AGRICULTURAL INDICATORS SYSTEM (AIS)

FOOD SUFFICIENCY AND SECURITY

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FOREWORD

The Agricultural Indicators System (AIS) is one of the statistical indicator frameworks maintained by the Philippine Statistics Authority (PSA). AIS has twelve (12) modules which are updated and released annually. This is the fifth module entitled Food Sufficiency and Security. It provides information on self-sufficiency ratio and import dependency ratio of selected major agricultural commodities and data on rice and corn stocks. The reference years are 2013 to 2017.

The AIS hopes to cover more agricultural development indicators to support the information needs of our data users. We encourage the readers to give their comments and suggestions on the improvement of the AIS, in general, and this report, in particular.

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FOOD SUFFICIENCY AND SECURITY

Self-Sufficiency Ratio

Self-sufficiency ratio (SSR) shows the magnitude of production in relation to domestic utilization. It is the extent to which a country's supply of commodities is derived from its own domestic production. A ratio of less than 100 percent indicates inadequacy of food production to cope with the demand of the population; equal to 100 percent indicates that food production capacity of the sector is just enough to support the food needs of the population; ratio of greater than 100 percent indicates that domestic production is more than enough to support the domestic requirements. The higher the ratio, the greater the self-sufficiency.

In 2017, the country's self-sufficiency ratio (SSR) of rice decreased to 93.44 percent from the previous year's ratio of 95.01 percent. This indicates that 93.44 percent of the domestic supply of rice came from its own production. The decline in the SSR of rice was attributed to the reduced share of domestic production to the country's supply while the share of rice imports increased. On the other hand, self-sufficiency ratio of corn went up to 94.34 percent as compared with the 2016 record of 89.96 percent. This resulted from an increase in domestic production and reduction in the import level. Sufficiency in production was maintained for coconut and sugarcane. Self-sufficiency ratio of coffee in 2017 rose to 44.32 percent from 31.89 percent in 2016.

Adequacy in production was continuously reported for calamansi, papaya and pomelo. For vegetables and rootcrops, continued sufficiency in production was noted in tomato, cabbage, eggplant, cassava and sweet potato with ratios ranging from 100.0 percent to 100.5 percent. Meanwhile, self-sufficiency was still far to be realized for garlic, peanut and mongo. Their respective SSRs in 2017 dropped to 10.34 percent, 25.10 percent and 49.28 percent caused by the decreased share of production to total supply. Onion improved as its SSR went up to 84.61 percent in 2017 as compared with the 47.65 percent in 2016. For potato, SSR was figured at 85.31 percent.

Among the livestock and poultry products, adequacy in production was sustained for chevon and chicken egg. Duck (dressed) was almost near to reach self-sufficiency at a ratio of 99.45 percent in 2017. Declining SSRs were observed for beef, carabeef and pork at 64.30 percent, 67.34 percent and 87.44 percent, respectively. SSR of chicken (dressed) improved to 96.96 percent from 84.67 percent in 2016.

Sufficiency in production continued for the fishery products such as milkfish, shrimps and prawns, crabs and oyster. SSR of crabs at 139.97 percent remained the highest in 2017. SSRs of roundscad and tilapia were down to 98.57 percent and 99.93 percent, respectively. Tuna production remained inadequate as its ratio slightly dropped to 83.38 percent (Table 1).

Import Dependency Ratio

Import dependency ratio (IDR) indicates the extent to which a country's supply of commodities came from imports. A high ratio implies greater dependency on importation.

The country's import dependency ratio (IDR) of rice slightly went up to 6.56 percent in 2017 as compared with the 2016 record of 4.99 percent. This means that 6.56 percent of the available domestic supply of rice came from imports. In contrast, there was a decrease in the IDR of corn at 5.66 percent in 2017 from previous year's ratio at 10.04 percent.

Coffee imports declined and its IDR dropped to 55.68 percent in 2017. Similarly, onion recorded a reduction in importation with IDR at 15.64 percent. Higher and increasing importation was reported for garlic, peanut and mongo with IDRs moved up to 89.66 percent, 75.05 percent and 50.75 percent, respectively. In contrast, minimal importation was noted for potato which posted IDR at 14.69 percent.

Higher dependency on importation was still observed for beef, carabeef and pork. Their corresponding IDRs increased to 35.70 percent, 32.66 percent and 12.57 percent. IDR of chicken (dressed) slowed down to 3.06 percent in 2017 from the 2016's 15.48 percent. Likewise, IDR of duck (dressed) declined to 0.55 percent in 2017.

Except for tuna with IDR of 22.43 percent, there was low importation of fishery products relative to production with IDRs ranging from 0.03 percent for oyster to 8.39 percent for shrimps and prawns (Table 2).

Cereals Stocks

Information on supply condition is vital to be able to maintain food balance. The occurrence of typhoons and other calamities as well as volatile grains market structures necessitate the need to monitor stocks situation of the staple grains. This is to ensure supply and demand equilibrium, access and price stability. Information on monthly stockholdings can guide policy makers on how much and whether to export or import rice or corn in the future.

In 2017, the peak month of rice stocking was still recorded in May with total inventory of 3.21 million metric tons. Of the total rice stocks, households accounted for the highest share at 46.4 percent, followed by commercial warehouses at 45.2 percent. The remaining 8.4 percent share was held in the National Food Authority (NFA) depositories. On the other hand, the lowest rice stock inventory level was consistently reported in September at 1.42 million metric tons. Households comprised the biggest share of the rice stocks at 48.4 percent while the commercial warehouses contributed 47.0 percent. About 4.6 percent came from NFA depositories (Table 3a and Table 3b).

In the case of corn, the biggest volume of stocks in 2017 was observed in May at 1.56 million metric tons. Commercial warehouses kept the biggest volume at 93.0 percent of the total corn stocks. Household stocks comprised 6.6 percent while the remaining 0.4 percent was with the NFA holdings. In contrast, January was the lean month of corn stocking with a total inventory at 0.38 million metric tons in 2017. Commercial warehouses and household stocks accounted for 53.9 percent and 45.8 percent, respectively, of the total corn stocks. NFA had a share of only 0.3 percent (Table 4a and Table 4b).

Table 1.
Self-sufficiency ratio (SSR) of selected agricultural commodities,
Philippines, 2013-2017
(in percent)

COMMODITY	2013	2014	2015	2016	2017
Rice	96.82	91.95	88.93	95.01	93.44
Corn	95.57	93.12	91.35	89.96	94.34
Coconut	100.02	100.01	100.02	100.04	100.01
Sugarcane	100.00	100.00	100.00	100.00	100.00
Coffee	46.79	71.91	33.04	31.89	44.32
Calamansi	100.02	100.03	100.03	100.05	100.06
Papaya	103.69	103.05	101.07	100.99	101.37
Pomelo	100.00	100.15	100.15	99.99	100.00
Tomato	100.00	100.00	99.97	100.00	100.00
Garlic	71.92	23.30	12.96	11.03	10.34
Onion	96.36	96.10	84.48	47.65	84.61
Cabbage	100.00	100.00	100.00	100.00	100.00
Eggplant	100.00	100.00	100.00	100.00	100.00
Peanut	45.43	30.52	28.43	27.52	25.10
Mongo	49.08	52.85	52.23	52.15	49.28
Cassava	99.38	99.66	100.02	100.02	100.05
Sweet potato	100.00	100.00	100.00	100.00	100.00
Potato	96.43	94.70	85.54	85.23	85.31
Beef	75.03	70.00	70.83	67.27	64.30
Carabeef	75.04	68.04	66.26	68.52	67.34
Pork	91.81	89.39	89.78	89.36	87.44
Chevon	99.99	99.94	100.00	100.00	100.00
Chicken (dressed)	92.82	88.44	87.25	84.67	96.96
Duck (dressed)	99.62	98.82	99.09	99.23	99.45
Chicken egg	99.99	100.00	100.00	100.00	100.00
Milkfish	100.91	100.83	100.80	100.83	100.60
Roundscad	100.00	99.99	99.93	99.64	98.57
Tilapia	101.69	100.63	100.04	100.01	99.93
Tuna	93.45	90.99	81.61	83.91	83.38
Shrimps & Prawns	107.09	111.02	103.98	107.02	113.14
Crabs	135.64	124.12	120.97	127.82	139.97
Oyster	100.32	101.95	101.14	100.23	101.37

Source of basic data: Philippine Statistics Authority

$$\text{SSR} = \frac{\text{production}}{\text{production} + \text{import} - \text{export}} \times 100\%$$

Table 2.
Import dependency ratio (IDR) of selected agricultural commodities, Philippines, 2013-2017
(in percent)

COMMODITY	2013	2014	2015	2016	2017
Rice	3.20	8.06	11.07	4.99	6.56
Corn	4.43	6.89	8.65	10.04	5.66
Coconut	-	-	-	-	a/
Sugarcane	-	-	-	-	a/
Coffee	53.42	28.10	66.96	68.12	55.68
Calamansi	-	-	-	-	-
Papaya	-	-	-	-	-
Pomelo	-	-	-	0.01	-
Tomato	a/	a/	0.03	-	-
Garlic	28.13	76.93	87.14	89.08	89.66
Onion	6.11	4.27	15.95	52.59	15.64
Cabbage	-	-	-	a/	-
Eggplant	-	-	-	-	-
Peanut	54.57	69.51	71.64	72.48	75.05
Mongo	50.96	47.23	47.77	47.85	50.75
Cassava	0.67	0.41	-	a/	-
Sweet potato	-	-	a/	a/	a/
Potato	3.57	5.30	14.46	14.78	14.69
Beef	24.99	30.02	29.18	32.73	35.70
Carabeef	24.98	31.96	33.74	31.48	32.66
Pork	8.24	10.62	10.22	10.64	12.57
Chevon	0.01	0.06	-	-	-
Chicken (dressed)	7.65	12.17	13.00	15.48	3.06
Duck (dressed)	0.38	1.46	1.01	0.88	0.55
Chicken egg	a/	-	-	-	-
Milkfish	0.11	0.03	0.03	a/	0.11
Roundscad	0.07	0.07	0.15	0.39	1.48
Tilapia	0.01	-	0.01	0.01	0.08
Tuna	11.59	14.50	22.52	21.19	22.43
Shrimps & Prawns	4.69	5.29	4.62	5.69	8.39
Crabs	0.12	0.16	0.05	0.42	0.25
Oyster	0.02	a/	0.03	0.02	0.03

a/ - less than 0.01 percent

$$\text{IDR} = \frac{\text{import}}{\text{production} + \text{import} - \text{export}} \times 100\%$$

Table 3a.
Stocks of rice: Highest and lowest levels and percentage shares of households, commercial warehouses and NFA, Philippines, 2013-2017

ITEM	2013	2014	2015	2016	2017
Month	May	December	December	May	May
Quantity ('000 MT)	2,614.4	3,031.5	3,441.4	3,689.4	3,214.2
Percent share					
Households	46.0	51.7	47.8	40.0	46.4
Commercial	30.6	32.3	28.4	28.3	45.2
NFA	23.4	16.0	23.8	31.7	8.4
Month	September	September	September	September	September
Quantity ('000 MT)	1,530.3	1,488.7	1,955.5	1,775.8	1,422.8
Percent share					
Households	35.0	40.1	29.2	35.4	48.4
Commercial	32.6	29.5	29.7	29.4	47.0
NFA	32.4	30.4	41.1	35.2	4.6

Sources of basic data: Philippine Statistics Authority and National Food Authority

Table 3b.

Total stock of rice by month, Philippines, 2013-2017

(in '000 metric tons)

MONTH	2013	2014	2015	2016	2017
January	2,524.2	2,125.5	2,662.1	3,198.8	2,765.1
February	2,023.6	2,003.8	2,350.6	2,942.8	2,296.3
March	1,938.6	1,784.8	2,265.5	2,674.2	2,176.2
April	2,327.6	2,182.5	2,542.7	3,359.0	2,675.5
May	2,614.4	2,520.2	3,167.3	3,689.4	3,214.2
June	2,313.5	2,306.2	3,019.4	3,235.3	2,572.9
July	2,194.1	2,025.0	2,568.2	2,733.6	2,347.9
August	1,859.5	1,721.8	2,244.4	2,103.2	2,028.0
September	1,530.3	1,488.7	1,955.5	1,775.8	1,422.8
October	1,771.3	1,805.3	2,196.2	2,286.6	1,935.9
November	2,438.7	2,952.7	3,107.3	3,302.3	2,958.7
December	2,492.9	3,031.5	3,441.4	3,339.0	2,849.4

Source of basic data: Philippine Statistics Authority

Table 4a.
Stocks of corn: Highest and lowest levels and percentage shares of households, commercial warehouses and NFA, Philippines, 2013-2017

ITEM	2013	2014	2015	2016	2017
Month	April	October	October	November	May
Quantity ('000 MT)	299.1	408.3	420.7	604.8	1,556.5
Percent share					
Households	40.1	69.2	43.4	30.2	6.6
Commercial	59.8	30.3	56.4	69.7	93.0
NFA	0.1	0.5	0.2	0.1	0.4
Month	July	July	January	July	January
Quantity ('000 MT)	123.2	161.8	184.0	215.9	382.1
Percent share					
Households	34.5	33.4	46.2	22.0	45.8
Commercial	62.9	63.0	52.9	77.8	53.9
NFA	2.6	3.6	0.9	0.2	0.3

Sources of basic data: Philippine Statistics Authority and National Food Authority

Table 4b.

Total stock of corn by month, Philippines, 2013-2017

(in '000 metric tons)

MONTH	2013	2014	2015	2016	2017
January	161.3	168.8	184.0	387.0	382.1
February	150.5	215.9	252.8	311.7	439.6
March	188.2	267.8	186.6	302.4	1,078.3
April	299.1	368.7	340.2	365.1	1,146.8
May	230.8	268.1	223.3	517.2	1,556.5
June	139.5	188.5	207.2	327.5	978.9
July	123.2	161.8	275.4	215.9	683.6
August	141.8	256.3	313.3	336.5	696.5
September	267.4	280.0	329.0	380.6	1,422.2
October	217.4	408.3	420.7	543.9	1,368.9
November	183.1	239.5	298.2	604.8	603.3
December	189.4	216.0	265.2	370.0	536.6

Source of basic data: Philippine Statistics Authority

MODULES OF THE AGRICULTURAL INDICATORS SYSTEM

1. Output and Productivity

2. Agricultural Structure and Resources

3. Economic Growth: Agriculture

4. Agricultural Exports and Imports

5. **Food Sufficiency and Security**

6. Food Consumption and Nutrition

7. Population and Labor Force

8. Redistribution of Land

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10. Prices and Marketing of Agricultural Commodities

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