

# FOOD SECURITY: Vegetable Sufficiency and Affordability

November 2019

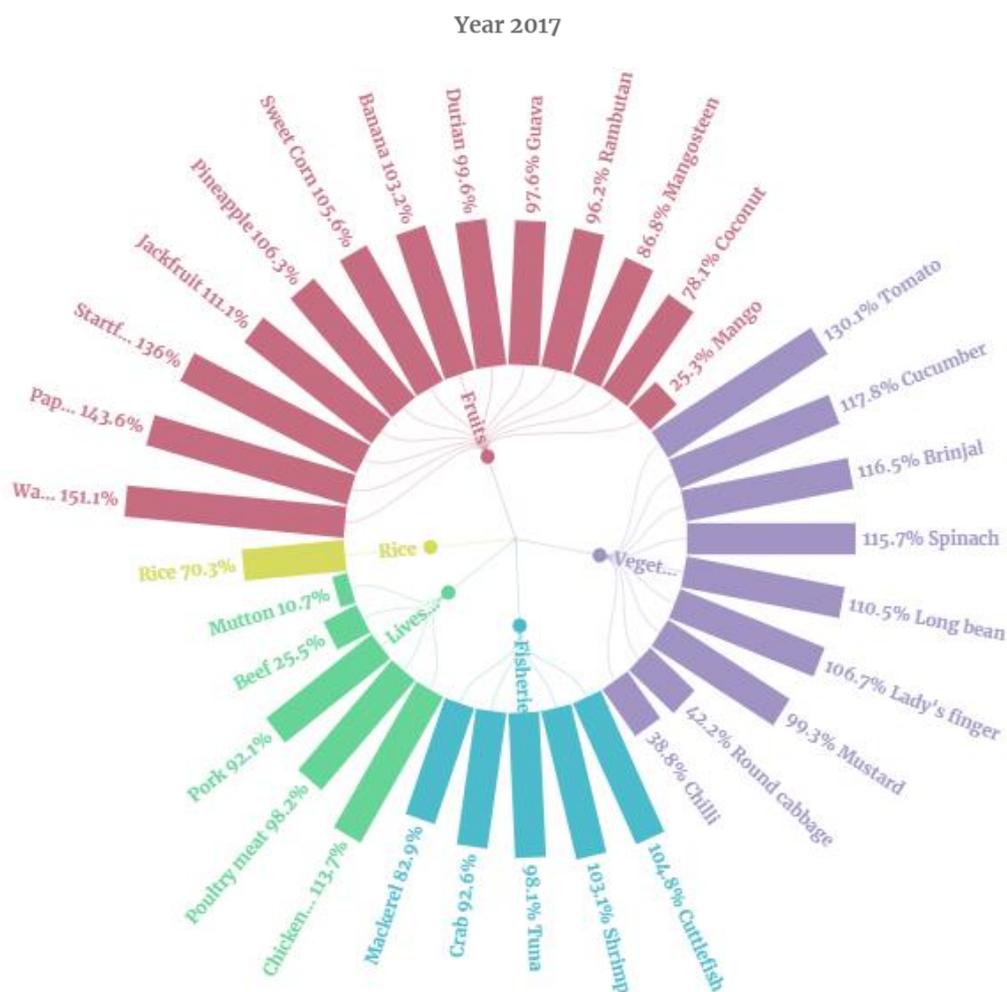
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## Introduction

By 2050, the world’s demand for food will be 60% greater than it is today.<sup>1</sup> To meet the demands of the growing population while conserving resources for future generations, the quest for food sustainability and security has taken central stage in the global spotlight. On the global scale, Malaysia is 42<sup>nd</sup> out of 113 nations in the Global Food Security Index (GFSI) 2018, deemed favourable by The Economist Intelligence Unit. However, the rank in GFSI is a decline from previously 35<sup>th</sup> place in 2016.<sup>2</sup>

As an indicator on the extent to which the nation relies on its own production, Malaysia’s self-sufficiency ratio (SSR) was at a satisfactory rate. 16 from 33 selected agricultural commodities such as tomato, cucumber and watermelon recorded an SSR of more than 100% in 2017.<sup>3</sup>

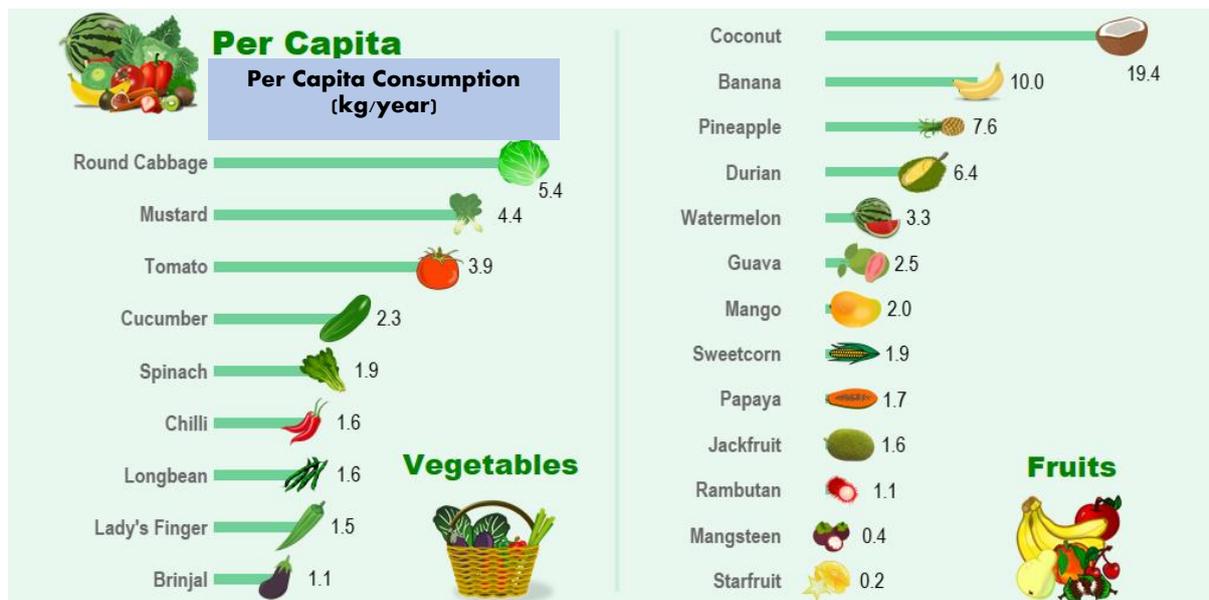
### Self-Sufficiency Ratio of Agricultural Commodities



Source: Department of Statistics

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Most of the selected fruits and vegetables have an SSR value above 70% except for mango, chilli and round cabbage. The low self-sufficiency ratio of round cabbage reflects the unmet demand as it is the most consumed vegetable in the nation. Malaysians consume around 5.4kg round cabbage per person a year. Coconut, the most highly consumed fruit in the nation also reported a self-sufficiency ratio of less than 100%.



Source: Department of Statistics

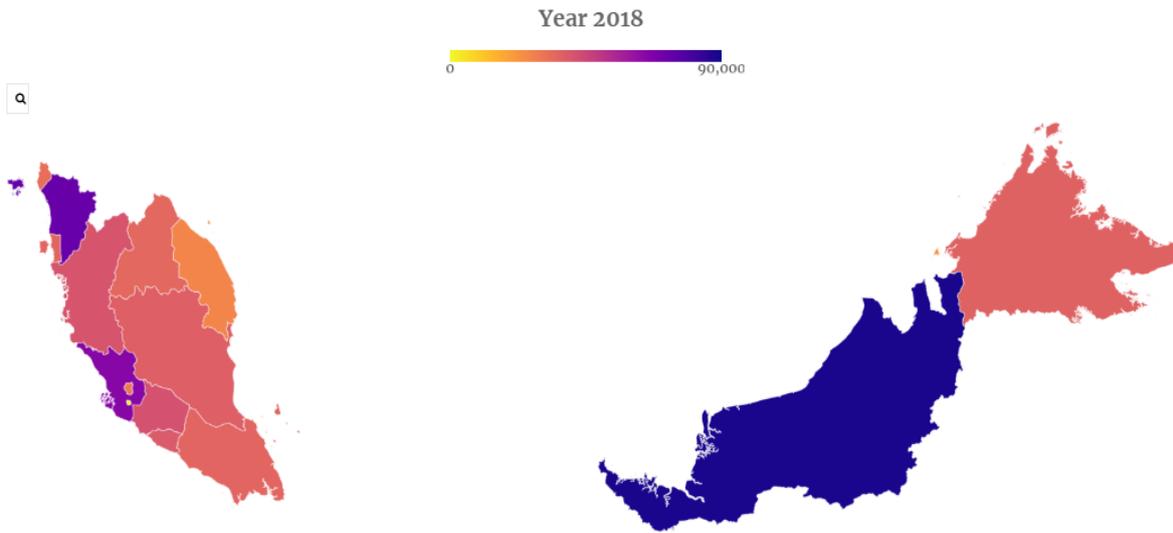
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## From Farm to Table

While self-sufficiency largely depends on availability, pricing information may also serve as a useful indicator on the reachability of green produce to consumer. The existence of a systemised marketing outlet such as wet market through government initiative, serves to support direct selling by farmers. This reduces the distribution cost of agricultural products, prevents exploitation from middlemen and allows farmers to market their produce at retail price.

Part of the initiative include an establishment of a price monitoring website that allows farmers and consumers to compare market prices at each distribution level. Through daily surveys of commodities' prices at the farm, wholesale and retail level, the price dynamics throughout the year offer a glimpse on the state of agricultural commodities of the nation. The frequency of pricing survey by state is as shown.

### Frequency of Pricing Survey by State

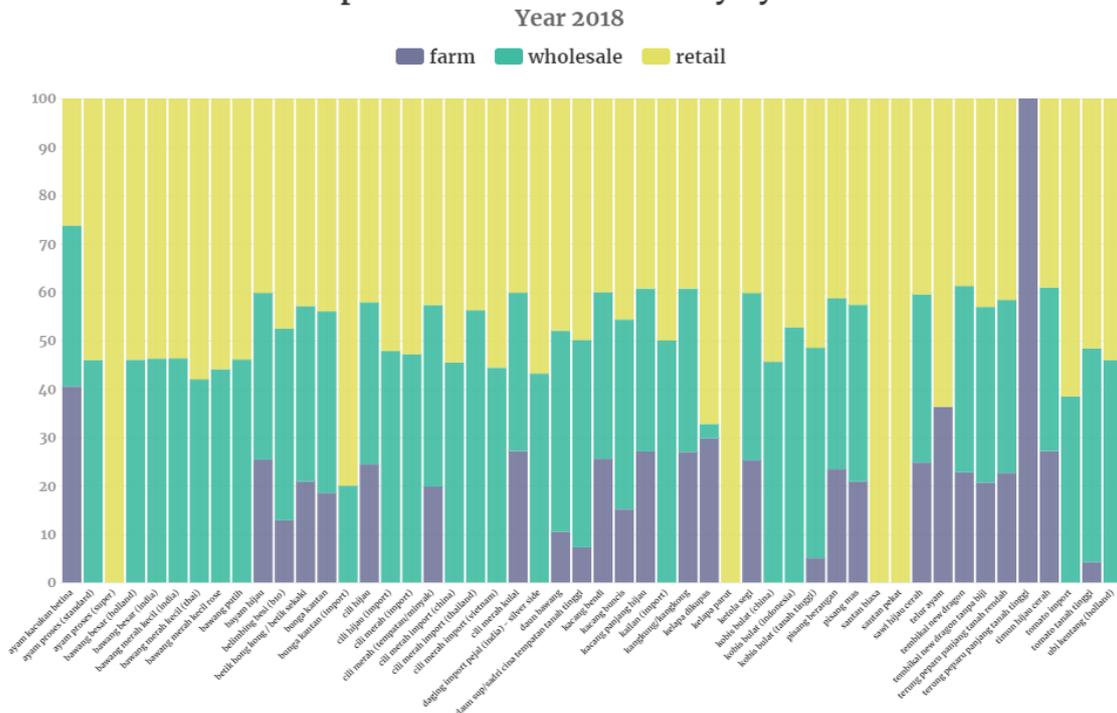


Source: Federal Agricultural Marketing Authority

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The agricultural commodities listed are livestock, vegetables and fruits. There are 49 products listed, of which 40 are vegetables. The composition of the pricing surveyed for each item at each market level is as shown. No price is recorded on the farm level for imported items.

### Composition of Market Survey by Items

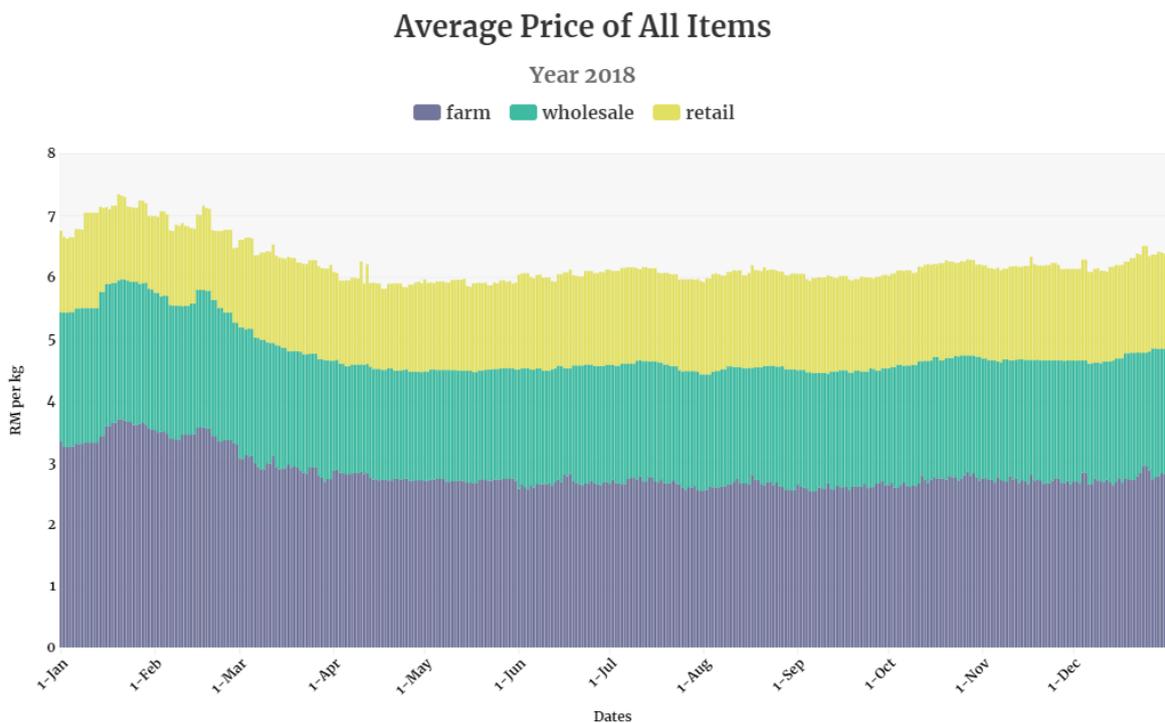


Source: Federal Agricultural Marketing Authority

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## Pricing Dynamics

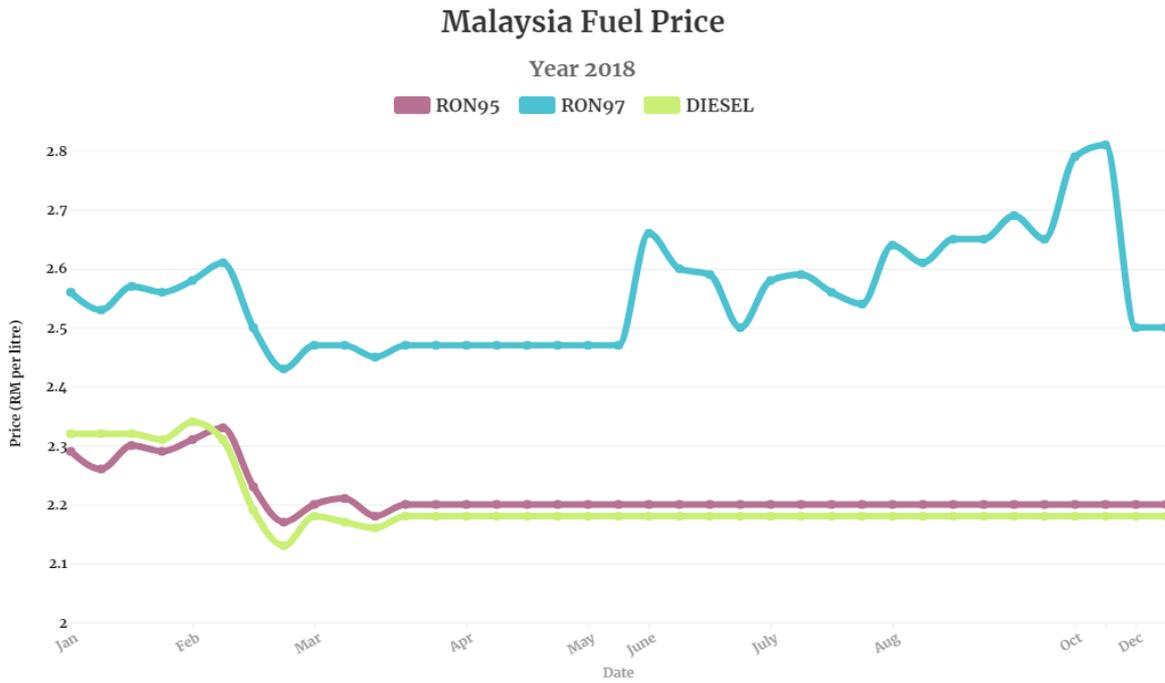
The average price of all items in the respective market level throughout the year is observed. As shown, the prices of agricultural commodities at retail level are proportionately in accordance to the rise and fall in farm or wholesale prices. The difference between farm and wholesale prices are larger than that of wholesale to retail price differences. Interestingly, in comparison to the average price across the market during early 2018, the price of the items is declining by the end of the year.



Source: Federal Agricultural Marketing Authority

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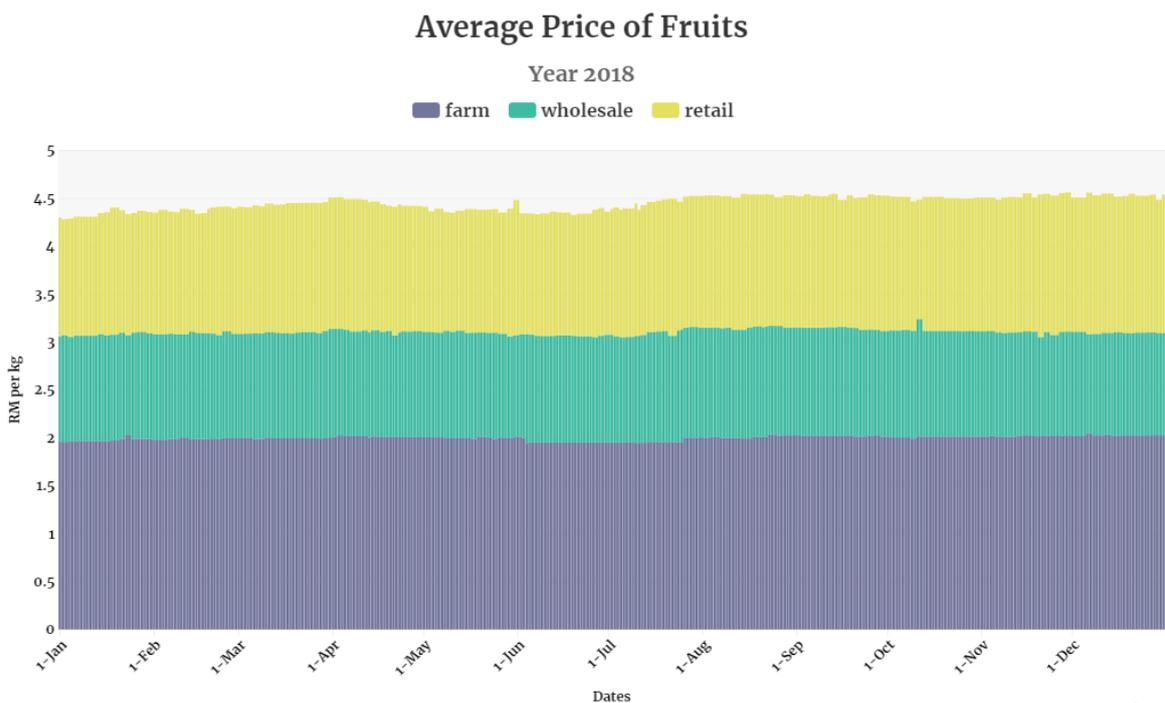
The decline in the pricing of the listed items can be due to the decline in diesel prices since April 2018. Based on the record of fuel prices in the year 2018, diesel prices became constant after April 2018. This is in parallel with the time where agricultural commodities reported a price drop and remained in the same range till the end of the year. The correlation signifies how fuel price is linked to the pricing of food commodities as transportation or distribution cost is a crucial factor.



Source: hargapetrol.my

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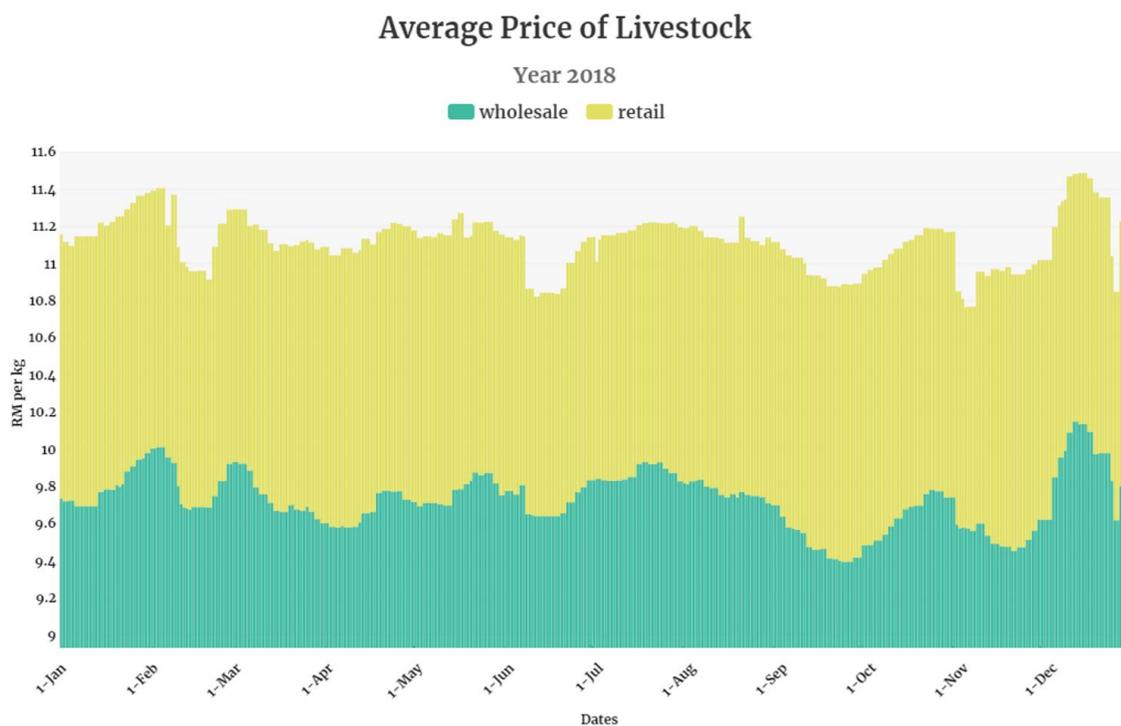
However, a comparison by segment indicates a different trend for fruits. The average price of fruits across the market level is quite constant as shown below. The fruits listed are belimbing, betik, pisang mas and pisang berangan, all of which have a self-sufficiency ratio of more than 100% in the year 2017.



Source: Federal Agricultural Marketing Authority

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On the other hand, livestock commodities as chicken meat and beef is less constant at the wholesale and retail levels even after April 2018. The livestock commodities surveyed at these levels are chicken meat and beef. While poultry meat is almost self-sufficient in Malaysia, local beef and mutton is still scarcely available. With an SSR of 25.5% and 10.7% for beef and mutton respectively, the dependability on imported produce means that their prices are more prone to be affected by external factors.



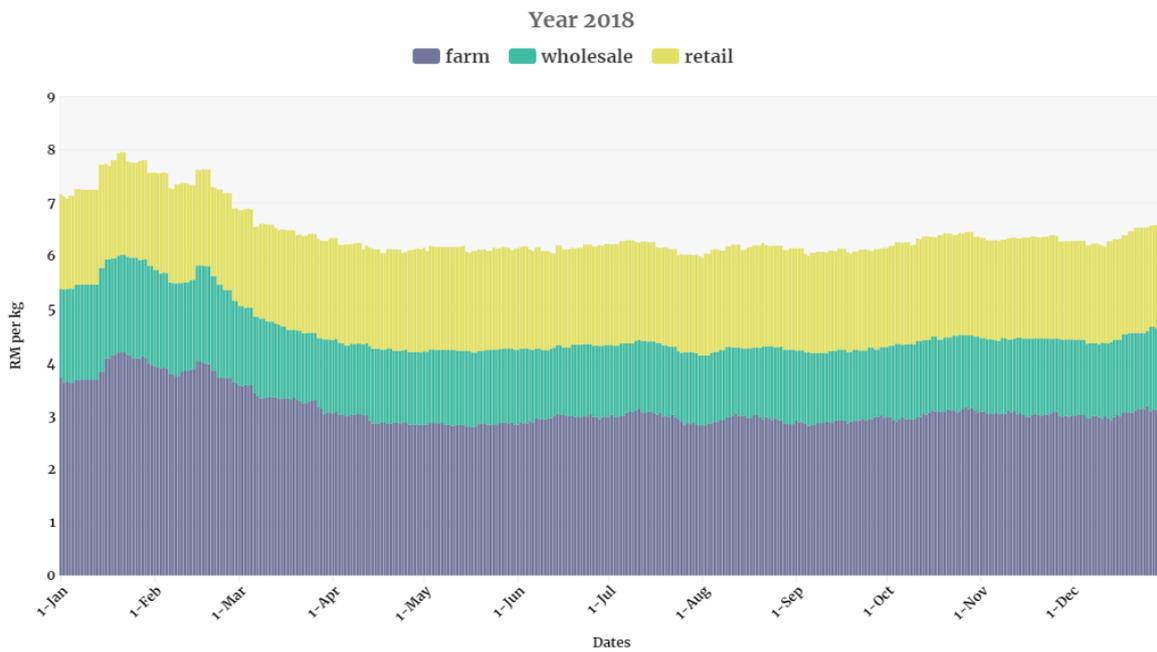
Source: Federal Agricultural Marketing Authority

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## Comparison of Green Produce

The different trends on the average prices of fruits and livestock indicated how self-sufficiency of fruits ensure a stable market price compared to that of livestock. Meanwhile as vegetables made up 40 out of the 49 items listed on the website, its pricing is more representative of the overall price trend of the listed items. While both livestock and fruit prices showed different trends, vegetable prices were lower by the end of the year thanks to the decline in diesel prices.

### Average Price of Vegetables

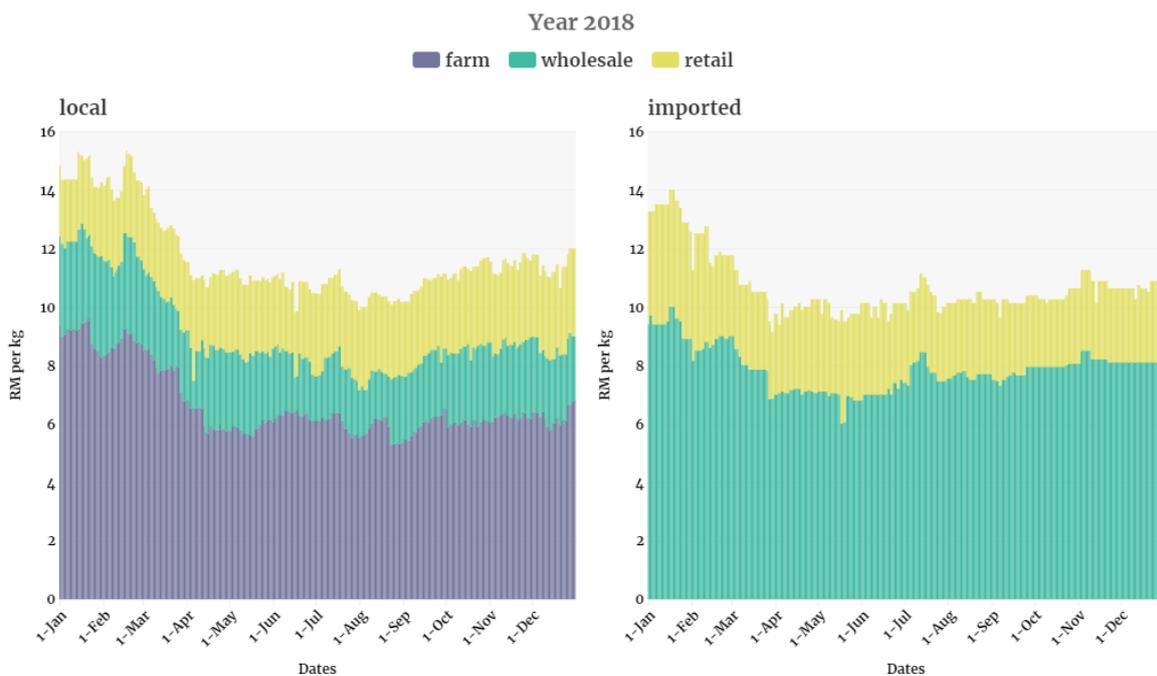


Source: Federal Agricultural Marketing Authority

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Given that chilli is one of the vegetables with poor self-sufficiency ratio in Malaysia, the pricing of local vs imported chilli is as follows.

### Average Price of Local vs Imported Red Chillis

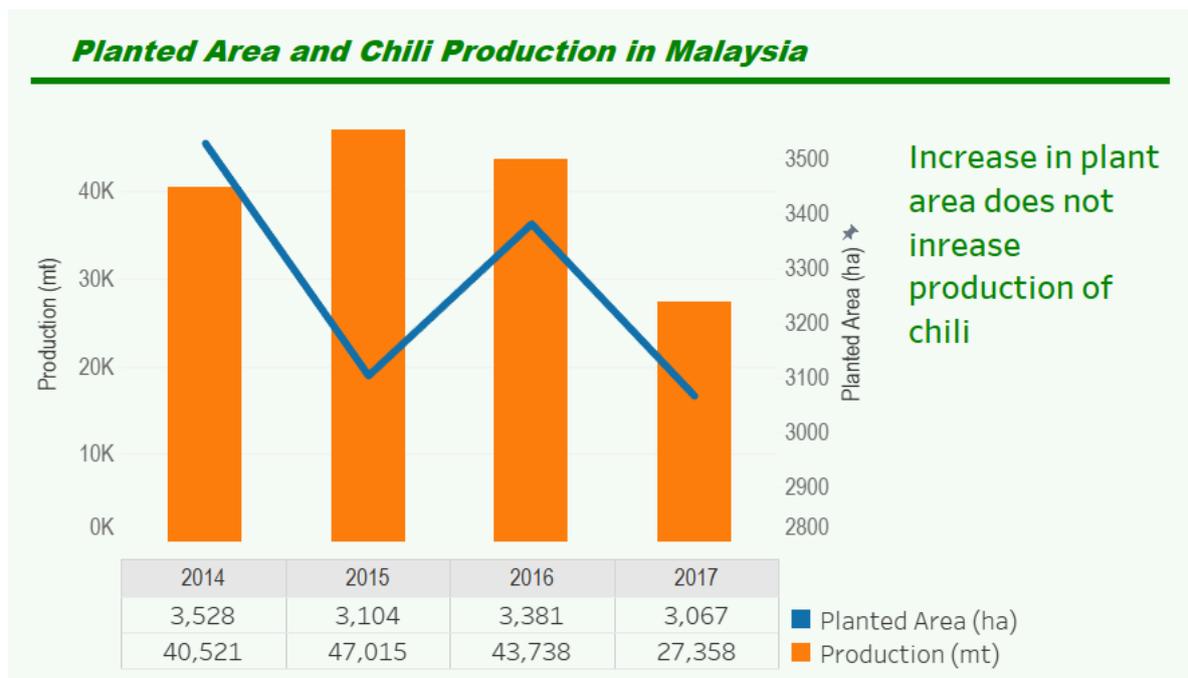


Source: Federal Agricultural Marketing Authority

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As shown by its farm price, local red chillies are more expensive to produce, consequently affecting its retail price to be staggeringly higher than that of imported one. However, both local and imported red chilli declined in price after April, indicating a global market pattern not limited to local produce.

In terms of land allocation, the quantity of chilli produced is not consistently in line with the size of agricultural land provided. In the year 2015, despite a decline of land usage for chilli cultivation, the amount of chilli produced is higher than 2014. The opposite is seen in 2016 when the chili production declined despite the increase in agricultural land allocated for the commodity.

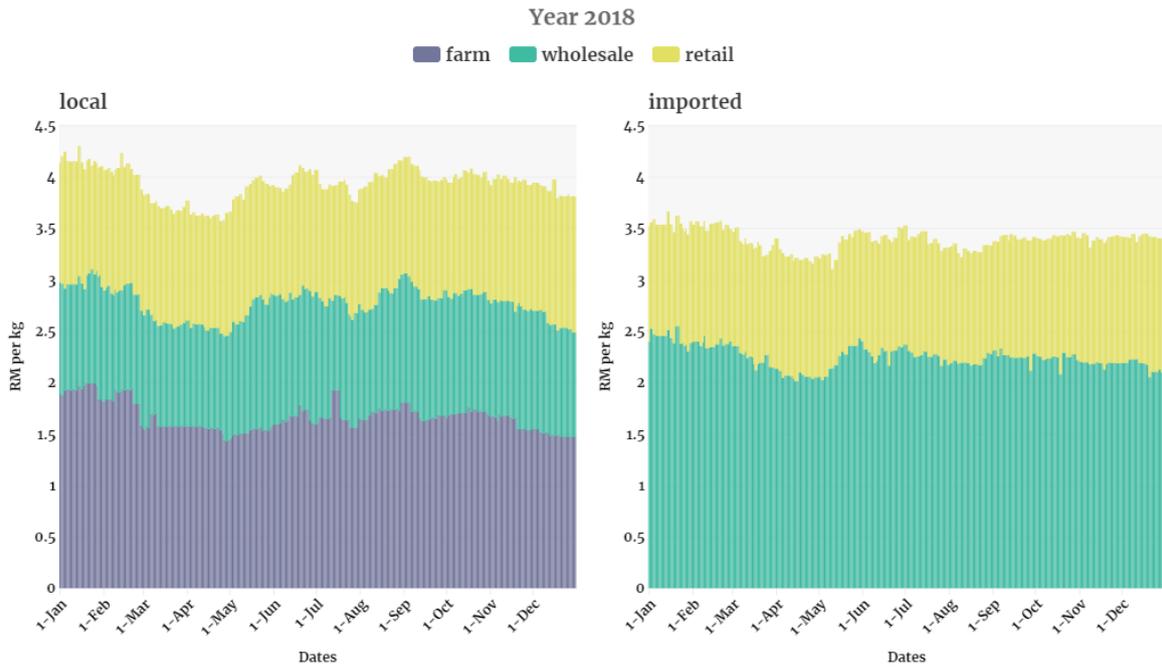


Source: Department of Agriculture

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As for round cabbage, Malaysia's self-sufficiency ratio is only at 42.2%. The trend in price change on wholesale and retail level is almost similar for both local and imported round cabbage although the local produce is consistently above that of imported one.

### Average Price of Local vs Imported Cabbage

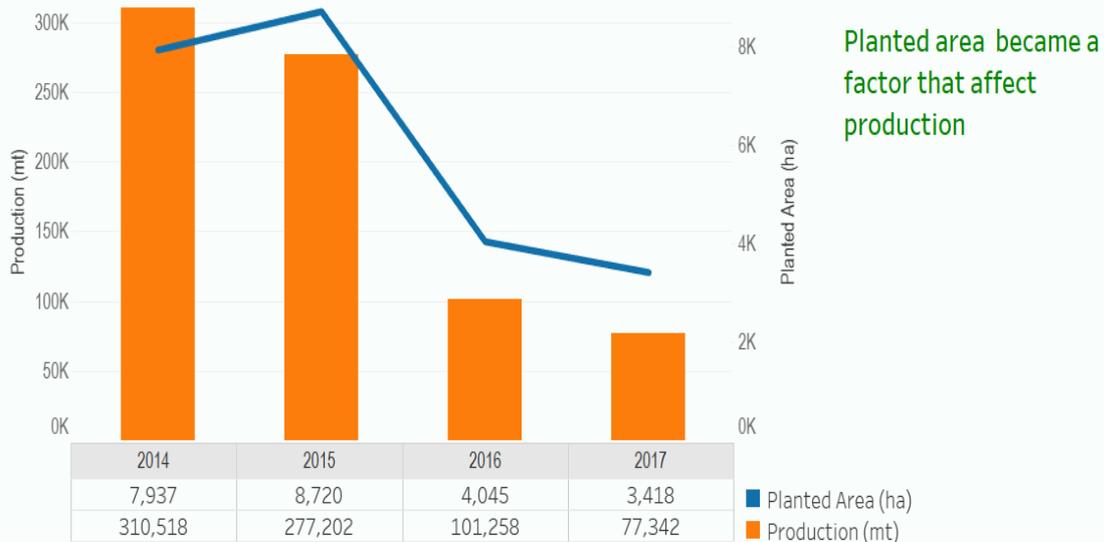


Source: Federal Agricultural Marketing Authority

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Contrary to chilli, cabbage production is directly dependent on its land allocation. Based on the agricultural area for round cabbage from 2014-2017 and its production, the quantity of round cabbage produced declined with the decrease of land allocated for its cultivation.

#### Planted Area and Round Cabbage Production in Malaysia



Source: Department of Agriculture

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## The Quest for Sustainability

Besides ensuring food security, a high self-sufficiency ratio enables competitive pricing of local produce compared to imported ones. A case comparison between chilli and round cabbage, as shown, indicated different dependency on land allocation. From 2015 to 2016, the extent of agricultural land allocated for round cabbage is reduced to almost half, and consequently decreased its production. For chilli however, land allocation is not the determining factor for production. The cultivation of chilli may be more affected by other factors as weather and seasonal variation than land allocation. For commodity like chilli, which has lower production per hectare value, opting for imported produce may be more effective.

Thus, identifying the related factors that may improve the production output of vegetables and managing it is vital for sustainable production of green produce.

### References:

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