

TECHNICAL NOTES

I. Introduction

The Palay and Corn Quarterly Bulletin presents the crop situation of palay and corn in the country. Data on monthly prices of palay, corn, fertilizer, and pesticides are also included.

The data for this release was collected by the Philippine Statistics Authority (PSA) through the Palay Production Survey (PPS), Corn Production Survey (CPS), and Farm Prices Survey (FPS). On the other hand, the data on fertilizer and pesticide prices are sourced from the Fertilizer and Pesticide Authority (FPA) and the data on farmgate prices for palay and corn are sourced from the FPS.

The PPS and CPS is conducted in all provinces based on the Philippine Standard Geographic Code classification. However, it excludes the National Capital Region.

The PPS and CPS are quarterly surveys which aim to generate estimates on palay/corn production, area, yield, and other production-related data at the national and sub-national levels. Specifically, the production data generated are direct inputs to the Value of Production in Philippine Agriculture and Fisheries, consequently to the computation of Gross Domestic Product (GDP). It also supports the data needs of planners, policy and decision makers, and other stakeholders in the agriculture sector.

II. Data Collection

II.1. Data collection procedure

The field data collection is every first 10 days of the month after the reference quarter. However, the data collection for the fourth quarter is done one month earlier to comply with the Philippine System of National Accounts calendar. The data collection was undertaken by hired Statistical Researchers (SRs) through a face-to-face paper and pencil interview with qualified sample households. Prior to data collection, training of related staff from Field Offices (FOs), including SRs, was conducted to ensure uniform understanding of concepts and proper implementation of survey procedures. Field and manual editing of the accomplished questionnaire was done to ensure the completeness, consistency, and reliability of the information gathered.

II.2. Survey Questionnaire

The PPS and CPS Form 1 is a five-page questionnaire composed of eight blocks, which captures the characteristics of the sample households and their palay/corn farming operations.

The data items included in the survey questionnaire are as follows:

1. Information on Palay/Corn Harvested
2. Palay/Corn Production Disposition
3. Respondent's Assessment of the Household's Palay/Corn Production
4. Palay/Corn Production Based on Standing Crop
5. Trading Information

III. Sampling Design

III.1. Sampling Frame

The sampling frame for the Primary Sampling Units (PSUs) is the 2012 Census of Agriculture and Fisheries (CAF), while the sampling frame for the Secondary Sampling Units (SSUs) is the 2017 Listing of Farm Households (LFH). However, if the selected sample PSU is not covered in the 2017 LFH, the 2012 CAF is used.

III.2. Sample Selection Procedure

The PPS and CPS use two-stage sampling design. The first stage is the selection of barangays using probability proportional to size wherein the measure of size is the estimated palay/corn farm area.

The second stage is the selection of sample farm households in the sampled barangay using ordered systematic sampling.

The number of sample households per selected barangay is 20 but this could be less if the selected barangay has less than 20 households.

III.3. Domain

The domain of the survey is the province.

III.4. Estimation Procedure

a. Survey Weight

a.1. Base Weight

PSU Weight

The PSU weight is calculated based on the relative size of palay/corn farm area. The formula for the computation of PSU weight is given as follows:

$$w_{1i} = \frac{X}{aX_i}$$

where:

- w_{1i} = PSU weight of the sample barangay
- X = total palay/corn farm area for the province
- X_i = palay/corn farm area of barangay i
- a = barangay sample size for the province
- i = subscript for barangay

SSU Weight

The formula for the computation of SSU weight is given as follows:

$$w_{2ij} = \frac{N_i}{n_i}$$

where:

- w_{2ij} = SSU weight
- N_i = total number of households in barangay i
- n_i = total number of sample households in barangay i
- j = subscript for household

Base Weight

The base weight is calculated as the product of PSU and SSU weights. The formula for the computation of base weight is given as follows:

$$w_{ij} = w_{1i} \times w_{2ij}$$

where:

w_{ij} = base weight of household j in barangay i

a.2. Adjustment Factor

The adjustment factor to account for non-responding households is given as follows:

$$A_p = \left(\frac{\sum_{i=1}^a \sum_{j=1}^{n_i} w_{ij} X_{1ij}}{\sum_{i=1}^a \sum_{j=1}^{n_i} w_{ij} X_{2ij}} \right)$$

where:

A_p = adjustment factor for non-responding households in province p

X_{1ij} = eligible status of household j in barangay i (1 if eligible, 0 otherwise)

X_{2ij} = responding status of household j in barangay i (1 if responding, 0 otherwise)

Eligible households are the following:

- Sample status code 1 (palay/corn household), result of visit code 1 (interview completed)
- Sample status code 1 (palay/corn household), result of visit code 2 (non-response), reason for non-response codes 7-9.
 - Code 7 (Refused to be interviewed without replacement)
 - Code 8 (Temporarily away/Not at home without replacement)
 - Code 9 (Area temporarily not accessible without replacement)

Ineligible households are the following:

- Sample status code 2 (non-palay/non-corn household)
- Sample status code 3 (non-agricultural household)
- Sample status code 1 (palay/corn household), result of visit code 2 (non-response), reason for non-response codes 4-6
 - Code 4 (Resides outside the sample barangay)
 - Code 5 (Unknown in the locality/cannot be located)
 - Code 6 (No household member engaged in farming)

a.3. Final Weight

The final weight of a given household is calculated as the product of base weight and adjustment factor. The formula for the computation of final weight is given as follows:

$$w'_{ij} = w_{ij} \times A_p$$

where:

- w'_{ij} = final weight of household j in barangay i
 A_p = adjustment factor to account for non-responding households in province p

b. Estimation of Total

b.1. Estimation of Provincial Total

b.1.1. The provincial total for production, area harvested, and other production-related indicators are estimated as follows:

$$\hat{Y}_p = \sum_{i=1}^a \sum_{j=1}^{n_i} w'_{ij} y_{ij}$$

where:

- \hat{Y}_p = estimated total for the province
 y_{ij} = survey data (production, area harvested, etc.) for household j in barangay i

b.1.2. The provincial average farm price is estimated as follows:

$$\bar{Y}_p = \sum_{i=1}^a \sum_{j=1}^{n_i} \left[\frac{\frac{(Y_{ij}X_{ij}) - (Z_{ij})}{(X_{ij}U_{ij})} * w'_{ij}}{(w'_{ij})} \right]$$

where:

- \bar{Y}_p = provincial average farm price
- Y_{ij} = price per unit of measure of palay/corn sold by household j
- X_{ij} = total quantity sold for palay/corn by household j
- Z_{ij} = total marketing cost out of the total amount sold for palay/corn sold by household j
- U_{ij} = weight per unit of measure of palay/corn by household j

b.2. Estimation of Regional and National Total

b.2.1. The regional palay production estimates are obtained by aggregating the estimates of the provinces within the region, while the national palay/corn production estimates are derived by adding all the estimates obtained in each region.

b.2.2. The regional average farmgate prices are obtained by getting the simple average of the weighted farmgate prices of the provinces, while the national palay/corn farmgate prices are derived by averaging all the farmgate prices obtained in each region.

IV. Concepts and Definitions

Crop production - refers to the quantity produced and actually harvested for a particular crop during the reference period. It **includes** those harvested but damaged, stolen, given away, consumed, given as harvester's share, reserved, etc. It **excludes** those produced but not harvested due to low price, lack of demand, force majeure, or fortuitous events, etc.

Area planted - refers to the actual physical area planted.

Area harvested - refers to the actual area from which harvests were realized. This excludes crop areas which were totally damaged. It may be smaller than the area planted.

Irrigated - area with irrigation facilities supplying water through artificial means like gravity, force/power, pump, etc. Irrigated area become rainfed only when the irrigation system is no longer operational for the past two years and beyond repair and there is no plan of irrigating the farm.

Rainfed - palay grown on this ecosystem has dikes that retain water and is solely dependent upon rainfall for its water supply. Rainfed can be converted to irrigated only if the area is laid with permanent irrigation facility.

Farmgate price - refers to the price received by farmers for their crops at the location of farm. Thus, the marketing costs, such as the transport and other marketing cost (if any) incurred in selling the produce are not included in the farm prices.

Food and Agriculture Organization (FAO) definition: Prices received by farmers for their produce at the location of farm. Thus, the costs of transporting from the farm to the nearest market or first point of sale and market charges (if any) for selling the produce are, by definition, not included in the farm prices. (www.fao.org)

Yellow corn - Used generally as feed grains. It includes all types of corn other than white.

White corn - Type of corn used primarily for human consumption.

V. Dissemination of Results and Revision of Estimates

V.1. Dissemination of Results

The outputs from the PPS and CPS are disseminated through special release, bulletin, infographics, publication, and statistical table, as follows:

Statistical Product	Type of Statistical Product	Release Date
1. Updates on Palay and Corn Estimates	Special Release	15 days after the reference month
2. Seasonally Adjusted Palay/Rice Production and Prices	Special Release	40 days after the reference period
3. Palay and Corn Quarterly Bulletin	Bulletin	60 days after the reference period (except Q4) – 40 days after the reference period
4. Infographics for Palay and Corn	Infographics	60 days after the reference period (except Q4) – 40 days after the reference period
5. Palay Production in the Philippines	Annual Publication	10 months after the reference year
6. Corn Production in the Philippines	Annual Publication	10 months after the reference year
7. Crops Statistics of the Philippines	Annual Publication	9 months after the reference year

Statistical Product	Type of Statistical Product	Release Date
8. Palay and Corn: Volume of Production, Area Harvested and Farm Price, by Ecosystem/Crop Type, by Quarter, by Semester, by Region, and by Province	Statistical Tables	Annual and Quarter 4 – one month after the reference year Quarterly (except Q4) – 40 days after the reference period
9. Palay and Corn: Estimated Inorganic Fertilizer Use by Grade, by Geolocation, and by Year	Statistical Tables	9 months after the reference year

These outputs are publicly available at the PSA and OpenSTAT website:

a. Special Releases:

- <https://psa.gov.ph/statistics/crops/palay-rice-production-prices/index>
- <https://psa.gov.ph/statistics/crops/palay-and-corn-estimates/index>

b. Quarterly Bulletins:

- <https://psa.gov.ph/content/palay-and-corn-quarterly-bulletin>

c. Infographics:

- https://psa.gov.ph/infographics?field_sector_value=--Crops

d. Statistical Tables:

- https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB_2E_CS/?tablelist=true&rxid=bdf9d8da-96f1-4100-ae09-18cb3eaeb313

V.2. Revision of Estimates

The Crops Statistics Division follows the revision policy as stipulated in the PSA Board Resolution No. 1 Series of 2017 - 119 approving the revision of quarterly estimates on agricultural production, prices and related statistics to be limited to the immediately preceding quarter and for the past three years, with the quarterly breakdown to be done only during May of the current year.

VI. Citation

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