

# Producer Price Index – Agriculture (PPI-A)

## Fourth quarter 2021

(Base period year 2013 = 100)

### 1. Introduction

The Producer Price Index-Agriculture (PPI-A) gives a measure of the average change in the selling prices which producers receive for their agricultural products.

This issue of the Economic and Social Indicators presents monthly PPI-A indices for the months of October, November and December 2021 as well as figures for preceding months updated in the light of additional information that have now become available. Monthly weights by commodity group and product are given in Table 12.

The methodology for the computation of PPI-A is annexed.

### 2. Producer Price Index - Agriculture: Fourth Quarter 2021

#### 2.1 Structure of PPI-A (Base period: 2013=100)

PPI-A covers two sub-groups, namely: "Crop products" and "Animals and animal products". "Crop products" is further subdivided into "Sugar cane" and "Other crop products". Sugar cane heavily influences both the "overall" index and that of sub-group "Crop products", of which it constitutes 35.7% and 58.3% of the respective weights.

#### 2.2 Changes in the monthly index

Fig 1: Overall monthly indices, January 2021 –December 2021

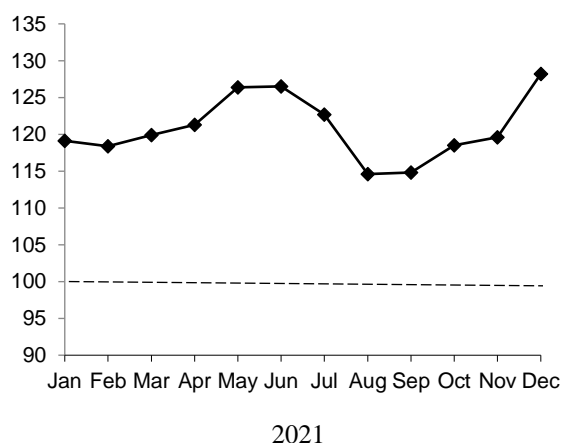


Figure 1 shows the monthly evolution of PPI-A for the period January 2021 to December 2021.

PPI-A, which was 114.8 in September 2021, increased by 11.7% to reach 128.2 in December 2021. The monthly increases were as follows: October (+3.2%), November (+0.9%) and December (+7.2%).

The index for the sub-group "Crop products", which carries 61.2% of the total weight, increased by 5.1%, 0.5% and 7.1% in October, November and December respectively.

#### 2.2.1 Sugar cane

The index for the period July to December 2021 was 94.8 based on the forecast for the crop year 2021-2022. This represents an increase of 6.8% over the 2020 crop year.

#### 2.2.2 Other crop products

The index for "Other crop products" increased by 9.4% in October, mainly due to increases in the prices of fresh vegetables (tomato, creepers and cabbage) (+15.3%) and, fruits and nuts (+7.9%), partly offset by decreases in the prices of oilseeds and oleaginous fruits (groundnut) (-5.8%) and, stimulant and spices (ginger) (-2.2%).

In November, the index increased by 0.8%, mainly due to increases in the prices of fruits and nuts (+15.8%), partly offset by decreases in the prices of fresh vegetables (creepers, brinjal, beans and other fresh vegetables) (-8.0%).

In December, the index rose by 12.6%, mainly due to increases in the prices of fruits and nuts (+19.2%) and fresh vegetables (creepers, carrot, brinjal and cabbage) (+12.3%).

#### 2.2.3 Animals and animal products

The index for the sub-group "Animals and animal products" which was 106.4 in September 2021, decreased by 0.3% to reach 106.1 in October 2021 mainly due to decreases in the prices of poultry (-0.4%) and pigs (-2.4%), partly mitigated by increases of 0.5% in the prices of eggs.

In November, the index increased by 1.8%, mainly due to increases in the prices of eggs (+11.4%).

In December, the index rose by 7.5%, mainly due to increases in the prices of poultry (+8.5%), and eggs (+10.3%).

More details of changes on a month-to-month basis are given in Table 5 and changes over the corresponding month of the previous year in Table 6.

### 2.3 Changes in the quarterly index

Fig 2: Overall quarterly indices, 1<sup>st</sup> quarter 2020 – 4<sup>th</sup> quarter 2021

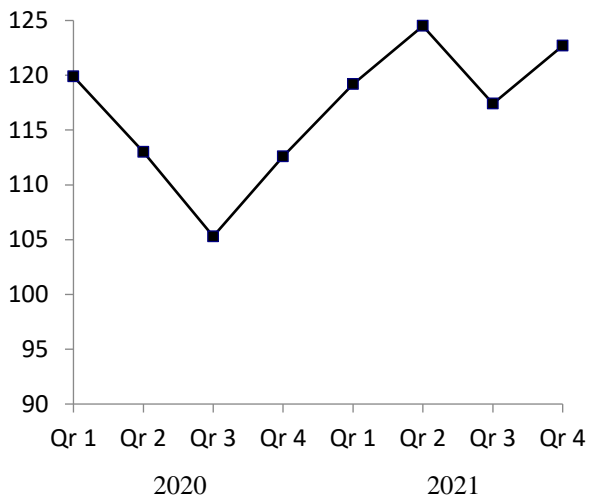


Figure 2 and Table 7 show the movement of quarterly PPI-A covering the period of 1<sup>st</sup> Quarter 2020 to 4<sup>th</sup> Quarter 2021.

The overall index for the fourth quarter of 2021 increased by 4.5% when compared to the previous quarter and by 9.0% when compared to the corresponding quarter. Percentage changes on a quarterly basis and the net contributions of commodity groups and products to the overall index are given in Table 8.

### 2.4 Changes in the yearly index

Average prices which producers received from the sale of agricultural products in the year 2021 were 7.9% higher compared to the year 2020. The annual indices for the years 2019 - 2021, annual changes and the net contributions of commodity groups and products to the change are presented in Table 9.

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**ANNEX****Producer Price Index – Agriculture (PPI-A)****Methodology for the computation of PPI-A****1. Introduction**

The analysis of price data implies comparison of current and past prices. Comparison over time is required to study the price movement in order to understand the history and to indicate future outlook. While price relatives of single commodities can be studied in isolation, general conclusion can only be derived from averages, covering a given set or class of commodities. The indicators of average price changes are the price indices.

**2. Scope**

The PPI-A covers agricultural products that are classified according to the latest Central Product Classification (CPC) Ver.2.1. There are two divisions: Division 01 - Crop Products and Division 02 - Animals & Animal Products. “Crop Products” is further divided into 7 Commodity Groups namely:

Group 012: Fresh vegetables

Group 013: Fruit and nuts

Group 014: Oilseeds and oleaginous fruits

Group 015: Edible roots and tubers

Group 016: Stimulant and spice

Group 018: Sugar cane

Group 019: Flowers, ornamental plants

**3. Commodity Coverage**

The bulk of the products in agriculture, with the exception of forestry, fishing and agricultural services, is taken into account in the producer price index. Thus, about 79% of the total value of agricultural production is covered.

**4. Observation Units**

There are essentially three types of observation units for collecting producer prices: (i) producers (ii) purchasers and (iii) markets. However, in the context of Mauritius, different types of observation units are used for different commodities as shown below:

(a) For main commercial crops (sugar cane and tea leaf etc.) the respective marketing agency is the source of the price data.

(b) For vegetables, price data are obtained mainly at the two auction markets which are situated at Vacoas and Port Louis respectively.

(c) For fruits, prices are recorded from different sources such as planters and first middlemen.

(d) For animals and animal products, price data are available at sources varying from marketing agencies to producers.

## **5. Definition of prices**

A price is a pure price when the same amount of money refers to what the buyer pays and what the seller receives. Since the price series form the basis for calculation, the index of the output prices must be representative of what the farmer actually receives.

The prices must be recorded at a point in the marketing of the product which is as close as possible to the farmer. This means that the selling prices should be recorded at the farm-gate or (if this is not possible) at the next stage of the commodity flow.

## **6. Purpose of the agricultural price indices**

The purpose of the price indices is to provide information on trends in producer prices of agricultural products and purchase prices of the means of agricultural production.

The selling prices of agricultural products and the purchase of the means of production have a decisive influence on farmer's income. It would, therefore, be useful to have indicators showing how agricultural revenue and expenditure are influenced by their price component.

The agricultural price indicators are of two types: -

- (i) Prices received by farmers represent the producer prices of agricultural products (output prices)
- (ii) Prices paid by farmers are the purchase prices of agricultural requisites (input prices)

The two classes of prices mentioned above, are considered important in the context of economic analysis and agricultural policy decisions. Index numbers based on them show the average changes of these prices.

It is to be noted that only the output price index for different groups of commodities is compiled.

## **7. Price received by agricultural producers**

As mentioned earlier, the prices for the index should be farm-gate prices, but this is not possible in many cases. Hence, in lieu of the farm-gate price, the wholesale price of the produce is recorded at the two auction markets located in Vacoas and Port Louis.

As regards sugarcane, there is no actual market price for the product. The final price for a crop is only available after the crop year to which it refers. Provisional estimates of the price of sugar is provided by Mauritius Sugar Syndicate. This is however revised as soon as the final price is available. The same procedure is applied to tea.

## 8. Frequency of Price Collection

The frequency of price collection varies from weekly for some commodities to only once a year in others. Broadly speaking, the frequency of price collection is as follows: -

- (i) For vegetables, price data are collected every second and fourth week of a month at the two auction markets
- (ii) For commodities for which prices are fairly stable, data suppliers are visited on a quarterly basis, but prices are collected for each month of the quarter. For example, crop products – potato, onion etc.
- (iii) For the main commercial crops like sugar cane and tea leaf, the reported prices are normally fixed for the crop year by the respective marketing agency.
- (iv) For the remaining type of items not mentioned above, the price data are collected on a monthly basis.

## 9. Weighting scheme and choice of the base period

As price data are associated with commercial transaction, it is logical to relate prices to sales rather than total production. However, since value of production for the market (sales) is not available here, the value of the total production is considered as a proxy in calculation of weights. Furthermore, since meteorological conditions and market forces may generate high fluctuations, the weight base is taken as the average of the total production for three years.

It may be noted that ‘Food and Agriculture Organisation’ and ‘Eurostat’ recommend that if the quantity weight base is the average of 3 years, then the reference base for prices should be the middle year. The weights are derived by multiplying the average of production during the years 2012, 2013 and 2014 by the average of unit prices in 2013, the reference period. The weight is assigned to each commodity group on the basis of total production (as a proxy for sales) pertaining to the particular group. At commodity level, the weights are apportioned within the commodity group on the basis of production of each product.

Quarterly and annual indices have been computed using a weighting system based on the production value for the base period.

## 10. Index calculation

The PPI will be calculated according to a Laspeyres formula:

$$I_t = \frac{\sum W_i (P_{ti}/P_{oi})}{\sum W_i} \times 100$$

Where:

- I<sub>t</sub>** is the index for the current period t  
**P<sub>ti</sub>** is the price of commodity i in the current period t  
**P<sub>oi</sub>** is the price of the commodity i in the reference period o (2013)  
**W<sub>i</sub>** is the weight associated with commodity i

The prices of commodity i, whenever there is more than one quote as in the case of wholesale price at the two auction markets, are averaged using geometric mean.

## 11. Uses of agricultural price indices

The construction of agricultural price index numbers may serve various purposes as shown below: -

- (i) Economic analysis, in particular the estimation of general price trends and their relationship with other pertinent variable, e.g. the study of domestic price changes in relation to prices observed in external markets or the movement of agricultural production.
- (ii) Monitoring the implementation of agricultural price policy decision such as the introduction or modification of support prices
- (iii) Forecasting price movements in connection with market studies or business cycle research.
- (iv) Compilation of national accounts at constant prices. In order to estimate the growth of the real product of the agricultural sector, deflator indices are needed. They are appropriately weighted indices of agricultural commodities or input items.

## 12. Seasonality

Prices and quantities of many agricultural commodities show seasonal variations. As vegetables and fruits are extremely seasonal products, it is therefore decided to use the method of variable baskets with fixed monthly weights in the base year.

There are 12 monthly baskets of representative products. The composition of these baskets varies each month. Certain products whose marketing period covers the whole year appear in all 12 monthly baskets, while others, which are more seasonal, appear only in some of them. However, the composition of the basket for a given month is fixed over time.

## 13. Missing Prices

There is also in the field of agricultural price observation the case of missing prices for a product which must be taken into account because there is an index weight for respective month. In these cases, imputation is carried out as per International Recommendations.

## 14. Periodicity

The index is calculated on a monthly, quarterly as well as on an annual basis. While quarterly and annual price indices can normally be calculated as the simple (unweighted) average of the monthly indices, it is recommended that the monthly sales figures for the base year be used as weights to calculate the quarterly and annual indices. If sales figures are not available, total production can be used as a proxy when most of the production is available for sales. Such is the case in Mauritius and the values of total production have been used as weights.