EXTENDING KNOWLEDGE EXCHANGE IN THE AVON DTC DURING PHASE I

An initial assessment of FARMSCOPER by farmers and farm advisors

– Software based decision support tools have been used within a variety of natural resource management planning contexts
– FARMSCOPER (designed by ADAS) enables an assessment of agricultural diffuse pollution risks and mitigation options
– During Phase I of Avon DTC, two workshops were held with farmers and farm advisors to assess the efficacy of the FARMSCOPER tool in helping farmers recognise and act upon diffuse pollution risks

FARMER WORKSHOP

- Participants comprised farmers, ADAS local advisors, University of Exeter KE team.
- Process began with a discussion around the use of photographs to illustrate diffuse pollution problems.
- Next stage involved providing an overview of the FARMSCOPER software and asking farmers for their initial reactions using a quick score evaluation form.
- After recording their initial feedback, farmers worked in two groups with ADAS advisors to look at a FARMSCOPER arable and livestock model in more detail. Both models were based on data from local farms.
- Following the group work, participants were reconvened to capture views around four themes - (1) usability of the interface (2) veracity of the results produced by the models (3) practicalities of the measures proposed by FARMSCOPER (4) economic viability of the measures proposed by FARMSCOPER

Key learning points

- Many of the farmers were keen to understand more about the science underpinning FARMSCOPER.
- Farm profitability was highlighted as the key concern, with one of the participating farmers saying that he *"would like to see this information converted into financial information – it's about the bottom line"*. Another said that "If it can make the link simply to the financial benefit, it could be a good tool".
- Following the more detailed demonstration, farmers wanted to know whether tools such as FARMSCOPER could inform them about the tangible cost savings from adopting specific mitigation measures. For example, if a farmer adopted 'minimum tillage' how much money could be saved in reduced nutrient losses? The participants recognised that precision was often difficult but 'ball park' figures would still be very helpful.
- At the outset there was some concern that a KE activity involving farmers and computer software might prove to be too ambitious. In practice, the evaluation of the workshop demonstrated that good preparation and a mixture of discussion, practical demonstrations and high levels of interaction made for an engaging and informative event for the farmers attending.

FARM ADVISOR WORKSHOP

- Participants comprised a variety advisors from the public and private sectors including Catchment Sensitive Farming, Environment Agency, ADAS, Dairy Co, Agrii, Wessex Water, the Farm Consultancy Group, Pearce Seeds and Chemega.
- Process similar to the farmer workshop involving participants in a series of working sessions demonstrating and discussing the use of the FARMSCOPER model.
- Views primarily captured in a qualitative format although some of the reactions also expressed quantitatively.

Key learning points

- In general terms, participants felt that the tool is currently best placed to provide information on risks and opportunities at a strategic catchment/sub-catchment level:

> *"It's applicable to me on a sub-catchment scale to give me an indicator of issues and mitigation methods prior to going to a farm and then adjusting my advice depending on the individual farm"*

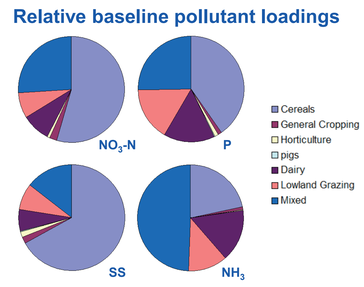
> *"[I would use FARMSCOPER] before going to the farm to give 1:1 advice or getting to know a patch....providing general advice on mitigation methods"*

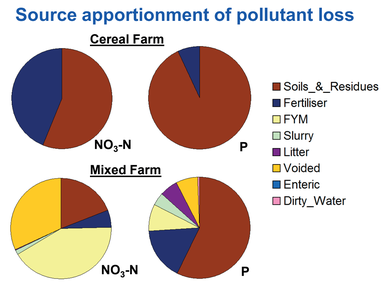
- If FARMSCOPER is to be used at the farm level, it was widely argued that the link to local circumstances must be developed further. Advisors persistently highlighted that information produced by the tool is based on generic assumptions about farm circumstances and misses salient local information. In their view, this currently restricts its wider practical utility.
- As a result, capacity to manipulate data 'inputs' to reflect individual circumstances was highlighted as an area of future tool development such as including information on topographical risk factors, and risk associated with soil and crops types as well as housing and grazing patterns. The ability to carry out assessments of risks and options at the field level was also emphasised.
- Advisors were keen that the tool told them more about how particular mitigation measures impacted on farm productivity and desired that the tool provide a final "cost-benefit/effectiveness as a result of measures used. Putting this in to a graph format would also be useful. In terms of translating such data into information of interest to farmers, the link to nutrient management and system profitability was cited as important.

Scenes from FARMSCOPER Workshops



Examples of FARMSCOPER model outputs





Box 1. Further information about FARMSCOPER

- FARM Scale Optimisation of Pollutant Emission Reductions (FARMSCOPER) is an excel based tool developed for Defra by ADAS.
- Founded on a suite of well-established models which have all been used in diffuse pollution mitigation modelling at a national-scale.
- FARMSCOPER is parameterised with national-scale spatial input datasets.
- Designed to (1) produce site-specific source apportioned pollutant losses at farm scale (2) to estimate the impact of single or multiple mitigation methods on the loss of agricultural pollutants to water and air and (3) to optimise the selection of mitigation methods given targeted reduction levels for multiple pollutants.
- Agricultural management practice is simulated using 17 representative farm types derived from the Defra Robust Farm Type (RFT) classification scheme.
- FARMSCOPER allows for customisation of these farm types to support more tailored application of the tool in specific catchments.
- Impacts of multiple mitigation methods are multiplicative, such that the effectiveness of multiple methods targeting the same aspects of pollutant loss will be less than the sum of their individual impacts.

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