

Summary Report

**AUDITS OF GM-HT CROPS WITHIN THE
FARM SCALE EVALUATION TRIAL**

Evaluation of compliance with the SCIMAC
Code of Practice on the introduction of
genetically modified crops, and Guidelines
for growing newly developed herbicide
tolerant crops

Harvest years 2000-2002

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Background

In May 1999 SCIMAC (the Supply Chain Initiative on Modified Agricultural Crops) published a *Code of Practice* on the introduction of genetically modified (GM) crops and *Guidelines* for growing newly developed herbicide tolerant crops. These publications were both formally endorsed by the UK Government. They establish a consistent, industry wide approach to information supply for GM crops from seed to primary end product, and promote best practice guidelines for the on-farm management and identity preservation of GM herbicide tolerant crops.

In 1999 the UK Government established a three year project called the Farm Scale Evaluation (FSE) Trials aimed at evaluating the comparative effect on farmland biodiversity of the management of GM Herbicide Tolerant (GM-HT) and equivalent non-GM crops. The trials were established following an agreement between Government and SCIMAC that during the trial period no commercial introductions of GM crops would be made. The GM crops within the trial were being grown on a field scale on commercial farms so SCIMAC Code of Practice and Guidelines were implemented.

In order to monitor compliance with the SCIMAC Code of Practice and Guidelines ADAS Consulting Ltd were contracted to provide third party audits of all growers within the FSE Trial.

1.0 Introduction

The GM-HT crops within the Farm Scale Evaluation Trial have been subject to independent audits for harvest years 2000, 2001 and 2002. This report outlines the methodology and rationale behind the audit process and summarises the results.

There are a further 18 sites of winter oilseed rape due for harvest in 2003 within the FSE Trial. These are not included in this report.

2.0 Purpose of Audits

2.1 Independent Audits

Auditing is a systematic examination to measure compliance with a pre-determined system. Any variation from procedure, practice or performance standard is classed as a non-conformance. Non-conformances can be of a major or a minor nature.

Extrinsic audits, or third party audits, are carried out independently of the auditee or other interested party. Farmers within the FSE Trial have been independently audited against the SCIMAC Code of Practice and Guidelines standards, by ADAS Consulting Ltd during the reporting period.

ADAS Consulting Ltd. provide independent and impartial services to farmers and the agriculture industry. ADAS has a successful track record in developing crop protocols and auditing.

The audit process and forms were developed by the ADAS Market and Policy Research Department who are highly experienced in conducting surveys and audits in a variety of industry sectors and media.

The audits were carried out by a team of four ADAS, or Scottish Agricultural College, (SAC), consultants. All are agronomists with BASIS and FACT (Agrochemical and Fertiliser qualifications). They also received specific training in auditing procedures and the SCIMAC Code of Practice and Guidelines.

Any potential for conflict of interest, such as the auditor being involved in the farm in another capacity, were screened at the start of the season and growers assigned to a different auditor.

2.2 SCIMAC Code of Practice and Guidelines

The SCIMAC Code of Practice and Guidelines were published in May 1999, and updated in March 2001 to incorporate amendments specific to the FSE trial conditions (e.g. oilseed rape and forage maize separation distances).

The Code of Practice outlines the need for successive transfer of supplementary information at strategic points along the food chain by seed suppliers, growers, merchants and wholesalers. Because of the experimental nature of the FSE programme (i.e. none of the harvested produce entered the commercial food or feed chain), auditing of the growers has been limited to the farm only, but does include information on the supply of information from the seed supplier and the maintenance of the integrity of the crop post harvest.

2.3 Critical Control Points (CCP)

In auditing there is the possibility of major or minor non-conformances. SCIMAC identified eight Critical Control Points at which non-conformance with the SCIMAC Code of Practice and Guidelines could result in failure to observe best agricultural practice or to maintain the identity of the GM crop and other non-GM crops. For the purposes of the audit, these Critical Control Points would be treated as major non-conformances if the Code of Practice and Guidelines were not followed.

1. Seed delivery, storage and handling
2. Drilling operations, including cleaning
3. Handling of surplus seed
4. Separation distances
5. Field operations, including harvest preparation
6. Harvesting operations
7. Transport and storage of GM bulk
8. Record keeping and post harvest monitoring

2.4 Farm Scale Evaluation Trial

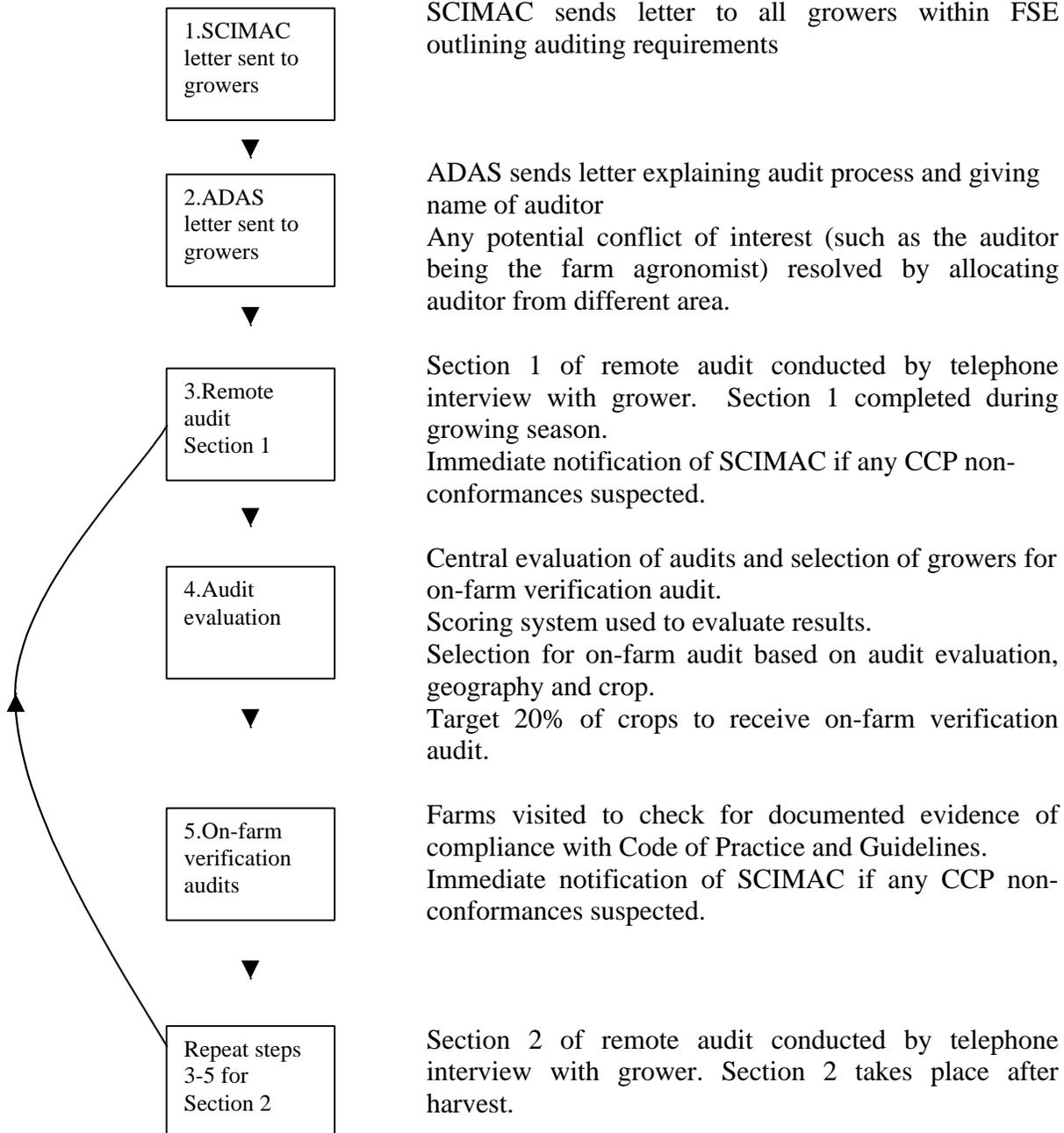
The SCIMAC Code of Practice and Guidelines were designed for the commercial introduction of GM-HT crops. As a result several areas required special consideration during the auditing for the FSE. These include:

- The physical separation distance requirements applied to crops within the trial area i.e. within the trial area the isolation requirements were observed by harvesting the equivalent distance into the adjacent non-GM crop as part of the GM bulk
- According to consent conditions, in some cases the consent holder took proxy responsibility for seed storage and removal, prior to and after sowing.
- Harvesting and the integrity of the crop post harvest was, in most cases, managed or supervised by the consent holder. According to consent conditions and/or contractual specifications (e.g. in the case of beet crops), separate protocols and auditing procedures were applied which were outwith the scope of these audits.
- Post harvest monitoring is, in most cases being carried out by the consent holder or one of the FSE partner organisations.

3.0 Audit Procedures

3.1 Audit Design

The flow chart below represents the stages in the audit process.



3.2 Audit Form

The audit form (Appendix 1) was designed to obtain information on aspects of the management of the GM-HT crops outlined in the SCIMAC code of Practice and Guidelines.

Some questions were of a factual nature such as 'Do you use a BASIS trained agronomist?'. Other questions were open, requiring the grower to outline his actions, the auditor then used tick boxes to record their responses and make an assessment overall on how satisfactory were the answers. Auditors could use prompts if it became clear that the auditee did not understand the question. (Several questions were of a very similar nature, for example those referring to seed being stored on the farm before sowing, after sowing and after harvest).

Some questions were identified as key questions (Appendix 2) if they related to one of the eight critical control points identified by SCIMAC, and if not answered satisfactorily, grower details were forwarded to SCIMAC for action.

3.3 Remote Audit

The remote audit was conducted in two sections, section 1 during the growing season and section 2 post harvest in harvest years 2001 and 2002. In harvest year 2000 the full audit was carried out at varying times during the growing season, and questions asked regarding planned activity rather than actual for the crop management and harvest operations.

Growers were notified by letters from SCIMAC and ADAS (Appendix 3), of the forthcoming audit and could elect to complete the remote audit by email, fax or post as an alternative to the telephone.

Growers were informed in the letter and reminded at the start of the remote audit that they could be subject to an on-farm verification audit.

3.4 On-farm Verification audit

After each section, the remote audits were evaluated centrally and a proportion selected for an on-farm verification audit. Selection was made on the basis of crop type, geographic location and an assessment of answers provided in the remote audit. The aim was to select a minimum 20% of each crop type for an on-farm verification audit.

On-farm verification audits took place by arrangement with the grower when the auditor required documentary evidence of compliance with the SCIMAC Code of Practice and Guidelines.

3.5 Non-conformance procedures

The auditors assessed the answers given for each question and marked them as satisfactory, insufficient, or not satisfactory, according to agreed assessment criteria (Appendix 4).

Any events of suspected non-conformance under the eight critical control points identified by SCIMAC, were brought to the attention of SCIMAC for investigation.

3.6 Audit Procedure Developments

The following amendments were made to the Auditing Procedure over the course of the three years.

- Timing of remote audits in years two and three were split into sections, pre- and post-harvest for all participants.
- Changes were made to some questions and others added in years two and three, in order to draw out more information and to be more appropriate for the FSE.
- Provision of guidelines for assessment of answers in years two and three provided a more consistent approach.
- Procedures for reporting on-farm verification audits were introduced in 2002.

4.0 Audit Numbers

4.1 Remote Audits

All farms within the FSE received a remote audit in each of the three years of the trial to date. Table 1 shows the number of remote audits completed each year for each crop and the total audits for the period.

Table 1. Remote Audit Analysis.

Harvest Year	2000	2001	2002	Total
W.OSR	3	23	28	54
S.OSR	12	31	26	69
Beet	22	26	15	63
Maize	12	26	33	71
Total Crops	49	106	102	257
Total Farms	39	66	64	97

A total of 257 crops were audited over the three year period, on 97 unique farms. Some farms were part of the FSE in more than one year and several farms had more than one trial site.

4.2 On-Farm Verification Audits

The plan of achieving 20% of crops receiving an on-farm verification audit, was exceeded in all years and all crops, with around 30% of all crops being audited on farm. 40 out of the 97 unique farms received an on farm verification audit at some stage in the three year reporting period. Most farms only received one on-farm verification audit. This level of follow-up ensures confidence in the results. The figures for on-farm verification audits are summarised in Table 2.

Table 2. On-Farm Verification Audit Analysis.

Harvest Year	2000		2001		2002		Total	
	No.	%	No.	%	No.	%	No.	%
W.OSR	1	33	7	30	8	28	16	30
S.OSR	5	83	9	29	7	27	21	30
Beet	8	36	8	31	5	33	21	33
Maize	3	25	7	27	10	30	21	30
Total Crops	17	35	31	29	30	29	79	31
Total Farms	12	31	20	30	20	31	40	

5.0 Results

5.1 Analysis and Reporting

Each audit form for each of the crops in the FSE was subject to a series of assessments during and after the remote audit.

- The audit forms were assessed by the auditors during the telephone audit, in particular questions relating to CCP's.
- The audit forms were also reviewed centrally after each section to ensure consistency of approach for all crops in all geographic areas, and to make the selection for on-farm verification.
- Once the audits were completed the whole document was analysed by crop and question to provide a detailed picture of responses.

The farm audits had a similar level of auditor assessment and were also evaluated centrally to ensure adequate compliance and consistency. In harvest year 2002 the results of the on farm verification audits was compared to the responses from the telephone audit.

Reporting was continuous in the event of any suspected non-conformances, in that any query was emailed or telephoned to SCIMAC within two working days.

A harvest year report was compiled each year reviewing in detail the findings of the remote and on-farm verification audits.

5.2 Summary of Suspected Non-conformances on CCP questions

Overall there was a very high level of compliance and no CCP queries were upheld.

During the remote or farm audits if any CCP question did not appear to be answered adequately the query was sent to SCIMAC. Table 3 summarises the incidents over the three year reporting period.

Table 3. Suspected Non-conformances

Harvest Year	2000	2001	2002	Total
No. of suspected non-conformances on CCP's	None	3 on separation distances 1 on sequential cropping 1 on cleaning drill in yard rather than field	8 on separation distances	13
No. actual non-conformances	None	None	None	None

Separation Distances: seven out of the eleven queries were due to planting an adjacent crop of the same species with the intention of harvesting the equivalent separation distance as part of the GM crop bulk. These seven instances were the result of miscommunication between the grower and the auditor and not incidents of non-conformance.

Two queries were due to a failure to provide written evidence of an agreement reached with neighbours to harvest an adjacent crop within the separation distance as part of the GM crop bulk.

Two instances were found to have no basis for suspected non-conformance.

Sequential Cropping: This issue arose where a crop of oilseed rape was planted in a different part of the same field as a crop of GM beet the previous year. This too, was an example of miscommunication rather than an incident of non-compliance.

Prevention of spillage: The drill with GM seed was cleaned in the yard rather than in the field. The field was confirmed to be adjacent to the yard.

5.3 Summary of Remote Audits

A detailed analysis was completed on all the questions for each crop group each year. Main points from this analysis are:

Areas of good conformance

- Access to Codes of Practice
- Staff training
- Use of BASIS qualified agronomists
- Separation distances
- Information from the seed supplier
- Storage of seed before and after drilling
- Prevention of spillage at drilling and at harvest
- Harvest management
- Post harvest storage
- Post harvest field management
- Record keeping
- Security of records

Areas of Poor conformance

- Documented weed control policy
- Documented policy to monitor fields post harvest
- Confusion over formal requirements to notify neighbours and/or maintain records of discussions

In many cases, these areas of poor performance were directly attributable to the experimental nature of the FSE process, with the requirements or responsibilities of individual growers addressed, according to consent conditions, by consent holders. In other cases, however, farmers mentioned their thought processes but did not necessarily have these formally documented.

5.4 Summary of Results from On-farm Verification Audits

The results from the on-farm verification audits were evaluated centrally, checking that appropriate information had been recorded. In 2002, the results were analysed to establish any change in response from the telephone audit.

Table 4. Harvest 2002 On-farm Verification Audit Comparison With Remote Audit Answers

	Section 1 Audit	Section 2 Audit
No. questions changed positively	3	NA
No. questions changed negatively	2	NA
No. change	4	NA

The results from this indicate that the telephone audit is a reliable and accurate means of determining what is actually going on. On two farms it was found that the information provided was poorer than expected.

5.5 Action taken by SCIMAC

ADAS is satisfied that SCIMAC properly investigated each of the suspected non-conformances under the CCP headings and reported back to ADAS with the outcome.

The annual reports were reviewed by SCIMAC each year. Action points were drawn up including:

1. Identifying any problem growers
2. Investigating suspected non-conformances on CCP questions
3. Identifying areas where compliance was weakest and taking steps to remind Consent holders and growers of their responsibilities regarding the SCIMAC Code of Practice and Guidelines.
4. Identifying areas of the audit form or auditing process that could be made clearer.
5. Identifying areas of the SCIMAC Code of Practice and Guidelines that could be made clearer.

6.0 Conclusions

Over the three year reporting period there has been a high level of compliance with the SCIMAC Code of Practice and Guidelines. No major non-conformances have been found in the eight critical control points identified by SCIMAC. Information from the audits has been used effectively to ensure that high standards are maintained in the growing of GM-HT crops.

General Background

1

Do you have copies of the following publications available on your farm?

	Yes	No	Not sure
➤ Code of Good Agricultural Practice for the Protection of Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
➤ Code of Good Agricultural Practice for the Protection of Soil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
➤ Code of Good Agricultural Practice for the Protection of Air	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
➤ Code of Practice for Suppliers of Pesticides to Agriculture, Horticulture and Forestry (yellow guide)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
➤ Code of Practice for the Safe Use of Pesticides on Farms and Holdings (green guide)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
➤ SCIMAC Guidelines for growing newly developed herbicide tolerant crops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
➤ SCIMAC Code of Practice on the introduction of genetically modified crops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2

What steps are taken to ensure that all farm staff and contractors involved understand the requirements of good agricultural practice as laid out in the publications described?

Prompt respondent for the range of techniques used to ensure that farm workers are up-to-date with Codes and steps taken to ensure that this can be demonstrated through on-farm records.

Agricultural experience/qualifications

Competence and training records

Monitoring Performance

No staff contractors involved

4

What specific steps have been taken to ensure self, any staff and contractors are aware of additional consideration required when growing GM crops?

Information provision by biotech company

Staff training/briefing

5

Do you use a BASIS qualified agronomist or adviser to provide advice on the management of your crops?

Yes No

3

Will you use any contractors who will be directly involved in the growing and harvesting of your GM crop?

Yes No

Crop Planning

6

Have you developed a documented crop management plan for volunteer control for future cropping for the field(s) in which GM crops have been planted?

Yes No

7

In the plan, what factors have you taken into account regarding the implications of herbicide tolerance of volunteers from the GM crop?

Prompt respondent to ensure that you are satisfied that their policy has taken this into account and code their response accordingly.

Potential weed seed return

The following crop

Rotation length

Desiccation and rouging

Plans for Set-aside

Inherent couch problem on farm

Herbicide rotation

8

What separation distances have you left between your GM crop(s) and non-GM crop(s) of the same species outside of the trial area?

(Note – not minimum requirement)

	GM crop 1	GM crop 2
Crop Species	<input type="text"/>	<input type="text"/>
Distance from certified seed crops of the same species (maize excluded)	<input type="text"/>	<input type="text"/>
Distance from registered organic crops if the same species	<input type="text"/>	<input type="text"/>
Distance from non-GM crops of the same species that are not in the trial area	<input type="text"/>	<input type="text"/>

9

What steps have been taken to ensure that the statutory separation distances have been maintained between GM and non-GM crops?

Prompt respondent to understand the range of steps taken and code appropriately.

Site selection	<input type="checkbox"/>
Site measurements	<input type="checkbox"/>
Measurements on maps	<input type="checkbox"/>
Crop planning	<input type="checkbox"/>
Negotiating with neighbouring farms	<input type="checkbox"/>
Informing staff	<input type="checkbox"/>
Discussion with company	<input type="checkbox"/>

10

Was there a formal requirement due to separation distances to notify your neighbours?

Crop 1		Crop 2	
Yes	No	Yes	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10a

If yes, what steps have been taken?

Written record of notification	<input type="checkbox"/>
Record of subsequent discussions	<input type="checkbox"/>
No records kept	<input type="checkbox"/>
Verbal discussions only	<input type="checkbox"/>

Pre Planting procedures for GM crops

11

Have you received information from the seed supplier about the nature of the modification made to the seed?

Crop 1		Crop 2	
Yes	No	Yes	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12

Was the seed stored on farm prior to sowing?

Crop 1		Crop 2	
Yes	No	Yes	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12a

If yes, was the seed clearly labelled to indicate it was a GM variety?

Crop 1		Crop 2	
Yes	No	Yes	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12b

If you received the seed prior to sowing, was the label sufficiently robust to remain attached and legible during storage?

Crop 1		Crop 2	
Yes	No	Yes	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If no, give details

12c

If seed was stored on farm, before or after sowing, what steps were taken to ensure that farm staff recognised seeds that were GM varieties and understood the additional requirements for handling those seeds?

Probe response of respondent to ensure that you are satisfied that sufficient steps were taken to ensure staff understood their responsibilities.

Staff briefing
 Kept in original packaging
 Seeds kept under lock and key
 Not stored

12d

If seed stored on farm, before sowing, what steps were taken to ensure seeds were stored separately from seeds for other non-GM crops?

Probe response of respondent to ensure that you understand the steps taken and code response appropriately.

Physical separation (e.g. separate storage building)
 Isolation (e.g. storing in designated area within same building)
 Stored in a leak proof container
 Not stored

13

What steps were taken to ensure any surplus GM seed was kept separate?

Probe response of respondent to ensure that you understand the steps taken and code response appropriately.

Isolation
 Identification
 Sealable containers
 Appropriate disposal
 Not applicable
 Removed from farm immediately
 All seed used
 Collected by biotech company

14

What records were kept about the GM seeds used?

Probe respondent's response in order to understand the range of records kept and code appropriately.

	<i>Crop 1</i>	<i>Crop 2</i>
Labels from seed containers	<input type="checkbox"/>	<input type="checkbox"/>
Crop type and variety	<input type="checkbox"/>	<input type="checkbox"/>
Delivery details	<input type="checkbox"/>	<input type="checkbox"/>

Planting the Crop

15

How did you ensure that GM crops were not contaminated by seed from a previous operation?

Probe to ensure respondents were aware of the risks and ensured that seed drills were adequately cleaned before use.

Cleaned drill
 Separation of seed
 Separate drill
 Contractor

16

Was the GM seed transported in its original packaging in the field and opened on site?

	<i>Crop 1</i>		<i>Crop 2</i>	
	Yes	No	Yes	No
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Consent holder drilled seed	<input type="checkbox"/>		<input type="checkbox"/>	

16a

If no, what measures were taken to ensure that accidental GM seed spillage did not occur while transporting seeds on the farm?

Probe to obtain an understanding of the range of steps taken, and – if there is one – the detail of the seed spillage

Procedures to reduce risk of spillage between store and field
 Seed spillage procedure
 Provision of containers for any spillage or surplus seed
 Provision of equipment to clean up spillages
 Instructions to staff

16b

What measures were taken to ensure that GM seeds were not transported to other areas of the farm after drilling?

Probe to ensure respondents was aware of the risks and ensured that seed drills were adequately cleaned after use and surplus seed is adequately stored and labelled.

Use all seed

Drill cleaned in the field

Tyres cleaned

Surplus seed storage and disposal

Consent holder drilled seed

Crop Management

17

What herbicide applications have been carried out on the GM crop?

<i>Herbicide</i>	<i>Crop 1</i>

No. of applications

No. of applications

Harvesting the crop (all crops)

18

Did you have responsibility for harvesting the crop yourself?

<i>Crop 1</i>		<i>Crop 2</i>	
Yes	No	Yes	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18a

If yes, what steps have been taken to minimise seed shedding during harvest? (OSR Only)

Swathing	<input type="checkbox"/>
Desiccation	<input type="checkbox"/>
Optimum harvest timing	<input type="checkbox"/>
Careful setting of combine	<input type="checkbox"/>
Not required as the crop matured evenly	<input type="checkbox"/>
None	<input type="checkbox"/>

If no steps taken, why were Swathing or Desiccation operations not adopted?

19

Did you have responsibility for removing the crop from the field?

<i>Crop 1</i>		<i>Crop 2</i>	
Yes	No	Yes	No
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19a

If yes, what steps did you take to avoid spillage?

Probe to see whether storage, record keeping and labelling procedures are in place.

Crop 1

Crop 2

- Trailer taped up
- Trailer sheeted
- Trailer not over filled

Post Harvest (all crops)

20

What steps were taken to ensure that the GM crop was kept separate?

Probe to see whether storage, record keeping and labelling procedures are in place.

Crop 1

Crop 2

- Time of harvest
- Separate sheds
- Separate part of shed
- Clear crop identification
- Bagged up
- Removed by consent holder

Post Harvest (OSR only)

21

What steps have been, or will be, taken to deal with stubble clean up and ensure that the risk of volunteers is minimised?

Probe to see if steps are taken to ensure maximum germination of GM seeds before completing weed and volunteer control

- Shallow cultivations
- Use of herbicides
- Stale seedbed techniques
- Delaying deep soil inversion

Herbicide

Cultivation

Post harvest (Beet only)

22

What steps have been, or will be, taken to deal with root clearance from the field and ensure that the risk of regrowth is minimised?

Probe to see if steps are taken to ensure maximum germination of GM seeds before completing weed and volunteer control

- Harvester set up
- Site cleared
- Ploughing

Herbicide

Cultivation

Post Harvest (all crops)

23

Have you a documented policy to monitor subsequent crops for volunteers or evidence of agronomic problems which may have resulted from cross pollination?

Crop 1

Crop 2

Yes

No

Consent holders responsibility

Record Keeping

24

What cropping records have you kept for your GM crops?

Field reference number

Varieties and their GM characteristics

Detailed crop diary (cultivations, chemical applications, etc)

Post harvest treatments

Details of volunteer incidence and control

25

What steps have you taken to ensure that these records will be kept secure for a ten year period post harvest?

Fire proof storage

Paper records kept in more than one location

Computer backup procedures

26

Have you encountered any problems in following the Code of Practice or the Guidelines concerning the growing of GM crops?

Yes

No

Record any problems that they have encountered.

27

Have you any comments about the format of this telephone audit that you would like to make?

Yes

No

Record any problems that they have encountered.

Appendix 2. Key Questions

Key Questions

Some questions were identified as key questions if they related to one of the 8 critical control points identified by SCIMAC, and offered no opportunity for remedial action. If these questions were not answered satisfactorily, grower details were forwarded to SCIMAC for action.

SCIMAC Critical Control Point	Key Questions on Audit form	
Separation Distances	8.	Separation distances
Seed delivery, storage and handling	12d.	Separate seed storage
Drilling operations, including cleaning	16.	Prevention of spillage
	16b.	Cleaning drill
Handling of surplus seed	13.	Storage of surplus seed
Field operations, including harvest preparation	18a.	Steps to minimise seed shedding (OSR only)
Harvesting operations	19a.	Steps to reduce crop spillage at harvest
Transport and storage of GM bulk	20.	Traceability post harvest
Record keeping and post harvest monitoring	24.	Keeping adequate records
	25.	Secure records

Appendix 3. Letter to Growers from ADAS

SCIMAC Audits of Genetically Modified-Herbicide Tolerant (GM-HT) Crops

Introduction

All growers of GM crops are required to comply with a Code of Practice set out by SCIMAC (Supply Chain Initiative on Modified Agricultural Crops). This requirement, although originally designed for the commercial introduction of the technology will also apply to those participating in the Farm Scale Evaluation Trials. The purpose of this letter is to give you more details of the audit procedures for the 2001 harvest.

Reason for Audits

SCIMAC has drawn up a Code of Practice on the introduction of genetically modified crops in order to establish a consistent, industry wide approach to the supply of information relating to GM crops from seed to primary end product, and to promote practical guidelines for the management of specific aspects of GM crops.

The audits will provide independent, third party assessments of growers adherence to the on-farm management protocols.

The Auditors

SCIMAC has appointed ADAS Consulting Ltd, in conjunction with SAC in Scotland, to conduct the audits. The auditors will all be from an agronomy background with a sound understanding of crop production.

Your auditor will be _____, based at _____ office/field based.

The Audit Process

1 Telephone Audits

All farms within the Farm Scale Evaluation Trials in 2001 will receive a telephone audit in two parts. Part 1 will be conducted during the growing season, and part 2 after harvest. You will be telephoned by your auditor and arrangements made for a convenient time to complete the audit. Part 1 will take around 25 minutes and part 2 around 15 minutes. Audits will commence from January 2001.

2 On-Farm Audits

Following the telephone audit a proportion of growers will receive a farm audit where documented evidence of compliance will be required. Auditors will make an appointment for the audit and will require access to field records, training records and specific GM related records, along with access to the field if necessary. It is expected that these audits will take 2-3 hours.

Code of Practice and Guidelines are available from Daniel Pearsall, SCIMAC Secretary, 4 The Forum, Minerva Business Park, Peterborough, PE2 6FT.
Telephone 01733 231133

Any Questions?

If you have any questions regarding the audit process please contact me at the numbers below.

Yours sincerely

Susan Twining
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Appendix 4. Audit Assessment Criteria

SCIMAC Audit 2001/2

Question Assessment Sheet

Qu.	Satisfactory	Insufficient	Not Satisfactory
1.	Must have water, soil and air plus both SCIMAC documents	If water, soil or air missing	If no SCIMAC documents
2.	Must mention at least one of 4 areas	Unsure	No action taken
3.	-	-	-
4.	Must have staff briefing/training	Unsure	No action taken
5.	-	-	-
6.	Must be a written policy	Informal strategy	No strategy
7.	For oilseed rape must mention 4 out of: - <ul style="list-style-type: none"> • Weed return • Following crop • Rotation length • Herbicide choice • Stale seedbed For maize and beet must mention following crop and rouging	If some of 'satisfactory' mentioned but not all	No action taken
8.	Must be above minimum distance set out in guidelines. Must have a figure in metres- if known to be a long distance away write >1000m. If not known write 'no info'.	If unsure or 'no info'	If below minimum distances set out in guidelines
9.	Must have crop planning or site selection <u>and</u> one of measurements references	If only one step	No action taken
10.	Required if GM crop is within separation distance from neighbour	-	-
10a.	Must have written records of notification	Verbal only	No action taken
11.	Yes	Unsure	No
12	Yes	Unsure	No
12a	Yes	Unsure	No
12b	Yes	Unsure	No
12c	Must have separate storage/locked away <u>and</u> kept in original packaging/clearly labelled <u>or</u> staff briefing	If only one of 'satisfactory' options	No action taken
12d	Any one of possible answers	Unsure	No action taken
13.	Any one of possible answers	Unsure	No action taken
14.	Must have all three	One or two	None
15	Must have cleaned drill or separate drill	If not cleaned drill but other answers	No action taken
Qu.	Satisfactory	Insufficient	Not Satisfactory
16	Yes	-	No

16a	Must have container and cleaning equipment	Either container or cleaning equipment	No action taken
16b	Must clean drill in field	Any other action but no drill cleaning in field, or if drill cleaned elsewhere on farm	No action taken
17	If within label recommendations	-	If outwith label recommendations
18	-	-	-
18a	Must have swathing or desiccation or optimum harvest time	Any other answer	No action taken
19	-	-	-
19a	Must at least not overfill trailer and for OSR must use leak proof trailer or taped trailer. Must also clean combine in field	Any one answer	No action taken
20	Must have separate storage shed or area <u>and</u> clear identification/bagged up <u>or</u> removed by consent holder	Any one answer	No action taken
21	Any one answer	Unsure	No action taken
22	Any one answer	Unsure	No action taken
23	Yes	Unsure	No
24	Minimum field reference number, varieties and GM characteristics <u>and</u> detailed crop diary	Any one or two answers	No records kept
25	Any one answer	Unsure	No action taken
26	No	Unsure	Yes

Notes:-

- Critical questions are highlighted in bold – if any of these questions are not answered satisfactorily please alert me immediately for referral to SCIMAC.
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