



Insect Protected Maize Farmer Questionnaire

REVISED USER'S MANUAL

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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. This revised¹ insect protected maize farmer questionnaire ('farmer questionnaire', Annex 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 farmers survey will be conducted annually with farmers in Spain that cultivate GM maize.

The farmers will be interviewed in two waves during the maize planting season: 1st - early in the maize planting season (May-July), and 2nd - late in the maize planting season (Oct-Dec).

Farmers will be contacted as necessary by the interviewers to make sure the completion of the questionnaires.

The interviewers will be third parties that will contact the farmers on behalf of the authorisation holder.

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 the season. The analysis of the data will be carried out by BioMath on behalf of the authorisation holder. BioMath will pool the questionnaires for analysis.

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, insect pressure and occurrence of weeds, such as teosinte in the maize growing area.

¹ The previous version of the farmer questionnaire was revised based on the experiences gained over the past 15 years ([Bertho et al](#)).

Section 2: Observations on integrated pest management (IPM) practices in YieldGard® maize (compared to conventional maize)

Questions in this section aim to establish the IPM practices to control corn borer in YieldGard® maize compared to conventional maize fields. The data collected in this section constitute a baseline against which the IPM practices in conventional and *Bt* maize can be compared. It includes questions on 'adjustable factors', such as crop rotation, maize sowing and harvesting periods, and corn borer control practices.

Section 3: Observations on development and performance of YieldGard® maize (compared to conventional maize)

Questions in this section collect information to assess the development and performance of *Bt* maize compared to conventional maize. It includes questions on 'monitoring parameters' for comparison with conventional maize, e.g. any unusual observation on growth performance (germination, emergence, flowering, incidence of stalk/root lodging, maturity, yield, volunteers, non-target organisms, susceptibility to diseases, susceptibility to *Bt* non-target insect pests, 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 text 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.
- The farmer should focus on the following when providing responses:
 - Part 1: The farmer should provide the most representative information for maize growing areas, unless requested for *Bt* maize specific information.
 - Part 2 and Part 3: The farmer should provide the requested *Bt* maize information in comparison to a most representative information for conventional maize, unless requested for *Bt* maize specific information.
 - Part 4: The farmer should provide the requested *Bt*-Maize specific information.
- 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 3.3.
- The reference numbers boxes (Year - Event - Partner - Country -Interviewer- Farmer ID) must be filled in and should be shown in each page of the questionnaire.
- Questionnaires should be filled electronically.

Personal and confidential data

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 insect and weed pressure (independent from GM or non-GM cultivation – background and possible influencing factors).

Question 1.1: Location

“Province” corresponds to the administrative division. *[Level should be specified in each country manual]*

Question 1.2: Size and number of fields of the maize cultivated area

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

Question 1.3: 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 variety name is important because certain plant behaviour can be influenced by germplasm.
- The GM maize varieties should be found in the drop-down list or should be listed in the EU catalogue². If not listed, please specify.
- Annex 3 lists the conventional varieties per country. If a variety is not in the drop-down list, the European catalogue of varieties should be consulted¹. If not listed, please specify.
- Once these questions have been answered, one of the YG Fields and one of the Conv Fields will be picked randomly (in the background, by the software). These randomly chosen fields then will replace the YG Field #X and Conv Field #X for all questions below. This guarantees that for those questions which should specifically be answered regarding a single field, this single field is drawn (somewhat) randomly for each farmer.

Question 1.4: Local insect pest pressure in maize fields

- The objective of this question is to understand the local conditions of insect pest pressure, including the corn borer pests, in conventional maize.

² http://ec.europa.eu/food/plant/propagation/catalogues/comcat_agricultural/80.html

- The farmer should indicate whether insect pest pressure, including the corn borer pests, is lower, as usual, or higher than normally observed.
- When answering this question, the farmer should consider the insect pest pressure in the most representative conventional maize field on the farm
- **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 1.5: Local weed pressure in maize fields

- Provide the three most typical weeds in the maize fields.
- The interviewer should try to identify if there were any unusual observations regarding the occurrence of weeds in the *Bt* maize field, e.g. teosinte.

Note: The interviewer should, as far as possible, ensure that the weeds 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.

Section 2: Observations on IPM practices in YieldGard® maize (compared to conventional maize)

Questions in this section aim to establish IPM practices employed to control corn borer in YieldGard® maize compared to conventional maize. The data collected in this section constitute a baseline against which the IPM practices in conventional and *Bt* maize can be compared.

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

Question 2.1: Rotation of the maize grown area

- Specify the rotation, or crop grown in the most recent years on the area planted to YieldGard® and to conventional maize, indicating the period of each crop planted.
 - The planting period includes early season (February-April) and late season (May- July).
 - The randomly picked YieldGard® and conventional maize fields should be considered.
- Specify the rotation, or crop grown in the most recent years on the area planted to YieldGard® and to conventional maize and indicate whether the crop rotation in YieldGard® changed in comparison with conventional maize (as usual or changed). If 'changed', then the farmer should describe why the rotation was changed.

Question 2.2: Typical time of maize sowing range

- The time of sowing should be given in Day/Month for planting of YieldGard® and of conventional maize on the farm, i.e. start date to end date. The randomly picked maize fields should be considered.
- The farmer should indicate whether *Bt* maize was planted earlier, later or at the same time as conventional maize on the farm. If applicable, the farmer should give reasons why *Bt* maize was planted earlier or later.

Question 2.3: Typical time of maize harvest range

- The time of maize harvest should be given in Day/Month for harvest of YieldGard® and of conventional maize on the farm, i.e. start date to end date.
- The randomly picked maize fields should be considered.
- The farmer should indicate whether the *Bt* maize field was harvested at the same time, earlier or later than conventional maize on the farm. If *Bt* maize was harvested earlier or later, the farmer should include a relevant explanation to help understand the reasons for the difference.

Question 2.4: Corn borer control practices

- The farmer should indicate which corn borer control practices are used in YieldGard® and in conventional maize on the farm. On any practice, the farmer should specify the insecticides, biocontrol treatments, and other measures.
- The randomly picked maize fields should be considered.
- The farmer should indicate the overall efficacy of *Bt* maize on European corn borer (*Ostrinia nubilalis*) and Mediterranean borer (*Sesamia* spp), e.g. very good, good, weak, don't know.
- Additional comments can be given in the space given.
- If “weak” was the farmer’s chosen answer on the overall efficacy, the farmer should include a relevant explanation to help understand the reasons for the weak performance.

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.

Section 3: Observations on development and performance of YieldGard® maize (compared to conventional maize)

Questions in this section collect information to assess the development and performance of *Bt* maize compared to conventional maize. It includes questions on 'monitoring parameters' for comparison with conventional maize, e.g. any unusual observation on growth performance (germination, emergence, flowering, incidence of stalk/root lodging, maturity, yield, volunteers, non-target organisms, susceptibility to diseases, susceptibility to *Bt* non-target insect pests, etc...).

Question 3.1: Characterise the *Bt* maize to OTHER insect pests susceptibility (compared to conventional maize)

- The farmer should provide an overall pest susceptibility (insect) of *Bt* maize 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 3.2: Characteristics of *Bt* maize (compared to conventional maize)

- The interviewer should explain to the farmer that this is a comparative assessment between YieldGard® maize and conventional maize to determine whether there were any observed differences in growth and development characteristics in the randomly picked YieldGard® field compared to the randomly picked conventional maize field. All observations from planting to harvest and post-harvest are covered by question 3.2.
- If the answer to any of the growth and development characteristics in YieldGard®maize to conventional maize are different from '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 *Bt* 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: Any additional remarks or observations

- Any general remarks or comments related to effects of *Bt* maize are to be made in this section e.g. benefits / unusual harms to animals and the environment.

- In addition, any field specific differences in *Bt* maize 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.

Section 4: Implementation of Bt-maize specific measures

The purpose of questions in Section 4 is product stewardship.

Question 4.1: Have you been informed on good agricultural practices for YieldGard® maize?

No specific remarks.

Question 4.2: Seed

No specific remarks.

Question 4.3 Prevention of insect resistance

In case of a yes answer, it is suggested to ask the farmer to briefly describe the refuge.

Question 4.4 Questions related to sustainability of YieldGard® maize technology

No specific remarks.

Annex 1

Farmer Questionnaire³

³ This is a revised version of the farmer questionnaire used for farmer surveys since xxx



Annex 2

List of YieldGard® (MON 810) Maize varieties

Annex 3

Top varieties cultivated in the country



Annex 4
Insecticides listed in the
country