THE IMPACT OF PEPPER PRICES FALLING ON THE DESIRE AND INTENSITY OF PEPPER CULTIVATION IN BANGKA BELITUNG ISLANDS

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ABSTRACT

The pepper prices have kept falling since 2015, but farmers still cultivate pepper in Bangka Belitung Province. However, the impact of pepper prices falling on the Farmer's desires and intensity of pepper cultivation has never been known yet. This research was conducted to find out farmers' desire to cultivate pepper and to know the intensity of pepper cultivating caused by pepper price falling. The research survey methods were held for six months from May to November 2020 in six regions in the Province of Bangka Belitung. The survey method analyzes falling pepper prices' impact on the Farmer's desires and pepper cultivation intensity. The data is collected from six districts of Bangka Belitung Islands by involving 180 samples. The location of the research setting is purposive. The total sampling in each region was 30 farmers, so the sampling in six areas was 180 farmers. All data were analyzed using descriptive analysis. In Bangka Belitung Province, primarily farmers 35.5 – 47.5 years old and most educated elementary school thinking that their pepper production would fulfill their basic needs. Even most farmers (83 percent) think confident in 2020, but the decline in pepper price makes most of them reluctant to cultivate pepper. This study indicates that farmers who reach the age of 47.5 keep losing their involvement in pepper farming. Regardless, most farmers (83 percent) say optimistic in one and two years. The pepper prices would be increased from 2020, but the falling of pepper affected half of the farmers not willing to cultivate peppers. Palm oil, rubber, and cassava were the selection to replace peppers. These plants have more advantages for farmers because pests and diseases not like pepper are challenging to cultivate. If the prices of pepper increase, the farmers will produce again. Pepper prices keep falling, regardless of the Government's efforts to recapture the popularity of Lada Bangka (Muntok White Pepper, MWP). This falling pepper price continues to cause the decreasing of farmers' desire and intensity in cultivating pepper. Through all this research, recommended to Government not only gave significant helping as production facilities and quality seeds, but to give also certainty for buying and pepper prices profitable and reasonable for farmers as producer pepper in Bangka Belitung Province.

Keywords: cultivate; desire; falling; intensity; muntok white pepper

INTRODUCTION

Bangka Belitung is known as one of largest white pepper productions in Indonesia, as Muntok White Paper brands (MWP), long time popular because for its scent and spicy (Purwasihi et al., 2020). In Bangka Belitung, white pepper producers from six regencies that is Bangka, West Bangka, Central Bangka, South Bangka, Belitung and East Belitung (Pranoto, 2016) Indonesian Pepper Export Association records that in 2000, Muntok White Pepper (MWP) export reached 53.6 percent of the total export worldwide (Atmaja & Putra, 2019). In 2014, Indonesian white pepper dominated 40 percent of the market share (Huzari, 2018). On the global level, Mahdi & Suprehatin (2021) said that Indonesia is the biggest second pepper producer after Vietnam.

Ministry of Agriculture (2017) recorded that the highest pepper production in Bangka Belitung Islands pepper cultivation was in 2001 (63.674 tons). Bangka Belitung Islands' contribution towards national pepper production reached 82.078 tons (77.6 %) in that year. After 2001, pepper production...
in Bangka Belitung kept fluctuating. According to Suharyanto & Rubiyo (2016), pepper farmers in Bangka Belitung mass expanded their farmland from 2014 to 2017. This mass expansion was caused by white pepper prices in the Farmer's stage, increasing significantly to Rp 175,000./kg. Table 1 shows the planting area and production of pepper in Indonesia up to 2017.

Based on data of planting area and pepper production in 2017, released by General Directorate Agriculture, Agriculture Ministry, five provinces as the biggest pepper producer was Bangka Belitung, Lampung, Sulawesi Selatan, and Kalimantan Timur. The planting area was 1128.961 hectares (ha), and production was 82.964 tons. The second position occupied Lampung, with an area of planting 44.794 hectares with 14.830 tons or 17.80 percent of mass production in Indonesia. The third, the fourth, and the fifth achieved by Sulawesi Selatan (with large 14.407 hectares, production 5.181 ton) Sumatera Selatan (with large 11.366 Hectare, production 8.855 ton) and Kalimantan Timur (with large 9.699 hectares, production 7.046 ton).

*International Pepper Community* (IPC) released white pepper price on producer scale for 9.250 USD up to 9.350 USD per ton. On an exporter scale, the white pepper price has increased to 10.000 USD per ton. According to Adha (2021), his research shows that the impact of rapidly increased pepper prices causes the immature planting area (TBM) to keep getting larger from 2014 to 2017.

In the same period, there was a production improvement in planting areas. The impact of rising pepper prices caused pepper production in Bangka Belitung to keep growing from 2014 until 2017. Meanwhile, the extensive planting and pepper production in Bangka Belitung based on data from the Departement of Agriculture and Farm in Bangka Belitung in 2018, in five years of 2013 to 2017, even increased production fell. The extensive farming and pepper production in 2015 was 48.011 hectares with 31.408 tons, with productively 1.26 tons/ha in the year 2016, enormous of farming 50.959 hectares, and production 33.180 tons, with productivity 1.24 ton/ha. In 2017, the significance of farming was 52.247 hectares and production 34.173 ton, but productivity was 1.20 tons/ha. This happens because they belong to pepper old and broken. The Department of Agriculture and Farm data in Bangka Belitung mentioned old and destroyed in the year 2015, 2016, 2017 every 4.709 hectares, 4.042 hectares, and 3.230 hectares.

According to International Pepper Community (2019), white pepper prices in Bangka Belitung during the 2014 to 2018 period were the highest reach in 2015. The average pepper at farmer level in 2015 reached Rp. 165.106./kg. In 2016 pepper prices fell to Rp. 132.553./kg, Rp. 92,000./kg in 2017 and 2018 pepper price Rp. 57.439./kg. Reported that peppers prices in Bangka Belitung fluctuated, peppers tend to slow Rp. 51.500./Kg in November 2019. The data from May 15, 2017, pepper prices in Bangka Belitung no increasing Rp. 100.000./Kg. In 2017, the average of pepper Rp. 100.000./Kg to Rp. 124.000./Kg in this take place in five-month. According to Belarminus (2019), Bangka Belitung Islands Government seeks to regain the popularity and demand of pepper in this area. Bangka Belitung Islands Government has attempted to create an anti-pest and disease, high-yielding variety of pepper named Petaling I and Sungkup. Other programs designed in an attempt to regain the demand for pepper are disseminating the application of natural plant support, distributing the high-yielding variety of pepper directly to the farmers, and collaborating with BUMD (Regional-Owned Enterprise) to purchase the product straight from the farmers as well as distributing it directly to the importer.

The Government of Bangka Belitung Islands has made an effort to recover the demand for Muntok White Pepper by distributing about 1.9 million high-yielding pepper varieties to the farmers. In 2020, the Local Government will redistribute about 2.8 million high-yielding pepper varieties to the farmers (Sulista, 2019). Local Development Planning Agency (BAPPEDA) of Bangka Belitung Islands in 2017 has released featured programs in the document of Regional Medium Term Development Plan (RPJMD) from 2017 to 2022. This attempt will be made through the expansion of the pepper planting area. According to the International Pepper Community (2019), the record of pepper price as recited by Adha (2021) shows that the pepper price in Bangka Belitung Islands has kept falling since 2016.


The local Government expected that Bangka Belitung white pepper could reclaim its demand, but the price kept falling, decreasing farmers’ desire for pepper farming. If the farmers' willingness to
farm pepper keeps getting lower, their intensity in pepper cultivation will also keep reducing. To a greater extent, such a condition leads to a lesser amount of Bangka White Pepper (Muntok White Pepper) as a result. According to (Ginting et al., 2010), the decreasing of white pepper productivity in Bangka Belitung is caused by several reasons, which include; (1) low productivity of pepper caused by the traditional cultivating method; (2) the reducing area of pepper farmland caused by land conversion into tin mining and oil palm plantations; (3) pests and diseases, mainly stem rot disease which mainly founded on pepper; (4) the overpriced input cost and agricultural production facility costs, such as plant support and fertilizer; (5) investment issues experienced by most of the farmers; and (6) less innovation in the post-harvest output of pepper.

The falling price of pepper affects the farmers’ desire to plant pepper. It affects their intensity in caring for their pepper, leading to the decreasing output of Bangka White Pepper (Muntok White Pepper). In this case, this research aims to know the impact of the falling pepper prices on the desires and intensity of pepper cultivation in the Bangka Belitung Islands.

In the province of Bangka Belitung, white pepper farms by societies or having by people’s plantations. Bangka Belitung province is one of Indonesia’s centers of white pepper production (38 percent), after Lampung with black pepper. Pepper from Bangka known in international trading with brand image “Muntok White Pepper” having spice tasty and fragrant scent (Heryanto & Nugraha, 2018; Maryadi et al., 2016; Pranoto, 2016)

However, according to Nurllah & Iswari (2019), the biggest problem in Bangka Belitung is the low pepper purchasing at the Farmer’s level. For example, in 2018, the pepper prices in farmers level in Rp 50.000 perkilograms, while production cost in one kilogram Rp. 52.500. It means the Farmer does not get profit from pepper farming. The implication that the prices slowing down made Farmer lose, and there was no incentive for farmers. This caused farmers to be reluctant to cultivate pepper. According to them, the same thing by Mahdi & Suprehatin (2021), after the highest pest attack and disease and low pepper productivity, influencing income farmer. Farmers do not motivate field maintenance, and they converse into other commodities. According to Ginting et al. (2010), issues about volatility become the main issues to influence production and marketing pepper in this decade. Meanwhile, the lowest price cycle becomes quite regular every eight to ten years.

The experiment by Ginting et al. (2010) summarizes that pepper production in the Bangka District is closely related to pepper prices in farmers. There were opportunities for other businesses (besides pepper) and applied pepper produce farming technology. The three-factor influence significantly for pepper production. From 2007 to 2008, Bangka District had slowed down pepper production in five pepper districts in Bangka Belitung Province

Farmer’s highest price ever enjoyed in 2015, for Rp. 170.000 per kilograms. Whereas the lowest pepper prices in 2019, for Rp. 51.000 per kilograms. The paper slump in the lowest pepper prices caused farmers to switch to other jobs. As experienced in Jebus District, Bangka Barat (Nurllah & Iswari, 2019).

The experiment by Oktaviandi & Hamdan (2017) indicated that the low of pepper prices below Rp. 50.000 per kilograms, recognized as having an impact as a physiological term for farmers. They thought farming did not give benefit for them. Meanwhile, the problem was not for the prices but the low of pepper production in Bangka Belitung, 0.8 to 1 kilogram. Every output in a clamp is 3 to 5 kilogram, even the pepper price in farmers level below Rp. 50.000 per kilogram, but farmers in the province will get the most considerable profit.

Fazaria et al. (2016) said that the local white pepper had a long–term relationship with the export of white pepper and spot. The white pepper for export influences local white pepper as positively. At the same time, the white pepper for the spot market negatively affects local pepper market prices.

**MATERIALS AND METHODS**

This research takes in six regencies (Bangka, West Bangka, Central Bangka, South Bangka, and East Belitung). The location was purposive, considering six regencies with many farmers cultivating peppers. This research took not less than six months. This research took in May 2020 and closed in November 2020.

The method used in this research is survey methods. The survey methods for a picture of farmers and intensity pepper cultivation in Bangka Belitung province. It needs a source of data from farmers’ population which amount. Therefore, the Farmer’s samples did get a whole picture about farmer’s desire and pepper cultivation intensity in Bangka Belitung Province.

Some of the variables observed in this study related to the impact of pepper prices falling on Farmer’s desires and intensity of pepper cultivation include; farmer identity, which provides for age...
and education level. Farmer's opinion on the cost of pepper that occurs, Farmer's desires in pepper farming, pepper cultivation intensity which includes the use of seeds, grass weeding and fertilizers applying as well as pest and diseases of pepper plants controlling.

Sampling used Incidental Sampling. These technics do not become available enough for active pepper farmers to have population criteria as research requires 30 farmers (a significant sample) to 180 farmers.

RESULTS AND DISCUSSION

Farmers Ages
On average, pepper farmers in Bangka Belitung Islands are mostly 23.5 to 71.5 years old. Their participation in pepper farming is significant enough at 35.5 to 47.5. The enormously lowering amount of the farmers' involvement in pepper farming happens between 47.5 to 71.5. Farmers in Bangka Belitung take involved in the farming business in 35.5 – 47.5 years. The potential age range to develop peppers, so having tight which social and play a role to decide the behavior of farmers in the pepper farm business.

In line with Heryanto & Nugraha (2018), this opinion indicated a social system and ecology would be formed feedback in the white pepper farming business. In this case, a social system and ecology system could not separate.

From system analysis, a decision to cultivate peppers produces a collective like three influential in a high complexity social system in pepper farmers. The three-element had to carry capacity in the social system and ecology in the whole white pepper commodity. Even so, farmers aged 29.5 to 35.5 tend to have higher involvement in pepper cultivation. The division of the farmers' age can be examined in Figure 1.

![Figure 1. Distribution of farmer ages.](image)

Level of Farmer Education
Pepper farmers in Bangka Belitung Islands mostly have a low level of education. Most of them only graduated from Elementary School. Nonetheless, some farmers graduated with Bachelor's Degree, even though the scale was not more than 2 percent. The level of education of farmers in the Bangka Belitung Islands can be examined in Figure 2.

![Figure 2. Level of education of Farmer](image)
In her research, Yulia et al. (2019) show that the age of farmers is mostly 40 years and dominated by men, the education of farmers elementary school and married, caused by the weakness of the education rate in Bangka Belitung. Agriculture Department in Bangka Belitung training a better pepper farming at Puput Village district of regency Central Bangka. This Government purposes of developing pepper farming to get a successful farmer. In this meet and inaugurated Indonesia Rempah Council for Central Bangka.

**Farmer Responses to the Falling Pepper Prices**

Most farmers assumed that the recent pepper prices could not provide them enough to live. However, the few farmers (7 percent) stated that the current pepper prices they earned had provided them sufficient for their food, clothes, and houses.

Neither increasing nor falling prices of pepper can affect the farmers in cultivating pepper. About 83 percent of the farmers still believe that the pepper price they earn will rise even more in the next one or two years than in 2020.

Most farmers said from the pepper producing only enough for eating, many of them not enough for eating, however, with 7 percent of them enough for their lives. Therefore, with increasing pepper, the Farmer primarily prioritizes their need to eat. Picture 3 shows the price pepper variation for Farmer needs to eat.

Menurut Nurllah & Iswari ( 2019), menurunnya harga komoditas lada yang selama ini diandalkan oleh masyarakat petani sebagai mata pencaharian utama hidup mereka menyebabkan timbulnya permasalahan ekonomis bagi mereka yaitu berkurangnya pendapatan mereka secara signifikan dan tingkat kesejahteraan mereka juga menjadi berkurang. Mereka mengaku bahwa penghasilan yang didapat dalam kondisi seperti itu tidak cukup untuk memenuhi kebutuhan hidup keluarganya sehari-hari.

They assume that the pepper price increases, the farmers’ priority will be implemented more on their food sustenance. Figure 3 shows the variety of preferable pepper prices by the farmers to provide their care.

**Farmer’s Desire in Pepper Cultivation**

Pepper farmers in Bangka Belitung Islands are mainly skilled enough in pepper planting. About 77 percent of farmers in the area stated that they are experienced enough in this field. This statement has been supported by Andre (2018). He said that their traditional habit from generation to generation keeps the pepper farmers in South Bangka in their high spirit on farming despite the falling price. However, almost half of the farmers have wanted to replant their pepper into other crops such as palm oil, rubber plant, cassava, and other plants. Commodities such as palm oil and cassava are the many choices for the farmers to replant the pepper.

The biggest reason why the farmers want to replant the pepper to other plants is that they assumed that other commodities have better profit than pepper has. Thus, they concluded that pests and diseases on pepper are the hardest to control. However, few farmers wanted to replant the pepper to another instantly edible crop. The substitute plants of pepper are expected to grow in the same spot as they planted the pepper before or in another place. Nurllah & Iswari (2019) stated that the falling pepper prices serve a terrible impact on socio-economical sustenance in addition to the overpriced fertilizer cost. Thus, the farmers’ desire to do replanting is shown in Figure 4.
There are two most significant farmers’ responses to predict the pepper price of the next one or two years. The first response is most farmers will get back to work on the existing pepper intensively, while the second is the farmers will replant the pepper again. Such reactions have gained support from most farmers (68 percent) who still desired to cultivate their pepper farm intensively. Moreover, another supporting factor comes from the 53 percent of farmers who said that pepper development had been their tradition since years ago.

**Pepper Cultivation Intensity**

Farmers’ desire for pepper cultivation can be seen through their planting experience. Their pepper cultivating experience varies from 1 to 4 periods of their life. Mostly, farmers have done pepper cultivation for four periods, while 42 percent have done pepper cultivation for 2 to 3 periods.

Pepper cultivation done by the farmers does not merely involve their experience. It also requires good seeds, plant totem pole, weed eradication, and fertilization. Ginting et al. (2010) conclude that technology plays the most significant role in pepper cultivating production. Furthermore, the pepper price and other business opportunities can be the other reasons that affect pepper production.

The amount of pepper cultivating intensity can be seen by comparing pepper farming between the previous and recent periods. Meanwhile, the reflection of farmers’ desire to produce pepper can be analyzed through the seeds use, the plant totem pole use, weed eradication, pest and disease eradication, and fertilization which can be seen in Figure 5.

Most farmers stated that they come to their farmland more than four times a week to remove the weeds, fix the broken plant support, or pick the fallen pepper under the plant trees. Such conditions are why about 61 percent of Bangka Belitung Islands pepper reached more than three years old remains in good shape under the farmers’ control. Asnawi et al. (2017) supported this effort to improve pepper production in Lampung Province with open and add pepper area and support by handling intensively with technology and cultivation with giving NPK Phonsks fertilizer SP 36, with pepper monoculture.
CONCLUSIONS AND SUGGESTION

The farmers in Bangka Belitung Province primarily aged 35.5 – 47.5 only elementary school and in 2020 since falling of pepper in 2015 thought that the pepper production only to fill their basic needs. Even most farmers (83 percent) think optimistic in 2020, in one or two years the price of a paper increase in 2020 but the falling of pepper price almost half of the Farmers get used to cultivate pepper in Bangka Belitung Archipelago Province developed pepper not interest more to produce pepper again. Palm oil, rubber, and cassava were the most significant selection to replace peppers because commodities of plants are more advantageous for farmers because to overcome pest and disease of peppers challenging to overcome. If Farmers feel a pepper price increase, they will cultivate pepper and cultivate pepper again. The falling In 2015, the effect of falling intensity and sincerity of farming most grown in four periods. Even frequent farmers visiting pepper farms more than four times a week cleaned weeds, firm tajar, and picked fall peppers. The farmers' increased intensities do not show sincerity in pepper cultivates.

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