

Effort to Improve the Interests of Young Generations in the Agricultural Sector to Attain Food Security in Indonesia

Yodfiatfinda^{1,*}

¹Dept. of Agribusiness, Faculty of Bioindustry Universitas Trilogi Jakarta, Indonesia

*Corresponding author. Email: yodfi@trilogi.ac.id

ABSTRACT

This paper aims to investigate an effort to increase the interest of young people in the agricultural sector. The article is a review paper which has been collected more than twenty relevant scholar publications. The problem of the diminishing number of young farmers is quite worrying because the condition shall bring consequences in the long term that is a shortage of food production. Children from a farmer family rarely are willing to continue their parent business. Such a condition is fuelling by converting agricultural land to other purpose. This condition shall bring consequences, that is diminishing the number of food production in the future. Therefore, the lack of interest of young people in the agricultural sector is a serious problem that needs to be solved. The trend is that many young people "avoid" from the farmer's profession and this phenomenon must be seen comprehensively. We suggest three alternative ways to increase young people's interest in the agricultural sector, 1) through earlier education approach, 2) forming the conducive agribusiness climate approach and 3) using social media community approach.

Keywords: young generation, agriculture, food security, Indonesia

1. INTRODUCTION

In all countries, food security is a main issue to be solved. If the people get a shortage of food supply, then the country development cannot be conducted, even various other problems will arise such as social, economic, security crises and political instability as well (Herdiawan, 2012) [1]. It is not surprising that in the Millennium Development Goals (MDGs), solving the problem of food shortages is the first goal. It continues as the second goal in the Sustainable Development Goals (SDGs). This means that the problem of food security is a global problem of the world community.

Agriculture and food are two things that are inseparable because almost all foodstuffs come from the agricultural sector. Behind as the source of staple food, agriculture also provides employment for most of the population. The BPS data (2017) [2] states that as many as 39.68 million Indonesians (31.86%) working in the agricultural sector with a contribution to GDP of 13%. A researcher of the FAO food issues, Timmer (2005) [3] said that no country is able to get out of the poverty line without supporting by a productive agricultural sector. This means that agriculture is an economic sector that needs attention, not only as a pillar of the national economy but it has a mission to provide food for the population, especially in urban areas where land cannot produce food for residents

living in the areas. In line with the argument, Dobermann and Nelson (2013) [4] conclude that food shortages and poverty can be overcome by developing the agriculture sector because advanced agriculture is directly proportional to food availability for the population.

The staple food of most Indonesian people is rice. Nevertheless, until now Indonesia has not been able to fulfill the national demand of rice. We have achieved rice self-sufficiency in 1984 to 1987 but again have to import rice since 1988. From 2005-2015, data from BPS shows that total imports of rice reached 10 million tons, valued at USD 4.7 billion (56% from Vietnam, 30.7% from Thailand and 13.3% from other countries).

One of the real problems laid in the agricultural sector is that the number of farmers continues to decline. In this demographic bonus era, it makes unhappy since the reduction occurs within the young farmer's group (Lovitasari et al., 2017) [5]. While Miharja (2017) [6] said that food availability was largely determined by the human resources involved. Farhani, (2009) [7] finding that the interest of the young generation to become farmers or businesses in agriculture also tends to decrease. The agricultural workforce and agricultural entrepreneurs are dominated by population groups at age of 40 years up. Susilowati (2016) [8] conducted a study about the phenomenon of aging farmer and its implications for

agricultural development. It was reported that the average age of farmers is getting older (the number of young farmers is declining). This is related to the low level of land tenure, prestige of being a farmer and income that is not attractive to young people.

The problem about the aging farmers is being concerned to all parties. If food production activities are only carried out by the older generation, then slowly but surely, the number of farmers will decrease from year to year. This is a crucial condition because, the problem of rice supply is not only an economic problem but also often extendable become political turmoil. Even to measure national food security, the indicator of food availability has the greatest influence. The increase in rice prices can also trigger inflation. In an effort to achieve rice self-sufficiency, Abbas (2017)[9] revealed a theory namely "push and pull". This theory assumes that people will interest in farming because they feel a satisfaction of two things, that is (1) the sufficient production and they can sell the products at good prices (income side), and (2) the government plays a role in creating farmers satisfaction by building production facilities or infrastructure such as dams, irrigation systems, warehouses, roads and so on (the investment climate side). The government maintains price stability at a good level of balance. Wiyono (2015) [10] argues that increasing rice production can be done by increasing the number of farmers as well as increasing productivity. It was also stated that farmers who had increased their welfare tried to send their children to college. However, he did not want his son to enter the world of agriculture to continue the business he had initiated.

At present, the push factor from inside is very low because of various factors such as prestige, fear of do not get prospering in his life and so on. While the pull factor, which is an attractive condition for someone to become a farmer, is the domain of the government and related parties such as agricultural SOEs, national private companies, research agencies, and universities. So, based on this push and pull theory, someone (including the younger generation) will decide to go into business in agriculture by creating a situation that makes them interested.

There are several factors that directly or indirectly influence the interest of the younger generation in agriculture, including regional economic cooperation, such as the Asean Economic Community ((MEA) and foreign direct investment (FDI). Yonariza and Mahdi (2015) [11] write that the implementation of MEA brings regional character 1) Single market and production base unit, 2) Highly economically competitive region, 3) Balanced economic development area, and 4) region fully integrated with the global economy. This is of course directly or indirectly giving effect to the domestic labor market, especially in the agricultural sector. Most of the investment is taking place in the industrial sector (manufacturing) and services. This is an opportunity and a challenge as well that needs to be addressed by Indonesia carefully. It is an opportunity because generating job, but also stay as a challenge since the investment encourages

the transformation of labor from the agricultural sector to non-agriculture.

Meanwhile, FDI mostly goes to the non-agricultural sector such as industry, construction, and mining. As a result, the non-agricultural sector grew rapidly and opened up many jobs. Labor wages rise along with economic growth, higher than wage increases in the agricultural sector. Therefore, employment is scrambling to get jobs in the non-agricultural sector. Even if there are those who eventually go into the farming business, it is temporarily waiting for opportunities to work in other fields. This is in accordance with the findings of Suharjo et al. (2017) [12] who said that foreign investment entering the industrial sector and services led to a reduced outpouring of work in the agricultural sector.

Another factor is disparity between imported and domestic production price. Farmers in several ASEAN member countries such as Thailand, Vietnam and Myanmar can produce cheaper rice from Indonesian farmers. The reason is the different of productivity and efficiency of input structure, such as land, labor, fertilizers, etc. As long as prices in the foreign market are cheaper, the trader having pressure tend to import rice and this is difficult to avoid. Farmers stand as inferior party, if the price of rice is low, farmers cannot do bargain, on the other hand input price tend to be more expensive and farmers cannot bargain as well. Darwanto and Rahayu (2008) [13] have conducted a study, the influence of rice price disparity on the international market with rice prices in the domestic market. WFP (2018) [14] states that the average food price in Indonesia is 50-70 percent more expensive than rice price in the neighboring countries.

BPS data as of February 2017 noted that there were only 36 million Indonesian farmers, in just three years it has dropped by 1.2 million (since February 2014). This condition needs to be taken seriously and sought a way out so that the reduction in the number of farmers does not continue which will endanger food production and certainly have an impact on national food security.

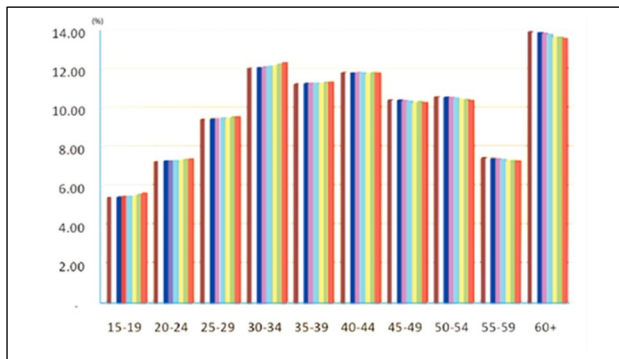
II. METHODS

The method used is descriptive qualitative. This manuscript is a review paper that has discussed more than twenty scholar publications and is enriched with data from the relevant institution. The early formation of the paper has been completed with a focus group discussion in the National Resilience Institute, Jakarta in 2018.

III. RESULTS AND DISCUSSION

Studies regarding farmer regeneration display a similar result that is on average age of farmers is getting older. For example, Wiyono (2015) [10] stated that in the 10 years, from 2003 to 2013, the number of farmer households decreased by 5 million. This amount is quite large because each household usually consists of 3 to 5 members and they are generally as a subsistence farmer. There is not only a reduction in the number of farmworkers; another problem is the shift in the age group of farmers to become older. The

number of farmers continues to decline and is accompanied by the aging of farmers as shown in the following figure.



(Sources, Wiyono, 2015)

Figure 1. Percentage of food crop farmers by age group

From the Figure 2 above, it can be seen that the age interval of farmers between 35 and 60 years dominates the age structure of farmers. If farmers aged 15 to 34 years continue to decline, the peak position of the graph will shift to the right side and a total number of farmers will drop dramatically. After the age of 60 years old, there are many farmers will unproductive or less productive, either because of retirement or due to physiological dysfunction problems. Farmers in age over 45 years old reach 60.8%. The low productivity of farmers is related to the level of education, which is 73.97% of farmers only completed elementary school. Compared to the productivity of farmers from neighboring countries, the productivity of farmers in Indonesia is the lowest. The percentage of elderly farmers relates to low levels of education and the ability to apply technology or create new technological innovations.

Data released by the statistical office (BPS) shows that the downward trend in the number of workers in the agricultural sector continues from year to year. In 2009 (August) the number of agricultural workers was 38,609,997 people. In the same month in 2013 it decreased to 35,591,376 people. When viewed by age group, data from 2001 to 2013 showed that the decline in agricultural labor was 675,123 people. The decline in the group of young workers (15-39) years reached 717,283 people, while elderly workers (40 years and above) increased by 42,160 (Pusdatin Ministry of Agriculture, 2018) [15]. Yulianto (2013) [16] conducted a transformation study of labor in Central Java, saying that the transformation of labor generally occurred from the agricultural sector outside the agricultural sector or what is called sectoral migration.

Economists argue that nationally, Indonesia is in an era of demographic bonuses, means the proportion of the workforce population is more than the non-workforce population. This can be seen from the comparative data of workers in the following figure.

During the period of 2008 to 2017, there was an increase in the workforce by 20,066,664 people or an average of 2 million people per year. However, based on data from the Ministry of Agriculture, absorption of agricultural labor

tends to decline significantly to reach 33.51%. When viewed by age group, the age of young workers (15 to 34 years old) in the same period increased from 45.9 million to 48.6 million. However, this increase is not in line with the data of farmers according to the age groups. On the one hand, the number of young workers has increased, but the number of young farmers has declined in the other side.

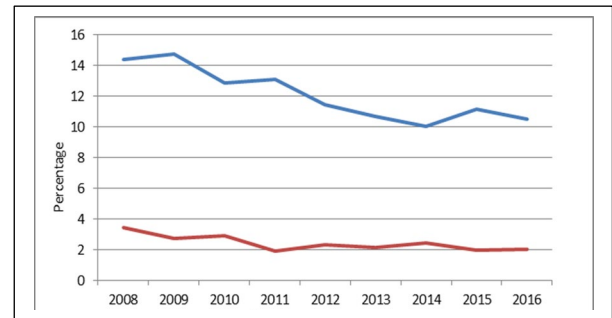


Figure 2. Percentage of unemployment by age group

The reduced age group of farmers occurs at the age of 15 to 35 years (young generation). Some of the factors that drive this direction include the perception of the younger generation that pursuing the world of agriculture lacks bright prospects, heavy work, dirty, not prestigious, and a high risk of failure due to weather conditions. In addition, it has become common knowledge that the farmer exchange rate (NTP) is low; being a farmer is synonymous with people who are less educated and poor. Maslow's Needs Theory can explain why the younger generations lack interest in the agricultural sector, i.e. because they are encouraged to immediately fulfill the needs of life according to Maslow's proposed hierarchy.

Based on the push and pull theory that has been discussed previously, it can be said that the reason of the low interest of the younger generation in the agricultural sector is twofold, first there is no interesting factor to become farmers and secondly the community environment and the government have not created a good agribusiness climate. Most rice production in Indonesia is carried out by small-scale farmers with have small land tenure (on average only 0.4 ha). The families of farmers who generally live in rural areas, try to provide higher education to their children, with the hope that someday they will work in the city with a fixed salary and live easier and more prosperously. When they have finished college, members of the farmer's family do not return to the village to continue their parents' efforts to become farmers. Such a phenomenon is indeed real in the farming community.

The head of the National Food Security Agency, in a scientific speech at the Andalas University Padang on November 27, 2017, stated that there were five factors that trigger the lack of interest of younger generation in agriculture, namely (1) lower labor income in the agricultural sector compared to the industrial sector and services, (2) career prospects are more promising career paths that are more certain in the field of non-agriculture, (3) encouragement of farmer families who do not want their children to become farmers, (4) increasingly difficult fertile land due to uncontrolled land conversion rates and (5)

farmers lack knowledge and skills in running agribusiness, including in terms of managerial capabilities. The accumulation of these five factors plus the influence of globalization and information technology makes the younger generation increasingly reluctant to become farmers.

Setyorini (2001) [17] said that education contribute to development of agricultural sector. Understanding the important of adequate food supply for national resilience will more effective through education. While information shared by media also influence the image of youth. Unfortunately, negative news like poor farmer, low welfare and high risk business has been portrait the agricultural characteristic.

Table 1. Value Added Agriculture Sector 2015-2016

Province	2015	2016
Aceh	42,654.75	54,925.95
North Sumatera	51,135.52	51,029.96
West Sumatera	51,888.22	55,030.95
Riau	133,796.84	136,770.92
Jambi	53,397.56	63,875.03
South Sumatera	27,313.30	29,474.20
Bengkulu	31,473.83	40,468.01
lampung	45,409.58	46,585.29
Bkep. babel	52,786.94	59,464.81
Bangka Belitong Island	76,720.78	74,588.67
DKI Jakarta	93,465.33	37,007.55
West Java	42,802.73	46,621.65
Central Java	33,378.24	32,432.06
Yogyakarta	24,726.51	24,100.70
East Java	32,793.24	35,406.67
Banten	45,195.68	44,740.15
Bali	50,416.06	56,880.74
NTB	27,026.93	26,926.82
NTT	16,637.88	20,028.52
West Kalimantan	23,315.63	29,342.92
Central Kalimantan	40,960.81	54,584.76
South Kalimantan	30,038.33	30,790.90
East Kalimantan	117,931.49	118,241.50
North Kalimantan	118,135.69	140,601.29
North Sulawesi	62,087.88	54,842.96
Central Sulawesi	50,657.56	53,056.31
South Sulawesi	54,134.11	60,159.90
Southeast Sulawesi	43,147.05	49,649.32
Gorontalo	61,858.39	71,163.97
West Sulawesi	39,711.43	47,834.36
Maluku	26,992.62	32,727.04
North Maluku	27,298.93	35,416.67
West Papua	42,680.47	49,046.96
Papua	16,324.59	19,717.41
Indonesia	41,213.77	44,188.26

Note: Value in Rupiah
Source: BPS (2018) [19]

If we look at the income side, the average farmers' income is much lower than the non-agricultural sector workers. In 2014, the per capita income of the agricultural sector was around Rp. 9,032/day. The poor category according to the World Bank is someone whose income is less than USD 2 per day. By a dollar exchange rate of Rp 14,000, it means farmers' income is less than 1 USD per day, and to include the poor families. Santoso (2007) [18] said that lately, the non-farm sector has developed in rural areas. In the short term this helps poverty eradication but has an impact on reducing the absorption of labor in the agricultural sector. Industries that high employment absorption such as garment, consumer's goods, etc., has been changed intention of rural workforce to get job in the industries rather to be as farmer.

Table 1 above shows that the average of value-added of the agricultural sector per worker ranges from 20,028 to 140,601. The value look to increase in 2016 compared to 2015. However, it is still lower than minimum regional wage in each province.

Hamyana (2017) [20] examines the factors that encourage and inhibit the younger generation from entering the agricultural sector in Malang. There are two motives that explain this phenomenon, namely moral-cultural base and rational-structural base motives. The motive mentioned earlier, working in the agricultural sector is interpreted as a calling for conscience and moral responsibility to produce food. While the latter, working in agriculture is understood as an option based on how much the choice provides economic, social and environmental benefits (the concept of opportunity cost). Similar result reported by Khonitan and Utami (2019) [21]. Wiyono (2015) [22] reported that good business climate is important to bring young generation interested to agribusiness, especially image in easily to sell agricultural products in market at a fair level of price.

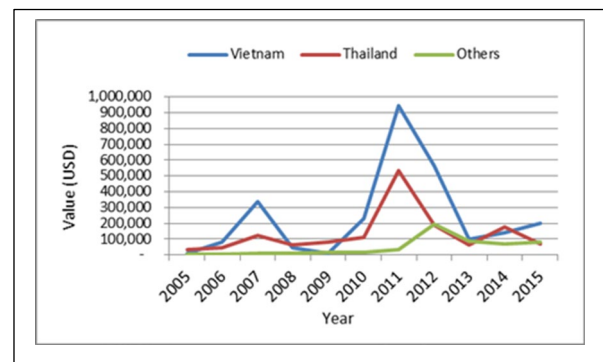


Figure 3. Value of Rice Imports for 2005-2015

Definition of food security, according to Law No. 18/2012 concerning Food, is "the condition of fulfilling food from the state level up to individuals, which is reflected in the availability of sufficient food, both in number and quality, safe, diverse, nutritious, equitable, and affordable and does not conflict with religion, beliefs and culture community, to be able to live a healthy, active and productive life in a sustainable manner. "Food security has become a central issue within the framework of agricultural development and

national development which shows, among others, the issue of food security as one of the operational policies of agricultural development.

Indonesia has more 265 million populations. If food supply depends on imported sources, then the country stays on a high-risk food security condition.

By the value (Figure 3), shows that Indonesia has spent money of almost 4,689.5 billion USD (equivalent to 63.3 trillion rupiah, if 1 USD = IDR 13,500) to buy rice from various countries mostly from Vietnam and Thailand. This value is not a small one, considering our country is in need of foreign exchange for development. If rice farming can produce rice with the same or better productivity than farmers abroad, then this country perhaps does not need to import rice, on the contrary, we can export.

Most of the Indonesian population consumes rice as a staple food. According to BPS, the per capita consumption of the Indonesian population is 114.5 kg/year, so nearly 30 million tons of rice per year is needed to feed the entire population. According to Lantarsih et al (2011) [23] rice is the main staple food and tends to be single in various regions in Indonesia, including areas that previously had a non-rice staple food pattern. Therefore, most of the energy consumed by the community came from rice.

Overcoming food shortages by importing source, it can solve the problem temporarily. However, Indonesia with a large population will face a dangerous situation, if it relies on its food supply from imported sources. If something happens in the import process, such as transportation problems, deteriorating diplomatic relations with supplying countries, or world food prices rise sharply, the situation could have a negative impact on national interests. This is of course not in accordance with the principle of food security and sovereignty whose concept is to rely on one's own strength (long-term self-sufficiency in food). Therefore, food production from domestic sources must continue to be increased.

Increasing domestic food production must start by arranging inputs for agricultural businesses. One important input that will be raised in this paper is the number of agricultural workers from the younger generation. An NGO, the People's Coalition for Food Sovereignty (KRKP) conducted a simple study of the children of horticulture farmers and rice farmers. It was found that 54 percent of the children of horticulture farmers and 63 percent of children of rice farmers did not want to continue their profession/business of their parents as farmers. The factors that influence are assets and access to land, erratic selling prices and agricultural education. The head of the farm family also wants their children to work in other sectors such as being government employees, private employees, especially if the children successfully complete education to university.

Failure to regenerate farmers can threaten national food sovereignty. When elderly farmers are no longer able to go to the fields, then food production will decrease, and ultimately the food supply for the population can be disrupted which endangers political and security stability. At present, life expectancy in Indonesia is 70 years, while

the retirement age is 65 years. Susilowati (2016) [8] found that the proportion of farmers aged over 40–54 years was the largest reach 41% and the second-largest proportion was the age group of more than 55 years which could be classified as old farmers, to reach 27%, while the younger generation with age groups less than 35 years is only 11%. This means that 68 percent of farmers are over 40 years old. Within the next decade almost all of the senior farmers retired. If it is not replaced by a young farmer (regeneration) with a balanced amount, then slowly but surely people who produce food continue to decrease from year to year which will automatically reduce food production. Imports, which have been a concern, will actually increase the volume and Indonesia will become increasingly sovereign in fulfilling food needs.

To bring young generation close to the agricultural sector must be starting as earlier as we can. They have to know the important position of food production. Tarik and Fauzan (2017) [24] found that education is the best way to make young generation close to agricultural sector. While government is also must generate suitable climate for agribusiness. Most of farmers were not fairly educated; therefore, regulation is needed to protect them to enter a competitive market. One other manner to attract youth to agriculture is using social media. Supported by high perform communication devices young people can access whatever information from their mobile phone and they tend to form community. Therefore farming social community is relevant to introduce agricultural issue to make young people close to agribusiness. Supratman (2018) [25] found that currently young people spend 79 percent of time to access information through internet.

IV. CONCLUSION

To realize national food security, it is identical to the availability of sufficient amounts of rice at affordable prices for the community. Rice production must be supported by a sufficient number of farmers, including farmers from the younger generation. But the current reality of the younger generation is less interested in the agricultural sector and it also continues to decline in number. This certainly does not support efforts to realize food security in the long term. We suggest three alternative ways to increase young people's interest in the agricultural sector, 1) through earlier education approach, 2) forming a suitable agribusiness climate approach and 3) using social media community approach.

Therefore, one of the efforts to realize food security is to increase the interest of the younger generation in plunging into the field of agricultural business, especially rice farming. Increasing the interest of the young generation to farm business is the effort of all components of the nation, especially by governments that have regulatory authorities, then researchers, universities and entrepreneurs. If the number of young farmers increases, then rice production will increase as well and food security can be realized.

ACKNOWLEDGMENT

I deliver many thanks to the National Resilience Agency of Republic of Indonesia (LEMHANNAS RI) that enable me to complete this manuscript as participants in the PPRA 57

(Program Pendidikan Reguler Angkatan 57) under supervisory of Maj.General (Ret) I Gusti Putu Buana.

REFERENCES

- [1] Herdiawan, D. Ketahanan pangan dan radikalisme. Penerbit Republika. 2012. Jakarta. p.2.
- [2] Badan Pusat Statistik (2017), available online at www.bps.go.id (accessed June 2018)
- [3] Timmer, P. Agriculture and pro-poor growth: An Asian perspective. Working paper number 62 of Center for global development. 2005. Available online at http://siteresources.worldbank.org/INTAFRSMESD/Resources/1729402-1150389437293/Timmer_Ag_and_PPG_CGDEV_WP63.pdf (accessed on May, 20th 2018)
- [4] Dobermann, A and Nelson R. Solutions for sustainable agriculture and food systems. Technical report for the post-2015 development agenda. Publication of Sustainable Development Solution Network-2013. Available at <http://unsdsn.org/wp-content/uploads/2014/02/130919-TG07-Agriculture-Report-WEB.pdf> (accessed May 20th, 2018).
- [5] Lovitasari, N.M., Diarta, I.K.S dan Suryawardani, I.G.O Persepsi generasi muda terhadap minat bertani di kawasan pariwisata Tanah Lot (Kasus Subak Gadon III, Tabanan). Jurnal Agribisnis dan Agrowisata, Vol 6. No.4 (Oktober 2017).
- [6] Miharja, S. Peningkatan kemampuan kewirausahaan di kalangan pemuda guna meningkatkan ketahanan pangan. dalam: Nasionalisme ketahanan pangan dan kemandirian bangsa, Saptanno M.J. dan Haumahu, J.P. (editor). Pattimura University Press. 2012. Hal 27-30R.
- [7] Farhani, A. Motivasi Sosial Ekonomi Petani Beralih Pekerjaan Dari Sektor Pertanian Ke Sektor Industri Kerajinan Mebel Di Desa Serenan, Kecamatan Juwiring, Kabupaten Klaten. Skripsi Sarjana. 2009. Fakultas Pertanian Universitas Sebelas Maret.
- [8] Susilowati, S.H. Fenomena penuaan petani dan berkurangnya tenaga kerja muda serta implikasinya bagi kebijakan pembangunan pertanian. Jurnal Forum Penelitian Agro Ekonomi Vol 34 No. 1 Juli 2016: 35-55
- [9] Abbas, S. Sejarah kesuksesan swasembada beras Indonesia. Makalah dipresentasikan pada seminar nasional: From Rice Importer to Self Sufficiency, di Universitas Trilogi, 23 Maret 2017.
- [10] Susilowati, S.H (2016). Fenomena penuaan petani dan berkurangnya tenaga kerja muda serta implikasinya bagi kebijakan pembangunan pertanian. Jurnal Forum Penelitian Agro Ekonomi Vol 34 No. 1 Juli 2016: 35-55
- [11] Yonariza dan Mahdi (2015). Potensi Dampak Masyarakat Ekonomi ASEAN/MEA 2015 Terhadap Sektor Pertanian Indonesia. Publikasi Pusat Studi Ekonomi Pertanian, Badan Penelitian dan Pengembangan Pertanian. Tersedia online pada laman web: https://pse.litbang.pertanian.go.id/ind/pdffiles/PROS2013_09_Yonariza.pdf diakses tgl 11 Juli 2018.
- [12] Suharjo, Marwanti, S., dan Irianto, H. (2017). Pengaruh ekspor, impor, dan investasi terhadap pertumbuhan sektor pertanian Indonesia Jurnal Agro Ekonomi, Vol. 35 No. 1, Mei 2017:49-65
- [13] Darwanto, D.H dan Rahayu, E.S. Analisis faktor-faktor yang mempengaruhi impor beras Indonesia. Jurnal Caraka Tani Vo. 23. No. 1. 2008
- [14] World Food Program. What the World Food Programme is doing in Indonesia. Available online at <http://www1.wfp.org/countries/indonesia>. Accessed July 2018.
- [15] Pusdatin Kementerian Pertanian. Tersedia online pada http://aplikasi2.pertanian.go.id/konsumsi/tampil_susena_s_kom_th.php diakses Mei 2018
- [16] Yuliyanto. Analisis keputusan tenaga kerja pedesaan melakukan migrasi sektoral di luar pertanian. Jurnal Economics Development Analysis Journal 2 (4) (2013).
- [17] Septiyorini N., Pengembangan sistem agribisnis komoditas padi ketan di desa Cibeureum kecamatan Cibeureum kabupaten Kuningan [laporan gladikarya]. Bogor: Fakultas Ekonomi dan Manajemen, Institut Pertanian Bogor. 2001
- [18] Santoso, A.B. (2007). Peluang Kerja Non-Farm di Perdesaan (Kajian teoritis Strategi Pengentasan Kemiskinan di Perdesaan). Jurnaal Geografi Vol. 4 No. 1 2007.
- [19] Badan Pusat Statistik (2018), available online at www.bps.go.id (accessed June 2018)
- [20] Hamyana. Motif kerja generasi muda di bidang pertanian: Studi fenomenologi tentang motif kerja di bidang pertanian pada kelompok pemuda tani di Kota Batu. Jurnal Mediapsi. Vol 3 No. 1 2017
- [21] Khonitan, D. dan Utami, B.N. Motivasi generasi muda dalam menyongsong revolusi industri 4.0 melalui pendidikan bidang pertanian di sekolah tinggi penyuluhan pertanian malang. Jurnal Sains Psikologi, Jilid 8, Nomor 1, Maret 2019, hlm 162-170
- [22] Wiyono, S. Kajian regenerasi petani pada keluarga petani padi dan hortikultura. Koalisi Rakyat untuk Keadaulatan Pangan 2015. Available online at http://images.agri-profocus.nl/upload/2015_KRKP_Laporan_Kajian_Regenerasi_Petani_1466659556.pdf (accessed on 12 Mei 2019)
- [23] Lantasih, R., Widodo, S., Darwanto, D.H, Lestari, S.B dan Paramita, S. (2011). Sistem ketahanan pangan nasional : kontribusi ketersediaan dan konsumsi energi serta optimalisasi distribusi beras. Jurnal Analisis Kebijakan Pertanian. Volume 9 No. 1, Maret 2011 : 33-51
- [24] Tarik, A and Fauzan, I. Edukasi teknologi pertanian untuk anak usia dini di desa cilayung, Kecamatan Jatiningor. Jurnal Aplikasi Ipteks untuk Masyarakat Vol. 6, No. 1, Maret 2017: 18 – 20
- [25] Supartman, L.P. Penggunaan Media Sosial oleh Digital Native Jurnal Ilmu Komunikasi Volume 15, No 1, Juni 2018: 47-60