The Supporting and Impeding Factors of Java Preanger Coffee Agribusiness on Margamulya of Pangalengan Sub District of Bandung Regency

E Djuwendah¹, T Karyani¹, E Rasmikayati¹, S Fatimah¹ and Deliana¹

¹ Agribusiness Study Program, Faculty of Agriculture, Padjadjaran University (UNPAD)
Jl. Raya Bandung – Sumedang KM. 21, Jatinangor 45363, Indonesia
E-mail: endah_djuwendah@yahoo.com

Abstract. Java preanger coffee is internationally recognized as superior arabica coffee from West Java, particularly in coffee trading. The high demand and selling price of coffee has no fully supported the coffee agribusiness because there are other factors influencing it. This research aims to determine the factors supporting and inhibiting the agribusiness of sustainable Java preanger coffee in the Margamulya village the District of Pangalengan. The research design used is qualitative descriptive with case study method. The results showed that in subsystem agro-input, the main supporting factors are coffee plant seedlings and labor, while the main constraint factors are land, fertilizers, weather, and capital. In the agro-processing subsystem, the main supporting factors are the knowledge of farmers in the cultivation of sustainable coffee and selling prices of coffee, while the constraining factors are among others climate changes, and capital. In the agro-industry subsystem, the main supporting factor is processing technology, while the inhibiting factor is capital and processing equipment. On the agriculture marketing subsystem, the supporting factors are market certainty, while the inhibiting factor is capital. On agri-service subsystem, the main supporting factor is the availability of cooperatives, extension agencies, farmer groups, mass media, while the inhibiting factors are less coordinations between supporting institutions with farmers and the absence of financial institutions that provide credit by the characteristics of coffee farming.

1. Introduction
Coffee is one of the plantation commodities that has high economic value, as it plays a role in the acquisition of foreign exchange, source of farmers’ income, labour absorption, encourage agribusiness and regional development in Indonesia. Therefore, coffee is included in the seven main plantation commodities of Indonesia, which receives priority development from the government.

Java Preanger coffee is one type of coffee Arabicas, especially originated from West Java. According to coffee lovers, Java Preanger coffee has a distinct in the strong floral nuances (floral) with flowery-fruity-nutty-dark chocolate aromas [1]. With the issuance of Government Regulation No. 51 of 2007 on Geographical Indication, based on the suggestions from the...
community of geographical indication protection (MPIG), Java Preanger coffee and West Java government in 2013 Java Preanger Arabica coffee (JPAC) is certified by the geographical indication from the Indonesian Ministry of Law and Human Rights.

Since 2009 JPAC has penetrated international markets such as Southern Korea, Morocco, Taiwan, Hongkong, China, Germany, Japan, England, Netherlands and Germany [2]. The specialty coffee market is currently growing in major consumer countries such as the United States, the European Union, Japan, Southern Korea, Brazil and Indonesia. The countries, which become the main market of coffee demand the quality of coffee to be in accordance with the demands of consumers such as food security, environmental conservation and welfare of farmers.

In order to increase the competitiveness of Java Preanger Arabica coffee in regional and international markets, the development of this commodity is done through a sustainable agribusiness approach. Sustainable agribusiness is a functionally integrated ecological agribusiness based on upstream subsystem, farming, yield processing, marketing, and supporting subsystems aligned with the surrounding environment and realizing sustainable agricultural development.

Based on the statistic data of West Java from Provincial Plantation Office, the Bandung Regency is a potential coffee development center with an area of 8,656 Ha (31.39%) of coffee plantation area in West Java. Pangalengan Sub district as one of the areas in Bandung with the largest production of coffee. There are 5 villages in Pangalengan Sub district as coffee farming center namely Losari, Margamulya, Wanasari, Sukaluyu and Lamajang.

The development of crops and coffee production in Margamulya Village every year tend to increase. Based on interviews with 4 coffee producers in Margahayu village namely Margamulya Coffee Producer Cooperative (CPCM), Malabar mountain, Malabar civet coffee and Coffee Prisca, it was found that the area of coffee farming in Margamulya village in 2013 is 225 Ha, in 2014 is 400 Ha and in 2015 it reached 580 Ha with production respectively of 669 Ton, 1,200 tons and 1740 tons.

Nevertheless Potential coffee commodities in Margamulya Village, still faced with some challenges are still found farmers who implement coffee cultivation that does not fit with the technical guidelines of sustainable farming so that the productivity is not optimal i.e 930 kilograms ha

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or about 62-93% of the standard of national coffee productivity 1300 - 1400 kg ha

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according to Pusat Penelitian dan Pengembangan Perkebunan. In the stage of agro-industry is still limited the farmers who do the processing of coffee until the stage of horn skin (HS) and 70% of coffee produced by agro-industry in the form of green bean.

On the other hand, Java Preanger Arabica coffee from Margamulya village has succeeded in penetrating international market through processing and marketing by CPCM in partnership with PT Taman Delta Indonesia, an exporter, for obtaining UTZ certificate which essentially in the management of its business to pay attention of environment. Therefore it is interesting to study what factors are the driving forces and obstacles in the development of sustainable Java Preanger coffee agribusiness in Margamulya Village.

2. Research Method

The research area was determined purposively in Margamulya Village Pangalengan Sub district of Bandung regency because Pangalengan is one of Java Preanger coffee production center in Bandung regency. This research used qualitative method. Qualitative research method emphasizes its analysis on the deductive and inductive processes and on the analysis of the dynamics of relationships between the phenomena [3]. The research technique is case study. The data sources are primary and secondary data. Technical data collection is done by observation, interview and literature study. Interviews are conducted with 34 coffee farmers,
village officials, the cooperative’s member and management. Data were analyzed descriptively and the technique of data presentation was done by tabulation.

3. Results and Discussion

3.1. Overview of Java Preanger Arabica Coffee Agribusiness in Margamulya Village

According to Hanafie [4] agribusiness as an integrated system is defined as all activities ranging from procurement and distribution of production facilities to the marketing of products produced from a farm or agroindustry that are associated with each other. Agribusiness consists of subsystems procurement of production facilities, farming subsystem, agro-industry subsystem, marketing subsystem and sub system supporting facilities. Each subsystems has a backward and forward linkage.

Margamulya Village is one of the villages in Pangalengan sub-district that develops sustainable of arabica coffee agribusiness. This is evident through the implementation of UTZ certification by the Margamulya farmers group. UTZ certification certifies the production process traceability which can indicate that the product with this certification has been through a series of good plantation practices, paying attention to social and environmental aspects, food safety and quality improvement.

Coffee farming area in Margamulya village ranges from 0.2 to 1.0 H.a., making them known as smallholder coffee plantations. The arabica coffee plantations in Margamulya village are mostly (73.50%) consist of of coffee farming practices on narrow fields (land area < 0.5 ha), 14.7% was done on moderate (0.5-1, 0 ha) and 11.80% land area (> 1 Ha). Land tenure is generally owned by state forest company of Indonesia (Perhutani), which managed by farmers through community forest management program. There are 51% of farmers who plant coffee in Perhutani’s land with a profit sharing of 10-20%. There are 40.20% of farmers who plant coffee on their own land and 8.80% planted coffee trees simultaneously on their own land and Perhutani’s land.

Currently cultivation of Arabica Java Preanger coffee in Margamulya Village has been increasing because many farmers had switched from planting vegetable commodities to coffee plants both on their own land and Perhutani’s land. The transition of practices of these planting commodities is partly due to the motivation of farmers, environmental awareness, the suggestion of Perhutani to grow coffee in forest areas through community forestry program, as they provided assistances for coffee seeds. Furthermore, coffee farming risk is lower than vegetable farming. According to leaders of the Rahayu forest village community institution and the head of the Margamulya farmer group, the concept of forest management with the community provides two benefits: increased economic income and practices on sustainable forest conservation.

Varieties of Arabica coffee are grown by farmers in Margamulya Village in the early days of 2001-2003 were brought from Central Aceh coffee seedlings (Ateng) and Kartika I. However, since 2010 farmers started to plant Linne S 795 coffee seeds, and in 2013 planted Sigarar Utang which has the peculiarity to bear fruit following the pattern of local rainfall distribution. Plant densities used are varied from 1 X 1 meter and 1.5 X 1.5 meters.

Arabica coffee plants start flowering at the age of 2 years and then it can be harvested from 2.5 to 3 years old and continued until the plants are 20 years. Arabica coffee takes 6-8 months from flower bud to harvest. Harvesting are done by picking ripe coffee fruit. The harvest season takes place between March and August.

Generally produce processing is done by large plant traders and cooperatives. The Cooperative of Coffee Margamulya Producer (CPCM) has applied the standard operating procedure of coffee processing which refers to UTZ certification. Java Preanger coffee processing is done immediately after the farmers implement the harvest of red coffee (cherry) by wet processing method. Wet processing process begins with sorting of cherry coffee, peeling the outer coffee skin with pulper to produce Horned Skin (HS) coffee. Further processes are
12-36 hours fermentation and continues with washing. Drying uses partition or drying floors until moisture content around 12.5%. Deep skin peeling are done by huller machine, followed by drying processes to reach 12% moisture content. Finally, the coffees are sorted by grader machines and then packed using sacks and stored in storage facility.

There are some farmers who chose to process cherry coffee into horn skin (HS), because they think HS processing can increase their income. However, farmers who process HS are still very small, or at least 10% of farmers population. this is due to the limited capital that they have. This is in line with research done by Kirana S and Karyani [5] showing the price differences between HS Rp which amounts to Rp 23,000 per kilogram and cherry coffee which is Rp 8,500 per kg. Processing of cherry coffee to HS gives added value to farmers, equal to Rp 528,74 per kilogram of cherry coffee. Large traders which has a processing equipment and cooperatives or buy from seedlings in the village of Margamulya.

Production capacity of Margamulya coffee is about 350 ton cherry coffee per harvest season. Production capacity of cooperative producers of margamulya coffee are about 70 tons of green beans. Good quality of green beans (grade 1 and 2) are sold to the exporter company, PT Taman Delta Indonesia, which located in Semarang for further export to Japan by labeling the product as UTZ certified. Low quality of green beans are sold to local market in Medan, Bandung and other cities. The cooperative also processes and markets roasted coffee and ground bean coffee with the Java preanger brand of Gunung Tilu coffee sold at souvenir shops, exhibition and e-commerce such as through blibli.com. Some collectors who process coffee sell the processed products to PT Indocom Citra Persada in Surabaya and PT Sari Makmur Tunggal in Medan.

Java preanger coffee produced by Margamulya Village is favored by consumers because it has a distinctive taste. The result of Java arabica prebook from Margamulya Village which was conducted by Indonesian coffee and cocoa research center (Puslitkoka) at Jember in 2012, concluded that their coffee have the characteristic of spicy, floral and flowery flavors, scored 84,08 and in 2014 with score 84,67 [6]. Based on the Indonesian National Standard (SNI) 01-2907-2008, the coffee beans of Margamulya village are categorized as good quality (grade 1) which means the value of coffee defects is less than 11 [7].

3.2. Supporting and inhibiting factors of sustainable Java preanger coffee agribusiness
Java preanger coffee agribusiness system includes 5 subsystems in which the implementation should be integrated and synergised. The driving factor is something that helped support the onset of Java Preanger Arabica Coffee Agribussiness. The inhibiting factor is a condition that can complicate the development of Java preanger coffee agribusiness. Internal factors are factors that come from within the agribusiness actors or organizations and external factors are factors that come from outside the actors or agribusiness organizations.

3.2.1 Agro-input Subsystem
The agro-input subsystem is all the activities of procurement and distribution of inputs of production inputs for the implementation of a farming technology, and the optimum utilization of agricultural resources. Coffee farmers in the village of Margamulya obtain coffee plant seeds easily, either for free from cooperatives or buy from seedlings in the village of Margamulya. Based on the Decree of the Minister of Agriculture No. 65 / Kpts / SR.120 / 2/2014, there are two h.a. coffee nurseries managed by forest village community institutions Rahayu Tani in Margahayu village. The provincial government also provides free coffee seedlings to farmer [2]. Since the year 2013 CPCM also become a coffee seed cultivator of West Java provincial government aid assistance with a target of 20,000 coffee seeds per year.
Table 1. Supporting and inhibiting factors on agro-input subsystem

| Factor       | Internal                                      | External                                               |
|--------------|-----------------------------------------------|--------------------------------------------------------|
| Supporting   | Seed, fertilizer, land, labor                 | Cooperation with *Perhutani* in the provision of land   |
| Inhibiting   | The scale of land tenure, capital, quality of human resources | Traditional technology of Agricultural                  |

Production inputs are available at agricultural stores which are located in the subdistrict, and labors are available from within and outside of farmer’s family. Farm lands are provided by *Perhutani* through community forest management program, as it became one of the supporting factor for the agro-input subsystem.

The inhibiting factors of sustainable coffee farming development are the narrow scales of land management, the low level of farmer education and the traditional cultivation techniques. Most (51%) of coffee farmers had primary school education, 2.9% were out of school, 43.6% went to middle school (junior and senior high school) and 2.5% participated in higher education. Banking institutions that provides credit to coffee farmers are still limited, hence many farmers had to borrow capital to cooperatives or to collecting traders.

3.2.2 Farming Subsystems

Sustainable coffee cultivation practices are culturally cultivated and utilize green gardening practices. Among the practices are for farmers not to open steep forest areas and should take care of the garden including the maintenance of tree protection and pruning; farmers should use organic liquid fertilizer and organic compost fertilizer; and use litter as ground cover; and finally using pest control for Coffee Fruit using traps and biological control. Such practice require control of pests and other diseases using vegetable pesticides; and finally, the use and processing of coffee waste into compost.

Table 2. Supporting and inhibiting factors on farming subsystem

| Factor       | Internal                                      | External                                               |
|--------------|-----------------------------------------------|--------------------------------------------------------|
| Supporting   | Suitability of agroclimate, high motivation of farmers, SOP and UTZ certified, integration of coffee plants with livestock | The provision of certified coffee seeds, market certainty |
| Inhibiting   | Cultivation is not in accordance with the technical guidance of sustainable coffee cultivation and limited capital | The climate change                                     |

Sustainable coffee cultivation is in line with the semi organic coffee cultivation required in UTZ Certification. In principle, farmers should do not use non-organic fertilizers except at the time of initial planting. Therefore, the fertilizers and pesticides used are organic. UTZ Certification is a traceability system to ensure cultivation activities to process and distribute production in environmentally friendly activities and positive impact for socio-economic community.

The altitudes of suitable places for Arabica coffee plants range from 1,000 - 2,000 m asl, annual rainfall 1250 - 2,500 mm dry months (rainfall <60 mm / month) 1-3 months per year with an average air temperature of 15- 25° C and climate types A through B (Schmidt and Ferguson). Andosol is a type of soil that is relatively fertile and suitable for coffee plants. The
content of organic matter is high, that is above 3% with pH pH ranging from 6 to 7 [8]. Margamulya village is a mountainous area located at an altitude of 1416 m asl with rainfall of 2350 mm per year with 6 months rainy month, daily average temperature 18-23° C, ph ranges from 4.8 to 5.6, air humidity 60, 7% with type B climate. Based on appropriate environmental conditions for arabica coffee farming which described by the Director General of Plantation and Sari NP, et al (2013) [8], this area is geographically suitable for Arabica coffee farming.

The other supporting factor of sustainable coffee agribusiness is the strong motivation of the farmers who are driven by concerns about the increasingly destructive condition of the forest area, resulting in the desire to preserve the forest area by growing coffee as revealed by Pak Enjang and Pak Aleh one of Margamulya group members. Coffee cultivation follows the method of conservation coffee program.

3.2.3 Agro-industry Subsystem

The quality assurance, supply availability, timely and sustainable according to consumer demand are some requirements needed for sustainable agribusiness of Java preanger coffee. As consumer demand for safe and environmentally friendly coffee product, the standard reference of quality for the coffee beans must accommodate the principle of good harvest post-treatment and true Good Handling Practices (GHP) [9].

There is a processing SOP at CPCM referring to SNI and UTZ certified to ensure that the activities of cultivation and processing of coffee are environmentally friendly and have a positive impact on the economy and people's welfare. One of the activities which is environmentally friendly is the use of waste coffee skin as organic fertilizer.

| Table 3. Supporting and inhibiting factors on agro-industry subsystem |
|---------------------------------------------------------------|
| **Factor** | **Internal** | **External** |
| Supporting | Availability of labor, there is SOP of coffee processing according to SNI and UTZ certified procedures, specialty coffee products | The provision for building and coffee processing equipment to cooperatives, existence of demand for instant coffee, roasted coffee and extract coffee |
| Inhibiting | Capital limitations, fluctuating coffee beans supply, inconsistent quality of coffee | The lack of coffee processing technology to produce instant coffee, roasted coffee and extract coffee |

Internal constraints faced by agro-industry coffee actors such as raw material quality that are not uniformed, fluctuating raw material supply, and limited capital. Limited capital causes only about 10% of farmers who can access process cherry coffee into horn skin coffee. There are still many farmers who pick up coffee that are still green or coffee beans that are attacked by pests and diseases. Coffee beans that are still green or after being treated for disease will produce low quality green beans because it was already damaged during processing. There is a mismatch of coffee processing in Margamulya coffee cooperative with its SOP when processing green bean during fruit harvesting activities; sorting and mining as well as stripping of the outer skin. Capital limitations cause agro-industry actors to choose traditional equipment and can not immediately buy and process coffee harvested by farmers. In fact, if coffee is left one night it will experience fermentation and will no longer be perfect so it will reduce the quality of processed coffee.

The external constraints faced by agroindustry actors to respon demand of coffee variants from the niche of modern market had kept growing the powder coffee processing technology to its limits. Most of coffee export in the form of green been. whereas if the exports are in the form
of roasted coffee and grounded coffee it will increase the added value for agro-industry actors in Margamulya village.

3.2.4 Agricultural marketing sub-system

The supporting factors in agriculture subsystem of Java Preanger Coffee are the special product quality and easy marketing. The types of Java preanger coffee products marketed through CPCM are horn skin, green beans, roasted and grounded coffee. The Java Preanger Coffee that produced by CPCM has a taste test value of 84.67 in 2014, thus can be classified as specialty coffee, because the taste has a score above 80. According to SCAA (2009) [10], the value of coffee has total value flavor ≥ 80 on a scale of 100, it can be categorized as specialty.

There is a diversity of marketing institutions in the village of Margamulya including collector and cooperative. As many as 74 percent of farmers sell in the form of cherry coffee to the cooperative the remaining 26 percent sell to the middlemen. The middlemen sell to cooperatives in the form of green beans. A total of 14.70 percent of farmers said that guarantee of price certainty is a factor that encourages them to farm coffee. The selling price of cherry coffee ranges from Rp 7000 to 8,500 per kilogram while in the form of horn skin coffee, it can be sold for 20,000 s.d 23.00 per kilogram. Payment of coffee to farmers are in cash.

Table 4. Supporting and inhibiting factors of agricultural marketing subsystem

| Factor | Internal | External |
|--------|----------|----------|
| Supporting | Available coffee marketing agencies, as Java Preanger coffee is specialty coffee | The high price of coffee in world markets, clear of market target, increasing the consumption of world coffee |
| Inhibiting | The quality and quantity of coffee supply are not fixed, has not penetrated the consumer market directly | low levels of consumption and purchasing power of domestic consumers, the absence of coffee exporters from west Java, coffee competitor from Vietnam with cheaper price |

Java Preanger Arabica Coffee Margamulya has a clear target market with the number of continuous demand. 70% of coffee products are sold to PT Taman Delta Indonesia (TDI), and 30% are sold to Aroma stores, PT Indocom, Glory morning, cafes and gift shops located in Pangalengan Subdistrict, Bandung and surrounding areas. The selling price of green beans to PT Delta is Rp 62.000 / kg, Indocom Rp 75.000 / kg and cafe Rp 95.000 / kg. The selling price of Roated beans and goundaed beans is Rp 175,000 and 250,000 per kilogram respectively. Payment of coffee from exporter (TDI) and local cafe to cooperative is made 3-5 days after delivery of goods.

Internal inhibiting factors of Java preanger coffee are inconsistent quality and quantity of supply of coffee products to local and export markets and have not touched the consumer market directly. While external barriers include low levels of coffee consumption and consumer purchasing power, the absence of coffee exporters from western Java and the cheaper competitor of Vietnamese coffee. This is in line with the results of Kustiari’s research (2007) [11], which states that the consumption of Indonesian coffee are by 0.6 kg per capita per year, which is lower than the coffee consuming countries, yet the price of coffee in Indonesia is influenced by world coffee prices which are exogenous variable and unstable rupiah exchange rate.
3.2.5 Agriservice Subsystem

The agriservice sub-system is a supporting institutional subsystem that plays an important role for the development of the agribusiness system as a whole. Including the extension component, information, education and training, credit, etc.

Table 5. Supporting and Inhibiting Factors on Agriservices Subsystem

| Factor         | Internal                                                                 | External                                                                 |
|----------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Supporting     | The presence of farmer groups, coffee producers cooperatives and banking institutions | The presence of coffee business association (AEKI), research center for coffee and chocolate in Jember, the opening of West Java coffee exports (Law No. 12 of 2012) |
| Inhibiting     | The low access of agribusiness actors to banking                         | Lack of coordination among agribusiness support institutions               |

The supporting institutions in the form of associations of coffee entrepreneurs (AEKI), governments, research center for coffee and chocolate, farmer groups and cooperative coffee producers, have an influence on the mindset and working patterns of farmers and coffee entrepreneurs. Therefore farmers and entrepreneurs who have joined these institutions improved the quality and quantity of coffee they produced. The support of West Java provincial government in coffee development in Margamulya Village are coffee seed certification services, giving coffee seeds, strengthening of farmer groups and cooperatives. In 2010 provincial government give coffee processing equipment and coffee processing factory in 2012. While the Geographical Indicator observer community (MPIG) and AEKI helped provide market information to the agribusiness actors in Margamulya Village. The results of Kustiari’s research [11], show that macro government which gather with AEKI proactively monitor the development of world coffee demand and price, implement coffee market development to countries that still import coffee from Indonesia such as Eastern Europe, China and Russia.

Inhibiting factors in agriservice are the low access of agribusiness actors to banking, lack of coordination between farmer groups, so there are still members of the farmer group who have not implemented standard operating procedures in accordance with the UTZ certified.

4. Conclusion

Agribusiness of Java Preanger coffee in Margamulya village develop from time to time. This is because the Margamulya Village has potential natural resources for the development of Java Preanger Coffee. In order to improve the competitiveness of products in the global market, the implementation of local sustainable coffee based on local resources is required.

The supporting factors for the development of sustainable agribusiness of Java Preanger coffee are the availability of input production, the suitability of agro-climates, the high farmers motivation and the experience of farming, the technical guidance of sustainable coffee farming and operational standard of procedure on coffee processing according to UTZ certified, integration of coffee plants with livestock, and market targets, specialty coffee, high coffee prices in global markets, instant coffee, coffee opportunities from modern markets and international markets, seedlings support, building and government coffee processing equipment, farmer group institutions, cooperatives producers coffee, financial institutions, association of Indonesian coffee exporter (AEKI), coffee and cocoa research centre (Puslitkoka) and the opening of West Java coffee exporting faucet (Law No. 12 of 2012).

Inhibiting factors for the development of Java Preanger coffee agribusiness include limited capital and quality of human resources, the implementation of cultivation is not in accordance
with the technical guidance of sustainable coffee farming, climate change, quantity and quality of coffee is not maintained, the limitations of the final processing technology and has not touched the consumer market directly. On the other hand the level of consumption and purchasing power of national consumers is relatively low, added with the fluctuations in the price of coffee in the international market, the majority of coffee exporters which are not from outside West Java, and Vietnam coffee competitor that has 30% cheaper price from the national coffee price.

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5. References
[1] Dinas Perkebunan Jawa Barat 2016 Mengenal Kopi Arabika Java Preanger (KAJP) yang Telah Mendapat Perlindungan Indikasi Geografis http://disbun.jabarprov.go.id/index.php/artikel/detailartikel/119
[2] Sunjaya P and Ferry Y 2015 Keragaan kopi arabika Java Preanger di Jawa Barat Jurnal Sirkuler Inovasi Tanaman Industri dan Penyegar (SIRINOV) 3(3) 113-126
[3] Wirartha IM 2006 Metode Penelitian Sosial Ekonomi Andi Offset Yogyakarta 134
[4] Hanafie R 2010 Pengantar Ekonomi Pertanian Andi Offset Yogyakarta 31-34
[5] Kirana S and Karyani T 2017 Nilai tambah rantai pasok kopi pada Koperasi Produsen Kopi Margamulya di Kecamatan Pangalengan Kabupaten Bandung: Komparasi antara petani dan pengolah kopi AGRISEP 16 165-176
[6] Ima M and Djuwendah E 2015 Analisis kesiapan dan strategi pengembangan bisnis Koperasi Produsen Kopi Margamulya Pangalengan Bandung Proceeding Semnas Kristalisasi Paradigma Agrisbisnis dalam Pembangunan Ekonomi dan Pendidikan Tinggi IPB Bogor 257-266
[7] Xena LG and Trimo L 2014 Potensi pengembangan Preanger coffee Proceeding Seminar Nasional Pembangunan Inklusif di Sektor Pertanian Departemen Sosial Ekonomi Faperta UNPAD Bandung 205-212
[8] Sari NP, Santoso TI and Mawardi S 2013 Sebaran tingkat kesuburan tanah pada Perkebunan Rakyat Kopi Arabika di daerah tinggi Ijen-Raung menurut ketinggian tempat dan tanaman penutup Pelita Perkebunan 29 93–107
[9] Henny M 2013 Kebijakan penyediaan teknologi pascapanen kopi dan masalah pengembangannya Forum Penelitian Agro Ekonomi 31 31-49 http://ejurnal.litbang.pertanian.go.id/index.php/fae/article/view/3842
[10] Speciality Coffee Association of America (SCAA) 2009 What is specialty coffee? http://www.scaa.org/18 Juni 2014
[11] Kuastiari 2007 Perkembangan pasar kopi dunia dan implikasinya bagi Indonesia Forum Penelitian Agro Ekonomi 25 43-55