Farmers' Preferences for Citrus Agribusiness in Samarang Subdistrict, Garut, West Java

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Abstract

Samarang Subdistrict in Garut Regency is one of local citrus production centers in Indonesia. Based on the information obtained from local farmers, many citrus farmers have not seriously cultivated citrus as they only do farming as a side business. Therefore, it is necessary to investigate their reason besides motivating farmers to perform better citrus cultivation through research conducted for three months (April - June 2020) which aimed to: (1) describe farmers' preference for citrus agribusiness, (2)analyze factors affecting farmers' preference, and (3) formulate the strategy to increase farmers' interest in citrus agribusiness. Research sample was determined by certain consideration (purposive sampling) due to the limited number of citrus farmers. A total of 60 farmers out of 75 farmers were selected as respondents. Data were directly collected through interview with respondents using questionnaire that has been tested for its reliability. Data were analyzed with descriptive statistics and multi-linear regression. Result of the study found that farmers' preference in Samarang Subdistrict belonged to moderate category, factors observed to affect farmers' preference included production process (agro-production) capability and supporting factor, particularly the availability of facility and infrastructure.

Keywords: *Preference; Agribusiness; Citrus; Linear Regression*

Introduction

The Ministry of Agriculture is actively promoting the consumption of local fruits, including citrus. In Garut Regency, citrus production center is located in Samarang Subdistrict. Based on the data obtained from the Agricultural Office of Garut Regency, citrus farming is found to occupy a total area of 1.400 hectare and Garut has contributed to 63 percent of citrus production in West Java. Citrus production areas spread over 8 subdistricts, namely: Samarang, Pasirwangi, Cisurupan, Karangpawitan, Cigedug, Pakenjeng, Cikajang, and Bayongbong. In addition to its refreshing flavor and relatively inexpensive price, citrus is a promising export commodity.

However, citrus farming or citrus agribusiness in Samarang Subdistrict has not been profesionally managed. Farmers only considered citrus farming as a side business due to traumatic reasons following the destruction of Garut citrus in the past, cause by disease attack called *citrus vein phloem degeneration*

(CVPD) sourced from bacteria (not virus) *lybers bacteri aniaticum*. Whereas, the production of high quality fruits depends on the production management that is properly managed and controlled to meet consumer expectations. Several factors are observed to determine the tendency of a person. Study conducted by Effendy & Pratama (2020) found that farmers' preference for applying the technology of pair rows planting system (*jajar legowo*) in wetland rice farming were determined by individual characteristics, namely; age and experience. Moreover, in the implementation or acceptance of innovation, Effendy & Haryanto (2020) have investigated several factors and reported that determinants of youth participation in agricultural development were individual characteristics, external factors, and motivation.

The Local Government of Garut is currently restoring its past glory as a widely-known citrus producing area in the country, thus many programs are established to increase citrus production by encouraging the community to be citrus farmers. This study was aimed to: (1) describe the level of farmers' preference for citrus agribusiness in Samarang Subdistrict, (2) analyze factors affecting farmers' preference for citrus agribusiness, and (3) formulate the strategy and perform extension activity to increase farmer' preference for citrus agribusiness in Samarang Subdistrict, Garut Regency.

Research Framework

Preference or tendency is an attitude of a person to accept or reject a stimulus in the form of information or an object. It is expected that farmers' preference for citrus agribusiness is determined by several factors, both resulted from within the individual and external factors. Hence, dependent factor or factor affected by (Y) is Preference, which consisted of: culture, social, personal, and psychological. Moreover, factors affecting (X) included: farmers' characteristics (X_1) consisted of: age, education, formal education, length of experience, farming area, and number of dependents in family; citrus agribusiness (X_2) consisted of agroinput, agroproduction, agroindustry, agromarketing, and supporting system; and supporting factor (X_3) consisted of program support, facility and infrastructure, ease of access to information, and informal leader. This hypothetic of research framework is schematically presented in Figure 1.
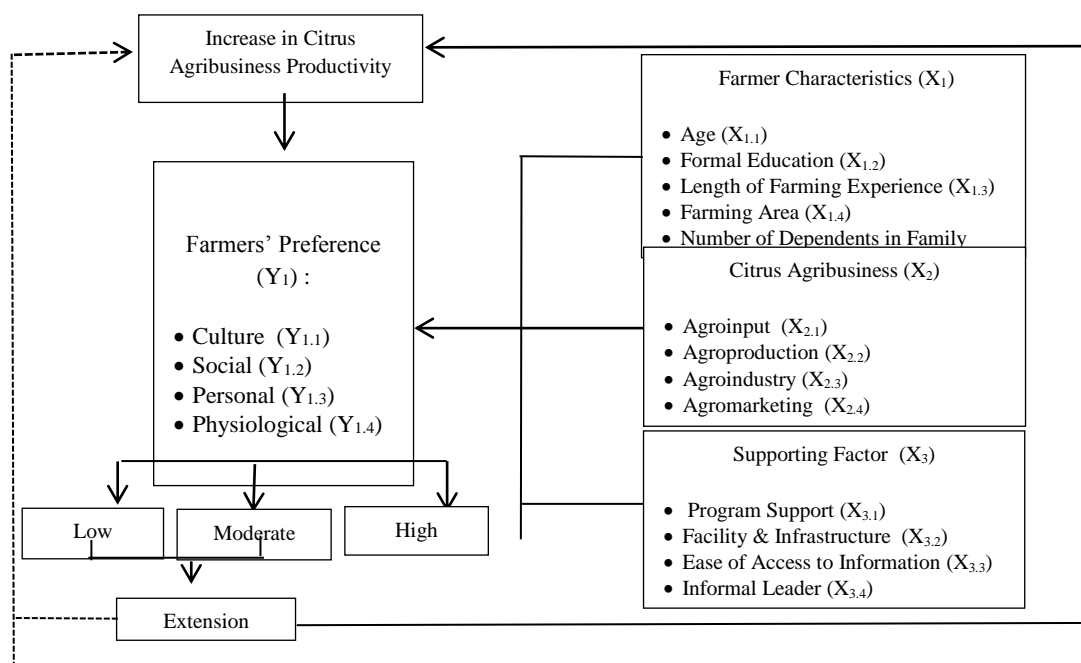

Figure 1. Research Framework of Farmers' Preference for Citrus Agribusiness

Research Methods

The research was conducted with a quantitative approach supported by qualitative data through a survey method. The research lasted for three months (April - June 2020) in Samarang District. The sampling technique was carried out deliberately by considering the limited number of citrus farmers. Of the 75 farmers, 60 respondents came from three villages; Cinta Rakyat, Cinta Asih and Suka Rasa Villages with 20 people each. Collecting data using a closed questionnaire consisting of 75 statement items and the answer options are available.

Before using the questionnaire, the validity and reliability of the questionnaire were tested through validity and reliability tests on farmers who had similar characteristics with farmers in the Samarang sub-district in Bogor district. The results of the reliability test on all variables obtained Cronbach's Alpha value of more than 0.70, so it can be concluded that the questionnaire has an adequate level of reliability and is worthy of being used as a tool for collecting data. Primary data is collected directly from respondents through interviews and field observations, while secondary data is collected from other data that supports both farmer groups and related agencies, namely the BPP of Samarang Subdistrict, the Agricultural Service and the local government. Before being analyzed, the collected data were tabulated and grouped according to their respective variables. To describe the level of farmers' preference in citrus agribusiness, the data were analyzed using descriptive statistics while to determine the factors that influence data preference, it was analyzed by multiple linear regression with the equation $Y = a + b_1.X_1 + b_2.X_2 + b_3.X_3 + \acute{\varepsilon}$. Data analysis was assisted using the SPSS series 20 program

Results and Discussion

1. Farmer Characteristics

Farmer characteristic is unique attribute of each individual selected as respondent in this study. Characteristics of respondent chose in this research consisted of: age, education level, length of farming experience, farming area, and number of dependent in family. The performance of respondent characteristics is depicted in Figure 2.
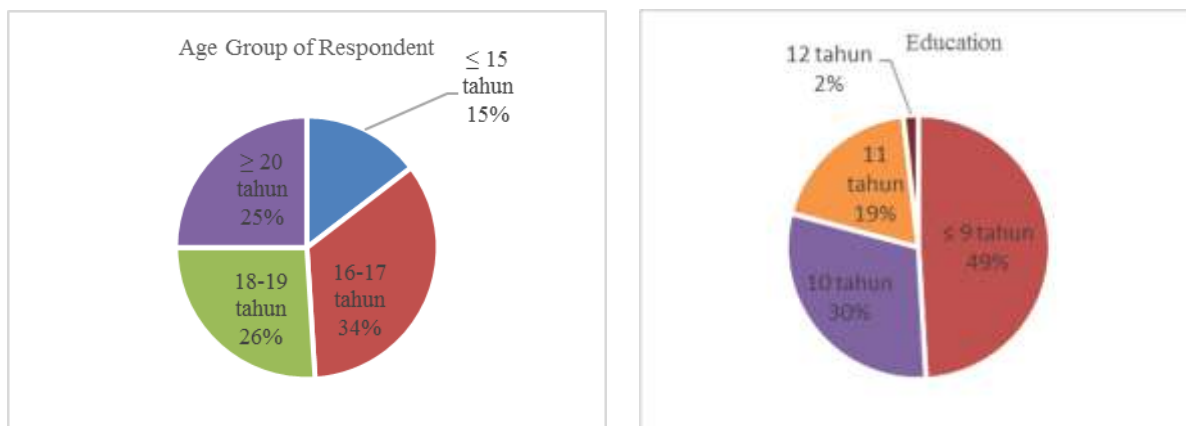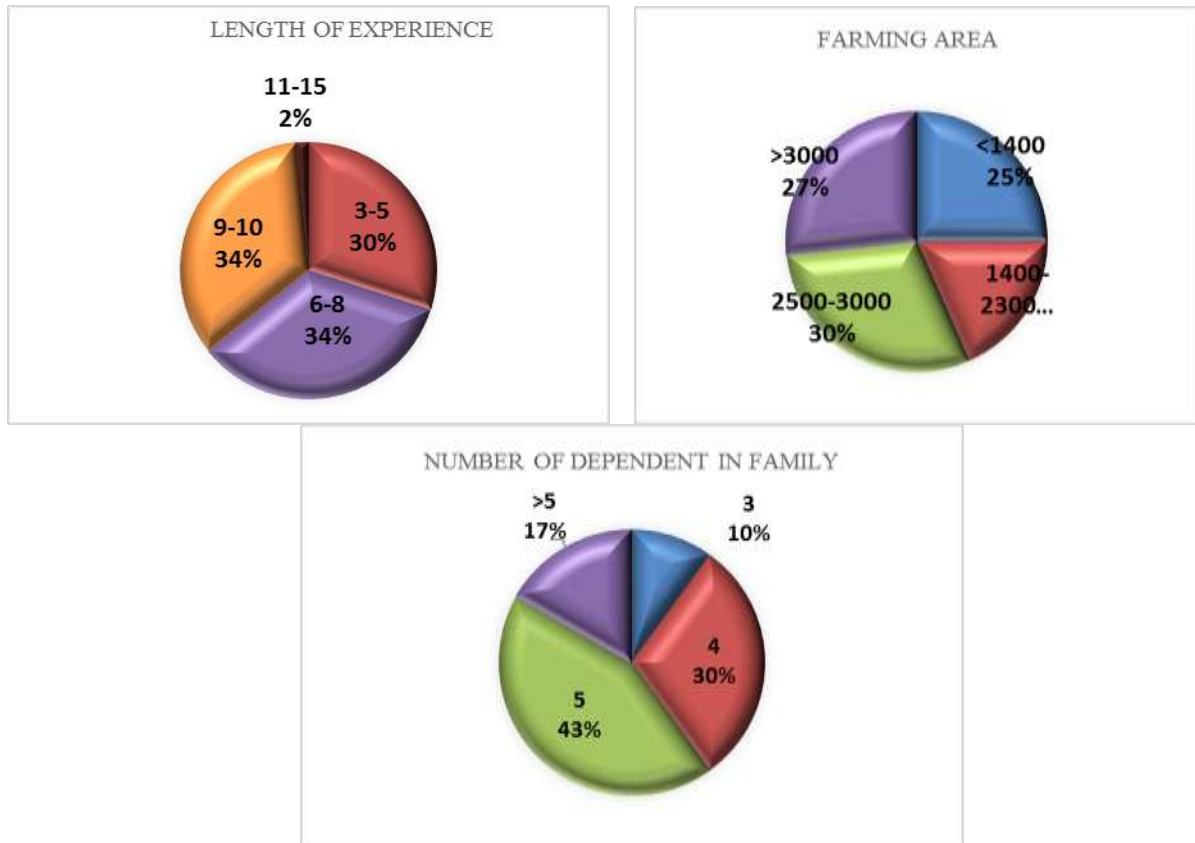
Figure 2. Performance of Respondent Characteristics

Figure 2 above shows that respondents' age mostly (34%) ranged of 16 - 17 years old, followed by range of 18 - 19 years old (26%), while the percentage of age group above 15 years and 20 years old was 15 percent and 25 percent, respectively. Overall, the majority of respondent's age was considerably young or currently termed as millennials. Education level of respondent was dominated by Primary School (SD) or has completed school for less than nine years (49%). Moreover, farmers were found to have quite a long farming experience of 6 - 10 years (68%), while farming area of most farmers (30%) was approximately 2.500 - 3.000 square meter, and about 43 percent of respondents had 5 dependents family members.

2. Citrus Agribusiness

Citrus agribusiness is a process of citrus production, started from upstream to downstream, consisted of; sub-system of agroinput, sub-system of agroproduction, sub-system of agroindustry, sub-system of agromaketing, sub-system of agrosupporting. Agribusiness performance of respondent is presented in Figure 3.
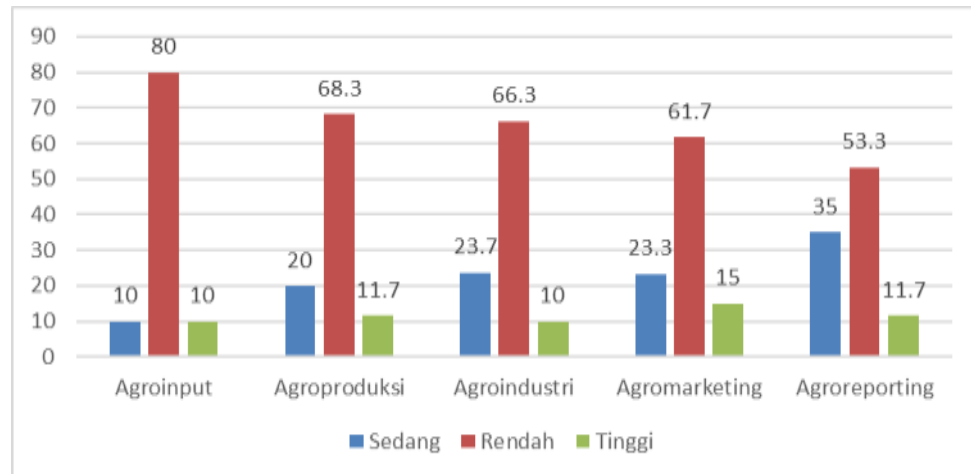
Figure 3. Performance of Citrus Agribusiness

Figure 3 depicts that all agribusiness indicators for respondent were included in the moderate category, accounted for 53.3 - 80 percent of total respondents. Agribusiness skill of respondents therefore was not yet satisfactory and improvement is essentially required.

3. Supporting Factors

Supporting factor is defined as factor expected to determine preference of respondent for conducting citrus farming, which includes: the availability of program, facility and infrastructure, ease of access to information, and local informal leadership informal. Performance of supporting factor on this study is shown in Figure 4.
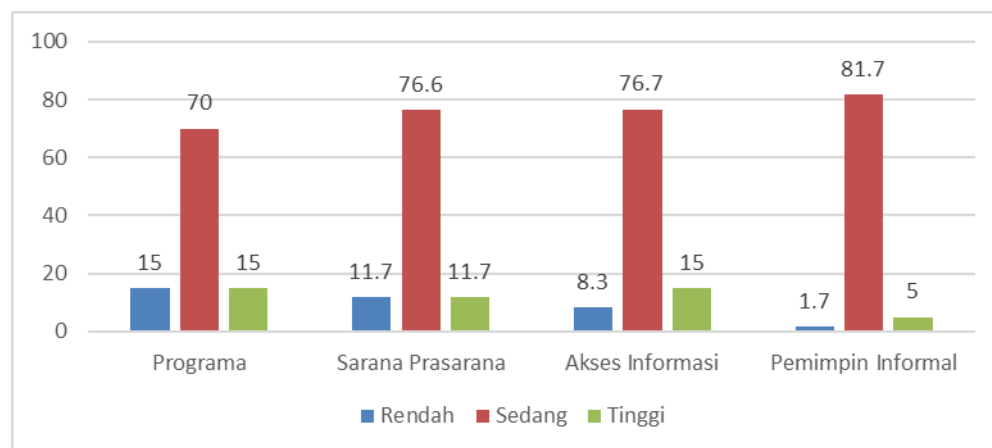

Figure 4. Performance of Supporting Factor

Figure 4 reflects that all indicators of supporting factor were included in the category of moderate with total number of respondent reached 70 - 81.7 percent, showing that program support, availability of facility and infrastructure, ease of access to information, and the role of local informal leader were not yet optimally applied, thus improvement is required.

Factors Affecting Preferences

Result of regression analysis showed that factors significantly affected farmers' preference for citrus agribusiness (p<0.001) were education level ($X_{2.2}$) and availability of production facility and infrastructure ($X_{3.2}$). Coefficient of correlation of each variable was 0.607 for education level and 0.236 for the availability of facility and infrastructure. This analysis resulted in regression equation: $Y = 2.087 + 0,607X_{2.2} - 0.236X_{3.3}$. Detail of regression analysis result is seen in Table 1 below.

Table 1. Coefficient of Correlation of Research Variables

	Coefficients[a]				
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	T	Sig.
R^2 (Constant)	0,767 2,087	,301		6,942	,000
X1.2	,018	,020	,084	,944	,350
X2.2	,607	,077	,695	7,890	,000
X3.2	-,236	,050	-4,753	-4753	,000

a. Dependent Variable: Y

Discussion

Table 1 above explains that what has a significant effect on preference is the level of education ($X_{2.2}$) and the availability of production infrastructure ($X_{3.2}$) with the mathematical equation: $Y = 2.087 + 0.607X_{2.2} - 0.236X_{3.3}$; $R^2 = 0.767$.

The education level produces a coefficient of 0.607, while the availability of infrastructure has the effect coefficient - (negative) 0.236. A positive value means that the effect of the level of education is directly proportional. That is, the higher the education, the higher the preference for citrus agribusiness, in other words the preference can be increased by optimizing the level of education. The more detailed meaning of the coefficient value is that an increase in the level of education by one point can increase farmers' preferences for citrus agribusiness by 0.607.

These results support the research results of Effendy & Badri (2020), Effendy (2020), Effendy & Haryanto (2020), Effendy *at al* (2020a), Effendy *at al* (2020b), Effendy *at al* (2020c), Effendy *at al* (2020d) which concluded that the level of education affects the capacity of a person who plays a role in the decision-making process to act to accept or reject an innovation. Meanwhile, the availability of infrastructure has a negative coefficient, meaning that farmers' preference for citrus agribusiness is inversely proportional to the availability of infrastructure, which means that the higher the availability of infrastructure, the lower the tendency to cultivate citrus farming. This result is different from the results of Effendy & Haryanto (2020) which concluded that the level of education determines youth participation in agricultural activity.

1. Effect of Individual Characteristics on Preferences

Result of descriptive analysis (Figure 2) concluded that most farmers were considerably of young age (18 - 19 years old), had low education level that equivalent to Primary School (SD), had quite a long

farming experience of 6 - 8 years with fairly large farm ownership (2.500 - 3.000 m^2), and large family dependents of 5 people. Result of regression analysis confirmed that education level significantly affected (p<0.001) preference with coefficient of 0.607, while other indicators of respondent characteristics had insignificant effect.

This result indicated that a person's tendency to make a choice in citrus agribusiness was determined by education level. It is known that education determines someone's capacity. Hence, a person will gain additional knowledge and skill through education. Similarly, education is also related to behavioral maturity of a person. This finding was similar to the study conducted by Effendy (2020) that education affected farmer adoption to technology of integrated plant management. Effendy *at al* (2020a) also confirmed that education level of farmer determined the attitude to accept or reject agricultural innovation in an effort to accelerate farmer regeneration. Moreover, Effendy & Badri (2020) also reported that farmer education provided significant effect on the increasing of farmer capacity. This research eventually supported the study of Effendy *at al* (2020b) which concluded that education significantly influenced farmers' behavior change in tomato farming.

2. Effect of Agribusiness Skills on Preferences

Result of descriptive analysis explained that agribusiness skill of farmers (Figure 3) was under the moderate category. It was also found that indicator of sub-system of farmer agribusiness system that belonged to the low category was still higher than other indicators. This result indicated that agribusiness skill of citrus farmers was not yet adequate despite the fact that citrus farming should be professionally managed.

The result of regression analysis indicated that sub-system of agroproduction significantly affected (<p 0.001) the tendency/preference of young farmer for conducting farming business. This outcome showed that comprehension/knowledge and skill related to sub-system of agroproduction determined someone's preference for accepting or rejecting an innovation. This finding supported the study carried out by Siswoyo, Effendy & Hartono (2020) that rural youth capacity could be determined by agribusiness skill which included skills related to the characteristics of innovation, technical skill of farming, and ability to establish partnership or cooperation. Similarly, Effendy & Yunika (2020) mentioned that farmers' interest was influenced by their skill on agricultural technique.

3. Effect of Supporting Factors on Preferences

The result of descriptive analysis confirmed that supporting factors that consisted of: program support, the availability of facility and infrastructure, ease of access to information, and factor of local informal leadership were included in moderate category, indicating that the role of those factors were not yet optimally perceived by farmers, while attractiveness for innovation and other factors is required to attract someone, hence becoming their motive to act. As mentioned by Effendy & Haryanto (2020), determinant of youth participation in agricultural development activity was individual characteristic, particularly age, education level, and organizational experience; followed by external support which included group organization, human resource capability, resource availability, extension activity, also facility and infrastructure; factor of motivation consisted of motive to improve social relationship, achievement, appreciation, the need for achievement, expectation to attend training, and parental encouragement.

Similarly, Effendy, Maryani, & Yulia (2020) also concluded that rural youth interest was influenced by external factors included extension activity, resource availability, and government support in the form of programs; factor of motivation covering the achievement motivation, the need for

achievement, demands of life, and the desire to expand cooperation network. Therefore, supporting factors are highly important in determining farmers' preference.

Conclusion

It can be concluded that: (1) farmers' preference for citrus agribusiness in Samarang Subdistrict, Garut Regency belonged to moderate category (69.04%), (2) factors affecting preference were education level, technical skill of citrus farming (sub-system of agroproduction), and the availability of facility and infrastructure, (3) strategy to increase farmers' preference included improvement of extension activity to increase knowledge, technical skill, and managerial skill in agribusiness management by considering factors of farmer characteristics with role that still have the possibility to be optimized.

Acknowledgement

References

Anis, S. M., Effendy, L., Muslihat, E. J., Tinggi, S., & Pertanian, P. (2014). Partisipasi Anggota Kelompoktani Dalam Penyusunan Rencana Definitif Kelompok / Rencana Definitif. *Jurnal Penyuluhan Pertanian*, *9 No,* 37–42.

[BPP] Balai Penyuluhan Petanian, Perikanan, dan Kehutanan. Programa BPP Samarang 2019.

[BPS] Badan Pusat Statistik. *Kabupaten Garut Provinsi Jawa Barat Dalam Angka 2018*. 2018.

[BALITJESTRO] Balai Penelitian Tanaman Jeruk Dan Buah Subtropika.Jawa Timur.2018.

Effendy, Lukman. *Panduan Karya Ilmiah Penugasan Akhir* Polbangtan Bogor. Bogor. 2019.

Effendy L and Badri D. 2020. *The Farmer Capacity Improvement Model on The Implementation of Rice Field Balanced Fertilization in Singdangkasih Subdistrict Ciamis*. Journal of The Social Sciences (JSS) Vol. 48(2), April 2020. p 1769 - 1780. Cosmos Impact Factor: 6.120 (2019)

Effendy, Lukman. 2020. *The Role of Institution and Innovation in The Adoption of Integrated Crop Management Technology of Lowland Rice of West Bandung and Sumedang Distric*t. International Journal of Multicultural and Multireligious Understanding (IJMMU). Vol. 7(4), May 2020. p 279 - 293. https://dx.doi.org/10.18415/ijmmu.v7i4.1639

Effendy L and Haryanto Y. 2020. *Determinant Factors of Rural Youth Participation in Agricultural Development Programme at Majalengka District,* Indonesia. International Journal of Innovative Research & Development (IJRD). Vol. 9(5), May 2020. p 1 - 10. https://doi: 10.24940/ijird/2020/v9/i5/MAY20074

Effendy L, Kusnadi D, Maryani A, and Pradiana W. 2020a. *Accelerating Farmers' Regeneration of Chili Farmers in Garut District, West Java, Indonesia.* The International Journal of Humanities & Social Studies (Theijhss). Vol. 8(5), May 2020. p 373 - 383. https://DOI No.: 10.24940/theijhss/2020/v8/i5/HS2005-111

Effendy L, Maryani A, dan Yulia A.A. 2020b. Faktor-Faktor yang Mempengaruhi Minat Pemuda Perdesaan pada Pertanian di Kecamatan Sindangkasih Ciamis. Jurnal Penyuluhan. Vol. 16(02). September 2020. Hal. 213 - 223. https://doi.org/10.25015/16202030742

Effendy L, Pradiana W, Haryanto Y and Harischandra T. 2020c. *Farmer Behavior Transformation on Tomato Farming Business in Mega Mendung Subdistrict Bogor, West Java.* Scientific Research Journal (SCIRJ), Vol. VIII, Issue VIII, August 2020. p 111 - 124. https://dx.doi.org/10.31364/SCIRJ/V8.I8.2020.P0820799

Effendy L, Billah, T. & Pratama, G. 2020. Preferensi Petani dalam Pengunaan Teknologi Jajar Legowo Padi Sawah di Kecamatan Cikedung. Jurnal Inovasi Penelitian (JIP). Vol. 1(3), Agustus 2020. Hal. 347 - 360. https://doi.org/10.47492/jip.v1i3.81

Effendy L dan Yunika C. 2020. Model Peningkatan Petani pada Penerapan Teknologi Tanam Jajar Legowo Padi Sawah di Kecamatan Cikoneng Ciamis. Journal of Agricultural Extension (Agritexts). Vol. 44(2), Nov 2020. Hal.75 - 83

Siswoyo, Effendy L. and Hartono R. 2020. Model Pengembangan Kapasitas Pemuda Perdesaan pada Komunitas Usahatani Cabai di Kabupaten Garut Jawa Barat, Indonesia. Journal of The Social Sciences (JSS) Vol. 48(4), Oktober 2020. p 1709 - 1728. Cosmos Impact Factor: 6.120 (2019)

Wahyu, A.S. Effendy L & Krisnawati, E. 2020. Percepatan Regenerasi Petani pada Komunitas Usahatani Sayuran di Kecamatan Samarang Kabupaten Garut Prov. Jawa Barat. Jurnal Inovasi Penelitian (JIP). Vol. 1 (3), Agustus 2020. Hal. 325 - 336. htpps://doi.org/10.47492/jip.v1i3.59

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