Socio economic characteristics and its effect to tea farming management behavior of tea smallholders in West Java Province

Karakteristik sosial ekonomi petani teh rakyat dan pengaruhnya terhadap perilaku pengelolaan usahatani teh rakyat di Provinsi Jawa Barat

Kralawi Sita

Research Institute for Tea and Cinchona
Gambung, Pasirjambu Subdistrict, Bandung District, West Java Province 40972
Phone: 022-5928186, Fax: 022-5928780

Abstract

The research aimed to: 1) described the socio-economic characteristics of tea smallholders in West Java Province; 2) described tea farming management behavior of tea smallholder in West Java Province; and 3) analyzed the effect of socio-economic characteristics to a behavior of tea farming management. The research took place in nine tea smallholder plantation center in West Java Province where the Program of National Tea Agribusiness Improvement Action held. The research method used descriptive study with quantitative approach. The sampling method used proportional random sampling with 320 respondents or at least 5% from population area. Data analyzed used multiple linear regression analysis with Backward Model through SPPS 21.0 program. The result showed that tea smallholders have a certain socio-economic characteristics in managing their tea farming. Behavior tea smallholders in tea farming management showed similarities and differences. The limited access to productive resources, technology, information, market, financial and extension make management on tea farming not optimal. Economic variables i.e. gender, main job, tea productivity, tea prices, and tea farming income positively significant to tea farming management behavior of tea smallholders. Its variables have the power to encourage and to motivate potential influence and spirit of tea smallholders in managing their tea farming.

Keywords: socio economic characteristics, tea smallholder, tea farming management behavior, West Java

Abstrak

Penelitian ini bertujuan: 1) mendeskripsikan karakteristik sosial ekonomi petani teh rakyat di Provinsi Jawa Barat; 2) mendeskripsikan perilaku pengelolaan usahatani teh rakyat di Prov. Jawa Barat; 3) menganalisis pengaruh karakteristik sosial ekonomi terhadap perilaku pengelolaan usahatani teh rakyat. Penelitian berlokasi di sembilan wilayah sentra perkebunan rakyat di Prov. Jawa Barat dimana Program Gerakan Penyelamatan Agribisnis Teh Nasional dilaksanakan. Penelitian ini menggunakan metode deskripsi dengan pendekatan kuantitatif. Metode pengambilan sampel menggunakan pengambilan secara acak proporsional dengan jumlah sebanyak 320 responden atau 5% dari populasi area. Data dianalisis dengan menggunakan analisis regresi linier berganda dengan model metode Backward melalui ban-

tuan program SPSS 21.0. Hasil menunjukkan bahwa petani teh rakyat mempunyai karakteristik sosial ekonomi tertentu dalam mengelola usahataninya. Perilaku petani teh dalam mengelola usahatani tehnya menunjukkan adanya kesamaan dan perbedaan. Keterbatasan akses terhadap sumberdaya produktif, teknologi, pasar, modal finansial, dan penyuluhan membuat pengelolaan usahatani teh tidak optimal. Variabel sosial ekonomi antara lain gender, pekerjaan pokok, produktivitas teh, harga teh, dan pendapatan usahatani teh berpengaruh positif secara signifikan terhadap perilaku petani teh rakyat dalam mengelola usahatani tehnya. Variabel-variabel ini mempunyai kekuatan yang potensial untuk meningkatkan dan mendorong petani teh dalam upaya pengelolaan usahatani teh rakyat.

Kata kunci: *karakteristik sosial ekonomi, petani teh rakyat, perilaku pengelolaan usahatani teh, Jawa Barat*

INTRODUCTION

Tea is an important agricultural commodity in Indonesia, in terms of economy as exports earnings, social as employment, and ecology as environmental conservation. Tea plantation contributed 5% of Indonesian GDP in 2012 and USD 110 million on foreign exchange. Tea plantation is labor intensive, too. It provided meaningful employments to over 300 thousand households and feed approximately 1.2 million people (Pusdatin, 2013; Santosa, 2014).

As one of the major tea producer in the world, 36% of tea production in Indonesia produced by tea smallholders with 46% of total area of tea plantation in Indonesia (Directorate General of Plantation, 2014 cit www.bps.go.id). Increasing tea smallholder productivity and extent under cultivation are possible solutions to achieve the national targets in the tea sector. Ho-

wever, recently tea smallholder plantation showed in poor condition and on declining issued. Not only because of decreasing of productivity which caused by old tea plant also tea prices level which less favorable (MoA, 2015). In another fact, the condition of tea smallholder plantation indicated the efforts of tea plant conversion to other commodities or other purposes. Indonesia Tea Board (2013) revealed that until 2012 there has been a decline of 1.7% tea land area per year. It feared could threaten the existence and sustainability of tea smallholder plantation, particularly and national tea agribusiness, generally.

With this background, there is a risk of resource wastage if there unless proper planning is done at the initial stages of tea development programs especially in the centers of tea smallholder plantation. Further, it could cause poor awareness, poor adoption of tea farming management recommended and more extremely tea development programs could be failed due to insufficient attention on the needs of tea smallholders. So that it needs an analysis of the general condition of tea smallholder, especially related to socio-economic characteristics and the management of tea farming of tea smallholders condition. Studying this condition is a basic necessity to identify which need to be strengthened to increase. Hence, the research was conducted or aimed to provide statistical data and information description about:

1. Socio-economic characteristics of tea smallholder in West Java Province.
2. Tea farming management behavior of tea smallholder in West Java Province.
3. The effect of socio-economic characteristics of tea smallholder to tea farming management behavior.

MATERIALS AND METHODS

This research method is a descriptive study with used quantitative approach. The research took place in nine tea smallholder plantation centers in West Java Province where the Program of Tea Rehabilitation and Intensification also known as National Tea Agribusiness Improvement Action Project (GPATN) held, i.e. Bandung, Bandung Barat, Garut, Tasikmalaya, Majalengka, Sumedang, Purwakarta, Subang and Ciamis Districts.

In the GPATN tea smallholder project, a total of 320 respondents were proportional randomly selected from the list of households of tea smallholder population. Quantitative data was collected by structured interview using questioner which contained the structured questions about socio-economic characteristics and tea plantation management. The variables research and its indicators can be seen in Table 1. and Table 2.

Data was analyzed with multiple linear regression models that used to explain the causal between one variable or some variables. Multiple linear regression analyzes with Backward method were processed through the Statistical Package for the Social Sciences (SPSS) program version 21.0.

RESULTS AND DISCUSSIONS

West Java Province located between 5°50'–7°50' of South Longitude and 104°-48'–108°48' of East Longitude. The climate of West Java Province is tropical, with an average temperature about 17.4–30.7ºC and humidity about 73–84%.

West Java Province has plantations that are managed by the State Owned Plantations or PTPN Estate (PBN), Private Estate (PBS), and smallholder (PBR). Potential commodities are tea, coconut, oil palm, sugar cane and rubber plantations with a total area of 494,166 ha in 2013. The harvested area of tea plantation on West Java Province in 2013 is 94,391 ha with tea production of 113.885 tons, and tea productivity of 1,564 tons/ha which still less than 2 tons/ha. Tea highest productivity achieved by the private estates followed by PTPN estates and the last was smallholders as the lowest productivity.

Socio-economic characteristics of tea smallholder profile

Age, gender, and main job

Table 3 indicated selected socio economic characteristics of the tea smallholders in the sample of tea smallholders in West Java Province population. The age's average of tea smallholder is 50.76 years old and most of tea smallholder or tea grower (63.76%) still in middle productive age. Research data indicates that the majority of tea smallholder still dominated by men. The female who work as tea smallholder usually replacing her husband position because her husband has passed away or her husband has a job outside far from the area of where their live. So the female take over the responsibility to tea farming.

TABLE 1
Socio economic characteristics variables

Variable	Measurement
a. Age	a. Years
b. Gender	b. 1. Male; 2. Female
c. Main Job	c. 1. Tea farmer; 2. Horticulture farmer; 3. Paddy-Palawija farmer; 4. Landless farmer (farm hired labour); 5. Other hired labour; 6. Husbandry; 7. Trader; 8. Entrepreneur; and 9. Government Officer.
d. Size of Land	d. Hectare
e. Household Status	e. 1. Head of household; 2. Member of household
f. Size of Household	f. Person
g. Education Level	g. 1. No school; 2. Elementary school; 3. Junior high school; 4. Senior high school; 5. Bachelor.
h. Informal Education Experiences	h. 1. Yes; 2. No
i. Tea Farming Experience	i. Years
j. Tea Productivity	j. Kg/ha/year
k. Tea Prices	k. IDR/month
l. Tea Farming Income	l. IDR/kg Green Leaves
m. Family Income	m. IDR/month

Source: Adopted from Chirwa et al., 2005; Tanui et al., 2012; Onduru, et al., 2012

TABLE 2
Tea farming management behavior variables

Variable	Measurement
a. Tea Plant Population	a. %
b. Tea Clones	b. 1. TRI; 2. GMB; 3. Sinensis
c. Cropping pattern	c. 1. Monoculture; 2. Polyculture
d. Seedling	d. 1. Cutting; 2. Polybag
e. Shade trees	e. 1. Yes; 2. No
f. Weeding	f. Time/year
g. Infilling	g. 1. Yes; 2. No
h. Fertilizing	h. Time/year
i. Spraying	i. 1. Yes; 2. No.
j. Pruning	j. Years
k. Plucking Cycle	k. 1. 10-15 day; 2. 16-20 day; 3. 21-30 day; 4. More than 30 day
l. Plucking Type	l. 1. Manual; 2. Semi-mechanical (Shears); 3. Mechanical.
m. Green Leaves Plucking Quality	m. 1. Soft plucking; 2. Medium plucking; 3. Hard plucking
n. Post harvest	n. 1. 100% Selling directly; 2. 100% Processing and value added; 3. 50% selling directly – 50% Processing
o. Marketing	o. 1. Sell to tea farmer group; 2. Sell to middlemen; 3. Sell to tea factory.

Source: Adopted from Chirwa et al., 2005; Tanui et al., 2012; Onduru, et al., 2012; PPTK, 2006

TABLE 3
Distribution of socio-economic of tea smallholder profile in West Java Province

Variable	Category	Number of farmers	Ratio (%)
Age	Pre Productive (15–39 years)	41	12.81
	Mid. Productive (40–60 years)	204	**63.75**
	Post Productive (61–65 years)	33	10.31
	Non Productive (>65 years)	42	13.13
Gender	Men	235	**73.44**
	Women	85	26.56
Occupation	Tea Farmer	288	**90.00**
	Horticultural Farmer	3	0.94
	Paddy Farmer	5	1.56
	On Farm Hired Labour	11	3.44
	Off Farm Hired Labour	2	0.63
	Trader	2	0.63
	Entrepreneur	3	0.94
	Government Officer	6	1.88
Size of Land Area	<0.5 ha	80	25.00
	0.5–1 ha	206	**64.33**
	>1 ha	34	10.63
Household Status	Head of Household	239	**74.69**
	Member of Household	81	25.31
Size of Household	0–2 persons	127	39.69
	2–4 persons	139	**43.44**
	>4 persons	54	16.88
Education Level	No School	7	2.19
	Elementary School	210	**65.63**
	Junior High School	47	14.69
	Senior High School	46	14.38
	Bachelor/Master	10	3.13
Informal Education Experiences	Yes	232	**72.5**
	No	88	27.5
Tea Farming Experiences	<5 years	13	4.06
	5–10 years	28	8.75
	>10 years	279	**87.19**
Green Leaves Productivity	<1.000 kg/ha/year	181	**56.56**
	1.000-2.000 kg/ha/year	108	33.75
	>2.000 kh/ha/year	31	9.69
Green Leaves Production	<500 kg/month	250	**78.13**
	500–1.000 kg/month	54	16.87
	>1.000 kg/month	16	5.00
Green Leaves Prices	<IDR.2.000	281	**87.81**
	>IDR.2.000	39	12.18
Tea Farming Income	<UMP West Java Province (IDR.1.887.619/month)	310	**96.87**
	>UMP West Java Province (IDR.1.887.619/month)	10	3.13
Family Income	<UMP West Java Province (IDR.1.887.619/month)	234	**73.13**
	>UMP West Java Province (IDR.1.887.619/month)	86	26.87

Source: Primary Data, 2015

TABLE 4

Distribution of tea farming management behavior profile in West Java Province

Variable	Category	Number of farmers	Ratio (%)
Tea Population	< 40%	74	23.13
	40–70%	148	**46.25**
	> 70%	98	30.63
Tea Clones	TRI Series	255	**79.69**
	GMB Series	57	17.81
	Sinensis	8	2.50
Cropping Pattern	Monoculture	137	42.81
	Polyculture	183	**57.19**
Seedling Sources	Cutting	70	21.88
	Polybag	250	**78.13**
Shade Trees	Yes	296	**92.5**
	No	24	7.5
Weeding	< 3 times	78	24.37
	3–4 times	210	**65.63**
	> 4 times	32	10.00
Infilling	Yes	191	**59.69**
	No	129	40.31
Fertilizing	< 3 times	219	**68.44**
	3–4 times	96	30.00
	> 4 times	5	1.56
Spraying	Yes	242	**75.63**
	No	76	24.38
Pruning	< 3 years	30	9.37
	3–4 years	241	**75.31**
	> 4 years	49	15.31
Plucking Cycle	10–15 days	138	**43.13**
	16–20 days	80	25.00
	21–30 days	57	17.81
	> 30 days	45	14.06
Plucking Type	Manual	82	25.63
	Semi Mechanical (Shears)	238	**74.38**
	Mechanical	0	0
Green Leaves Quality	Soft Quality GL	8	2.50
	Medium Quality GL	141	44.06
	Hard Quality GL	171	**53.44**
Post-Harvest	Sell Directly	320	**100**
	Processing First	0	0
Marketing	Tea Farmer Group	130	**40.63**
	Middlemen	108	33.75
	Tea Factory	82	25.63

Source: Primary Data, 2015

Research indicates that there are 80%, a significant number of tea smallholder considered tea as their main job, but unfortunately the contribution of tea farming income to family income is only 32.42%. As a supplementary occupation or second job including paddy cultivation, horticultural or vegetable cultivation, hired labour, trader, and other occupations.

Household status, household size, education level, informal education experiences, and tea farming experiences

Mostly, 74.69% of tea smallholders are the head of household. The household's size of tea smallholder family was found to be two up to four persons. However, the education level of most tea smallholder in West Java Province (86.83%) was still

dominated graduation from primary level education or elementary school. Tea smallholder who has higher education level will have broader mindset so they will be able to manage the resources of tea farm to more efficient and profitable, and vice versa. Though most of the tea smallholders just have basic education level but most of tea smallholder improved their knowledge and skill about tea farming by participated in informal education (72.5%), such as field school for tea integrated pest management training (SLPHT), tea cultivation training, tea nursery training, etc. usually held by Plantation Office of West Java Province in collaboration with tea research institute. Hence, low formal and informal education needs to be considered as a constraint in improving the awareness of tea farmers in tea smallholder plantation areas.

Most of the tea smallholders already have tea farming experience of over ten years (87.19%). It makes the tea smallholder should be thinking and act rationally on the change and development of tea farming, specifically, and agriculture development, generally. Besides, it will make the tea smallholder more independent in taking the right decisions related to his tea farm in order to remain profit.

Size of land area

The average of the size of the land area of tea farming is less than 1 ha or around of 0.7 ha. FAO (2012) stated that tea smallholders grow tea on land size between 0.8 up to 2 ha, and sold tea without processing. But few of tea smallholders have tea land area up to 6 ha. Year to year the declining of tea smallholder land area continues to occur. From the field obser-

vation, the conversion happened for other purposes, like for horticultural cultivation, such as tomato, chili, potato, cabbage, etc or other purposes.

Green leaves productivity and prices

Most green leaves productivity of tea small holders as samples of respondents (56.56%) still less than 1,000 kg/ha. In general (78.13%), tea smallholders plucked less than 500 kg green leaves per month with seasonal variations. From the survey, the lowest green leaves production per month was nine kilograms, while the highest was 5,000 kg.

The tea farm gate prices of green leaves usually given by the tea factory. However, there are various tea buyers around tea planting area. The average of farm gate prices was around IDR.1,000– IDR.2,500 but mostly (87.81%), the prices accepted by tea smallholder was less than IDR.2,000 and there was no price differentiation based on green leaves quality (analysis of tea shoots). The tea smallholder, actually have a prerogative right to choose the prices as well as the buyers, but most of them have no power to negotiate the prices that determined. Besides that, most of the tea smallholders have a consideration to choose the buyers because they can borrow the capital for production input needs and it will be paid when the green leaves harvest time from green leaves income.

Income source

The tea farming income and the family income of tea smallholder are still lower than the standard of a minimum wage (UMP) of West Java Province in 2015

(IDR1,887,619/month). The average of tea farming income is IDR508,804/month while the average of family income is IDR1,569,479/month. The contribution of tea farming income to family income is 32.42%. The other income comes from other activities, such as hired labor, farming (paddy, vegetable or other crops cultivation), husbandry, trader, and entrepreneur.

Tea farming management behavior
Tea population, tea clones and cropping pattern

Most of the tea plant populations on tea land area of tea smallholder are only around 40–70% from 10,000 tea plants population that recommended.

TRI tea clones series i.e. TRI 2024 and TRI 2025 are the most tea clones planted in tea smallholders (76.69%). Another tea clones are sinensis clones such as Yabukita and Kaligua. Only 17.81% of tea smallholders substituted their tea with GMB tea clones series. In term of cropping pattern, tea smallholders applied polyculture with fruit trees, woody trees, and spice or herbs trees. In addition to their function as shade trees, these trees can also generate the income.

Seedling sources

Mostly, tea smallholder obtained tea seed in polybag seedlings which is a form of government incentive that is channelled through the tea farmer groups. Only a few of farmers made the seedling by themselves or bought it for infilling their field. Mostly the tea seedling did not certified, therefore, the quality of tea seedling can not be guaranteed.

Shade trees, weeding, infilling, fertilizing, spraying, and pruning

In tea garden of tea smallholder, mostly used shade trees like silver oak, woody trees (teak, albasia, mahogany, eucalyptus, lamtoro, Bogor trees, suren etc.), fruit trees (mangosteen, avocado, etc.), and spice trees (clove, pepper) not only to protect the tea plant but also to generate income purposes.

About 65.63% of tea smallholder weeding their field in three to four times a year in the way of manual as well as herbicide application. Infilling have been done by the tea smallholder (65.63%). Usually, they used GMB clone series for infilling. They got the source of infilling through the government's incentive.

In most of the tea smallholder, manuring has been done less than three times a year due to the lack of capability to buy fertilizer. In most cases, the using of fertilizer is determined by its availability. In the case of pests and diseases controls, most of the tea smallholders (75.63%) spraying pesticides. Unfortunately, in pesticide application, they were seldom to wear personal protective equipment (EEP). The average of tea plant pruning cycle of tea smallholder was three to four years (75.31%). About 15.31% of tea smallholder pruning their tea plant more than four years or even no pruning at all due to the lack capital, knowledge, and information. If the pruning cycle is more than four years, the plant health will be decrease and the improving of productivity will be difficult to achieve.

Leaf plucking

Most tea smallholders (43.13%) pluck the leaf with 10 to 15 days of plucking

cycle. They usually used semi-mechanical tools for tea plucking activity. But, tea smallholders have little awareness on the importance of quality of green leaves. It showed from mostly the quality of green leaves is hard quality plucking (53.44%). It caused by the price they obtain for green leaves not based on green leaves quality. There rarely an incentive to maintain green leaves quality from tea smallholders. Therefore, they more give attention to increasing the weight or quantity of green leaves to get same prices than quality.

Post-harvest and marketing

Research indicated that all tea small-holders (100%) sell directly their green leaves. They never process green leaves first to added value of the green leaves because the lack of technology, knowledge, market information and finance. Their green leaves, mostly (40.63%) sell directly to tea farmer groups as a partner of tea factory or buyers and the prices have already determined from the buyers. In mostly, tea farmer groups only as a production function, there is still less business function done to improve value added of the green leaves. However, tea farmer groups can be the main potential to improve tea small-holders product considering the land area of tea smallholders which is the largest tea land area than private and state-owned plantation and a huge market share of tea product in the future. The tea farmer group have social capital through their collective action and local wisdom. The sustainable training and extension for tea smallholder and their farmer groups are very important need.

The effect of socio economic characteristics of tea smallholder to tea farming management behavior

The suspected factors that affect tea farming management behavior of tea small-holder are age, gender, main job, size of land, household status, size of household, education level, informal education experiences, tea farming experiences, green leaves productivity, green leaves prices, tea farming income, family income. The result of multiple linear regression analysis by used SPSS version 21.0 with the Backward method can be seen on Table 5.

Based on the analysis of multiple linear regression result output lists the R-squared value as 0.946 meaning that 94.6% of the tea farming management behavior was explained by gender, main job, green leaves productivity, green leaves prices, and tea farming income, while the remaining 5.4% affected by other factors were not included in this regression model.

Gender positive significantly influen-ced tea farming management behavior. From field result, in tea farming manage-ment activities, not as well as men, women have less access to tea productive resources, services, and opportunities which still do-minated by men. Usually, women as tea smallholder only to continued or replaced her husband in tea farming. It makes their power and resources associated tea farming decision, especially in commercial tea pro-duction less and more limited than men. Despite the fact that women play an important role in general family income by providing labor for tea harvesting and they have also contributed the primary respon-sibility for maintaining the household. Some studies have argued that women less likely to adopt because of lack of rights to

grow tea, men more likely to engage in tea farming and take up the recommendations on their fields than women, and gender relations affect negatively to tea production and productivity caused by conflicts over the control of proceeds of tea sales (Von Bulow and Sorensen, 1993; Adesiana *et al.*, 2000; Tanui *et al.*, 2012).

Farmers who make tea farmer as the main job will have a commitment and fully devote their attention and time on working hours to manage their tea farm field well as a form of dependence important of the main source of family income, at least, to fulfill their daily self-consumption. It will be different with other farmers who make tea farmers as the second job, then time on working hours and attention in managing their tea field will be smaller and usually they will delegate to others who can manage it. Tea farming as main job usually regarded as the image person's social status in society (Soekanto, 1992) and social classes (Doepke and Zilibotti, 2008). Even

though tea farming as the main job but not necessarily can give the greatest revenue.

Tea productivity and tea prices significantly affect tea farming management behavior of tea smallholders. The low productivity (under 2 ton per ha per year) by year to year does not motivate the farmers to improve the management on tea farming because the lack access of new technology and information that more efficient and profitable. It also caused by the risk factor of prices volatility that tend to decreased. Finally, it caused the low of farm gate prices of green leaves tea smallholders which mostly still under IDR2.000/kg green leaves, while ideally the farm gate prices, at least, an IDR2.000/kg green leaves in order to provide benefits to tea smallholders (Santoso, 2014). From field survey found that in tea farmers there was no price differentiation where to depend on green leaves quality and also mostly tea smallholders have limited access to the market. Its condition would make tea farmers

TABLE 5
The multiple linear regression analysis result output with backward model method
of the factors socio-economic characteristics of tea smallholders that significantly effect
to tea farming management behavior (Model 9).

No.	Variable	Regression Koef	t-values	Sig
	(constant)	85.309	12.284	0.000
1.	Gender	6.222	2.335	0.020
2.	Main job	1.937	2.477	0.014
3.	Green leaves productivity	0.006	4.248	0.000
4.	Green leaves prices	0.012	2.939	0.004
5.	Tea farming income	3.908E-006	2.168	0.031

Note:
N : 320; R : 0.973; R Square : 0.946; Adjusted R Square : 0.943; F-value : 10.133; F-table $\alpha = 0.05$: 1.880
t-table $\alpha = 0.05$: 1.652. Multiple linear regression equation model: Tea farming management behavior
= 85.309 + 6.222 Gender + 1.937 Main job + 0.006GL productivity + 0.012GL prices + 3.908E-006
Tea farming income

Sources: Primary Data, 2015 processed by used SPSS version 21.0 (*Backward* Model Method)

become less passionate in caring for and managing their tea plant.

The tea farming income significantly influenced tea farming management behavior of tea smallholders. The low income from tea farming can be regarded as a bottleneck in an adoption of recommended tea technologies in the right way. Tea smallholders with high tea farming income will show a high to adopt tea farming management. Mostly, tea smallholders cultivate other crops in tea field to improve their family income, by intercropping tea with other crops. It needs new innovation to make new income from tea farming beside of introducing intercropping but also with increasing the value added of green leaves of tea smallholders by developing the downstream of tea smallholder products.

CONCLUSIONS

The result of this study showed that tea smallholders have a certain socio economic characteristic to support the management of their tea farming. In another side, behavior tea smallholders in tea farming management showed similarities and differences to adopt tea technologies, especially on tea cultivation technology. From tea crop, a farming activity can contribute to household food security and income generation for a household. Unfortunately, the limited access to productive resources, technology, information, market, financial and extension make the management on tea farming not optimal and also make the bargaining position of tea smallholder lower. This is indicated by low productivity (<1 ton/ha/year) and low prices in green leaves selling (<IDR.2,000).

This study also indicated the socio-economic characteristics that affected significantly to tea farming management behavior are gender, main job, tea productivity, tea prices, and tea farming income. Its variables have the power to encourage and motivate potential influence, spirit, and passionate of tea smallholders in managing their tea farming.

From this study, there are recommendations to various tea stakeholders for improving tea smallholder condition on how to improve their tea productivity and livelihood quality through tea development program which not gender bias. Enlarging market information and providing to support and facilitate tea smallholders by paying higher and based on commitment quality of tea shoots. Providing and strengthen tea smallholders on a sustainable extension through technical of new technology, added value of tea smallholders products, and marketing assistance, also finance schemes to make tea farming as the main job not only as a social status but also the important is give high income and welfare to tea smallholders society.

ACKNOWLEDGMENTS

of this study. Also, gratefully acknowledge for the extension workers who helped in facilitation in the field. A sincere appreciation is extended to tea smallholders for their unreserved support.

REFERENCES

Adesina A.A, Mbila D, Nkamleu G.B, and Endamana D. 2000. Econometric analysis of the determinants of adoption of alley farming by farmers in the forest zone of Southwest Cameroon. *Agric. Ecosyst. Environ*, Vol. 80: 255-285.

Chirwa, E.W. and J. Kydd. 2005. *Study on farmer organisations in smallholder tea in Malawi.* DFID. United Kingdom.

Doepke, M., and F. Zilibotti. 2008. Occupational choice and the spirit of capitalism. *The Quaterly Journal of Economics*: 747–793

FAO. 2012. *Report on contributions of smallholders to the tea sub-sector and policies required to enhance their livelihood.* Colombo. Sri Lanka.

Indonesian Tea Board., 2013. Gerakan Penyelamatan Agribisnis The Nasional. http://indoteaboard.org/z1-/?page_id=8. Accessed on March, 25th 2014.

Ministry of Agriculture. 2015. *Strategic planing of Ministry of Agriculture in year 2015–2019*. The Indonesia Ministry of Agriculture.

Onduru, D.D., A. De Jager, S. Hiller, and R. Van den Bosch., 2012. Sustainability of smallholder tea production in developing countries: Learning experiences from farmer field schools in Kenya. *International Journal of Development and Sustainability* Vol. 1 (3): 714–742.

PPTK., 2006. *Petunjuk Kultur Teknis Tanaman Teh*. Edisi ketiga. Pusat Penelitian The dan Kina. LRPI. Bandung.

Pusdatin., 2013. *Analisis PDB Sektor Pertanian 2013*. Pusat Data dan Sistem Informasi Pertanian. Sekretariat Jenderal Kementerian Pertanian. Jakarta.

Santosa, A. 2014. Harga Teh Belum Menguntungkan Petani. *Media Perkebunan: Sumber Inspirasi Agribisnis*. Edisi 124 Maret 2014. Ditjen Perkebunan. Jakarta.

Santoso, J. 2014. Jadikan Teh Komoditas Unggulan. http://radarbandung.co.id/-berita.jadikan.teh.komoditas.unggulan html.

Soekanto, S. 1992. *Memperkenalkan Sosiologi*. Rajawali. Jakarta.

Tanui, JK, W. Feng, X. Li, Y. Wang, and Mary J. Kipsat. 2012. Socio-economic constraints to adoption of yield improving tea farming technologies: A study of smallholder tea farmers affiliated to estates in Nandi Hills Kenya. *African Journal of Agricultural Research*, Vol. 7: 2560-2568.

Von Bulow D, and Sorensen A. 1993. Gender and contract farming tea cut grower schemes in Kenya. *Review of African Political Economy*, Vol. 58: 38-52.