

Philippines - Corn Production Survey 2016

Philippine Statistics Authority (PSA)

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Overview

Identification

ID NUMBER

PHL-PSA-CornPS-2016-v1

Version

VERSION DESCRIPTION

v1.0: Division edits for preliminary estimates computation (raw, first input)

PRODUCTION DATE

2017-01-20

Overview

ABSTRACT

The Corn Production Survey is one of the two modules of the Palay and Corn Production Survey (PCPS), formerly known as the Rice and Corn Production Survey (RCPS).

The Corn Production Survey (CPS) is a quarterly survey conducted by the Philippine Statistics Authority (PSA). It aims to generate estimates on corn production, area and yield and other related information at the provincial level. The four rounds are conducted in January, April, July and October. Each round generates estimates for the immediate past quarter and forecasts for the next two quarters. Results of the survey serve 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 by croptype and seed class
- Usage of seeds, fertilizer and pesticides
- Source of irrigation water and adequacy
- Monthly distribution of production and area harvested
- Farm household disposition of production
- Area with standing crop
- Planting intention for the quarter

TOPICS

| Topic | Vocabulary | URI |
|--|---------------------------------|-----|
| Agriculture, forestry, fisheries | Philippine Statistics Authority | |
| Methodology of data collection, processing, dissemination and analysis | Philippine Statistics Authority | |

Coverage

GEOGRAPHIC COVERAGE (1)

National

GEOGRAPHIC COVERAGE (2)

Provinces in Regions (National Capital Region not included)

GEOGRAPHIC UNIT

Barangay

UNIVERSE

Farming households in the barangays.

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

| Name | Affiliation |
|---------------------------------------|--|
| Philippine Statistics Authority (PSA) | National Economic and Development Authority (NEDA) |

FUNDING

| Name | Abbreviation | Role |
|-------------------------------|--------------|--------------|
| Government of the Philippines | GOP | Full funding |

Metadata Production

METADATA PRODUCED BY

| Name | Abbreviation | Affiliation | Role |
|---------------------------|--------------|---------------------------------|------------|
| Crops Statistics Division | CSD | Philippine Statistics Authority | Documenter |
| | | | |
| | | | |
| | | | |

DATE OF METADATA PRODUCTION

2019-02-28

DDI DOCUMENT VERSION

Version 1.0 - First metadata documentation of CPS 2016

DDI DOCUMENT ID

DDI-PHL-PSA-CPS-2016-v1

Sampling

Sampling Procedure

The sampling procedure used in the Corn Production Survey 2016 (CPS 2016) is first implemented in 1994. This is 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) serve as sampling frame at the psu and ssu levels. In the said census, the largest barangay in a municipality is taken with certainty while a 50 percent sampling rate is 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 barangays are called 'certainty barangays') and another sub-universe of barangays with probability of selection equal to 0.5. This characteristic of the CAF 1991 data is used in the selection of sample barangays for the CPS.

The barangays are arrayed in ascending order based on corn area which are 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 strata are 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 are drawn independently using probability proportional to size (pps) sampling with the barangay's corn area as size measure. This resulted with four (4) independent sets of barangays (i.e., four replicates) for the province. Systematic sampling is used in drawing the sample farming households in each sample barangay.

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

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.

Respondents who refused to be interviewed, not home, unknown and transferred to another barangay are treated as missing and are replaced at the Central Office for the next quarter's survey. The replacement samples are taken from the list of replacements (farming households) for the barangay and are reflected in the list of sample households for the next round.

Response Rate

CPS 2016 registered response rates which averaged 74.28% across its quarterly surveys - April 2016 Round, July 2016 Round, October 2016 Round and January 2017 Round.

Weighting

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

R_k is 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 is determined based on the following information: R_k , total number of farm households in the sample barangay, total palay area of the sample barangay, aggregate palay area in the stratum and number of sample barangays in the stratum.

For operational purposes, sample size per barangay is 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 is instituted. Household weights are 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 is less than 25 and said sample size is 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 respondent 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 R_k .

Details of the above discussion on weighting adjustment procedures, are contained in the document describing the Corn Production Survey (CPS) sampling methodology provided as a Technical Document.

Questionnaires

Overview

The questionnaire for Corn Production Survey (CPS) 2016 is written in English and is structured in format. It evolves from modifications in 2012 based on the commitment of making available to the public the reliable statistics in corn and continuous efforts in developing approaches and methodologies in estimating such statistics particularly improving the survey questionnaires. The Technical Working Group on Cereals Statistics of the Bureau reviewed simultaneously the PPS and CPS questionnaires and came up with sets of user-friendly survey instruments. The major features of the new set of CPS questionnaire are: shift from barangay level to farm level questionnaire i.e., from a maximum of five (5) households to one (1) household per questionnaire; change in questionnaire format; more detailed sample status categories; defined croptype; inclusion of items on labor inputs; and application of organic pesticides. These new set of questionnaire was used starting April 2012 survey round of the CPS.

The questionnaire was divided into the following blocks:

- Block A - Sample identification
- Block B - Sample particulars
- Block C - Information on corn harvested
- Block C.1 - Area, production, seed and irrigation information
- Block C.2 - Fertilizer usage
- Block C.3 - Pesticide usage
- Block C.4 - Labor inputs
- Block D - Corn production disposition (all croptype)
- Block E - Corn production forecast (on standing crop)
- Block F - Corn planting intentions
- Block G - Respondent's assessment of the household corn production
- Block H - Farmer's participation in corn program
- Block I - Statistical Researcher, Supervisor, PSO and Encoder Identification

A detailed description of these blocks is provided under Technical Documents.

Data Collection

Data Collection Dates

| Start | End | Cycle |
|------------|------------|--------------------|
| 2016-04-01 | 2016-04-10 | April 2016 Round |
| 2016-07-01 | 2016-07-10 | July 2016 Round |
| 2016-10-01 | 2016-10-10 | October 2016 Round |
| 2016-12-01 | 2016-12-10 | January 2017 Round |

Time Periods

| Start | End | Cycle |
|------------|------------|---|
| 2016-01-01 | | April 2016 Round (Final estimates) |
| 2016-04-01 | | April 2016 Round (Forecast based on standing crop) |
| 2016-07-01 | 2016-09-30 | April 2016 Round (Forecast based on planting intention) |
| 2016-10-01 | 2016-12-31 | July 2016 Round (Forecast based on planting intention) |
| 2017-01-01 | 2017-03-31 | October 2016 Round (Forecast based on planting intention) |
| 2017-04-01 | 2017-06-30 | January 2017 Round (Forecast on planting intention) |

Data Collection Mode

Face-to-face [f2f]

Data Collection Notes

Statistical Researchers (SRs) are hired to gather the data. Prior to data collection, training of the SRs is conducted to ensure that the procedures and concepts are understood. Mock interviews and dry-run exercises are parts of the training.

Prior to data collection in the sample barangays, a courtesy call is made to barangay officials by the SRs to explain the nature and purpose of the survey and to seek permission for its conduct in their area. At the household level, the objectives of the survey are explained by the SRs as well as an assurance that the information collected are treated with utmost confidentiality. Average interview time per sample household ranged from 30 to 45 minutes.

The SRs use 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 SRs are reported to their supervisors for appropriate action. The accomplished questionnaires are first edited by SRs for completeness, consistency and acceptability of the entries before submitting to the supervisors.

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Data Collectors

| Name | Abbreviation | Affiliation |
|---------------------------------|--------------|---|
| Philippine Statistics Authority | PSA | National Economic and Development Authority |

Supervision

Field supervision is undertaken by the Provincial Office (PO) staff in their respective municipalities of assignments. The Provincial Statistics Officer (PSO) serves as overall supervisor in the province, while the Regional Director (RD) is the overall supervisor in the region. Central Office technical staff also make field visits in some provinces to observe the field operations.

Among the responsibilities of the supervisor are to conduct SR training prior to data collection, make spotchecking and backchecking activities during and after data collection, edit completed returns, address problems encountered by the SRs under his/her supervision and report to Central Office the significant findings that may contribute to the analysis of the survey results.

Data Processing

Data Editing

Prior to data encoding, the accomplished survey returns are manually edited and coded. Manual editing is checking of responses to the Corn Production Survey (CPS) questionnaire in terms of acceptability and validity. This activity aims at improving the quality of data collected by the SRs. It involves the checking of data items based on criteria like completeness of data, consistency with other data items and data ranges. Coding is the assignment of alpha-numeric codes to questionnaire items to facilitate encoding.

Encoded data are subjected to computerized editing using a customized editing program. The editing program take into consideration the validation criteria such as validity, completeness and consistency with other data items. This activity is done to capture invalid entries that were overlooked during manual editing. An error listing is produced as output of the process. The errors reflected in said lists are verified vis-à-vis the questionnaires. The data files are updated based on the corrections made. Editing and updating are performed iteratively until a clean, error-free data file is generated.

Completeness check is done to compare the data file against a master file of barangays to check if the sample barangays have been completely surveyed or not. This activity is done after a clean, error-free data file is generated.

Other Processing

Data from the CPS are processed using a customized processing system developed using the Census Survey Processing (CSPPro) software by the Systems Development Division (SDD).

Decentralized processing is applied for the CPS. At the POs, processing activities include encoding of data from survey questionnaires; computerized editing, completeness checking, generation of expansion factor and generation of output tables.

The contents of the CPS questionnaire are inputted into the desktop computer using a data entry application program developed in CSPPro. The data entry program is composed of ten record types (RTs). Each record type represents a corresponding section of questionnaire except for RT 1 where it covers Sections A and B and RT 10 which includes Section C.4 and other single questions from Sections C.1, E.1 and F.1. These record types are:

- RT 1- Sample Particulars
- RT 2- Area and Production
- RT 3- Fertilizer Information
- RT 4- Pesticides Information
- RT 5- Production Disposition
- RT 6- Production Forecast
- RT 7- Planting Intentions
- RT 8- Assessment of Corn Production
- RT 9- Corn Programs Aailed
- RT 10-Other Questions

A program generating the appropriate household weights or correction factor is run using the clean data file. The generated household weights are then used in the estimation.

Output table generation is performed only after the activities of completeness check and generation of correction factor have been done. From CPS processing system, 13 provincial summary tables are generated. Soft copies of provincial data, specifically the clean data and the barangay master file, are submitted to the SDD for national consolidation while hard copies of the provincial reports are submitted to the Crops Statistics Division (CSD).

Data Appraisal

Estimates of Sampling Error

Not computed.

Other forms of Data Appraisal

To ensure the quality of its statistical services, the PSA has mainstreamed in its statistical system for generating production statistics, a quarterly data review and validation process. This is undertaken at the provincial, regional and national levels to incorporate the impact of events not captured in the survey.

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 set 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 Reporting System (MPCSRs), 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.