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Impacts of the Training and Additional Information on the Label of Origin on Mango Farmers

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Abstract

Previous studies show that farmers generally do not know the concepts and procedures to get mango origin labeling so that it can be concluded that their cognitive abilities related to the concept of origin labeling is still lacking, and so far the issues of the origin labeling have not been adequately addressed. The role of the farming group leaders is expected to be able to lead and mobilize their members to make innovation in product development of Gedong Gincu. Besides that, "origin labeling" publicity campaign needs to be encouraged in a number of ways, one of which is through providing sustainable guidance for farmers by various stakeholders involved. Manufacturers expect that the origin labeling will be able to increase their revenue and guarantee them better selling price than that of regular mangos, market network, and price certainty. The research used an experimental design to 69 traditional farmers, 114 transitional farmers, and 77 commercial farmers with 40 farmers as control data. Data was collective from May –August 2013 in Kecamatan Sedong, Greged, Astanajapura, Dukupuntang Kabupaten Cirebon. The variables measured were production process, use of technology, post-harvest handling, target market, farmers' participation informing groups, market risk, access to capital, and selling methods of sales. The study revealed that there are changes among traditional, transitional, and commercial farmers in terms of their activity after they have been provided with additional training and information of origin labeling.

Keywords: Traditional farmers, Transitional Farmers, Commercial Farmers, Experimental Design, Training, Provision of Additional Information, Origin Labeling.

Introduction

Cirebon, Majalengka, and Indramayu regencies are mango production centers in West Java. Cirebon was chosen as the study area because there are traditional, transitional and commercial farmers. The three classifications are characterized by their differences in market tatgets, sales volume, access to market information, financing, farmer share, and so forth. Trandisional farmers with sales volume of 0-30% and share farmer of <40% sell their mangoes to the traditional market, do not have access to market information, and are self-financed. Transitional farmers with sales volume of 31-60% and farmer share of 40% - 50% aim at traditional and inter-regional markets and have access to market information. In addition, wholesalers sometimes assist these farmers with production cost. On the other hand, commercial farmers with their sales volume of 61-100% and farmer share> 50 aim at supermarkets and export markets, have access to price information especially the price of mangoes from competitor countries, and have access to banks.

If the traditional, transitional and commercial farmers are given different training and knowledge, they respond differently to the way they manage their mango business. Training and knowledge given to them among others are i. the relation of profit with origin labeling and promotion, ii. the relation of added value with the origin labelling and market orientation, and iii. the relation of the origin labelling with quality and food safety. While the observed variables among other means of production, technology, post-harvest handling, target market, the participation of farmers in farmer groups, marketing risks, access to capital, methods of selling.

Mango producers of all types were given different treatments and knowledge, their reponse to i. method of production, ii. technology, iii. post harvest handling, iv. market targets, v. their pairticipation in farmer groups, vi. marketing risk, vii. access to capital, and viii. method of sales. They also respoded differently to the idea of using origin labelling. They were given information on the concept of origin labelling, its relation with promotion, added value, market orientation, quality, and food safety. With this information, farmers are expected to change their tradional farming activities. Therefore, the research focuses on: identifying and classifying mango farmers. The impacts of training and information on origin labeling on farmers in terms of their farming activities. To what extent origin labelling is able to increase their welfare.

Materials and Methods

One of the procedures in conducting experimental design is to select and formulate the problem of origin label development of mango. Next, the selection of subjects and instruments was

carried out. The research used an experimental design to 69 traditional farmers, 114 transitional farmers, and 77 commercial farmers with 40 farmers as control data. Data was collective from May –August 2013 in Kecamatan Sedong, Greged, Astanajapura, Dukupuntang Kabupaten Cirebon. In this study, the subjects measured were divided into producer groups and each group had a different experimental design in accordance with the role of the market mechanism. Thus, the instrument variables to be used in the measurement were different for each group.

In general, the instrument variables involved are knowledge and perceptions, needs and preferences. Farmers are categorized as traditional farmer, transitional farmers and commercial farmers. Furthermore, this study emplys the type of experiment designs. In this type of experiment, all the variables that could affect the experiment were controlled to make the quality of the experimental design high. Samples to be used for experimentation as well as a control group were taken at random from a particular population. Both experimental and control group were given a pretest to determine the initial state if there was a difference between the two groups. The experimental group was given a treatment and the other groups were not. Next, the posttest was carried out to determine whether there were differences in the final state after one of the groups were given a treatment. In general, the processes are described in the Figure-1.

Results and Discussion

Characteristics of Mango Producers: Forty farmers as initial data control 40 people are spread in the district of Sedong, Cirebon consisting of 18 traditional farmers, and 16 transitional farmers 6 modern farmers. There were 260 given a treatment consisting of 75 traditional farmers (28.85%), 103 transitional farmers 103 (39.62%) and 82 farmers (31.54%). These farmers are spread over four production centers in Cirebon which are in the districts of Astanajapura 46 people (17.69%), district Greged 83 people (31.92%), district Dukupuntang 35 people (13:46%) and district Sedong 96 people (36.92%). In general, most farmers are men, and there are 2 women sellers from all respondents. The characteristics of the respondents are generally as in Table-1.

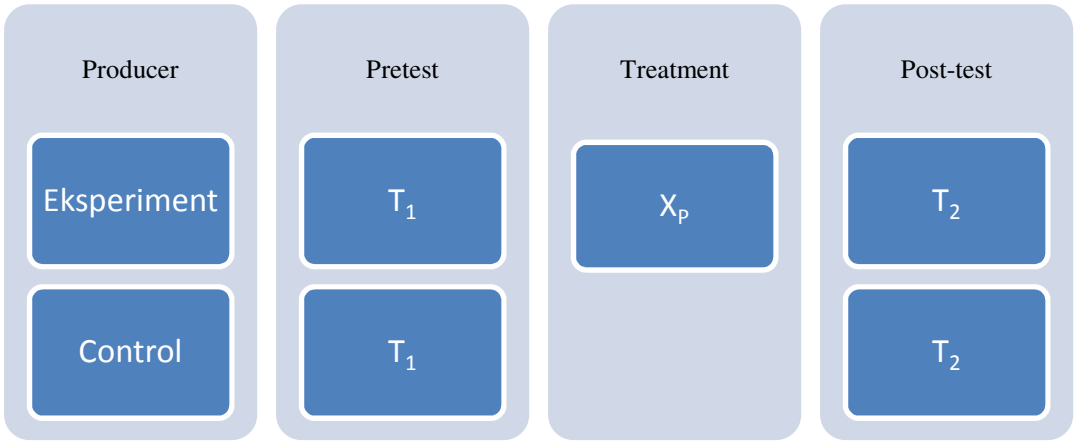

Figure-1
Treatment for Gedong Gincu Mango Producers

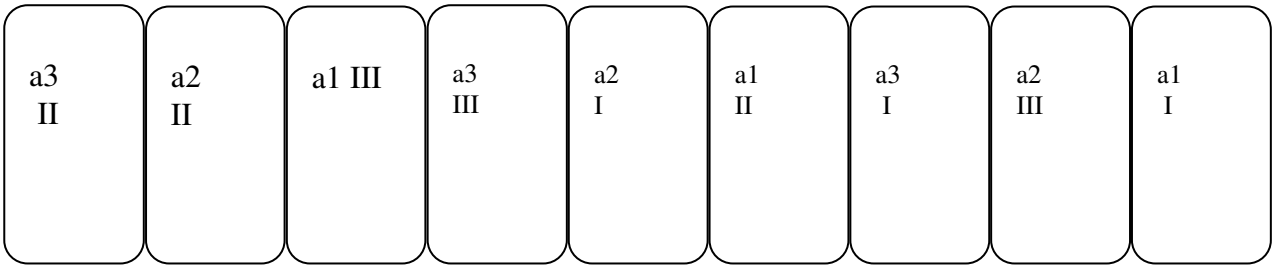

Figure-2
Combined Treatments for Gedong Gincu Mango Producers

Description: a1 = traditional producer a2 = transitional producer a3 = commercial producer, I = concept of origin label and its relation to promotion, II = relation of origin label with value added and market orientation, III = relation of origin label with food quality and safety, Variables observed are: Method of production, Technology used, Post harvest handling , Market Target, Participation in farmer groups, Marketing risks, Access to capital, Method of selling.

Table-1
Treatment 1 Information on origin label as one of the ways to promote Gedong Gincu Mangos

No	Variable	Traditional Farmers	Transitional Farmers	Commercial Farmers
1	Participation in farmer groups	32 % participating in farmer groups	53 % participating in farmer groups meetings	65 % participating in farmer groups meetings
		Discussing about cultivation and post harvest	Discussing about cultivation and post harvest, price and market target	Discussing about cultivation and post harvest, price and market target
		Possibility of using origin label and was discussed label does not increase value due to low profit and price is determined by sellers	Interview on labelling	Already using label and possiblity of using Geographical Indication
		Information derived from farmers and customers	Information derived from suppliers	Information derived fromthe local Agriculture Office
2	Discussion on promotions of Gedong Gincu mangos	No promotion	Interview on possible promotion by taking part in exhibition conducted by Local or Provincial Office (regular program by Porvince)	Joining exhibition carried out by West Java province on 19-20 September 2014 at Gedung Sate
		Strongly agreed that label as a way of promotion	Strongly agreed that label as a way of promotion	Strongly agreed that label as a way of promotion

Table-2
Treatment 2 Information on origin label that Gives Value Added and Market Orientation

No	Variable	Traditional Farmer	Transitional Farmer	Commercial Farmer
3	Market Target	No label but agreed with label	Having a will to use label	Already used label
		Not use packaging	Use practic crate packaging	Using labelled cardboard packaging
		Selling price fixed by traders	Selling price fixed by traders	Selling price fixed by supermarkets
		Aim at traditional markets	Aim at traditional markets	Aiming at supermarkets
		Gedong Gincu variety (50%) and Arumanis (50%)	Gedong Gincu variety (70%) and Arumanis (30%)	Gedong Gincu variety (75%) and Arumanis, (25%) and try Garifta variety
		Way of selling through *ijon* i.e. buying green mangos in the trees and *tebasan*	Way of selling through *tebasan*, sometimes to increase production has to rent trees	Way of selling through *tebasan*, sometimes to increase production has to rent trees
		Payment: cash	Payment: cash	Payment in 1 to 2 weeks' time
		Product delivery as it is (without sortage)	Delivery in accordance with order	Delivery in accordance with order –based on particular quality
		Limited marketing network	Quite wide marketing network	Wide marketing network and knowledgeable of market price
		Mangoo (40 %) and rice (60%)	Mango (55%) and rice (45%)	Mango (80%) andrice (20%)

No	Variable	Traditional Farmer	Transitional Farmer	Commercial Farmer
4	Marketing risk	Noting depreciation by not letting the sap attached to the mango so as to beclean	Mangos are carefully picked using special instruments	Mangos are carefully picked using special instruments
		Depreciation around 10 %	Depreciation around 5 %	Depreciation around 5 %
		Selling mangos to customers	Selling mangos to customers	Selling mangos to customers
		No social sanction for buyers if they run away with mangosand do not pay	No social sanction for buyers if they run away with mangos and do not pay, looking for other suppliers	Sanction imposed if are stolen or not paid, cutting off partnership
		Getting used to gaining price information from customers	Getting used to gaining price information from customers	Getting used to gaining price information from customers
5	Access to capital	Not interested in taking loans from bank, relying on customers	Interested in taking loans from banks with low interest and without mortgage	Interested in taking loans from banks with low interest and without mortgage
		Loan from banks paid on time	Loan from banks paid earlier	Loan from banks paid earlier

Table-3
Treatment 3.Information on origin label reflecting food quality and safety

No	Variable	Traditional Farmer	Transitional Farmer	Commercial Farmer
6	Method of production	Method of fertilizing, sparying, watering, pruning , thinning, plant substitution unchanged the same as the seeds used	Attention to fertilizing and watering as regulated	Attention to fertilizing and watering as regulated
			Spraying conducted after the rainy season and flowering	Attention to time and method of spraying as regulated
		No sortage and grading	Sortageand grading	Attention to sortage and grading
7	Technology	None using mobile phones	37 % using mobile phones	65 % using mobile phones
		Cultivation technology and post harvest unchanged	25 % using off season technique	78 % using off season technique
		No cool storage and packing house	No cool storage and packing house	Packing house without storage house
		Talking with other farmers in the event of pests and plant diseases	(supplier) talking with customerss in the event of pests and plant diseases	
		Never experimenting with new variety	20 % trying to experiment with new varieties	30 % trying to experiment with new varieties
		Payment: cash	Payment: cash	Payment : bank trasfer
8	Post harvest	Post harvest done as usual	45 % post harvest 85 % ripeness	68 % prefer 85 % ripenessleaving stems and leaves
		Using special knives	Using special knives	Using special knivesand and plastic crate hoisted to the trees

This research show that traditional farmers will change to transitional farmers and transitional farmers will change to commercial farmers. This statement also come from the previous researcher who says paradigm shift from a conventional one in which productivity has shifted to sustainable agriculture[1].

"The basic cause and effect of the structural transformation is raising productivity of agricultural labor. There are three ways of to raise productivity in agriculture (and the first two are usually linked):

Use new technology to produce more output for a given amount of labore (an agricultural revolution). Let agriculture workers migrate to other occupations, without lowering output, thus sharing the output with fewer rural people (the classic Lewis model of development, leading to an industrial revolution). Through higher prices for agricultural output (make it worth more in real economics terms, which may well be happening in the current economics era, but is a reversal of historical trends – this would be a price revolution based on scarcity rather than surplus)

In addition, the transformations are associated with the activity of farmers in groups in relation to socio-economic and environmental, natural resources, and social organization[5]. Obviously farmers' activities vary in terms of cultivated plants, animals kept, production processes, technologies used, the knowledge and skills of farmers, social organizations, institutions and local culture[2].

Such changes cannot happen overnight but through an ongoing process. It is human resources that play a role in these changes. Therefore, training and knowledge provided for farmers is a critical point in the success of the agricultural transformation[3,4]. Education helps farmers to shift from conventional to sustainable agriculture which is profitable and compatible. Research revealed that many dropouts come from poor families, while research indicates that the farmers' poverty is not only attributable to their lack of education, but d the state of inadequate infrastructures. This leads to asymmetric information at the farmer level.

This research shows a change in control farmers (0.6867) and farmers given the treatment of information and knowledge, stating that the origin label is important (0.7293). Those who can follow the use of origin label are transitional farmers with the highest value (0.7599), followed by commercial farmers (0.7137) and traditional farmers (0.6947). Commercial farmers' value is smaller than that of transitional farmers because commercial farmers have applied the label since 5 years ago, therefore, using origin labe for them is not something new (Table-6).

From Table-7 revealed that transitional farmers with the highest value of the other farmer groups (2.1992), followed by commercial farmers' value 2.1153 and traditional farmers' value 1.9786. Table-8 show that farmers are concerned with the origin label (from treatment 1), whereas Table-9. that the treatments that give most impact are promotion is important, the way of production, post harvest, access to capital, the technology used, clear market will benefit and the risk of marketing.

Table-6
Anova Farmers Group and Treatment for the Farmers

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	45.489 (a)	8	5.686	37.851	.000
Intercept	3246.877	1	3246.877	21613.845	.000
Classification of farmers	7.251	2	3.626	24.134	.000
Treatment	36.696	2	18.348	122.140	.000
Treatment to the farmers	1.008	4	.252	1.678	.153
Error	115.821	771	.150		
Total	3541.827	780			
Corrected Total	161.310	779			

a R Squared = .282 (Adjusted R Squared = .275)

Table-7
Results of Duncan Test of Farmer Groups

Farmers	N	Subset		
	1	1	3	2
Traditional	342	1.9786		
Commercial	192		2.1153	
Transitional	246			2.1992
Sig.		1.000	1.000	1.000

Table-8
Results of Duncan Test of farmer Treatments

Treatment	N	Subset		
		1	2	3
2.00	260	1.7892		
3.00	260		2.1421	
1.00	260			2.3141
Sig.	1.000	1.000	1.000	

Treatment 1 = Knowledge and information provision that label can be used as a promotion tool
Treatment 2 = Knowledge and information provision that label gives value added and market orientation
Treatment 3 = Knowledge and information provision that label reflects food quality and safety

Table-9
Results of the Score Calculation of Each Treatment Material

Farmers	Treatment 1		Treatment 2		Treatment 3		
	Participation in Farming groups	Access to capital	Market Target	Marketing mix	Production method	Technology used	Post harvest
Modern	2.651	2.031	1.869	1.762	2.416	1.933	2.219
Tradisional	2.465	1.912	1.751	1.724	2.279	1.821	1.930
Transitional	2.801	2.134	1.849	1.832	2.495	1.983	2.390
Total Average	2.617	2.012	1.811	1.767	2.381	1.899	2.146
1	4	6	7	2	5	3	

Farmers' level of welfare with Origin labely: Origin label has not increased farmers' income significantly since the labeling is done by wholesalers, suppliers or exporters so that the added value is simply enjoyed by them. If farmers want to have increased prices, the labeling should therefore be done by them, and in this case the farmers must also maintain the quality and freshness of their product. Results of the study revealed that farmers with 100 trees could just produce 20% of their mangos that meets the market quality. While wholesalers can get good quality mangoes around 85% with a better selling price. The difference in the income of farmers and wholesalers per quintal using labels are as in Table-4.

Based on the calculations it is known that difference in the income of farmers who use labels those who do not use labels is only Rp. 250.000, - per quintal, and they feel that the difference is very small compared to the farmers effort to sort mangos. In addition, the volume of mangoes produced by farmers is from 5-10 quintals. While wholesalers enjoy price differential between the labeled and unlabeled mangos is Rp. 475.000, - per quintal. Whole seller gain more profit because they sell mangoes in large quantity from 1 to 2 tons for one-time delivery. Exporters do enjoy much more profit because of the selling price from Rp. 50.000 to Rp.75.000, - per kilogram despite the fact that they bear high marketing risk.

This research revealed that farmers who get higher education more concern about labeling compare to farmers who get lower education. This statement also come from previous that family income is closely related to education, and the higher-income the farmers earn, the higher their formal education compared to those with low income[5].

The success of the program depends on the skills of agricultural extension workers in educating farmers, communicating, and informing the program to them. Thus, agricultural extension workers should be well-trained and have extensive insight about the problems frequently faced by farmers[6]. This concurs that agricultural extension workers will not be able to transfer their knowledge to farmers if they are not well-trained[7]. Although extension workers are well-trained, there are also farmers who cannot easily adopt the knowledge transferred to them[8,9].

Generally extension workers perceive sustainable agricultural development as positive. Their perception is not different despite the fact that their ages, education background and residence (rural or urban) are different. However, other studies by Khorasan Iran revealed different issues i.e. younger extension workers have better than that of the older ones[10-12].

Conclusion

There are different groups of producers or farmers who care and who do not care about the origin label, as well as consumers. Factors that differentiate the producers who care and do not care about the origin label are the number of trees they have, their sideline job, income and education. While the factors that distinguish the consumers who care and who do not care about the origin label are their education and income. Educational factor plays an important role in how both producers and consumers care about the origin label.

Suggestions: Producer and consumer attention to origin labelling benefit both parties. Effort must be put to educate producers so that they can produce quality products consistently. Consumers should be made to believe that origin labelling shows quality. In addition, it is necessary to improve the cooperation and participation of members of farmer groups to enhance their role and responsibilities in terms of price transparency and value added that will encourage producers to improve their business. Private parties or investors should act as a bridging fund that provides farmers with cash flow that will help focus on maintaining the quality and sustainability of production.

Tabel-4
The Differences Income between Farmers and Wholesaler

	Farmers		**Wholesaler**	
	Label	Without Label	Label	Without Label
Gross Income (Rp/Kw)	2.700.000	2.400.000	2.925.000	2.400.000
Cost of label (Rp/Kw)	50.000	-	50.000	-
Net Income (Rp/Kw)	2.650.000	2.400.000	2.875.000	2.400.000

In order to encourage mango producers to use origin labeling, it is necessary that an institution be established to guarantee that their commodity is fresh, safe for consumption and has high quality. This will encourage consumers to pay a high price and become loyal customers, which in the end helps increase producers' income.

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