



## **Forwarding Armenian Statistics Through Twinning**

**AM09/ENP-PCA/TP/04**

# **MISSION REPORT**

**on**

# **AGRICULTURAL CENSUS**

## **ACTIVITY D.3 Implementation Assistance**

Mission carried out by  
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## List of Abbreviations

AC	Agricultural Census
AMD	Armenian dram
BC	Beneficiary Country (Armenia)
EU	European Union
FSS	Farm Structure Survey in the EU member states
MS	Member State
NSSRA	National Statistical Service of the Republic of Armenia
PC	Population Census
USDA	United States Department of Agriculture

## Executive Summary

During the mission the MS Experts had many useful discussions with the BC Experts regarding the planning of the Agricultural Census and on the AC questionnaire.

This report discusses the main points from these discussions, for example in the case where questions could be improved, simplified, or even removed - or whether other questions could be added.

However, the report focuses mainly on how the questionnaire should be understood by the interviewers and, of course, by the farmers who provide the information. The report offers recommendations as how to clarify the questionnaire and what to focus on when writing the interviewer instructions and producing teaching materials for the interviewers.

It is of the biggest importance that the interviewers understand the questionnaire completely so that misunderstandings can be avoided.

During the mission, a meeting was held with the Head of the Ararat Regional Statistical Agency (in the city of Artashat) and two local interviewers involved in both the regular production of agricultural statistics and the Population Census that was taken in Armenian one month before the mission. This meeting gave great insight concerning the quality of the questionnaire and what answers to hope for.

During the mission, agreement between the MS Experts and NSSRA was obtained on the implementation of field tests of the questionnaire and the interviewer instructions in the beginning of 2012. The field tests should be taken in two villages, so that both valley and mountain agriculture would be represented.

## **1. General comments**

This report was prepared following the mission to the National Statistical Service of the Republic of Armenia (NSSRA) within the Component D of the Twinning Project, “Forwarding Armenian Statistics Through Twinning”. The mission was devoted to further development of the methodology and preparation of the Agricultural Census of Armenia.

The purpose of the activity was to assess the on-going work, in general, and in particular to initialize the work on the interviewer instructions. As a separate workshop within the Twinning Project framework with the Ministry of Agriculture of RA on the Agricultural Census was organized 2 weeks after the D.3 mission, the mission did not, as initially planned in the contract, involve the Ministry of Agriculture directly.

The objectives for the mission are specified in annex 2.

The MS Experts would like to express their thanks to all officials and individuals met for the kind support and valuable information which they received during the stay in Armenia, and which highly facilitated their work. The views and observations stated in this report are those of the MS Experts and do not necessarily correspond to the views of Statistics Denmark.

## 2. Questionnaire and instructions

The AC questionnaire consists of 7 pages and covers the following main subjects:

- Personal and administrative information regarding the farm and the farmer, for instance location, type of farm, gender of the farmer etc.
- Crops
- Fertilizers and pesticides
- Livestock
- Machinery
- Labour force
- Sales of agricultural products

The information is to be collected by interviewers, which implies that the farmers do not necessarily see the questionnaire itself, and as such the challenge is that the questionnaire should be completely understood by the interviewers so that they can perform meaningful interviews and make the farmers answer the questions without misunderstandings. It also means that the interviewers should be prepared to “interpret” the questionnaire words into everyday language if needed.

Interviewer instructions with particular focus on the difficult questions are highly recommended by the MS Experts, and the instructions should include examples of potential problems as well as solutions. It is therefore recommended by the MS Experts to, already now, start collecting examples; some of these could be used in the instructions, but they could also be used when training the interviewers.

### 2.1 More than one questionnaire?

During the mission it was been mentioned by BC Experts that more than one questionnaire could be used for different farms. This could be a good idea as long as the strategy is to make the administrative information questions on page 1 of the questionnaire as meaningful as possible for the different types of farms. Likewise it could be a good idea to remove the family aspect from the labour force section for farms known to be institutions or big enterprises.

However, for all the rest of the questions the MS Experts recommend that the questionnaire should be identical for all farms. Otherwise the final result will be incomplete information for some farms raising methodological problems on how to impute missing information. It is questionable whether any time could be saved by presenting for instance the small farms for a simplified questionnaire. It is rather the job of the interviewer to make the interview quick and easy for small farms with nothing more than a small area with grass land and a few sheep.

Overall, the MS Experts recommend that the same version of the questionnaire is used for all farms.

### 2.2 Inspiration to interviewer instructions

The MS Experts recommend the BC Experts to look at other countries’ manuals/instructions for AC as inspiration. The MS Experts suggest the two manuals from Republic of Serbia and Moldova as useful inspiration as they both contain some examples which maybe can be used as inspiration in Armenia.

Concrete examples are - in the manual from Moldova (General Agricultural Census Manual for Enumeration, National Bureau of Statistics, Moldova):

*Page 44. Chapter III. Livestock (on March 1, 2011)*

*Page 46. Chapter IV. Agricultural construction, Machinery and equipment*

*Also the chapters about procedures and instructions in the beginning of the manual can be a good source to inspiration, see page 25-35.*

And from the Manual from Serbia (Methodological Manual for Census Preparation, Organization and Conduct (Statistical Office of the Republic of Serbia).

*Page 57-61. Chapter 6. Livestock, bees, and other animals*

*Page 64-68. Chapter 8. Agricultural machinery and equipment*

*Page 75-83. Chapter 10. Labour force and activities on the holding*

### 2.3 The farm unit

In the D.2 mission report, page 8-9 contains a discussion on the farm unit. Normally it is not difficult to identify the farm. Most farms are simple “one man farms”. However, this mentioned discussion should be extended in that the interviewers should be prepared to perform the interviews also for special farms, for instance government institutions farms or farms run by more than one person with a collective leadership.

The question of survey threshold is dealt with on page 10-11 in the D.2 report. It should be emphasized that survey thresholds have nothing to do with whether the questionnaire should be completed or not.

The interviewers should always insist on completing the questionnaire, also for very small farmers who might be tempted to declare that they are not active in agriculture. It means that even if a farm has only two sheep and 0.1 hectares with grass land, the questionnaire should still be completed because its size according to the information provided to the population census is above the chosen (suggested) thresholds.

In Armenia, 6 different types of farms exist:

- 1) “Normal” farms of a certain size, and at least big enough to have a unique enterprise number. It must be expected that these farms produce agricultural products to the market to a wide extent;
- 2) Individual households in the villages with agriculture. These farms are generally very small and produce mainly for the family’s consumption;
- 3) Owners of summerhouses with agriculture at a small scale. Also these farms are small and produce mainly for the family’s consumption;
- 4) Urban people with some agriculture in their gardens. Again, also these farms most likely produce for the family’s consumption;
- 5) Institutions with agriculture, for instance religious societies, prisons and military units. Produce mainly for own consumption;
- 6) Big enterprises with agriculture. Produce only for market.

## **2.4 Administrative information of the farm**

On page 1 on the AC questionnaire there is a section where the farmer has to answer some administrative information of his farm. Most of the questions are rather simple but it might be worth, in the instructions and when educating the interviewers, to pay attention to a few of the questions:

Question 6 on education: Education should be understood as the highest education of the farmer whether the education has to do with agriculture or not.

Questions 7: Who is the manager? It is always strictly necessary to identify one and only one manager of the farm. Normally it is simply the owner of the farm who also has the main responsibility but there are certain other options:

- The manager is not the owner, but for instance it is his oldest son or wife who in practice has the responsibility for taking decisions regarding the farm.
- The manager could also be a person outside the owner’s family who has been hired to take care of leading the farm.
- For farm with a collective leadership it might be an option to choose the oldest farmer as the manager if it is difficult to identify one person having the biggest responsibility. Other criteria such as education or agricultural experience could be considered but age is a simple and manageable criterion, and would be recommended by the MS Experts if there are doubts during the interview.
- For government institutions it is likewise necessary to identify one person as the manager and again age would be recommended by the MS Experts as the decisive parameter if it is otherwise difficult to identify the manager.

It is of great importance that the interviewer is focused on finding the manager, also for farms with a non-traditional organisation.

Question 9: Does the farm operate? It means that the farmer has the option to declare that he runs no agricultural activities at all. It is necessary to have such an option since passive farm units do exist. However it is also strictly necessary only to use this option if the farm really is non-active. It could be a firm which used to have some farm activities but now has stopped completely with all kinds of crops and livestock.

**Question 21: Is agriculture the main activity of the farm?** It is a meaningful question and most likely not too difficult for the farmer to answer. The MS Experts took the opportunity to tell about the EU standard where the farm indicates if it is active also in certain business activities different from agriculture and where the farm also indicates the economic importance of these activities.

## 2.5 Land use

NSSRA is considering a simplification of section II of the questionnaire (page 2) so that the standard will be:

Owned agricultural land  
minus land leased out  
plus land leased from other farms (area in tenancy)  
= Total agricultural land in possession of the farm  
minus unused agricultural land (fallow land)  
= Cultivated area

All items should be answered in hectares with one or two decimals.

Next step is to distribute cultivated area by different crops. An example of a meaningful answer could be that the farm has 20.0 hectares distributed by 5.0 hectares of winter wheat (34B), 5.0 hectares with spring barley (35B), 9.0 hectares with potatoes (38B) and 1.0 hectares with tomatoes (42B).

Realistically, the interviewer should sometimes be satisfied with “round figures” if the farmer does not have the exact information. This should not be considered a big problem, but rather as a quite normal situation when collecting this kind of statistics. However, the interviewer should be very strict when balancing the cultivated area with the sum of the crops.

The BC Experts suggested another simplification of the questionnaire regarding vegetables so there would be just one item and no sub categories of vegetables, like cabbage and tomatoes. The MS Experts fully endorse this idea; and there will be no conflict with EU regulation requirements. However, the categorisation of vegetables could prevail if important national users of the statistics feel they will lose valuable information.

The land use section of the questionnaire also has questions on irrigation of the different crops. The D.2 report discussed on page 12 whether a simplification of the irrigation section could be made possible by asking about irrigation in a separate section of the questionnaire with a simplified set of crops. However, there are also advantages in keeping the questionnaire as it is since a separate irrigation section would necessitate a cross check of irrigation with the land use section. (Example: the farmer irrigates 10 hectares with cereals but cultivates in fact less than 10 hectares with cereals).

The logic of the questionnaire is that any crop could be irrigable to be indicated in column C. By declaring that the crop can be irrigated means that the farm has the technical equipment to irrigate. However, having actually irrigated a crop should be indicated in column D, including both technical equipment and a natural source of irrigation, for instance a river close to the farm.

This implies that it is perfectly possible that a farm has 10.0 hectares with potatoes (42B), 0.0 hectares with irrigable potatoes (42C) but 5.0 hectares with potatoes actually irrigated (42D) in the recent season. In such a case the irrigation would be done via a natural source.

It is strictly necessary that the interviewer understands the questionnaires logic with respect to irrigation.

If considered necessary, a few extra questions on irrigation could be added, for instance as shown below:

Which irrigation methods does the farm use?

- 1) Drop or micro irrigation
- 2) Sprinkler irrigation
- 3) Surface irrigation (flooding, furrows)
- 4) Other methods

Which sources of irrigation does the farm use?

- 1) Ground water
- 2) Surface water on the farm (small dam, reservoirs on the farm)

- 3) Surface water outside the holding (lakes, waterways not created for irrigation purposes)
- 4) Common water supply networks
- 5) Other sources

After the land use section on page 3 there are some questions on land in other regions (marzes). The farm should indicate if it possesses for instance 10 hectares of land in a neighbour region or even in regions not neighbouring the farm's region. Then these 10 hectares should be distributed by main crops. It is foreseen that a farms can have land in up to two different other regions.

Two remarks could be made here:

- It should be emphasized that land in other regions includes both owned land and land leased in;
- Is it always rather easy for the farmer to know exactly the size of land in neighbour regions? It should not be too difficult since farmers with land in more regions pay land taxes to different local authorities and thus should be perfectly aware of the size of land in other regions. Maybe it could be a bit more difficult if the land is leased from farms in other regions.

## 2.6 Fertilizers and pesticides

The AC questions about fertilizers and pesticides are complicated. MS Experts discussed this item with the BC Experts because it might be difficult for the farmer to answer the questions as they were formulated. The interviewers in the Ararat Region supported the view that the questions were rather complicated. In many cases the farmers do not know which kind of chemical fertilisers they use. Therefore, the MS Experts recommended to simplify to yes/no questions as for example:

*Are there used chemical/mineral fertilisers doing the last year?*

*Are there used organic fertilisers (manure, urine, slurry... ) doing the last year?*

*Are there used pesticides doing the last year?*

If more information on the chemical fertilisers is needed, a sample survey among the units that have answered these questions positively could be conducted after the AC.

## 2.7 Livestock

It should be underlined that the number of livestock must be surveyed as per one specific date, and it could thereby be a help to the interviewers to explicitly write this date in the AC questionnaire.

The MS Experts asked about the background for asking both about the total number of livestock and about how many of these are private. The explanation was that many of the animals are leased.

The MS Experts found the questions about pigs relative complicated, particularly the splitting up in different weight groups. During the meeting in Artashat, the interviewers in Ararat marz agreed that this information about the pigs is too complicated for the owner to answer properly.

The EU standard only requires for 3 groups of pigs, and the MS Experts recommended to adopt this EU standard on pigs.

Piglets having a live weight under 20 kilograms  
Breeding sows weighing 50 kilograms and more  
Other pigs

With these simplified questions it is expected that the quality of the answers will be higher.

It should be considered whether the list of livestock is exhaustive. If not, it could be an option to add an item "Other livestock".

## 2.8 Machinery and buildings

Chapter VII and VIII of the questionnaire contain questions on machinery. It is expected that it is rather easy for the farmer to tell if he for instance has one tractor even if the number of horse power should be specified (5 different categories). Both owned machines and machines being leased permanently should be included.



Machinery is one of the classical farm structure survey items. The purpose of asking questions on machinery is to get a picture of the mechanisation of agriculture – for example whether working horses are being replaced by agricultural machines? However, machinery could still be used even if the farms do not have permanent access to these machines. A farmer can borrow a tractor from his neighbour or hire an agricultural service firm to sow and harvest using advanced sowing machines and combine harvesters. Therefore, the MS Experts advise to consider asking whether machines are used even when farms do not possess machines themselves.

The building questions include some questions on the capacity of the animal housing, for instance how many cows could a farmer have in his stable (irrespective of the actual number of cows). If “rounded figures” are accepted these questions are not expected to be too difficult.

The remainder of the questions on machinery are relatively easy-to-answer yes/no questions.

## 2.9 Labour force

The labour force section comes rather close to the EU standard where all persons working at the farm are divided by gender, education, family/non family and 5 categories of work time where 1,800 hours per year is considered as full time. See also annex 5 for a description of the Danish example.

The standard in the EU regulation 1166/2008 on farm structure statistics is as follows:

Full time

$\frac{3}{4}$  - < full time

$\frac{1}{2}$  - <  $\frac{3}{4}$  full time

$\frac{1}{4}$  - <  $\frac{1}{2}$  full time

<  $\frac{1}{4}$  full time

It may be a good idea to convert the EU standard into working hours as in the Armenian draft questionnaire.

Rather than indicating the number of persons by categories, one line is devoted to each person for whom gender, education and work time should be ticked off. For family workers also work outside the farm should be indicated. It should be noticed that family workers also include the farmer himself and his wife. In the rare cases where the questionnaire does not have lines enough the interviewer should be prepared to add a new table for the remaining persons.

The following two questions on labour force are problematic:

- 1) It is expected to be very difficult to determine the working hours for family workers. There is most often no formal employment agreement; family members work when there is work to be done. By the end of the year it may be impossible to remember whether a family member has worked 800 or 1,200 hours, even as a rough estimate.
- 2) For non-family workers the indication of working hours should be easier. On the other hand it is very difficult for the farmer to answer the questions on education for non-family workers.

The following solutions could be suggested:

- 1) The questions of working time for family workers could at least be tested during the planned field tests. As the worst case scenario, working hours could be deleted from the questionnaire. However, this is a bit critical since the working hours are EU requirements. It could be considered whether the information could be imputed based on the size of the farm taking both crops and livestock into consideration. Also it might be possible to collect the information from some farms if not all so that the missing information could be imputed. The MS Experts recommend the use of side tables which will enable the interviewers to help the farmer distribute the working hours over the year. As an example the year can be divided into three periods (Winter, Spring, Summer/Fall).
- 2) If questions on non-family workers' education are difficult to answer, the farmer could be given an option to answer "Do not know". With at least some answers these would constitute a base for imputing the missing information.

The interviewers play an extremely important role. Experience shows that it often is possible to persuade the farmer to provide rough estimates by putting a mild pressure on him and explain to him that the statistics can do with less than absolutely exact information.

## 2.10 Sales of agricultural products

These items/questions are special wishes from the FAO and Ministry of Agriculture. They concern sales of products produced by the holding.

The MS Experts suggest that it maybe could be an idea to split "Meat and meat products" into "Living livestock" and "Meat and meat products" if this item contain living livestock (this was confirmed by the BC Experts). And maybe also split "Milk and dairy product" into "Milk" and "Other dairy product". In both cases the decision depends on the purpose of the data.

More important, it is not clear how the questions should be interpreted. Is it sales during the last year? The MS Experts recommend that this should be clearly explained in the instructions.

### **3. Related subjects**

#### **3.1 Sample surveys**

It should be considered whether the AC could be carried through partly as a sample survey. It would make the census much cheaper. The MS Experts recommend considering surveying these types of farms in a sample (see chapter 2.1):

- 2) Individual households in the villages with agriculture
- 3) Owners of summerhouses with agriculture
- 4) Urban people with a bit of agriculture in their gardens

The sample size for these small farms could for instance be 10 per cent in each of the marzes. Before deciding upon this, the total importance of the small farms should be analysed by using the results from the population census. The need for statistics on the municipality level should be analysed when possible decision on sample sizes are taken.

#### **3.2 The length of the data collection period**

The MS Experts recommended that the AC census could be done over several weeks, for instance 4 or even more weeks. Thereby fewer interviewers are needed and data quality would be improved since the interviewers get more experienced during the census. Education of fewer interviewers is easier and cheaper. There is no point in insisting on that the census work should be completed in 1-2 weeks.

#### **3.3 Field test**

The MS Experts recommend testing the AC questionnaire and the instructions during a field test. It is suggested to perform the field test in the beginning of 2012. The field test does not have to include more than 15–20 holdings in each of two different villages.

The two villages should be chosen so that farms from valley areas as well as mountain areas are included. The different sorts of “types of holdings” should be tested, and the different subjects of the questionnaire should be covered.

The experience from the field test will be used to introduce small adjustments to the AC questionnaire, to prepare the paper instructions, and to plan the teaching of the interviewers. The experience from the field test can also be used as inspiration when preparing the interviewer instructions.

The field test can be used to roughly estimate the time used to complete one AC questionnaire, and this information can be valuable for budgeting purposes.

Finally, the results from the field test may provide a chance to compare the crops area data with the yearly crop survey.

Later on, and if at all possible, a real pilot agricultural census should be taken in order to test all aspects of the Agricultural Census, i.e. from data collection to publication.

#### **3.4 Validation of census data**

Errors and mistakes should be located and corrected as soon as possible, preferably already when interviewing the farmer. It saves resources since contacting a farmer once more is very time consuming. The MS Experts recommend working out a list of simple checks to the interviewers, and to have these logical checks either on the questionnaire itself or in the instructions.

The interviewers should do some simple consistency and other control of the answers before leaving the farm. For example if there are milking cows there has also to be area with fodder for the cattle.

It should be stressed that instructions of the interviewers is very import, because the agricultural questionnaire is complicated as well as the instruction/manual for filling in the questionnaire. This part of the survey must not be underestimated.

Data should be validated when registering the figures. Logical checks should be made so that it is impossible to accept an irrigated area with potatoes bigger than the cultivated area with potatoes. Also some plausibility checks should be made, for instance a warning if the number of horses is very big.

### 3.5 Non-response

It is expected that a certain part of the farms cannot answer the questionnaire. A farmer could be seriously ill or other circumstances could make it impossible for the interviewer to meet the farmer. The MS Experts could mention three different solutions:

- 1) The interviewer simply completes the questionnaire as well as possible by guessing the information.
- 2) Extrapolation of results is introduced so if there is a non-response in a group of farms of, say 2 per cent the results of the farms having completed the questionnaire should be extrapolated by approximately 1.02.
- 3) Some parts of the questionnaire could be completed by the interviewer if there is a rather reliable source, for instance information from the neighbours. But the rest of the questionnaire should be marked with “no answer” and so the missing information should be imputed by taking true information from a farm known to be rather similar to the non-response farm. Here region and size or other known criteria could be used when finding a suitable farm.

The MS Experts would recommend solution 3). Solution 1) tends to be biased since there is a temptation to let all unknown variables be zero. Solution 2) is by matter of principles impossible in a total census but could be used in a sample survey since non-response simply could be understood as decreasing the sample.

## **4. Recommendations and actions before next activity**

### **4.1 Recommendations**

During chapter 2 and 3, recommendations have been provided. Below, some of the most important recommendations are summarized:

- The MS Experts recommend that the same version of the questionnaire is used for all farms.
- Instructions should include examples of potential problems as well as solutions. The collection of such examples should start as soon as possible to be used in the instructions, and for training the interviewers.
- The BC Experts should look at other countries' manuals/instructions for AC as inspiration. Two relevant examples are the manuals from Republic of Serbia and Moldova.
- The use of side tables (or help tables) could in some cases improve or ease the data collection. An example is the distribution of working hours throughout the year.
- Concrete simplifications of the questionnaire with respect to pigs, use of fertilisers, and splitting of questions related to sales of products.
- On the questionnaire's chapter on machinery, it should be considered asking whether machines are used not only when farms possess the machines, but also when they lease or borrow them.
- The questionnaire and the instructions should be tested during a field test in the beginning of 2012.
- The MS Experts recommended that the AC census could be done over several weeks, for instance 4 or even more weeks.
- The need for statistics at the municipality level should be analysed when possible decision on sample sizes are taken.
- When doing the interviews, the interviewers should do some simple consistency and other control of the answers before leaving the farm. A list of simple checks should be worked out to the interviewers.
- When validating the data, missing information preferably could be imputed by taking true information from a farm known to be rather similar to the non-response farm.

### **4.2 Actions before next activity**

The next activity is the training mission, D.4, which should be used for preparation of the data collection process and the data quality control.

Due to the fact that the timing of the Agricultural Census was not been decided by the Government of Armenia at the time of this (D.3) mission, the timing of the next mission, D.4, was not decided upon. However, some important tasks should be performed – some already before the workshop with the Ministry of Agriculture:.

- Updated version of the questionnaire in both Armenian and English before meeting with Ministry of Agriculture on the joint workshop, 9 December 2011
- Dialog with Ministry and possibly agricultural advisors or organisations and stakeholders on the questionnaire should be initiated
- The field test should be carried through and draft instructions developed
- The sample and budget considerations should continue.

## **Annex 1. Terms of Reference**

### **1. Purpose of activity**

The purpose of the activity is to assess the on-going work, in general, and in particular to initialize the work on the interviewer instructions. The mission will not, as initially planned in the contract, involve the Ministry of Agriculture or relevant associations of farmers, as this will be done at a later stage and in co-operation with the US Department of Agriculture.

### **2. Expected output of the activity**

The expected output of the activity is:

- On-going work assessed;
- Finalization of the questionnaire for the Agricultural Census;
- Agreement on principles for the drafting of the interviewer instructions;
- Preparation of field tests of the questionnaire and instructions;
- An outline of the Terms of Reference and decision of the timing for the next activity, D.4.

### **3. Project Participants**

Mr. Gagik Anayan, Member of State Council on Statistics (*BC Component Leader*);

Mr. Arsen Avagyan, Head of Agriculture Statistics Division;

Ms. Ruzanna Vardanyan, Agriculture Statistics division, leading specialist;

Ms. Laura Grigoryan, Agriculture Statistics division, leading specialist;

Mr. Vardan Arevshatyan, Agriculture Statistics division, leading specialist.

Mr. Karsten Larsen, Head of Section, Agriculture Division, Statistics Denmark;

Ms. Mona Larsen, Head of Section, Agriculture Statistics Division, Statistics Denmark.

## Annex 2. Meeting programme for MS Experts

<b>Time</b>	<b>Place</b>	<b>Event</b>	<b>Purpose / detail</b>
Monday, 21 Nov. Morning	Congress Hotel	Meeting with RTA	To discuss the programme of the week
Afternoon	NSSRA	Meeting with BC Component Leader	Current status. BC Component Leader on developments and internal follow up since D.2 and D4.2.
Tuesday 22 Nov. Morning	NSSRA	Meeting with Agriculture Statistics Division	Experience from the Population Census and from the Pilot Study (results). The use of the PC instructions. Implications for the Agricultural Census.
Afternoon	NSSRA	Meeting with Agriculture Statistics Division	Interviewer instructions and the questionnaire – focus on the critical definitions - pragmatic and operational instructions
Wednesday 23 Nov.	NSSRA	Workshop at regional statistical agency	Presentation of the current plans, the draft questionnaire and instructions. Regional input to the discussion. Timing and practical implementation of the field tests
Thursday, 24 Nov. Morning	NSSRA	Meeting with Agriculture Statistics Division	Continuation of Tuesday programme – focus on operational and clear instructions taking into account the input from the regional level
Afternoon	NSSRA	Meeting with BC Component Leader	Follow up on the Wednesday workshop. Possible adjustments of the roadmap. Work on the mission report.
Friday, 25 Nov. Morning	NSSRA	Ad hoc meetings	Further work on the mission report, and preparations for debriefing.
Afternoon	NSSRA	Debriefing with BC Project Leader	Conclusions and recommendations. Consequences for the next mission and implied work programme for BC Experts

### **Annex 3. Persons met**

Mr. Stepan Mnatsakanyan, President of NSSRA (*BC Project Leader*)  
Mr. Gagik Anayan, Member of State Council on Statistics (*BC Component Leader*);  
Ms. Anahit Safyan, Head of International Statistics Cooperation Division;  
Mr. Arsen Avagyan, Head of Agriculture Statistics Division;  
Ms. Ruzanna Vardanyan, Agriculture Statistics Division, leading specialist;  
Ms. Laura Grigoryan, Agriculture Statistics Division, leading specialist;  
Mr. Vardan Arevshatyan, Agriculture Statistics Division, leading specialist.  
Mr. Vahe Zhagharyan, Agriculture Statistics Division, first class specialist

Mr. Levon Davtyan, Head of NSSRA Ararat Regional Agency, Artashat  
Ms. Karine Khachatryan, NSSRA Ararat Regional Agency, Artashat, interviewer  
Ms. Rosa Khachatryan, NSSRA Ararat Regional Agency, Artashat, interviewer



## Annex 4. Use of other sources in statistics

Generally it is a good idea to use already existing information from registers created by other government institutions. The statistical office saves resources and the enterprises do not have to give the same information to more than one authority.

However, it is always a very critical step to remove questions from the questionnaire believing that the same information can be collected from another source. Let us assume that a register on land use is kept by the Ministry of Agriculture to administrate a system of crop subsidies.

The following should be made clear before any decision is taken.

- 1) First and foremost the register should be delivered to the statistical office at a proper computer format and with a sufficient documentation of the data content.
- 2) Are all farm units included in the register or only some farms?
- 3) Do the register results match statistical results (for instance on the agricultural area) and if not why?
- 4) Are all crops included in the register or only a part of the land use, for instance area with cereals etc. but not grass land?
- 5) Are some crops taken less seriously so that for instance potatoes and sugar beets are included under a category called "other crops"?

## Annex 5. The Danish solution regarding the labour force.

The following model has been used for many years for the Danish farm structure survey to meet the EU requirements on labour force. Denmark has chosen working hours per week rather than hours per year asking the farmer to imagine the "average week". It is far from perfect but the solution has proved to be manageable. Because the workload varies greatly between the seasons of the year, the critical point is whether the farmer really uses an average week and not simply the recent week.

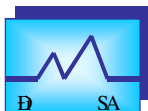
	0 hours	1-8 hours/week	9-18 hours/week	19-26 hours/week	27-36 hours/week	>= 37 hours/week
Owner of the farm					X	
Manager if different from the owner						
Wife of the owner		X				

The working time should be marked with a X. There should always be one X for the owner or a manager different from the owner and never for both. For institution farms, for instance state research farms, there should always be a manager different from the owner since the idea of an owner is a human being and not an institution.

Agricultural workers are covered as shown here:

	1-8 hours/week	9-18 hours/week	19-26 hours/week	27-36 hours/week	>= 37 hours/week
Family, men		2			
Family, women	1				
Non family, men					2
Non family, women					1

Here the farmer should indicate number of persons as shown in the example above. There are some additional questions which cover work outside the farm.



## Annex 6. The draft questionnaire for the Agricultural Census

### NATIONAL STATISTICAL SERVICE OF RA

Confirmed  
By the Resolution N \_\_\_ dated 200\_\_  
of the State Council on Statistics of the Republic of Armenia

*Information will be used for statistical purposes only.*

Armenia agriculture census questionnaire

month 20

#### I. Location of holding (organization)

1. Marz \_\_\_\_\_

name

2. Region \_\_\_\_\_

name

code

3. Rural community \_\_\_\_\_

name

code

4. Holding (organization) \_\_\_\_\_

address

(holding's) code

5. Holding's (organization's) head \_\_\_\_\_

(name, surname)

(holding's) code

6. Sex of holding's (organization's) head

male ☐

female ☐

age

education

telephone number \_\_\_\_\_

7. Who is the manager of holding

the head of holding ☐

another member of holding ☐

another person ☐

8. The sex of the manager

male ☐

female ☐

education

9. Holding operates

yes ☐

no ☐

if no, then from what period of time

2000-2

08

09

Organizational and legal type of economic unit

10. Household ☐

11. Some households ☐

12. Individual entrepreneur ☐

13. public joint-stock company ☐

14. closed joint-stock companies ☐

15. limited liability company ☐

16. unlimited productive company ☐

17. commandant economic partnership ☐

18. cooperative ☐

19. other (please, specify) \_\_\_\_\_

20. For legal persons and entrepreneurs

The number of registration in the State Register

Identification code

Account number of tax-payer


21. Is agriculture the main type of activity of your holding?

yes

no

## II. Description

### Agricultural land

ha (0,0)

		na (0,0)				Managed by holding
		Private			leased	
			of which			
			Total	Leased out		
N	A		1	2	3	4
22	Arable land					
23	Fruit garden and berry-field					
24	Vineyard					
25	Natural haying land					
26	Pasture					
27	Other lands					
28	Total agricultural lands					

## III. Area under cultivated agricultural crops

ha(0,0)

		Total	of which irrigated	Actually irrigated
N	A	B	C	D
29	<b>Cereals and grain crops, total</b>			
30	including winter cereals, total			
31	of which winter wheat			
32	winter barley			
33	spring cereals, total			
34	of which spring wheat			
35	spring barley			
36	Spelt			
37	<b>Grain crops, total</b>			
38	<b>Potato, total</b>			
39	<b>Vegetables, total</b>			
40	of which cabbage			
41	Cucumber			
42	Tomato			
43	egg-plant			
44	Pepper			
45	Onion			
46	Garlic			
47	Other			

48	<b>Orchard crops, total</b>			
49	<b>Industrial crops, total</b>			
50	<i>of which</i> tobacco			
51	Oleaceae			
52	<b>Mushrooms</b>			
53	<b>Cultured plants used as fodder, total</b>			
54	<i>of which</i> annual plants			
55	perennial plants			
56	Other			
57	<b>Total lands</b>			
58	<b>All types of plough-land, total</b>			

**IV. Available area under perennial plants**

*ha(0,0)*

		<b>Total</b>	<i>fertile age</i>	Actually irrigated	<i>fertile age</i>
N	A	B	C	D	E
59	<b>Fruits and berries, total</b> <i>including</i>				
60	<b>Seed-bearing fruits</b> <i>including</i>				
61	Apple-tree				
62	Pear-tree				
63	Quince-tree				
64	Other (specify)				
65					
66	<b>Stone-fruits, total</b> <i>Including</i>				
67	Apricot-tree				
68	Peach-tree				
69	Sweet cherry-tree				
70	Plum-tree				
71	Cheery-tree				
72	Cornel				
73	Other (specify)				
74					
75	<b>Nuts, total</b> <i>including</i>				
76	Nut-tree				
77	Hazelnut-tree				
78	Other (specify)				
79					
80	<b>Subtropical</b> <i>including</i>				
81	Fig tree				
82	Pomegranate				
83	Blood orange				
84	Other (specify)				

85					
86	<b>Berries</b> (mulberry, wild strawberry, strawberry, currant and others, including berries planted between the rows of fertile saplings) <i>of which there are</i>				
87	mulberry				
88	<b>Grape, total</b> <i>of which</i>				
89	Industrial				

#### 90. Agricultural lands in other marzes belonging to holding (organization)

The name of community

The name of community

Name of marz

  
code

Name of marz

  
code

ha (0,0)

ha (0,0)

		Total
91	Arable land	
92	Orchard and berry garden	
93	Grapevine	
94	Natural haying land	
95	Pasture	
96	Other lands	
97	The types of agricultural lands, total	

#### Used fertilizers and pesticides

meters/

		Yes	No
105	Have you used Mineral fertilizers		
106	Have you used organic fertilizers		
107	Have you used pesticides		

		Total
98	Arable land	
99	Orchard and berry garden	
100	Grapevine	
101	Natural haying land	
102	Pasture	
103	Other lands	
104	The types of agricultural lands, total	

#### V. Available hothouse/greenhouse

/sq.

	Total area	
108	of which for growing of vegetables	

#### VI. Available livestock and poultry as of date /...../

/head/

		Total	Of which private
109	<b>Cattle, total</b>		
110	<i>of which</i> cows		
111	<i>of which</i> dairy herd cows		
112	bulls		
113	draught ox		
114	female and male calves under 1		
115	heifers between 1 and 2 years		
116	bull calves between 1 and 2 years		
117	heifers above 2 years		
118	bull calves above 2 years		
119	inseminated female young cattle 2 years and above		
120	cattle of other sex and age groups		
121	<b>Buffalos</b>		
122	<i>of which</i> foals		
123	cow bulls		
124	other sex-age groups		
125	<b>Pigs, total</b>		
126	<i>of which</i> dam pigs of the main drove		
127	female pigs for breeding 4-12 months old		

128	<b>Out of total number of pigs</b> (excluding pigs from lines 126 and 127)	up to 20 kg		
129		21-50 kg		
130		51 kg and more		
131	<b>All kind of sheep, total</b>			
132	<i>of which</i> ewes			
133	rams			
134	lambs under 1			
135	lamb			
136	<b>Goats, total</b>			
137	<i>of which</i> dam goats			
138	he-goats			
139	kids under 1			
140	<b>Horses, total</b>			
141	<i>of which</i>  mares 3 years and above			
142	stallions			
143	foals			
144	<b>Rabbits, total</b>			
145	<i>of which</i> doe-rabbits			
146	<b>Poultry, total</b>			
147	<i>of which</i> layers			
148				
149	broilers			
150	turkeys			
151	geese			
152	ducks			
153	Other poultry			
154	<b>Fur beasts</b>			
155	<i>of which</i>  female			
156	<b>Swarm of bees, unit</b>			
157	<b>Donkeys</b>			
158	<b>Mules</b>			

**159. Do you deal with fishery and fish-breeding in your holding (organization)?**

yes

## VII. Available agricultural machinery

		Number	<i>Of which in working order</i>
	<b>A</b>	<b>B</b>	<b>C</b>
160	<b>Tractors, of which</b>		
161	<i>Caterpillar</i>		
162	<i>Wheel</i>		
163	<b>Lorries</b>		
164	<b>Harvester-threshers</b>		
165	<b>Forage harvesters</b>		
166	<b>Mowers</b>		
167	<b>Milk processing equipment</b>		
168	<b>Row sowing</b>		
169	<b>Cultivators</b>		
170	<b>Other (specify)</b>		
171			
172			

**173. Did you use cattle for performing of agricultural work?**

yes

no

## VIII. Available buildings and constructions of agricultural importance

### Agricultural structures for animals

174. For cattle (head)

175. Slaughters for pigs (head)

177. Slaughters for poultry (head)

176. Slaughters for sheep (head)

178. Other (specify) \_\_\_\_\_ (head)

### Constructions meant for long-term preservation of agricultural products

179. Stores (tons)

180. Fridges (tons)

181. Agricultural structures for storing of agricultural machinery

**Yes**

**No**

182. Agricultural structures for storing of agricultural equipment

183. Capacities for repairing agricultural machinery and its care

184. Agricultural structures for other purpose (specify) \_\_\_\_\_

## IX. Labour force

More than 2/3 of work hours spent in agriculture falls to

185. Plant growing

186. Cattle



187. Mixed

	Members of holding by age and sex	Total	including	
			male	female
188	<b>Total</b>			
189	0-14			

190	15-19			
191	20-44			
192	45-64			
193	65 and over			

### Work hours spent by the members of holding (15 years and over)

	Sex male=1 female=2	Education* (see the cryptogram)	<i>Time spent by economy members (p/h)</i>						
			<i>In agricultural sphere of the given holding</i>					<i>In other sphere** (see the cryptogram)</i>	
			1-449	500-899	900-1349	1350-1799	1800 and more	Partial	Full
194									
195									
196									
197									
198									
199									
200									

### Work hours spent by hired workers in holding

	Sex male=1 female=2	Education (see codes)	Work hours spent mainly on plant growing =1 cattle breeding =2 both =3	<i>In agricultural sphere of the given holding</i>				
				1-449	500-899	900-1349	1350-1799	1800 and more
201								
202								
203								
204								
205								
206								
207								

\*) 1- Higher

2 – Incomplete higher

3 – Secondary vocational

4 – Primary vocational

5 – General secondary (complete)

6 – General basic

7- Elementary

8- Without any elementary

9- Difficult to answer

\*\*) 0- doesn't have

1- Industry

2- Construction

3- Education

4- Trade and services

5 – State, municipal or other establishment

6- Public health service

7- Agriculture

8-Other sphere

### X. Food security

208. Do you use the agricultural product produced in agricultural holding only for own consumption?

yes ☐

☐

209. Do you deal with processing of agricultural product in your holding?

yes ☐

☐

210. Are you going to sell the product processed in the holding?

yes ☐

☐



**XI. Realization of agricultural product produced in holding ( % )**

		Sold	including		
			from holding	in market	To organization dealing with processing
211	Cereals and grain crops	100			
212	Potato	100			
213	Vegetables	100			
214	Melon and water melon	100			
215	Fruit and berry	100			
216	Grape	100			
217	Meat				
218	Meat products	100			
219	Milk	100			
220	Diary products				
221	Eggs	100			
222	Honey	100			
223	Wool	100			

*Interviewer*\_\_\_\_\_  
Name, surname, signature*Head of holding*\_\_\_\_\_  
Name, surname, signature*Date of completion*

“ \_\_\_\_\_ ” \_\_\_\_\_ 20 \_\_\_\_ .

*Thank you for your participation and the information provided*