

The VI Pilot Catchment Project

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Background

THE VI PILOT CATCHMENT PROJECT

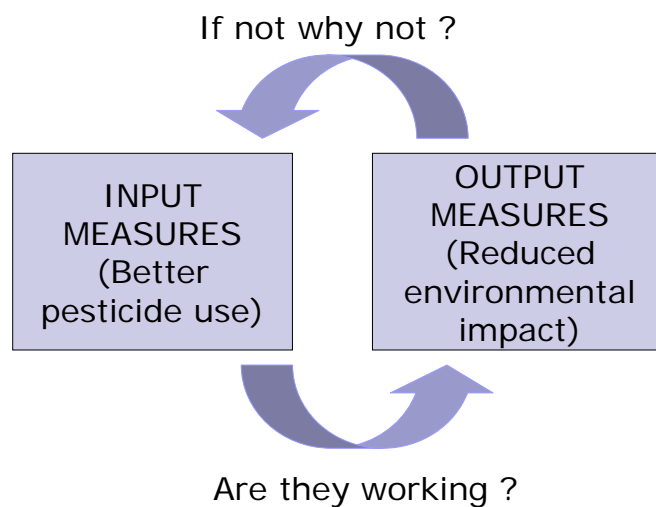


- Part of national VI project
- 6 pilot water supply catchments with known pesticide problems
- 4 rivers, 1 groundwater, 1 upland
- National steering group (joint CPA/UKWIR funding)
- Local catchment groups led by farmers
- Identify measures which can demonstrably reduce pesticide levels
- Develop national toolbox approach that can roll out lessons to other catchments



Testing methodologies at catchment scale

AN INPUT/OUTPUT FRAMEWORK





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IF USED CORRECTLY MOST PESTICIDES DO NOT CAUSE WATER PROBLEMS



- There are over 300 different pesticides licensed for use in Europe
- Only around 9-12 are regularly found in water at levels of concern
- But these cause serious problems which need to be addressed



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PESTICIDES REGULARLY FOUND IN WATER

■ The top nine

- IPU*
- Mecoprop
- ~~Diuron*~~
- MCPA
- Simazine*
- 2.4.D
- Chlortoluron
- Dichlorprop
- Atrazine*

■ and some new ones

- Carbetamide
- Propyzamide
- Metazachlor
- ??????

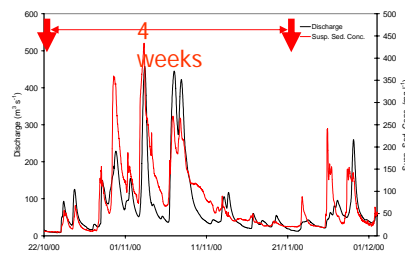
* Already on WFD Priority Substance list

Atrazine simazine and diuron approval being withdrawn

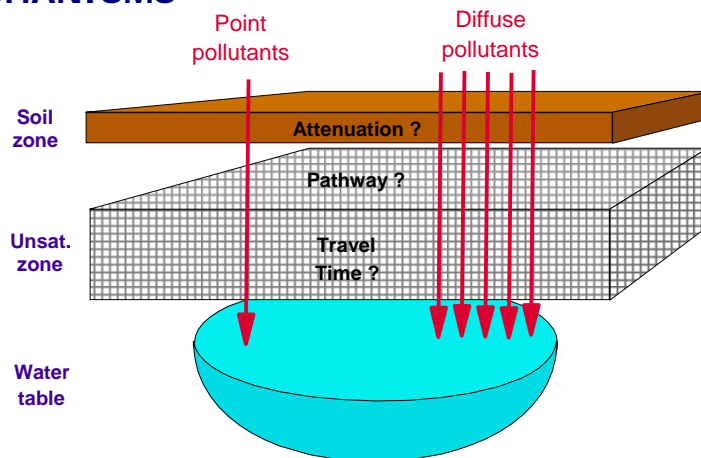


DEALING WITH THE PEAKS IS THE MAIN CHALLENGE FOR SURFACE WATER

- ❑ Pesticides move via drains and surface routes triggered by critical rainfall events
- ❑ Delivery to rivers depends on size and timing of event in relation to agronomic cycle
- ❑ Events and delivery are very seasonal and highly variable
- ❑ Applies to other pollutants as well e.g. sediment/phosphate



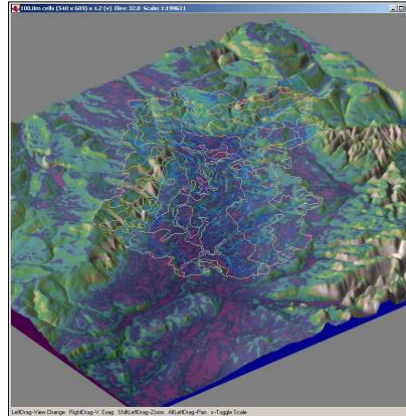
FOR GROUNDWATER WATCH OUT FOR ROUTES WHICH BYPASS NATURAL ATTENUATION MECHANISMS





CATCHMENTS VARY IN RISK

- Spatially
 - Topography
 - Soil type/condition
 - Water use
 - Ecosystems
- Over time
 - Weather
 - Crop type
 - Land use



BEST PRACTICE FRAMEWORK MUST TAKE ACCOUNT OF LOCAL RISKS AND VARIABILITY

- Local risks vary and thus routes for pesticides to enter water vary
- Mitigation measures must
 - take account of local conditions
 - be dynamic to reflect weather variability
- Right
 - Product
 - Place
 - Time
 - Way

Consistently high levels of adoption by all pesticide users

Targeting high risk situations with correct solutions

The VI toolbox

VI CATCHMENT METHODOLOGY

1. Identify who farms within a catchment and their most influential advisors, particularly local agronomists.
2. Raise awareness in the farming community.
3. Work with advisers to identify the causes of problems and the best tools to address them
4. Disseminate those tools using advisers as the primary delivery mechanism

ROUTES FOR PESTICIDES TO ENTER WATER



- Farmyard
 - mixing, filling and sprayer storage/wash down
- Field
 - Field drains – product leaching
 - Surface Run-Off
 - in solution
 - bound to soil particles
 - Application- drift, overspray, spillage

Understanding impact of Weather and Soil Conditions are Critical

BEST PRACTICE



In the Farmyard

&

In the Field

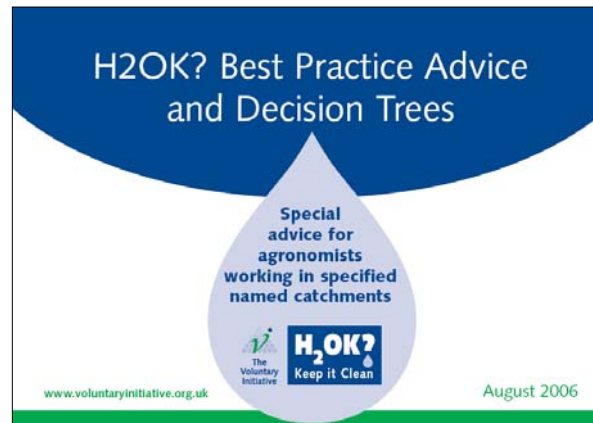
Both Matter

Relative significance will vary:
Season to season
Farm to farm
Product to Product



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THE VI ADVICE PACK



Provides advice to mitigate all routes for pesticides to water



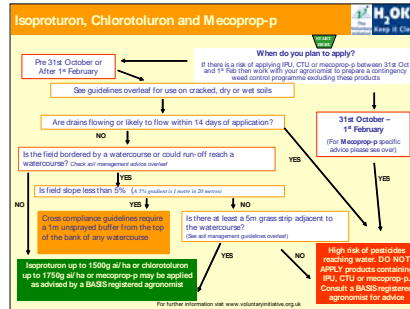
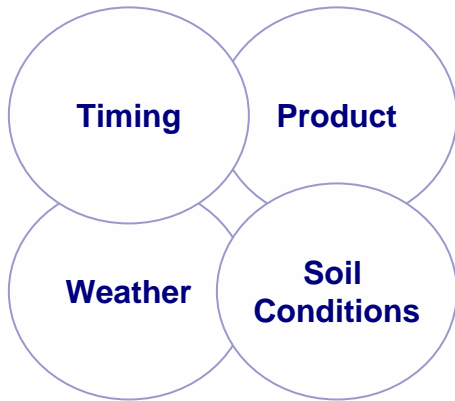
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TARGET AUDIENCE

Deliver generic and catchment specific advice

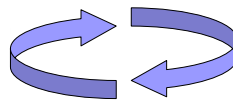
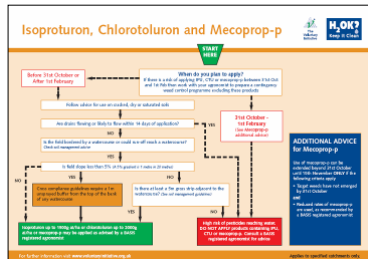
- Spray operators
 - Mixing, spraying and disposal practice
 - Sprayer storage and wash-down
- Crop protection decision makers - agronomists and farmers-
 - Risk maps where necessary for targeting advice
 - Advice on product choice and timing of application
 - Other advice e.g. Soil management
 - Other measures if necessary

CHOOSE WISELY. USE CAREFULLY



If in doubt ask the agronomist

DECISION TREES AND TEXT MESSAGES



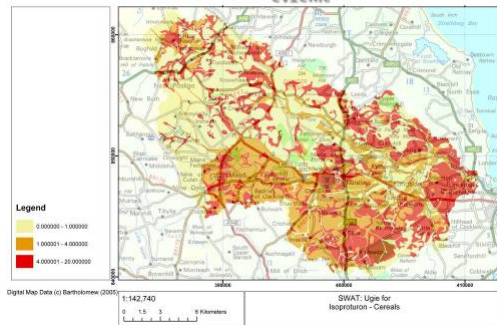
- Decision trees advise on product choice and application timing
- Linked with weather forecasting sent by text messaging can warn of future adverse weather related risks



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PESTICIDE RISK MAPPING

- Modern Geographic Information Systems coupled with practically verified models can identify differential catchment risks



SOIL MANAGEMENT



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Soil Management

Follow Cross Compliance and use the Soil Protection Review to reduce risks of erosion. Manage soils to ensure that water cannot run-off from the treated area onto another field, road, track or other feature from where it could directly enter a watercourse.

Advice for Dry, Cracked or Saturated Soils
 Soil conditions favouring application to dry or saturated soils with a credit within
Dry Cracked Soils - Avoid application of pesticides onto the soil dry and cracked as water carrying soluble pesticides can move into the drains. Considerance will be taken on the final product and advice on crop rotation or water carrying pesticides to drain will be considered and offering to the farmer and a risk reduction strategy developed.
Dry Silt - There is a low risk of pesticide movement through silt that are dry but not compact. It is more likely to be heavy rain to increase the risk of erosion and the risk of pesticide movement.
Saturated Soils - Saturated soils are more likely to suffer with soil problems especially deep waterlogging leading to the movement of pesticides out the field that will have happened before spraying pesticides. It is heavy rain to increase the risk of pesticide movement.

- Do not overwork the soil so that it becomes deaired or compact.
- Treatments should run across slopes NOT down slopes leading to a watercourse if practical.
- Soil remains where possible.
- 50% trash cover and rapid crop establishment can reduce the impact of raindrops which break down soil crumbs and can trigger soil erosion.
- Risks can be reduced further by the additional measures listed below. These require long term planning.
- Review rotations to avoid cropping practices and cultivations on soils and slopes which are at risk of erosion. This should be part of your Soil Protection Review.
- On slopes over 5% (1 in 20) running for more than 200m, establish a beetle bank or at least 6m grass strip across the entire field. Locate this bank where the slope changes.
- Grass down valley bottoms leading to any watercourse.





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PESTICIDE HANDLING AREAS

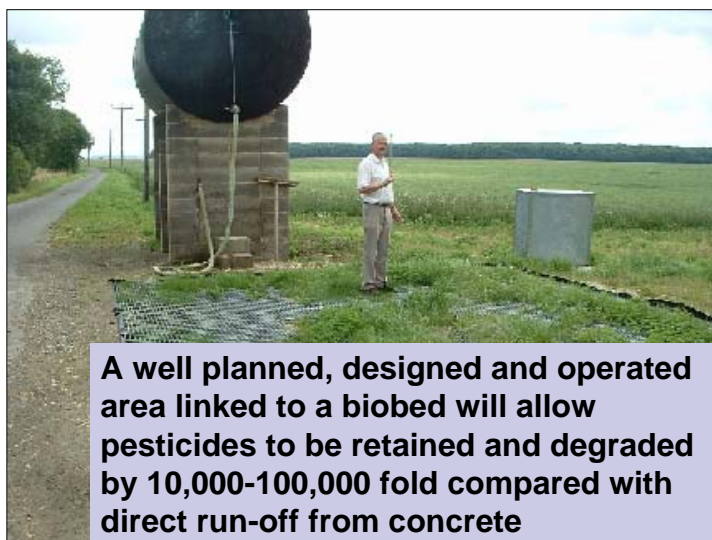


**Is it just for filling?
Or wash down as well?**



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BIOBEDS



A well planned, designed and operated area linked to a biobed will allow pesticides to be retained and degraded by 10,000-100,000 fold compared with direct run-off from concrete



BUT BIOBEDS ARE ONLY ONE OPTION...

	Filling	Washing
Portable Bund	Yes	No
Grass and Soil	Yes	No
Hose and Brush	No	Yes
Unlined biobed	Yes	No
Lined Biobed	Yes	Yes
Contained system	Yes	Yes
Sentinel Treatment	Yes	Yes

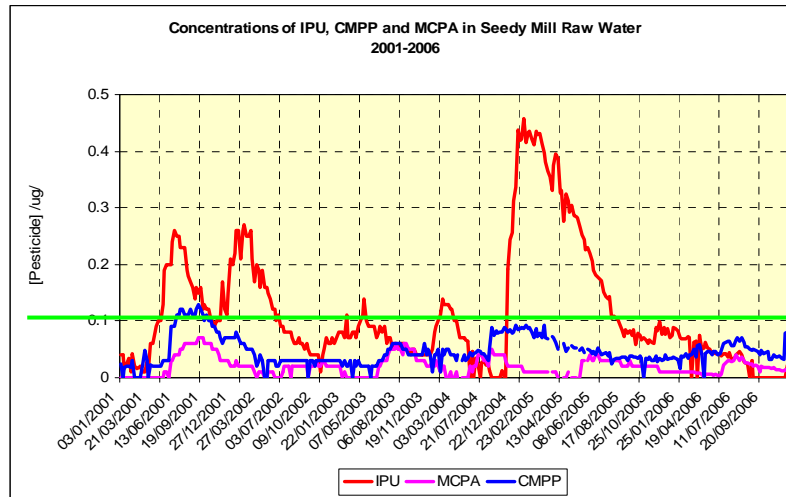


RESULTS

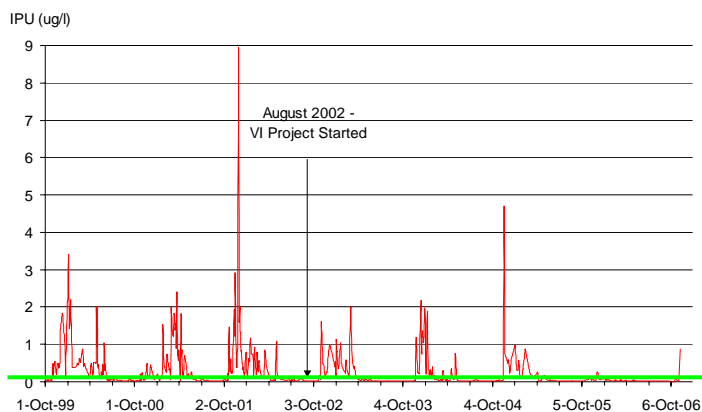


- See executive summary for progress in each catchment
- Detailed report soon to be published
- Commitment has been very significant
- Many learning points and generally encouraging progress e.g. Boston Park and Blythe 98% reduction in days over 0.1
- But
 - Some catchments not as good progress as others
 - In some catchments improvement only occurred towards the end of the 5 years
 - Major impact of weather with deteriorations in year 4 across most catchments due to wet autumn
 - Increase in detection of OSR herbicides

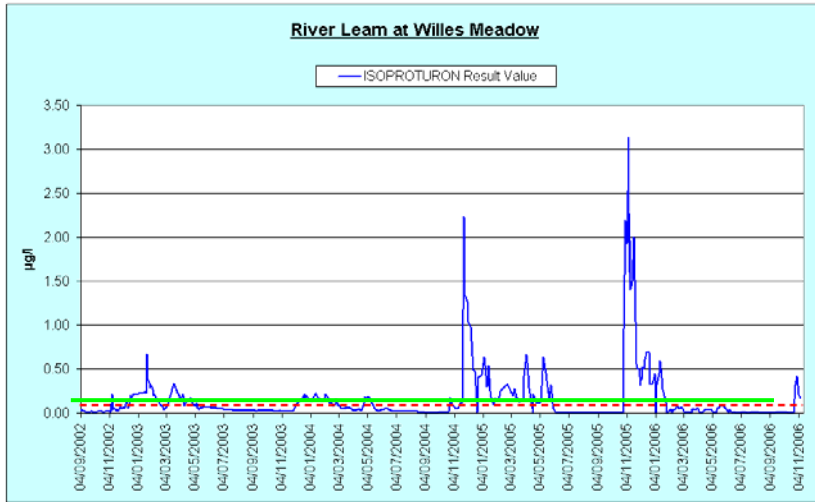
BLYTHE CATCHMENT IPU, MCPA, CMPP (2001-2006)



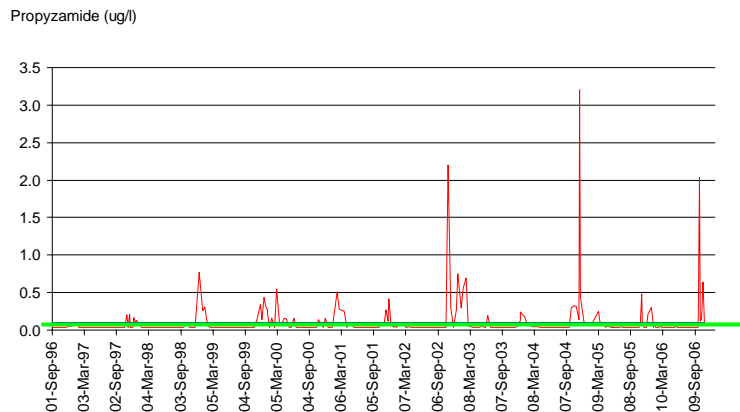
CHERWELL CATCHMENT IPU (1999-2006)



LEAM CATCHMENT IPU (2002-2006)



CHERWELL CATCHMENT PROPYZAMIDE (1996-2006)



THE FUTURE

- Project to continue in order to
 - Consolidate gains so far
 - Address actives still causing problems
- Pilot catchment project will test new improved risk assessment tools developed under EU FOOTPRINT project
- Important to begin to integrate pesticide advice with other farm advice initiatives
- MOU in place to provide pesticide best practice advice to ECSFDI
- VI experience being input to development of PSD national pesticides strategy
- The VI toolbox could provide a useful basis for national roll-out as part of WFD POM

The pilot catchments provide a vital national long term test bed for development of pesticide best practice

THANK YOU