

STRATEGY FOR REVITALIZING POST-HARVEST HANDLING SYSTEM TO IMPROVE THE COMPETITIVENESS OF INDONESIAN HORTICULTURAL PRODUCTS**Sutrisno¹⁾, E. Darmawati¹⁾, Sugiyono²⁾, Ismi M. Edris²⁾**

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,ABSTRACT

The aim of post harvest handling development is to improve product competitiveness through improving added value, decreasing yield losses and improving quality that will also increase the income of growers accordingly. At least 20% losses is occurred in developing countries due to poor post harvest handling implementation. Thus could be occurred due to the factors involved, i.e. physical activities, institutions and policies which have not been well integrated yet that cause to unreadiness to face an evolving market situation. The increasing of market demand for horticultural products particularly exotic tropical fruits doesn't always create positive impact for Indonesian products due to more strict quality requirements both from international and local consumers, market competition and product's forms diversification demand. Agricultural products certification schemes are now a compulsory requirement from international markets to convince that the producing activities are environmental friendly; have traceability; implementing good agricultural practices; concerning on workers health, welfare and safety that produces safe to eat products. Government with all actors involved in horticultural business and industry must prepare immediately to compete with others countries and supply products needed to meet consumers demand. This paper was objected to provide ideas related to what strategy in order to improve post harvest handling system of horticulture in Indonesia through analysis of Strength, Weakness, Opportunities and Threat (SWOT). Based on the analysis, strategy need to be implemented is to revitalize the post harvest handling of horticulture that can be obtained through: (i) accelerating technology diffusion and post harvest management; (ii) improving and strengthening infrastructures facilities on post harvest handling system to meet the requirement of global and regional certification; (iii) provision of incentives to producer (supplier) who implement good post harvest handling activities; (iv) improving human resource capacity and skills in the application of good post harvest handling and standardization system; (v) strengthening postharvest institutions and networks in supply chain establishment; (vi) socialization, assistance and supervision in the implementation of standardized systems for strengthening quality management.

Keywords: Certification, Post harvest handling, Horticulture, SWOT

INTRODUCTION

Indonesia has a big potency on agricultural produces particularly on horticulture. Horticultural business sector roles Gross Domestic Product by Rp 76.79 trillion in 2007 and then increases 4.55 % to Rp 80.29 trillion in 2008 (Sinar Tani, 2010). Productivity and exporting volume of Indonesian horticultural produces increase during the last five years (2003-2007) (MoA, 2009). Indonesia has a big opportunity for extending its agricultural business as Indonesia is well known for its exotic fruits in international market; production centers are found throughout the provinces with different peak season. Ministry of Agriculture (MoA) has established horticulture area which integrates cultivating activities, packing house activity and supply chain management. For fruits produces, activities of MoA focuses on primary commodities i.e. banana, orange, pineapple, mango, snake fruit, lichi fruit, mangosteen, etc.

The performance of agricultural produces, both in quantity and quality, is determined from on farm activities. However, an improvement and effort to maintain fruits quality during off farm activities need to be implemented through an appropriate post harvest handling to increase

produces shelf life. The aim of good post harvest handling is to improve products competitiveness through improving horticultural products added value, decreasing yield losses and improving quality that will lead to increasing growers' income accordingly. Besides from the product itself, a development in human resources; implementation of appropriate agricultural technologies; development of agricultural researches; expansion market sector and also government policies have a big impact influencing agricultural sector development.

The increasing of international market demand for horticultural products particularly exotic tropical fruits doesn't always create positive impact for Indonesian products due to more strict quality requirements both from international and even local consumers, market competition and product's forms diversification demand. Government with all actors involved in horticultural business and industry must prepare immediately to compete with others countries and produce products needed to meet consumers demand.

This research was objected to determine the condition of horticultural post harvest handling system so that some strategies can be provided in order to improve post harvest handling system of horticultural products in Indonesia. Such strategies are determined through an analysis of Strength, Weakness, Opportunities and Threat (SWOT).

MATERIALS AND METHODOLOGY

Study approach

The method used in this research is a case study (case study) to examine more deeply existing activities and policies of horticultural post-harvest handling systems by all stakeholders.

Data collection

Data i.e. facts, information and statistical were collected from primary and secondary resources. Primary data was collected from stakeholders involved in path of horticultural business system and subsystem through the integration of three methods: observation, in-depth interviews, open questionnaires and FGD. Secondary data was collected from tracing published data and information in research reports and other reliable data such as online databases, journal and scientific articles.

Sampling methode

Sampling/respondent method used is purposive sampling. Respondents were purposively sampled who roles as a valuable actors involved in each activity of producing, processing, collecting, distributing, monitoring and controlling which involved producers (farmer groups and garmer groups association), financing institution and marketing institution for domestic and export market.

Data processing and analysis

Processing related data and information to generate strategies was performed through addressing those into strength, weakness, opportunity and threat which is known as SWOT analysis.

RESULTS AND DISCUSSION

Analysis of strategy and business management

The key factors in determining the success of strategy and analysis management consists of five resources, i.e. human, capital, material, machine and market. Human resources are business actors involving growers, farmers, traders, facilitators and manufacturers. Capital can be in money or goods to produce other goods or services together with other production factors. Material is in raw material form or production facility that is processed along production process. Machine is a means

to perform production activities that can be operated manually, mechanically or digitally conforming to technology development. Market is a place where a business transaction and agreement are made. In order to apply strategy and business management, those five actors are needed to be managed holistically and integrally.

Table 1. Factors on internal strategy schemes of Indonesian horticultural post harvest handling system

Code	Strength	Weight	Rating	Score
S1	Export on superior horticulture products increase	0,030	2,750	0,0831
S2	Potency for developing on farm, production and market are still high	0,039	3,500	0,1374
S3	Competency of research institutions and development on technology improvement and postharvest handling increase	0,052	3,750	0,1938
S4	The variance of tropical superior horticultural products in every production centre	0,066	3,000	0,1965
S5	The labor of agricultural sector is still lot enough	0,075	2,250	0,1681
	Subtotal of Strength	0,261		0,7790
Code	Weakness	Weight	Rating	Score
W1	Coordination among stakeholders, central and regional government are still low	0,086	3,500	0,2997
W2	Incentive and motivation for implementing good post harvest handling in producer level is still limited	0,126	3,750	0,4714
W3	Business and industrial linkage between production and processing sector are still weak	0,122	2,250	0,2737
W4	Business enterprise scale, education and technical as well as administrative skill of growers (farmers) are still low	0,172	3,500	0,6007
W5	Availability of post harvest infrastructures (i.e. packing house, storage, transportation and agro processing) is still lack or not optimal on taking its advantages	0,234	3,750	0,8775
	Sub Total of Weakness	0,739		2,5230
	Total FIS	1		3,3019

Based on the two tables, it can be gained some information related to the position of horticultural post harvest handling system that a comparison between strength and weakness A good cooperation among stakeholders (i.e. government, private sector and farmers) is necessary required; unfortunately some regulations and programs are not match among others. An established or being established agro industry is still small and sectorally interest involved. In order to achieve the aim and objection of good post harvest handling system, a strategy and an action plan must be made through analyzing existing system in Indonesia. Thus can be inferred into strength, weakness, opportunity and threat schemes as shown in Table 1 and 2.

The weakness is bigger than the other one while opportunity is bigger than threat. Therefore, decreasing weakness and empowering strength to achieve existing opportunities as well as to avoid threats is needed to be applied as an exit strategy.

The result of weight and rating determined from Factors on Internal Strategy (FIS) and Factors on External Strategy (FES) were plotted on cross impact matrix to determine effort position and strategies needed as shown in Fig.1. Based on the matrix, the position is at coordinate (-0,872; 0,162) on fourth quadrant. Consequently, the exit strategy is to revitalize horticultural post harvest

handling system. Importantly, revitalizing strategies must accomodate all involved stakeholders' interest.

Table 2. Factors on external strategy schemes of Indonesian horticultural post harvest handling system

Code	Opportunities	Weight	Rating	Score
O1	Product standardization and good post harvest handling	0,137	3,750	0,5143
O2	Improvement of products added value in every level of supply chain	0,095	3,250	0,3098
O3	Good post harvest handling model	0,139	4,000	0,5562
O4	Strengthening the production and post harvest handling system	0,075	3,500	0,2629
O5	Decreasing product losses during post harvest handling activities	0,094	3,500	0,3304
Sub Total of Opportunities		0,541		1,9736
Code	Threat	Weight	Rating	Score
T1	The competitiveness of international market is getting more increase	0,076	3,750	0,2840
T2	The requirement of product standardization and good post harvest handling implementation	0,171	3,250	0,5570
T3	Producer (supplier) orientation on meeting global market demand change	0,135	4,000	0,5402
T4	Diversification on fresh product and processing	0,049	3,500	0,1719
T5	Consuming of horticultural produce per capita is still low	0,028	3,500	0,0969
Sub Total of Threat		0,459		1,6500
Total FES		1		3,6236

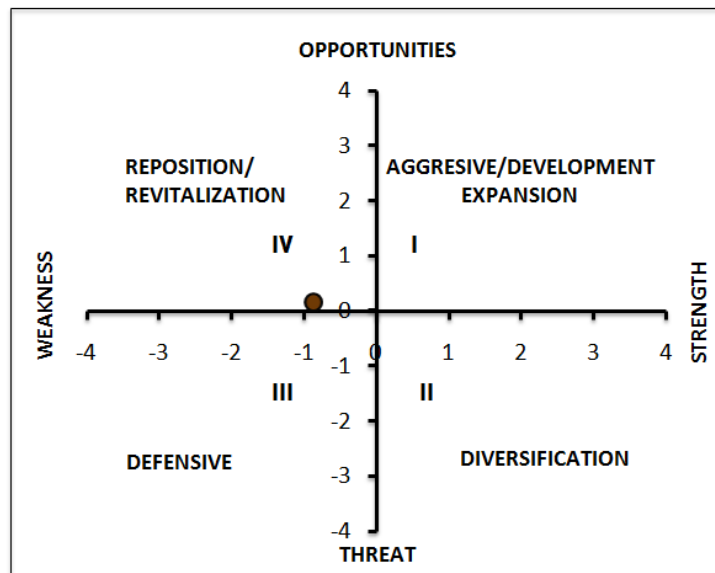


Figure. 1. Cross impact matrix of horticultural post harvest handling system

Alternative on Revitalizing Strategy

It needs efficient strategies in order to develop and implement good post harvest handling system and to make a transformation from conventional agricultural practices to industrial practices accordingly.

Regarding to the policies that related to horticultural post harvest handling system, it should be able to be implemented professionally and integrally by all stakeholders. Based on the analysis using SWOT method and the determined position of existing post harvest handling system, it can be inferred strategies to overcome the existing horticultural post harvest handling system in Indonesia as shown in Table 3.

Based on field practices point of view, in order to implement requirement activities in international certification schemes, there are some improvement have to be made such as good understanding of on farm and post harvest management; cultural, economy and social of communities; safe and proper environment management; establishing an organization to facilitate all stakeholders interest. Agricultural practices in the field level face complex problem, a good policies to support good handling practices must be in place to achieve the aim of post harvest handling. This will lead into increasing of each stakeholder's income accordingly.

Policies should be addressed to meet global market demand and requirement. Global market is now requiring global certification for agricultural produces particularly for horticultural produces. Several certification schemes are in place to convince that the producing activities are environment friendly; have traceability; implementing good agricultural practices; concerning on workers health, welfare and safety, and so on that products are safe to eat. Particularly in horticultural produces, international markets are more interesting to get produces which have been certified already. At least there are 3 certification schemes choices that can be obtained such as Global GAP, fair wild, organic farming and fair for life.

Table 3. Alternative strategies to revitalize post harvest handling system of Indonesian horticulture

	Strengths	Weakness
Opportunities	<p>Strength – Opportunities Strategies (Strength to gain advantages from existing opportunities)</p> <ol style="list-style-type: none"> 1. Accelerating technology diffusion and post harvest management yielded by Research and Development Institutions with establishing post harvest model system based on superior horticulture products 2. Facilitating and mentoring standardization process and its implementation 	<p>Weakness – Opportunities Strategies (Minimize weaknesses by gaining advantages from existing opportunities)</p> <ol style="list-style-type: none"> 1. Implement good post harvest handling system by means of facilitations on infrastructures 2. Provide incentive on good post harvest handling in producer level by means of facilitation on standardization product and post harvest handling 3. Improve motivation on implementing good post harvest handling by means of strengthening institutions network
	Threat	<p>Strength – Threat Strategies (Strength to avoid threats)</p> <ol style="list-style-type: none"> 1. Optimize research activities , develop technology and postharvest management due to market demand orientation 2. Mapping potential production centre which have increasing productivity to support export supply

Based on the alternative strategies on Table 3 and existing condition in field practices, revitalization in horticultural post harvest handling policies is necessary needed through:

1. Accelerating technology diffusion and post harvest management by developing a model for post harvest handling system based on superior commodities from horticulture production center to support export supply;
2. Improving and strengthening infrastructures facilities on post harvest handling system to meet the requirement of global and regional certification;
3. Provision of incentives (i.e. supporting standardization, certification or starting capital) to producer (supplier) who conduct good post harvest handling activities;
4. Improving human resource capacity and skills in the application of good post harvest handling and standardization system by training, pilot project, promotion and strengthening producer (growers, farmers, suppliers) institutions;
5. Strengthening postharvest institutions and networks in establishing supply chain;
6. Socialization, assistance and supervision in the implementation of standardized systems for strengthening quality management.

CONCLUSION

In order to overcome complexity of the field problems particularly for post harvest handling, operational policies must focus on two main indicators, i.e. activity to reduce product losses and quality improvement. Based on the alternative strategies to revitalize post harvest handling system of Indonesian horticultural products, it can be inferred some periodic program action activities to make the system sustain. Generally, action activities ideas focus on changing the mindset among stakeholders and orientation of post harvest handling. Thus include: (1) demand and requirement of regional and market orientation; (2) on farm activities to support off farm activities; (3) off farm facilities improvement in implementing GHP; (4) human resources capacity improvement; (5) supply chain management; (6) institutions support and (7) policies support.

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