

The Institutional Arrangement Amongst Agents Of Besuki Na-Oogst Tobacco In Jember Regency Indonesia

Adhitya Wardhono, Josi Ali Arifandi, Yulia Indrawati

Abstract: The successfully cultivation of Besuki Na-Oogst tobacco as the qualified exported product is determined by good cultivation technique and the institutional arrangement existing among the business actor as well as the policy maker, in this case the government. The important agents in the cultivation of Besuki Na-Oogst tobacco are farmers with their farmers group or farmers' association, wholesaler, exporters with its exporters' Association, government and overseas buyers. The research aims at investigating the institutional arrangement and partnership reinforcement amongst the business actors in cultivating Besuki Na-Oogst tobacco. The samples are selected by purposive sampling technique with Na-Oogst tobacco farmers as the respondents, exporters and government. The study applies the analysis using Analytical Hierarchy Process (AHP) and game theory. The findings indicate that the strategy to strengthen the commitment and solving the problem by agreement become the optimized strategy in the institutional relation amongst the business actor in cultivating Besuki Na-Oogst tobacco in Jember regency. The action executed by the farmers and exporters to achieve their optimized strategy of best response to achieve success in their partnership is to be strict to their commitment. The focal point or the agreement related to partnership success is achieved by keeping their commitment as desired by both farmers and exporters.

Index Terms: Institutional Arrangement; Besuki Na-Oogst Tobacco; AHP; Game Theory

1. INTRODUCTION

Besuki Na-Oogst tobacco (Bes-NO) is one of tobacco plant with highly exported potential for cigar materials. Bes-NO tobacco quality produced in Indonesia is one of the bests in the world ranked as the second after Brazil and almost 90 percent desired by the international export market (Utami et al, 2014). The development of tobacco for cigar material in Indonesia is concentrated in three areas including Deli (North Sumatera), Klaten (Central Java), and Karesidenan Besuki (Djajadi, 2008). Jember Regency East Java Province is the largest plantation area of approximately 80 percent out of total tobacco growing areas in Indonesia. Generally, the areas for growing Bes-NO tobacco managed by the farmers reached 81.88 percent with total area of 8,654.65 hectares and several part of the areas are managed by the state corporations (BUMN) and private corporations (Basoendo, 2001; Soetriono, 2014). However, the impact of weather anomalies and natural disaster such as Mount Raung volcanic eruption in mid-2015, the production of Na-Oogst tobacco decreased, particularly those in East Java. The export of Na-Oogst tobacco inclined in 2015 to 6,423 tonnes from the previous year of 6,866 tonnes. Nevertheless, the production was back to its increase to 6,586 tonnes in 2016 (UPT PSMB Lembaga Tembakau, 2017). The success of tobacco cultivation especially the Na-Oogst type as the export quality products is determined by good cultivation techniques and the institutional arrangement amongst the business actors and the policy makers, which is government. The important agent in the

cultivation of Besuki Na-Oogst tobacco consists of farmers with its farmers' association, wholesaler, and exporters with exporters association, government and international buyers. In every business chain, each agent has a role based on their knowledge and their understanding as well as their various policy. In other words, there is possibility during their interactions. This then implicates to a more complex obstacles and challenges faced by the business agent of Besuki Na-Oogst tobacco. Weakness of coordination in the institutional arrangement of Besuki Na -Oogst tobacco lies on the asymmetrical information amongst tobacco business actors. It happens because of imperfectness or un-similar information possessed by the agent resulting in adverse selection, a decision making process based on weak information. This also emerges moral hazard during achieving the objectives. The information gap causes the emergence of new players in Na-Oogst tobacco cultivation. Thus, letting all individuals convey all information they have based on their own decision is called self-selection. This research objective is to determine institutional and partnership arrangement amongst business actors in the cultivation of Besuki Na-Oogst tobacco in Jember Regency, Indonesia. The paper consists of several parts, including introduction, literature review, methodology, result, and conclusion.

2. LITERATURE REVIEW

Yeager (1999:9) explained that the institution becomes the rules of the game in the society that it include regulation establishing society during the interactions. The institutional can reduce uncertainty inherited by the human interaction by creating the pattern of behaviour. The institutions can be defined into two groups. First, the definition refers to the attempt of designing interactional pattern amongst economy agents to perform interactional activities. Secondly, in relation to the purpose, institution is concentrated to create efficiency in economy based on the structure of power in economy, politics and social amongst the agents (Yustika, 2006). The preview on new institutional economy consists of two levels consisting of institutional environment (macro level) and the institutional arrangement (micro level). The institutional

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arrangement describes as a structural of political, social and formal regulation in the activities of production and distribution. The rules on how to vote, ownership rights, and rights within the contracts are examples of environmental and economy policy. On the other hand, macro analysis level refers to institutions governance. To sum up, institutional arrangement is an agreement amongst units of economy to manage and finds ways to achieve good relation among units both through collaboration and competitions. An ownership agreement is an institutional arrangement since it allocates the ownership rights to individuals, groups or governments (Kherallah and Kirsten, 2001:4; Groenewegen et.al, 1995:5). Nabil and Nugent(1989) in Poultonet.al. (1998) classified the new institutional economy into two main school of thoughts, first transaction cost school and the second, collective action school. The second school tries to explore situation in which the economy agents will obtain success when they cooperate both in economy domain and in politics. It becomes a proof and an example that farming business controlled by farmers is more successful to provide marketing service for its members. However, such perspective remains concentrated on cost transaction school by reflecting individual attitude of smallholder economy and traders marketing activities. Wegren (2012) further explained that the institutional agricultural change Rusia includes institutional structure and the response of institutional agent towards market mechanism and the rule of game running in the system. In this case, the institution in agriculture sector requires reinforcement from on farm to off farm in the purpose of unifying perceptions from on farm (farmers) and from those of government levels. Unifying perception process becomes crucial to create an exact development planning particularly in agriculture sector contributing to the nation's income.

3 METHODOLOGY

The data used consists of primary data type and the secondary data as supporting data. The method of analysis applies quantitative approach using descriptive, Analytical Hierarchy Process (AHP) and game theory. Samples were collected by conducting in depth interview with tobacco farmers, business actor or exporters, academician and Tobacco Institute (UPT PSMB Lembaga Tembakau).

4 RESULT AND DISCUSSION

The experiment theory to find out and respond to the attitude of business actors in cultivating Besuki Na-Oogst tobacco is game theory and Analytical Hierarchy Process (AHP). AHP is applied to reveal the priority option of several alternatives (Saaty,1980), and game theory is employed to see rational option over action and reaction amongst the business actors in tobacco cultivation. Game theory is considered the variation of optimized model, yet it focuses more on rationality and modelling. Modelling in the game theory consists of payoff function and several actions or strategy sets of several players and observation of interactions among players. The advantage of game theory is that it describes positive economy agents rationally and describes how economy agents should behave. One of models in game theory that becomes a common reference is prisoners' dilemma model.

4.1 THE RESPONSE OF BUSINESS ACTORS IN CULTIVATING BESUKI NA-OOGST TOBACCO TOWARDS INSTITUTIONAL REINFORCEMENT

The institutional reinforcement of business in Besuki Na-Oogst tobacco, several strategies are performed by the business actor in cultivating the tobacco are

1. strengthening commitment and agreement
2. increasing transparency
3. increasing collaboration and coordination
4. solving problems through agreement

Business actors involved in the cultivation of Besuki Na-Oogst tobacco are exporters, and government as the policy makers. The followings are interaction models and the strategy of the subject business actor and government in institutional reinforcement.

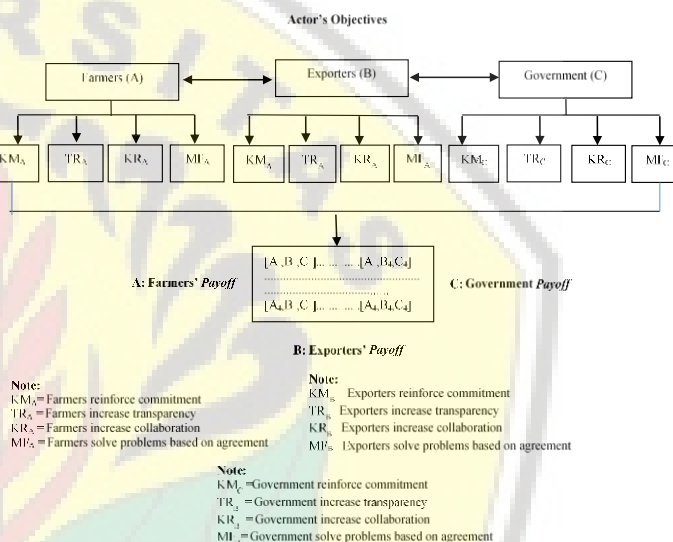


Figure 1. Strategy and Response among Subjects toward Institutional Reinforcement

Figure 1 describes that the actors' objectives, in this case the subject business actors are responses from farmers, exporters and government towards the strategy of institutional arrangement in the Besuki Na-Oogst tobacco cultivation. The strategies performed by farmers, exporters and government are reinforcement of commitment, increasing of transparency and increasing collaboration and problem solving based on agreement. The interaction amongst subject individuals occurs in every strategy performed by farmers, exporters and government. Payoff is then calculated in farmers, exporters, and government as the consequences from the interactions among strategies A (B), A(C) vis-a-vis to the strategy B (A), B(C) and C(A), C(B).

A. Interaction between Farmers and Exporters

The followings are the calculation of strategy priority of a subject regarding the subjects' objectives and in relation to each subject's strategy.

The figure 2 displays the strategy priority performed by farmers includes solving problems based on agreement with priority vector value of 51% followed by the strategy of reinforcing commitment with value of 22%. Every strategy performed by the farmers is faced by every strategy of exporters and of governments. Consequently, every action

within exporters and governments' strategy involves farmers' most effective strategy to response exporters' and governments'. The farmers' reaction over exporters' and governments' are presented in the table below:

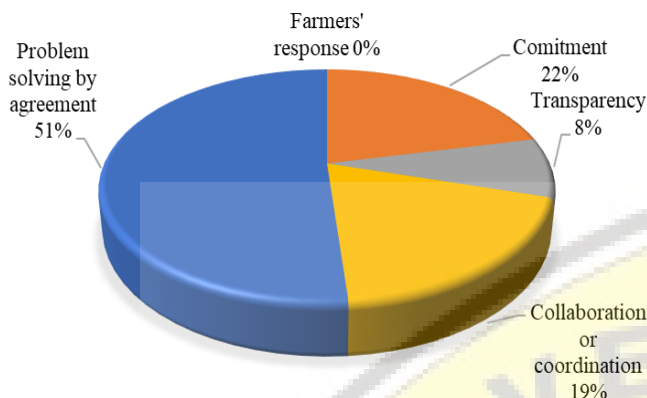


Figure 2. Priority and Farmers' Strategy in Relation to their objectives (Source: Primary Data, processed (2017))

The figure 2 displays the strategy priority performed by farmers includes solving problems based on agreement with priority vector value of 51% followed by the strategy of reinforcing commitment with value of 22%. Every strategy performed by the farmers is faced by every strategy of exporters and of governments. Consequently, every action within exporters and governments' strategy involves farmers' most effective strategy to response exporters' and governments'. The farmers' reaction over exporters' and governments' are presented in the table below:

Table 1. Farmers' Strategy Priority in relation to Exporters' Strategy

Farmer's Strategy	Exporters' Strategy			
	KM _B	TR _B	KR _B	MF _B
KM _A	0.290	0.262	0.207	0.149
TR _A	0.042	0.164	0.108	0.069
KR _A	0.224	0.117	0.267	0.133
MF _A	0.443	0.456	0.418	0.565

Source: Primary Data, processed (2017).

Table 1 displays several conditions as follows:

1. On commitment reinforcement strategy (KM_B) of exporters, farmers opt for problem solution based on agreement to response exporters' action.
2. On strategy to increase transparency (TR_B) of exporters, the farmers choose the strategy of problem solution by agreement.
3. On strategy to increase collaboration and coordination performed by B, the farmers remain to perform solution by agreement.
4. On strategy to solve problem using agreement (MF_B) of the exporters, farmers also opt for solving problems by agreement.

The calculation technique of farmers' payoff can be done by multiplying the constant value from farmers' strategy priority with the current value, which is the value of farmers' strategy related to the exporters' alternative strategy. It can be obtained farmers' strategy pay off as follows:

Table 2. Farmers' Payoff towards Exporters

Strategy	KM _B	TR _B	KR _B	MF _B
KM _A	0.062	0.056	0.044	0.032
TR _A	0.003	0.014	0.009	0.006
KR _A	0.043	0.022	0.051	0.025
MF _A	0.227	0.234	0.214	0.290

Source: Primary Data, processed (2017)

Table 2 demonstrates that whatever action is done by exporters to respond the institutional reinforcement, farmers remains to opt for solution problems by agreement, farmers are not affected by exporters' actions.

B. Interaction of Farmers and Government

Every strategy performed by farmers are confronted to every governments' strategy. Consequently, there will be farmers' most effective strategy to respond governments' action. The farmers' reactions to every strategy done by government are displayed in the table below:

Table 3: Strategy Priority of Farmers in Relation to Government's Strategies

value of Farmers' Strategy	Government's Strategy			
	KM _C	TR _C	KR _C	MF _C
KM _A	0.127	0.065	0.114	0.161
TR _A	0.144	0.159	0.070	0.194
KR _A	0.181	0.240	0.302	0.220
MF _A	0.548	0.537	0.515	0.425

Source: Primary Data, processed (2017).

Table 3 demonstrates several conditions as follows:

1. On commitment reinforcement strategy (KM_C) of the government, Farmers opt for problems solution by agreement to response to exporters' action.
2. On increasing transparency strategy (TR_C) of the government, Farmers choose solving the problems by agreement.
3. On increasing collaboration or coordination strategy (KR_C) of the government, farmers keep on solving problems by agreement.
4. On solving problem by agreement strategy, farmers perform solving problems by agreement.

Farmers' pay off calculation technique is obtained by multiplying the constant value from strategy priority vector of the farmers towards their objective with current value of farmers' strategy value in relation to government strategy alternatives. Thus, it can be obtained farmers' pay off as follows:

Table 4. Farmers' Payoff towards Government

Strategy	KM _C	TR _C	KR _C	MF _C
KM _A	0.017	0.009	0.015	0.022
TR _A	0.022	0.025	0.011	0.030
KR _A	0.042	0.056	0.070	0.051
MF _A	0.261	0.256	0.246	0.203

Source: Primary Data processed (2017).

Table 4 shows that whatever action is performed by the government to respond the institutional reinforcement, farmers persist on solving problem by agreement, indicating that farmers are not affected by the government.

C. Interaction of Exporters and Farmers

The calculation of exporters' priority strategy is in relation to farmers' objectives and farmers' each strategy. The value or priority vector of each exporters' strategy is in relation to the farmers' objectives.

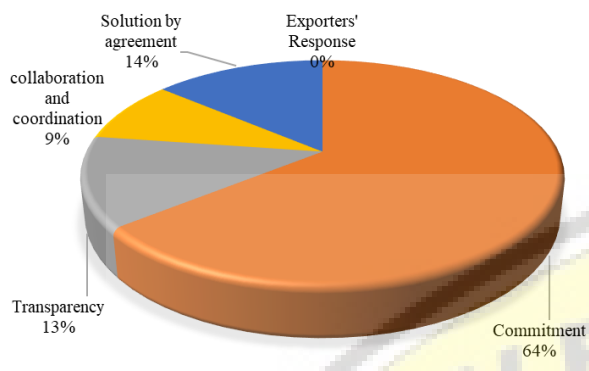


Figure 3. Priority and Strategy of Exporters in Relation to the Objectives. Source: Primary Data, processed (2017).

Every strategy performed by exporters is contrasted to every strategy of farmers and government. Thus, in every action in farmers' and governments' strategy, there is effective strategy to response to farmers' and government's action. The exporters' reactions to every strategy performed by farmers and government are as follows:

Table 5. Exporters' Priority Strategy in Relation to Farmers' Strategy

		Farmers' Strategy			
		KM _A	TR _A	KR _A	MF _A
Value of Exporters' Strategy	KM _B	0.655	0.572	0.649	0.661
	TR _B	0.129	0.145	0.130	0.130
	KR _B	0.086	0.097	0.087	0.087
	MF _B	0.130	0.185	0.134	0.122

Source: Primary Data Processed (2017).

Table 5 displays condition as follows:

1. On commitment reinforcement strategy of Farmers, exporters opt to reinforce commitment to respond to farmers' action.
2. On increasing transparency (TR_A) of farmers, exporters choose reinforce commitment strategy.
3. On increasing collaboration or coordination strategy (KR_A) of the farmers, exporters keep on choosing reinforcing commitment strategy.
4. On strategy to solve the problem by agreement (MF_A) of farmers, exporters opt for reinforcing commitment.

The calculation technique for exporters' payoff is to multiply the constant value from priority vector of exporters' strategy towards their objectives with the current value, which is the value of exporters' strategy in relation to the farmers' strategy alternatives. Thus, it can be obtained the exporters' payoff as shown in table 6 below.

Table 6. Exporters' Payoff towards Farmers

Strategy	KM _A	TR _A	KR _A	MF _A
KM _B	0.420	0.367	0.416	0.424
TR _B	0.017	0.019	0.017	0.017
KR _B	0.008	0.009	0.008	0.008
MF _B	0.018	0.026	0.018	0.017

Source: Primary Data Processed (2017).

Table 6 indicates that whatever action is performed by farmers to respond to institutional reinforcement, exporters remain performing commitment reinforcement. Exporters are not affected by the farmers' actions.

D. Interaction of Exporters and Government

Every strategy performed by the exporters is confronted to every strategy done by farmers and government. This will bring consequences that in every single action performed, there will be exporters' effective strategy performed to respond farmers' and government's action. The exporters' reaction over strategy performed by farmers and government is presented in table 7.

Table 7. Exporters' Strategy Priority in Relation to Government's Strategy

		Government's Strategy			
		KM _C	TR _C	KR _C	MF _C
Value of Exporters' Strategy	KM _B	0.570	0.488	0.570	0.575
	TR _B	0.192	0.121	0.095	0.117
	KR _B	0.094	0.133	0.083	0.128
	MF _B	0.144	0.258	0.251	0.179

Source: Primary data, processed (2017).

Table 7 demonstrates that:

1. On strategy of commitment reinforcement (KM_C) of the government, the exporters opt for to reinforce commitment to respond to farmers' action.
2. On strategy of increasing transparency (TR_C) of the government, the exporters choose to reinforce commitment.
3. On strategy of increasing collaboration or coordination (KR_C) performed by the government, exporters remain to reinforce commitment.
4. On strategy of solving problem by agreement (MF_C) of the government, the exporters keep on reinforcing commitment.

The technique for calculating exporters' payoff is to multiply the constant value of exporters' strategy priority vector towards its objectives with the current value, which is the value of exporters' strategy in relation to government strategy alternatives. Therefore, it is obtained that the exporters' pay off as the following:

Table 8. Exporters' Payoff towards the Government

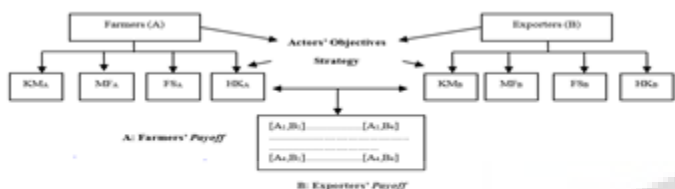
Strategy	KM _C	TR _C	KR _C	MF _C
KM _B	0.317	0.271	0.317	0.320
TR _B	0.029	0.018	0.014	0.018
KR _B	0.010	0.014	0.009	0.014
MF _B	0.027	0.048	0.046	0.033

Source: Primary Data, processed (2017).

Table 8 shows that whatever action is performed by the government to responds the institutional reinforcement,

exporters keep on reinforcing commitment. There is no effect of farmers' action to exporters.

4.2 BUSINESS ACTOR IN CULTIVATING BESUKI NA-OOGST TOBACCO TO SOLVE PARTNERSHIP PROBLEMS



Notes:
 KM = partnership withdrawal
 MF = Solving by agreement
 FS = Government Facilitators
 HK = Legal problem solving

Figure 4. Strategy and Response amongst the Subjects to Solve Partnership Problems

On Figure 4, the objectives of the actors are the response of each farmer and exporters as the subject to the conflicts in the partnership. The strategy performed by the farmers and exporters are withdrawing from the partnership, performing agreement solution, optimizing government as the facilitators and legal solution. Interaction between farmers and exporters occurs in each strategy performed by both farmers and exporters. Then, it will be calculated both farmers' and exporters' pay off as the consequence of their interaction amongst the strategies A (B) vis a vis alternatively strategy B (A). Following is the calculation of strategy priority A (B) in relation with the objectives of subject A (B) and in relation with the each strategy B (A). The value or the priority vector of each farmers' strategy is in relation with the objectives of the exporters.

Table 9. Farmers' Strategy Priority in Relation with the Exporters' the Strategy

		Exporters' Strategy B			
		KM _B	MF _B	FS _B	HK _B
Value of Farmers' Strategy	KM _A	0.058	0.100	0.074	0.059
	MF _A	0.678	0.685	0.698	0.688
	FS _A	0.163	0.080	0.152	0.098
	HK _A	0.101	0.134	0.075	0.155

Source: Primary Data processed (2017).

Table 9 describes that:

1. On partnership withdrawal strategy (KM_B) of the exporters, farmers opt for performing solution by agreement.
2. On solution by agreement strategy (MF_B) of the exporters, farmers choose solution by agreement.
3. On involving government as the medium (FS_B) strategy of the exporters, farmers keep on performing solution by agreement.
4. On legal solution (HK_B) strategy of the exporters, farmers also remains performing solution by agreement.

The technique to calculate the farmers' payoff is to multiply the constant value of farmers' strategy priority towards their objectives with the current value, which is the value of farmers' strategy in relation with the exporters' alternative strategy. Thus, it can be obtained the farmers' payoff as the following:

Table 10. Farmers' Payoff

Strategy	KM _B	MF _B	FS _B	HK _B
KM _A	0.006	0.010	0.007	0.006
MF _A	0.477	0.482	0.491	0.484
FS _A	0.019	0.010	0.018	0.012
HK _A	0.008	0.010	0.006	0.012

Source: Primary Data Primer, processed (2017).

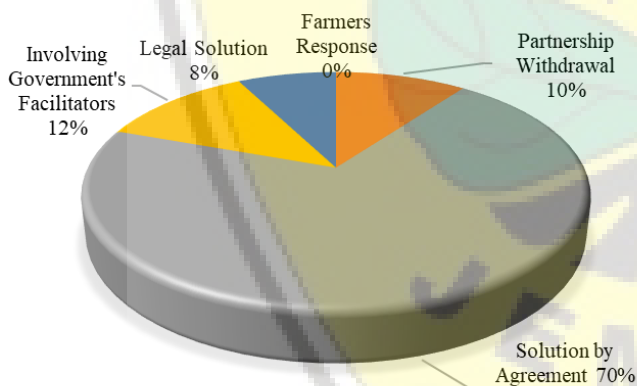


Figure 5. Farmers' Priority and Strategy in Relation with the Objectives. Source: Primary Data, processed (2017).

Figure 5 above displays the strategy priority performed by the farmers including solution based on agreement with the value of 70% and expecting the government as the facilitator to be the medium to solve the problems. Each strategy performed by the farmers is confronted to each strategy performed by the exporters. Thus, each action in B, contains strategy A, which is the most effective one to respond to the action B. Farmers' reaction in each strategy done by exporters is as follows:

Table 10 shows whatever action performed by the reporters to respond partnership conflicts, farmers remains performing solution by agreement strategy, which means they are not affected by the exporters' action. Meanwhile, the calculation of strategy priority of subject B(A) in relation with the objective of subject B (A) and in relation with each strategy of subject A (B). The value or the priority vector of each strategy B is related with the objectives of A.

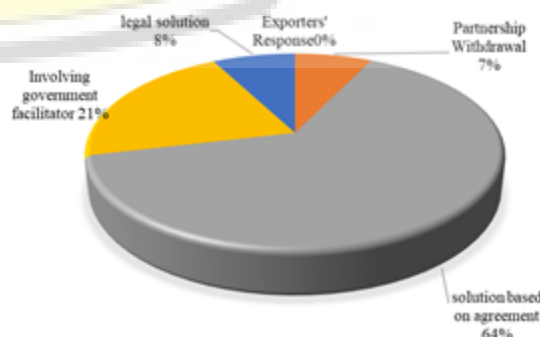


Figure 6. Exporters' Priority and Strategy in Relation with the Objectives Source: Primary Data , processed (2017)

On figure 6, the strategy priority done by the exporters is solution by agreement in as much as 64% and followed by government's role as the facilitator in solving partnership conflict. Every strategy performed by farmers is confronted by each of exporters' strategy. Thus, every exporter's strategy contains the most effective strategy performed by farmers to respond to exporters' action.

Table 11. Exporters' Strategy Priority in Relation with Farmers' Strategy

		Farmers' Strategy			
		KM _A	MF _A	FS _A	HK _A
Exporter Strategy Value	KM _B	0.056	0.077	0.076	0.073
	MF _B	0.641	0.650	0.655	0.642
	FS _B	0.210	0.137	0.136	0.179
	HK _B	0.094	0.136	0.132	0.106

Source: Primary Data, processed (2017).

On Table 11, several conditions exist as follows:

1. On partnership withdrawal strategy (KM_A) of farmers, the exporters choose solution by agreement to respond farmers' action.
2. On solution by agreement strategy (MF_A) of farmers, exporters opt for strategy of solution by agreement.
3. On involving government as facilitator strategy (FS_A) of farmers, exporters remain performing solution by agreement.
4. On legal solution (HK_A) of farmers, exporters perform solution by agreement.

The technique to calculate exporters' payoff is to multiply the constant value from the exporters' strategy priority towards their objectives with the current value, which is the exporters' strategy value in relation with the farmers' strategy alternative. Thus, it can be obtained the exporters payoff in the table below:

Table 12. Exporters' Payoff

Strategy	KM _A	MF _A	FS _A	HK _A
KM _B	0.004	0.006	0.005	0.005
MF _B	0.411	0.417	0.420	0.412
FS _B	0.044	0.029	0.029	0.038
HK _B	0.007	0.010	0.010	0.008

Source: Primary Data, processed (2017).

Table 12 shows that whatever action is performed by the farmers to respond conflicts, exporters keep on performing solution by agreement. It indicates that they are not affected by farmers' action. When farmers' and exporters' payoff are combined in one matrix, the conflict of farmers and exporters can be seen as follows

Table 13. Payoff Matrix of Farmers' and Exporters' Conflicts

		Exporters (B)			
		KM _B	MF _B	FS _B	HK _B
Farmers' (A)	KM _A	0.006	0.006	0.007	0.006
	MF _A	0.477	0.482	0.491	0.484
	FS _A	0.019	0.010	0.029	0.010
	HK _A	0.008	0.010	0.006	0.012

Source: Primary Data, processed (2017).

Whatever strategies are performed by exporters, the farmers respond it with solution by agreement. Similarly, whatever strategy are used by the farmers, exporters also respond it with solution by agreement. It means that solution by agreement is a dominant strategy used by farmers and exporters to deal with conflicts. As far as the dominant strategy is considered as optimum or best responses or as not being trapped in the prisoners' dilemma, the strategy pair is in condition of Nash Equilibrium. Nash equilibrium occurs when A (B) do not have incentive to change strategy under a given strategy of A (B). The outcome of Nash equilibrium is [MF_A;MF_B] with the payoff of [0,482;0,417]. The action done by the farmers and exporters reach optimum strategy of best response in conflict resolution through solution by agreement. The focal point of agreement related to conflict resolution in partnership is achieved with solution by agreement as desired by both farmers and exporters. This point can be achieved when there is an absence of prejudice amongst the actors of business during or before the game. Therefore, commitment among the actors are requisite.

4.3 THE RESPOND OF BUSINESS ACTORS IN THE CULTIVATION OF BESUKI NA-OOGST TOBACCO TOWARDS THE PARTNERSHIP SUCCESS

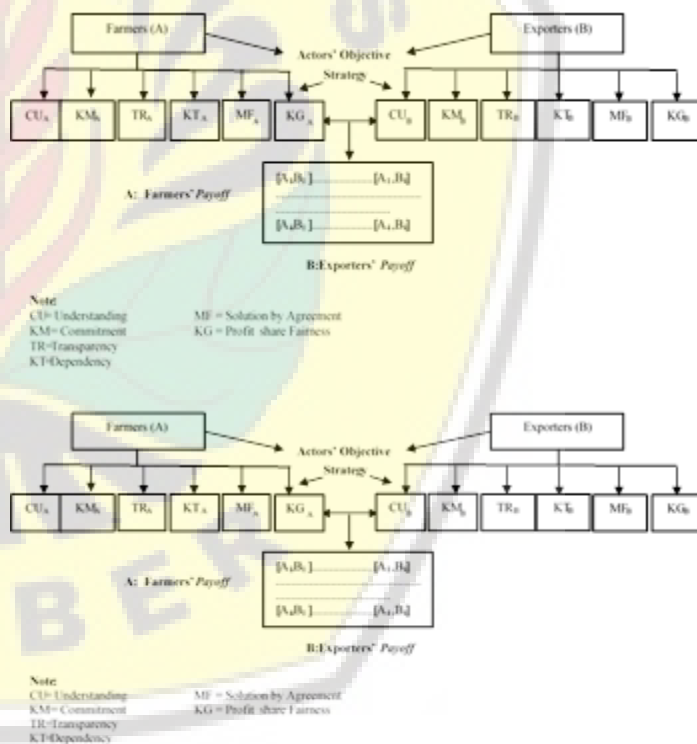


Figure 7. Strategy and Response amongst the Subjects towards the success of Partnership

Figure 7 describes that the actors' objective is the response from subjects, which are farmers and exporters, to the success of partnership. The strategy performed by farmers and exporters are common understanding, commitment building, transparency, dependency, solution by agreement, and fairness in profit sharing. Interaction between farmers and exporters occurs in each strategy both performed by farmers and exporters. Payoff will then be calculated from farmers and exporters as the consequence of the interaction among the

strategies A (B) Vis a vis strategy alternative B (A). The followings are the calculation of strategy priority A (B) in relation with the subject A (B) and in relation with each strategy B (A). The value or the priority vector of each farmer's strategy is in relation with the exporters' objectives.

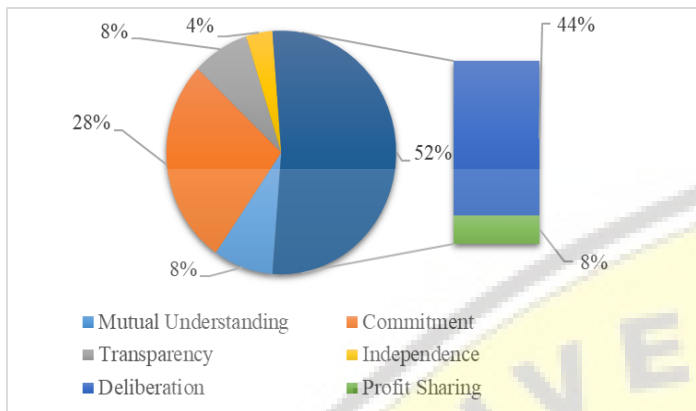


Figure 8. Farmers' Priority and Strategy in Relation with the Exporter's Objective. Source: Primary Data, processed (2017)

Figure 8 demonstrates that the strategy priority performed by farmers is solution by agreement with the value of 44% and is followed by the importance of building the commitment. Every strategy performed by farmers is confronted by those of the exporters'. Consequently, in each action in strategy B, there is strategy A which is considered as the most effective to respond to action B. Farmers' action in each strategy performed by the exporters is presented below.

Table 14. Farmers' Priority Strategy in Relation with the Exporters' Strategy

		Exporters B					
		CU _B	KM _B	TR _B	KT _B	MF _B	KG _B
Value of Farmers' strategy	CU _A	0.078	0.092	0.137	0.076	0.143	0.074
	KM _A	0.106	0.364	0.189	0.547	0.283	0.384
	TR _A	0.150	0.067	0.136	0.053	0.183	0.201
	KT _A	0.040	0.034	0.030	0.028	0.040	0.030
	MF _A	0.570	0.396	0.456	0.258	0.295	0.262
	KG _A	0.057	0.048	0.046	0.039	0.055	0.046

Source: Primary Data Primer, processed (2017).

Table 14 shows that:

1. On common understanding strategy of the exporters (CU_B), farmers choose solution by agreement.
2. On commitment building strategy performed by exporters (KM_B), farmers opt for dependency strategy.
3. On transparency strategy performed by the exporters (TR_B), farmers perform fairness in profit sharing strategy.
4. On dependency strategy performed by the exporters (KT_B), farmers choose to perform solution by agreement.
5. On solution by agreement performed by the exporters, (MF_B), farmers respond it by the important to build (common understanding).

6. On the fairness of profit sharing performed by the exporters (KG_B), farmers choose to respond with importance of common understanding.

The technique of calculation the farmers' payoff is by multiplying constant value of priority vector of farmers' strategy towards the objectives to the current value, which is the strategy value of farmers in relation with the exporters' strategy alternative. Thus, it can be obtained the farmers' payoff as follows:

Table 15. Farmers' Payoff

Strategy	CU _B	KM _B	TR _B	KT _B	MF _B	KG _B
CU _A	0.007	0.008	0.012	0.006	0.012	0.006
KM _A	0.029	0.100	0.052	0.150	0.078	0.105
TR _A	0.012	0.005	0.011	0.004	0.015	0.016
KT _A	0.001	0.001	0.001	0.001	0.002	0.001
MF _A	0.253	0.175	0.202	0.113	0.131	0.116
KG _A	0.005	0.004	0.004	0.003	0.004	0.004

Source: Primary Data, processed (2017).

Table 15 describes that whatever action performed by the exporters to respond the success of partnership, farmers' action include common understanding, solution to agreement, and fairness in profit sharing. Meanwhile, the calculation of strategy priority of subject B (A) in relation with the objectives of subject B (A) and in relation with each strategy of subject. The value or priority vector of each strategy B is in relation with the objective A.

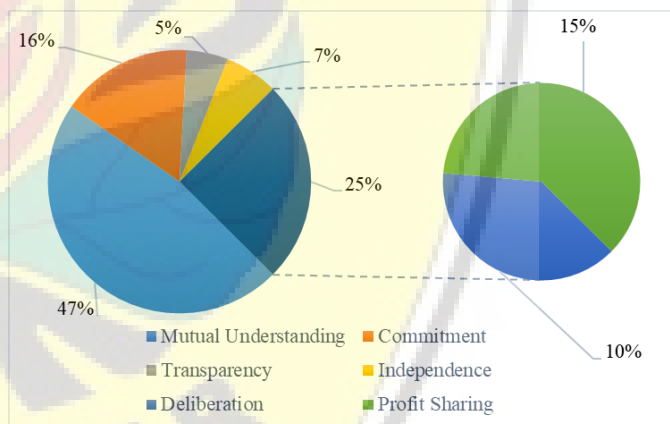


Figure 9. Priority and Strategy Subject Exporters in Relation with the Objectives. Source: Primary Data, processed (2017).

Figure 9 demonstrates that strategy priority performed by the exporters include common understanding of 47% and followed by the importance of building and keeping the commitment to achieve success in partnership. Each strategy performed by the farmers is confronted with the exporters' strategy. Therefore, in every action performed by the exporters, there is most effective strategy belonging to farmers to respond the exporters' action.

Table 16. The Strategy Priority by Exporters in Relation with the Farmers' Strategy

Value of Exporters' Strategy (B)	Farmers' Strategy (A)					
	CU _A	KM _A	TR _A	KT _A	MF _A	KG _A
CU _B	0.462	0.445	0.474	0.463	0.457	0.319
KM _B	0.204	0.226	0.148	0.255	0.225	0.325
TR _B	0.053	0.046	0.063	0.044	0.045	0.160
KT _B	0.072	0.065	0.066	0.059	0.064	0.031
MF _B	0.095	0.071	0.095	0.066	0.064	0.124
KG _B	0.114	0.147	0.154	0.143	0.145	0.041

Source: Primary Data, processed (2017).

Table 16 explain several conditions.

1. On common understanding strategy performed by farmers (CU_A), exporters opt for the importance of transparency.
2. On building the commitment performed by farmers (KM_B), exporters choose fairness of profit sharing.
3. On transparency strategy performed by farmers (TR_B), exporters perform similar transparency strategy.
4. On dependency strategy performed by farmers (KT_B), exporters respond with common understanding.
5. On solution by agreement strategy performed by farmers (MF_B), exporters respond it with building common understanding.
6. On the fairness of profit sharing strategy performed by farmers (KG_B), exporters perform the importance of transparency strategy.

The technique to calculate exporters' payoff is to calculate the constant value of priority vector of exporters' strategy towards the objective with the current value, which is the exporters' strategy value in relation with the farmers' alternative strategy. Thus, the exporters' pay off can be obtained as in table 17.

Table 17. Exporters' Payoff

Strategy	CU_A	KM_A	TR_A	KT_A	MF_A	KG_A
CU_B	0.219	0.210	0.224	0.219	0.216	0.151
KM_B	0.033	0.037	0.024	0.041	0.036	0.053
TR_B	0.003	0.002	0.003	0.002	0.002	0.008
KT_B	0.005	0.004	0.004	0.004	0.004	0.002
MF_B	0.009	0.007	0.009	0.006	0.006	0.012
KG_B	0.017	0.022	0.023	0.022	0.022	0.006

Source: Primary Data, Processed (2017)

Table 17 shows that whatever action the farmers perform to respond the success in partnership, exporters performed several strategies including common understanding, transparency and fairness in profit sharing. The result of farmers' and exporters' payoff in one matrix of farmers' and exporters' conflict is shown in table 18.

Table 18. Payoff Matrix of Farmers' and Exporters' Conflicts

		Exporters (B)											
		CU_B	KM_B	TR_B	KT_B	MF_B	KG_B						
Farmers (A)	CU_A	0,007	0,219	0,008	0,033	0,012	0,003	0,005	0,012	0,009	0,006	0,017	
	KM_A	0,029	0,210	0,100	0,037	0,052	0,002	0,150	0,004	0,078	0,007	0,105	0,022
	TR_A	0,012	0,224	0,005	0,024	0,011	0,003	0,004	0,004	0,015	0,009	0,016	0,023
	KT_A	0,001	0,219	0,001	0,041	0,001	0,002	0,001	0,004	0,002	0,006	0,001	0,022
	MF_A	0,253	0,216	0,175	0,036	0,202	0,002	0,113	0,004	0,131	0,006	0,116	0,022
	KG_A	0,005	0,151	0,004	0,053	0,004	0,008	0,003	0,002	0,004	0,012	0,004	0,006

Source: Primary Data, Processed (2017)

Whatever strategy the exporters perform, the farmers respond it with maintaining the commitment. Similarly, whatever strategy the farmers perform, the exporters respond it with keeping the commitment strategy. It means that maintaining

the commitment is a dominant strategy performed by farmers and exporters to achieve success in partnership. As long as the dominant strategy is an optimum or best response or not a prisoner's dilemma's trap, the strategy pairs is a Nash Equilibrium. The Nash equilibrium occurs when A (B) does not have incentive to change strategy, under a given strategy of A (B). The outcome of Nash equilibrium is [$KM_A;KM_B$] with payoff of [0,100;0,037]. The action performed by farmers and exporters to reach optimal best response to achieve partnership success is by maintaining the commitment. The focal point or agreement related to the success in the partnership is achieved by maintaining the common commitment as desired by the farmers and the exporters.

5 CONCLUSION

1. The challenge in technology development and marketing demand requires farmers to have knowledge and innovation in the cultivation of tobacco. The sustainability of producers and the institutional arrangement with market players as well as the policy makers are resulted from the relation of three important parts, bonding or inter-group relation, producers and farmers in organization, bridging or inter-group among farmers to establish bigger group. it is important to improve competence as there is an increased market barriers' market control and increased access to qualified information. Linking or extra-group amongst the farmers' association with market players and policy makers or government is important for national and international market to achieve and increase profit and for profit and loss sharing.
2. The strategy to reinforce commitment and solution amongst business actors in the cultivation of Besuki Na-Oogst Tobacco in Jember Regency. The action done by farmers and exporters to reach optimized strategy of best response to achieve the success in partnership is by maintaining the commitment. The focal point or related agreement related to partnership success is obtained by maintaining commitment performed either by farmers or exporters.

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