

Data collection 2016

The Good Growth Plan



INSTRUCTIONS FOR INTERVIEWER - VISIT 1	3
BACKGROUND INFORMATION	4
PART I: SCREENING	5
PART II: CONTACT INFORMATION	12
PART III: FARM CHARACTERISTICS	17
E. Biodiversity conservation	17
Z. Soil conservation	23
C. Soil erosion	26
G. Description of growing area	28
F. Training on crop cultivation and safety measures	33
PART IV: FARMING PRACTICES - BEFORE HARVEST	37
A. Planting and fruit development - field crops	37
B. Planting and fruit development - tree crops	44
K. Planting and fruit development - SUGARCANE	50
T. Planting and fruit development - CAULIFLOWER	55
W. Seed treatment - Belgium	60
X. Seed treatment	66
END OF PRE-HARVEST INTERVIEW	78
INSTRUCTIONS FOR INTERVIEWER - VISIT 2	79
PART V: FARMING PRACTICES - AFTER HARVEST	80
V. Fertilizer usage	80
X. Crop protection products	89
M. Harvest timing & quality per crop - field crops	104
N. Harvest timing & quality per crop - tree crops	118
K. Harvest timing & quality per crop - SUGARCANE	132
O. Harvest timing & quality per crop - BANANA	138
Y. After harvest	146
PART VI - OTHER INPUTS - AFTER HARVEST	149
A. Input costs	149
B. Abiotic stress	154
C. Irrigation	159
PART VII - FEEDBACK	163

INSTRUCTIONS FOR INTERVIEWER - VISIT 1

Please use this instruction sheet during the set-up of the before harvest interview ('VISIT 1'). Make sure to check-off all applicable boxes as you go. End by filling out your name and signature at the bottom of the page.

- Check if: **REPEATED RESPONDENT**
NEW RESPONDENT
Please check off box that applies

- Note down unique ID number:

Country code (see country codes in Q2)

Farm type (1=RF and 2=BF)

Unique respondent number

--	--	--	--	--	--

Arrows indicate input flow:
Country code (2 digits) → first two boxes
Farm type (1 digit) → third box
Unique respondent number (6 digits) → last six boxes

FOR REPEATED RESPONDENTS, PLEASE USE EXISTING UNIQUE ID NUMBER.

- Note down date of VISIT 1:

				2	0	1	6
--	--	--	--	---	---	---	---

Please check off boxes to confirm all was done:

- Hand over Syngenta grower brochure to respondent
➤ Hand over individual grower report to respondent
➤ IF NEW RESPONDENT: Hand over Syngenta welcome brochure
➤ Use CPP-list during the interview
➤ Use the grower check form during the interview
➤ Ask respondent to sign grower agreement
➤ Ask respondent to sign photo/video agreement

➤ NAME INTERVIEWER:

➤ SIGNATURE INTERVIEWER:

BACKGROUND INFORMATION

Market Probe is an independent market research agency specialized in agricultural research. For “The Good Growth Plan”, we are currently collecting farm data as part of a global project. This document is your guide for the collection of your farm data. We will already go through some topics, but we will also ask you to fill out some of the data yourself and send the information back to the market research agency.

- After planting (intermediary data transfer): PART I + II + III + IV
 - o Part V has to be left with the farmer
- After harvesting (final data transfer): PART V + VI + VII

*In case of questions, **please** don't hesitate to contact the local help desk (**insert helpdesk number here**).*

Before we start data collection, we will guide you through the questionnaire, in order to make all questions clear to you. We will also give some more background information on the Good Growth Plan.

Please note that individual responses will never be reported. All data will be analyzed and reported in an aggregated way.

PART I: SCREENING

In this first part, we will check the crops and fields for which we will collect data. Thanks in advance for your participation in the 2016 data collection of The Good Growth plan.

1. Please fill out the unique code, given by the interviewer:

UNIQUE CODE: XX X XXX

Country code (See country codes Q2)

Farm type (1=RF and 2=BF)

Respondent number (Unique respondent number)

1. B. Please fill out the date of the interview:

Date (Date in DD.MM.YYYY)

1.C1. Have you or someone else in your farm participated in The Good Growth Plan in:

→ Tick all that applies.

→ Multiple response.

	Growing area A	Growing area B
1) 2014	1	1
2) 2015	2	2

IF 1C1=2015 → INTERVIEWER: share individual grower report

1.C3. Since you have participated in The Good Growth Plan in 2015, we'd like to share with you your individual performance report. This report compares you to your colleague-farmers, in terms of yield, number of applications, use of crop protection products, and nitrogen use. For your information,

- Yield is expressed in metric tons per hectare;
- Number of crop protection product applications per hectare;
- Crop protection products in kilogram active ingredient per hectare;
- Nitrogen use in kilogram nitrogen per hectare.

Having read through this document, do you consider this report:

→ Tick what applies.

→ Single response.

Very useful	4
Rather useful	3
Not so useful	2
Not useful at all	1
Don't know /no answer	99

1.C4. Please explain your answer:

1. F. We are conducting this survey on behalf of Syngenta, a manufacturer of crop protection products. Would it be okay for you for this company to contact you with follow-up information on The Good Growth Plan?

Yes	1
No	2

SCREENING: Please program screening questions on country/crop/cluster level based on separate screening document.

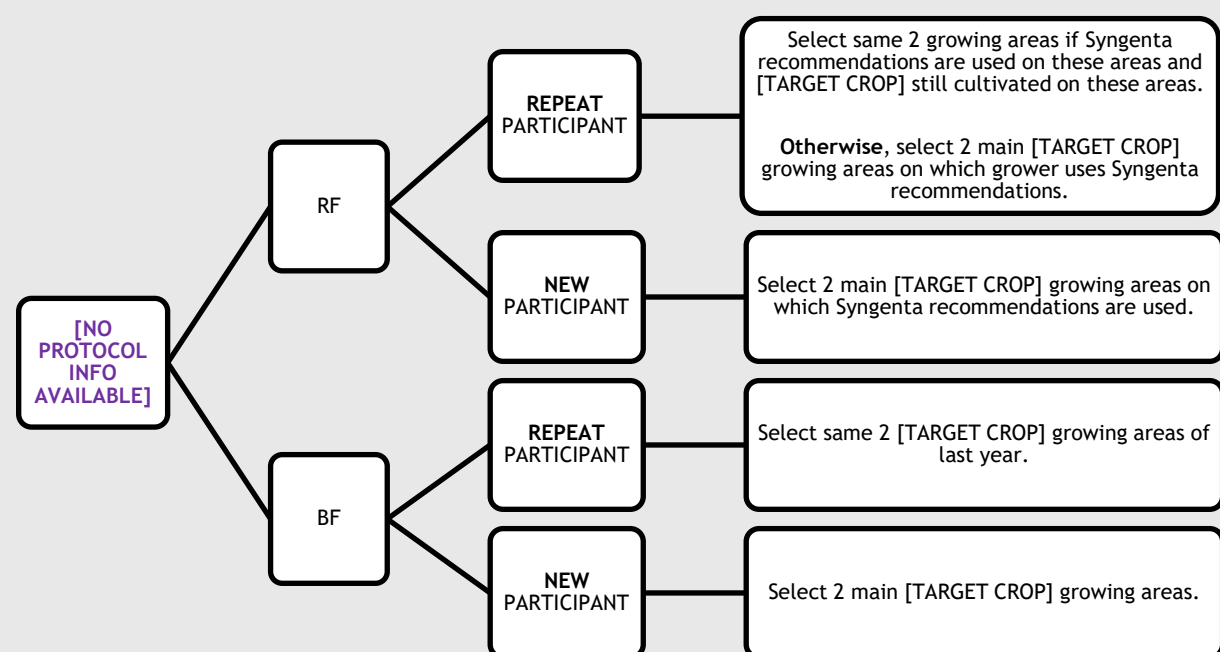
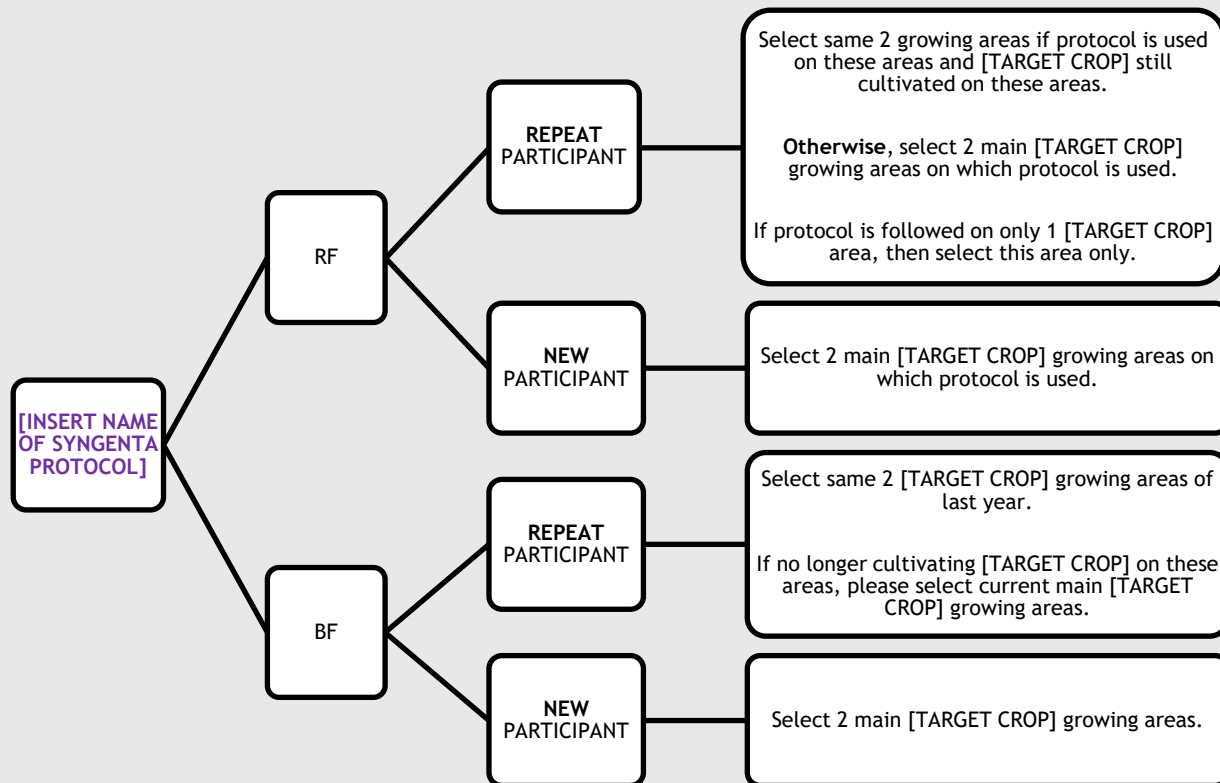
Please consider the following ways of working:

- IF REPEAT PARTICIPANT: "Quick check" to be included. Grower must confirm if he still complies with the screening profile. If not, grower should go through the entire screening part again (cf. NEW PARTICIPANT).
- IF NEW PARTICIPANT: Screening questions to be programmed based on separate screening document.

MP to select correct decision tree based on whether protocol information is available.

IF PREVIOUS PARTICIPANT

→ Show respondent area names + sizes of previous years (cf. grower check form).



57. What is the size of each growing area for [TARGET CROP]?

→ Spontaneous. Please write down the size of each growing area.

→ **Single response.**

	Growing area A	Growing area B
Size of growing areahaha

Check: the sum of the size of growing area A and growing area B cannot be larger than Q5 and/or Q6

56. Please note down the growing area name (f.e. D-block, windmill field, ...).

→ Read. The names of both growing areas should be different.

→ **Single response.**

	Growing area A	Growing area B
Field description		

IF GROWER IS A REPEATED PARTICIPANT

56A1. Were these areas also included in The Good Growth Plan data collection in [READ], even though the size of this area might have increased or decreased?

→ Read. Please circle if this area was included in the mentioned year.

→ **Multiple response.**

	Growing area A	Growing area B
1) 2014	1	1
2) 2015	2	2

IF Q56A1≠2 (AREA NOT THE SAME AS 2015)

56A2. Please explain why the growing area(s) have changed compared to the previous years?

→ Spontaneous.

→ **Multiple response.**

	Growing area A	Growing area B
I do not cultivate [TARGET CROP] on this area this year due to crop rotation	1	1
I hired another area	2	2
I sold or rented that area of my farm (e.g. to another farmer)	3	3
I left my field fallow	4	4
I switched to a field with Syngenta protocol	5	5
I do not cultivate target crop on that area anymore	6	6
Other specify 1:	96	96
Other specify 2:	97	97
Other specify 3:	98	98
Don't know / no answer	99	99

57A. Can you please indicate how certain you are of the size indication for each growing area?

→ READ. Check if this was measured by an official agency. If YES, note this official size.

→ Single response.

	Growing area A	Growing area B
The size indicated is an estimation	1	1
The size indicated is based on my own measurement	2	2
The size indicated was measured by a third party and is therefore 100% correct	3	3
Other specify:	96	96
Don't know / no answer	99	99

397. Have you received a recommended growing protocol or crop program from an agricultural advisor for each growing area of [TARGET CROP]?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q397=1 (received a recommended growing protocol / crop program)

397. B. From whom did you receive the protocol / crop program for each growing area of [TARGET CROP]?

→ Please tick what applies.

→ Multiple response.

	Growing area A	Growing area B
Dealer/store	1	1
Manufacturer/representative	2	2
Independent advisor	3	3
Cooperative	4	4
96. Other specify:		
97. Other specify:		
98. Other specify:		
Don't know / no answer	99	99

IF Q397=1 (have received a recommended growing protocol / crop program)

4051. How satisfied are you with the recommendations that [INSERT ANSWER FROM Q397B] has given you?

→ Read. Please tick what applies.

→ Single response.

	Dealer/store		Manufacturer/representative		Independent advisor		Cooperative	
	Growing area A	Growing area B	Growing area A	Growing area B	Growing area A	Growing area B	Growing area A	Growing area B
Very satisfied	4	4	4	4	4	4	4	4
Somewhat satisfied	3	3	3	3	3	3	3	3
Somewhat unsatisfied	2	2	2	2	2	2	2	2
Very unsatisfied	1	1	1	1	1	1	1	1
Don't know/no answer	99	99	99	99	99	99	99	99

IF Q397=1 (have received a recommended growing protocol / crop program)

4052. A. Do you use this growing protocol / crop program on the selected growing areas?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q4052A=1 (protocol applied on selected growing area)

4052. B. Is this area a test field or a fully commercial field?

	Growing area A	Growing area B
Test field	1	1
Fully commercial field	2	2

IF Q397=1 (have received a recommended growing protocol / crop program)

4053. Are there other areas on which you have applied the same protocol / crop program for [TARGET CROP]?

Yes	1
No	2

IF Q4053=1 (other areas on which the same protocol is applied)

399. A. Please indicate on which percentage of the total crop area of [TARGET CROP] you have followed the protocol / crop program?

.... %

IF Q397=1 (have received a recommended growing protocol / crop program)

397. C. Did you receive a protocol / crop program from Syngenta [INSERT NAME OF SYNGENTA PROTOCOL] for each growing area of [TARGET CROP]?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q397C=1 (received a protocol / crop program from Syngenta)

397. G. Do you use the Syngenta protocol / crop program [INSERT NAME OF SYNGENTA PROTOCOL] for each growing area of [TARGET CROP]?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q397C=2 (did not receive a protocol / crop program from Syngenta)

397. D. Would you like to tell us from which manufacturer you've received a protocol / crop program for each growing area of [TARGET CROP]?

Growing area A	Growing area B

IF Q397=1 (received a recommended growing protocol / crop program)

397. F. Could you please give a **description of the protocol / crop program** for each growing area of [TARGET CROP]? **What are the main recommendations included in the crop program?**

- Please write down the description of the protocol.
- Please probe for items such as dose rates, seed treatment, product names, amount of water,... Several different activities can be included in the protocol.

Growing area A	Growing area B

IF Q397=1 (received a recommended growing protocol / crop program)

4054. Can you please indicate whether you will ... [READ] follow the recommended protocol / crop program?

- Read.
- Single response.

	Growing area A	Growing area B
Completely	1	1
Partially	2	2
Not at all	3	3
Don't know / no answer	99	99

4055. Can you please share what your **yield objective** is on both growing areas for [TARGET CROP] at the beginning of this season?

- Please write down the yield for each growing area.

	Growing area A	Growing area B
Yield objectivemetric ton/hametric ton/ha

PART II: CONTACT INFORMATION

Interviewer note: please verify the information on the check form together with the grower and complete ALL of the questions below with most recent information. Please note that it is important that we are able to contact and locate the respondent again next year. We require at least the postal code, city and GPS location.

We will now ask some questions about you, mainly so that we will be able to contact you again next year. These questions will not be used to identify you individually, but will always be used in an aggregated way.

19. Surname

→ Please write down the surname in capital letters.

→ Single response.

20. First name

→ Please write down the first name in capital letters.

→ Single response.

21. Phone number

→ Please write down the phone number, including the country and region codes.

→ Single response.

22. E-mail address

→ Please write down the e-mail address in capital letters.

→ Single response.

22. B. Farm name or point of recognition in the neighborhood

→ Please write down the farm name in capital letters.

→ Single response.

22. C. Please add a description of the location of this farm if needed

→ Please write down a description referring to aspects such as nearest church/school/water source ...

→ Single response.

22. D. Please give the GPS location of your farm. One point (corner or point on field) is sufficient.

→ Note down the latitude and longitude of one point and indicate whether it is North/South and West/East.

GROWING AREA A

a) Latitude In degrees, minutes, seconds	b) Direction 1=North 2=South
..... ° '	

c) Longitude In degrees, minutes, seconds	d) Direction 1=East 2=West
..... ° '	

GROWING AREA B

a) Latitude In degrees, minutes, seconds	b) Direction 1=North 2=South
..... ° '	

c) Longitude In degrees, minutes, seconds	d) Direction 1=East 2=West
..... ° '	

23. Farm address - street

→ Please write down the street name of the location of the farm in capital letters.

→ Single response.

24. Farm address - street number

→ Please write down the street number.

→ Single response.

25. Farm address - postal code

→ Please write down the postal code of the city in which the farm is located.

→ Single response.

26. **Farm address - city**

→ Please write down the city in which the farm is located.

→ **Single response.**

27. **Please note down the year of birth**

→ Please write down your birth year.

→ **Single response.**

28. **Gender**

→ Please circle the gender.

Male	1
Female	2

31. **Until what age did you go to school?**

→ Please write down the age until when the grower went to school.

→ **Single response.**

30. **Are you a full-time or part-time farmer?**

→ Please circle your answer.

→ **Single response.**

I am a full-time grower (no other activities generating income apart from farming)	1
I am a part-time grower (having other activities generating income, like teaching, ...)	2
Other specify:	96
Don't know / no answer	99

30. B. **How long have you been engaged in farming activities?**

→ **Single response.**

33. **Did you receive an agronomical/agricultural education?**

Yes	1
No	2

34. **Are you a member of a producer group, association or cooperative?**

Yes	1
No	2

IF Q34=1 (member of a producer group / association / cooperative)

35. A. What is the name of the producer group/association/cooperative that you are a member of?

→ Please note down the answer. If member of several, please note down all.

→ **Multiple response.**

ONLY IF Q2=5 (BELGIUM)

35. B. Do you collaborate with a growing consultancy agency (e.g. TACO)?

	Yes	1
	No	2

35. C. Overall, how satisfied would you say you are with your life these days? Please use a scale from 1 to 10, where 1 means “not satisfied at all” and 10 means “very satisfied”.

→ Please write down the satisfaction level on a scale from 1 to 10.

→ Please use code 99 for don't know.

→ Single response.

..... (scale from 1 to 10)

35. D. Please explain your answer.

→ Please explain and provide as much detail as possible.

→ Please probe for activities related to farming if the grower does not mention this.

--

PART III: FARM CHARACTERISTICS

E. Biodiversity conservation

We will now speak about biodiversity conservation. The following questions are about your farm practices in general, without focusing on [TARGET CROP].

4021. A. How familiar are you with biodiversity conservation in agriculture? Are you ... [READ] with biodiversity conservation?

→ Read.

→ Single response.

Very familiar	4
Rather familiar	3
Not so familiar	2
Only heard of it by name	1
Don't know /no answer	99

4021. B. How would you describe biodiversity conservation?

→ Spontaneous.

4022. A. One possible definition for biodiversity conservation is that many types of plants and animals can flourish in an agricultural landscape in addition to crops and livestock. How important is biodiversity conservation to you?

→ Read.

→ Single response.

Very important	4
Somewhat important	3
Not very important	2
Not important at all	1
Don't know /no answer	99

4022. B. Can you please explain your answer?

→ Spontaneous.

4022. C. What do you consider potential benefits to farmland from these plants and animals?

→ Spontaneous.

4023. A. What percentage of your farmland is non-cropped land?

→ Single response.

..... %

IF Q4023A > 0% (having non-cropped land)

4023. B. What percentage of this non-cropped land is managed for biodiversity conservation?

→ Read.

→ Single response.

None (0%)	1
Less than 25%	2
Between 25 and 50%	3
More than 50%	4
Don't know / no answer	99

IF Q4023B=2 OR 3 OR 4 (having biodiversity margins)

4023. C. Are the managed biodiversity margins arranged in isolated fragments or one continuous strip in landscape?

→ Read.

→ Multiple response.

Isolated fragment	1
Continuous strip	2
None of the above	3
Other specify 1:	96
Other specify 2:	97
Other specify 3:	98
Don't know / no answer	99

IF Q4023B=2 OR 3 OR 4 (having biodiversity margins)

4023. D. What do you do with marginal areas of your farmland?

→ Spontaneous.

IF Q4023B=2 OR 3 OR 4 (having biodiversity margins)

4023. E. Which of the following ecological infrastructure types are you adopting on marginal areas of your farmland?

→ Read.

→ Please tick all that apply. Multiple response.

Habitats for food and nesting: for bees, butterflies, farmland birds, insects, and small mammals	1
Erosion control - wind breaks	2
Trees to protect against water streams ('Riparian margin')	3
Other specify 1:	96
Other specify 2:	97
Other specify 3:	98
Don't know / no answer	99

4024. A. Do you think there is a link between bee keeping and agriculture?

Yes	1
No	2

IF YES AT 4024.A

4024. B. What is the link between bee keeping and agriculture according to you?

→ Spontaneous.

4025. What measures will you consider to enhance habitat and food sources for pollinators on your farms?

→ Spontaneous.

4026. How can Syngenta help you to enhance biodiversity on you farmland?

→ Spontaneous.

We would now like to speak about the selected growing areas of [TARGET CROP].

4027. A. Do you use biological control on your [TARGET CROP]?

→ Interviewer note: Biocides are not considered biological controls.

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q4027.A=1 (uses biological control)

4027. B What types of biological control do you use on [TARGET CROP]?

→ Spontaneous. Use code 99 for don't know.

→ Multiple response.

IF Q4027.A=1 (uses biological control)

4027. C Which kinds of pests are you trying to counter with this biological control?

→ Spontaneous. Use code 99 for don't know.

→ Multiple response.

IF Q4027.A=1 (uses biological control)

4027. D To what extent do you think these biological pest controls can reduce costs on your farm?

→ Read possible answers:

- 4. Very good cost reduction
- 3. Rather good cost reduction
- 2. Limited cost reduction
- 1. Very low cost reduction
- 99. Don't know / no answer

→ Single response. Please give one answer for all biological controls combined.

Growing area A						
Q4027.B	Q4027.C	Q4027.D				
		4 (very good cost reduction)	3 (rather good cost reduction)	2 (limited cost reduction)	1 (very low cost reduction)	99 (don't know/no answer)
		4	3	2	1	99
		4	3	2	1	99
		4	3	2	1	99

Growing area B						
Q4027.B	Q4027.C	Q4027.D				
		4 (very good cost reduction)	3 (rather good cost reduction)	2 (limited cost reduction)	1 (very low cost reduction)	99 (don't know/no answer)
		4	3	2	1	99
		4	3	2	1	99
		4	3	2	1	99

4028. A1. Do you release auxiliary insects or use traps in your greenhouse?

→ Spontaneous.

→ Please fill in 0 if the grower did not use this in their greenhouse.

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF 4028.A1=YES

4028. A2. How long have you been releasing auxiliary insects or using traps in your greenhouse?

→ Spontaneous.

→ Please fill in 0 if the grower did not use this in their greenhouse.

	Growing area A	Growing area B
Since (fill in year) (fill in year)

IF 4028.A2 > 0 (grower has been doing this activity for a certain number of years)

4028. B. When do you release auxiliary insects - during planting and/or during crop development?

→ Spontaneous.

→ Single response.

	Growing area A	Growing area B
Both during planting and during crop development	1	1
I only release during planting	2	2
I only release during crop development	3	3
Other specify:	96	96
Don't know / no answer	99	99

IF 4028.B = 1 (releasing auxiliary insects during planting and crop development)

4028. C. Which method do you think is the most effective?

→ Read.

→ Single response.

	Growing area A	Growing area B
Releasing auxiliary insects during planting	1	1
Releasing auxiliary insects during crop development	2	2
Both methods are equally efficient	3	3
Don't know / no answer	99	99

IF Q4028C=1 OR 2 OR 3

4028. D. Can you please explain your answer?

→ Spontaneous.

Growing area A	Growing area B

Z. Soil conservation

We will now speak about soil conservation. The following questions are about your farm practices in general, without focusing on [TARGET CROP].

4011. A. How familiar are you with soil conservation? Are you [READ] with soil conservation?

→ Read

→ Single response.

Very familiar	4
Rather familiar	3
Not so familiar	2
Only known by name	1
Don't know /no answer	99

4011. B. How would you describe soil conservation?

→ Spontaneous.

→ Single response.

4012. A. One possible definition for soil conservation is that good soil management and practices can help improve the health and structure of soil over a long period of time. How important is soil conservation to you?

→ READ

→ Single response.

Very important	4
Somewhat important	3
Not very important	2
Not important at all	1
Don't know /no answer	99

4012. B. Can you please explain your answer?

→ Spontaneous.

4013. Which of the following land use practices have you adopted?

→ Read.

→ Multiple response.

Conventional / minimum / no tillage practices (for minimum or no soil disturbance)	1
Minimum tillage	2
Crop rotation	3
Permanent ground cover	4
Intercropping	5
Integrated Pest Management (reducing pests while also minimizing pesticide use to a the lowest levels)	6
Precision agriculture (satellite farming)	7
Control farm machinery traffic (reducing the impact of heavy machinery as much as possible)	8
Water use optimization on farm (reduced run off and higher water infiltration in soil)	9
Nutrient management (fertilizers use optimization, e.g. how much, where and when to apply)	10
Other specify 1:	96
Other specify 2:	97
Other specify 3:	98
Don't know / no answer	99

We will now ask some questions about 3 different types of conservation agriculture practices.

4014. A. What percentage of your farmland is under minimum or no disturbance of the soil by tillage (e.g. implementing minimum or no tillage practices to reduce soil disturbance, beneficial for improving soil fertility and structure.)

→ Read.

→ Single response.

None (0%)	1
Less than 25%	2
Between 25 and 50%	3
Between 50 and 75%	4
More than 75%	5
Don't know / no answer	99

4014. B. What percentage of your farmland is under crop rotation, for at least 2 crops? (e.g. growing different crops sequentially on the same field during different seasons and years.)

→ Read.

→ Single response.

None (0%)	1
Less than 25%	2
Between 25 and 50%	3
Between 50 and 75%	4
More than 75%	5
Don't know / no answer	99

4014. C. What percentage of your farmland is under continuous soil cover? This means that the soil is covered with cover crops, crop stubbles, mulches etc. (e.g. maintaining crop residue or vegetative (crop) cover on the field to protect the soil against erosion and retain soil moisture.)

→ Read:

→ **Single response.**

None (0%)	1
Less than 25%	2
Between 25 and 50%	3
Between 50 and 75%	4
More than 75%	5
Don't know / no answer	99

C. Soil erosion

DO NOT APPLY THIS PART IF Q2=29 (NETHERLANDS)

We will now speak about soil erosion, the wearing away of the topsoil of a field because of natural forces like water or wind. Please note that the questions are about your farm practices in general, without focusing on [TARGET CROP].

37. A. Do you have signs of soil erosion by water on your farm? *Water erosion signs range from the "splashing" of soil particles over the soil surface and onto crops after heavy rain or irrigation, to the formation of small rills or larger gulleys down hillslopes, traversing down slopes like streams.*

Yes	1
No	2

IF Q37A=1 (signs of soil erosion by water)

41. A. Which measures do you use to manage water erosion on your farm?

→ *Please explain and provide as much detail as possible.*

IF Q37A=1 (signs of soil erosion by water)

41. B. Have the measures helped to reduce soil erosion?

→ *Read.*

→ *Single response.*

Under control due to measures taken	1
Measures taken did not help to control soil erosion	2
<u>Partially under control</u>	<u>3</u>
Other specify 1:	98
Don't know / no answer	99

37. B. Do you have signs of soil erosion by wind on your farm? *Wind erosion signs range from the appearance of dust clouds, especially on dry days, particularly when the soil is ploughed to "sandblasting" effects of fine sand particles hitting leaves and marking them.*

Yes	1
No	2

IF Q37B=1 (signs of soil erosion by wind)

41. C. Which measures do you use to manage wind erosion on your farm?

→ *Please explain and provide as much detail as possible.*

IF Q37B=1 (signs of soil erosion by wind)

41. D. Have the measures helped to reduce soil erosion?

→ Please explain and provide as much detail as possible.

→ **Single response.**

Under control due to measures taken	1
Measures taken did not help to control soil erosion	2
Partially under control	3
Other specify 1:	98
Don't know / no answer	99

G. Description of growing area

For the next topics, we will focus on [TARGET CROP] on the selected growing areas. We are interested in knowing more about the area itself as well as how you grow crops on it.
Interviewer note: please remind the grower of the names and sizes of the areas (!) Q56 and Q57

58. In general, what is the topography of each growing area for [TARGET CROP]?

→ Please note down the slope of each growing area. Please write down other if needed.

→ **Single response.**

	Growing area A	Growing area B
Hilly	1	1
Flat	2	2
Gentle slope	3	3
Steep slope	4	4
Valley	5	5
98. Other. Specify:
Don't know / no answer	99	99

DO NOT INCLUDE IF Q2=29 (NETHERLANDS)

65. Do you practice intercropping (growing multiple crops on the same growing area in the same season) on each growing area for [TARGET CROP]?

→ Read.

→ **Single response.**

	Growing area A	Growing area B
Yes	1	1
No	2	2

DO NOT INCLUDE IF Q2=29 (NETHERLANDS)

IF Q65=1 (intercropping)

66. Which crops do you intercrop on each growing area with [TARGET CROP]?

- Please circle all crops you intercrop. *Also look at code list on next page (more crops included).*
- Interviewer instruction: Also include [TARGET CROP].
- *Multiple response.*

	Growing area A	Growing area B
Apples	1	1
Banana	2	2
Barley	3	3
Cauliflower	4	4
Cocoa	5	5
Coffee	6	6
Corn	7	7
Cotton	8	8
Grape	9	9
Oilseed rape	10	10
Pear	11	11
Pepper	12	12
Potato	13	13
Rice	14	14
Soybean	15	15
Stone fruit	16	16
Sugarcane	17	17
Sunflower	18	18
Tomato	19	19
Watermelon	20	20
Wheat	21	21

OTHER CROPS

Alfalfa/lucerna	22	Leek	57
Asparagus	23	Lettuce	58
Avocado	24	Longan	59
Beets/roots (turnip, yam,...)	25	Managu (African nighshade)	60
Berries	26	Mango	61
Bitter melon	27	Millet	62
Broccoli	28	Mushroom	63
Brussels sprout	29	Nuts	64
Cabbage	30	Oats	65
Carrot	31	Olive	66
Cassava	32	Onion	67
Cauliflower (in general)	33	Other melons	68
Celeriac	34	Other peppers	69
Celery	35	Other potatoes	70
Cherry	36	Other rice	71
Chicory	37	Other wheat	72
Citrusfruit (orange, lemon)	38	Palm oil	73
Coconut (palm tree)	39	Papaya	74
Cover crop	40	Passion fruit	75
Cucumber	41	Peach	76
Dasheen	42	Pineapple	77
Eggplant	43	Pomme granate	78
Eucalyptus	44	Prune	79
Fennel	45	Pulses (lentils, beans, peas,...)	80
Flax	46	Pumpkin/squash	81
Flowers	47	Quinoa	82
Forage	48	Radish	83
Garlic	49	Rubber	84
Grass	50	Seeds (chia, sesame,...)	85
Grassland (pasture/artificial/temporary)	51	Spelt	86
Guava	52	Spinach	87
Herbs (coriander, cinnamon,...)	53	Strawberry	88
Jute	54	Sugar beet	89
Kale	55	Zucchini	90
Lady finger (Okra)	56		
Other. Specify 1:			96
Other. Specify 2:			97
Other. Specify 3:			98
Don't know / no answer			99

IF Q4=3; 4; 7; 8; 10; 12; 13; 14; 15; 17; 18; 19; 20; 21 (question only applies to FIELD CROPS)

60. Do you rotate crops on each growing area for [TARGET CROP]?

→ Please circle your answer. (SR)

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q4=3; 4; 7; 8; 10; 12; 13; 14; 15; 17; 18; 19; 20; 21 (question only applies to FIELD CROPS)

IF Q60=1 (crop rotation)

61. What crops are you cultivating in rotation on each growing area for [TARGET CROP]?

→ Please circle all that apply for each growing area.

Note down other crops if not in list. Use same code list as Q66.

→ Multiple response.

	Growing area A	Growing area B
Apples	1	1
Banana	2	2
Barley	3	3
Cauliflower for processing industry	4	4
Cocoa	5	5
Coffee	6	6
Corn	7	7
Cotton	8	8
Grape	9	9
Oilseed rape	10	10
Pear	11	11
Pepper	12	12
Potato	13	13
Rice	14	14
Soybean	15	15
Stone fruit	16	16
Sugarcane	17	17
Sunflower	18	18
Tomato	19	19
Watermelon	20	20
Wheat	21	21
96. Other. Specify 1:		
97. Other. Specify 2:		
98. Other. Specify 3:		
Don't know / no answer	99	99

67. What is the soil type of each growing area for [TARGET CROP]?

→ Spontaneous Note down other soil type if not in list. (SR)

	Growing area A	Growing area B
clay soil	1	1
silty clay soil	2	2
silty clay loam soil	3	3
clay loam soil	4	4
loam soil	5	5
silt loam soil	6	6
silt soil	7	7
sandy clay soil	8	8
sandy clay loam soil	9	9
sandy loam soil	10	10
loamy sand soil	11	11
sandy soil	12	12
98. Other. Specify:		
Don't know / no answer	99	99

67. B. What type of texture is your soil on each growing area for [TARGET CROP] this season?

→ Single response

	Growing area A	Growing area B
Heavy – this includes clayey soils that are hard to plough, especially if dry	1	1
Medium – this includes loamy soils that are moderately hard to plough	2	2
Light – this includes sandy soils that are easy to pull a plough through, even when dry	3	3
Don't know / no answer	99	99

F. Training on crop cultivation and safety measures

We will first ask you about the training on crop cultivation and safety measures that you receive.

4041. A. Do you feel the need to follow training on crop cultivation and safety measures in the near future (during the season of your target crop)?

Yes	1
No	2

IF Q4041=1 (need to follow training)

4041. B. What would you like to learn?

→ Spontaneous. Please be as specific as possible.

--

4042. How do you receive information on safety regulations? What are your sources of information?

→ Spontaneous. Please be as specific as possible.

→ Multiple response.

Dealer/store	1
Brochures	2
Fellow farmers	3
Manufacturer (please specify which one):	4
Representative	5
Independent advisor	6
Cooperative	7
I don't receive any information on safety regulations	90
Other specify 1:	96
Other specify 2:	97
Other specify 3:	98
Don't know / no answer	99

ALL OF THE FOLLOWING QUESTIONS ONLY APPLY FOR BELGIUM (Q2=5) AND NETHERLANDS (Q2=29)

54. Where do you deposit the rest water after spraying?

- Spontaneous.
→ Multiple response.

Citerne (phytobac, heliosecc, sentinel, biofilter, ...)	1
In fields	2
In rivers, streams, drain or via the ditch	3
I don't have any rest water after spraying	90
Other specify 1:	96
Other specify 2:	97
Other specify 3:	98
Don't know / no answer	99

IF Q54=1 (HELIOSEC)

54 A. If you used a heliosecc to deposit the rest water after spraying, how many liters of rest water did you cleanse in 2015?

- Please fill in the number of liters you cleansed using Heliosecc.

Number of liters of rest water	... liters
--------------------------------	------------

55. A. Where do you clean your spraying equipment?

- Multiple response.

On farm	1
On field	2
I don't clean my spraying equipment	90
Other specify 1:	96
Other specify 2:	97
Other specify 3:	98
Don't know / no answer	99

IF Q55A=1 or 2 or 96 or 97 or 98 (cleaned spraying equipment)

55 B. Where do you dispose of the cleaning water used for cleaning the equipment?

- Spontaneous.
→ Multiple response.

On field	1
Citerne (phytobac, heliosecc, sentinel, biofilter, ...)	2
On an unpaved surface	3
On a paved surface (drain / dike)	4
Other specify 1:	96
Other specify 2:	97
Other specify 3:	98
Don't know / no answer	99

55 B1. Do you clean empty product packages?

Yes	1
No	2

IF Q55B1=1 (cleans empty product packages)

55 B2. Where do you dispose the cleaning water used for cleaning the empty packages?

- Spontaneous.
→ Multiple response.

On field	1
Citerne (phytobac, heliosecc, sentinel, biofilter, ...)	2
On an unpaved surface	3
On a paved surface (drain / dike)	4
Other specify 1:	96
Other specify 2:	97
Other specify 3:	98
Don't know / no answer	99

55 C. Do you store the sprayer protected from rain?

Yes	1
No	2

55 D. Do you use drift reducing nozzles on your sprayer?

Yes	1
No	2

IF Q55D=1 (uses drift reducing nozzles)

55 D1. What is the percentage of drift reduction for these nozzles?

- Single response.

50% drift reduction	1
75% drift reduction	2
90% drift reduction	4
Other. Specify:	98
Don't know / no answer	99

55 D2. Do you use a tank with clean water on your sprayer?

Yes	1
No	2

ONLY IF Q2=5 (BELGIUM)

55. F. Do you have a phyto license this season?

	Yes	1
	No	2

ONLY IF Q2=5 (BELGIUM) and IF Q55F=1 (YES)

55. G. Which kind of phyto license do you have?

→ *Single response.*

	P1	1
	P2	2
	P3	3
	NP	4
	P2s	5
Other. Specify:		98
	Don't know / no answer	99

PART IV: FARMING PRACTICES - BEFORE HARVEST

We will now speak about your farming practices, including the things you do to the field before harvest, the advice you follow and programs you are involved in.

A. Planting and fruit development - field crops

ONLY APPLY THIS PART IF Q4=3; 7; 8; 10; 12; 13; 14; 15; 18; 19; 20; 21 (=field crops)

We will now focus on the planting practices you plan to do including the seeding, labor hours and machinery used.

71. Could you please note down the variety that has been used for each growing area for [TARGET CROP]?

→ Please note down the main variety that has been used for each growing area.

	Growing area A	Growing area B
Variety

IF Q2=20 (ITALY) AND IF Q4= 7 (CORN)

71. B. Please indicate per growing area if you planted a hybrid corn seed variety.

	Growing area A	Growing area B
Yes	1	1
No	2	2

72. When did the first field preparation start for each growing area for [TARGET CROP]?

→ Please write down the date of the first field preparation for each growing area.

→ Interviewer note: First field preparation is the very first date that an action (e.g. fertilizer application) is taken on field. Therefore, please compare this date with fertilizer and crop protection product application dates. First field preparation should also take place before sowing.

	Growing area A	Growing area B
Date first field preparation	---.---.---- (DD.MM.YYYY)	---.---.---- (DD.MM.YYYY)

73. What is the amount of seeds in kilogram that has been sown per hectare for each growing area for [TARGET CROP]?

→ Please note down the total amount of seeds in kilogram per hectare for each growing area.

	Growing area A	Growing area B
Seed density in kilogram per hectarekg/hakg/ha

IFQ73=-1 (don't know the amount of seeds in kg/ha)

73.A1. What is the amount of seeds that has been sown for each of the growing areas?

→ Please write down the amount of seeds used including the measurement unit used.

	Growing area A	Growing area B
Amount of seeds		

IF Q4=14 (RICE)

116. What production system (ways of planting rice) is used on each growing area for rice? Was it ... **[READ]**?

→ **SPONTANEOUS, multiple response.**

→ Please tick what applies for each growing area. Only one answer possible per growing area. Note down other if not in list.

	Growing area A	Growing area B
Transplanted (TR)	1	1
Direct-seeded (DS)	2	2
Direct-seeded, wet-sown (DSWS)	3	3
Direct-seeded, dry-sown (DSDS)	4	4
System of Rice Intensification (SRI)	5	5
98. Other. Specify		
Don't know / no answer	99	99

IF Q4=14 (RICE) OR Q4=18 (SUNFLOWER)

119. Please indicate the inter-row space that is applied on each growing area?

→ Please note down the inter-row space in **centimeter** for each growing area.

	Growing area A	Growing area B
Inter-row spacecmcm

IF Q4=13 (POTATO)

123. B. Which type of potatoes do you cultivate on each growing area for potato?

→ **READ, single response.**

→ Please note down the type of potato that has been cultivated for each growing area.

	Growing area A	Growing area B
Potatoes for fresh use	1	1
Potatoes for process use	2	2
Starch potatoes	3	3
Seed potatoes	4	4
98. Other. Specify:
Don't know / no answer	99	99

IF Q4=19 (TOMATO) OR Q4=12 (PEPPER)

151. Are **[TARGET CROP]** grown on open field or in a greenhouse for each growing area?

→ **Spontaneous, single response.**

→ Please indicate what applies. Please write down other if needed.

	Growing area A	Growing area B
Open field	1	1
Greenhouse	2	2
98. Other. Specify 1:
Don't know / no answer	99	99

IF Q4=19 (TOMATO) OR Q4=12 (PEPPER)

IF Q151=2 (greenhouse)

152. Are [TARGET CROP] grown in an active greenhouse or a passive greenhouse for each growing area?

→ Spontaneous, single response.

→ Please indicate what applies. Please write down other if needed.

	Growing area A	Growing area B
Active greenhouse	1	1
Passive greenhouse	2	2
98. Other. Specify 1:
Don't know / no answer	99	99

IF Q4=19 (TOMATO) OR Q4=12 (PEPPER)

154. A. What is the number of plants that has been transplanted per m² for each growing area for tomatoes/peppers?

→ Please note down the number of plants that has been transplanted per m² for each growing area.

	Growing area A	Growing area B
Plant densitynumber of plants/m ²number of plants / m ²

IF Q4=18 (SUNFLOWER)

4073. Are you ploughing between lines of the sunflower once it has been established?

→ Please tick what applies. (SR)

	Growing area A	Growing area B
Yes	1	1
No	2	2

74. When was the crop sown / planted for each growing area for [TARGET CROP]?

→ Please write down the date of sowing/planting for each growing area.

	Growing area A	Growing area B
Sowing/planting date	---.---.--- (DD.MM.YYYY)	---.---.--- (DD.MM.YYYY)

ONLY IF Q2=37 and Q4=18 (Spain; sunflower)

74. B. Have you planted a sunflower variety with the Clearfield Production System?

	Growing area A	Growing area B
Yes	1	1
No	2	2

ONLY IF Q2=37 and Q4=18 (Spain; sunflower)

74. C. When did you plant the sunflower seeds with the Clearfield Production System trait for each growing area for [TARGET CROP]?

→ Please write down the date of sowing/planting for each growing area.

	Growing area A	Growing area B
Clearfield planting date	---.---.--- (DD.MM.YYYY)	---.---.--- (DD.MM.YYYY)

ONLY IF Q2=35 and Q4=18 (Russia; sunflower)

2521. And what is the country of origin of the sunflower seeds variety for each growing area?

- Please note down the country of origin of the sunflower seeds variety for each growing area.
→ Single response.

GROWING AREA A				GROWING AREA B			
Algeria	01	Jordan	23	Algeria	01	Jordan	23
Argentina	02	Kenya	24	Argentina	02	Kenya	24
Australia	03	Korea	25	Australia	03	Korea	25
Bangladesh	04	Malaysia	26	Bangladesh	04	Malaysia	26
Belgium	05	Mexico	27	Belgium	05	Mexico	27
Brazil	06	Morocco	28	Brazil	06	Morocco	28
China	07	The Netherlands	29	China	07	The Netherlands	29
Colombia	08	Pakistan	30	Colombia	08	Pakistan	30
Costa Rica	09	Paraguay	31	Costa Rica	09	Paraguay	31
East Africa	10	Peru	32	East Africa	10	Peru	32
Ecuador	11	Philippines	33	Ecuador	11	Philippines	33
Egypt	12	Poland	34	Egypt	12	Poland	34
France	13	Russia	35	France	13	Russia	35
Ghana	14	South Africa	36	Ghana	14	South Africa	36
Guatemala	15	Spain	37	Guatemala	15	Spain	37
Honduras	16	Taiwan	38	Honduras	16	Taiwan	38
Hungary	17	Thailand	39	Hungary	17	Thailand	39
India	18	Ukraine	40	India	18	Ukraine	40
Indonesia	19	USA	41	Indonesia	19	USA	41
Italy	20	Venezuela	42	Italy	20	Venezuela	42
Ivory Coast	21	Vietnam	43	Ivory Coast	21	Vietnam	43
Japan	22	Zambia	44	Japan	22	Zambia	44
Other. Specify:			98	Other. Specify:			98
Don't know / no answer			99	Don't know / no answer			99

ONLY IF Q2=35 and Q4=18 (Russia; sunflower)

2523. A. What is the weight of thousand seeds that have been sown for each growing area for sunflower?

- Please note down the weight of thousand seeds for each growing area.

	Growing area A	Growing area B
Seed densityweight of 1000 seeds in kgweight of 1000 seeds in kg

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
 ▪ e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 ▪ Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine). This also includes the farmer's own labor hours.
- B. How many people were involved in this operation?
 ▪ Including yourself, seasonal workers, contractors ...
- C. What is the type of machinery/equipment that was used for this operation?
 ▪ e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

	Growing area A					
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
1. Clearing Removing remains of the crop, e.g. stumps, stones or other obstacles.						
2. Ploughing Breaking and turning over the earth with a plow.						
3. Digging Loosening the earth or digging a hole.						
4. Ridging Plowing alternate strips by throwing the furrow onto the unplowed strip.						
5. Ripping Breaking up the compacted soil layers.						
6. Land levelling Levelling the field to improve e.g. irrigation or water usage.						
9. Mulching Covering the soil to improve crop growth, e.g. to make soil more moist.						
10.Sowing or planting						
IF Q2=22 10b. In-furrow activities						

	Growing area B					
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
1. Clearing Removing remains of the crop, e.g. stumps, stones or other obstacles.						
2. Ploughing Breaking and turning over the earth with a plow.						
3. Digging Loosening the earth or digging a hole.						
4. Ridging Plowing alternate strips by throwing the furrow onto the unplowed strip.						
5. Ripping Breaking up the compacted soil layers.						
6. Land levelling Levelling the field to improve e.g. irrigation or water usage.						
9. Mulching Covering the soil to improve crop growth, e.g. to make soil more moist.						
10. Sowing or planting						
IF Q2=22 10b. In-furrow activities						

38200. When considering all activities stated in the table above, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

38222. Are there any activities that you outsourced and have another company/agency conduct this?

→ Please write down the number of the activity (refer to Q382) that is being outsourced and if this was completely or partially conducted by a third party.

→ Multiple response.

Growing area A			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

Growing area B			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

B. Planting and fruit development - tree crops

ONLY APPLY THIS PART IF Q4=1; 2; 5; 6; 9; 11; 16 (= all tree crops)

We will now focus on the practices you plan to do including information on the trees themselves, labor hours and machinery used.

196. Could you please note down the variety that has been used for each growing area for [TARGET CROP]?

→ Please note down the main variety that has been used for each growing area.

	Growing area A	Growing area B
Variety

197. What is the year of planting for each growing area for [TARGET CROP]?

→ Please note down the year of planting for each growing area.

→ Interviewer note: If the growing area remained the same, please use the check form to verify if the year of planting corresponds with the planting year mentioned in 2015.

	Growing area A	Growing area B
Year of planting

198. B. What is the total number of trees per hectare for each growing area for [TARGET CROP]?

→ Please note down the total number of trees per hectare for each growing area.

→ Interviewer note: If the growing area remained the same, please use the check form to verify if the average number of trees corresponds with the planting year mentioned in 2015.

	Growing area A	Growing area B
Tree densitytrees/hatrees/ha

IF Q4=9 (GRAPES)

96. What is the total number of grape vines for each growing area for grape?

→ Please note down the total number of grape vines for each growing area.

	Growing area A	Growing area B
Number of grape vinesgrape vinesgrape vines

IF Q4=2 (BANANA)

179. Did you leave the field fallow in the past before re-planting for each growing area for [TARGET CROP]?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q4=16 (STONE FRUIT)

4061. Please indicate the inter-row space between stone fruit trees (planting distance) that is applied on each growing area?

→ Please note down the inter-row space in centimeter for each growing area.

	Growing area A	Growing area B
Inter-row spacecmcm

183. Do you prune each growing area for **[TARGET CROP]**?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q183=1 (YES) and IF Q4≠1; 11 (NOT APPLE OR PEAR)

4062. When did the pruning period of the trees start for each growing area for **[TARGET CROP]**?

→ Please write down the period of pruning for each growing area.

	Growing area A		Growing area B	
Pruning period	A	From ____ . ____ . ____ (DD.MM.YYYY)	A	From ____ . ____ . ____ (DD.MM.YYYY)
	B	Until ____ . ____ . ____ (DD.MM.YYYY)	B	Until ____ . ____ . ____ (DD.MM.YYYY)

IF Q4=1; 11 (APPLE OR PEAR) AND IF Q183=1 (YES)

184. When did the winter pruning of the trees start for each growing area for **[TARGET CROP]**?

→ Please write down the period of pruning for each growing area.

	Growing area A		Growing area B	
Pruning period	A	From ____ . ____ . ____ (DD.MM.YYYY)	A	From ____ . ____ . ____ (DD.MM.YYYY)
	B	Until ____ . ____ . ____ (DD.MM.YYYY)	B	Until ____ . ____ . ____ (DD.MM.YYYY)

IF Q4=1; 11; 16 (APPLE OR PEAR OR STONE FRUIT)

185. When did the first trees reach the flowering stage for each growing area for **[TARGET CROP]**?

→ Please write down the flowering date for each growing area.

	Growing area A	Growing area B
Flowering date	__ . __ . ____ (DD.MM.YYYY)	__ . __ . ____ (DD.MM.YYYY)

IF Q4=16 (STONE FRUIT)

4063. Please indicate the average height of the stone fruit trees on each growing area?

→ Please note down the height in centimeter for each growing area.

	Growing area A	Growing area B
Height of the treescmcm

IF Q4=16 (STONE FRUIT)

4064. Please indicate the average width of the stone fruit trees on each growing area?

→ Please note down the inter-row space in centimeter for each growing area.

	Growing area A	Growing area B
Width of the treescmcm

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

1. Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
 - e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 - Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine). This also includes the farmer's own labor hours.
- B. How many people were involved in this operation?
 - Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
 - e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

	Growing area A					
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
1. Clearing Removing remains of the crop, e.g. stumps, stones or other obstacles.						
9. Mulching Covering the soil to improve crop growth, e.g. to make soil more moist.						
14. Pruning To cut parts of branches to improve shape or growth.						
21. Top/side grafting Replacing part of a branch with another part (e.g. from a different variety).						
96. Other specify 1:						
97. Other specify 1:						
98. Other specify 1:						

	Growing area B					
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
1. Clearing Removing remains of the crop, e.g. stumps, stones or other obstacles.						
9. Mulching Covering the soil to improve crop growth, e.g. to make soil more moist.						
14. Pruning To cut parts of branches to improve shape or growth.						
21. Top/side grafting Replacing part of a branch with another part (e.g. from a different variety).						
96. Other specify 1:						
97. Other specify 1:						
98. Other specify 1:						

38200. When considering all activities stated in the table above, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

38222. Are there any activities that you outsourced and have another company/agency conduct this?

→ Please write down the number of the activity (refer to Q382) that is being outsourced and if this was completely or partially conducted by a third party.

Growing area A			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

Growing area B			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

K. Planting and fruit development - SUGARCANE

ONLY APPLY THIS PART IF Q4=17 (SUGARCANE)

We will now focus on the practices you plan to do including the seeding, labor hours and machinery used.

141. Could you please note down the sugarcane variety that has been used for each growing area for sugarcane?

→ Please note down the sugarcane variety that has been used for each growing area.

	Growing area A	Growing area B
Sugarcane variety

142. What is the date of planting for each growing area for sugarcane?

→ Please note down the date of planting for each growing area.

	Growing area A	Growing area B
Date of planting	-- . -- . -- (DD.MM.YYYY)	-- . -- . -- (DD.MM.YYYY)

145. Which of the following planting types have been used for each growing area for sugarcane?

→ SPONTANEOUS, single response.

→ Please tick what applies. Please write down other if needed.

	Growing area A	Growing area B
Mechanical planting	1	1
Manual planting	2	2
Both mechanical and manual planting	3	3
98. Other. Specify		
Don't know / no answer	99	99

146. What is the replanting cycle (generation) for each growing area for sugarcane?

→ SPONTANEOUS, single response.

→ Please circle the replanting cycle that applies. Please write down other if needed.

	Growing area A	Growing area B
First cycle: plant cane	1	1
Second cycle/ratoon	2	2
Third cycle/ratoon	3	3
Fourth cycle/ratoon	4	4
Fifth cycle/ratoon	5	5
Sixth cycle/ratoon	6	6
Seventh cycle/ratoon	7	7
Eight cycle/ratoon	8	8
Ninth cycle/ratoon	9	9
Tenth cycle/ratoon	10	10
Other specify:	98	98
Don't know / no answer	99	99

IF Q146=1 (first cycle)

147. When have the young plants been planted for each growing area for sugarcane?

→ Please write down the date of planting for each growing area.

	Growing area A	Growing area B
Planting date	--. --. --. -- (DD.MM.YYYY)	--. --. --. -- (DD.MM.YYYY)

IF Q146≠1 (not first cycle)

149. For the plant cane in the first cycle, what was the total metric ton of cane per hectare that has been achieved for each growing area?

→ Please write down the total metric tons of cane per hectare for each growing area.

	Growing area A	Growing area B
Total <u>metric tons</u> of canes per <u>hectare</u> plant cane <u>metric ton/ha</u> <u>metric ton/ha</u>

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

1. Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
 ▪ e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 ▪ Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine)
- B. How many people were involved in this operation?
 ▪ Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
 ▪ e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

	Growing area A					
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
1. Clearing Removing remains of the crop, e.g. stumps, stones or other obstacles.						
2. Ploughing Breaking and turning over the earth with a plow.						
3. Digging Loosening the earth or digging a hole.						
4. Ridging Plowing alternate strips by throwing the furrow onto the unplowed strip.						
5. Ripping Breaking up the compacted soil layers.						
6. Land levelling Levelling the field to improve e.g. irrigation or water usage.						
9. Mulching Covering the soil to improve crop growth, e.g. to make soil more moist.						
10.Sowing or planting						

	Growing area B					
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
1. Clearing Removing remains of the crop, e.g. stumps, stones or other obstacles.						
2. Ploughing Breaking and turning over the earth with a plow.						
3. Digging Loosening the earth or digging a hole.						
4. Ridging Plowing alternate strips by throwing the furrow onto the unplowed strip.						
5. Ripping Breaking up the compacted soil layers.						
6. Land levelling Levelling the field to improve e.g. irrigation or water usage.						
9. Mulching Covering the soil to improve crop growth, e.g. to make soil more moist.						
10.Sowing or planting						

38200. When considering all activities stated in the table above, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

38222. Are there any activities that you outsourced and have another company/agency conduct this?

→ Please write down the number of the activity (refer to Q382) that is being outsourced and if this was completely or partially conducted by a third party. Please also note down the cost of this outsourcing if possible per hour or per hectare.

Growing area A			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

Growing area B			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

T. Planting and fruit development - CAULIFLOWER

ONLY APPLY THIS PART IF Q4=4 (CAULIFLOWER)

We will now focus on the planting practices you plan to do including the varieties grown, labor hours and machinery used.

214. Could you please note down the cauliflower varieties that have been used for each growing area for cauliflower for the processing industry?

➔ Please note down the different cauliflower varieties that have been used for each growing area.

	Growing area A	Growing area B
Cauliflower varieties

215. When did the first field preparation start for each growing area for cauliflower?

→ Please write down the date of the first field preparation for each growing area.

→ Interviewer note: compare this date with fertilizer and CPP applications. First field preparation should take place before sowing.

	Growing area A	Growing area B
Date first field preparation	--. --. ---- (DD.MM.YYYY)	--. --. ---- (DD.MM.YYYY)

216. When have the young plants been delivered to the farm for each growing area for cauliflower?

→ Please write down the date of delivery for each growing area.

	Growing area A	Growing area B
Delivery date	--. --. ---- (DD.MM.YYYY)	--. --. ---- (DD.MM.YYYY)

217. Which type of plant is planted on each growing area for cauliflower?

→ SPONTANEOUS, multiple response.

→ Please tick what applies for each growing area. Multiple response.

	Growing area A	Growing area B
Peat pot	1	1
Tray	2	2
96. Other. Specify 1:		
97. Other. Specify 2:		
98. Other. Specify 3:		
Don't know / no answer	99	99

217. B. What is the number of plants that has been transplanted per m² for each growing area for cauliflower?

→ Please note down the number of plants that has been transplanted per m^2 for each growing area.

	Growing area A	Growing area B
Plant densitynumber of plants/m ² number of plants /m ²

218. When have the young plants been planted for each growing area for cauliflower?

→ Please write down the date of planting for each growing area.

	Growing area A	Growing area B
Planting date	---.---.--- (DD.MM.YYYY)	---.---.--- (DD.MM.YYYY)

220. What is the plant distance between the rows and within the row for each growing area for cauliflower?

→ Please note down the plant distance within the row and between rows for each growing area.

	Growing area A			Growing area B		
Plant distancecm	xcmcm	xcm

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

1. Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
 - e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 - Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine). This also includes the farmer's own labor hours.
- B. How many people were involved in this operation?
 - Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
 - e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

	Growing area A					
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
1. Clearing Removing remains of the crop, e.g. stumps, stones or other obstacles.						
2. Ploughing Breaking and turning over the earth with a plow.						
3. Digging Loosening the earth or digging a hole.						
4. Ridging Plowing alternate strips by throwing the furrow onto the unplowed strip.						
5. Ripping Breaking up the compacted soil layers.						
6. Land levelling Levelling the field to improve e.g. irrigation or water usage.						
9. Mulching Covering the soil to improve crop growth, e.g. to make soil more moist.						
10. Sowing or planting						

	Growing area B					
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
1. Clearing Removing remains of the crop, e.g. stumps, stones or other obstacles.						
2. Ploughing Breaking and turning over the earth with a plow.						
3. Digging Loosening the earth or digging a hole.						
4. Ridging Plowing alternate strips by throwing the furrow onto the unplowed strip.						
5. Ripping Breaking up the compacted soil layers.						
6. Land levelling Levelling the field to improve e.g. irrigation or water usage.						
9. Mulching Covering the soil to improve crop growth, e.g. to make soil more moist.						
10.Sowing or planting						

38200. When considering all activities stated in the table above, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

38222. Are there any activities that you outsourced and have another company/agency conduct this?

→ Please write down the number of the activity (refer to Q382) that is being outsourced and if this was completely or partially conducted by a third party.

Growing area A			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

Growing area B			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

W. Seed treatment - Belgium

ONLY APPLY THIS PART IF Q2=5 (BELGIUM)

We will now ask you some questions about the seed treatment program you use including whether or not you buy seeds and from where as well as the treatment program you use.

231. Can you please indicate where you buy your young plants for each growing area for [TARGET CROP]?

→ Spontaneous, multiple response.

→ Please circle your answer. Please write down other if needed.

	Growing area A	Growing area B
Cooperative	1	1
Other farmers	2	2
Retailer or manufacturer	3	3
Own nursery	4	4
Other nursery	5	5
96. Other. Specify 1:		
97. Other. Specify 2:		
98. Other. Specify 3:		
Don't know / no answer	99	99

232. From which supplier do you buy your young plants for each growing area for cauliflower?

→ Spontaneous, multiple response.

→ Please circle your answer. Please write down other if needed.

	Growing area A	Growing area B
Vermeulen	1	1
Blomme	2	2
D'Hondt	3	3
WPG	4	4
Denolf	5	5
Nollet	6	6
96. Other. Specify 1:		
97. Other. Specify 2:		
98. Other. Specify 3:		
Don't know / no answer	99	99

235. Have the seeds of the young plants been coated for each of the growing areas for cauliflower?

→ Please tick what applies. (SR)

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q235=1 (coated seeds)

236. Which coating has been used for each of the growing areas for cauliflower?

→ Please write down the different coatings that have been used for each growing area.

Growing area A	Growing area B

237. A. Which of the following seedbed treatments has been performed by the nursery for each of the growing areas for cauliflower?

→ Please tick what applies.

→ Multiple response.

	Growing area A	Growing area B
Phyto-drip	1	1
Dummy pil	2	2
Don't know / no answer	99	99

IF Q237A=1 (Phyto-drip)

237. B. Which compound has been used by the nursery for each of the growing areas for cauliflower?

→ Please fill in the compound.

	Growing area A	Growing area B
Compound		

IF Q237A=2 (Dummy pil)

237. C. Which compound has been used by the nursery for each of the growing areas for cauliflower?

→ Please fill in the compound.

	Growing area A	Growing area B
Compound		

238. Do you use on-farm tray treatment for each of the growing areas for cauliflower?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q238=1 (on-farm tray treatment)

239. Could you please note down, for each growing area of cauliflower, when the tray treatment took place, which products (growth regulators, fertilizers or crop protection) have been used and the dose rate?

➔ *Please note down the following details. Please look in your storage room in you don't know all details by heart.*

- a. *Date on which the product has been applied*
- b. *Brand product name*
- c. *Dosage and measurement unit*

GROWING AREA A

Product- number	a. Tijdstip van behandeling met het middel	b. Merknaam van het product	c. Dosering		d. Welke techniek? 1= gieter 2= rugsproeier 3= spuitmachine 4= beregenings- installatie 5=Overige, leg uit
			Dosis per 1000 planten	Meeteenheid	
1	.../.../... (Dag/Maand/Jaar)				
2	.../.../... (Dag/Maand/Jaar)				
3	.../.../... (Dag/Maand/Jaar)				
4	.../.../... (Dag/Maand/Jaar)				
5	.../.../... (Dag/Maand/Jaar)				
6	.../.../... (Dag/Maand/Jaar)				
7	.../.../... (Dag/Maand/Jaar)				
8	.../.../... (Dag/Maand/Jaar)				
9	.../.../... (Dag/Maand/Jaar)				
10	.../.../... (Dag/Maand/Jaar)				

GROWING AREA B

Product- number	a. Tijdstip van behandeling met het middel	b. Merknaam van het product	c. Dosering		d. Welke techniek? 1= gieter 2= rugsproeier 3= spuitmachine 4= beregenings- installatie 5=Overige, leg uit
			Dosis per 1000 planten	Meeteenheid	
1	.../.../... (Dag/Maand/Jaar)				
2	.../.../... (Dag/Maand/Jaar)				
3	.../.../... (Dag/Maand/Jaar)				
4	.../.../... (Dag/Maand/Jaar)				
5	.../.../... (Dag/Maand/Jaar)				
6	.../.../... (Dag/Maand/Jaar)				
7	.../.../... (Dag/Maand/Jaar)				
8	.../.../... (Dag/Maand/Jaar)				
9	.../.../... (Dag/Maand/Jaar)				
10	.../.../... (Dag/Maand/Jaar)				

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
 ▪ e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 ▪ Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine)
- B. How many people were involved in this operation?
 ▪ Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
 ▪ e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

Growing area A						
	382_1: Did you apply the activity? Yes or no? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
20. Seed treatment						
31. Tray treatment						

Growing area B						
	382_1: Did you apply the activity? Yes or no? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
21. Seed treatment						
31. Tray treatment						

38200. B. When considering seed treatment, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

X. Seed treatment

ONLY APPLY THIS PART IF Q4=3; 7; 8; 10; 12; 13; 14; 15; 17; 18; 19; 20; 21

We will now ask you some questions about the seed treatment program you use including whether or not you buy seeds and from where as well as the treatment program you use.

230. Do you buy seeds or do you use saved seeds for each growing area for [TARGET CROP]?

→ Spontaneous, multiple response.

→ Please circle your answer. Please write down other if needed.

	Growing area A	Growing area B
Bought seeds	1	1
Saved seeds	2	2
96. Other. Specify 1:		
97. Other. Specify 2:		
98. Other. Specify 3:		
Don't know / no answer	99	99

IF Q230=1 (bought seeds)

231. Can you please indicate where you buy your seeds for each growing area for [TARGET CROP]?

→ Spontaneous, multiple response.

→ Please circle your answer. Please write down other if needed.

	Growing area A	Growing area B
Cooperative	1	1
Other farmers	2	2
Retailer or manufacturer	3	3
Own nursery	4	4
Other nursery	5	5
96. Other. Specify 1:		
97. Other. Specify 2:		
98. Other. Specify 3:		
Don't know / no answer	99	99

231. B. Are your seeds coated with crop protection products?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q231B=1 (Yes)

233. Do you use on-farm or pre-treated seed treatment to treat the seeds for each growing area for [TARGET CROP]?

→ Single response.

	Growing area A	Growing area B
On-farm seed treatment	1	1
Pre-treated seed treatment	2	2
None	90	90
Don't know / no answer	99	99

IF Q231B=1 (coated seeds)

233. C. Could you please describe the crop protection products that have been used to treat the seeds for each growing area for [TARGET CROP]? In case the seeds have been pre-treated, please check the label to know the details of the seed treatment.

→ Please fill in 1 row with DON'T KNOW (-1 or 99) if seeds are treated but the farmer does not know the seed treatment.

- a. On what date did you apply the treatment?
- b. What is the type of product you applied?
 - Fungicide, insecticide, herbicide, plant growth regulator/harvest aids/adjuvants
- c. What is the brand product name?
 - e.g. Engeo. Please include all details of the product name.
- c2. What is the brand product formulation?
 - e.g. 247 SC
- d. What is the dosage that you applied?
 - Note down dosage in g/ha or in grams per kilogram of seeds for solid products.
 - Note down dosage in ml/ha or in milliliter per kilogram of seeds for liquid products.
 - Always refer to the concentrate of a product (not the solution in water)
- e. What is the unit of quantity of the product applied?
 - Indicate the unit of quantity: grams or milliliter per hectare OR grams/kg of seeds or ml/kg of seeds
- f. What is the amount of water in which you have solved the product (per hectare)?
- g. What is the pest/disease/weed that is targeted?

GROWING AREA A

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c2. Brand product formulation	d. Dosage	e. Unit of quantity 1=Gram/ hectare 2=Milliliter/ Hectare 3= g/kg of seeds 4= ml/kg of seeds	f. Amount of H ₂ O solved in liters per hectare	g. Pest/disease/ weed targeted
1	--.---.---- (DD.MM.YYYY)							
2	--.---.---- (DD.MM.YYYY)							
3	--.---.---- (DD.MM.YYYY)							
4	--.---.---- (DD.MM.YYYY)							
5	--.---.---- (DD.MM.YYYY)							

GROWING AREA B

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c2. Brand product formulation	d. Dosage	e. Unit of quantity 1=Gram/ hectare 2=Milliliter/ Hectare 3= g/kg of seeds 4= ml/kg of seeds	f. Amount of H ₂ O solved in liters per hectare	g. Pest/disease/ weed targeted
1	--.---.---- (DD.MM.YYYY)							
2	--.---.---- (DD.MM.YYYY)							
3	--.---.---- (DD.MM.YYYY)							
4	--.---.---- (DD.MM.YYYY)							
5	--.---.---- (DD.MM.YYYY)							

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

1. Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
 ▪ e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 ▪ Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine)
- B. How many people were involved in this operation?
 ▪ Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
 ▪ e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

Growing area A						
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
20. Seed treatment						

Growing area B						
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
20. Seed treatment	Y					

38200. B. When considering seed treatment, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

ALL OF THE FOLLOWING QUESTIONS ONLY APPLY FOR RUSSIA SUNFLOWER (Q2=35 and Q4=18)

2500. We are now going to talk about the criteria that you consider when buying SUNFLOWER seeds. Could you please indicate the importance of each item on a 10-point scale, where:

1 = not important

10 = very important

→ Please circle the importance for each item.

	1 not impor- tant	2	3	4	5	6	7	8	9	10 very impor- tant	99 Don't know / no answer
1) Sunflower seeds that result in higher yields	1	2	3	4	5	6	7	8	9	10	99
2) Sunflower seeds that are resistant to broomrape	1	2	3	4	5	6	7	8	9	10	99
3) Sunflower seeds that are drought tolerant	1	2	3	4	5	6	7	8	9	10	99
4) Sunflower seeds that result in a higher oil content	1	2	3	4	5	6	7	8	9	10	99
5) Sunflower seeds that reduce the time of ripening	1	2	3	4	5	6	7	8	9	10	99
6) Sunflower seeds that are resistant to diseases	1	2	3	4	5	6	7	8	9	10	99

2500 B Are there any other items that are not included in the list above regarding important criteria when buying seeds?

→ Please note down important items

2501. What are, according to you, the 3 most critical planting qualities of SUNFLOWER seeds? Please circle in the first column the most important criteria, the second most important criteria in the second column and the third most important criteria in the third column.

→ Please circle the most important item in the first column, the second most important item in the second column and the third most important item in the third column.

	1 st	2 nd	3 rd
Germination of sunflower seeds	1	1	1
Thousand seed weight of sunflower seeds	2	2	2
Sunflower seed homogeneity	3	3	3
Appearance of the sunflower seeds in the bag	4	4	4
Physical purity of sunflower seeds	5	5	5
Quality of the seed treatment of sunflower seeds	6	6	6
96. Other. Specify 1:	96	96	96
97. Other. Specify 2:	97	97	97
98. Other. Specify 3:	98	98	98
Don't know/no answer	99	99	99

2502. How important is the country where the SUNFLOWER seeds are produced to you?

→ Please circle what applies. (SR)

Very important	4
Rather important	3
Rather not important	2
Not important	1
Don't know / no answer	99

2503. What is your preferred country of SUNFLOWER seeds production?

→ Please circle what applies. (SR)

Algeria	01	Egypt	12	Jordan	23	Poland	34
Argentina	02	France	13	Kenya	24	Russia	35
Australia	03	Ghana	14	Korea	25	South Africa	36
Bangladesh	04	Guatemala	15	Malaysia	26	Spain	37
Belgium	05	Honduras	16	Mexico	27	Taiwan	38
Brazil	06	Hungary	17	Morocco	28	Thailand	39
China	07	India	18	The Netherlands	29	Ukraine	40
Colombia	08	Indonesia	19	Pakistan	30	USA	41
Costa Rica	09	Italy	20	Paraguay	31	Venezuela	42
East Africa	10	Ivory Coast	21	Peru	32	Vietnam	43
Ecuador	11	Japan	22	Philippines	33	Zambia	44
Other. Specify 1:							98
Don't know / no answer							99

2504. A. From which companies do you buy SUNFLOWER seeds?

B. And how satisfied are you with SUNFLOWER seeds from...?

→ A. Please circle the companies that apply. Write down other if not in list. (MR)

B. Please indicate your satisfaction for each of the companies you buy sunflower seeds from (indicated in part A.).

	a.	b. For each company indicated in a., please indicate your satisfaction				
		Very unsatisfied	Rather unsatisfied	Rather satisfied	Very satisfied	Don't know / no answer
Syngenta	1	1	2	3	4	99
Pioneer	2	1	2	3	4	99
Bayer	3	1	2	3	4	99
KWS	4	1	2	3	4	99
BASF	5	1	2	3	4	99
Other specify 1:	96	1	2	3	4	99
Other specify 2:	97	1	2	3	4	99
Other specify 3:	98	1	2	3	4	99
Don't know / no answer	99					

→ Please write down your answer.

→ Please write down your answer.

→ Please write down your answer.

→ Please circle what applies. (SR)

→ Please write down your answer.

→ Please circle what applies. (SR)

→ Please write down your answer.

2509. A. To which extent would you value direct delivery of the SUNFLOWER seeds from a seed manufacturer, rather than picking up or delivery from a distributor?

→ Please circle what applies. (SR)

Very much valued	4
Rather valued	3
Rather not valued	2
Not valued at all	1
Don't know / no answer	99

B. Please explain your answer.

→ Please write down your answer.

2510. We are focussing on sunflower, but we would also like to ask some questions on CORN. We are now going to talk about the criteria that you consider when buying CORN seeds. Could you please indicate the importance of each item on a 10-point scale, where:

1 = not important

10 = very important

→ Please circle the importance for each item.

	1 not impor- tant	2	3	4	5	6	7	8	9	10 very impor- tant	99 Don't know / no answer
1) Corn seeds that are drought tolerant	1	2	3	4	5	6	7	8	9	10	99
2) Corn seeds that are resistant to soil diseases	1	2	3	4	5	6	7	8	9	10	99
3) Corn seeds with inoculants in order to make treatments before planting unnecessary	1	2	3	4	5	6	7	8	9	10	99
4) Corn seed varieties that withstand water and temperature stress in order to assure productivity	1	2	3	4	5	6	7	8	9	10	99
5) Corn seed varieties with 100% germination & vigor to get an even stand	1	2	3	4	5	6	7	8	9	10	99
6) Corn seed varieties that are resistant to cutworms preventing damage below and above ground	1	2	3	4	5	6	7	8	9	10	99
7) Corn seed varieties that are resistant to 80% of the diseases so you spend less on products	1	2	3	4	5	6	7	8	9	10	99

2510 B Are there any other items that are not included in the list above regarding important criteria when buying seeds?

→ Please note down important items

--

2511. What are, according to you, the 3 most critical planting qualities of CORN seeds? Please circle in the first column the most important criteria, the second most important criteria in the second column and the third most important criteria in the third column.

→ Please circle the most important item in the first column, the second most important item in the second column and the third most important item in the third column.

	1 st	2 nd	3 rd
Germination of corn seeds	1	1	1
Thousand seed weight of corn seeds	2	2	2
Corn seed homogeneity	3	3	3
Appearance of the corn seeds in the bag	4	4	4
Physical purity of corn seeds	5	5	5
Quality of the seed treatment of corn seeds	6	6	6
96. Other. Specify 1:	96	96	96
97. Other. Specify 2:	97	97	97
98. Other. Specify 3:	98	98	98
Don't know/no answer	99	99	99

2512. How important is the country where the CORN seeds are produced to you?

→ Please circle what applies. (SR)

Very important	4
Rather important	3
Rather not important	2
Not important	1
Don't know / no answer	99

2513. What is your preferred country of CORN seeds production?

→ Please circle what applies. (SR)

Algeria	01	Egypt	12	Jordan	23	Poland	34
Argentina	02	France	13	Kenya	24	Russia	35
Australia	03	Ghana	14	Korea	25	South Africa	36
Bangladesh	04	Guatemala	15	Malaysia	26	Spain	37
Belgium	05	Honduras	16	Mexico	27	Taiwan	38
Brazil	06	Hungary	17	Morocco	28	Thailand	39
China	07	India	18	The Netherlands	29	Ukraine	40
Colombia	08	Indonesia	19	Pakistan	30	USA	41
Costa Rica	09	Italy	20	Paraguay	31	Venezuela	42
East Africa	10	Ivory Coast	21	Peru	32	Vietnam	43
Ecuador	11	Japan	22	Philippines	33	Zambia	44
Other. Specify 1:							98
Don't know / no answer							99

2514. A. From which companies do you buy CORN seeds?

B. And how satisfied are you with CORN seeds from...?

→ A. Please circle the companies that apply. Write down other if not in list. (MR)

B. Please indicate your satisfaction on each of the companies you buy corn seeds from.

	a.	b. For each company indicated in a., please indicate your satisfaction				
		Very unsatisfied	Rather unsatisfied	Rather satisfied	Very satisfied	Don't know / no answer
Syngenta	1	1	2	3	4	99
Pioneer	2	1	2	3	4	99
Bayer	3	1	2	3	4	99
KWS	4	1	2	3	4	99
BASF	5	1	2	3	4	99
Other specify 1:	96	1	2	3	4	99
Other specify 2:	97	1	2	3	4	99
Other specify 3:	98	1	2	3	4	99
Don't know / no answer	99					

IF Q2514A=1 (SYNGENTA)

2524. Why do you say you are [satisfied / not satisfied] with Syngenta for buying CORN seeds?

→ Please write down your answer.

→ Please write down your answer.

→ Please write down your answer.

— — • — — • — — — —
(Day/Month/Year)

→ Please circle what applies. (SR)

→ Please write down your answer.

→ Please circle what applies. (SR)

→ Please write down your answer.

END OF PRE-HARVEST INTERVIEW

INTERVIEWER - PLEASE READ:

This ends the pre-harvest interview. Before we close, I would like to go through the topics of the next interview. I would like to ask you to fill in the rest of the interview prior to our next appointment.

Also, can we schedule the next visit already? When will you harvest [TARGET CROP]? When can we meet again?

INSTRUCTIONS FOR INTERVIEWER - VISIT 2

Please use this instruction sheet during the set-up of the after harvest interview ('VISIT 2'). Make sure to check-off all applicable boxes as you go. End by filling out your name and signature at the bottom of the page.

➤ Note down unique ID number:

Country code (see country codes in Q2)

Farm type (1=RF and 2=BF)

Unique respondent number

--	--	--	--	--	--

Diagram showing arrows indicating the mapping of fields to labels:

- Country code (see country codes in Q2) points to the first two boxes.
- Farm type (1=RF and 2=BF) points to the third box.
- Unique respondent number points to the last three boxes.

FOR REPEATED RESPONDENTS, PLEASE USE EXISTING UNIQUE ID NUMBER.

➤ Note down date of VISIT 2:

				2	0	1	6
--	--	--	--	---	---	---	---

Please check off boxes to confirm all was done:

- Check which target crop you should discuss
- Check on which growing areas you should focus
- Remind grower about the target crop and growing areas
- Ask grower if he/she has already filled out the questionnaire
- Ask grower if he/she has already filled out the questions on product usage (Q229c and Q241).
If yes, go through document together to see if all is clear.
- Take about two pictures of the farmer and of his growing areas

➤ NAME INTERVIEWER:

➤ SIGNATURE INTERVIEWER:

PART V: FARMING PRACTICES - AFTER HARVEST

242. Please fill out the **unique code**, given by the interviewer (has to be the same as in Q1):

UNIQUE CODE: **XX X XXX**

Country code (See country codes Q2)

Farm type (1=RF and 2=BF)

Respondent number (Unique respondent number)

242. A. Please fill out the **date of the interview**:

Date (Date in DD.MM.YYYY)

V. Fertilizer usage

We will now ask some questions about your fertilizer usage, including the amounts and number of applications.

224 A. Did you perform a **soil test** for each growing area of **[TARGET CROP]**?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q224A=1 (performed a soil test)

224 C1. Was the soil test done by a commercial laboratory, via electrical meters, or by using a do-it-yourself kit?

→ Single response.

	Growing area A	Growing area B
Farmer (myself)	1	1
Electrical meters	2	2
Commercial laboratory	3	3
Other Specify:	98	98
Don't know / no answer	99	99

IF Q224A=1 (performed a soil test)

224 C2. Based on the results of the soil test, can you please indicate, for each element, whether its presence in the soil is very low, low, moderate, high or very high?

→ Read list.

→ Single response per row.

	Growing area A					
	1 Very low	2 Low	3 Moderate	4 High	5 Very high	99 Don't know / no answer
1 Nitrogen (N)	1	2	3	4	5	99
2 Phosphorus (P)	1	2	3	4	5	99
3 Potassium (K)	1	2	3	4	5	99
4 Sulfur	1	2	3	4	5	99
5 Calcium	1	2	3	4	5	99
6 Magnesium	1	2	3	4	5	99
7 pH-value	1	2	3	4	5	99
8 Soil moisture content	1	2	3	4	5	99

	Growing area B					
	1 Very low	2 Low	3 Moderate	4 High	5 Very high	99 Don't know / no answer
1 Nitrogen (N)	1	2	3	4	5	99
2 Phosphorus (P)	1	2	3	4	5	99
3 Potassium (K)	1	2	3	4	5	99
4 Sulfur	1	2	3	4	5	99
5 Calcium	1	2	3	4	5	99
6 Magnesium	1	2	3	4	5	99
7 pH-value	1	2	3	4	5	99
8 Soil moisture content	1	2	3	4	5	99

IF Q224A=1 (performed a soil test)

224 D. Are there any other interesting conclusions you can share based on the soil test for each growing area?

→ Please probe for the percentage of N, P and K in the soil as this is always tested during soil analysis

Growing area A	Growing area B

IF Q224A=1 (performed a soil test)

224 E. Which measures did you take based on the results of the soil test for each growing area?

Growing area A	Growing area B

224. Do you apply organic fertilizers on each of the growing areas for [TARGET CROP]?

→ Please tick what applies. (SR)

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q224A=1 (applies organic fertilizers)

225. B. Which types of organic fertilizer have you used?

→ READ, multiple response.

→ Please tick what applies. Please write down other if not in list.

	Growing area A	Growing area B
Animal manure	1	1
Compost (a mix of organic matter such as leaves, that has decayed or decomposed)	2	2
Green manure (remains of a crop that are plowed under the soil to improve fertility)	3	3
96. Other specify 1:		
97. Other specify 2:		
98. Other specify 3:		
Don't know / no answer	99	99

226. Do you apply chemical fertilizers on each of the growing areas for [TARGET CROP]?

→ Please tick what applies. (SR)

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q2=5 (BELGIUM) AND IF Q226=1

227. Do you carry out row-by-row and/or broadcast (entire field) fertilizer spreading on your cauliflower plots?

→ Please tick what applies. (SR)

	Growing area A	Growing area B
Only row by row fertilizer	1	1
Only broadcast fertilizer	2	2
A combination of row by row and broadcast fertilizer	3	3
Don't know / no answer	99	99

→ Please note down the total amount of fertilizer applications that applies for each growing area.

→ Interviewer note: Please note down the date of first field preparation (see Oxx).

→ Interviewer note: Please note down the date of pruning (see Qxx).

l. What is the amount of one package of the product that you applied? (in liter or kilogram)

GROWING AREA A

[illegible]

GROWING AREA B

Product number	a. Timing of product application	b. Type of product 1=Chemical fertilizer 2=Organic fertilizer	c. Brand product name or product description	d. Dosage (in kg/hectare or liter per hectare)	e. Unit of quantity 1=Kilogram/hectare 2=Liter/hectare	f. Amount of H ₂ O solved in liters per hectare	g. Percentage N (in %)	h. Percentage P (P ₂ O ₅) (in %)	i. Percentage K (K ₂ O) (in %)	j. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	k. Price of product for one package (in USD)	l. Total amount of product in kilogram or liter for one package
1	--.---.---- (DD.MM.YYYY)											
2	--.---.---- (DD.MM.YYYY)											
3	--.---.---- (DD.MM.YYYY)											
4	--.---.---- (DD.MM.YYYY)											
5	--.---.---- (DD.MM.YYYY)											
6	--.---.---- (DD.MM.YYYY)											
7	--.---.---- (DD.MM.YYYY)											
8	--.---.---- (DD.MM.YYYY)											
9	--.---.---- (DD.MM.YYYY)											
10	--.---.---- (DD.MM.YYYY)											

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

1. Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
- e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 - Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine)
- B. How many people were involved in this operation?
- Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
- e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

Growing area A					
382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
8. Applying fertilizers (both chemical and organic)					

Growing area B					
382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
8. Applying fertilizers (both chemical and organic)					

38200. C. When considering fertilizer applications, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

38222. B. Did you outsource fertilizer applications and have another company/agency conduct this?

→ Please write down if the fertilizer application is being outsourced and if this was completely or partially conducted by a third party.

Growing area A		
	a. Activity outsourced to ...	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.		
2.		
3.		

Growing area B		
	a. Activity outsourced to ...	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.		
2.		
3.		

X. Crop protection products

240 E. We now would like to better understand the pest pressure on the selected growing areas. Can you please tell us whether you consider the pressure of insects, diseases and weeds having been high, medium or low, for each growing area during the season of [TARGET CROP]?

→ READ, single response per category.

→ Please indicate the pressure below. Also ask if there are other important elements and note these down in the 'other specify' category.

	Growing area A		Growing area B	
Insects	High	3	High	3
	Medium	2	Medium	2
	Low	1	Low	1
	No pressure	90	No pressure	90
Diseases	High	3	High	3
	Medium	2	Medium	2
	Low	1	Low	1
	No pressure	90	No pressure	90
Weeds	High	3	High	3
	Medium	2	Medium	2
	Low	1	Low	1
	No pressure	90	No pressure	90
98. Other specify 1:	High	3	High	3
	Medium	2	Medium	2
	Low	1	Low	1
Don't know/no answer	99		99	

240 B. And which measures did you take to prevent pests to develop on each growing area?

→ Please describe.

	Growing area A	Growing area B
Measures to prevent insects		
Measures to prevent diseases		
Measures to prevent weeds		
98. Other measures:		
Don't know / no answer	99	99

240 D. Could you please note down the total number of treatments you perform with crop protection products (fungicide, insecticide, herbicide, miticidas / acaricides, rodenticides, nematicidas / molluscicides, plant growth regulator/harvest aids/adjuvants) on each of the growing areas for [TARGET CROP]?

→ Please note down the total amount of crop protection product applications that applies for each growing area.

→ Interviewer note: The answer should correspond with the number of applications filled in for Q241.

→ Exclude seed treatment products and fertilizer applications!

	Growing area A	Growing area B
Number of crop protection product applications

241. Could you please note down, on the next page, all crop protection products that have been used for growing area A and growing area B for [TARGET CROP]?

→ IF Q4=3; 4; 7; 8; 10; 12; 13; 14; 15; 17; 18; 19; 20; 21 (= all field crops) - Please note down the date of first field preparation (see Q34).

→ IF Q4=1; 2; 5; 6; 9; 11; 16 (= all tree crops) - Please note down the date of pruning (see Q34).

	Growing area A	Growing area B
First field preparation	--.---.---- (DD.MM.YYYY)	--.---.---- (DD.MM.YYYY)

	Growing area A	Growing area B
Date of pruning	--.---.---- (DD.MM.YYYY)	--.---.---- (DD.MM.YYYY)

→ Please note down the following details per product. Please look in your crop protection products storage room if you don't know all details by heart.

→ Please note this information down per treatment. Consider one table on one page for one treatment.

- a. On what date did you apply the treatment?
- b. What is the type of product you applied?
 - Fungicide, insecticide, herbicide, miticidas / acaricides, rodenticides, nematicidas / molluscicides, plant growth regulator/harvest aids/adjuvants
- c. What is the brand product name?
 - e.g. Engeo. Please include all details of the product name.
- c1. What is the brand product formulation?
 - e.g. 247 SC
- d. What is the dosage that you applied?
 - Note down dosage in g/ha for solid products.
 - Not down dosage in ml/ha for liquid products.
 - Always refer to the concentrate of a product (not the solution in water)
- e. What is the unit of quantity of the product applied?
 - Indicate the unit of quantity: grams or milliliter per hectare.
- f. What is the amount of water in which you have solved the product (per hectare)?
- g. What is the pest/disease/weed that is targeted?
- h. What is the level of pest/disease/weed pressure? Is this low, medium or high?
- i. What is the percentage of the area that is treated against pests/diseases/weeds?
- j. What is the percentage of the area that is free of pests/diseases/weeds at harvest?
- k. Which type of application equipment did you use?
 - Hand operated sprayers (e.g. knapsack), motorized boom sprayer, airblast sprayer, granular applicator, Aerial applicator, other.
 - If other, please specify.
- l. What is the total price of one package of the product that you applied? (not per liter or per kilogram)
- m. What is the amount of one package of the product that you applied? (in liter or kilogram)

[illegible][illegible]

UNIQUE CODE:

GROWING AREA A - Treatment 3

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	--:--:--:-- (DD.MM.YYYY)													
2														
3														
4														
5														

GROWING AREA A - Treatment 4

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	--:--:--:-- (DD.MM.YYYY)													
2														
3														
4														
5														

UNIQUE CODE:

GROWING AREA A - Treatment 5

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	----.---.---- (DD.MM.YYYY)													
2														
3														
4														
5														

GROWING AREA A - Treatment 6

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	----.---.---- (DD.MM.YYYY)													
2														
3														
4														
5														

UNIQUE CODE:

GROWING AREA A - Treatment 7

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other,specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	----- (DD.MM.YYYY)													
2														
3														
4														
5														

GROWING AREA A - Treatment 8

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other,specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	----- (DD.MM.YYYY)													
2														
3														
4														
5														

UNIQUE CODE:

GROWING AREA A - Treatment 9

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other,specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	----- (DD.MM.YYYY)													
2														
3														
4														
5														

GROWING AREA A - Treatment 10

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other,specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	----- (DD.MM.YYYY)													
2														
3														
4														
5														

UNIQUE CODE:

GROWING AREA B - Treatment 1

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formulation	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
0	02.05.2015	2	Engeo	247 SC	500	2	200	Tuta absoluta	2	90	100	2	400	5
1	--.---.---- (DD.MM.YYYY)													
2														
3														
4														
5														

GROWING AREA B - Treatment 2

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formulation	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	--.---.---- (DD.MM.YYYY)													
2														
3														
4														
5														

UNIQUE CODE:

GROWING AREA B - Treatment 3

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter /hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	----.---.---- (DD.MM.YYYY)													
2														
3														
4														
5														

GROWING AREA B - Treatment 4

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter /hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	----.---.---- (DD.MM.YYYY)													
2														
3														
4														
5														

UNIQUE CODE:

GROWING AREA B - Treatment 5

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formulation	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	--.---.---- (DD.MM.YYYY)													
2														
3														
4														
5														

GROWING AREA B - Treatment 6

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formulation	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	--.---.---- (DD.MM.YYYY)													
2														
3														
4														
5														

UNIQUE CODE:

GROWING AREA B - Treatment 7

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	--.-.-.-.- (DD.MM.YYYY)													
2														
3														
4														
5														

GROWING AREA B - Treatment 8

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter/hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	--.-.-.-.- (DD.MM.YYYY)													
2														
3														
4														
5														

UNIQUE CODE:

GROWING AREA B - Treatment 9

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter /hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	----.---.---- (DD.MM.YYYY)													
2														
3														
4														
5														

GROWING AREA B - Treatment 10

Product number	a. Timing of product application	b.Type of product 1=Fungicide 2=Insecticide 4=Herbicide 5=Miticides/ acaricides 6=Rodenticides 7=Nematicides/ molluscicides 8=Plant growth regulator/harvest aids/adjuvants	c. Brand product name	c1. Brand product formula tion	d. Dosage (in gram/hectare or milliliter /hectare) Use '-1' if don't know	e. Unit of quantity 1=Gram/hectare 2=Milliliter/hectare	f. Amount of H ₂ O solved in liters per hectare Use '0' if no water; Use '-1' if don't know	g. Pest/disease/ weed targeted	h. Level of pest/ disease/ weed pressure 1=Low pressure 2=Medium pressure 3=High pressure	i. Percentage of the area treated against pests/ diseases/ weeds (in %)	j. Percentage of crop free of pests/ diseases/ weeds at harvest (in %)	k. Equipment type 1=Hand operated sprayers (e.g. knapsack), 2=Motorized boom sprayer 3=Airblast sprayer 4=Granular applicator 5=Aerial applicator 6=Other, specify	l. Price of product for one package (in USD) Use '-2' if subsidized	m. Total amount of product in kilogram or liter for one package
1	----.---.---- (DD.MM.YYYY)													
2														
3														
4														
5														

242. B. Could you please describe to which extent your crop protection program differs compared to the previous season for each growing area of [TARGET CROP]? Please think about differences in products, formulations of products, dosages, techniques,...

→ Please describe.

Growing area A	Growing area B

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

1. Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
 - e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 - Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine)
- B. How many people were involved in this operation?
 - Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
 - e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

	Growing area A					
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
11.Scouting for pests and diseases						
12.Applying pesticides						
15.Weeding (mechanical)						

	Growing area B					
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
11.Scouting for pests and diseases						
12.Applying pesticides						
15.Weeding (mechanical)						

38200. When considering all activities stated in the table above, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

38222. Are there any activities that you outsourced and have another company/agency conduct this?

→ Please write down the number of the activity (refer to Q382) that is being outsourced and if this was completely or partially conducted by a third party.

Growing area A		
a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.		
2.		
3.		
4.		
5.		

Growing area B		
a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.		
2.		
3.		
4.		
5.		

M. Harvest timing & quality per crop - field crops

ONLY APPLY THIS PART IF Q4=3; 4; 7; 8; 10; 12; 13; 14; 15; 18; 19; 20; 21 (= all field crops)

We will now ask some questions about the crop at harvest, including the harvest timing and yield.

75. What is the final stand - i.e. the number of plants - per m² for each growing area for [TARGET CROP]?

→ Please note down the final stand (number of plants) per m² for each growing area.

	Growing area A	Growing area B
Final stand/Plant densityplants/m ²plants/m ²

76. Prior to harvest, could you please indicate the percentage of the plot area that is lodged for each growing area for [TARGET CROP]? This is when the stem bends over near the ground level, which implies that this part of the crop is lost.

→ Please note down the percentage for each growing area.

	Growing area A	Growing area B
% plot area lodged%%

243. When was the harvest period for each growing area for [TARGET CROP]?

→ Please write down the harvest period for each growing area.

	Growing area A		Growing area B	
Harvest period	A	From ____ . ____ . ____ (DD.MM.YYYY)	A	From ____ . ____ . ____ (DD.MM.YYYY)
	B	Until ____ . ____ . ____ (DD.MM.YYYY)	B	Until ____ . ____ . ____ (DD.MM.YYYY)

IF Q4=7 (CORN)

107. Could you please indicate the average number of cobs per square meter during flowering for each growing area for corn?

→ Please write down the average number of cobs per m² for each growing area.

	Growing area A	Growing area B
Average number of cobs per m ²cobs/m ²cobs/m ²

IF Q4=12 OR 19 (PEPPER/TOMATO)

327. Please indicate the number of harvests/pickings per year for each growing area for tomatoes/peppers?

→ Please write down the number of harvests/pickings for each growing area.

	Growing area A	Growing area B
Number of harvests/pickings per year Harvests/year Harvests/year

IF Q4=3, 12, 14, 15, 19, 20, OR 21 (BARLEY/PEPPER/RICE/SOYBEAN/TOMATO/WATERMELON/WHEAT)

244. What is the marketable yield that has been achieved for each growing area for [TARGET CROP] in metric tons per hectare?

→ Please write down the measured yield as accurately as possible.

	Growing area A	Growing area B
Yieldmetric ton/hametric ton/ha

IF Q4=12 OR 19 (PEPPER/TOMATO)

4091. What is the average size (diameter) of one tomato/pepper harvested on average?

	Growing area A	Growing area B
Average size (diameter) cm cm

IF TOMATO/PEPPER

4092. What is the number of marketable tomatoes/peppers fruits per square meter?

	Growing area A	Growing area B
Fruits/m ²	... Fruits/m ²	... Fruits/m ²

IF Q2=20 (ITALY) AND IF Q4= 19 (TOMATO)

4092. B What is the percentage of waste, i.e. the percentage of tomato that is not marketable, for each growing area?

	Growing area A	Growing area B
Percentage of waste	... %	... %

IF Q2=20 (ITALY) AND IF Q4= 19 (TOMATO)

4092. C Could you please specify the production cycle (early, medium, long) for each growing area of tomato?

→ Single response.

	Growing area A	Growing area B
Early	1	1
Medium	2	2
Long	3	3
Don't know / no answer	99	99

IF Q4=7 (CORN)

273. B. Please indicate the % of the area that is harvested for grain corn and silage corn.

→ Please note down the percentage.

	Growing area A	Growing area B
% area for grain corn%%
% area for silage con%%

IF Q4=7 (CORN)

274. What is the yield (marketable yield) that has been achieved for each growing area for corn in **metric tons per hectare**?

→ Please write down the measured yield as accurately as possible.

	Growing area A	Growing area B
Grain yield - harvested for grains onlymetric ton/hametric ton/ha
Silage yield - Entire plant is harvested and fermented for silagemetric ton/hametric ton/ha

IF Q2 = 7 (CHINA) and Q4=7 (CORN)

274 B Directly after harvesting, what was the average moisture content for each growing area for corn?

→ Please write down the moisture content for each growing area.

	Growing area A	Growing area B
Moisture content%%

IF Q4=13 (POTATO)

299. What is the tuber yield (marketable yield) that has been achieved for each growing area for potato in **metric tons per hectare**?

→ Please write down the measured yield as accurately as possible.

	Growing area A	Growing area B
Tuber yieldmetric ton/hametric ton/ha

IF Q4=4 (CAULIFLOWER)

371. How many times do you pick each variety on each cauliflower field?

→ Please write down the number of harvests for each variety for each field.

	Growing area A		Growing area B	
	Variety	Number of harvests	Variety	Number of harvests
Number of harvests variety 1:				
Number of harvests variety 2:				
Number of harvests variety 3:				
Number of harvests variety 4:				
Number of harvests variety 5:				

IF Q4=4 (CAULIFLOWER)

372. What is the yield (marketable yield - bolted cauliflower) that has been achieved for each growing area for cauliflower in **metric tons per hectare**?

→ Please write down the measured yield as accurate as possible.

	Growing area A	Growing area B
Yieldmetric ton/hametric ton/ha

IF Q4=4 (CAULIFLOWER)

373. What is the **total yield** in ton per hectare for the total production of cauliflower for the processing industry in **metric tons per hectare**?

→ Please write down the measured yield as accurate as possible.

Total yield metric ton/ha
-------------	----------------------------

IF Q4=8 (COTTON)

282. What is the **fibre / lint yield** (marketable yield) that has been achieved for each growing area for cotton in **metric tons per hectare**?

→ Please write down the measured yield as accurate as possible.

	Growing area A	Growing area B
Fibre / lint yield metric ton/ha metric ton/ha

IF Q4=8, 10 OR 18 (COTTON/OSR/SUNFLOWER)

314. What is the **seed yield** (marketable yield) that has been achieved for each growing area for **[TARGET CROP]** in **metric tons per hectare**?

→ Please write down the seed yield for each growing area.

	Growing area A	Growing area B
Seed yield metric ton/ha metric ton/ha

4094. Who measured the yield on each of the growing areas?

→ SPONTANEOUS, multiple response.

→ Please tick what applies.

	Growing area A	Growing area B
Dealer/store	1	1
Manufacturer/representative	2	2
Independent advisor	3	3
Cooperative	4	4
96. Other specify:		
97. Other specify:		
98. Other specify:		
Don't know / no answer	99	99

NOT IF Q2=22 and Q4=13 (Japan, potato)

4095. A. Compared to previous year, would you say your yield has ... [READ SCALE]?

→ Please tick what applies.

→ Single response.

	Growing area A	Growing area B
Increased	3	3
Remained stable	2	2
Decreased	1	1
Don't know / no answer	99	99

NOT IF Q2=22 and Q4=13 (Japan, potato)

4095. B. According to you, why has your yield [INSERT ANSWER ON 4095A]?

→ Spontaneous

Growing area A	Growing area B

ONLY IF Q2=22 and Q4=13 (Japan, potato)

4095. C. According to you, why has your yield changed as opposed to previous year?

→ Spontaneous

Growing area A	Growing area B

4096. A. How satisfied are you with your yield this season?

→ READ, single response.

→ Please tick what applies.

	Growing area A	Growing area B
Very satisfied	4	4
Somewhat satisfied	3	3
Somewhat unsatisfied	3	3
Very unsatisfied	1	1
Don't know / no answer	99	99

4096. B. Can you please explain why you are [INSERT ANSWER on 4096A] with your yield?

→ Spontaneous

Growing area A	Growing area B

246. What percentage of the harvest of your target crop of each growing area is used for each purpose?

→ Please note down what applies for each growing area.

→ The sum of the percentages should add up to 100%.

	Growing area A	Growing area B
1. Own consumption - Self-subsistence% %
2. Feeding own livestock % %
3. Harvest sold % %
	100%	100%

IF Q246.3 > 0 (more than 0% harvest sold) and IF Q4≠8 (NOT COTTON)

247. What is the price per metric ton per buyer that has been obtained for each growing area for your target crop?

→ Please write down the percentage of the yield that each buyer bought and the price they have paid. The sum of the percentages cannot exceed 100%.

	Growing area A		Growing area B	
Buyer 1:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 2:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 3:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 4:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 5:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Harvest not yet sold/not yet paid	-2	-2	-2	-2
Don't know/no answer	-1	-1	-1	-1

IF Q4=8 (COTTON)

284. What is the price per metric ton FIBRE yield per buyer that has been obtained for each growing area for cotton?

→ Please write down the percentage of the yield that each buyer bought and the price they have paid. The sum of the percentages cannot exceed 100%.

	Growing area A		Growing area B	
Buyer 1:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 2:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 3:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 4:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 5:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Harvest not yet sold/not yet paid	-2	-2	-2	-2
Don't know/no answer	-1	-1	-1	-1

IF Q4=8 (COTTON)

285. What is the price per metric ton SEED yield per buyer that has been obtained for each growing area for cotton?

→ Please write down the percentage of the yield that each buyer bought and the price they have paid. The sum of the percentages cannot exceed 100%.

	Growing area A		Growing area B	
Buyer 1:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 2:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 3:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 4:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 5:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Harvest not yet sold/not yet paid	-2	-2	-2	-2
Don't know/no answer	-1	-1	-1	-1

4097. A. How satisfied are you with the price you received on the market?

→ READ, single response.
→ Please tick what applies.

	Growing area A	Growing area B
Very satisfied	4	4
Somewhat satisfied	3	3
Somewhat unsatisfied	3	3
Very unsatisfied	1	1
Don't know / no answer	99	99

4097. B. Can you please explain why you are [INSERT ANSWER on 4097A] with the price you received?

→ Spontaneous

Growing area A	Growing area B

251. What is the percentage of harvested crop damaged at harvest (total lost - not marketable) for each growing area for your target crop?

→ Please write down the percentage of harvested crop damaged at harvest for each growing area.

	Growing area A	Growing area B
Percentage of harvested crop damaged at harvest%%

IF Q4=14 (RICE)

295. What is the level of brokens (percentage of grains broken in the milling process) in percentage for each growing area for rice?

→ Please write down the level of brokens for each growing area.

	Growing area A	Growing area B
Level of brokens%%

IF Q4=14 (RICE)

297. What is the percentage of colored grains and contaminants for each growing area for rice?

→ Please write down the percentage of colored grains and contaminants for each growing area.

	Growing area A	Growing area B
Percentage of colored grains and contaminants%%

IF Q4=13 (POTATO)

301. What is the starch content per potato for each growing area?

→ Please write down the starch content per potato for each growing area.

	Growing area A	Growing area B
Starch content per potato%%

IF Q4=13 (POTATO)

302. What is the percentage of decay for each growing area for potato?

→ Please write down the percentage of decay for each growing area.

	Growing area A	Growing area B
Percentage of decay%%

IF Q4=13 (POTATO)

303. What is the percentage of shrink loss for each growing area for potato?

→ Please write down the percentage of shrink loss for each growing area.

	Growing area A	Growing area B
Percentage of shrink loss%%

IF Q4=10 (OSR)

309. Have you been meeting the requirements of the crushers in terms of oil content for each growing area for oilseed rape?

→ Please tick what applies for each growing area.

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q4=10 (OSR)

310. Have you been meeting the requirements of the crushers in terms of glucosinolate content for each growing area for oilseed rape?

→ Please tick what applies for each growing area.

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q4=10 (OSR)

312. What is the percentage of pod shattering at harvest for each growing area for oilseed rape?

→ Please write down the percentage of pod shattering at harvest for each growing area.

	Growing area A	Growing area B
Percentage of pod shattering%%

IF Q4=8 (COTTON)

286. What is the fibre / lint quality (like fibre strength, fineness, ...) for each growing area for cotton?

→ Please select the fibre quality that applies best.

→ Single response.

	Growing area A	Growing area B
Good quality	1	1
Medium quality	2	2
Low quality	3	3
Don't know / no answer	99	99

IF Q4=3 (BARLEY)

266 B. Please indicate the protein content level of your yield for each growing area for barley.

→ Please tick what applies.

→ Single response.

	Growing area A	Growing area B
Low protein content level (less than 10%)	1	1
Normal protein content level (about 10%)	2	2
High protein content level (above 10%)	3	3
Don't know / no answer	99	99

IF Q2=20 (ITALY) AND IF Q4= 19 (TOMATO)

266. C. Please indicate the BRIX content level in percentage (i.e. the final sugar content and the potential alcohol level) of your yield for each growing area for [TARGET CROP].

→ Please write down the percentage for each growing area.

	Growing area A	Growing area B
BRIX-level in percentage%%

ONLY IF Q2=22 and Q4=13 (Japan, potato)

303. B. Can you please share any feedback about the growth situation of potato during this season?

→ Spontaneous,

→ For example, did you face problems such as sore shin, ...

Growing area A	Growing area B

ONLY IF Q2=35 and Q4=18 (Russia, sunflower)

2520. A. Are you also cultivating other sunflower varieties?

B. And what is the yield in ton per hectare for these varieties?

→ Please write down the seed variety in column A.

→ Please indicate for each seed variety mentioned in column A, the yield in ton per hectare.

a. Other sunflower varieties	b. Yield in ton per hectare
ton/ha
ton/ha
ton/ha
ton/ha
ton/ha

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

1. Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
- e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 - Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine). This also includes the farmer's own labor hours.
- B. How many people were involved in this operation?
- Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
- e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

Growing area A						
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
16. Harvesting						
17. Post-harvest handling of the harvested crop (incl. dipping)						
18. Processing (incl. sorting)						
19. Transport						

Growing area B						
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
16. Harvesting						
17. Post-harvest handling of the harvested crop (incl. dipping)						
18. Processing (incl. sorting)						
19. Transport						

38200. When considering all activities stated in the table above, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

38222. Are there any activities that you outsourced and have another company/agency conduct this?

→ Please write down the number of the activity (refer to Q382) that is being outsourced and if this was completely or partially conducted by a third party.

Growing area A			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

Growing area B			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

N. Harvest timing & quality per crop - tree crops

ONLY APPLY THIS PART IF Q4=1; 5; 6; 9; 11; 16 (= all tree crops)

We will now ask some questions about the crop at harvest, including the harvest timing and yield.

IF Q4=5, 6 OR 9 (COCOA, COFFEE, GRAPES)

201. When did the first trees reach the flowering stage for each growing area for [TARGET CROP]?

→ Please write down the flowering date for each growing area.

	Growing area A	Growing area B
Flowering date	--.---.---- (DD.MM.YYYY)	--.---.---- (DD.MM.YYYY)

IF Q4=5 (COCOA)

212. Rain during flowering damages the flowers. What percentage of the trees was damaged for each growing area for cocoa?

→ Please note down the percentage of trees damaged for each growing area.

	Growing area A	Growing area B
Percentage of trees damaged% %

IF Q4=5 (COCOA)

213. What is the average number of green pods per 25 trees (randomly selected) before the green pods become orange for each growing area for cocoa?

→ Please randomly select 25 trees that have pods per growing area. Please note down the average number of green pods of these 25 trees for each growing area.

	Growing area A	Growing area B
Average number of green pods per 25 treesgreen pods/25 trees green pods/25 trees

IF Q4=6 (COFFEE)

203. When did the fruit development start for each growing area for coffee?

→ Please write down the fruit development date for each growing area.

	Growing area A	Growing area B
Fruit development date	--.---.---- (DD.MM.YYYY)	--.---.---- (DD.MM.YYYY)

NOT APPLICABLE IF Q4=9 (GRAPE)

204. Could you please indicate the average number of fruits per tree for each growing area for [TARGET CROP]?

→ Please write down the average number of fruits per tree for each growing area.

	Growing area A	Growing area B
Average number of fruit per treefruit/treefruit/tree

IF Q4=9 (GRAPE)

100. Could you please indicate the average number of grape bunches per vine for each growing area for grape?

→ Please write down the average number of grape bunches per vine for each growing area.

	Growing area A	Growing area B
Average number of grape bunches per vinegrape bunches/vine grape bunches/vine

IF Q4=9 (GRAPE)

101. Could you please indicate the average number of berries per bunch for each growing area for grape?

→ Please write down the average number of berries per bunch for each growing area.

	Growing area A	Growing area B
Average number of berries per bunchberries/bunch berries/bunch

IF Q2=20 (ITALY) and IF Q4=9 (GRAPES) and if CLUSTER 1 OR 2

1020. What is the number of bottles produced per hectare for each growing area for grape?

→ Please write down the bottles produced per hectare for each growing area.

	Growing area A	Growing area B
Number of bottles producedbottles/habottles/ha

IF Q2=20 (ITALY) and IF Q4=9 (GRAPES) and if CLUSTER 1 OR 2

1021. What is the number of bottles blocked (no market access) per hectare for each growing area for grape?

→ Please write down the bottles blocked per hectare for each growing area.

	Growing area A	Growing area B
Number of bottles blockedbottles/habottles/ha

IF Q2=20 (ITALY) AND Q1010=1 (WINE GRAPE)

266. C. Please indicate the BRIX content level in percentage (i.e. the final sugar content and the potential alcohol level) of your yield for each growing area for [TARGET CROP].

→ Please write down the percentage for each growing area.

	Growing area A	Growing area B
BRIX-level in percentage%%

IF Q4=16 (STONE FRUIT)

4101. What is the average size (diameter) of one stone fruit harvested on average?

→ Please write down the average size of one stonefruit for each growing area.

	Growing area A	Growing area B
Average size (diameter) cm cm

360. When was the harvest period for each growing area for [TARGET CROP]?

→ Please write down the harvest period for each growing area.

	Growing area A		Growing area B	
Harvest period	A	From (DD.MM.YYYY)	A	From (DD.MM.YYYY)

	B	Until ____ . ____ . ____ (DD.MM.YYYY)	B	Until ____ . ____ . ____ (DD.MM.YYYY)
--	---	--	---	--

361. In which months did the harvest peak for each growing area for [TARGET CROP] during this season?

→ SPONTANEOUS, multiple response.

→ Please circle the harvest peak months for each growing area.

	Growing area A	Growing area B
January	1	1
February	2	2
March	3	3
April	4	4
May	5	5
June	6	6
July	7	7
August	8	8
September	9	9
October	10	10
November	11	11
December	12	12
Don't know / no answer	99	99

NOT APPLICABLE IF Q4=5 OR 6 (COCOA/COFFEE)

351. A. What is the yield (immediately after harvest) that has been achieved for each growing area for [TARGET CROP] in metric tons per hectare?

→ Please write down the yield for each growing area.

	Growing area A	Growing area B
[TARGET CROP] yield (after harvest)metric ton/hametric ton/ha

IF Q2=20 (ITALY) and IF Q4=9 (GRAPES)

351. B. For the grape variety you are cultivating, what is the maximum yield you may obtain? This refers to the official limits for wine grapes as defined in your country.

→ Please write down the yield for each growing area.

→ Please use -2 if no official yield limits apply.

	Growing area A	Growing area B
Maximum yield to be obtainedmetric ton/hametric ton/ha

IF Q4=6 (COFFEE)

362. What is the coffee yield (marketable yield - dried beans) that has been achieved for each growing area for coffee in metric tons per hectare?

→ Please write down the measured yield as accurate as possible.

	Growing area A	Growing area B
Coffee yieldmetric ton/hametric ton/ha

IF Q2=43 (VIETNAM) and Q4=6 (COFFEE) and Q66=12

362. B. You mentioned you are intercropping coffee and pepper this season. What is the pepper yield (marketable yield) that has been achieved for each growing area for coffee in metric tons per hectare?

	Growing area A	Growing area B
Pepper yieldmetric ton/hametric ton/ha

IF Q4=5 (COCOA)

366. What is the yield (marketable yield) that has been achieved for each growing area for cocoa in metric tons per hectare?

→ Please write down the yield for each growing area.

	Growing area A	Growing area B
Yieldmetric ton/hametric ton/ha

IF Q4=5 (COCOA)

369. What is the weight of the dried cocoa yield at the end of the post-harvest process (with humidity close to 8%) for each growing area for cocoa in metric tons per hectare?

→ Please write down the weight of dried cocoa yield for each growing area.

	Growing area A	Growing area B
Weight dried yieldmetric ton/hametric ton/ha

4094. Who measured the yield on each of the growing areas?

→ SPONTANEOUS, multiple response.

→ Please tick what applies.

	Growing area A	Growing area B
Dealer/store	1	1
Manufacturer/representative	2	2
Independent advisor	3	3
Cooperative	4	4
98. Other specify:		
Don't know / no answer	99	99

4095. A. Compared to previous year, would you say your yield has ... [READ SCALE]?

→ Please tick what applies. (SR)

	Growing area A	Growing area B
Increased	3	3
Remained stable	2	2
Decreased	1	1
Don't know / no answer	99	99

4095. B. According to you, why has your yield [INSERT ANSWER ON 4095A]?

→ Spontaneous

Growing area A	Growing area B

4096. A. How satisfied are you with your yield this season?

→ READ, single response.

→ Please tick what applies.

	Growing area A	Growing area B
Very satisfied	4	4
Somewhat satisfied	3	3
Somewhat unsatisfied	3	3
Very unsatisfied	1	1
Don't know / no answer	99	99

4096. B. Can you please explain why you are [INSERT ANSWER on 4096A]?

→ Spontaneous

Growing area A	Growing area B

363. What is the price per metric ton per buyer that has been obtained for each growing area for [TARGET CROP]?

→ Please write down the percentage of the yield that each buyer bought and the price they have paid. The sum of the percentages cannot exceed 100%.

	Growing area A		Growing area B	
Buyer 1:	a. ...%	b. \$/ metric ton	a. ...%	b. \$/ metric ton
Buyer 2:	a. ...%	b. \$/ metric ton	a. ...%	b. \$/ metric ton
Buyer 3:	a. ...%	b. \$/ metric ton	a. ...%	b. \$/ metric ton
Buyer 4:	a. ...%	b. \$/ metric ton	a. ...%	b. \$/ metric ton
Buyer 5:	a. ...%	b. \$/ metric ton	a. ...%	b. \$/ metric ton
Harvest not yet sold/not yet paid	-2	-2	-2	-2
Don't know/no answer	-1	-1	-1	-1

IF Q4=1 OR 11 (APPLE/PEAR)

351 C. What percentage of the yield harvested is sold and/or stored?

→ Please write down the percentage for each growing area. The sum should be 100%.

	Growing area A	Growing area B
Immediately sold%%
Stored%%
98. OTHER SPECIFY :.....%%
	100%	100%

INTERVIEWER - PLEASE READ: In the following questions, we will ask some questions that concern the harvest of the previous season (2015).

IF Q4=1 OR 11 (APPLE/PEAR)

351. B. For the harvest of the previous season (2015), what was the yield (after storage) that has been achieved for each growing area?

→ Please write down the apple yield for each growing area.

	Growing area A	Growing area B
Yield (after storage) metric ton/ha metric ton/ha

IF Q4=1 (APPLE)

352. A. For the harvest of the previous season (2015), could you please indicate the after storage harvest in ton/ha for each of the apple sizes that apply for the growing area for apple?

→ Please write down the harvest in metric ton/ha for each apple size that applies.

Size in millimeter	Growing area A
60-65 metric ton/ha
65-70 metric ton/ha
70-75 metric ton/ha
75-80 metric ton/ha
80-85 metric ton/ha
rot metric ton/ha
total metric ton/ha

IF Q4=11 (PEAR)

352. B. For the harvest of the previous season (2015), could you please indicate the after storage harvest in ton/ha for each of the pear sizes that apply for the growing area for pear?

→ Please write down the harvest in metric ton/ha for each pear size that applies.

Size in millimeter	Growing area B
45-50 <u>metric ton/ha</u>
50-55 <u>metric ton/ha</u>
55-60 <u>metric ton/ha</u>
60-65 <u>metric ton/ha</u>
65-70 <u>metric ton/ha</u>
70-75 <u>metric ton/ha</u>
75-80 <u>metric ton/ha</u>
80-85 <u>metric ton/ha</u>
rot <u>metric ton/ha</u>
total <u>metric ton/ha</u>

IF Q4=1 OR 11 (APPLE/PEAR)

353 B. For the harvest of the previous season (2015), what was the price per ton per buyer that has been obtained for each growing area for [TARGET CROP]?

→ Please write down the percentage of the yield that each buyer bought and the price they have paid.

→ The sum of the percentages cannot exceed 100%.

	Growing area A		Growing area B	
Buyer 1:	a. ...%	b. <u>\$/ton</u>	a. ...%	b. <u>\$/ton</u>
Buyer 2:	a. ...%	b. <u>\$/ton</u>	a. ...%	b. <u>\$/ton</u>
Buyer 3:	a. ...%	b. <u>\$/ton</u>	a. ...%	b. <u>\$/ton</u>
Buyer 4:	a. ...%	b. <u>\$/ton</u>	a. ...%	b. <u>\$/ton</u>
Buyer 5:	a. ...%	b. <u>\$/ton</u>	a. ...%	b. <u>\$/ton</u>
<u>Harvest not yet sold/not yet paid</u>	-2	-2	-2	-2
Don't know/no answer	-1	-1	-1	-1

IF Q4=1 OR 11 (APPLE/PEAR)

354. For the harvest of the previous season (2015), which percentage of the yield of each growing area for apple could be sold and which percentage was used in the processing industry ?

→ Please give the percentage of the yield that can be sold and the percentage that is used in the processing industry. The sum should be 100%.

	Growing area A	Growing area B
1. Percentage salable product	...%	...%
2. Percentage for processing industry	...%	...%
	100%	100%

INTERVIEWER NOTE: Please proceed with the questions about the current season.

IF Q4=1 OR 11 (APPLE/PEAR)

3540. What is the percentage of fruits damaged at harvest (total lost - not marketable) for each growing area?

→ Please write down the percentage of fruits damaged at harvest for each growing area.

	Growing area A	Growing area B
Percentage of fruits damaged at harvest%%

4097. A. How satisfied are you with the price you received on the market?

→ READ, single response.

→ Please tick what applies.

	Growing area A	Growing area B
Very satisfied	4	4
Somewhat satisfied	3	3
Somewhat unsatisfied	3	3
Very unsatisfied	1	1
Don't know / no answer	99	99

4097. B. Can you please explain why you are [INSERT ANSWER on 4097A] with the price you received?

→ Spontaneous

Growing area A	Growing area B

IF Q4≠1; 11 (NOT APPLE OR PEAR)

3630. What is the percentage fruit losses/damaged for each growing area for [TARGET CROP]?

→ Please write down the percentage for each growing area.

	Growing area A	Growing area B
Percentage <u>fruit losses/damaged</u>%%

IF Q2=20 (ITALY) AND IF Q3630 > 0%

251. B Can you please indicate for each growing area which factors contributed to this percentage of harvested crop damaged?

→ Spontaneous

Growing area A	Growing area B

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

1. Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
- e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 - Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine). This also includes the farmer's own labor hours.
- B. How many people were involved in this operation?
- Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
- e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

Growing area B						
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
14. Pruning						
16. Harvesting						
17. Post-harvest handling of the harvested crop (incl. dipping)						
18. Processing (incl. sorting)						
19. Transport						

Growing area A						
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
14. Pruning						
16. Harvesting						
17. Post-harvest handling of the harvested crop (incl. dipping)						
18. Processing (incl. sorting)						
19. Transport						

38200. When considering all activities stated in the table above, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

38222. Are there any activities that you outsourced and have another company/agency conduct this?

→ Please write down the number of the activity (refer to Q382) that is being outsourced and if this was completely or partially conducted by a third party.

Growing area A			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

Growing area B			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

K. Harvest timing & quality per crop - SUGARCANE	
--	--

ONLY APPLY THIS PART IF Q4=17 (SUGARCANE)

144. What is the final stand - i.e. the average total number of plants per square meter for each growing area for sugarcane?

→ Please note down the total number of plants per m^2 for each growing area.

	Growing area A	Growing area B
Final stand/Plant densityplants/m ²plants/m ²

148. C. Could you please indicate the number of sugarcane failures in %-age at 60 days after planting for each growing area for sugarcane?

→ Please note down the percentage.

	Growing area A	Growing area B
Number of sugarcane failures at 60 days after planting%%

148. D. Could you please indicate the number of sugarcane failures in %-age at 200 days after planting for each growing area for sugarcane?

→ Please note down the percentage.

	Growing area A	Growing area B
Number of sugarcane failures at 200 days after planting%%

148. E. Prior to harvest, could you please indicate the percentage of the plot area that is lodged for each growing area for sugarcane? This is when the stem bends over near the ground level.

→ Please note down the percentage.

	Growing area A	Growing area B
% plot area lodged%%

319. When was the harvest period for each growing area for sugarcane?

→ Please write down the harvest period for each growing area.

	Growing area A		Growing area B	
Harvest period	A	From __.__.____ (DD.MM.YYYY)	A	From __.__.____ (DD.MM.YYYY)
	B	Until __.__.____ (DD.MM.YYYY)	B	Until __.__.____ (DD.MM.YYYY)

320. What is the total metric tons of cane per hectare that has been achieved for each growing area for sugarcane?

→ Please write down the total **metric tons** of canes per **hectare** for each growing area.

	Growing area A	Growing area B
Total metric tons of canes per hectare metric ton/ha metric ton/ha

321. What is the **TRS (total recovered sugar)** for each growing area for sugarcane?

→ Please write down the TRS for each growing area.

	Growing area A	Growing area B
TRS metric ton/ha metric ton/ha

322. What is the **use of the sugarcane harvest** in percentage for each growing area?

→ Please write down the percentage of usage. Please write down others if needed.

	Growing area A	Growing area B
1. Ethanol production	...%	...%
2. Refined sugar production	...%	...%
96. Other. Specify 1:%	...%
97. Other. Specify 2:%	...%
98. Other. Specify 3:%	...%
Don't know / no answer	99	99

4094. Who **measured** the yield on each of the growing areas?

→ SPONTANEOUS, multiple response.

→ Please tick what applies.

	Growing area A	Growing area B
Dealer/store	1	1
Manufacturer/representative	2	2
Independent advisor	3	3
Cooperative	4	4
98. Other specify:		
Don't know / no answer	99	99

4095. A. Compared to previous year, would you say your yield has ... [READ SCALE]?

→ Please tick what applies.

→ Single response.

	Growing area A	Growing area B
Increased	3	3
Remained stable	2	2
Decreased	1	1
Don't know / no answer	99	99

4095. B. According to you, why has your yield [INSERT ANSWER ON 4095A]?

→ Spontaneous

Growing area A	Growing area B

4096. A. How **satisfied** are you with your yield this season?

- *READ, single response.*
→ *Please tick what applies.*

	Growing area A	Growing area B
Very satisfied	4	4
Somewhat satisfied	3	3
Somewhat unsatisfied	3	3
Very unsatisfied	1	1
Don't know / no answer	99	99

4096. B. Can you please explain why you are [INSERT ANSWER on 4096A] with your yield?

- *Spontaneous*

Growing area A	Growing area B

323. What is the **price per metric ton** per buyer that has been obtained for each growing area for sugarcane?

- *Please write down the percentage of the yield that each buyer bought and the price they have paid. The sum of the percentages cannot exceed 100%.*

	Growing area A		Growing area B	
Buyer 1:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 2:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 3:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 4:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 5:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Harvest not yet sold/not yet paid	-2	-2	-2	-2
Don't know/no answer	-1	-1	-1	-1

4097. A. How satisfied are you with the price you received on the market?

- READ, single response.
→ Please tick what applies.

	Growing area A	Growing area B
Very satisfied	4	4
Somewhat satisfied	3	3
Somewhat unsatisfied	3	3
Very unsatisfied	1	1
Don't know / no answer	99	99

4097. B. Can you please explain why you are [INSERT ANSWER on 4097A] with the price you received?

- Spontaneous

Growing area A	Growing area B

324. What is the nitrogen content (N) of cane for each growing area for sugarcane?

- Please write down the nitrogen content of sugar cane for each growing area.

	Growing area A	Growing area B
Nitrogen content (N) of cane%%

325. What is the percentage of canes damaged at harvest (total lost - not marketable) for each growing area for sugarcane?

- Please write down the percentage of canes damaged at harvest for each growing area.

	Growing area A	Growing area B
Percentage of canes damaged at harvest%%

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

1. Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
 - e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 - Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine)
- B. How many people were involved in this operation?
 - Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
 - e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

	Growing area A				
	a. Number of hours spent by all workers 1=Yes 2=No	b. Number of people involved	c. Type of machinery/equipment used	c1. Man, fuel or energy driven 1=Man driven 2=Fuel driven 3=Energy driven	d. Number of machinery hours
16. Harvesting					
17. Post-harvest handling of the harvested crop (incl. dipping)					
18. Processing (incl. sorting)					
19. Transport					

	Growing area B				
	a. Number of hours spent by all workers 1=Yes 2=No	b. Number of people involved	c. Type of machinery/equipment used	c1. Man, fuel or energy driven 1=Man driven 2=Fuel driven 3=Energy driven	d. Number of machinery hours
16. Harvesting					
17. Post-harvest handling of the harvested crop (incl. dipping)					
18. Processing (incl. sorting)					
19. Transport					

38200. When considering all activities stated in the table above, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

38222. Are there any activities that you outsourced and have another company/agency conduct this?

→ Please write down the number of the activity (refer to Q382) that is being outsourced and if this was completely or partially conducted by a third party.

Growing area A			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

Growing area B			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

O. Harvest timing & quality per crop - BANANA

ONLY APPLY THIS PART IF Q4=2 (BANANA)

177. When was the last replanting of the trees - i.e. date when the last trees were replanted - for each growing area for banana?

→ Please indicate the last replanting of the trees for each growing area.

	Growing area A	Growing area B
Last replanting(Year)(Year)

178. Please indicate the percentage of trees that has been replanted during the last replanting phase for each growing area for banana?

→ Please indicate the percentage of trees that has been replanted for each growing area.

	Growing area A	Growing area B
Percentage of trees replanted%%

339. When was the harvest period for each growing area for banana?

→ Please write down the harvest period for each growing area.

	Growing area A		Growing area B	
Harvest period	A	From ____ . ____ . ____ (DD.MM.YYYY)	A	From ____ . ____ . ____ (DD.MM.YYYY)
	B	Until ____ . ____ . ____ (DD.MM.YYYY)	B	Until ____ . ____ . ____ (DD.MM.YYYY)

340. In which months did the harvest peak for each growing area for banana during this season?

→ Please circle the harvest peak months for each growing area.

→ Multiple response.

	Growing area A	Growing area B
January	1	1
February	2	2
March	3	3
April	4	4
May	5	5
June	6	6
July	7	7
August	8	8
September	9	9
October	10	10
November	11	11
December	12	12
Don't know / no answer	99	99

341. What is the yield per hectare or the number of boxes per hectare (standard box of 18,14 kg box) that has been achieved for each growing area for banana?

→ Please write down the banana yield for each growing area.

	Growing area A	Growing area B
1. Banana yield in boxes per hectareboxes/haboxes/ha
2. Banana yield in ton per hectareton/haton/ha

342. What is the ratio as number of bunches per box (standard box of 18,14 kg box) for each growing area for banana?

→ Please write down the number of boxes per bunch for each growing area.

	Growing area A	Growing area B
Number of bunches per boxbunches/boxbunches/box

342. B. What is the stage of ripeness your bananas achieved for each growing area?

	Growing area A	Growing area B
Physiological ripeness (fruit reached its full development)	1	1
Eating ripeness (fruit is not only fully developed, but also ready to eat)	2	2

4094. Who measured the yield on each of the growing areas?

→ SPONTANEOUS, multiple response.

→ Please tick what applies.

	Growing area A	Growing area B
Dealer/store	1	1
Manufacturer/representative	2	2
Independent advisor	3	3
Cooperative	4	4
98. Other specify:		
Don't know / no answer	99	99

4095. A. Compared to previous year, would you say your yield has ... [READ SCALE]?

→ Please tick what applies.

→ Single response.

	Growing area A	Growing area B
Increased	3	3
Remained stable	2	2
Decreased	1	1
Don't know / no answer	99	99

4095. B. According to you, why has your yield [INSERT ANSWER ON 4095A]?

→ Spontaneous

Growing area A	Growing area B

4096. A. How satisfied are you with your yield this season?

→ READ, single response.
→ Please tick what applies.

	Growing area A	Growing area B
Very satisfied	4	4
Somewhat satisfied	3	3
Somewhat unsatisfied	3	3
Very unsatisfied	1	1
Don't know / no answer	99	99

4096. B. Can you please explain why you are [INSERT ANSWER on 4096A] with your yield?

→ Spontaneous

Growing area A	Growing area B

343. What is the price per buyer that has been obtained for each growing area for banana?

→ Please write down the percentage of the yield that each buyer bought and the price they have paid. The sum of the percentages cannot exceed 100%.

	Growing area A		Growing area B	
Buyer 1:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 2:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 3:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 4:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Buyer 5:	a. ...%	b.\$/ metric ton	a. ...%	b.\$/ metric ton
Harvest not yet sold/not yet paid	-2	-2	-2	-2
Don't know/no answer	-1	-1	-1	-1

4097. A. How satisfied are you with the price you received on the market?

- READ, single response.
→ Please tick what applies.

	Growing area A	Growing area B
Very satisfied	4	4
Somewhat satisfied	3	3
Somewhat unsatisfied	3	3
Very unsatisfied	1	1
Don't know / no answer	99	99

4097. B. Can you please explain why you are [INSERT ANSWER on 4097A]?

- Spontaneous

Growing area A	Growing area B

344. Which percentage of the yield of each growing area for banana is exported and which percentage is used for local market?

- Please give the percentage of the yield that is exported and the percentage that is used for the local market. The sum should be 100%.

	Growing area A	Growing area B
1. Percentage exportable fruits	...%	...%
2. Percentage for local market	...%	...%
	100%	100%

345. What is the percentage fruit losses for each growing area for banana?

- Please write down the percentage fruit losses for each growing area.

	Growing area A	Growing area B
Percentage fruit losses%%

346. What is the number of leaves at harvest for each growing area for banana?

- Please write down the number of leaves for each growing area.

	Growing area A	Growing area B
Number of leaves at harvestleavesleaves

347. What is the bunch weight in kilogram for each growing area for banana?

- Please write down the bunch weight in kilogram for each growing area.

	Growing area A	Growing area B
Bunch weightkgkg

347.B. What is the average size of your bananas for each growing area?

Growing area A	Growing area B
..... cm cm

348. What is for each growing area for banana the ratooning, i.e. the number of harvests per year?

→ Please write down the ratooning for each growing area.

	Growing area A	Growing area B
Ratooning (number of harvests per year)harvest(s) per yearharvest(s) per year

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

1. Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
- e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 - Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine). This also includes the farmer's own labor hours.
- B. How many people were involved in this operation?
- Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
- e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

Growing area A						
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
14. Pruning						
16. Harvesting						
17. Post-harvest handling of the harvested crop (incl. dipping)						
18. Processing (incl. sorting)						
19. Transport						

	Growing area B					
	382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
14. Pruning						
16. Harvesting						
17. Post-harvest handling of the harvested crop (incl. dipping)						
18. Processing (incl. sorting)						
19. Transport						

38200. When considering all activities stated in the table above, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

38222. Are there any activities that you outsourced and have another company/agency conduct this?

→ Please write down the number of the activity (refer to Q382) that is being outsourced and if this was completely or partially conducted by a third party.

Growing area A			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

Growing area B			
	a. Activity outsourced to ...	b. Activity outsourced for act ... (please use Q382 activity number)	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.			
2.			
3.			
4.			
5.			

Y. After harvest

We will now ask some questions about the crop after harvest, including what you do with it and possible losses due to transportation.

4000. What do you do with your harvested crop for each growing area of [TARGET CROP]?

→ SPONTANEOUS, multiple response.

→ Please circle all that apply.

	Growing area A	Growing area B
I store it for own consumption	1	1
I store a part of it for own consumption	2	2
I dry it before selling it	3	3
I sell it on the local market	4	4
I sell it to a trader	5	5
I sell it to a wholesaler	6	6
I sell it to a feed processing plant	7	7
I sell it to a cooperative I am part of	8	8
I sell it directly to the mill	9	9
I sell it directly to a retailer as part of a quality contract	10	10
I sell it to a government owned rural collection center	11	11
96. Other. Specify 1:		
97. Other. Specify 2:		
98. Other. Specify 3:		
Don't know / no answer	99	99

4001. What is the percentage of crop lost in-between harvest and storage or selling for each growing area of [TARGET CROP]?

→ Please write down the percentage of crop lost in-between harvest and storage or selling for each growing area.

	Growing area A	Growing area B
Percentage of crop lost in-between harvest and storage or selling%%

4002. Do you take measures to prevent post-harvest loss for each growing area of [TARGET CROP]?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q2=20 (ITALY) AND IF Q4= 19 (TOMATO)

4002 B Please indicate the tare post-harvest in percentage (i.e. the net content that is marketable) for each growing area of [TARGET CROP].?

→ Please write down the percentage of tare post-harvest for each growing area

	Growing area A	Growing area B
Percentage of tare post-harvest%%

IF Q4002=1 (measures taken to prevent post harvest loss)

4003. Which measures do you take to prevent post-harvest loss for each growing area of [TARGET CROP]?

→ *Please describe the measures that you take.*

Growing area A	Growing area B

PART VI - OTHER INPUTS - AFTER HARVEST

A. Input costs

We will now ask some questions about the revenue of your crop as well as the costs of the inputs you use to produce your crop.

377. What is the estimated revenue in **USD** per **hectare** for each growing area of [TARGET CROP]?

→ Please write down in **\$/ha**.

→ Interviewer note: this is not referring to the actual profit but to the total REVENUE.

	Growing area A	Growing area B
Estimated revenue	... \$/ha	... \$/ha
Don't know / no answer	-1	-1

IF Q377= -1 (don't know the estimated revenue for growing area A or B)

378. Could you please indicate the estimated revenue for [TARGET CROP] in general?

→ Please write down the general estimated revenue in **\$/ha**.

Estimated revenue	... \$/ha
Don't know / no answer	-1

379. How would you rate your profitability for each growing area for [TARGET CROP] compared to past season?

→ READ, single response.

	Growing area A	Growing area B
Very high	5	5
High	4	4
Average	3	3
Low	2	2
Very low	1	1
Don't know / no answer	99	99

IF Q2=20 (ITALY) AND IF Q379 = 5, 4, 3, 2 or 1

379. A. Can you please explain your answer for each growing area of [TARGET CROP]?

→ Spontaneous

Growing area A	Growing area B

380. What is your total input cost for each growing area of [TARGET CROP] from first field preparation until harvest? Please consider trees/seeds, fertilizers, pesticides, labor, machinery, water use, fuel, electricity, gas.

→ Please write down in \$/ha.

→ Please check that total revenue (Q377) minus total input costs (Q380) is larger than zero. If not, this implies that the grower is working at a loss. Please check with the grower immediately if this is true.

	Growing area A	Growing area B
Total input cost	... <u>\$/ha</u>	... <u>\$/ha</u>

4111. And how would you split this out in actual costs for each category in terms of importance of the total input cost for each growing area for [TARGET CROP]?

→ READ. Please indicate the actual cost for each category.

→ The sum should add up to the total cost indicated in Q380.

	Growing area A	Growing area B
1. Trees/Seeds	... \$ / ha	... \$ / ha
2. Fertilizers	... \$ / ha	... \$ / ha
3. Pesticides	... \$ / ha	... \$ / ha
4. Labor <i>Please take into account own labor hours as well</i>	... \$ / ha	... \$ / ha
5. Machinery	... \$ / ha	... \$ / ha
6. Water use	... \$ / ha	... \$ / ha
7. Fuel	... \$ / ha	... \$ / ha
8. Electricity	... \$ / ha	... \$ / ha
9. Gas	... \$ / ha	... \$ / ha
10. Rent/loans for growing areas	... \$ / ha	... \$ / ha
98. Other specify:	... \$ / ha	... \$ / ha
Don't know / no answer	-1	-1

IF Q4111=-1 (don't know how to split up in actual costs)

381. And how would you split this out in percentages for each category in terms of importance of the total input cost for each growing area for [TARGET CROP]?

→ Please indicate the percentage for each category. The sum should add up to 100%.

	Growing area A	Growing area B
1. Trees/Seeds	... %	... %
2. Fertilizers	... %	... %
3. Pesticides	... %	... %
4. Labor <i>Please take into account own labor hours as well</i>	... %	... %
5. Machinery	... %	... %
6. Water use	... %	... %
7. Fuel	... %	... %
8. Electricity	... %	... %
9. Gas	... %	... %
10. Rent/loans for growing areas	... %	... %
98. Other specify:	... %	... %
Don't know / no answer	-1	-1

381. C. Have you received a subsidy for your inputs for each growing area of [TARGET CROP]?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q381C= 1 (subsidy received)

381. D. Which kind of subsidy have you received for each growing area of [TARGET CROP]?

→ SPONTANEOUS, multiple response.

→ Please circle what applies.

	Growing area A	Growing area B
Free seeds	1	1
Free fertilizers	2	2
Free crop protection products	3	3
Advice	4	4
Products at reduced prices	5	5
Money	6	6
96. Other. Specify 1: ...	96	96
97. Other. Specify 2: ...	97	97
98. Other. Specify 3: ...	98	98
Don't know / no answer	99	99

B. Abiotic stress

We will now ask some questions about external stress factors you faced during the season.

4121. In general for the whole cultivation period, could you please rate the weather conditions for each growing area on the [TARGET CROP]?

→ READ, single response.

→ From first soil preparation until end of harvest.

	Growing area A	Growing area B
No favorable weather conditions	1	1
Normal weather conditions	2	2
Very favorable weather conditions	3	3
Don't know / no answer	99	99

IF Q4121=1 (no favorable weather conditions)

4121. B1 Can you please explain what exactly was the problem for each growing area on the [TARGET CROP]?

4121. B2 During which growth stage did this problem occur?

→ From soil preparation until end of harvest. Please indicate the growth stage and the problem.

Growing area A		
	a. Describe problem	b. During which growth stage did this occur?
1.		
2.		
3.		

Growing area B		
	a. Describe problem	b. During which growth stage did this occur?
1.		
2.		
3.		

IF Q4121=1 (no favorable weather conditions)

387. What was the impact for each growing area on the [TARGET CROP]?

→ **SPONTANEOUS, multiple response.**

→ Please tick what applies. Note down other if not in list.

	Growing area A	Growing area B
Reduced yield	1	1
Reduced yield quality	2	2
No impact	90	90
96. Other. Specify 1: ...	96	96
97. Other. Specify 2: ...	97	97
98. Other. Specify 3: ...	98	98
Don't know / no answer	99	99

388. Would you say the rain level during the season was ... [READ] for each growing area?

→ **READ, single response.**

→ Please tick what applies.

	Growing area A	Growing area B
A lot less than usual	1	1
Somewhat less than usual	2	2
The same as usual	3	3
Somewhat more than usual	4	4
A lot more than usual	5	5
98. Other. Specify:
Don't know / no answer	99	99

388 A. Thinking back of the season, how would you rate the quality of your soil for each growing area? Was the quality ... [READ]?

→ **READ, single response.**

→ Please tick what applies.

	Growing area A	Growing area B
Less than average	1	1
Average	2	2
Better than average	3	3
98. Other. Specify:
Don't know / no answer	99	99

IF Q388A=1 (less than average soil quality)

388. A1. Can you please explain what caused the soil quality to be less than average?

→ **Spontaneous.**

Growing area A	Growing area B

IF Q388=1 OR 2 (less rain during the season)

388 B. You mentioned you had less rainfall this season than usual. Was this problematic?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q388B=1 (low rainfall level was problematic)

388 C. Please describe during which growth stage this problem took place.

→ Please specify all applicable growth stages.

→ Multiple response.

Growing area A		Growing area B	
Growth stage 1: ...		Growth stage 1: ...	
Growth stage 2: ...		Growth stage 2: ...	
Growth stage 3: ...		Growth stage 3: ...	
Growth stage 4: ...		Growth stage 4: ...	
Growth stage 5: ...		Growth stage 5: ...	

IF Q388=4 OR 5 (more rain during the season)

388 D. You mentioned you had more rainfall this season than usual. Was this problematic?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q388D=1 (high rainfall level was problematic)

388 E. Please describe during which growth stage this problem took place.

→ Please specify all applicable growth stages.

→ Multiple response.

Growing area A		Growing area B	
Growth stage 1: ...		Growth stage 1: ...	
Growth stage 2: ...		Growth stage 2: ...	
Growth stage 3: ...		Growth stage 3: ...	
Growth stage 4: ...		Growth stage 4: ...	
Growth stage 5: ...		Growth stage 5: ...	

3880. Would you say the temperature during the season was ... [READ] for each growing area?

→ READ, single response.

→ Please tick what applies.

	Growing area A	Growing area B
A lot lower than usual	1	1
Somewhat lower than usual	2	2
The same as usual	3	3
Somewhat higher than usual	4	4
A lot higher than usual	5	5
98. Other. Specify:
Don't know / no answer	99	99

IF Q3880=1 OR 2 (lower temperature during the season)

3880 B. You mentioned you had lower temperatures this season than usual. Was this problematic?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q3880B=1 (low temperature was problematic)

3880 C. Please describe during which growth stage this problem took place.

→ Please specify all applicable growth stages.

→ Multiple response.

Growing area A		Growing area B	
Growth stage 1: ...		Growth stage 1: ...	
Growth stage 2: ...		Growth stage 2: ...	
Growth stage 3: ...		Growth stage 3: ...	
Growth stage 4: ...		Growth stage 4: ...	
Growth stage 5: ...		Growth stage 5: ...	

IF Q3880=4 OR 5 (higher temperature during the season)

3880 D. You mentioned you had higher temperatures this season than usual. Was this problematic?

	Growing area A	Growing area B
Yes	1	1
No	2	2

IF Q3880D=1 (high temperature was problematic)

3880 E. Please describe during which growth stage this problem took place.

→ Please specify all applicable growth stages.

→ Multiple response.

Growing area A		Growing area B	
Growth stage 1: ...		Growth stage 1: ...	
Growth stage 2: ...		Growth stage 2: ...	
Growth stage 3: ...		Growth stage 3: ...	
Growth stage 4: ...		Growth stage 4: ...	
Growth stage 5: ...		Growth stage 5: ...	

C. Irrigation

389. What is the MAIN water source of each growing area of [TARGET CROP] during this season? Only one answer possible.

→ READ. Note down other if not in list. (SR)

	Growing area A	Growing area B
Irrigated using irrigation equipment (e.g. rain, ponds, river, tap water,...)	1	1
Rain-fed (no equipment, only natural rainfall)	2	2
Swamp/wetland	3	3
98. Other. Specify 1:
Don't know / no answer	99	99

IF Q389=1 (if irrigation)

389. B. Which water source has been used for irrigation?

→ Spontaneous. Note down other if not in list. Multiple response

	Growing area A	Growing area B
Private connection to pipeline	1	1
Private well	2	2
Private borehole	3	3
Public river, stream	4	4
Public lake, pond	5	5
Rainwater in a tank	6	6
Water vendor	7	7
96. Other specify 1:		
97. Other specify 2:		
98. Other specify 3:		
Don't know / no answer	99	99

IF Q389=1 (if irrigation)

390. What is the number of days you have been irrigating each growing area of [TARGET CROP]?

→ Please write down the number of days.

	Growing area A	Growing area B
Number of days of irrigation	...days	...days

IF Q389=1 (if irrigation)

391. What is the average amount of hours per day you have been irrigating each growing area of [TARGET CROP]?

→ Please write down the average amount of hours per day.

	Growing area A	Growing area B
Average amount of hours per day	...hours/day	...hours/day

IF Q389=1 (if irrigation)

392. What is the amount of liters that is discharged per hour on each growing area of [TARGET CROP]?

→ Please write down the average amount of liters per hour.

→ Interviewer instruction: Please ask for the type of pump the grower used, as this indicated the amount of liters discharged per hour.

	Growing area A	Growing area B
Average amount of liters per hour	...L/hour	...L/hour

ONLY IF Q4=14 (RICE)

4131. How many days did the dry period last during the season on both growing areas?

→ Please note that we are referring to the period in which the rice crop is NOT under water.

	Growing area A	Growing area B
Number of days of dry period	...days	...days

ONLY IF Q4=14 (RICE)

4132. During the dry period, how often did you irrigate your field?

→ Please note the number of irrigations as detailed as possible.

	Growing area A	Growing area B
Number of irrigations	... times	... times

ONLY IF Q2=5 (BELGIUM) AND IF Q389=1 (if irrigation)

396. When do you irrigate each growing area of cauliflower?

→ Please tick what applies.

→ Multiple response.

	Growing area A	Growing area B
In the morning	1	1
At noon	2	2
In the evening	3	3
Don't know / no answer	99	99

IF Q389=1 (if irrigation)

382. Please describe per growing area the type of machinery/equipment used and indicate the amount of labor used for each operation performed during the season for [TARGET CROP].

1. Indicate if you have done this activity or not. If YES: please continue with all other questions related to this activity below

- A. What is the number of hours spent by all workers for that specific operation?
 ▪ e.g. if 5 workers worked 8 hours for clearing the field, this represents 40 hours)
 ▪ Please note that this includes all hours spent for all types of labor regarding that operation (e.g. also for driving a machine)
- B. How many people were involved in this operation?
 ▪ Including yourself, seasonal workers, contractors,...
- C. What is the type of machinery/equipment that was used for this operation?
 ▪ e.g. 2 tractors and 1 plough
- C1. For each type of equipment: Is this manual labor, fuel driven or energy driven?
- D. How many hours was the machinery/equipment used for this activity?

Growing area A					
382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
13.Irrigating					

Growing area B					
382_1: Did you apply the activity? 1=Yes 2=No	a. Number of hours spent by all workers	b. Number of people involved	c. Type of machinery/equipment used	c1. Manual labor, fuel or energy driven 1=Manual labor 2=Fuel driven 3=Energy driven	d. Number of machinery hours
13.Irrigating	Y / N				

38200. D When considering irrigating, is there anything you have done differently in this season compared to previous years?

→ Spontaneous.

Growing area A	Growing area B

38222. D Did you outsource the irrigation activities and have another company/agency conduct this?

→ Please write down if the irrigation activity is being outsourced and if this was completely or partially conducted by a third party.

Growing area A		
	a. Activity outsourced to ...	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.		
2.		
3.		

Growing area B		
	a. Activity outsourced to ...	c. Activity completely or partially done via outsourcing? 1=completely 2=partially
1.		
2.		
3.		

PART VII - FEEDBACK

FOR Q397G, 399, 4141A, 4141B, 399C, 399D: INTERVIEWER - PLEASE READ:

- IF Q397C=1: The following questions are about the SYNGENTA protocol. This is [INSERT NAME OF SYNGENTA PROTOCOL].
- IF Q397C=2: The following questions are about the crop recommendations you received.

IF Q397=1 (have received a recommended growing protocol)

397. **G1.** To which extent did you follow **this crop program** for each growing area of [TARGET CROP]?

→ READ, single response.

→ Please tick what applies.

	Growing area A	Growing area B
Completely followed	1	1
Partially followed	2	2
Not followed at all	3	3
Don't know / no answer	99	99

IF Q397=1 (have received a recommended growing protocol)

399. Please **explain** why you follow or do not follow the protocol.

→ Please write down why you have or have not followed the protocol.

Growing area A	Growing area B

IF Q397=1 (have received a recommended growing protocol)

4141. A. Please **explain** the elements of the protocol that worked well for your crop development.

→ Please write down in detail.

Growing area A	Growing area B

4141. B. And please explain what didn't work well.

→ Please write down in detail.

Growing area A	Growing area B

IF Q397=1 (have received a recommended growing protocol)

399. C. How satisfied are you with the protocol for each growing area of [TARGET CROP]?

→ READ, single response.

→ Please circle what applies.

	Growing area A	Growing area B
Very satisfied	4	4
Rather satisfied	3	3
Rather unsatisfied	2	2
Not satisfied at all	1	1
Don't know / no answer	99	99

IF Q399C=1 OR 2 OR 3 OR 4

399. D. Please explain your answer for each growing area of [TARGET CROP]?

→ Please explain.

Growing area A	Growing area B

ASK ALL GROWERS!

399. E. What is your opinion on The Good Growth Plan?

→ Interviewer note: Please make sure grower knows that this study is part of The Good Growth Plan.

→ Please describe.

ONLY IF Q2=22 and Q4=13 (Japan, potato)

IF Q397=1 (have received a recommended growing protocol) and IF REFERENCE FARM

399. E1. What is your opinion about the in-furrow technology you applied?

→ Please describe.

--

404. What additional services did you receive from Syngenta?

→ SPONTANEOUS, multiple response.

→ Please circle the additional services that apply. In case of others, please note down.

Advice from farmers' cooperative	1	Brochures/books	12
Advice on crop protection/use of CPP	2	Free crop protection products	13
Advice on cultivation in general	3	Free fertilizers	14
Advice on equipment/machinery	4	Free plants/seeds	15
Advice on marketing/sales	5	Good payment terms	16
Advice on planting/seeds	6	Information on pests	17
Advice on safety	7	Logbook to register information	18
Advice on use of fertilizers	8	Monetary incentive	19
Advice on water quality treatment	9	Seminars, conferences, meetings	20
Advice from agronomist	10	Technical advice	21
General advice	11	Warning services (e.g. sms alerts)	22
Other. Specify 1:			96
Other. Specify 2:			97
Other. Specify 3:			98
Don't know / no answer			99

IF Q397C=1 (follow SYNGENTA protocol: [INSERT NAME OF SYNGENTA PROTOCOL])

4142. To what extent would you recommend Syngenta to your fellow farmers?

→ Please use a scale from 1 to 10 with 1 meaning that you would not recommend Syngenta to fellow farmers, and 10 meaning that you definitely would. Please use code 99 for don't know.

→ Single response.

1	2	3	4	5	6	7	8	9	10	99
---	---	---	---	---	---	---	---	---	----	----

4008. Did you use the farmer report received during the first visit?

→ Interviewer note: please explain/show the grower report again to grower if needed.

Yes	1
No	2

4009. How did the result of the farmer report influence decisions taken during this season?

→ Please explain what you did differently.

--

4010. Is there anything else you would like to share?

This completes the data collection guide. Thank you for your cooperation!