



EuropaBio

**Insect Protected Maize Farmer Questionnaire
USER'S MANUAL**

General introduction to the insect protected maize farmer questionnaire

Purpose

The purpose of General Surveillance is to identify unanticipated adverse effects that may arise from the presence of a genetically modified (GM) crop in the agricultural environment. The insect protected maize farmer questionnaire ('farmer questionnaire', Appendix 1) is one instrument for the implementation of general surveillance for GM crop cultivation. It is largely based on routine observations by farmers cultivating GM crops.

Data collection and analysis

The survey of farmers should be conducted annually after harvest of the maize crop, with farmers across the European Union that have been cultivating GM maize.

Farmers will be asked to complete the farmer questionnaire in a personal interview that is carried out by phone or in person. Interviewers will be third parties that will contact the farmers on behalf of the authorisation holders. In countries with limited market penetration, the interview may at first be carried out by representatives of the authorisation holders.

The number of farmers to be questioned will depend on the level of market penetration, and will be decided on an annual basis by the authorisation holders. Regional distribution will be taken into account when selecting the farmers to be interviewed; the selection of farmers for survey should reflect as much as possible the distribution of the areas cultivated to GM maize.

Completed farmer questionnaires should be returned to BioMath at the end of 2009. The analysis of the data will be carried out by BioMath on behalf of the authorisation holders. BioMath will pool the questionnaires from all countries and analyse them by event. The results from the event-specific analyses will be presented to each authorisation holder in a report.

Questionnaire design

The farmer questionnaire is designed to collect factual data that not only allows the identification of unanticipated adverse effects, but also the formulation of cause and effect hypotheses in order to confirm if an observed effect is indeed linked to the presence of the *Bt* maize and not to other factors.

The questions to the farmer are organised to collect data on four specific areas.

Section 1: Maize growing area

Responses to this section will enable records of general, basic data on maize cultivation, cultivation area and local pest and disease pressure (independent from *Bt* or conventional cultivation – background and possible influencing factors). It includes questions on 'fixed factors', e.g. soil characteristics, and 'random factors', e.g. diseases, pests and weeds.

Section 2: Typical agronomic practices to grow maize on the farm

Questions in this section aim to establish the agricultural practices to cultivate conventional maize. The data collected in this section constitutes a baseline against which insect protected

maize cultivation can be compared. It includes questions on 'adjustable factors', e.g. irrigation, soil tillage, planting technique, weed and pest control practices, fertiliser, etc.

Section 3: Observations of the insect protected maize event

Questions in this section collect information to assess the specific insect protected maize practices, observations and performance. It includes questions on 'monitoring parameters' for comparison with conventional maize, e.g. germination, time to emergence, etc.

Section 4: Implementation of insect protected maize event specific measures

Questions in this section are intended to survey the implementation of the recommendations for insect protected maize cultivation.

General instructions to interviewers

- Interviewers should explain to the farmer the purpose of the farmer questionnaire and the meaning of the questions, where necessary, in order to ensure that the answers provided are accurate and factual.
- All questions should be answered. Answers should be as complete and precise as possible.
- When applicable, answers should be selected from multiple choices presented on the questionnaire. If the answer “Do not know” is not listed, farmers are expected to know the answer.
- The farmer questionnaire is to be performed in the farmers’ local language: however, instant translation to English in the grey areas provided is recommended. If this is not possible, accurate translation can be performed at a later stage before sending the farmer questionnaire back for analysis.
- When providing responses, the farmer should focus on the most representative maize crop area (Part 1), the most representative non-GM maize crop area (Part 2) or the most representative MON 810 maize crop area (Part 3). During the analysis of the results, Part 1 and Part 2 will serve as a comparator for Part 3.
- For the purpose of this questionnaire, the ‘most representative’ will be the non-GM maize/MON 810 maize field with characteristics, observations or agricultural practices most common to that farm.
- Specific observations in fields that were not selected as the ‘most representative’ MON 810 field may have been noticed, but not reported in the farmer questionnaire. Farmers should be encouraged to comment on specific observations in other MON 810 fields in Section 3.9.

Personal and confidential data

The farmer questionnaire, including its first page, must be sent to BioMath who will be performing the analysis.

The personal data of the farmer will be handled in accordance with applicable data protection legislation. The personal data of the farmers may be used for the purpose of interviews necessary for the survey if the farmers have authorised this use as per the data protection legislation.

The questionnaires will be encoded to protect farmers’ identity in the survey and confidentiality agreements will be put in place between the different parties (i.e. authorisation holders, licensees, interviewers and analysts) to further enforce this. The identity of a farmer will only be revealed to the authorisation holders if an adverse effect linked to their trait has been identified and needs to be investigated.

Furthermore, the agreements between the different parties will also ensure that any information collected in the questionnaires will not be improperly shared or used.

Detailed instructions for conducting the farmer questionnaire

Section 1: Maize growing area

Responses to this section will enable records of general, basic data on maize cultivation, cultivation area and local pest and disease pressure (independent from GM or non-GM cultivation – background and possible influencing factors).

Question 1.1: Location

For each European country, 'county' corresponds to the administrative level between the region size and the town. *[Level should be specified in each country manual]*

Question 1.2: Surrounding environment

Describe how the land surrounding the field selected for the survey/or surrounding the farm is used. This could include use as farmland, forest or wild habitat, or residential /industrial.

Question 1.3: Size and number of field of the maize cultivated area

- In responding to this question, the farmer should indicate as precisely as possible, the total area of maize cultivated on his/her farm, the total area of MON 810 maize cultivated on his/her farm, and the number of fields cultivated with MON 810 maize.
- Areas indicated should be for the current planting season.

Question 1.4: Maize varieties grown

- Varieties should be ranked according to area planted. List the variety planted to the largest area planted to the smallest area planted.
- The identity of the varieties is important because certain plant behaviour can be influenced by germplasm.
- The GM maize varieties should be found in the attached list in Annex 2, or should be listed in the EU catalogue¹. If not listed, please specify.
- Annex 3 lists the conventional varieties per country. If a variety is not in the list, the European catalogue of varieties should be consulted¹. If not listed, please specify.
- The farmer should list any other GM maize varieties grown on the farm that are not specified above.

¹ http://ec.europa.eu/food/plant/propagation/catalogues/comcat_agricultural/80.html

Question 1.5: Soil characteristics of the maize grown area

- The farmer should select one response from the options given and should not indicate two different soil types in response to this question.
- When answering this question, the response should describe soil type from the most representative conventional maize field.

Question 1.6: Local pest and disease pressure in maize

- The objective of this question is to understand the local conditions of pest, disease and weed pressure in conventional maize.
- The farmer should indicate whether pest, disease and weed pressure is lower, as usual, or higher than normally observed. Diseases would include fungal and/or viral infections and pests would include insects, mites and/or nematodes.
- When answering this question, the farmer should consider the pest, disease and weed pressure in the most representative conventional maize field on the farm.

Section 2: Typical agronomic practices to grow maize on your farm

Questions in this section aim to establish agricultural practices employed to cultivate conventional maize. The data collected in this section constitutes a baseline against which insect protected maize cultivation can be compared.

In responding to questions in this section, the most representative conventional maize field should be considered.

Question 2.1: Irrigation of maize grown area

- In response to this question, the farmer should indicate whether conventional maize was irrigated (yes or no). If 'yes', what type of irrigation was used on the conventional maize area (gravity, sprinkler, pivot, other).
- The most representative conventional maize field should be considered.

Question 2.2: Major rotation of the maize grown area

- Specify the major rotation, or crop grown in the previous year, and two years ago, on the area planted to conventional maize.
- The most representative conventional maize field should be considered.

Question 2.3: Soil tillage practices

- The farmer should specify whether soil tillage practices were used in the conventional maize planted area (yes or no).
- If soil tillage was used, the farmer should specify the timing of the tillage, i.e. winter or spring.
- The most representative conventional maize field should be considered.

Question 2.4: Maize planting technique

- The farmer should specify whether conventional maize was planted conventionally, by mulching, or by direct sowing.
- The most representative conventional maize field should be considered.

Question 2.5: Typical weed and pest control practices in maize on your farm

- The farmer should indicate whether insecticides are used in conventional maize on the farm (tick the box). In addition, the farmer should indicate whether any insecticides for maize borer are used in conventional maize on the farm (yes or no).
- The farmer should indicate whether other weed and pest control practices, i.e. biocontrol treatments, herbicides, mechanical weed control, or fungicides are used in conventional maize on the farm (tick the box). If other is checked, the farmer should elaborate on the response in the space provided.
- The most representative conventional maize field should be considered.

Question 2.6: Application of manure to maize grown area

- The farmer should specify whether manure is applied in conventional maize (yes or no).
- The most representative conventional maize field should be considered.

Question 2.7: Typical time of maize sowing range

- The time of sowing should be given in Day/Month for planting of conventional maize on the farm, i.e. start date to end date.
- The most representative conventional maize field should be considered.

Question 2.8: Typical time of maize harvest range

- The time of maize harvest should be given in Day/Month for harvest of conventional maize on the farm, i.e. start date to end date.
- Dates of harvest of grain maize should be given separately to dates of harvest of forage maize.
- The most representative conventional maize field should be considered.

Section 3: Observations of MON 810

This section focuses on insect protected maize cultivation and on the specific observations that relate to it.

Question 3.1: Agricultural practices applied to MON 810 (compared to conventional maize)

- All responses to this question should take into account the agricultural practices in the most representative MON 810 field on the farm.
- The farmer should specify whether the crop rotation in MON 810 changed in comparison with conventional maize (as usual or changed). If 'changed', then the farmer should describe why the rotation was changed.
- The farmer should indicate whether MON 810 was planted earlier, later or at the same time as conventional maize on the farm. If applicable, the farmer should give reasons why MON 810 was planted later.
- The farmer should indicate whether soil tillage or maize planting techniques were as usual or changed compared when planting MON 810. If applicable, the farmer should describe why the techniques were changed.
- The farmer should give a list of insecticides applied in the MON 810 field (including seed treatments). Insecticides should be selected from the list of authorised insecticides in each country given in Annex 4.
- The farmer should give a list of herbicides applied in the MON 810 field. Herbicides should be selected from the list of authorised herbicides available in each country given in Annex 5.
- The farmer should give a list of fungicides applied in the MON 810 field. Fungicides should be selected from the list of authorised fungicides available in each country given in Annex 6.
- The farmer should indicate whether insecticides, herbicides, or fungicides applied in the MON 810 field were similar or different to those used in conventional maize on the farm. If the answer is different, the farmer should include a relevant explanation to help understand the reasons for the difference. When asking this question, the interviewer should keep in mind the farmer's response to Question 2.5 (Typical weed and pest control practices in maize on your farm), as well as the list of insecticides applied by the farmer in the MON 810 field (for the question about insecticide). If there is a discrepancy between this answer and the response to those questions, the interviewer should seek clarification.
- The farmer should indicate whether maize borer control practices in the MON 810 field were similar or changed compared to conventional maize. If maize borer control practices applied in MON 810 were changed from those used in conventional maize, then the interviewer should include a relevant explanation to help understand the reasons for the difference. In most cases, responses will indicate a difference between MON 810 and conventional maize and an explanation will be necessary and will be related to the efficacy of MON 810 against maize borer.
- The farmer should indicate if fertilizer application practices applied to MON 810 maize compared to conventional maize are similar or different to those used in conventional maize

on the farm. If the answer is different, the farmer should include a relevant explanation to help understand the reasons for the difference.

- The farmer should indicate whether irrigation practices applied in the MON 810 field were as usual or changed compared to conventional maize on the farm. If the answer is changed, the farmer should include a relevant explanation to help understand the reasons for the difference.
- The farmer should indicate whether the MON 810 field was harvested at the same time, earlier or later than conventional maize on the farm. If MON 810 was harvested later, the farmer should include a relevant explanation to help understand the reasons for the difference.
- Simultaneous translation in English is recommended to help preserve the accuracy of the reasons given by the farmer for any differences observed in the questions above. If this is not possible, accurate translation can be performed at a later stage before sending the farmer questionnaire back for analysis.

Question 3.2: Characteristics of MON 810 in the field (compared to conventional maize)

- The interviewer should explain to the farmer that this is a comparative assessment between MON 810 maize and conventional maize to determine whether there were any observed differences in growth and development characteristics in the most representative MON810 field compared to conventional maize.
- An understanding of the disease/pest/weed pressure in the current year may be valuable in interpreting the results of the characteristics of MON 810 (compared to conventional maize) in the field. This can be achieved by consulting data from plant protection or extension services.
- If the answer to any of the growth and development characteristics in MON 810 maize to conventional maize are different from 'as usual', the farmer should specify potential reasons for the difference, e.g. influencing factors such as choice of varieties could be a reason for differences in maturity, yield, etc. The interviewer should judge the quality of the justification and may, if necessary, try to get a more detailed explanation.
- Any unusual observations regarding MON 810 maize during its growth should be explained in detail by the farmer.

Note: Simultaneous translation to English is recommended to try to help preserve the accuracy of the reasons for the differences given above. If this is not possible, accurate translation can be performed at a later stage before sending the farmer questionnaire back for analysis.

Question 3.3: Characterise the MON 810 susceptibility to disease (compared to conventional maize)

- The farmer should provide an overall assessment of disease susceptibility of the most representative MON 810 field compared to conventional maize (fungal, viral diseases), e.g. as usual, more susceptible, less susceptible.
- If the answer is different from 'as usual', the interviewer should ask the farmer to identify the disease(s) to which the susceptibility is different (fungal / viral diseases).
- The interviewer should as much as possible, ensure that the disease is accurately named and recorded. The table given in the questionnaire is a tool to aid this exercise – additional answers are possible.
- Additional comments can be given in the dedicated space below.

Note: Simultaneous translation to English is recommended to try to help preserve the accuracy of the reasons for the differences given above. If this is not possible, accurate translation can be performed at a later stage before sending the farmer questionnaire back for analysis.

Question 3.4: Characterise the insect pest control in MON 810 fields (compared to conventional maize)

- The farmer should indicate the overall efficacy of MON 810 on European corn borer (*Ostrinia nubilalis*) and Pink borer (*Sesamia* spp), e.g. very good, good, weak, don't know.
- Additional comments can be given in the space given.

Note: Simultaneous translation to English for the 'additional comments' section is recommended to preserve the accuracy of the responses. If this is not possible, accurate translation can be performed at a later stage before sending the farmer questionnaire back for analysis.

Question 3.5: Characterise the MON 810 susceptibility to OTHER pests (compared to conventional maize)

- The farmer should provide an overall pest susceptibility (insect, mite, nematodes) of MON810 compared to conventional maize (as usual, more susceptible, less susceptible).
- If the answer is different from 'As usual', the interviewer should ask the farmer to identify the pests that are observed to be more or less susceptible.

Note: The interviewer should, as far as possible, ensure that the pests are recorded accurately, and if possible, should be recorded by their Latin / Scientific name.

Question 3.6: Characterise the weed pressure in MON 810 fields (compared to conventional maize)

- Provide an overall assessment of the weed pressure (as usual, more weeds, less weeds) and the three most abundant weeds in the most representative MON 810 field, compared to conventional maize.
- If there were any unusual observations regarding the occurrence of weeds in the MON 810 field, the interviewer should try to identify the cause. Possible causes could be, for example, the field history, the performance of the weed control program, etc.

Note: The interviewer should, as far as possible, ensure that the pests are recorded accurately, and if possible, should be recorded by their Latin / Scientific name.

Simultaneous translation to English is recommended to preserve the accuracy of the response. If this is not possible, accurate translation can be performed at a later stage before sending the farmer questionnaire back for analysis.

Question 3.7: Occurrence of wildlife in MON 810 fields (compared to conventional maize)

- The general impression of the occurrence of mammals, birds and insects, in the most representative MON 810 field compared to conventional maize, based on the observations of the farmer, should be given (as usual, more, less, do not know).
- If the answer is different from 'as usual' the interviewer should ask the farmer for a detailed explanation of the difference.
- The interviewer should judge the quality of the justification and may, if necessary, try to get more in depth explanations to best assess to what extent the change is related to the MON 810 variety or to some other character, such as location (e.g. proximity of a pond, forest – see Question 1.2).

Note: Simultaneous translation to English is recommended to preserve the accuracy of the response. If this is not possible, accurate translation can be performed at a later stage before sending the farmer questionnaire back for analysis.

Question 3.8: Feed use of MON 810

- This section should be considered only if the farmer had experience in the previous year with MON 810.
- If the answer in response to the general impression of the performance of the animals fed MON 810 compared to animals fed conventional maize is "different", the interviewer should ask the farmer to describe in detail, relevant information in the dedicated area below. The interviewer has to judge the quality of the justification and may, if necessary, try to get more in depth explanations to best assess to what extent the change is related to the MON 810 variety, or to some other character.

Note: Simultaneous translation of the explanation to English is recommended to preserve the accuracy of the response. If this is not possible, accurate translation can be performed at a later stage before sending the farmer questionnaire back for analysis. Question 3.9: Any additional remarks or observations

- Any general remarks or comments related to effects of MON 810 are to be made in this section.
- In addition, any field specific differences in MON 810 fields not included as the 'most representative' field should be described here. The interviewer should obtain a detailed explanation from the farmer about field specific differences.

Note: Simultaneous translation to English is recommended to preserve the accuracy of the response. If this is not possible, accurate translation can be performed at a later stage before sending the farmer questionnaire back for analysis.