Philippines - Corn Production Survey 2009

Bureau of Agricultural Statistics

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Overview

Identification

ID NUMBER
PHL-BAS-CPS-2009-v2.0

Version

VERSION DESCRIPTION
v2.0: Household level raw data edited at the Central Office, not anonymized data set, for internal use only

PRODUCTION DATE
2009-08-15

NOTES
v0 is the unedited household-level raw data.

v1.0 is the household level raw data edited at the provincia, not anonymized, for internal use.

v2.0 is the household level raw data edited at Central Office, not anonymized, for internal use.

Overview

ABSTRACT
The Corn Production Survey 2009 (CPS 2009) was a quarterly survey conducted by the Bureau of Agricultural Statistics (BAS). It aimed to generate estimates on corn production, area and yield and other related information. It was conducted in four rounds, namely, April 2009, July 2009, October 2009 and January 2010. Each round generated estimates for the immediate past quarter and forecast for the next two quarters. Results of the survey served as inputs to planners and policy makers on matters concerning the corn industry.

KIND OF DATA
Sample survey data [ssd]

UNITS OF ANALYSIS
Farming households;

Corn areas operated by farming households

Scope

NOTES
The scope of the Corn Production Survey includes:

- Production, area planted / harvested and yield per hectare by corn type and seed type

- Usage of seeds, fertilizer and pesticides

- Source and adequacy of irrigation water

- Monthly distribution of production and area harvested

- Disposition of production

- Area with standing crop

- Planting intentions for the quarter

- Awareness and availment of Ginintuang Masaganang Ani-Corn Program interventions

Coverage

GEOGRAPHIC COVERAGE
National

- January, April and October 2009 Rounds: 80 provinces (excluding Batanes) in 16 regions (except National Capital Region)

- January 2010 Round: additional one province (Dinagat Islands)

GEOGRAPHIC UNIT
Barangay

UNIVERSE
All farming households

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
Bureau of Agricultural Statistics	Department of Agriculture

FUNDING

Name	Abbreviation	Role
Bureau of Agricultural Statistics	BAS	Funding Source

OTHER ACKNOWLEDGEMENTS

Name	Affiliation	Role
National Statistical Coordination Board (NSCB)		Survey Clearance

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Rosalinda M. Garcia	RMG	Bureau of Agricultural Statistics	Documenter
Amelia P. Caparas	APC	Bureau of Agricultural Statistics	Reviewer
Maura S. Lizarondo	MSL	Bureau of Agricultural Statistics	Reviewer

DATE OF METADATA PRODUCTION
2009-08-31

DDI DOCUMENT VERSION
Version 1.0

DDI DOCUMENT ID
DDI-PHL-BAS-CPS-2009-v1.0

Sampling

Sampling Procedure

The sampling procedure used in the Corn Production Survey 2009 (CPS 2009) was first implemented in 1994. This was a replicated two-stage stratified sampling design with province as the domain, barangay as the primary sampling unit (PSU) and farming household as the secondary sampling unit (SSU).

The results of the 1991 Census of Agriculture and Fisheries (CAF 1991) served as the basis of sampling frame at the PSU and SSU levels. In the said census, the largest barangay in a municipality was taken with certainty while a 50 percent sampling rate was used for selecting the remaining barangays in the municipality. This scheme effectively resulted in the generation of two sub universes: a sub universe of barangays with probability of selection equal to one (these barangas were called 'certainty barangays') and another sub universe of barangays with probability of selection equal to 0.5. This characteristic of the CAF 1991 data was used in the selection of sample barangays for the CPS.

The barangays were arrayed in ascending order based on corn area then stratified such that the aggregate corn area of the barangays belonging to one stratum is more or less equal to the aggregate corn area of the barangays in any other stratum. Ten (10) strata were formed for major corn producing provinces and five for minor producing provinces. In all these provinces, the last stratum consisted of the certainty barangays per CAF 1991 design.

For each stratum, four (4) sample barangays were drawn independently using probability proportional to size (PPS) sampling with the barangay's corn area as size measure. This resulted in four (4) independent sets of barangays (i.e., four (4) replicates) for the province. Systematic sampling was used in drawing the sample faming households in each sample barangay.

For economic reasons, sample size per barangay was limited to a minimum of four (4) and a maximum of 25. To correct for this limitation of the design, the use of household weights was instituted. A detailed discussion of weighting in the CPS was included in the survey's estimation procedure attached as an external resource.

In November 2007, an updating of the list of farming households in all corn sample barangays nationwide was done to address the problem of non response due to transfer of residence, stoppage of farm operation, passing away of operator etc. Consequently, a new set of sample households was drawn.

The following sample sizes were used in CPS 2009:
- April 2009 Round: 935 barangays and 7,841 households
- July 2009 Round: 1020 barangays and 8,449 households
- October 2009 Round: 935 barangays and 7,833 households
- January 2010 Round: 1,020 barangays and 8,457 households.

Less elements were sampled in April and October 2009 Rounds since less number of replicates were covered in minor-producing provinces during these periods.

Absent respondents such as refusals, unknown and those who transferred to another barangay were replaced at the Central Office for the next quarter's survey while not-at-home (temporarily away) cases were still included in the list of samples for the succeeding round.. The replacement households were taken from the list of replacements (farming households) for the barangay and were reflected in the list of samples for the next round.

Response Rate

Response rate refers to the ratio of sample households who responded to the survey to the total number of sample households, expressed as a percentage. For Corn Production Survey (CPS), responding samples include farming households who are into corn farming (code 10), those who are into other agricultural activities or with no agricultural activities during the reference period (code 20).

CPS 2009 registered high response rates which averaged 87.53% across rounds. Higher proportions of actually-enumerated sample households were noted in April and October 2009 Rounds at 89.55% and 91.48%, respectively, than in July 2009 and January 2010 Rounds which registered 83.56% and 85.53% response rates, respectively.

Weighting

Sample weights were applied to all variables at the household-level. These were determined as a function of the uniform raising factor for the province, denoted by Rk, and the adjusted household weights.

Rk was initially computed from the following characteristics: average total area planted to corn per stratum, average total area planted to corn per barangay, average number of farming households per barangay, average number of sample farming households per barangay and average number of sample barangays per stratum.

Sample size for the sample barangay was determined based on the following information: Rk, total number of farm households in the sample barangay, total corn area of the sample barangay, aggregate corn area in the stratum and number of sample barangays in the stratum.

For operational purposes, sample size per barangay was limited to a minimum of four (4) and a maximum of 25. To correct for this limitation, the use of a uniform sample weight for all sample households in the same sample barangay was instituted. Household weights were determined as a function of the computed sample size and the 'desired' sample size for the barangay, that is:

a) 1.00 if the computed sample size was between 4 and 25;
b) less than 1.00 if computed sample size was less than 4
c) more than 1.00 if computed sample size was more than 25, and
d) based on computed sample size and number of farming households in the barangay if computed sample size was less than 25 and said sample size was greater than total number of farming households in the barangay.

Household weights were encoded together with other household level data. During table generation, weighting adjustment was done to correct for sampling unit non-response due to the following reasons:
- refusal of target repondent or any other knowledgeable household member to be interviewed
- sample barangay was not accessible during the survey period
- entire household was temporarily away during the survey operation-
- sample household has transferred residence to another barangay
- sample household's residence could not be located / unknown in the sample barangay

Weighting adjustment was done for each sample barangay, whenever applicable. This was calculated by multiplying the original household weight by the reciprocal of the response rate. Response rate is the ratio of the number of sample households who responded to the survey (either corn household and non-corn household) to the total number of sample households in the barangay. Calculation of the final weight was done afterwards, by multiplying the adjusted weight by the uniform raising factor Rk.

Details of the above discussion except for weighting adjustment procedures, are contained in the document describing the Corn Production Survey (CPS) sampling methodology provided in the Technical Documents.

Questionnaires

Overview

The Corn Production Survey (CPS) 2009 questionnaire was a structured questionnaire that can accommodate data for five sample households. It evolved from modifications of the 2007 questionnaire based on the emerging data needs of the Corn Program.

The new questionnaire was implemented in January 2008 Round with the following features: more detailed sample status categories, items on production and area by seed type, additional items on organic fertilizer and pesticides usage, corn disposition and utilization and awareness and availment of Ginintuang Masaganang Ani Corn (GMA-Corn) Program benefits and services.

After the January 2008 survey, the questionnaire underwent further changes in the questionnaires used in the April and July 2008 Rounds. Modifications on sample status categories and other terms and concepts used were made. Also, a re-arrangement of some items in Section C1 was done to effect better interview results. These revisions were implemented in April 2008 Round. To better guide the interviewer in filling up the questionnaire, another revision was incorporated in the July 2008 Round questionnaire. The column “type of corn” was inserted after the screening question in Block C. The intent was to fix information on white corn on the first sub-row and the data on yellow corn on the second sub-row for each sample household. This has been the last major revision made in the CPS questionnaire until 2009.

The different blocks of the CPS 2009 questionnaire were as follows:

Block A - Sample Identification. This block contained information on the geographic and other identification of the sample barangay, the original household weight and questionnaire sequence number.

Block B - Sample Particulars. This block contained answer spaces on identification specific to the sample household such as household code, name of agricultural operator. It also contained spaces where information on the result of visit (or sample status), as well as the names and classification of the respondent or informant were indicated. Lastly, Block B included items on total farm area operated as well as the total area devoted to corn.

Block C - Information on Corn Harvested. This block dealt with important details about the sample household's harvest during the past quarter. The first few items of Block C included a screening question on whether the sample household harvested corn or not during the past quarter, the type of corn harvested and some questions on irrigation. The other items of Block C were grouped under two sections, namely: Sections C1 and C2.

Section C1 (Corn Area, Production and Seed Information) covered items on the month, area and volume harvested during the past quarter as well as details on plantings made on the harvested crop like seed usage, variety characteristics, etc.

Section C2 (Fertilizer and Pesticides Information). The first set of items contained in Section C2 concerned about usage of yield-enhancing inputs or fertilizers, specifically, area applied, as well as the grade and quantity or organic and inorganic inputs used. Another set of items covered in Section C2 included pesticide-applied area and quantity of pesticides or yield protecting inputs applied by type.

Block D - Corn Utilization and Disposition. Block D dealt with the utilization and disposition of the sample household's previous quarter harvest. Following were the disposition items by type of corn (white and yellow) and product form (shelled corn, matured corn and green corn): sold, for home consumption, landowner's share, given/paid to farm labourers, for seeds, used as payment of loan, irrigation fee, for feeds and wastage/losses

Block E - Corn Production Forecast. This block featured items similar to Section C1 of Block C, except that the main focus in the latter was on the sample household's expected production based on standing crop on the farm as of the end of the previous quarter. This block was intended to provide forecast for the current quarter.

Block F - Corn Planting Intention. This block covered items related to the intent of the sample household to plant corn during the current quarter. It was designed to provide forecast for next quarter's harvests..

Block G - Assessment of the Farm's Corn Production. This block aimed to gather the respondent's perception on how the past quarter's production compared with production during the same quarter of the previous year, and the corresponding reason/s for significant changes observed.

Block H - Farmers' Participation in the Ginintuang Masaganang Ani Program (GMA-Corn). The purpose of this block was to gather indication on farmers' awareness or the GMA-Corn Program of the government, the proportion of those who availed of program benefits and specific benefits received.

Block I- Data Collector, Supervisor, PASO and Encoder Identification. This portion was reserved for the names of the survey enumerator, field supervisor (including the PSO) and data encoder, as well as the dates they accomplished their assigned tasks.

The instructions in filling up the CPS January and April 2008 Round questionnaires are provided in the Technical Documents. The CPS July 2009 Round questionnaire is also provided and represents questionnaires used in the four survey rounds of 2009.

Data Collection

Data Collection Dates

Start	End	Cycle
2009-04-01	2009-04-10	April 2009 Round
2009-07-01	2009-07-10	July 2009 Round
2009-10-01	2009-10-10	October 2009 Round
2009-12-01	2009-12-10	January 2010 Round

Time Periods

Start	End	Cycle
2009-01-01		April 2009 Round (Information for Previous Quarter)
2009-04-01		April 2009 Round (Forecast Based on Standing Crop)
2009-07-01		April 2009 Round (Forecast Based on Planting Intention)
2009-04-01		July 2009 Round (Information for Previous Quarter)
2009-07-01		July 2009 Round (Forecast Based on Standing Crop)
2009-10-01		July 2009 Round (Forecast Based on Planting Intention)
2009-07-01		October 2009 Round (Information for Previous Quarter)
2009-10-01		October 2009 Round (Forecast Based on Standing Crop
2010-01-01		October 2009 Round (Forecas based on Planting Intention)
2009-10-01		January 2010 Round (Information for Previous Quarter)
2010-01-01		January 2010 Round (Forecast Based on Standing Crop)
2010-04-01		January 2010 Round (Forecast Based on Planting Intention)

Data Collection Mode

Face-to-face [f2f]

Data Collection Notes

Contractual data collectors (CDCs) gathered the data. Prior to data collection, training of CDCs was conducted to ensure that the procedures and concepts were understood. Mock interviews and dry-run exercises were made part of the training so that the CDCs could simulate the actual data collection procedures to be undertaken in the field.

During field operation in the sample barangays, a courtesy call was made to barangay officials by the CDCs to explain the nature and purpose of the survey and to seek permission for its conduct in their area. At each sample household, the objectives of the survey were explained as well as an assurance that the information collected would be handled with utmost confidentiality. Average interview time per sample household ranged from 30 to 45 minutes.

The CDC used the local dialect in the interview in accordance with the procedures prescribed in the manual of instructions and as discussed during the training. Problems encountered by the CDCs were reported to their supervisors for appropriate action. Before submitting the accomplished questionnaires to the supervisor, these were first edited by the CDCs for completeness, consistency and acceptability of the entries.

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Data Collectors

Name	Abbreviation	Affiliation

Bureau of Agricultural Statistics	BAS	Department of Agriculture

Supervision

Field supervision was undertaken by the Provincial Operations Center (POC) staff in their respective municipalities of assignment. The Provincial Agricultural Statistics Officer (PASO) served as the overall supervisor in the province, while the Regional Agricultural Statistics Officer (RASO) was the overall supervisor in the region. Central Office technical staff also made field visits in some provinces to observe the field operations.

Among the responsibilities of the supervisor were conduct of CDC training prior to data collection, doing spotchecking and backchecking activities during and after data collection, editing of completed returns, addressing of problems encountered by the CDCs under him/her supervision and reporting to Central Office the significant findings that may contribute to the analysis of the survey results.

Data Processing

Data Editing

Data editing involved item-by-item check on the completeness of units and items covered, as well as the consistency and acceptability of the data collected. This activity took place at various stages of the survey, that is,

(a) during data collection by the Contractual Data Collectors (CDCs). The field supervisor also made random checks on the CDC's work as part of his/her supervision work

(b) after data collection, before submitting the questionnaires for encoding - At this stage, the accomplished survey returns were manually edited and coded at the Provincial Operations Center (POC). Manual editing involved the checking of data items based on pre-set criteria, data ranges, completeness and consistency with other data items. Coding was the assignment of alpha-numeric codes to questionnaire items to facilitate data entry.

(c) after encoding at the POC, through a customized data cleaning program - Encoded data were subjected to computerized editing using a customized editing program. The editing program took into consideration the editing criteria such as validity, completeness and consistency with other data items. This activity was done to capture invalid entries that were overlooked during manual editing. An error list was produced as output of the process. The errors reflected in said lists were verified vis-à-vis the entries in the accomplished questionnaires. The data files were updated based on the corrections made. Completeness check was likewise done to compare the clean data file against a master file of barangays to check if the sample barangays have been completely surveyed or not. Editing and updating were performed iteratively until a clean, error-free data file was generated. The clean data file served as an input to the table generation (or estimation) process.

(d) at the Central Office - The clean raw data files generated at the POCs were sent to the Central Office for national consolidation at the Information and Communications Technology Division (ICTD). Prior to consolidation, these files were again submitted for re-editing, in accordance with the procedures elaborated in (c). This was done as another layer of data quality check for the survey.

Other Processing

Data from the Corn Production Survey (CPS) 2009 questionnaires were processed using a customized DOS-based program developed by the Information and Communications Technology Division (ICTD). using the U.S. Bureau of Census' Integrated Microcomputer Processing System (IMPS) and Cobol.

Decentralized processing was done at the Provincial Operations Center (POC). Processing activities included encoding of data from survey questionnaires; computerized editing, completeness check, generation of final weights and generation of output tables. The final weights were generated from the adjusted household weights and the uniform raising factor for the province. These weights were applied to all variables to come up with the estimates for the province.

Fourteen (4) provincial output tables were generated from the CPS system. Soft copies of provincial data, specifically the clean data and the barangay master file, were submitted to the ICTD for national consolidation while hard copies of the provincial reports were submitted to the Crops Statistics Division (CSD).

Data Appraisal

Estimates of Sampling Error

Not provided.

Other forms of Data Appraisal

To ensure the quality of its statistical services, the BAS has mainstreamed in its statistical system for generating agricultural statistics, a quarterly data review and validation process. This is undertaken in three levels: provincial, regional and national levels. The Corn Production Survey 2009 results passed through this rigid procedure before its final outputs were released for public use.

The data review process starts at the data collection stage and continues up to the processing and tabulation of results. However, data examination is formalized during the provincial data review since it is at this stage where the data at the province-level is analyzed as a whole. The process involves analyzing the survey data in terms of completeness, consistency among variables, trend and concentration of the data and presence of extreme observations. Correction of spotted errors in the data is done afterwards. The output of the process is a clean data file used in the re-computation of survey estimates.

The estimates generated from the clean data file are thoroughly analyzed and validated with auxiliary information to incorporate the impact of information and events not captured by the survey. These information include results of the Monthly Palay and Corn Survey Report (MPCSR), historical data series, report on weather condition, area and crop condition, irrigation, levels of inputs usage, supply and demand, marketing of agricultural products, and information on rice and corn program implementation.