

The Competitive Advantages of *Salacca Zalacca* Var. *Amboinensis* and Their Determinants

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The strengthening of trade liberalization provides new opportunities and new challenges that farmers and governments must face in the supply chain of Indonesia agricultural commodities in international markets. *Salacca zalacca* var. *amboinensis* is one of the five types of fruit designated as the superior fruit of Bali region, which is positioned to be a source of regional and national economic leverage. Market liberalization could lead to significant losses if farmers are unable to make a profit during the main harvest season and their products lack competitiveness. In order to respond to these conditions, this research was conducted with the aim of analyzing (1) the level of innovation in *Salacca zalacca* var. *amboinensis* farming and (2) the competitive advantage of *Salacca zalacca* var. *amboinensis* and the factors that influence it. The research was conducted in centers of *Salacca zalacca* var. *amboinensis* production in the Province of Bali, with a total of 139 respondents among *Salacca zalacca* var. *amboinensis* farmers. This study employs a policy analysis matrix (PAM) approach with private cost ratio (PCR) indicators is used to analyze the competitive advantage of *Salacca zalacca* var. *amboinensis*. The results showed that, cumulatively, the innovation level of *Salacca zalacca* var. *amboinensis* was in the low category. *Salacca zalacca* var. *amboinensis* has a competitive advantage in all strata of land area and also in all harvest seasons, so it has a great opportunity to be used as the superior export fruit and classic economic crops that remain competitive for the Bali region. To summarize, the competitive edge of *Salacca zalacca* var. *amboinensis* relies on the level of innovation in cultivating, post-harvesting, and marketing *Salacca zalacca* var. *amboinensis*.

Keywords: Competitive Advantage, Cultivation, Determinant, Policy Analysis Matrix, *Salacca Zalacca* Var. *Amboinensis*.

1. Introduction

Globalization and market liberalization create very tight competition for commodities sold in international markets. Indonesia, as an agriculture-based country, has several superior commodities that can compete in the international market. *Salacca zalacca* var. *amboinensis* is an indigenous Bali Province commodity which was developed as one of the export fruit commodities and the modern market due to 2019 Bali Food Crops, Horticulture, and Plantation Development Master Plan. *Salacca zalacca* var. *amboinensis* is a long-established traditional plant in Bali. *Salacca zalacca* var. *amboinensis* was officially released by the Minister of Agriculture of the Republic of Indonesia through *Kepmentan* (Decrees and Regulations of the Minister of Agriculture) No. 5844/Kpts/TP.240/7/1994. It belongs to the category of aged plants, which are plants that are able to be passed down through the generations. *Salacca zalacca* var. *amboinensis* has a lengthy history and can therefore be considered an ancestor investment legacy that will benefit present and future generations. *Salacca zalacca* var. *amboinensis*'s investment heritage must be preserved, and this can only be done with the next generation's dedication to constant creativity and innovation—which will help *Salacca zalacca* var. *amboinensis* become a staple crop that can compete globally. There are six districts in Bali (Karangasem, Bangli, Tabanan, Gianyar, Badung, and Buleleng) whose people have developed *Salacca zalacca* var. *amboinensis* as a commercial commodity. Karangasem is a district that is

considered a pioneer in the development of *Salacca zalacca* var. *amboinensis*. There are at least 13 types of *salacca zalacca* cultivars that have been identified in the province of Bali, with the superior variety being *Salacca zalacca* var. *amboinensis* (Sumantra & Pura, 2015).

The factual conditions show that *Salacca zalacca* var. *amboinensis* is a seasonal fruit. *Salacca zalacca* var. *amboinensis* production is polarized into two seasons, namely the main harvest season (January-March) and the low harvest season (July-September). During the main harvest season, *Salacca zalacca* var. *amboinensis* production is abundant, while during the low harvest season, the production is low. This condition has implications for the fall in the price of *Salacca zalacca* var. *amboinensis* during the main harvest season. A breakthrough in cultivation innovation is needed so that *Salacca zalacca* var. *amboinensis* can bear fruit throughout the season and that production is also well distributed throughout the year. The abundance of *Salacca zalacca* var. *amboinensis* production during the main harvest season is not able to provide added value to farmers, and ironically, this abundance of production actually burdens farmers with additional labor costs for harvesting and transporting production.

So far, there has been no breakthrough that can become a dynamic epicenter to transform the dark side of the problems that surround *Salacca zalacca* var. *amboinensis* farming during the main harvest season into a sparkling beacon of luck for *Salacca zalacca* var. *amboinensis* farmers and their families. *Salacca zalacca* var. *amboinensis* farmers

always carry a heavy burden during the main harvest season without meaningful incentives.

In the future, according to the master plan, *Salacca zalacca* var. *amboinensis* is projected to become an export commodity so that the abundance of production, especially during the main harvest season, can be optimally absorbed and *Salacca zalacca* var. *amboinensis* farmers can receive significant benefits. On the side of an agrotourism perspective, it is proven that *salacca zalacca* farming has a competitive advantage (Sucandrawati & Murdani, 2020). However, in order to become an export commodity and compete globally in two seasons of cultivation, the competitive advantage of *Salacca zalacca* var. *amboinensis* needs to be improved on an ongoing basis. Comparative and competitive advantage is one of the main keys to the development of farming to deal with globalization and market liberalization.

To strengthen *Salacca zalacca* var. *amboinensis* competitive advantage, farmers must hack themselves to innovate, starting with innovation in aspects of cultivation, post-harvest innovation, and marketing innovation, because according to Çetİntürk, Adıgüzel, & Demİr (2016) and Ueasangkomsate, Suthiwartnarueput, & Chaveesuk (2018), innovation is a source of competitive advantage. There have been many research results related to the performance of *Salacca zalacca* var. *amboinensis* farming, such as Adijaya & Yasa (2015), Sukewijaya, Rai, & Mahendra (2009), Putri, Susrusa, & Arisenna (2020), Rai (2018) and Sumantra & Pura (2015) but there is no specific research related to the competitive advantage of *Salacca zalacca* var. *amboinensis* farming and its determinants.

Therefore, it is very urgent to carry out a comprehensive study of farming innovation and the competitive advantage of *Salacca zalacca* var. *amboinensis*, which is expected to be used as an indicator related to the competitiveness of this commodity as an export product for the Bali region. In addition, it is also important to analyze the factors that influence the competitive advantage of *Salacca zalacca* var. *amboinensis* to be used as a source of information in making policy interventions, especially to strengthen the competitive advantage of *Salacca zalacca* var. *amboinensis*. There is great hope going forward that *Salacca zalacca* var. *amboinensis* will have the opportunity to be exported to foreign countries because, according to Zuhdi, Rahmadona, & Maulana (2021), Indonesian agricultural commodities have a fairly good export role. This can be an innovative solution to expand the distribution of *Salacca zalacca* var. *amboinensis* in order to obtain competitive prices. The objectives of this research are (1) to analyze the innovation level of *Salacca zalacca* var. *amboinensis* farming and (2) to analyze the competitive advantage of *Salacca zalacca* var. *amboinensis* and the factors that influence it.

2. Literature Review

Tu & Wu (2021) stated that competitive advantage must be built on environmentally friendly production based on stakeholder calls and must also comply with environmental regulations. Furthermore, Bintara et al. (2023) concluded

from their literature review that companies that operate based on environmentally friendly innovation can achieve competitive advantages, and their business is sustainable. Furthermore, Maroušek, Strunecký, & Maroušková (2023) offer producers to comply with circular economy principles to reduce production costs so as to increase their competitiveness. According to Prasetyo & Dzaki (2020), productivity is the key to competitiveness. Azeem et al. (2021) found that organizational innovation is the main driver for achieving competitive advantage, while Daengs et al. (2020) stated that through efforts to improve product quality, competitive advantage can be realized. Innovation influences competitive advantage (Bulankulama & Khatibi, 2014; Çetİntürk et al., 2016; Dlamini, Kirsten, & Masuku, 2014; Kraja & Osmani, 2013; Suryani & Claudya, 2021; Ueasangkomsate et al., 2018). Culture contributes to competitive advantage (Odhiambo, Kibera, & Musyoka, 2015; Violinda & Jian, 2016). Continuous innovation can increase competitive advantage. Hermundsdottir & Aspelund (2021) and Hossain, Kannan, & Raman Nair (2021) stated that through active innovation, competitive advantage can be maintained. Grimstad & Burgess (2014) stated that sustainable environmental actions are correlated with competitive advantage. Unique competitive advantages provide great opportunities to obtain higher profits (Dziwormu & Raymond, 2014), and of course, the company's management strategy also contributes to the achievement of a competitive advantage (Farida & Setiawan, 2022; Ismail, Domil, & Isa, 2014). Furthermore, Kryscynski, Coff, & Campbell (2021) propose that company-specific incentives that provide more benefits to workers are able to facilitate human capital-based competitive advantages. According to Sachitra & Chong (2016), government intervention programs are very important for developing the competitive advantage of the agribusiness sector. Apart from the cultivation aspect, the business model also needs to be updated to strengthen its competitive advantage (Dudin et al., 2015). In terms of marketing innovation, competitive advantage also comes from market characteristics and the marketing ecosystem (Carbone et al., 2020; Zhang & Watson IV, 2020).

3. Research Methods

The study was conducted at *Salacca zalacca* var. *amboinensis* production hubs in the six Bali Province regencies of Karangasem, Bangli, Gianyar, Badung, Tabanan, and Buleleng from March to June of 2022. Research activities was conducted through survey-based method to productive *Salacca zalacca* var. *amboinensis* farmers. There were both quantitative and qualitative data collected for this study. The qualitative data contains information on the harvest season, cultivation technique innovations, post-harvest innovations, and marketing innovations. The quantitative data includes information on *Salacca zalacca* var. *amboinensis* production, production costs, price, and the number of *Salacca zalacca* var. *amboinensis* plants. Primary and secondary sources were used to gather the data for this investigation. Primary data was collected directly from respondents using a list of

questions that had been prepared beforehand, while secondary data was collected from a number of online sources. Primary data comprises *Salacca zalacca* var. *amboinensis* production data, production costs, price data, the quantity of *Salacca zalacca* var. *amboinensis* trees, harvest season data, cultivation technique innovations, post-harvest innovations, and marketing innovations. The production of *Salacca zalacca* var. *amboinensis* in every Bali district is included in secondary data.

The information gathered through surveys was afterwards collated and examined. *Salacca zalacca* var. *amboinensis* was descriptively examined for its amount of originality. *Salacca zalacca* var. *amboinensis* cultivation, post-harvest innovation, and marketing innovation are all measured on a scale of five, with a 16% class interval between the highest and lowest levels of innovation. The innovation level groups are shown in Table 2 based on these class intervals. Monke & Pearson (1989) suggest using the private cost ratio (PCR) model to examine the competitive advantage of *Salacca zalacca* var. *amboinensis* (Table 1).

Table 1: Policy Analysis Matrix.

	Return Tradable Inputs		Costs	
	A	B	C	D
Private prices	A	B	C	D
Social prices	E	F	G	H
Divergences	I	J	K	L

$$Private\ Cost\ Ratio\ (PCR) = \frac{C}{(A - B)}$$

3.1 Remarks

PCR = Private cost ratio

Table 3: Variables, Indicators, and Measurements.

Variable	Indicator	Measurement scale
The level of innovation in the cultivation of <i>Salacca zalacca</i> var. <i>amboinensis</i>	A series of <i>Salacca zalacca</i> var. <i>amboinensis</i> cultivation innovations carried out by farmers, which include: 1. Fertilization innovation 2. Pruning innovation 3. Fruit thinning innovation 4. Innovation in pest and disease control 5. Land conservation innovation	Ordinal
Post-harvest innovation level of <i>Salacca zalacca</i> var. <i>amboinensis</i>	A series of post-harvest innovations made by farmers: 1. Innovative grading 2. Innovation in harvesting procedures 3. Storage innovation 4. Innovation extends shelf life. 5. Product processing innovation	Ordinal
The level of innovation in <i>Salacca zalacca</i> var. <i>amboinensis</i> marketing	A series of <i>Salacca zalacca</i> var. <i>amboinensis</i> marketing innovations by farmers 1. Product innovation 2. Marketing channel innovation 3. Marketing technology innovation 4. Branding innovation 5. Promotion innovation	Ordinal
Competitive advantage	Private cost ratio	Ratio

5. Research Findings

5.1 The Innovation Level of *Salacca Zalacca* Var. *Amboinensis* Farming

In order to face the challenges of phenomenal global competition, some *Salacca zalacca* var. *amboinensis* farmers have responded by being creative and innovative in the aspects of cultivation, post-harvest,

A = Return at the private price level
B = Tradable input at private price level
C = Domestic factor at the private price level

Table 2: Innovation Level Category.

No	Range Of Achievement Score Percentages in Relation to Maximum Score (%)	Innovation Level Category
1	20% - 36%	Very low
2	>36% - 52%	Low
3	>52% - 68%	Sufficient
4	>68% - 84%	High
5	>84% - 100%	Very high

Multiple linear regression is used to investigate the variables affecting *Salacca zalacca* var. *amboinensis*'s competitive advantage, and the following model is used:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon$$

4. Remarks

Y = competitive advantages

β_0 = intercept

$\beta_1, \beta_2, \beta_3$ = regression coefficient

X₁ = the level of innovation in the cultivation of *Salacca zalacca* var. *amboinensis*

X₂ = post-harvest innovation level of *Salacca zalacca* var. *amboinensis*

X₃ = level of marketing innovation of *Salacca zalacca* var. *amboinensis*

4.1 Variables and factor measurement

Variables, indicators, and their measurements are presented in Table 3.

and marketing. Through this activity, the motivation to innovate is a function of interests due to the level of innovation achieved in each aspect and between farmers is very diverse. Farmers who have relatively greater interests are indicated to have relatively higher motivation to innovate. There are indications that some farmers are oriented toward innovation in the cultivation aspect and pay less attention to innovation in the post-harvest and marketing aspects.

5.2 Innovation of *Salacca Zalacca* Var. *Amboinensis* Cultivation

In the field of cultivation, most of the *Salacca zalacca* var. *amboinensis* farmers have made innovations, even with varying intensities. The series of innovations that have been carried out include fertilization innovations, leaf midrib pruning innovations, fruit thinning innovations, pest and disease control innovations, land conservation innovations, and garden environmental hygiene. The average percentage of farmers achieving the innovation score for *Salacca zalacca* var. *amboinensis* cultivation is presented in Table 4, and the distribution of farmers according to their level of innovation in the field of *Salacca zalacca* var. *amboinensis* cultivation is presented in Table 5.

Table 4: The Average Percentage of Achieving a Score on the Level of Innovation in *Salacca Zalacca* Var. *Amboinensis* Cultivation.

No	Innovation in Cultivation	Achieved score (%)	Category
1	Fertilization innovation	62.30	Sufficient
2	Leaf sheath pruning innovation	78.13	High
3	Fruit thinning innovation	40.86	Low
4	Pest and disease control innovations	36.40	Low
5	Land conservation innovation and garden environmental cleanliness	66.33	Sufficient
Average % achievement score		56.54	Sufficient

Table 5: Distribution of Farmers in *Salacca Zalacca* Var. *Amboinensis* Farming According to Their Level of Innovation.

No	Innovation Level of Cultivation	Respondent	Percentage (%)
1	Very low	65	46.76
2	Low	10	7.19
3	Sufficient	0	0.00
4	High	59	42.45
5	Very high	5	3.60
Total		139	100.00

The average percentage of achieving a score on the innovation level of *zalacca* cultivation was 56.54%, which was in the sufficient category. The percentage of achieving the score on the pruning aspect of *zalacca* leaf sheaths turned out to be the highest with a score of 78.13%, and the lowest was in the innovation aspect of pest and disease control with a score of 36.40%. The achievement of the second-highest score was found in the aspects of land conservation innovation and garden cleanliness, with a score of 66.33%, which is in the sufficient category. The innovative land conservation action carried out by some farmers is making rakes between the rows of *zalacca* plants.

For land conservation, innovation, and environmental cleanliness, some farmers do it mechanically and regularly. The environmental atmosphere in most of the *zalacca* farms was observed to be less clean, but there were several *Salacca zalacca* var. *amboinensis* farms that were observed to be very charming. Controlling weeds and pruning leaf midribs, which are carried out regularly, create a healthy and comfortable environment, thus providing multiple benefits to farmers, which then leads to strengthening the bargaining position of farmers and

traders in marketing their *zalacca* fruit. These farmers have been able to maintain the harmony of conservation, exploration, and exploitation of the resources they have. Fertilization innovation occupies the third position with a percentage of achieving a score of 62.30%, which is in the sufficient category. Most of the farmers have made fertilization innovations through composting the *Salacca zalacca* var. *amboinensis* leaf midribs, even though there is a high disparity in the composting process. Farmers who are advanced and adaptive to technological developments have composted regularly, using microorganisms as activators. Composting is carried out on rakes made between rows of *zalacca* plants, and this is used as an instrument for land conservation.

The level of innovation in *Salacca zalacca* var. *amboinensis* cultivation is polarized into two poles, namely, very low and high, but most are in the very low category. This shows that there are still many farmers who are not aware of the importance of cultivation innovation to increase the productivity of *Salacca zalacca* var. *amboinensis*. When farmers just sit idly by and don't care about the development of cultivation technology innovations, the productivity of their *zalacca* farming tends to stagnate and even decrease. In the future, more massive dissemination of cultivation technology innovations is needed, accompanied by visiting activities for advanced *Salacca zalacca* var. *amboinensis* farming, so that farmers are willing and able to adopt innovations for *Salacca zalacca* var. *amboinensis* cultivation. Farmers should be disciplined about innovating in the field of cultivation by applying effective cultivation methods to increase production. Keeley et al. (2013) stated that innovating does not require specific requirements so that it can be done by anyone. All *Salacca zalacca* var. *amboinensis* farmers have the same opportunity to innovate, including those with narrow land.

The factual evidence demonstrates that the typical characteristics of agricultural products, including *Salacca zalacca* var. *amboinensis*, are easily damaged, thus demanding the creation of sustainable innovations. The stagnation of innovation is a limiting factor for *Salacca zalacca* var. *amboinensis* commodities to penetrate the export market. Exporters have exported *Salacca zalacca* var. *amboinensis* to several countries, but the problems that arise are related to the low shelf life of *Salacca zalacca* var. *amboinensis*. In response to this, post-harvest innovation is the right choice. Unfortunately, only a few farmers realize the importance of post-harvest innovation to increase the competitive advantage of *Salacca zalacca* var. *amboinensis* (Table 6).

Table 6: The average percentage of achieving a score on the level of innovation of post harvest.

No	Post-harvest innovations	Achieved score (%)	Category
1	Innovation in harvesting procedures	74.53	High
2	Innovative grading	36.10	Low
3	Storage innovation	23.74	Very low
4	Innovation extends shelf life.	20.43	Very low
5	Product processing innovation	53.53	Sufficient
Average % achievement score		41.70	Low

The achievement of the highest post-harvest innovation level

score is the innovation level of harvesting procedures, and the second order is the level of product processing innovation, with a percentage of achieving scores of 74.53% (high category) and 53.53% (sufficient category). The achievement with the lowest percentage score is the innovation of extending the shelf life, and the second lowest is the innovation of storage, with scores of 20.43% and 23.74, respectively, which are in the very low category. The average percentage of companies achieving the innovation level score after the *Salacca zalacca var. amboinensis* harvest was 41.70%, which is in the low category. This fact shows that there is a big problem with shelf life that requires the presence of innovation. Keeley et al. (2013) provide solutions for executives to focus on innovating on complex issues that have far-reaching impacts. In line with this, farmers should focus on innovating to extend the shelf life because, with a relatively longer shelf life, they will be able to penetrate a wider export market.

Storage innovations and improvements to extend shelf life are actually an absolute requirement to keep *Salacca zalacca var. amboinensis* fresh for consumption for a relatively long period of time. This innovation is becoming increasingly important in order to be able to deliver *Salacca zalacca var. amboinensis* to consumers abroad, which requires a relatively longer time. When storage innovations and innovations to extend shelf-life are not yet available, the opportunity to distribute *Salacca zalacca var. amboinensis* overseas is relatively small.

Farmers personally should realize how important it is to carry out technological innovations to extend the shelf-life of *Salacca zalacca var. amboinensis* until it is suitable for export. Research and testing of technology for extending shelf-life must be carried out on an ongoing basis through collaboration with multi-party enablers. However, in fact, there are no farmers who have reached this level, as evidenced by the results of this study, and most farmers are in the low category in terms of post-harvest innovation level aspects (Table 7). Unfortunately, only a handful of respondent farmers are in the high and very high categories on the aspect of post-harvest innovation.

Table 7: Distribution of Farmers According to Their Level of Innovation In the Post-Harvest Field.

No	Level of innovation of post-harvest	Total Respondent	Total Percentage (%)
1	Very low	75	53.96
2	Low	42	30.22
3	Sufficient	16	11.51
4	High	5	3.60
5	Very high	1	0.71
	Total	139	100.00

A commodity can be said to be a superior commodity if it has strong demand, both at home and abroad. The demand for commodities can strengthen if the production of these commodities is well distributed in the market. To deliver a commodity so that it is well distributed in the market, continuous marketing innovation is needed. The marketing innovations studied in this study include product innovation, marketing channel innovation, marketing technology innovation, branding innovation, and promotion innovation. The average percentage of

achieving a score of *Salacca zalacca var. amboinensis* marketing innovation level was 31.91%, which was in the very low category (Table 8).

Table 8: The Average Percentage of Achieving a Score on the Marketing Innovation Level

No	Marketing innovation	Achieved score (%)	Category
1	Product innovation	45.76	Low
2	Marketing channel innovation	31.65	Very low
3	Network innovation (partnership)	27.48	Very low
4	Branding innovation	23.45	Very low
5	Promotion innovation	30.94	Very low
	Average % achievement score	31.91	Very low

Aspects of *Salacca zalacca var. amboinensis* marketing innovation are in the low and very low categories. This indicates that most of the *Salacca zalacca var. amboinensis* farmers have not carried out marketing innovations because they only depend on the wholesalers. It is as if there is a close emotional and cultural relationship between the farmers and the wholesalers, so they do not divert their sales of zalacca to other buyers. In the future, it is hoped that more and more farmers will adopt marketing innovations so that they have more alternative marketing channels and can obtain more competitive selling prices. Keeley et al. (2013) emphasized that manufacturers should not only focus on product innovation but also on network or partnership innovation. This is very important to do in order to expand product distribution so that it is more readily absorbed by customers. It turns out that only a handful of farmers have carried out marketing innovations, and they have enjoyed the benefits of their efforts to innovate in marketing *Salacca zalacca var. amboinensis*. The five aspects of marketing innovation have been well implemented so that the zalacca production is fully absorbed by the market at competitive prices. This farmer did not experience any obstacles in marketing his zalacca fruit during the main harvest season, while the other farmers were always familiar with the problem of the price of zalacca fruit during the main harvest season.

Most of the farmers (65.47%) are in the very low category, and as many as 17.99% are in the low category in marketing innovation (Table 9). Farmers in this category do not have partnerships in marketing their zalacca, do not have alternative marketing channels, and do not carry out promotions. It is not surprising, then, that they always get low prices during the main harvest season. Farmers should not only hope to get an abundance of marketing innovations from other parties but also be proactive in creating and innovating to solve marketing problems for *Salacca zalacca var. amboinensis* especially during the main harvest season.

Table 9: Distribution of Farmers According to their Level of Marketing Innovation.

No	Level of innovation in marketing	Total Respondent	Total Percentage (%)
1	Very low	91	65.47
2	Low	25	17.99
3	Sufficient	20	1.39
4	High	2	1.44
5	Very high	1	0.71
	Total	139	100

Cumulatively, the average level of *Salacca zalacca var. amboinensis* innovation is in the low category, with a score achievement percentage of 39.29% of the maximum score. This condition indicates that most farmers do not yet have the awareness to simultaneously innovate in order to obtain significant benefits from *Salacca zalacca var. amboinensis* farming. Most of the farmers only partially innovate in the aspects of cultivation and put aside innovations in the post-harvest and marketing aspects. Even more tragic are the farmers who do nothing to innovate, even though innovation is the dominant source of competitive advantage.

5.3 Competitive Advantage of *Salacca Zalacca Var. Amboinensis*

According to Prasetyo & Dzaki (2020) productivity is the key to competitiveness, so the productivity of *Salacca zalacca var. amboinensis* needs to be described to clarify competitive advantage achievements. In general, *Salacca zalacca var. amboinensis* farmers already have production data for their salacca farming business which is divided into two main parts, namely the productivity of the main harvest season and the low harvest season. Naturally, the

average production per tree of *Salacca zalacca var. amboinensis* during the main harvest season is greater than the low harvest season. In terms of strata of land area, productivity of *Salacca zalacca var. amboinensis* on the strata of land area >1 ha is highest during the main harvest season and the lowest productivity is on the stratum <0.5 ha during the low harvest season (Table 10). The results of statistical tests show that the productivity of *Salacca zalacca var. amboinensis* is significantly different between strata of land area. It is proven that strata of land area correlate with productivity gains of *Salacca zalacca var. amboinensis*. The relatively low productivity of *Salacca zalacca var. amboinensis* in the strata of land area <0.5 ha indicates that there is poor cultivation management, moreover the recognition that some respondent farmers only come to their zalacca farming when the zalacca bears fruit. The zalacca plant receives almost zero touch of maintenance, so it is not surprising that the productivity gains are very low. Of course, the productivity that is achieved with a touch of minimal maintenance is only a gift from nature as a result of the suitability of the agro-climate and the support of endowment factors.

Table 10: Productivity of *Salacca Zalacca Var. Amboinensis* According to Strata of Land Area and Harvest Season.

Productivity (Kg/Tree)	Harvest Season								
	Main Harvest Season				Low Harvest Season				
	Min	Average	Max	SD	Min	Average	Max	SD	
Land area strata	<0,5	1.50	2.26	3.00	0.33	0.50	0.98	1.00	0.08
	0,5 - 1	2.50	2.89	3.00	0.21	0.75	1.00	1.25	0.06
	>1	3.00	3.12	3.50	0.22	0.75	1.01	1.50	0.11
	<0,5	1.50	2.26	3.00	0.33	0.50	0.98	1.00	0.08
	0,5 - 1	2.50	2.89	3.00	0.21	0.75	1.00	1.25	0.06

Specifically, there is an acknowledgment from farmers who manage *Salacca zalacca var. amboinensis* farming with a stratum of land area <0.25 ha that states that they only come to their zalacca gardens when the zalacca plants bear fruit. They make *Salacca zalacca var. amboinensis* farming a side job by giving a minimal touch of maintenance to their zalacca plants. It is similar with Sukewijaya et al. (2009) that state zalacca plants really need a touch of more intensive maintenance, including weeding, fertilizing, irrigation, plant protection, and fruit thinning. Weeding is very important so that weeds do not become competitors in various aspects, especially in the utilization of nutrients and space to grow. Pruning the leaf sheaths also needs to be done regularly so that the Zalacca plants do not have insignificant sheath loads. The availability of nutrients for *Salacca zalacca var. amboinensis* plants must be conditioned in a sustainable manner through fertilization activities so that productivity is maintained. *Salacca zalacca var. amboinensis* fruit is very popular with squirrels and rats, so a touch of pest control is very important so that yield losses can be suppressed.

This is different from the progress of farmers who manage *Salacca zalacca var. amboinensis* farming with strata of land area >0.5 ha. Most of them make zalacca farming their main job. The maintenance touch given to the *Salacca zalacca var. amboinensis* plants is relatively more intensive, starting with weeding, pest and disease control,

frond pruning, frond composting, fertilizing, and fruit thinning. It has been proven that the intensity of the maintenance given is responded to very well by the *Salacca zalacca var. amboinensis* plants, with relatively higher productivity gains during the main harvest season and low harvest. Farmers' good practices on strata of land area >0.5 ha should be used as an example in managing *Salacca zalacca var. amboinensis* farming, especially for farmers who have strata of zalacca land area <0.25 ha. *Salacca zalacca var. amboinensis* plants should be given a touch of adequate maintenance so that productivity gains are higher. Well-organized *Salacca zalacca var. amboinensis* farming can be used as a laboratory for zalacca observers and zalacca farmers, as well as a trade mark that strengthens the bargaining position of farmers towards buyers.

In terms of the harvest season, the average productivity of *Salacca zalacca var. amboinensis* during the main harvest season reaches 2.67 kg/tree, and during the low harvest season, the average productivity reaches 0.99 kg/tree. The coefficient of variability in the productivity of *Salacca zalacca var. amboinensis* during the main harvest season is 16.51% and 7.98% in the low harvest season, which means that the productivity of *Salacca zalacca var. amboinensis* fruit during the main harvest season is relatively more heterogeneous. The test results with the t-test show that the average productivity of *Salacca zalacca var. amboinensis* during the main harvest season is greater

than the low harvest season. Rai (2018) stated that during the main harvest season, zalacca production reaches 70%, while during the low harvest season it is only 20%. On the other hand, Pondoh zalacca, which is a competitor of *Salacca zalacca var. amboinensis*, is able to produce throughout the year. If compared with Pondoh zalacca, the productivity of *Salacca zalacca var. amboinensis* is relatively lower. This indicates that *Salacca zalacca var. amboinensis* has lower competitiveness because, according to Prasetyo & Dzaki (2020), productivity is the key to competitiveness. Such conditions are a challenge for farmers to continue to innovate so that *Salacca zalacca var. amboinensis* can bear fruit outside the polarization of the two harvest seasons and that productivity increases. The private cost ratio (PCR) indicator is used to analyze the competitive advantage of *Salacca zalacca var.*

amboinensis. The information base of which is derived from the policy analysis matrix. The competitive advantage of *Salacca zalacca var. amboinensis* is relatively diverse (Table 11). In terms of land area strata, the average competitive advantage of *Salacca zalacca var. amboinensis* in the land area stratum >1 ha is the highest during the low harvest season, and the lowest competitive advantage is in the land area strata <0.5 ha during the main harvest season (Table 10). The results of statistical tests show that the competitive advantage of *Salacca zalacca var. amboinensis* is significantly different between strata of land area. This is in line with the productivity of *Salacca zalacca var. amboinensis*, which also differs between strata of land area. However, all strata of land are capable of producing *Salacca zalacca var. amboinensis*, which has a competitive advantage.

Table 11: The Competitive Advantage of Salacca Zalacca Var. Amboinensis According to the Strata of Land Area and Harvest Season.

Private Cost Ratio (PCR)		Harvest season							
		Main harvest season				Low harvest season			
		Min	Average	Max	SD	Min	Average	Max	SD
Land area strata	<0.5	0.19	0.32	0.66	0.11	0.19	0.23	0.55	0.06
	0.5 – 1	0.09	0.12	0.17	0.02	0.11	0.15	0.23	0.02
	>1	0.06	0.09	0.10	0.01	0.06	0.09	0.13	0.01

From the point of view of the main harvest season, the average competitive advantage of *Salacca zalacca var. amboinensis* during the main harvest season reaches 0.20, which means that to save one unit of foreign exchange at the private price level, it requires the sacrifice of 0.20 units of domestic resources. During the low harvest season, the average competitive advantage of the *Salacca zalacca var. amboinensis* reaches 0.17, which means that to save one unit of foreign exchange at the private price level, it requires the sacrifice of 0.17 units of domestic resources. It can be seen visually that the competitive advantage of *Salacca zalacca var. amboinensis* during the low harvest season is stronger than the main harvest season, but the test results with the t-test show that the average competitive advantage of *Salacca zalacca var. amboinensis* during the low harvest season is not different from the main harvest season. This means that the competitive advantage of *Salacca zalacca var. amboinensis* is related to the harvest season. The results of the analysis show that *Salacca zalacca var. amboinensis* has a competitive advantage throughout the season. The coefficient of diversity of the competitive advantage of *Salacca zalacca var. amboinensis* during the main harvest season is relatively higher compared to the low harvest season, which means that the achievement of the competitive advantage of *Salacca zalacca var. amboinensis* during the main harvest season is riskier compared to the low harvest season. Government intervention programs are very important for developing the competitive advantage of the agribusiness sector (Sachitra & Chong, 2016). Therefore, the law enforcement of Bali Governor Regulation No. 99 of 2018 concerning the marketing and utilization of Balinese agricultural, fishery, and local industry products is urgently needed to be realized so that local markets (traditional markets, modern markets, hotels, and

restaurants) are able to provide greater absorption, which in turn strengthens the bargaining position of *Salacca zalacca var. amboinensis* farmers.

Salacca zalacca var. amboinensis farmers are challenged to have forensic skills to carry out early detection of sources of competitive advantage for their products to be packaged neatly and sent to prospective buyers. Unique competitive advantages provide great opportunities to obtain higher profits (Dziwornu & Raymond, 2014), and of course the company's management strategy also contributes to the achievement of a competitive advantage (Ismail et al., 2014). Qualitatively, *Salacca zalacca var. amboinensis* was identified as having a number of competitive advantages, namely: (1) sweet taste; (2) soft fruit structure; (3) thick fruit flesh; (4) rich fruit color; and (5) multi-use.

All these aspects of competitive advantage will become increasingly attractive attributes if there is a touch of continuous technological innovation. Farmers should cultivate innovation in managing their zalacca farming because culture contributes to competitive advantage (Odhiambo et al., 2015; Violinda & Jian, 2016). It is the obligation of farmers to cultivate the process of controlling the flow of innovation so that they are able to create significant added value that has a positive impact on strengthening their competitive advantage. In addition, assistance from competent parties is needed so that zalacca farmers as a whole are able to respond and adapt to developments in technological innovation and then rise together to seize economic benefits. In the future, sustainable hexahelic synergistic collaboration will be the key to success in promoting zalacca farmers to a more prestigious level and allowing them to reap the sweet benefits created, including those from the endowment factor award.

5.4 *Salacca Zalacca* Var. *Amboinensis*'s Competitive Advantage: Factors

It is very urgent to identify sources of competitive advantage for *Salacca zalacca* var. *amboinensis* to enable farmers to formulate strategies to increase their competitive advantage. Based on the literacy of the sources of competitive advantage, farmers have a great opportunity to increase the economic value of *Salacca zalacca* var. *amboinensis*. At a certain level, the competitive advantage of *Salacca zalacca* var. *amboinensis* does not just come; it needs to be conditioned through a combination of technological innovations that are compatible and synergistic with the support of endowment factors. A number of factors are thought to influence the competitive advantage of *Salacca zalacca* var. *amboinensis*, namely: (1) the level of technological innovation of zalacca cultivation; (2) the level of post-harvest technological innovation of zalacca; and (3) the level of marketing innovation of *Salacca zalacca* var. *amboinensis*. The results of the analysis of variance show that together all independent factors influence the dependent factor (competitive advantage), with a coefficient of determination of 62.5% (Table 12). This coefficient determination means that 62.5% of the variation in the dependent factor can be explained jointly by independent factors, and the remaining 37.5% is explained by other factors not included in the model.

Table 12: Multiple Linear Regression Analysis.

Factors	Regression Coefficient	P-Value
Constant	0.403	0.00
Cultivation innovation level	0.012	0.00
Post-harvest innovation level	0.012	0.00
Marketing innovation level	0.009	0.02

$R^2 = 62,5\%$

Partially, the innovation level of *Salacca zalacca* var. *amboinensis* cultivation, the post-harvest innovation level, and the level of marketing innovation have a significant effect on the competitive advantage of *Salacca zalacca* var. *amboinensis*. The findings of this study are in line with the results of a study by Çetintürk et al. (2016), Dlamini et al. (2014), Bulankulama & Khatibi (2014), Kraja & Osmani (2013), Suryani & Claudya (2021) and Ueasangomsate et al. (2018) that found that innovation affects competitive advantage. For *Salacca zalacca* var. *amboinensis* farmers, continuous improvement in aspects of cultivation and marketing is a must, so that they are able to quickly respond to the dynamics of consumer preferences. Without adapting to innovation, it will be left behind by its competitors. This is confirmed by Hermundsdottir & Aspelund (2021), which state that continuous innovation can increase competitive advantage.

Regular pruning activity in *Salacca zalacca* var. *amboinensis* farming, making very tidy and controlled farming with an environmental sanitation standpoint. Such conditions become an instrument for mitigating pest attacks, especially squirrels and rats, which can be significantly suppressed so that the average productivity of

Salacca zalacca var. *amboinensis* is relatively high. Apart from the cultivation aspect, the business model also needs to be updated to strengthen its competitive advantage (Dudin et al., 2015). In terms of marketing innovation, competitive advantage also comes from market characteristics and the marketing ecosystem (Carbone et al., 2020; Zhang & Watson IV, 2020).

Most of the respondent farmers have innovated to fertilize their *Salacca zalacca* var. *amboinensis* plants by using compost. Farmers really understand that compost has advantages compared to inorganic fertilizers because it can improve the physical, chemical, and biological properties of the soil. The actions of farmers who innovate by using compost in the maintenance of *Salacca zalacca* var. *amboinensis* plants can be categorized as environmentally sustainable actions. The results of this study are in line with the findings of Grimstad & Burgess (2014), which show that sustainable environmental actions are correlated with competitive advantage. In addition, the results of Leonidou et al. (2015) found that product-related areas have an effect on competitive advantage. However, Kwarteng, Dadzie, & Famiyeh (2016) found that environmental sustainability had no impact on corporate image. Unlike the results of Kwarteng et al. (2016), the results of this study indicate that environmental sustainability strengthens the bargaining position of farmers. Several farmers were able to market their *Salacca zalacca* var. *amboinensis* fruit in the modern market even after the buyer (from the modern market) made a visitation to the location of their zalacca farming. *Salacca zalacca* var. *amboinensis* cultivation with a conservation system was able to attract modern market managers to buy the produced *Salacca zalacca* var. *amboinensis*.

6. Conclusions

The *Salacca zalacca* var. *amboinensis* harvest season is polarized into two seasons, namely the main harvest season and the low harvest season. *Salacca zalacca* var. *amboinensis* productivity differs between the main and low harvest seasons and between strata of land area. Cumulatively, the innovation level of *Salacca zalacca* var. *amboinensis* farming is in the low category. *Salacca zalacca* var. *amboinensis* has a competitive advantage in all strata of land area and in all harvest seasons. Taken together, all the independent variables are able to explain the variation of the dependent variable by 62.5%. Simultaneously and partially, the innovation level of *Salacca zalacca* var. *amboinensis* cultivation, the post-harvest innovation level, and the marketing innovation level influence the competitive advantage of *Salacca zalacca* var. *amboinensis*.

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