

# **Identifying Adaptation Options and Constraints: The role of agronomist knowledge in catchment management strategy**

## **Water Resources Management**

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## **Online Resource 2. Interview templates from stages 1 and 2 of the study**

This document presents the survey templates used to conduct semi-structured interviews during stages 1 and 2 of the study

<b>Stage 1 – Semi-structured interview template</b> .....	2
Part 1 - General Questions: .....	2
Part 2 - Regulatory Questions: .....	3
Part 3 - Follow Up Questions: .....	3
<b>Stage 2 – Semi-structured interview template and supporting information</b> .....	4
Introduction .....	4
Semi-structured Interview Template.....	6

## **Stage 1 – Semi-structured interview template**

### **Part 1 - General Questions:**

1. In what region do you operate, and what is the total land area you cover?
2. What are the most significant crops, in terms of land area, in the region that you cover?
3. What are the most significant crops, in terms of revenue generation, in the region that you cover?
4. What crops do you provide advice for the management of, and for these what are the most widespread and/or economically significant
  - Pest problems
  - Diseases
  - Weeds
5. What recommendations do you make for the management of the above problems, in terms of?
  - Chemicals
  - Cultural management (field selection, drilling date, cultivation, variety, nitrogen, biological control)
  - Integrated crop management (ICM)
6. Do you make the same recommendation for all crops affected by the problem?

## **Part 2 - Regulatory Questions:**

7. From what source(s) do you hear about developments in EU Directives and Regulation?
8. Have you thought about what impact the new EC approval mechanism for plant protection products (Regulation 1107/2009) is likely to have on:
  - a. The availability of pesticide active substances?
  - b. The recommendations that you make?
  - c. What do you consider will be the impact of endocrine disruptor criteria under Reg. 1107/2009?
  - d. What do you consider will be the impact of Candidates for Substitution (CfS) under Reg. 1107/2009?
9. Does anybody in your organisation specialise in considering the long term impacts of changes to pesticide and water legislation, such as the introduction of Reg. 1107/2009, on your business?
10. To what extent do you consider schemes like the Voluntary Initiative (VI)/ Catchment sensitive farming (ECSFDI)/ Environmental stewardship (ELS) when making recommendations for pesticide use?
11. To what extent do you consider the Water Framework Directive (WFD) and water quality when making recommendations for pesticide use?
12. To what extent do you consider the Sustainable Use of Pesticides Directive (SUPD) and water quality when making recommendations for pesticide use?

## **Part 3 - Follow Up Questions:**

13. Can you recommend additional agronomy or chemical company experts that would be interested in participating in this study?
14. Can I contact you in the future for a follow up interview?

## **Stage 2 – Semi-structured interview template and supporting information**

### **Introduction**

This questionnaire will focus upon 7 pesticide active substances identified as of agronomic significance to the Anglian region during the first round of expert interviews. The pesticides included in this round have been selected for one of three reasons, all reasons relate to the possibility of reduced future availability of the pesticide. These reasons are:

- The pesticide is a potential problem for WFD Article 7, and so may be targeted for enhanced voluntary action in a safeguard zone.
- The pesticide will potentially not be reapproved under Regulation 1107/2009, and there is reason to suspect that replacements might cause water quality problems.
- The efficacy of the pesticide is threatened by the emergence of resistance, and alternatives might be needed in the future.

The focus of these questions is on the impact that reduced availability could have on the use of other pesticides, agriculture and the water environment. The pesticides selected for inclusion are:

- Metaldehyde
- Clopyralid
- Propyzamide
- Carbetamide
- Pendimethalin
- Chlorotoluron
- Mesosulfuron-methyl

In the interview you will be asked about the above, using a standard question set for each pesticide to identify:

- current reasons for use
- potential pesticide and non pesticide alternatives
- your confidence in the alternatives you identify
- the broader impacts on crop yield and quality if the pesticides in question were not availability

Before each question set, a brief justification will be given for the inclusion of the pesticide in these questions. It is anticipated that the question set for a pesticide will take 10 minutes.

The confidence scale to answer questions 2b, 2c, 3b and 3c is provided below.

## Confidence Scale

In questions 2b, 2c, 3b and 3c of the question set, a four point confidence scale will be used to evaluate confidence in the pesticide and non pesticide alternatives identified.

This scale is defined in the text box below:

<b>Confidence Scale</b> (for use with questions 2b, 2c, 3b and 3c)	
<b>Not at all</b>	It isn't clear what will happen
<b>Low</b>	This option might happen but others are possible
<b>Medium</b>	This option is the most likely
<b>High</b>	This option is certain to happen

## Semi-structured Interview Template

This question set will be repeated for each of the pesticides listed in the introduction. It is anticipated that the question set will take 10 minutes for each pesticide.

The name of the pesticide active substance being asked about will be included in place of pesticide X in each question.

### Q1 – Current use of pesticide X

- a) On which crops is pesticide X used?
- b) Why do you recommend the use of pesticide X?
  - i. It is the only product available
  - ii. It is the most cost effective option
  - iii. It is the main product in a resistance management strategy
  - iv. It is one of many products used in a management strategy
  - v. It is an optional extra in a management strategy
  - vi. Other reason (please specify)

### Q2 - Identifying alternative pesticide options

- a) What alternative pesticide(s) would be available if pesticide X were not available?

Please name specific active ingredients that would be used in its place.
- b) How confident are you (**not at all, low, medium, high**) that the pesticide alternatives(s) you identify would be used if pesticide X were not available?

Please give a brief explanation of your answer
- c) How confident are you (**not at all, low, medium, high**) that the pesticide alternatives(s) you identify would be used if pesticide X were not available 5 years from now?

Please give a brief explanation of your answer

### Q3 - Identifying non pesticide alternatives

a) What non pesticide alternatives would be available if pesticide X were not available?

b) How confident are you (**not at all, low, medium, high**) that the non pesticide alternative(s) you identify would be used if pesticide X were not available?

Please give a brief explanation of your answer

c) How confident are you (**not at all, low, medium, high**) that the non pesticide alternative(s) you identify would be used if pesticide X were not available 5 years from now?

Please give a brief explanation of your answer

#### **Q4 – Pesticide or non pesticide**

If pesticide X were not available, do you believe that the use of pesticide alternatives or non pesticide alternatives is more likely?

Please answer Y or N and give reasons

#### **Q5 – Impacts of non availability on Yields, Quality and Gross Margins**

a) Would the non availability of pesticide X reduce crop yields?

Please answer Y or N and give reasons

b) Would the non availability of pesticide X reduce crop quality?

Please answer Y or N and give reasons

c) Would the non availability of pesticide X reduce crop gross margins?

Please answer Y or N and give reasons

#### **Q6 - General Comments**

Do you have any general comments on pesticide X?