**TECHNICAL NOTES**

**Production Costs and Returns of Palay and Corn**

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| 1. **The Introduction**
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One of the important data sets that are highly demanded by the clientele and stakeholders is the costs and returns incurred in producing agricultural commodities. It has been gaining more attention because of its varied uses and applications for the policy analysts, national accounts compilers, farmers, and other entrepreneurs in the agricultural sector. They can use these data in selecting the most profitable set of crops to plant during a particular season.

The survey generates benchmark costs and returns structure and estimates. Meanwhile, for the non-survey years, costs and returns data are updated using the current levels of production and yield, and prices of inputs and outputs. The input structures are based on benchmarks generated by the Surveys on Costs and Returns (SCR) in 2013.

The Production Costs and Returns of Palay and Corn report contains updated costs of production for palay and corn at the national and regional levels. For palay, data are presented by ecosystem i.e., irrigated, and non-irrigated and disaggregated into dry and wet seasons. Corn is disaggregated only by crop type, i.e., yellow and white, and only one cropping season.

The complete cost structures and profitability measures are presented by nature of costs incurred i.e., cash costs, non-cash costs, and imputed costs.

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| 1. **Data Sources**
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| **Variable** | **Source** |
| **Volume of Production and Area Harvested for:**Palay and Corn  | PSA |
| CPI by items | PSA |
| Prevailing Investment Rates | BSP |
| Dealer’s Price of Fertilizer and Pesticide | FPA |
| Nominal Wage Rates | PSA |

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| 1. **Methodology**
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Data on the costs and returns are updated using a given set of assumptions and procedures. These are summarized in the following tables:

**III.1 Palay (Paddy Rice) and Corn (Maize)**

| **ITEM** | **BASIS/PROCEDURE** |
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| 1. Cost of seeds/planting materials |     movement of the farmgate price   |
|  (Cash, Non-cash and Imputed) |
| 2. Irrigation fee |
| 3. Lease rental |
| 4. Rental value of owned land |
| 5. Landlord's share  |
| 6. Harvester/thresher/sheller's share | - movement of the gross value of production per hectare |
| 7. Cost of fertilizer | - quantity used from the survey results multiplied by the current retail price of fertilizer by grade |
| 8. Cost of pesticides |   |
|  Solid | - movement of the retail price for selected pesticides |
|  Liquid | - quantity used from the survey results multiplied by the current retail price of pesticides |
| 9. Soil ameliorants | - movement of the retail price of fertilizer |
| 10. Cost of mulching materials | - movement of the retail price of fertilizer |
| 11. Labor costs (hired, unpaid  operator, family and exchange labor | - number of mandays from the survey results multiplied by the current agricultural wage rates |
| 12. Rentals: |   |
|  Land | - movement of the farmgate price |
|  Tools, equipment, machine and animals | - movement of agricultural wage rates |
| 13. Food cost | - movement of CPI for food |
| 14. Transport cost | - movement of CPI for transport |
| 15. Fuel and oil | - movement of CPI for fuel and oil |
| 16. Repair cost | - movement of CPI for minor repairs |
| 17. Electricity cost | - movement of CPI for light |
| 18. Interest on crop loans | - increase of 10.0 percent per annum |
| 19. Other production costs | - movement of CPI for all items |
| 20. Depreciation cost | - increase of 10.0 percent per annum |
| 21. Interest on operating capital | - based on Average Lending Rates from BSP |
| 22. Land tax | - increase of 1.0 percent per annum |

The measures of farm profitability are as follows:

* G𝑟𝑜𝑠𝑠 𝑅𝑒𝑡𝑢𝑟𝑛𝑠 = 𝑇𝑜𝑡𝑎𝑙 *production* 𝑥 𝐹𝑎𝑟𝑚𝑔𝑎𝑡𝑒 𝑝𝑟𝑖𝑐𝑒
* 𝑅𝑒𝑡𝑢𝑟𝑛𝑠 𝑎𝑏𝑜𝑣𝑒 𝑐𝑎𝑠ℎ 𝑐𝑜𝑠𝑡 = 𝐺𝑟𝑜𝑠𝑠 𝑟𝑒𝑡𝑢𝑟𝑛𝑠 − 𝐶𝑎𝑠ℎ 𝑐𝑜𝑠𝑡
* 𝑅𝑒𝑡𝑢𝑟𝑛𝑠 𝑎𝑏𝑜𝑣𝑒 𝑐𝑎𝑠ℎ 𝑎𝑛𝑑 𝑛𝑜𝑛 − 𝑐𝑎𝑠ℎ 𝑐𝑜𝑠𝑡 = 𝐺𝑟𝑜𝑠𝑠 𝑟𝑒𝑡𝑢𝑟𝑛𝑠 – (𝐶𝑎𝑠ℎ 𝑐𝑜𝑠𝑡 + 𝑁𝑜𝑛 + 𝑐𝑎𝑠ℎ 𝑐𝑜𝑠𝑡)
* 𝑇𝑜𝑡𝑎𝑙 𝐶𝑜𝑠𝑡 = 𝐶𝑎𝑠ℎ 𝑐𝑜𝑠𝑡 + 𝑁𝑜𝑛 − 𝑐𝑎𝑠ℎ 𝑐𝑜𝑠𝑡 + 𝐼𝑚𝑝𝑢𝑡𝑒𝑑 𝑐𝑜𝑠*t*
* 𝑁𝑒𝑡 𝑅𝑒𝑡𝑢𝑟𝑛𝑠 = 𝐺𝑟𝑜𝑠𝑠 𝑟𝑒𝑡𝑢𝑟𝑛𝑠 − 𝑇𝑜𝑡𝑎𝑙 𝑐𝑜𝑠𝑡
* 𝑁𝑒𝑡 𝑝𝑟𝑜𝑓𝑖𝑡 - 𝐶𝑜𝑠𝑡 𝑟𝑎𝑡𝑖𝑜 = 𝑁𝑒𝑡 𝑟𝑒𝑡𝑢𝑟𝑛𝑠 /𝑇𝑜𝑡𝑎𝑙 𝑐𝑜𝑠𝑡

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| 1. **Concepts and Definition of Terms**
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***Cost Classification***

**Cash Costs** – are direct cash outlays or cash payments for the use of different factors of production such as labor, fertilizers, and chemicals.

**Non-Cash Costs** – are expenditures that are paid in kind. Valuation of cost items makes use of the prevailing prices in the community. Generally, these non-cash costs represent the portions of the farmer's production that serve as payments for the use of particular factors of production.

**Imputed Costs** – are expenditures that do not involve actual outlays in cash or in kind; they represent the opportunity costs of using owned resources in a particular activity and are computed using the values of the best alternative uses foregone.

**Total Costs** – refer to the sum of cash costs, non–cash costs, and imputed costs.

***Indicators of Profitability***

**Gross Returns** – refer to the gross value of production. It is derived by multiplying the total volume of production by the farmgate or producer price.

**Returns Above Cash Costs** – returns after deducting the total cash outlays from the total value of production.

**Returns Above Cash and Non-Cash Costs** – returns after subtracting the cash and non-cash costs from the total value of production.

**Net Returns** – refers to the net profit after subtracting all expenses incurred from the total value of production.

**Net Profit-Cost Ratio** – determines the rate of return to the farmers (the amount earned by the farmer for every peso spent in the production).

**Return on Investments** – measures the amount of return on an investment, relative to the investment costs. The result is expressed in percentage.

***Specific Cost Items***

**Seeds/Planting materials** – are plant materials used for sowing purposes for the production of food, fodder, oil, industrial crops, vegetable, fruit flower, lawn, and tree crops and include vegetative parts and/or organs used for propagating the crops/species.

**Fertilizers** – refer to any substance, solid or liquid, inorganic or organic, natural or synthetic, single or combination of materials, that is applied to the soil or on the plant to provide one or more of the essential elements to improve plant nutrition, growth, yield or quality, or for promoting a chemical change that enhances plant nutrition and growth.

**Soil ameliorants** – are elements placed or mixed into the soil to replenish depleted soil nutrients for better plant growth.

**Pesticides** – refer to chemicals used to control/eradicate insects, pests, and weeds.

***Paid Labor***

**Hired labor** – is labor provided by a person who is paid by the farm operator. Payment of wages is either *in cash or in kind* (as agreed). Hired labor includes a man, eventually in combination with an animal or machine in the case of custom services (wages as well as in-kind payments have to be considered).

***Unpaid Labor***

**Operator labor** – is labor contributed by the farm operator.

**Family labor** – is labor provided by the farmer's family members who take part in any production activities.

**Exchange labor** – is work done by farm laborers in exchange (or as payment) for the work done by the farm operator and family members outside the operator’s own farm.

*Mandays of unpaid labor are valued at prevailing wage rate in the locality.*

**Land tax** – is amount of tax paid by the owner-operator for the farm land.

**Rentals** – refer to payments for the use of land, machine, animal, tools and farm machineries.

**Fuel and Oil** – refer to the cost incurred for the use of gasoline, oil, and other related inputs.

**Transport costs of inputs** – are expenditures incurred in transporting farm inputs to the production sites.

**Irrigation fee** – payment for irrigation services utilized.

**Interest payment on crop loan** – refers to payment for the interest on borrowed capital used in the farm operations.

**Landlord’s/Landowner’s share** – is the portion of farmer’s production that goes to the owner of farmland based on the agreed sharing arrangement. The valuation is based on the price at which the produce is sold or would be sold in the market.

**Repairs** – cover all repairs and improvements made on tools and equipment and other facilities used in the production process.

**Food expenses** – expenditures incurred in providing food to exchange and hired laborers.

**Harvesters’/Shellers’ share** – refers to the portion of farmer’s production that serves as payment to farm laborers who perform the harvesting and/or shelling activities.

**Depreciation** – refers to the cost of wear and tear of farm tools and equipment, machinery, and other farm facilities and structures. It is computed as cost of acquisition divided by the estimated lifespan of farm equipment.

**Interest on operating capital** – is the cost of capital foregone for the purchase of seeds, fertilizers, chemicals, and payment of wages for hired labor. This is derived by multiplying the total cash outlays by the prevailing lending rates from the Bangko Sentral ng Pilipinas (BSP).

**Rental value of owned land/animal** – is the imputed cost for the use of own farmland or animal which is derived by asking the farmer how much would be the annual value of the land or value of the animal per cropping if it will be rented out.

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| 1. **Dissemination of Results**
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| **Title** | **Schedule of Release** |
| Production Costs and Returns of Palay and Corn | September of the Current Year |

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| 1. **Citation**
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Philippine Statistics Authority. (2022). *Technical Notes on Production Costs and Returns of Palay and Corn*. https://psa.gov.ph/technical-notes/­­­\_\_\_\_\_\_\_

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