One stakeholders consultation meeting in 1998 ***with PAN Europe participation;***
- 6th EAP (2001-2010) "reduce the impact of pesticides on human health and the environment... As well as a significant overall reduction in risks and of the use of pesticides" and decision about measures for a TS on pesticides (***PAN E lobby work***)
- ***May 2002: PAN Europe's "Suggested text for a Directive on Pesticides Use Reduction in Europe (PURE)". The PURE campaign is supported by 92 organisations and European federations of organisations in 30 European countries***
- Thematic Strategy on the sustainable use of pesticides being prepared by DG Environment in coordination with the revision of Directive 91/414/EEC by DG Health and Consumer Protection;
- As a first step: Commission Communication on the sustainable use of pesticides : 4 July 2002;
- ***PAN E participation at Commission Stakeholders meeting concerning this Commission Communication + position paper: 4 November 2002;***
- Environment Council Conclusions: 9 December 2002 ***with PAN E lobby input;***
- European Parliament Resolution: 27 March 2003 (very critical) ***with PAN E lobby input;***
- ***PAN E conference "Reducing pesticide dependency in Europe to protect health, environment and biodiversity " addressed mainly MS civil servants of ad hoc ministeries: 20 November 2003***
- Several technical meetings during 2003 and 2004 (***on compliance, aerial spraying, sprayers, indicators and collection of empty packaging;***)

- Extended Impact Assessment finalised in October 2004 ***with PAN E input to consultants during its elaboration and writing of severe critique when published;***
- ***PAN E participation in interactive Policy Making internet consultation from March-12 May 2005.***
- **PAN E face to face lobby meetings at Commission and EP levels: 2003-2004-2005**

For more information:

- 1) <http://www.pan-europe.info>
- 2) <http://europa.eu.int/comm/environment/pps/home.htm>

Agenda

- Official interservice consultation (with various relevant DGs) is imminent
- Adoption by the Commission: September 2005 but probably later (as review of Directive 91/414 might be further delayed and is part of the TS)
- Discussion and vote by the European Parliament (1st reading, 2nd reading and Plenary: 2006/2007)
- Discussion and vote by the Council: 2nd half of 2006 (Finnish Presidency);
- Conciliation procedure and final version by 2007.

Opportunity for further amendments and lobby work by NGOs at the EP Commission and Council levels

The Thematic Strategy components

- 1) A Commission Communication
- 2) Modifications in existing legislations (as for example modification of PPP authorisation Directive)
- 3) A Framework Directive

Possible content of the Framework Directive on the sustainable use of pesticides

A) Mandatory national action plans to reduce hazards, risks and dependence on pesticides with the following minimal requirements:

- 1) Public participation in a Steering group to develop, implement, monitor and review action plan;

- 2) Reduction targets measured by risk indicators, possibly at crop and a.s. levels;
- 3) Awareness raising campaigns for non professional users;
- 4) Measures for safe handling of preparations including ready-to-use products for amateurs;
- 5) Training requirements for distributors, advisors, users + certification;
- 6) System for certification and monitoring of spraying equipment;
- 7) Set up of a structure for independent advice for professionals and amateurs + pest forecasting systems;
- 8) Specific requirements for aerial spraying;
- 9) Possible measures for protection of the aquatic environment ;
- 10) Designation of areas where use of pesticides has to be reduced ;
- 11) System for collection of packaging and obsolete pesticides ;
- 12) Monitoring and reporting of poisoning incidents ;
- 13) Promotion of organic farming , ICM (mainly based on Regulation on support to Rural development, EU action plan on organic farming) ;
- 14) Promotion of research to reduce pesticide use ;
- 15) Taxes to finance measures might be considered ;
- 16) Report on the action plan and its publication.

B) Commission steering group on the Thematic Strategy

Composed of various stakeholders including NGOs, academics and experts

To be created to assist Commission to:

- facilitate exchange of information between MS
- to prepare guidelines towards more harmonisation to be eventually considered for future revision of the Directive

Key missing point:

Pesticide use data and indicators calculation

Eurostat will propose a separate Regulation on the collection and reporting of data on the sales and use of pesticides (additional meeting to be held in September /October 2005)

- MS will have to report use data to Eurostat (spraying record keeping for farmers mandatory from 1st January 2006 according to food traceability Regulation)

- Eurostat to publish a report within 5 years on the indicators calculated and sales/use data

but:

- worries concerning the degree of aggregation of use data for publication and on how these data could be used to refine ICM definitions to be included in the authorisation Regulation
- we are far from access to geographical mapping for (each) pesticide use

Key missing point:

Sound IPM/ICM definition. Tendency of the Commission :

- to limit cross compliance requirements under CAP and therefore to keep a weak definition of general IPM in the new authorisation Regulation and consequently to leave the door open for voluntary approach by MS to go beyond these general IPM requirements (agri-environmental measures)
- to leave for future revisions of pesticide authorisation Regulation, crop specific minimum ICM requirements, pending on comparison of crop specific use data from various MS with comparable crop cultivation conditions and scientific progress.

As a consequence, no concrete steps towards precautionary pesticide dependency reduction: rather use reduction of unwanted pesticides (pesticide optimisation according to industry ICM definition) than pesticide dependency reduction as requested by environmental NGOs and other allied stakeholders

Conclusions

1) Much lobby needed from NGOs and allied stakeholders

Now, at Commission level (DGs Env, Eurostat, SANCO, Agri):

- to ensure real incentives for farmers to convert to IPM/ICM aimed at pesticide dependency reduction and to organic farming
- to ensure public access to detailed use data, pesticides use geographical mapping and indicators calculations
- to reinforce proposed measures and their compulsory character

After publication by the Commission, at EP and MS levels (Council) to reinforce the text

2) Now and in future need for active NGOs participation in national as well as in the Commission Steering groups.

Session 2: Approaches and Experiences in Germany and the UK

The German approach

Wolfgang Zombach, Federal Ministry of Consumer Protection, Food and Agriculture

Title of the presentation:

Reduction Programme Chemical Plant Protection

The Background

Coalition Agreement of the Federal Government

...we want to develop a mitigation strategy for plant protection products through application, methodologies, technology and good professional practice.

European Commission

Towards a Thematic Strategy on the Sustainable Use of Pesticides

Elements of the Plant Protection Legislation

Regulations on the plant protection products

Regulations on the application

Regulations on the areas, where plant protection products are applied

Inspections

Regulations on the plant protection equipment

Regulations on the applicator

The Goals

Goals of the Reduction Programme

1. Reduction of the Risks associated with the Application of Plant Protection Products
2. Reduction of the Application-Intensity of Plant Protection Products
3. Reduction of the amount of goods exceeding the existing MRL's under 1 %

The actions

Actions of the Reduction Programme

- Treatment Index
- Demonstration Farms
- MRL's – Inspections (Domestic Production, Imports)
- Professional Knowledge (Advice, Information)

- Documentation of Applications
- Hot-Spot-Management
- Plant Protection Equipment
- Innovations (Integrated Pest Management)
- Ecological Farming

The indicators

German Plant Protection Index (PIX)

Treatment Index – Trends of the intensity

Maximum Residue Limits - Trends in the Number of samples exceeding the MRL

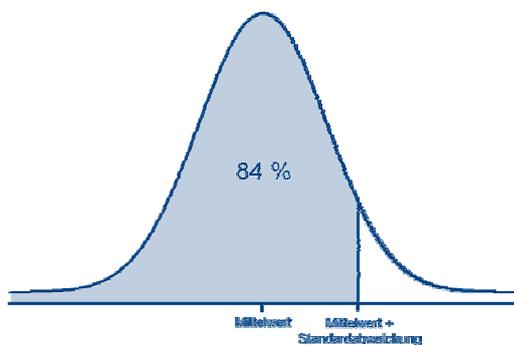
- Trends in the Number of samples with residues

Risk indicators – Trends of the risks

Treatment Index

Number of applications, taking into account reduced amounts and partial applications

Treatment index in a region



Source BBA, 2004

The support

Central Bureau

Reduction Programme Chemical Plant Protection

Federal Biological Research Center for Agriculture and Forestry

Information centre

Länder

Agriculture

Retailers

Industry

Government

Forum

Reduction Programme Chemical Plant Protection

Agriculture, Industry

Retailers, Consumers

Agencies of the Federal Government and the Länder

Environment, Nature

The Future Award

There is much to do. Let's do it together!

Thank you very much for your attention!!

Note:

The „Reduction Programme Chemical Plant Protection“ is available in German and in the near future also in English at:

<http://www.verbraucherministerium.de/index-0004C8B38BAD118380EA6521C0A8D816.html>

NGO Statement

Carina Weber, PAN Germany

Title of the presentation:

The German „Reduction Programme Chemical Plant Protection“, from the PAN Germany point of view

PAN Germany welcomes the programme explicitly! However, there are two sides of the coin.

The pros:

- 👉 The fact that there is a German reduction programme
- 👉 It has been developed in a participatory process
- 👉 It has been developed in an acceptable period of time
- 👉 The structure is clear and evident
- 👉 It includes targets, indicators and a good list of instruments
- 👉 It is accepted by important stakeholders
- 👉 It is accepted by the agricultural ministers of the Federal Länder who in March 2005 set the target to reduce the use of plant protection products by 15% within the next 10 years.

The cons

- 👎 Only a single (very conservative) time limit set
- 👎 No additional money
- 👎 A key instrument – to strengthen advisory services – will strongly (and even more than currently) be in the hands of the pesticide industry
- 👎 The programme is not sufficiently dedicated to the precautionary principle
- 👎 Only one clearly defined target

Indicator

Residues in food exceeding MRLs – To be reduced to < 1% (= infringements against food legislation) (= anyway task of a government)

Treatment frequency – Agricultural ministers of the Federal Länder decided to reduce the use of plant protection by 15% within 10 years – what does this precisely mean??

Risk indicator – Not available. No target defined. Difficult.

PAN Germany is monitoring the implementation of the programme at (at www.pestizidreduktion.de) The monitoring indicators are:

The indicators of the reduction programme

- % of food samples with residues above MRL
- treatment frequency index

plus

- **food samples with residues detected**

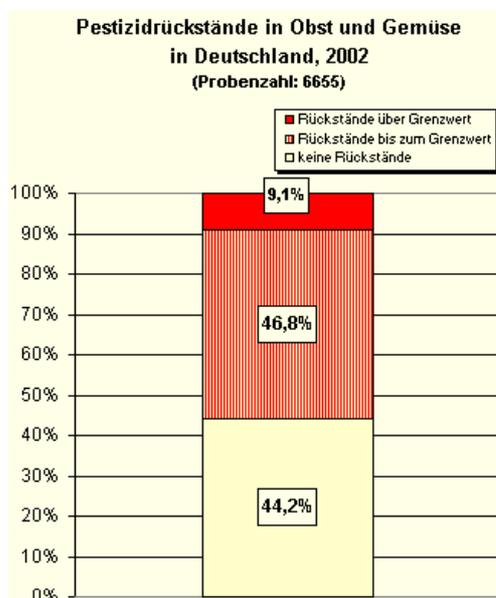
plus

- % of food samples with multiple residues
- pesticide residues in surface water and ground water

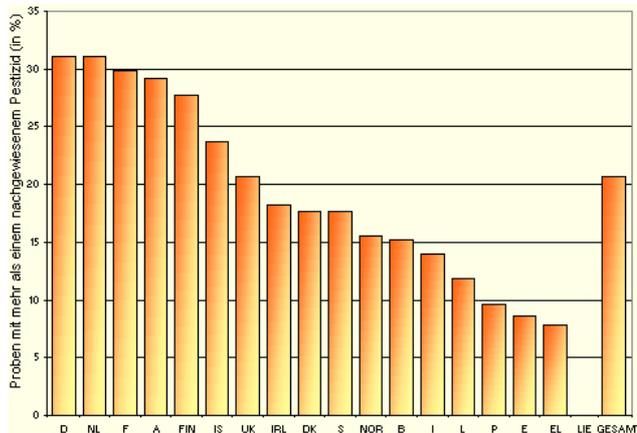
Why this broader view?

More than 50% of the (nationally grown and imported) fruit & vegetable samples taken in Germany contain pesticide residues.

Pesticide residues in fruit and vegetables in Germany (2002)



Almost every 3rd (31,1%) food sample taken in Germany contains multiple residues*



* Samples with residues of more than one pesticide in fresh (incl. frozen) fruit, vegetables and cereals, sum of surveillance and follow up enforcement sampling (EU monitoring report 2002, April 2004)

Conclusion

- PAN Germany welcomes the fact that there is a programme.
- However, from our point of view the philosophy of the programme does not go far enough beyond targeting infringements against legislation.
- Serious problems are not dealt with (e. g. multiple residues).
- The programme mainly aims at the most evident emergency issues (e. g. hot spots, infringements against legislation).

Therefore it presumably can not be expected that the programme will lead to a change of the plant protection system which then could fully result in an implementation of the precautionary principle.

The potential of the programme will depend on:

- ☞ governmental will (!)
- ☞ voluntary stakeholder contributions (e. g. food companies)
- ☞ pressure and contributions from NGOs
- ☞ the shopping list of consumers

The UK approach

Clare Butler-Ellis, PAN UK

Title of the presentation: *UK Policies and PAN UK's Activities*

Influencing Policy – main UK Policy and regulatory bodies

- Pesticide Safety Directorate
 - Pesticide Forum
 - Pesticide minimisation policy
 - Government consultations
 - Code of Practice for safe use of pesticides
 - National Pesticides Strategy
 - Royal Commission on Environmental Pollution - Bystander exposure
- Food Standards Agency
 - Residue minimisation action plan
- Environment Agency
- Health and Safety Executive
- Voluntary Initiative (Industry led)

Pesticide Forum – Stakeholder group

- Representatives of around 25 stakeholders, including PAN UK, farmers, research, ag-chem industry.
- Provide advice to the Government on developing, promoting and putting into practice policy on using pesticides.
- Promote practices and technologies that are most effective and practical for reducing adverse impacts of pesticides on the environment
- Improve the speed of knowledge transfer to the end-user.

Pesticide Minimisation Policy – has the following 5 strands

- The approvals process - setting of maximum dosage rates and number of applications

- Maximum Residue Levels (MRLs) for pesticide residues in food & surveillance monitoring carried out by the Pesticide Residues Committee
- Code of Practice for the Safe Use of Pesticides on Farms and Holdings (Green Code) - guidance on safe pesticide use for farmers and growers and makes clear that pesticides should only be used when necessary
- Research and Development into improved methods of forecasting pests and diseases, to achieve a more effective application of pesticides and to underpin integrated pest management programmes.
- The Pesticides Forum - encouraging responsible pesticide use.

National Strategy for Sustainable use of Plant Protection Products

- Been waiting for strategy to be published since 2003
- Consultation just closed
- Nothing ruled in or out – except a pesticide use reduction policy
- Only addresses environment – not health
- We want a National Strategy for Sustainable Pest Management

Bystander Enquiry

- Independent review of science and policy relating to bystander exposure – reports Sept 05
- Took evidence from very wide range of experts and stakeholders
- Likely to be very critical of Government and Pesticide Safety Directorate (PSD) in particular

however

- PSD have had continuing input after seeing draft report
- Publication date delayed until after National Strategy Consultation closed
- Royal Commission reports are often ignored

Food Standards Agency

Minimising Pesticide Residues -Action plan – 2004

- work with stakeholders to identify measures to provide the information the public needs about the regulatory controls and bodies that currently exist to protect consumer safety

- draw together documentation that provides examples of best practice and disseminating it to retailers and assurance schemes. The Agency will work with stakeholders on ways to measure the uptake of best practice and report back to the Board in the second half of 2005
- continue to work with government departments and NGOs to promote measures that may minimise residues and meet consumers' preferences
- Priority crops - apples, pears, potatoes, tomatoes and grain - because it is likely that reductions in pesticide residues can be achieved by encouraging good practice for these crops.
- explore options for reducing residues in imported food

Environment Agency

- Don't formulate policy but are very influential
- Managing Chemicals for a Better Environment - strategy focuses on chemicals that may directly affect the environment or human health through environmental exposure,
 - addresses particularly hazardous chemicals such as endocrine disruptors
- Position paper on Environment and Health
- Responsible for monitoring water pollution
- Give advice to pesticide users on best practice for reducing pesticides in water
- Are primarily interested in environmental impact reduction but are probably prepared to consider targeted use reduction

Health and Safety Executive

- Regulatory authority for non-agricultural pesticides and biocides
- HSE is also responsible for enforcing the law on both agricultural and non agricultural pesticides in locations where it is the enforcing authority
- Responsible for monitoring and investigating operator and bystander exposure incidents

Voluntary Initiative

- Accepted by the Government on the 1st April 2001, in place of a proposed tax on pesticides used in agriculture and horticulture.
- Only addresses environmental impacts

- Put forward by seven signatory organisations led by the Crop Protection Association. It will last for five years.
- An independent Steering Group directs the implementation process and reports progress to the Minister

The initiative consists of three key activities

- Research
- Training
- Communication and Stewardship

Problems with UK policy

- Current drive for LESS regulation, not more.
- UK authorities do not accept the need for a Use Reduction Policy
- Environmental impacts are given more attention than health impacts
- Public concern seen to be as a result of public ignorance and media scare stories
- Main regulatory body (PSD) is secretive and defensive
- Pesticide regulation split between a range of organisations
- Stakeholder groups like Pesticide Forum and Voluntary Initiative steering group have to accommodate wide range of views – from NGOs to Industry
- Emphasis being moved to Local Authorities – will this take the spotlight off Agriculture when this is still the biggest pesticide user

Other ways PAN UK can have influence

- Retailers driving pesticide usage in practice – policy change has limited effect
- Public concerned about residues – lots of coverage from media
- Strong desire for alternative techniques for pest management – government not sufficiently pro-active

Main PAN UK agriculture activities

- Continue to input to National Strategy whenever possible
- Continue to contribute to Pesticide Forum and Voluntary Initiative
- Big effort on identifying and promoting alternative pest management techniques

Questions and discussion

Question 1: *Regarding the Treatment Index and use data at farm level in Germany, how do you collect this information?*

The information is being collected through voluntary farmers' participation and some financial support from the federal government. The country was initially divided into 34 soil climate regions (but there are plans to reduce this number) and data are sampled from these soil climate regions, across crops and regions. The data from each individual farm are made anonymous. This was the only way to get farmers to agree to take part.

Question 2 *in the context for monitoring in Slovakia: What is your advisory system for promoting pesticide reduction? How does this compare between UK and Germany, do you monitor pesticide life cycle data? How do you finance this and do you employ the Polluter Pays principle?*

In Germany the government advice services are paid by the Länder taxpayers, independent of industry. In recent years this government advice services decreased. The advisory service aims to guarantee safe use and best IPM practice, while optimising farmer profit. Also there are some private industry advisors – this can be problematic if private and government advisors act on the same farm. Industry surveys, however, show that the vast majority of German farmers take their advice from government sources.

From the governmental as well as from the NGO point of view the existence of the German official advisory service was considered being critical for the success of the German pesticide reduction plan because the system in the Länder declined. Therefore German NGOs suggested a specific tax on pesticides to fund advisory services. But this suggestion was not accepted by all stakeholders during the development of the program. With cross-compliance now, there is far less staff available for pesticide and pest management advisory work.

In the UK an extension service, ADAS, was available to farmers until 20 years ago. It was privatised and is now very much reduced. Nowadays, 70% of the farmers are advised by pesticide distributors or representatives of the agrochemical industry, so there is no longer any real independent service although there are independent individual crop consultants. We need government to provide new independent advice, although there is sometimes government funding for the old ADAS remnants to advise on specific needs.

With view on Europe it seems to be the case that non-independent advice is rising generally across Europe.

Question 3 *about the power of retailers in the UK: Are they the fore-runners in pesticide reduction, with specific standards of Tesco, Sainsburys etc, beyond legal requirements?*

The retailers are driving pesticide reduction but it is the supermarkets with a smaller share in the market, like the Co-op, Waitrose, Marks & Spencer and others not the bigger ones. It can be really important for them to meet the concerns of their consumers. The main driver of the agenda is that nobody wants to be “named and shamed” {Editor’s note: “name & shame” refers to the system in which the UK government publishes names of supermarkets exceeding MRLs in the government food monitoring}.

Question 4: *I’m interested in how you do your benchmarking of “average farms” in Germany. In the UK, the Voluntary Initiative only looks at “best” farms, so there is nothing to compare against. How can you judge these are average farms?*

In Germany we can only benchmark “average farms” after some years. You need good extension service expertise to find how to select reference farms and then you need several years’ monitoring to judge their real status. Currently we have data on the treatment index for crops/soil-climate-regions once per crops. We need more than one survey per crop/soil-climate-region to achieve a data basis to get more valid assumptions for the “average farm”.

Question 5: *Will the German government send a clear message to other EU members to follow in the German footsteps? What are you doing about Bayer and the dumping of pesticides issue?*

The message could be that the German programme is right for Germany but each country needs to develop its own programme. The key is to start with the stakeholder discussion process and build support for the programme. There is no single blueprint, but some of the German elements could be used elsewhere.

Question 6: *From the consumer point of view, what about imports from central and Eastern European countries? For example, in Hungarian produce, 30% of the food exceeds MRLs. And there is also the problem of transport within Europe, for example peppers from Brazil imported to Spain and then transported to Hungary.*

From the German perspective, it is important to look at imported as well as domestic produce. It is important to talk to the importing retailers, to design residue inspection systems to focus on problem crops and take samples at border entry points. Countries need to design residue testing programmes and inspections to find crops that are likely to have residue problems.

Farmers' experience: Germany

Erich Jörg, Agricultural Public Service Centre

Title of the presentation: *Farmers` experience in Germany*

- **Statement on pesticide use**
- **Approaches for pesticide use reduction**
 - **pesticide quantity and quality**
 - **successes and failures**
 - **hot spot: „pesticides in surface water“**
- **Perspectives and the German Pesticide Reduction Programme**

Statement on pesticide use

The necessary amount of pesticides to be used is very difficult to calculate.

- It is strongly weather dependent, especially insecticides, fungicides and acaricides, and thus varies from year to year;
- It is strongly influenced by the crops/cultivars grown, which in turn is driven by the market.

The quality of pesticides and pesticide application has been improved and this process will continue.

Agricultural production systems also in future will depend on pesticide use, which has to be optimised and minimised.

Approaches for pesticide use reduction

1. Reducing the need for pesticide applications
2. Improving decision support for pesticide applications
3. Improving pesticide applications
4. Replacing pesticides by biological/biotechnical control
5. Improving spraying quality and handling of equipment
6. Landscape management (protection of watercourses by creating linear structures, e.g. hedgerows, buffer zones)

1. Reducing the need for pesticide applications (Preventive measures within IP)

- **crop rotation: lowers the risk of perennial weeds and soil-borne pests and diseases**

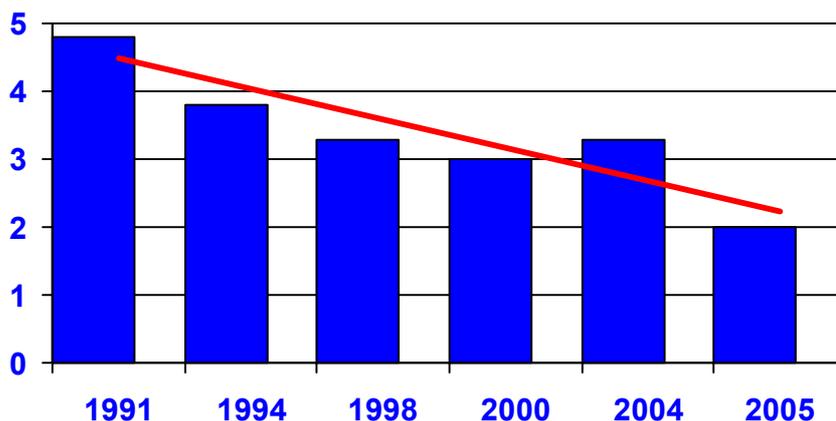
Successful: vegetables included into arable crop rotation \Rightarrow less insecticide, fungicide and residual herbicide use;

Limits:

- vegetable crops need irrigation (limited area)
- more and more crops no longer are grown due to economical reasons (e.g. leguminosae, sunflowers...)
- **cultivar choice: lowers the risk of fungal disease epidemics**
Successful: tendency to grow less susceptible cultivars in cereal and sugar beet production \Rightarrow less fungicide use (0,5-1 \downarrow)

Average Powdery Mildew Susceptibility

(6 most popular winter wheat cultivars in Germany; BSA-grading: 9=highly susceptible, 1=resistant)



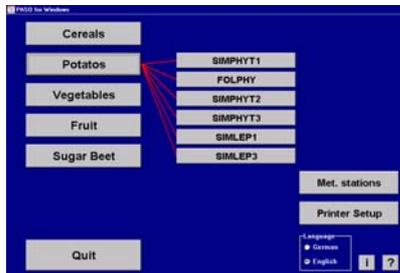
- The trouble is: *Septoria tritici* - susceptibility is 5.4!
- Further trouble is: Market partners sometimes prefer susceptible cultivars (quality reasons), e.g. contracts for pasta wheat; fruits; vegetables.
- Resistance may be overcome by the pathogens which may lead to increased fungicide use in some years, e.g. YR29 virulence of stripe rust of wheat \Rightarrow more fungicides in 1998 and 1999.

2. Improving decision support for pesticide applications

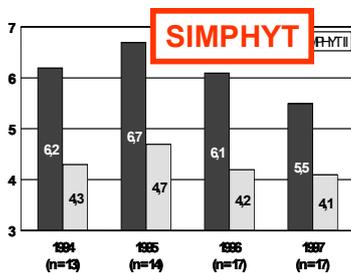
From calendar spraying to DSSs...

- action thresholds: pests and diseases in arables and fruit crops
- DSS: pests/diseases in arable crops

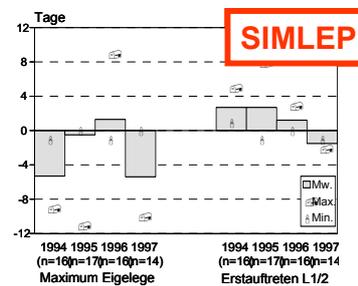
-DSS: pests/diseases in arable crops



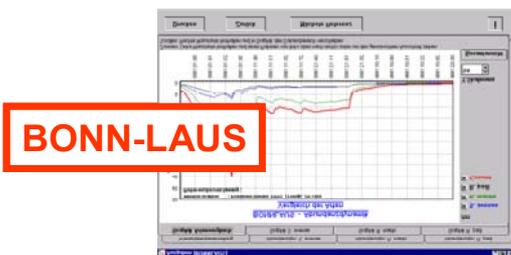
DSS help in estimating the necessity for pesticide use, reduce labour for field inspections and reduce fungicide and insecticide use.



..reduced the number of fungicide applications (av. -2) in potatoes



..stopped the joint fungicide - insecticide applications in potatoes and reduced number of sprayings



BONN-LAUS

..reduced the number of insecticide applications in cereals for aphid control in autumn and winter

3. Improving pesticide applications

- qualitative aspects: least toxic, least persistent, selective products chosen

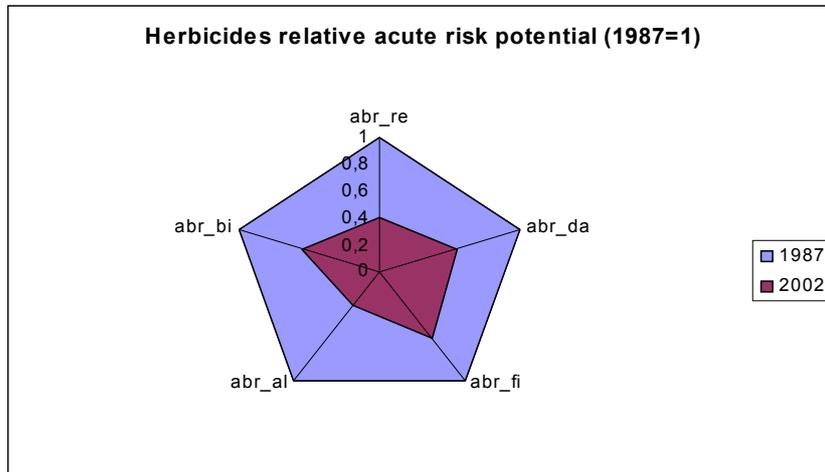
Success:

- no OC, OP↓, no harmful fungicides
- no persistent herbicides, no „W“-restriction acaricides ↓ in fruit production

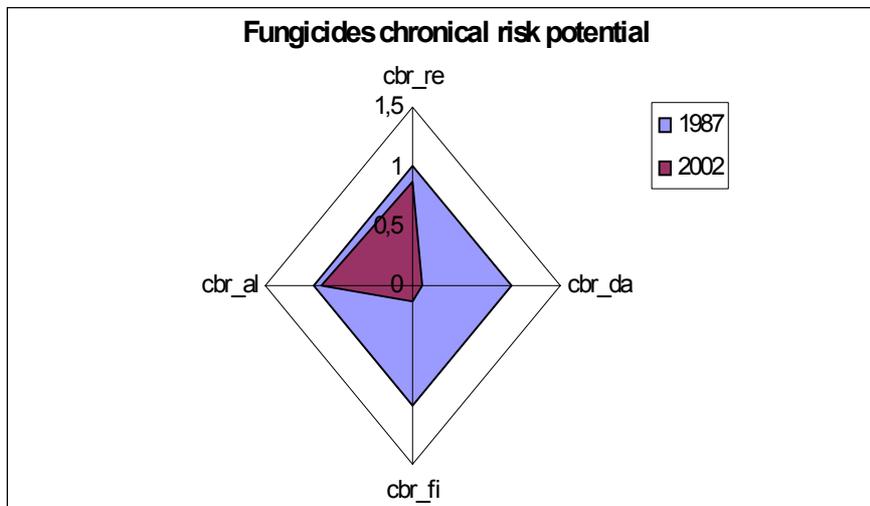
Problematic: sometimes increase in insecticide use

A few key pests ⇒ more minor pests

Improved quality of pesticides 1



Improved quality of pesticides 2



-quantitative aspects: reduced dosage rates

Success:

- herbicides 50-75% of registered dosage rate (arables)
- fungicides 66-80% of registered dosage rate (arables)
- additives to improve control efficacy when dosage reduced
- fruit production RP: „1 fold conc. on 1000 l/ha“=2/3 r.d.r.

- fruit production/viticulture: weed-free strips in established orchards

Problematic:

- rapid development of resistance due to replicated application of too strongly reduced dosage rates (Northern Germany: powdery mildew of cereals, some monocot weeds...)

Hot spot: „pesticides in surface water“

- improved spraying equipment mainly nozzle technique (drift reducing)
- regular maintenance and calibration of equipment
- cleaning of spraying equipment
 - Sprayer cleaning not on sites that are connected to canalisation.
 - New sprayers are equipped with clean water tank and cleaning devices.
 - Sprayer cleaning in the fields.
 - Successful extension and information campaign for arable farmers, to be expanded to fruit and wine growers.

4. Replacing pesticides by biological/biotechnical control

... is possible only on a limited scale

Successful examples are

- | | |
|---|--------|
| • biological pest control in glasshouses | +++ |
| • spider mite control by <i>Phytoseids</i> in orchards | + / ++ |
| • corn borer control in maize crops | + |
| • mating disruption for <i>Tortricid</i> moths in viticulture | +++ |
| • <i>Bacillus thuringiensis</i> - insecticides (vegetables, potatoes) | + |

Problems are

- biological control is too expensive
- control efficacy is less than with chemical control
- biological/biotech. control is restricted to specific conditions
- methods are available only for a few pests

Perspectives and the German Pesticide Reduction Programme

Progress towards reduction driven by...

- Improved cultivar resistance (arable crops, viticulture, e.g. "Regent")
- Improved DSSs (arable crops, vegetables)
 - plot-specific DSSs by employing GIS-technology

- Application technique (fruits, viticulture)
 - Sensor equipped sprayers
- Incentives should be directed to adoption of safe techniques and measures

Goals of the German Pesticide Reduction Programme will not easily be met, but with the help of the governmental crop protection services German farmers take all efforts.

Retailer and food companies' experience: Germany

Gerhard Osterman, Langnese-Iglo

Title of the presentation:

Responsible Iglo Application of Plant Protection, Contract Farming of Spinach

Contract Growing of Spinach - Geographic Position

Contaminants Control Cultivation Principles

- Iglo vegetables are from contract farming
- Iglo prescribes fields, sequence of crops
- Iglo provides
 - analyses of the soil status (nutrients)
 - advice for necessary supplements
 - seed materials
 - field inspection
 - advice for necessary treatments
 - suitable measures in case of need

Crop Growing and Requirements

Plant protection

Treatments

- manual weed control

Contaminants Control Treatment Principles

- PRO
 - sensory quality
 - reliability of supply
 - control of foreign bodies (insects, weeds)
 - sustainability (following widely agreed principles, see chart 13))
- CON
 - image

- chemical residues
- sustainability (emotionally)

Contaminants Control Treatment Principles

- Iglo in case of need
 - prescribes chemicals to be applied
 - preferentially one active principle per issue
 - quantum satis (often lower than recommendation of supplier)
 - method of use (distance from field ridge, brooks, disposal of residues, ...) concentrations, certification of spraying equipment (drift, uniformity of spray, ...)
 - controls residues
 - by own assessment of the degradation
 - by fixing a waiting period before approval
 - before harvesting for each field

Quality Assurance

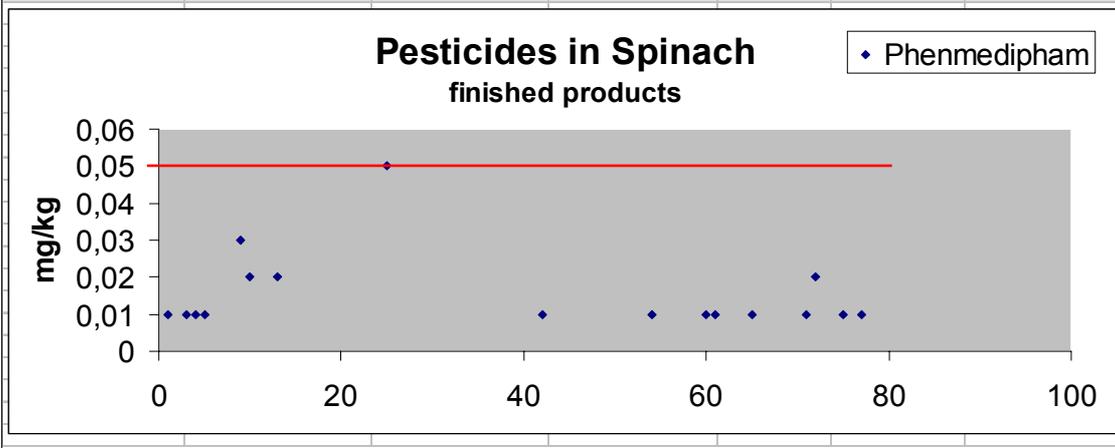
Growing – before harvest – residues control – result ok – overall check – result okay – harvest

Contaminants Control Experience with actual System

- internally
 - control of pests
 - satisfactory control of pests which are detrimental to the growth/quality
 - not all pests can be controlled
 - occasional problems with insects which may present a foreign body problem (which many consumer don't accept, claims for reparation, lawyers etc>)
 - control of residues
 - in all cases fully compliant with the legal requirements
 - in many cases below detection limit at the time of harvest

- quality of vegetables
 - in most cases the specified quality is met
 - in few cases the raw vegetables must be destroyed
- external relations - inquiries, complaints
 - authorities
 - no complaints for elevated residues ever
 - our system provides efficient customer response for
 - status requests in case of public issues
 - our system provides efficient consumer response for
 - occasional inquiries for residue status
 - complaints about insects as foreign bodies (treatment limited to plant protection, not to avoid foreign bodies, this is not accepted by several complainants)

Spinach - analytical results 2004						
Samples	85 finished products		2500 total			
Compounds	Phenmedipham	Dimethomorph	Pendimethalin	Metalaxyl	Cyhalothrin	Cypermethrin
legal limit mg/kg	0,05	0,1	0,1	0,05	0,5	0,5
> legal limit	0	0	0	0	0	0
not detectable	80%	98%	98%	99%	67%	89 %
multi residues	7 x 2 compounds		1x 3 compounds			



Contaminants Control sustainability - first steps

- Unilever sustainability initiative for
 - agriculture (fish-MSC, water)
- guidelines for key crops 1998
- pilot projects since 2000
- first results regarding contaminants control for spinach 2003

Sustainable Agriculture

Sustainable Agriculture Indicators

- Soil loss
- Nutrients
- Pest management
- Biodiversity
- Product value
- Energy
- Water
- Social and Human capital
- Local economy
- Soil fertility and health
- Soil loss

Sustainability Activities in 2002

- GPS mapping of all fields completed
- allows harvesters to find field/check field
- allows for ArcView/GIS use for other purposes (e.g. soil maps, risk assessment, optimised application of agro chemicals)

Pest management

Pest Monitoring + Strategy

Main pest species: Proportion of different insect species found on spinach field

- 54% - Silver Y moth
- 25% - Black bean aphid
- 4% - Beet carrion beetle
- 3% - True bug
- 7% - Beet fly
- 7% - others **Frequent Finding:**
 - Beetle (Ladybeetles), Moth, Larva;
 - 7 % others which are not associated with spinach like ladybeetles cannot be combat by pesticides;
 - Agricultural treatments to those are limited;
 - To avoid foreign bodies effective washing is necessary

Pest Management GIS-Analysis of landscape structure

- 2003 data show significant correlation of caterpillar abundance with percentage area cropped to potatoes
- No effects for other land uses

Alternative Pest Management, summary of results

- Use of Bio-Insecticides
 - Neem not effective
 - Bacillus thuringensis promising
 - dependant on climatic conditions
 - combination of Bt and pheromone trap
 - trap as forecasting tool
(number of trapped moths -> treatment)
 - Bt treatment is effective only at an early development stage of caterpillars

Retailer and food companies' experience: UK

Kevin Barker, Co-op

**Title of the presentation:
*Co-operative Retail's Pesticide Reduction Programme***

Policy Development Over the Years

- 1980's - Pesticide Usage Prioritisation
 - Farmcare - Crop Specific Guidelines for Peas
- 1995 - 1999 - Consumer & member concerns
 - Number of Independent Surveys
- 1999 - Code of Practice
 - Guidelines on pesticide use and pesticide residue minimisation
 - Prohibited and Restricted Pesticide Lists
 - Providing advice to improve controls
- 2001 - Green & Pleasant Land Launch

Current Co-operative Retail Pesticide Policy

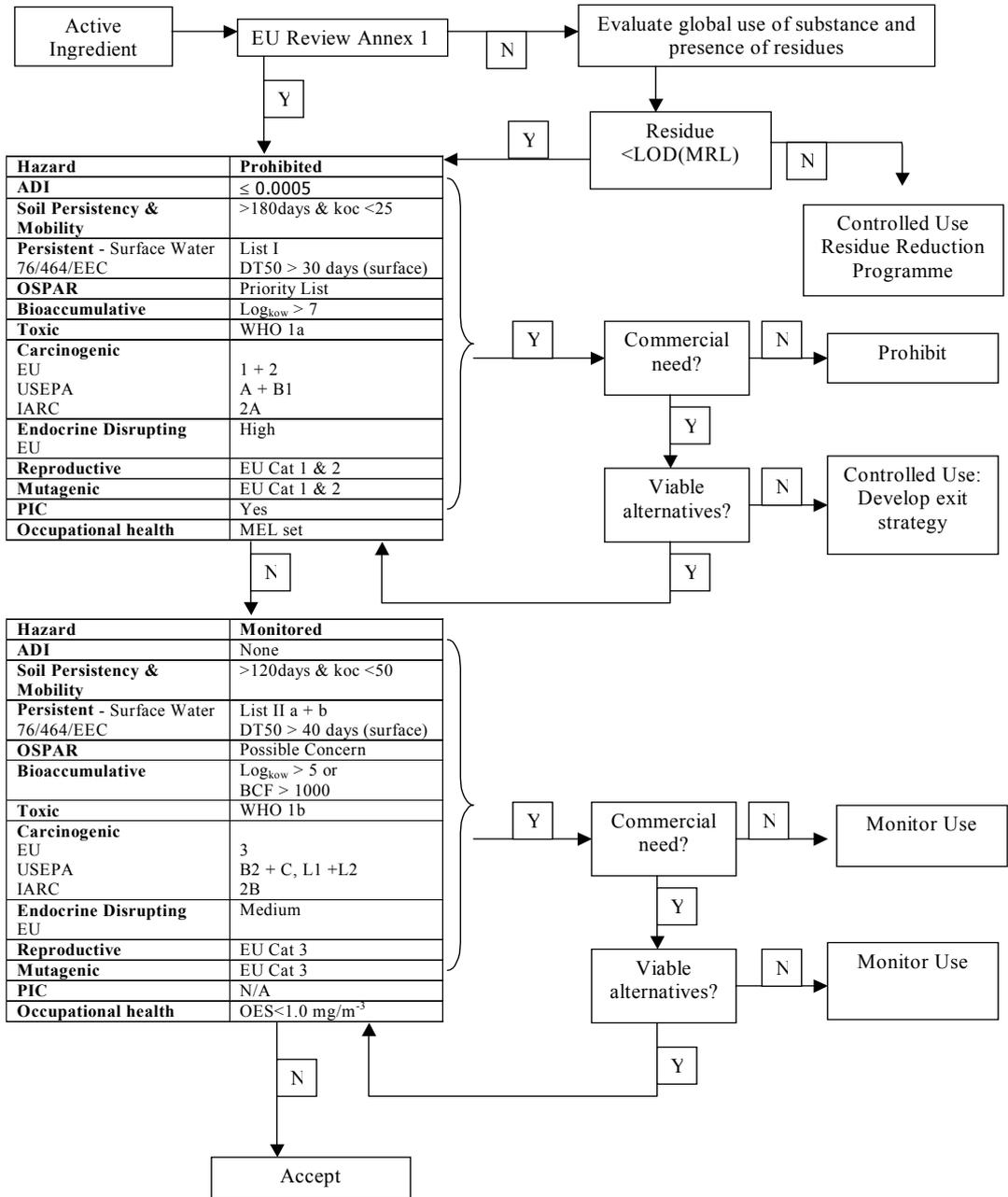
- Co-op pesticide advisory group
- Development of the pesticide lists through application of a hazard framework
- Triggers within the frame work include;
 - ADI Soil & water persistency
 - OSPAR Prior informed consent
 - Toxicity Carcinogenic
 - Bioaccumulation Endocrine disruption
- Levels are set for both the prohibited & monitored lists.

Co-operative Retail Pesticide Advisory Group

- Christopher Stopes EcoStopes
- Vyvyan Howard ACP member
- Charlie Clutterbuck ACP member

- Stephanie Williamson PAN
- Kevin Barker Co-operative retail
- Catherine Humphries Co-operative group
- David Gardner Farmcare
- Liz Wright observer (FOE)
- Input from RSPB and Environment Agency

Active Ingredient Decision Tree



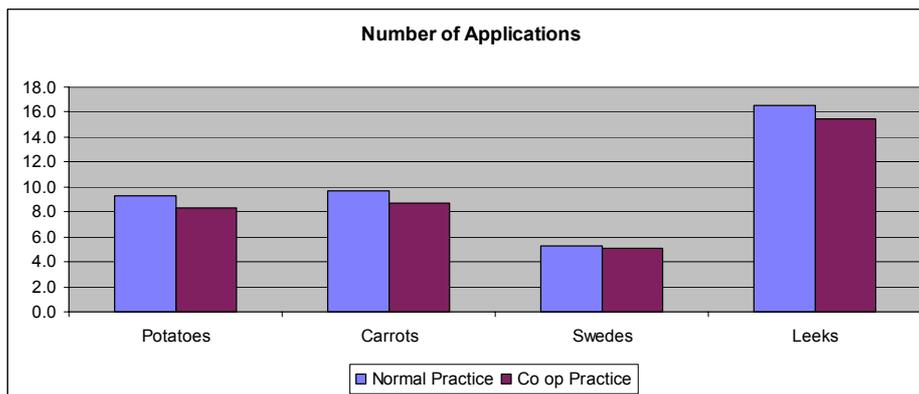
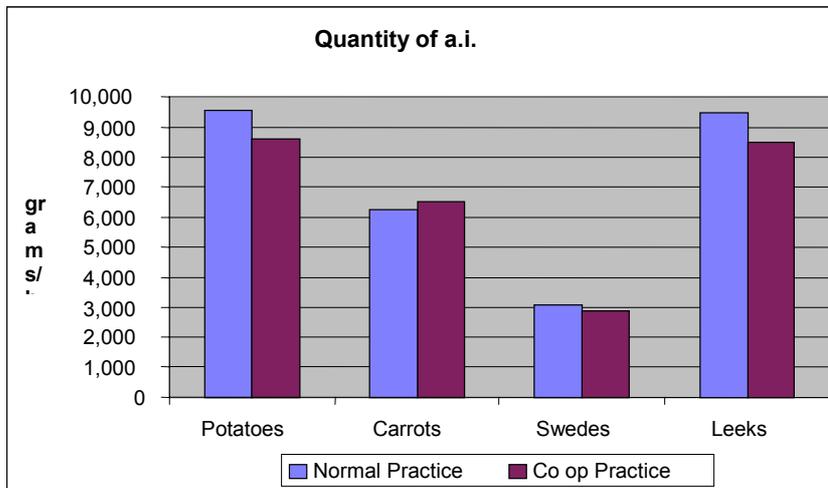
Hazard Triggers - Prohibited

Hazard	Prohibited
ADI	≤ 0.0005
Persistent (Soil) & Mobility	>60 days & koc<50
OSPAR	Priority List
Persistent - Surface Water - 70/464/EEC	List I - DT50 > 30 days (surface)
Bioaccumulative	Logkow > 7
Toxic	WHO 1a
Carcinogenic - EU USEPA IARC	1 + 2 A + B1 A + B1
Endocrine Disrupting - EU	High
Reproductive	EU Category 1 and 2
Mutagenic	EU Category 1 and 2
PIC	Yes
Occupational health	MEL set

Hazard Triggers - Monitored

Hazard	Restricted
ADI	N/A
Persistent (Soil) & Mobility	>60 days or koc <50
OSPAR	Possible Concern
Persistent - Surface Water - 70/464/EEC	List II a + b - DT50 > 40 days (surface)
Bioaccumulative	Logkow > 5 or BCF > 1000
Toxic	WHO 1b
Carcinogenic - EU USEPA IARC	3 B2 + C, L1 + L2 B2
Endocrine Disrupting - EU	Medium
Reproductive	EU Category 3
Mutagenic	EU Category 3
PIC	N/A
Occupational health	OES<1.0 mg/m-3

Policy Impact



Next Steps

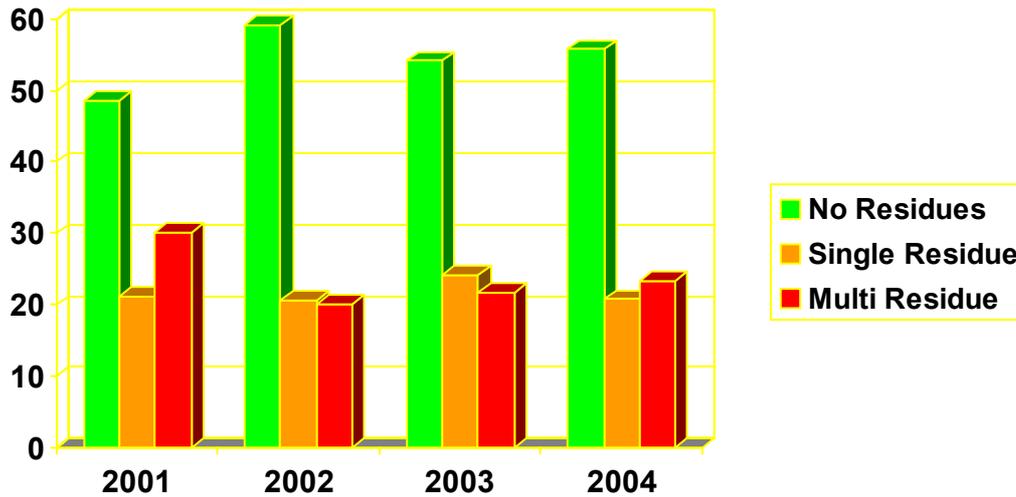
- Industry Liaison – Complete
- Supplier Liaison – End August 2005
- Revised Lists Issued (Prohibited, Controlled and Monitored) - September 2005
- Develop crop/country specific reduction plans to remove controlled pesticides
- Develop alternatives for those pesticides causing concern
- Ongoing review and development

Pesticide Residue Reduction Plan

- Thorough analysis programme in place for 5 years.
- Historical data utilised to identify key areas of concern.

- Work with suppliers and growers to identify opportunities to minimise residues.
- Internal and external projects and schemes.

Pesticide Analysis Results



Pesticide Residue Minimisation – Key Crops & A.I.'S

- Top Fruit
- Soft Fruit
- Lettuce
- Citrus
- Grapes
- Potatoes

- Carbendazim
- Dithiocarbamates
- Captan
- Vinclozolin
- Chlorpyrifos
- Iprodione
- Imazalil

Key Issues

- Too many industry/government projects on minimisation
- Duplication of residue analysis
- Multi residue screens – false sense of security
- Delay in results – Eu and National
- Lack of industry support
- Consumer and farmer lack of knowledge

Farmers' experience: UK

Simon Bowen, Solanum

Title of the presentation:

Pesticide Reduction Programmes, UK Grower Experience (potato & root crops)

Key approaches (I)

- Grower understanding of genuine customer concern regarding food safety & traceability (not just radical action groups!)
- Working with key retail customers such as Waitrose & Co-op driving **actual** pesticide reduction as opposed to pesticide justification
- Working closely with grower (grower groups, programmed production, agronomic support) is essential

Key approaches (II + III)

- 1) Prohibited pesticide lists (with justification)
- 2) Controlled/monitored pesticide lists (with full risk assessment)
- 3) Agreed reduction targets (usage & dates)
- 4) Product substitution (using lower risk actives)
- 5) Working towards Environmental standards audits such as LEAF Marque to give a greater overall perspective
- 6) Research & development focus for pesticide alternatives:
 - Non-chemical solutions (important cross-over from organic systems)
 - Decision support systems
 - Reduced rates of existing chemistry
 - New chemistry (products with lower environmental impact)

Pesticide reduction - examples

- Camera-steered inter-row cultivation in carrots
- Reduced linuron rates in conjunction with other lower risk herbicides in potatoes, weed burning
- Improved field selection/soil sampling, green manuring/bio-fumigation (caliente mustard) – reduced aldicarb use on carrots

- Decision support systems for potato blight control (reduced fungicide application and/or product substitution esp. mancozeb)
- Potato cyst nematode reduction - trap cropping (*Solanum sisymbriifolium*) Use of garlic
- Sulphuric acid (haulm destruction) replacement (haulm burning, haulm pulling, desiccant alternatives)
- Rhizoctonia control – field risk assessment (new soil test) rotation & crop type (set vs. loose skin)
- Wireworm – new pheromone traps to catch adult click beetles for improved field selection
- Aphicide use – re-appraisal of threshold levels with newer varieties
- Improved cold storage facilities, use of ethylene to replace CIPC as a potato sprout suppressant.

However, both short & long term strategies are important.....

- Instant pesticide bans not always effective and may force growers out of production
- Reduction programmes must be practical & economically viable. Can't allow reduction programmes to compromise product quality
- What ever the strategy, it must be measured & managed with growers

Pesticide Impact measurement

- Solanum Ltd use an Environmental Impact Quotient measure (Kovak et al 1992)
- Provides a crop-by-crop measure based a 1-5 rating in 11 categories (food safety, operator safety & environmental safety)
- Based on % a.i applied
- Allows us to 1) set target values 2) identify & use lower scoring actives 3) provides a focus for research

Pesticide reduction - measured success

EIQ Values				
(Solanum Potato grower group)				
	<150	150-250	250-400	>400
2003	22%	43%	13%	22%
2004	44%	36%	16%	4%

% of all crops

Questions and discussion

Question 1: *A slide on Co-op reduction initiatives shows an increase of pesticides in carrots.*

The intention was to remove the use of aldicarb and the alternative is used at higher levels. In wet conditions, nematicides need to be used.

Question 2: *Residues are a key issue, but it seems the data is not always sufficient.*

Testing results are not always clear. Most laboratories use multi residues screens, which will not necessarily look for the key active ingredients. If you don't look for the right active ingredients you won't find them. Multiresidues screens will give you 100 pesticides, most won't be used in the UK, possibly even on that crop. The delay in receiving residue testing results (from government testing programmes) can be 12 months, which gives no possibility of working with growers to deal with the problem.

Question 3: *Would it be cheaper or more expensive to buy spinach on the market rather than provide farmers with a high level of support from Unilever? How does the company work with farmer? Who takes the risks if the crop is rejected?*

It would be much cheaper to buy spinach on the open market. But the company is interested in quality control and the Unilever quality is much higher. It protects the Unilever brand to have this level of control. Supermarkets do not work this way with farmers. Unilever has about 4-5 crop specialists who work in the fields with the farmers, look at problems and give advice. If the crop is rejected, the farmer takes the risk, but is covered by insurance.

Question 4: *One could get the impression that new pesticides are better – or less toxic. Can we have this confidence in the testing system? There are no tests for endocrine disruption, immunotoxicity effects, long term immune disorders and other chronic effects. It is difficult to trace low dose pesticides in the environment.*

Huge progress has been made with pesticide tests, which are now more sensitive by a factor of 1000. If you compare results of indicators for the products, the quality of pesticides has improved.

The current regulatory system is state of the art. But there will always need to be improvements to a future regulatory system. In Germany we are discussing how to introduce endocrine testing. In the EU it is not there yet, but it is being discussed for future systems.

There is improved detection, but NGOs are convinced that the current analytical system can only “see” a part - there are big gaps in evaluating the impacts of residues, e.g. multiple residues are not taken into account in the current registration process.

Question 5: *If a farmer takes advice from the government crop advisers in Germany and has losses, who takes responsibility for the decision?*

The advisory system has developed about 40 decision guidance strategies for pests and fungal disease. The government crop protection services meet farmers, and can now provide advice via the internet as well and farmers can get quick decisions this way. Because the advisory service is paid for by the government, farmer acceptance is very high as it is perceived as independent. The more working time you invest, for example to small groups of farmers, the higher the success, which is what the service is aiming for. We accompany farmers to fields and discuss approaches, and so on. Now there is growing interest from other countries, for example from Poland and Austria. But in the end, the farmer takes the responsibility for the decision.

Question 6: *How about the advice in the UK?*

The UK needs independent advice.

Question 7: *What is the state of biological control in Germany, and do the blocks to greater availability stem from not enough research? Not enough non-chemical products registered for use? Psychological resistance?*

There are many different reasons for the small uptake. There are some pest problems for which are no biological control solutions available. On the other hand solutions can be effective, but the system farmers must use to apply them is complex. Sometimes there are geographical barriers to their use, for example in some areas mating control can work against vine pests, but in other areas the landscape is too steep to use the approach. The biological products are expensive by comparison with chemical control (can e.g. cost 10 times more than a pyrethroid). Sometimes it is not possible to get products in time, because of rapidity of outbreak.

While talking about the costs of biological products we need to consider the external costs of chemical control.

Question 8: *In UK, decision support systems aim to maximise gross margin for farmers and this might lead to increased pesticide use, what happens in Germany?*

Those working in extension services aim to find a balance rather than maximum yield. For example on winter wheat, we would calculate that a lower yield would earn more

because of the savings made on reduced application of fertilisers and pesticides. As a government crop protection service, we are also guided by the pesticide use reduction policy. We give advice to farmers that they are ruining their image, so it's not just about gross margins.

Question 9: *How does the retailer strategy look like in the national context from the UK growers experience point of view?*

Pesticide reduction is a long term target. We work with groups of about 75 growers. We used to work with 300, but this is too many to drive pesticide reduction. In carrots we are working for reduction and ultimate elimination of linuron. Working through the supply chain is effective, with the UK government we will be waiting five years for them to catch up. In the UK fresh produce industry has moved into supply chains, and this allows these processes to work, this is the leading edge of the industry.

Question 10: *We hear arguments that banning pesticides, reducing doses and being more selective will lead to resistance.*

There is a risk of getting resistance of pests against active ingredients, and you need a multi-faceted approach to avoid resistance. There is always a risk of getting resistance. The way forward is targeting pesticide reduction rather than pesticide banning. There is a need to develop alternatives, and open the space for bio alternatives to come forward. We need this space of options so that we don't lose the growers.

Question 11: *Are private initiatives more effective than government driven initiatives?*

From a retailer point of view, private initiatives are more effective for their specific customers, and it delivers. But it doesn't help nationally - governments need to recognise the problem in order to address national and international approaches.

Partnership of industry, government, NGOs, farmers and consumers is needed. The problem in the UK is that the government is so far behind that even if something is developed, most would say 'we're already there and you're playing catch up'. This might be why the government is dragging its feet. Retailers can only drive alternatives to a limited extent.

Independent or government advice should aim to deliver the same result. In the commercial supply chain, we still want to get pesticide reduction.

Question 12: *The EU is discussing reduced risk pesticides – do retailers in the UK have criteria to identify reduced/low-risk pesticides?*

We have employed a company to look at risk indices, using only publicly available information. There will be queries but it does give something that allows measurement. It can be discussed whether these are the best criteria, but it gives an orientation.

Question 13: *German consumer organisations had some success over the environmental impact quotient. How can success in reducing MRL exceedances be measured and can this be communicated to consumers and farmers?*

Co-op publishes their results on their website. In the UK only the Co-op and Marks & Spencers do this. However the issue is not only about exceedances of MRLs for pesticide residues in food but also about any residues, and Co-op is looking for total elimination. Co-op probably only gets 2-3 exceedances a year.

Question 14: *When comparing state and private advisory services, the results might be similar, but the difference in information availability is crucial. Private services will protect know-how, while the state will disseminate information, and therefore has wider potential to affect broad pesticide reduction.*

Agree but UK retailers are still ahead. There is duplication and it needs to be shared and made more accessible. Independent growers need to have access to this information and advice.

Question 15: *We understand why the private system works well in UK but in other countries the suppliers and retail trade is not so well organised. There we need state extension services. But budgets are always under pressure to cut, how is the extension service financed in Germany? Are there too many industry / government programmes?*

Industry and government each put money into their own projects. If the resources were pooled you would get better results more quickly. The key is sharing of information.

Question 16: *Crop rotation is an important aspect of good plant health care. But a rotation might need eight years, how do you deal with the gaps in being able to supply specific crops?*

For this reason retailers need to follow a whole farm approach, so farmers can work on other crops as well. Because retailers can see how farmers are working, the Co-op wants to take other crops from the same farm, even including grain crops. It is important not to focus on one crop.

Question 17: *It is important also to look at environmental impacts of alternatives.*

Solanum asked an expert to assess all indices that existed. Solanum wants to make an impact on the farm. The current system is not 100% perfect but it drives change on the farm, and it is practical.

Question 18: *Retailers are well organised in the UK – so are those represented here like a pressure group involved in policy making? In Germany retailers don't participate in this way. What would you suggest to get retailers to the table? And - retailers compete on price, not quality. How do you tackle this?*

The UK government has a 'name and shame' approach to residues, and that would quickly bring retailers to the table. They promote the brand name, and do not want to be shown to have more residues than other retailers. But it needs to be well managed – better than in the UK.

Fresh produce is quality driven, which gives a degree of premium – e.g. 1:8 rotation rather than 1:5 will make a difference. This payment goes back to growers to help drive the process.

Question 19: *Bio control should not be called too expensive, as pesticide use does not take into account externalities, e.g. cost on social security, worker health, impact of pesticides in water, and so on – what about using solarisation?*

Solanum works with growers in UK and Spain (Majorca). Solarisation can work in Spain but not in the UK. Biological control still has to go through regulatory and approval to show it is proven, tested and safe, and this is incredibly expensive. The products are slowly getting to the market and they are expensive. Not only are they expensive, but farmers don't want to adopt them because of the complexity of using them. Informing farmers takes time.

Question 20: *In Slovakia, retailers are very aggressive and don't care about practice, only prices. Retailers in the UK promised not to use GMOs there, but they will not promise this in Slovakia. We need more public awareness. In the UK people are aware of the influence of pesticides on their health. In Slovakia it's different.*

In Germany we had retailers on board, but they need to see a benefit for their involvement. Regulators need to show retailers and food companies that there is a benefit in working together. Important are financial benefits, more those referring to the quality.

Session 3: Experiences from other European countries

Denmark

Hans Nielsen, The Ecological Council

Title of the presentation:

Pesticide Use Reduction successes in Denmark

Why reduction of pesticide use?

The Action Plan emphasised that “as it is extremely difficult to determine an environmentally acceptable level for the consumption of pesticides, it is necessary for the sake of the environment to reduce pesticide consumption as far as possible.”

Goals of Pesticide Action Plans in Denmark

- to protect consumers and land workers against health risks and harmful effects resulting from the use of pesticides and from ingestion of pesticides through food and drinking water
- to protect the environment against harmful effects from pesticides, both direct and indirect, in farmland, water courses and affected natural habitats.

Concrete goals

In 1987: 50% reduction in pesticide use

In 2005: A Treatment Frequency Index less than 1.7 before 2009

Definition of Treatment frequency

The treatment frequency index expresses the average number of times per year agricultural land can be treated with the sold quantity of pesticides, assuming that the pesticides are used in the prescribed normal dosages.

The Bichel Committee states that the treatment frequency index is regarded as the best indicator of the burden on the environment.

Use in 1994 and targets at farm level for 2002 and 2009

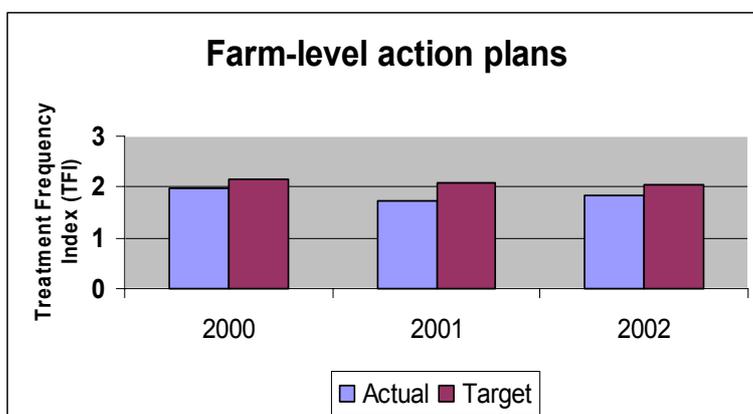
Treatment Frequency Index

	1994	2002	2009
Winter wheat	3.20	2.30	1.75
Spring barley	1.80	1.40	1.30
Winter rape	2.50	1.55	1.55
Maize	1.30	1.20	1.05
Coach grass control	0.20	0.30	0.25
Average for all crops	2.51	2.09	1.77

Extensions service and plant protection groups

- Advisory activities by farmers organisations
- Plant protection groups
- National Field Trials show an increase in the farmer income by lowering TFI

Farm-level actions plans



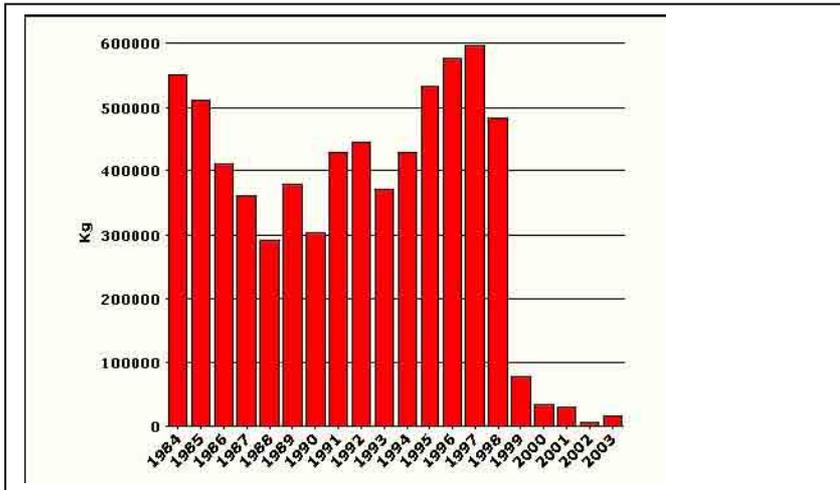
The Bichel Committee

- Task: Assess the consequences of phasing out the use of pesticides
- All relevant stakeholders participated
- Unanimously conclusion: The TFI could be reduced by 30-40% in 5-10 years without significant costs to the farmers and the society

Approval scheme

- Only 78 out of 209 active ingredients approved
- Prohibition procedure for especial hazardous and harmful pesticides
- Ban of EU-approved pesticides like esfenvalerate and isoprotruron

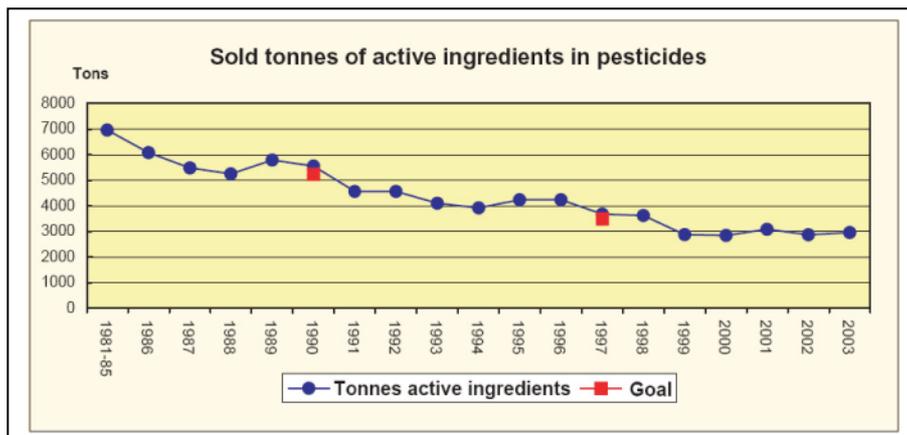
Carcinogenic pesticide use in agriculture in Denmark



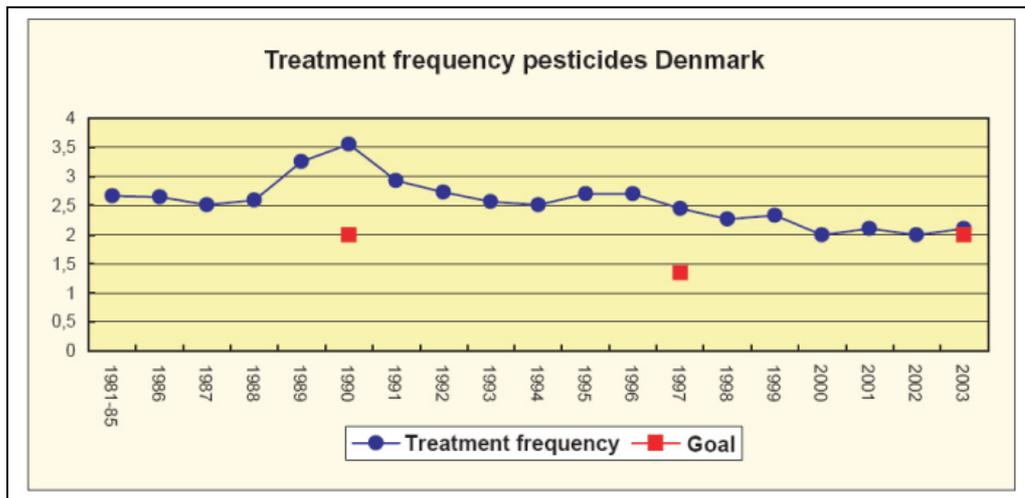
Pesticide taxation

- 54% tax of wholesale price for insecticides and 34% for the rest
- 85% of the tax returned to farmers through funds
- Effect: 5-10% reduction in pesticide use

Pesticide use in tonnes of active ingredients



Pesticide use in Treatment Frequency Index



Example of costs and yields using fungicides

	TFI	Fungicide price Euros/ha	Number of treatments	Yield Hkg/ha	Net yield Euros/ha
Denmark	0.85	40	2	84.1	740
Germany	6.27	250	4	88.2	530
Sweden	1.58	75	2	88.6	751
UK	3.55	130	4	90.7	650

Conclusion

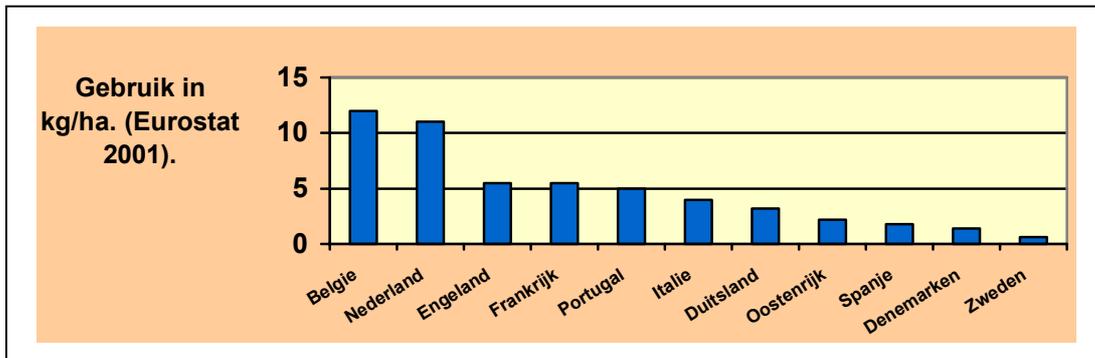
Pesticide use reduction:

- reduces health risks
- reduces harmful effects on the environment
- improves the farmers economy

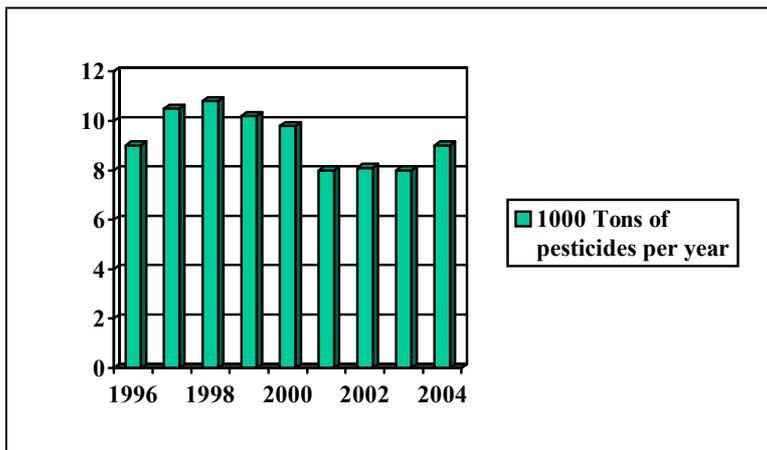
The Netherlands

Hans Mulleman, Natuur en Milieu

Title of the presentation: *Holland, land of flower bulb and pesticides*



Use of pesticides in The Netherlands



Government action

Several attempts to reduce pesticide use:

- Multi-year crop protection plan (95-2000), 50% reduction target not met;
- No-unless principle and ICM (2000-present) stuck in mud of self-regulation.

What did we learn most?

- Focus on individual farmer
- Focus on concrete crop practices
- Regulate and enforce

ICM proven strategy

- Crop-wise prevention strategy available
- Proven since 20 years
- Pesticide reduction up to 90%

ICM strategy: hierarchy of methods & practices

1. Prevention
2. Technical methods for crop growing
3. Pest-warning and decision-predicting systems
4. Non-chemical plant protection
5. Chemical plant protection
6. Emission reduction

1. Prevention

- Disease-free starting material;
- Cleaning of equipment;
- Choice of soil (organic matter/clay);
- Crop rotation frequency;
- Increasing biodiversity of soils;
- Etc.

2. Technical methods for crop growing.

- Use of resistant varieties;
- Increasing plant distances;
- Registration of unbalanced soil areas;
- Crop planning for mechanical weeding;
- Etc.

3. Pest warning and decision-prediction systems

- Information on presence of pests by scouting, sensors, or on-line services;
- Connection to decision-supporting plant protection systems;
- Etc.

4. Non-chemical plant protection

- Mechanical weeding;
- Biological control/ refuges for natural enemies of pests;
- Nutrient management;
- Use of non-synthetic products;
- Etc.

5. Chemical plant protection

- Use of selective chemicals;
- Spot-wise use of chemicals or 'on-target';
- Chemicals combined to prediction system;
- Chemicals on recipe for calamities;
- Maximum total dosage in kg/ha.year;
- Etc.

6. Emission reduction.

- Use of air-jet spraying equipment;
- Spraying in absence of wind;
- Non-spraying zones;
- Etc.

Conclusion

There is no information gap,
no lack of money,
neither of techniques;
but,
the problem is a lack of strong incentives at the farm level.

Belgium

Esmeralda Borgo, Bond Beter Leefmilieu

Title of the presentation: *Experiences in Belgium, Federal pesticides reduction program*

Federal program to reduce PPP/biocides

- Legal basis : law on product standards (21/12/98)
 - 29/04/03: Art. 8bis added:
 - *National* pesticides reduction program, to be revised every 2 years
 - Must include clear objectives
 - Development of an indicator
- Both PPP as biocides
- Only federal while regions and even communities have a lot of competences on PPP (no national program)
 - The obligation to set up a co-operation agreement between the federal government, the regions and communities has been removed from the law (22/12/03)
 - Many aspects of PUR can not be included
 - A working group was established between these authorities: co-operation on a informal basis

First program (12/04)

- Objectives :
 - To reduce the negative impact of the use of PPP for agricultural purposes with 25% no later then 2010 in comparison with 2001
 - To reduce the negative impact of the use of biocides and of PPP for non-agricultural purposes with 50% no later then 2010 in comparison with 2001
 - “No scientific basis...” - objectives will be “refined” before the end of 2006.
- Implementation under supervision of a steering group (stakeholder group, including 1 representative of a environmental NGO)

Choice of indicator (PPP)

- Objective: the reduction of the **impact** of pesticides
- Indicator: PRIBEL
 - Pesticide Risk assessment Indicator for BELgium
 - Use data will be based on sale data
 - Takes into account: risk for consumers, applicators, birds, bees, water organisms, earthworms and leaching to groundwater
 - Depending on situation, some of these indices may be considered as negligible (“expert judgement”)
 - Aggregation of the risk indices into a global risk indicator
- Resistance by all stakeholders (except NGO's) to calculate the Treatment Frequency indicator

Most important measures (PPP)

- Mandatory record keeping (01/01/06)
- Split up authorizations PPP for professional/agricultural use - non-professional use
- Program to reduce pesticides residues on food
- improvement of technical measures during use of PPP / application equipment
- Website with information on products, licenses, licensees
- Creating awareness
- Transparency
- Tax based on risk (R-phrases)
 - To be paid in a fund
 - Budget used to implement pesticides reduction program
 - Special council to approve projects (50% of the members are from industry, 50% public authorities, no NGO's)
- Working groups to set up a pesticide reduction plan for several cultivations
 - Cereals, maize, beet, fruit,...
- Licence for pesticide operators (+ education requirement)

Conclusion

- First program lacks ambition but is at least a first step in a new process
- Legal basis (law)
- Co-operation needed between federal government, regions and communities
- Involvement of stakeholders from the beginning and during implementation:
 - positive
 - but also fear for participation trap (e.g. choice of PRIBEL indicator)
 - Even when there is a general agreement between stakeholders = no guarantee for implementation (e.g. pesticide use reporting)

Austria

Helmut Burtscher, Global 2000

Title of the presentation: *Pesticide Reduction Program*

The Goal:

- Reducing Pesticide Residues

The means:

- MRLs, lowered step by step
- Product control by supermarket
- Suppliers are made responsible
- Change plant protection practise

The means: MRLs, lowered step by step:

Phase 1 – 500g

Phase 2 – 1000g

Phase 3 – 2000g

Phase 4 – 4000g

The means: Product control by supermarket

Random sample – Analytical report:

- Zero residues – Producer being informed
- Residues not exceeding MRLs – Producer being informed
- Exceedence – Problem analysis, intensive monitoring, 2nd exceedence: ban
- Exceedence + acute toxicity – Product is removed, ban, problem analysis

The means: Suppliers made responsible

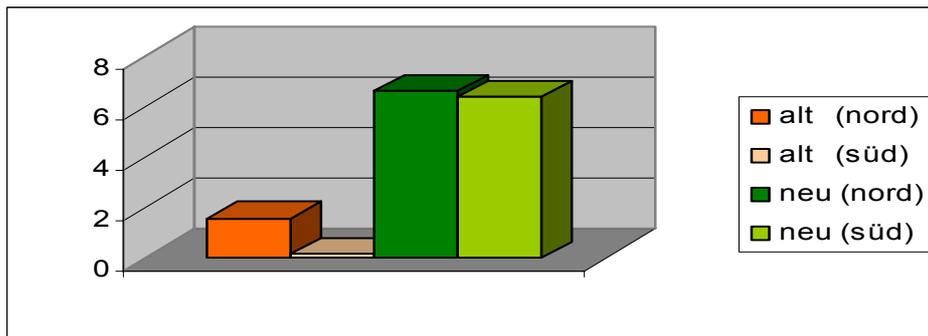
The means: Change plant protection practise

Alternative pest management in field trial tests

Project of the Wiener Gärtner (LGV) in Cooperation with GLOBAL 2000: „Contans WG im Salatanbau“

Suppliers initiate test trials for their own

Optimized application-technique reduces environmental impact and residues.



Conclusions:

- + Pesticides became a criterion for marketing of Fruit and Vegetable
- + Feedback for producers about residues on their crops
- Only Fruit and Vegetable are in the scope of the program
- Reduction of pesticide **use** only via **residues**

Questions and discussion

Question 1: *In the Danish presentation, where did the figures come from for German farmer fungicide use of 250 Euro/ha on winter wheat – these figures are wrong and far too high. The UK made the same observation about the figures used there.*

The figures come from the Danish Agricultural Advisory Service. They are examples of treatments frequencies in different countries based on the advisory services. In 2000 The Danish Agricultural Advisory Service has asked their colleagues in Germany (Kiel), Sweden and UK about their advices to farmers¹.

Question 2: *I understand that there have been various initiatives for use reduction but how would you judge the success from the current point of view?*

In the Netherlands the government has taken some action to stimulate a national discussion on pesticide use reduction, but farmers have neither been involved nor have they got enough advice. After their efforts in the 1990s, there was no pesticide reduction. In 2000 a new attempt was launched, and government, industry, NGOs and farmers agreed that a focus on the farmers is needed to help farmers use best practice, and that the approach should not be voluntary. They introduced the 'no-unless, principle', this means that all other practices available should be used before chemicals are applied. NGOs joined the system, and signed a covenant focusing on Integrated Crop Management (ICM) and farmer regulation. The approach was accepted in 2000. In 2003 again there was a change: farmers no longer wanted the approach to be regulatory, and this then was agreed by the parliament. At that point Natuur en Milieu pulled out of the group, and started focussing on the market. Meanwhile regulation remains, and farmers keep a log book, but best practice is no longer obligatory. An ICM strategy has been developed for every crop by the ministry of agriculture, with a six-step approach (see slides). The extension service was privatised in the mid-1990s, and farmers now have to pay for advice. Industry has taken its place, and 85% of farmers get their information from pesticide industry.

¹ The figures in the presentation and in the booklet "*Danish Pesticide Use Reduction Programmes – to benefit the Environment and the Health*" were disputed. The information about the pesticide treatment frequency in Germany in the booklet comes from the public Advisory Service in Germany (Landwirtschaftskammer in Kiel). The treatment frequency in Table 1 at page 8 in the pamphlet is the total use of fungicides and growth regulators. The Danish farmers have a treatment frequency at 0.85 in fungicides and don't use growth regulators. The advice in 2000 from the Landwirtschaftskammer in Kiel to German farmers gives a treatment frequency at 6.27 (3.27 in fungicides and 3.0 in growth regulators). The UK farmer advice gives a treatment frequency at 3.55 (1.8 in fungicides and 1.75 in growth regulators).

These details were not shown in the table due to lack of space.

Question 3: *Please say a bit more about the national and regional level of the policy in Belgium*

In Belgium, problems were exacerbated by having regional and national authorities. In 1998 the government passed a law to ensure that pesticide reduction is a federal approach, but a new minister removed the obligation for a national programme. Since 2003 there has again been cooperation, and the next pesticide reduction plan is due in late 2006 or early 2007.

Question 4: *Regarding the Austrian Global 2000 indirect approach that focuses on residues: can you have fewer residues but more pesticide use? What about environmental aspect?*

You could find examples where this might happen. But across the board taking all crops and vegetables affected by this programme, it is not likely. Our experiences tend to show that many initiatives start because of this approach to focus on residues. It forces farmers and growers to be more aware.

Question 5: *In Austria, did Global 2000 try to include competent authorities in their work, and how do you cooperate with farmers?*

The Austrian authorities were not used to this approach. Global 2000 presented the programme to suppliers in 2003. The environmental minister was called by the supermarket chain to ask whether the Ministry was working with an NGO. The authorities tried to get producers oppose the approach, then, but to some extent the authorities have been convinced. Producers see it as a good opportunity.

The biggest supermarket chain now does pesticide analysis regularly for its suppliers. The campaign led to more residue analyses last year.

Question 6: *In Belgium, how was the figure of 'reducing negative impacts by 25%' measured?*

- The government has calculated risk.
- These are 'effect' indicators. Risk is related to exposure. Better are treatment frequency indicators, which are more transparent.
- The Belgian situation assumes that there is a 25% reduction in the negative impact of pesticides, but there is no scientific basis for this: it is too aggregated and mixes different factors. It requires a better measurement of reduction.

Question 7: *In Denmark, how is the 85% of funds returning to farmers distributed?*

These funds support farmers through lower taxes. It is not linked to individual farmers, and organic farmers can also have access to the funds.

Session 4: Creating an agenda for success

Topics and questions raised during the discussion

Good approaches.

Do we need a harmonised approach in Europe? Or national strategies?

National approaches are important, but also need European data. Common understanding of progressive IPM is necessary.

Examples of national strategies that will reinforce adoption of an EU wide reduction strategy. What will support the existing progressive measures in the Commission, and what will help it go further?

Limited resources mean it is important to pull together European good practice in Europe. Need more exchanges like this.

Practical advisory service, information and documentation for farmers is essential.

Denmark – tax, Germany – PUR elements, Austria – consumer approach: documenting these can be the basis of presenting possibilities to other governments.

Good Agricultural Practise requires both the adoption of voluntary measures and to identify regulatory measures such as tax.

For safety reasons, need MRLs, national initiatives can show how to improve and learn from each other, missing the individual farmers' perspective. Lower pesticide residue levels, but leave open ways for farmers.

Important to orientate changes to the CAP, and increase support for ecological agriculture.

It is important not to have a single overall Brussels approach, it is too far from the farmer. Need to have national programmes as well to achieve reduction.

Brussels has to set a minimum framework for the issues, particularly for countries that are less progressive, and where consumers are not so aware. Need to support a strong thematic strategy, and other countries can go further.

Would be an advance to pull together a transparent framework: existing European standard legislation.

European level – rural development programme, 10 months ... decoupling 'no health or environmental damage', ICM as a minimum. Financing of the control of pesticides could be driven by European harmonisation to avoid anti competitive actions. Environmental pollution doesn't respect boundaries.

Two key things for success are a tax for an independent extension / advisory service and an incentive to farmers for the conversion of natural resources.

Pesticide use could be reduced by 40 % in Denmark (Bichel report) without economic loss for farmers. This would encourage farmers to change their production.

Need to clarify GAP – pillar 2 funding is limited so for agri-environment schemes need to establish that GAP is a goal in this context.

Have to reduce residues AND total use, don't separate health and environmental indicators.

Quality of advice is important, not just free advice.

Noted link between what is happening between organic and conventional farming, in the UK these two areas operate in different spheres, and exchanging information on pest management would have benefits for conventional farmers. Both need pest management strategies. There's an organic action plan on the table as well as a pesticide action plan.

Need to take into account the overall use of agricultural pesticides. In Germany there's a problem with 19 action points, organic farming is part of the process, but need to look at all different approaches.

Big picture is we're losing the war. Herbicide use is increasing. Revision of the authorisation directive that constrains the ability of MS to take different action and won't allow MS to get rid of undesirable active ingredients. Lobbying for a tax may be the best thing to do.

Bichel report does not cover fruit and vegetables.

Need to be more precise on demands: each measure has to be targeted. Need to take these ideas and include them into a strategy.

What do we expect from each measure?

Economic incentives (tax) have to be part of the strategy, focus on this as the key measurement.

For Slovakia, it would be helpful to teach advisers from new MS – EU knowledge database on pesticides. Practice oriented solutions to help advisers.

Advisory service is a key instrument – need to defend it. Cross-compliance is pushing down services, reducing people available. Is paper work more important than farm advice?

Tax would be a link for supporting advisory service.

Focus is essential. What is the most central element that will bring about change?

Pesticide tax at national levels to finance independent extension service: but we are losing the battle at EU level as NGOs.

Companies less interested in tax!

Problem is the distance of the consumer from the field. Need to find a way to teach the consumer that fruit and vegetables do not need to be perfect, and that small defects can be accepted as normal.

Consumer education, and consumerism –

Animal respect – they are also treated with pesticides.

Need to deal with IPM more cleverly: share more ecological solutions.

Austria: the pesticide campaign was visible, but need to communicate more what is being done on MRL strategies, this is because they don't want to allow supermarkets to make publicity about the steps they are taking.

Where can we get financial resources to improve advice systems. Is it possible to install a system such as for energy: should farmers share production information to see what they are spending on inputs ... energy audits – pesticide audits.

How can farmers be motivated to change behaviour: knowledge, interest (financial, legislative). Financial motivation for farmers – pay fee for using pesticides or receive support for farming environmentally could work. In one year subsidies led to 75% of increase in organic farming as a result of subsidies. But would they change back once subsidies disappear?

Farmers would respond to public awareness.

Public awareness takes the longest time to get results.

Should we consider changing the worst elements of pesticide use, or the whole range of pesticide dependence? What is the focus of the PUR scheme. Response – should focus on the whole system. Question is how can CAP change practice? Is it possible or are market forces stronger? Cross compliance won't work with farmers that don't need CAP funds.

Bear in mind non agricultural use because it is increasing more rapidly than agricultural use. Pesticides used to control weeds in urban areas can go directly into drainage and water systems.

Regarding insurance against crop losses: there might be elements to consider that are relevant.

In Austria farmers ask for insurance, but insurers won't always consider covering farming areas (depending on risk). In order to introduce changes, it is important to provide an insurance that will help farmers feel safer and so take risks. It may not be insurance, but something similar is needed for this reason.

Pests are the worst threat for the farmer: need solutions to protect farmers from the consequences of pests, such as an insurance for losses arising from pests. Insurance – farmers bear a substantial risk, but solving insurance problem is difficult because of marginal harvests (i.e. harvest 90% or 80%, who would cover the difference). Insurance

doesn't mean that insurance company takes 100% risk, but cover losses once they fall below a certain level, and depends on steps taken by farmers.

Exchange of information is crucial: NGO, administration, advice, farmers.

More research to provide pest management solutions and get these to farmers.

Cross-compliance battle has been lost, but it is a useful tool to improve GAP and there will be another opportunity in 2007. Just a basic crop rotation would have a big impact on pesticide use reduction.

Note importance of looking at whole system or individual problems. Need to define what cross compliance can do within CAP. There are things that CAP can't do.

Everyone is concerned about agriculture, but need to involve farmers in the discussion. Without CAP there is no farming.

Pesticide use reporting is important for PAN and there will be follow up.

October – further meeting planned to discuss NGO strategies in the light of the thematic strategy. From the PAN E point of view, there could be a strong voice in at least two of today's discussions: define IPM standards and make them part of cross compliance, collect studies and propose a tax scheme. There are already EU examples and this could influence Brussels.

PAN E organises annual meetings. The next meeting will be organised in such a way to continue this discussion. PAN E will facilitate a discussion on issues without overwhelming each. Reorganise PAN E working groups so that those interested in different areas can work in smaller groups to orient their focus.

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