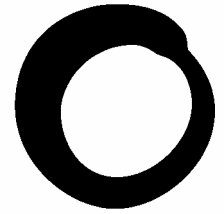


November 2004



**Friends of
the Earth**

Briefing

The Voluntary Initiative catchment projects

Are they really working?

The Pesticides Voluntary Initiative (VI) was set up as an alternative to a pesticide tax, and aims to minimise the environmental impacts of pesticides. One of its key projects aims to reduce herbicide pollution of water in six catchments, and the VI has claimed that “*it’s working*”. Friends of the Earth’s analysis of progress in these catchments shows that it is not possible to attribute changes in pollution levels to the VI; that pollution incidents are still occurring; and that the advice given to farmers in the VI projects is very difficult to follow in practice.

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Friends of the Earth, 26-28 Underwood Street, London N1 7JQ

Tel: 020 7490 1555 Fax: 020 7490 0881 Email: info@foe.co.uk Website: www.foe.co.uk

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Introduction

The Voluntary Initiative (VI) was proposed in 2000 by the Crop Protection Association and National Farmers Union as an alternative to the introduction of a pesticides tax. A package of measures was subsequently submitted in February 2001 and the first meeting of the VI was held later that year. Friends of the Earth is a member of the VI Steering Group.

The overall aim of the VI is to minimise the environmental impacts of pesticides, which it seeks to do through several projects. The main focus for water has been to attempt to reduce herbicide pollution of surface waters by placing emphasis on changing farmer behaviour and practice. Targets have been set to reduce the frequency of detection of individual and total pesticides above EU drinking water maximum concentrations by 30 per cent by 2006. The standards set in the EU Drinking Water Directive are a maximum concentration of 0.1 µg/l (micrograms per litre) for a single pesticide and 0.5 µg/l for total pesticides. Ensuring drinking water stays below these maximum levels costs £120 million per annumⁱ. The VI's target herbicides (isoproturon (IPU), chlorotoluron, atrazine, simazine, mecoprop, MCPA and 2,4-D) are the main problem herbicides for water companies.

Their plan for delivering these targets draws heavily on the findings of an industry-sponsored study of a single pesticide in a single catchment in Oxfordshireⁱⁱ, which suggested that improving pesticide handling practices by farmers would contribute to reducing pesticide pollution in rivers, along with timing applications to avoid periods when field drains were likely to be running. Since 2002 six catchments (five surface water, one ground water) with known pesticide contamination have been taking part in a pilot project based on this initial study. All farmers in the catchment are provided with advice and best practice measures to protect water.

But a Friends of the Earth briefingⁱⁱⁱ which examined the findings of the initial study in detail suggested that changing farmer behaviour alone will not prevent pesticide pollution because of the inherent mobility of the herbicide involved (IPU) during wet weather. This briefing looks at the progress made so far in reducing herbicide pollution in the five specifically targeted pilot surface water catchments.

VI initiatives

To achieve the targets set for reducing herbicide pollution, the VI has instigated a number of initiatives:

- Improving the training of spray operators.
- Running 30 Operator Road Shows in 2000-02 around the country.
- Distributing literature on the need for greater care in sprayer filling and cleansing operations and in pesticide application.
- Six "Catchment Collaboration" projects: intensive programmes aimed at producing a "downward trend" in pesticide pollution. These catchments provide water for public supply and have a history of herbicide pollution.

The VI appears confident that such initiatives will create major reductions in surface water contamination. In a progress report presented to the VI Steering Group^{iv}, the project outcome for the catchment projects was for a 50 per cent reduction in water contamination. In draft literature the VI made the claim that "*the Cherwell study in Oxfordshire found that 40*

to 60 per cent of surface water contamination can come from farmyard operations”.

However, as this briefing demonstrates, such reductions may only be achievable under dry weather conditions, which occur rarely in UK winters.

The catchment projects

The VI selected six catchments with a record of problems with herbicide pollution in water destined for public supply. In five of the catchments water is abstracted from surface waters (Cherwell, Ingbirchworth, Leam, Blythe, and Ugie) and in one it is abstracted from groundwater (Boston Park). The projects commenced in 2002 and teams were appointed to spread the word to farmers on good practice for herbicide application, mixing and washing procedures. The VI has set up systems for training farmers on how to avoid herbicide pollution, and weather warnings are sent via text message to deter farmers from spraying during high risk wet periods.

The VI produces regular newsletters to provide feedback for farmers in each catchment. Not surprisingly, any sign of reduction in pesticide concentrations is seized upon as a sign that the project is having an effect. The general message from the VI to farmers has been that levels of herbicides are falling as a result of their efforts, but more needs to be done, especially in the Cherwell catchment.

Farmers are directed to use a decision tree developed to forecast field drain flow for applying the herbicide isoproturon (IPU). It is suggested that IPU application should be delayed or other herbicides should be used under three conditions:

1. Are weed growth stages within the range claimed on the product?
2. Is the field drained or are soils substantially cracked?
3. Are field drains flowing or likely to flow within 14 days of application?

Points one and two are simple enough to make judgements on, but point three poses real problems, because not only will farmers have to estimate the amount of moisture already in their soils but also how much rain is likely to fall for two weeks ahead. This is fraught with difficulties, especially as some farms will have several different soil types with different drainage characteristics.

Farmers faced with a field with significant weed competition in cereal crops will make judgments based on the severity of the problem and whether or not they can use spraying machinery on the soil. Often they will choose to commence spraying at the first opportunity that soil moisture allows to avoid damaging the soil by spraying when it is too wet. Opportunities to spray may follow a period of dry weather, and the weather on the next 14 days after spraying will play second fiddle if there is an urgent need for weed control.

More generic advice distributed to farmers, for example in the form of a cab card, advises them not to spray if the ground is waterlogged or frozen or if rain is forecast in the next 3 days.

Problems with the decision tree approach

The advice given to farmers by the VI could prove impossible to follow. Friends of the Earth analysed the winter rainfall data (October to March) from 2000 to 2004 for the four VI surface water catchments in England. This illustrates how difficult it would be for farmers to use the

IPU decision tree. A detailed analysis of the data can be found in the Friends of the Earth report *The Voluntary Initiative Catchment Projects*.

During the winter months the proportion of dry days ranged from about a quarter to one third, so the majority of days are wet, and the maximum average durations of longest dry spells were relatively short and variable between catchments. The average was under six days for the River Blythe and under 3.5 days for the River Leam.

The majority (82-92%) of dry periods are less than three days in duration and longer dry spells (greater than 3 days duration) only make up 18% of the days. This makes a 14 day forecast, or even a 3 day forecast, of whether or not field drains will run a very uncertain process for farmers.

Progress so far

Friends of the Earth has not yet seen the raw data for herbicide levels in the five catchments where surface water is abstracted for public supply, but summary data has been obtained, although for some products it is patchy in its coverage. A detailed analysis of the data made available can be found in the Friends of the Earth report *The Voluntary Initiative Catchment Projects*.

Results from the five surface water catchments do not show any demonstrable impact from the VI measures to date. The pesticide data obtained so far by Friends of the Earth are patchy, but good and bad years for pollution cannot be linked to the VI measures because comparable results are reported in earlier years. The data also demonstrate anomalies that suggest more accurate models of herbicide movement in the catchments would be needed. The VI would need to present far more data on pesticide levels and loads in relation to the prevailing weather, different soil types and locations and cropping patterns to provide evidence that the voluntary approach is a success.

In some cases problems with high pesticide levels are still occurring ie at levels that breach the EU Drinking Water Standard. The indications are that even with farmers following best practice a period of wet weather after spraying could lead to pollution incidents. Where improvements have been claimed it is just as likely that these have been linked to weather conditions than that they are the result of the activities of the VI project, for example pesticide levels have dropped simply because it has been too wet for farmers to spray.

The best data are available for IPU. The evidence from the industry sponsored study in Oxfordshire suggested that heavy rain following IPU application causing drains to run was the best indicator of a potential pollution problem. The results from the River Leam in 2002, showing a marked reduction in IPU peak concentrations after a wet winter prevented farmers getting on the land to spray, support the view that a ban on IPU may be the best way to protect public water supplies and cut treatment costs. Thames Water has reached this conclusion and is now calling for a ban on IPU. Dr Dinah Hillier of Thames Water rejected the VI's figures for the proportion of contamination that arises due to farmyard runoff: "*Our data suggest that in bad [wet] seasons 90% [of IPU] comes from fields. Tinkering around with activities in the farmyard will not help with IPU.*"

Omissions from the VI projects

Although the VI is aiming to minimise the environmental impacts of pesticide use the

catchment projects are aimed at reducing exceedences of the EU limit for pesticides in drinking water. It does not address the impacts of herbicide pollution on the ecology of the rivers. Friends of the Earth considers that this is a serious omission by the VI and should be addressed by independent research carried out for DEFRA, English Nature or the Environment Agency.

Another factor in deciding the success of VI catchment projects, if they were rolled out nationwide, would be the cost of managing and operating such a scheme. To date the VI has ignored this issue in public. However, Friends of the Earth has obtained details of the estimated budget for the project for the year ending March 2004.

Operational costs are not fully presented, but there is information that points to the likely long-term operational costs of such work. Expenditure on leaflets in the Leam catchment is estimated at £4,292.40 for the year 2003/04, or over £12 for each of the 350 farms in the catchment. The cost of calibration for text messages for the Boston Park catchment is estimated at £5,700. According to the VI website there are only 60 farmers in the catchment, meaning the cost per farm of this one part of the project was £95 per farm. The ongoing support for the decision tree approach cost £7,950.

Many of these costs would have to be incurred in all problem catchments, and many would be annual costs, eg decision tree support work. To assess whether this approach is feasible to scale up, the Government would need to receive details of how much the VI projects would cost on a national basis and, crucially, who will pay for them.

It is possible that the level (or greater) of interaction between farmers and advisors seen in the VI catchment project would be needed to achieve the Government's desired outcome of reducing the environmental impact of pesticide usage. Further similar work may also be needed to reduce the ecological impact of pesticide pollution. As an alternative to an extension service on just one aspect of farming, a new independent advisory service on sustainable farming could be more beneficial to farmers and the environment. Independent advisors could provide advice on timing of spraying, but also training in avoiding pesticide usage altogether. This would be an excellent way to use the revenue generated by a tax on pesticides as well as being in tune with the 'polluter pays' principle.

Conclusions

Data obtained from the catchment projects so far do not support the VI's claim that "IT'S WORKING", as it has done in various catchment newsletters. Far more data would be needed to demonstrate that the VI measures are having any impact at all. However the available data suggest that the activities promoted by the projects would not be enough to prevent breaches of the EU drinking water limits, and that selective bans on some herbicides may be necessary.

The VI decision tree for IPU suggests that farmers need to predict a period in the winter months when field drains do not run for 14 days post-spray application. The winter rainfall data for the English catchments show that dry periods which might lead to such soil conditions are rare in the winter months, and rainfall patterns are so unpredictable that using the decision tree as a tool to decide when to spray would not prevent IPU pollution altogether. Faced with the possibility that IPU levels will breach 0.1µg/l, water companies will still have to have treatment facilities in place to deal with such pollution. Rainfall data

shows that even the more generic advice provided to farmers to not spray if rain is forecast for the next three days would be hard to follow in practice. The predictions for the impact of climate change on the UK are for wetter winters^{vi}, which could make the problem of herbicide leaching from winter cereal crops even more acute.

The cost per farmer of the catchment projects has not been stated by the VI. However, the financial data available to date suggest that the costs of rolling out such programmes nationally would run into millions. The question remains as to who would pay for this. Friends of the Earth considers that if these projects were to be replicated at the national level the industry should fund them rather than loading costs onto farmers. However, if the industry funds further projects it is likely to increase the price of its products to cover the costs, so farmers would be paying more for products, as they would if a pesticides tax were to be introduced.

Given the high costs of running a voluntary extension service (for that is what the catchment projects amount to) on just one aspect of farming (the application of herbicides), farmers may be well advised to opt for a clear taxation system which could fund a wider package of advice and research, rather than the hidden costs of the voluntary approach. A tax could also be banded to ensure that the most problematic pesticides are taxed more highly. However for some active ingredients such as IPU a ban may be the only way to avoid future problems.

Friends of the Earth considers that a more effective way of meeting the Government's objectives on minimising the impacts of pesticides would be a package of measures, including local or national bans on some active ingredients, tighter statutory regulations, fiscal measures and greatly improved farmer awareness and training. Such an approach would also address omissions from the VI including reducing the impacts of pesticides on the ecology of rivers. Friends of the Earth believes that this approach will be necessary in order for the UK to meet its obligations to achieve the improvements in water quality required under the Water Framework Directive. A pesticide tax should be used to provide farmers with the incentive to change practice, to pay for training and advice on how to avoid using potentially polluting and harmful pesticides, and to fund research into new methods of cultivation which do not rely on heavy usage of pesticides. A tax should be introduced at the earliest opportunity to enable a programme of research and development and extension services to be rolled out. Such a policy would be in line with the long-term aims of CAP reforms to make farming more sustainable.

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