

Original Article

Consumer preferences on the kiosk model of dryland agricultural products in east Nusa Tenggara

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ABSTRACT

East Nusa Tenggara (NTT) is one of the provinces in Indonesia that produces dryland agricultural products. Locals typically sell these products in stalls and kiosks found in urban and remote areas. However, they are also considered one of NTT's most significant economic drivers. These kiosks have various models that might influence consumer preferences to buy the products on specific considerations. Research on consumer preferences for local kiosk models still needs to be improved, so this issue is interesting to study. This study uses a qualitative method to examine consumer preferences based on their shopping experience at local agricultural product kiosks. The research begins with a typology of kiosks in NTT. The kiosk model data were then reconfirmed through interviews and questionnaires to understand sellers' considerations and consumer preferences further. The next step is to formulate the kiosk model and its principles. The study results indicate that sellers' considerations in formulating the kiosk model align with consumer preferences. This result relates to product grouping, kiosk display, and storefront arrangement. Especially in kiosk models with a variety of physical elements, merchants can attract more consumers and increase the probability of generating sales by understanding consumer preferences.

Keywords: Agricultural product, dryland, East Nusa Tenggara, Kiosk model, preferences

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INTRODUCTION

East Nusa Tenggara (NTT) is one of Indonesia's provinces dominated by dryland, recorded at 3.491.130 Ha, compared to rice fields of only 200.291 Ha.^[1] Therefore, dryland is an essential source of livelihood for the people of NTT.^[2] This condition encourages farmers to develop dryland agriculture to produce agricultural products yearly. Some of the common products included corn, cassava, sweet potatoes, vegetables (mustard greens, cabbage, and broccoli), and fruits (papaya, watermelon, mango, and dragon fruit),^[3] and these agricultural products can be sold directly by farmers or through sellers in markets and stalls/kiosks.

Most dryland agricultural products in NTT are sold at community-owned stalls and kiosks. Furthermore, consumers

prefer these kiosks because they are easily accessible in urban areas and remote villages. Kiosks are also considered an economic driver in NTT. Through the variation in kiosk models, each kiosk has a unique arrangement, product display, and grouping of agricultural products depending on the local community's needs. The factors listed above are thought to influence consumer preferences to buy agricultural products as retailers explore new ways to engage customers.^[4]

Research on consumer preferences in agriculture has been carried out several times, including those written by Bavorova *et al.*,^[5] regarding the influence of socio-demographic factors and consumer attitudes towards product selection and agricultural product outlets, especially in Germany. Based on the author's study, farmers' markets and farm shops were compared as places selling agricultural products, but

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farmers' markets emerged as the best choice for freshness and supporting local farmers. Consumers choose farm shops for cost, product quality, product safety perceptions, and ease of access. Regarding accessibility, it further discussed location and physical store models that can influence consumer preferences. As Sunthonovard and Sahachaisaeree said,^[6] the design and decoration of retail stores, as in color, material and figure, and art factors which come from consumers' perception, might influence the customer's preferences.

Another study by Curtis *et al.*^[7] focused on the potential of farm shops to support the supply of local agricultural products to the community and tourists. This example includes several recommendations for location selection, product diversification, knowledge and connections, and product selection. The physical model or design of the kiosk can therefore be discussed further.

The concept of consumer behavior, introduced by Kotler and Keller,^[8] describes how cultural, social, and personal factors influence consumer selection decisions. Despite not being examined, place preference may influence consumer preferences, which will be further investigated in this study. In addition, several studies specifically analyze consumer preferences for a product, such as Quality attributes consumers prefer;^[9] Conserving biodiversity through consumer preferences;^[10] Indonesian consumers' factors influencing local rice purchases;^[11] consumer preferences for meat product variants;^[12] product preferences for cultured fish and captured fish;^[13] and, the intrinsic attributes of apple fruit as perceived by consumers.^[14] The studies provide an understanding of consumers' preferences for particular products and explore other aspects that may influence preferences. Thus, studying consumer preferences for a product could be more comprehensively understood.

Following the issue and research reviews described, this study examines consumer preferences for the kiosk model, particularly for dryland agricultural products kiosks in NTT. The model of the kiosk is believed to influence consumer preferences in choosing where to buy products. The results of this study can complement previous research, and the community can use the principles of application of the kiosk model. Second, the research is expected to provide designers and the government with input on structuring traditional markets and sales kiosks to provide convenience to sellers and consumers.

MATERIALS AND METHODS

Customer Preferences for Products

Consumer preferences are priorities, habits, or favorite products (goods or service) that encourage purchases. Kotler and Dan Armstrong^[15] distinguish between economic, psychological,

and consumer behavior forms of consumer decision-making, while economic consumers choose a product based on price, packaging, or leanness. Therefore, psychologists prioritize psychological or sociological factors; consumer behavior is a consumer activity that begins with a decision and encompasses purchasing, consuming, assessing, and spending money on a product.^[16] In addition, family or the surroundings may recommend buying.^[17]

Interior Concept

Inside the building are two main elements: horizontal and vertical delimiters. The upper horizontal delimiter can be a ceiling, while the lower part is a floor with various shapes and materials.^[18] The vertical delimiter can be walls, windows, doors, and other semi-permanent barriers. Space-forming elements are space fillers, such as furniture, decorations, or other tools contained in the space.^[19] Furthermore, Wicaksono and Tisnawati^[20] said that the interior atmosphere is influenced by several factors, which are physical factors or design elements, such as shape, appearance, texture, color, light, scale, proportions, and non-physical factors, such as: psychological, social, and cultural. These physical factors can be observed in the space-forming elements that also affect the quality of the space-forming. In contrast, non-physical factors are generally attached to humans as space users.

As well as various factors influencing interior design, such as creating a particular atmosphere, store interiors are arranged to attract consumers and increase product sales. It can be done by arranging storefronts, products, and packaging.^[18] The arrangement of interior spaces can also be observed in simpler forms, such as a kiosk. Kiosks generally have a simple form, using a tent and furniture like a table or rack to stack some products, and can create a functional interior with various simple elements. This design aims to create experiences that entice, excite, and captivate customers by incorporating their preferences.^[21]

Methods

Based on the seller as owner and consumer experiences as users, this study examines consumer preferences for dryland agricultural products sold at kiosks. These consumer preferences can be understood by examining research variables, such as kiosk components and physical elements obtained from observations and literary techniques. The physical elements in a kiosk include products arranged, dimensions, materials, and colors, while the spatial elements consist of dividers and furniture. These variables were recorded through observations and interviews with some sellers or kiosk owners to learn the types and considerations behind the kiosks' form/representation. Therefore, a questionnaire was then used to re-verify kiosk types with consumers. The final step is to develop a kiosk model based on customer and seller preferences. Hence, the researcher can understand consumer preference for dryland agricultural products kiosks in NTT.

RESULTS AND DISCUSSION

The Description of Research Location and Sampling

The study focuses on Kupang City and Kupang Regency in NTT. According to purposive sampling criteria, each region selected 15 kiosks, resulting in 45 kiosks in the overall sample.^[22] Figure 1 illustrates the locatin.

Kiosk samples were taken in the central Kupang area, including those located in Kolhua, Maulafa, and ikumana Villages. From a sample of 15 kiosks, there are five permanent kiosks and ten semi-permanent; Kiosk samples were taken in the eastern part of Kupang, including those in Oesapa, West Oesapa, Fatululi, Naimata, Penfui, and Liliba Villages. In other, from a sample of 15 kiosks, there are six permanent and nine semi-permanent kiosks were taken in the western part of Kupang, including those located in Bakunase, Manulai, Batuplat, Manutapen, and Nunbaun Sabu Villages.

The smallest kiosks measure 100×125 cm, while the largest kiosks measure 500×600 cm. Hence the average size of these kiosks is 300×350 cm. As a result of these dimensions, kiosks are relatively visible from major roads and neighborhood streets. A kiosk also having a simple construction form, with various products hung or placed in front of the kiosk to attract cosumers' attention.

Kiosks in Kupang are typically semi-permanent structures constructed of wood, bamboo, plywood, zinc, tarpaulins, or banners. In the meantime, permanent kiosks use bricks, zinc, spandex, and ceramics. To display products, most sellers use wooden tables, wooden shelves, bamboo baskets, or bamboo *nyiru* (woven bamboo) with varying sizes depending on the product. Some new storefronts/furniture have used plastic baskets, plastic buckets, glass jars, or aluminum shelves. The products sold at the kiosk include corn, vegetables (cabbage, kale, spinach, eggplant), fruits (coconut, banana, pumpkin, watermelon), nuts (peanuts, green beans, kidney beans), tubers (potatoes, cassava), spices (shallots, garlic, chillies, lemongrass), and processed products (tofu, tempe, brown sugar). Typically, products can be viewed and purchased from

tables, shelves, or under the kiosk's roof; thus, consumers can view and select things for purchase.

The Various Kiosks Model of Dryland Agricultural Products

Typology begins with coding, which provides and describes each code for kiosk samples, components, and physical elements. The following process categorizes sample kiosks based on kiosk components and physical kiosk elements. In the last step, the types of kiosks are identified based on the analysis.

Each kiosk in Kupang City was tagged with a code based on the observed samples for easy identification. For example, in the central coded with A, in the eastern with coded B, and in the west with coded C. Purposive sampling has been used for kiosk samples to select up to 15 samples from each area, sorted by area code and serial number. The kiosk samples are then classified based on the components and physical characteristics variable.

The components include a room delimiter (code P) and storefront/kiosk furniture (code S). Otherwise, the observed physical elements of the kiosk are the setting, dimension, material, and kiosk color. The elements of physical kiosk appearances are divided into two types. There are planned arrangements or grouping items (code A1) when the seller or kiosk owner applies a set plan or grouping products on the room partition or display cases/shelves; Moreover, and unplanned arrangements or without grouping (code A2) when the seller or kiosk owner does not do any set plan or grouping on their room partition or storefront/shelves.

Dimensional elements can be divided into two types; there is height dimension (Code D1) when the kiosk owner makes the proportion of partition or shelves/furniture seem high (height>length/width), and low dimensions (Code D2) when the kiosk owner makes the proportion of partition or shelves/furniture seem low (height<length/width). Material elements can be divided into two types, and there is permanent material (code M1), when the kiosk owner uses permanent material dominantly on partitions and shelves/furniture, and semi-permanent materials (code M2), when the kiosk owners use

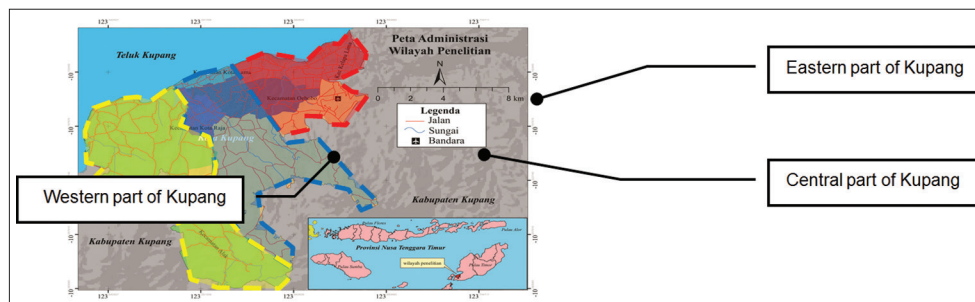


Figure 1: Kiosk location deployment.^[22]

semi-permanent materials, predominantly on partitions and shelves/furniture. As per color element, there are two types: natural/original color (code C1), which occurs when the kiosk owner utilizes dominant natural/original colors on the partition and shelves, and colors artificial/additional (code C2), when the kiosk owner uses dominant artificial colours and adds other colours to partitions or shelves.

Based on the physical elements category of the kiosk, we can identify and calculate the number of kiosk models which are dominantly applied by the seller/owner and which physical elements can be applied as part of a kiosk or whole. These results can be used as a reference in formulating the kiosk that sells dryland agricultural products in NTT.

Furthermore, with the identification of these physical elements, the number of sellers who applied planned room delimiter/partition (P-A1) reached 84%. In comparison, those who carried out unplanned room delimiter/partition (P-A2) were 16% of the total sample. Meanwhile, the storefronts/furniture that was arranged or grouped in a planned manner (S-A1) reached 93%, while the storefront/furniture that was not arranged or grouped in a planned manner (S-A2) reached 7%. Based on this data, it is apparent that storefront/kiosk furniture is arranged or grouped in a planned manner by most sellers and kiosk owners to attract consumers' attention and make it easier for consumers to choose products at the kiosk.

Based on the dimension elements, kiosks with high dimension (P-D1) room delimiter/partition reached 62%, and other kiosks (38%) with low dimensions (P-D2). While the high dimensional storefront/furniture (S-D1) reached 71%, and the low dimensional storefront/furniture (S-D2) was 29%. The data show that most sellers/kiosk owners use high dimensions for room delimiter/partitions and storefronts/furniture. A high-dimensional room delimiter/partition makes kiosks easier to find from a distance. Contrary, a high-dimensional storefront and furniture can aid consumers' shopping decisions.

Based on the material elements, 38% of kiosks used permanent materials (P-M1) for room delimiters/partitions, and 62% used semi-permanent materials (P-M2). Meanwhile, 76% of storefronts and furniture use permanent materials, and 24% use semi-permanent materials. The data show several preferences among sellers/kiosk owners, where most prefer semi-permanent materials for delimiters and partitions for

kiosk rooms. For storefronts/furniture, they choose permanent materials. A kiosk room delimiter/partition made of semi-permanent materials makes it easier for owners to modify the shape or area of the kiosk. In contrast, permanent materials for kiosk storefronts/furniture are chosen based on their durability.

Regarding color elements, kiosk room delimiters/partitions that maintain the natural/original color of the material (P-C1) reach 93%, and those that use artificial colors (P-C2) reach 7%. In the meantime, all storefronts/furniture maintain the natural color/original color of the material (S-C1). Those percentages show that the kiosk owner keeps the natural/original color of the room delimiter/partition and the storefront/furniture. The use of natural colors on room delimiter/partitions or storefront/furniture contrasts with the predominant color of dryland agricultural products, the percentage as in Table 1.

According to the calculation of each physical element's percentage, several kiosk elements have values below 30%. Consequently, only those physical elements can be considered significant in formulating a dryland agricultural products kiosk. Thus, a kiosk with more extensive coverage and a broader population can be produced.

Based on the classification and calculation of kiosk elements, several elements are applied significantly (percentage >30%) for each kiosk component. These include room delimiter/partition (P) including A1, D1, D2, M1, M2, and C1; and storefront/shelves/furniture elements (S) include A1, D1, M1, and C1. The sample that applied the combination of these elements reached 21 kiosks. In Kupang City, NTT, four types of dryland agricultural products kiosks can be formulated as:

- 1 Type 1 is a kiosk with a planned arrangement (P-A1), high dimensions (P-D1), permanent materials (P-M1), and natural/original colors (P-C1) on the room delimiter/partition; coupled with a planned arrangement (S-A1), high dimensions (S-D1), permanent materials (S-M1), and original/natural colors (S-C1) on the storefront/furniture. As many as 24% (5 samples) of all selected kiosk samples were applied.
- 2 Type 2 is a kiosk with a planned arrangement (P-A1), low dimensions (P-D2), permanent materials (P-M1), and natural/original colors (P-C1) on the room delimiter/partition; coupled with a planned arrangement (S-A1), high dimensions (S-D1), permanent materials (S-M1), and original/natural colors (S-C1) on the storefront/furniture.

Table 1: Percentage of dryland agricultural products kiosk elements

Kiosk component	Kiosk element (%)							
	Arrangement		Dimension		Material		Color	
	A1	A2	D1	D2	M1	M2	C1	C2
Delimiter/Partition (P)	84	16	62	38	38	62	93	7
Storefront/Furniture (S)	93	7	71	29	76	24	100	0

As many as 24% (5 samples) of all selected kiosk samples were applied.

- 3 Type 3 is a kiosk with a planned arrangement (P-A1), high dimensions (P-D1), semi-permanent materials (P-M2), and natural/original colors (P-C1) on the room delimiter/partition; coupled with a planned arrangement (S-A1), high dimensions (S-D1), permanent materials (S-M1), and original/natural colors (S-C1) on the storefront/furniture. As many as 28% (6 samples) of all selected kiosk samples were applied.
- 4 Type 4 is a kiosk with a planned arrangement (P-A1), low dimensions (P-D2), semi-permanent materials (P-M2), and natural/original colors (P-C1) on the room delimiter/partition; coupled with a planned arrangement (S-A1), high dimensions (S-D1), permanent materials (S-M1), and original/natural colors (S-C1) on the storefront/furniture. As many as 24% (5 samples) of all selected kiosk samples were applied.

The kiosks for dryland agricultural products use natural/original colors without adding any artificial colors to room delimiters/partitions. In addition, depending on the material, the room delimiter/partition has high and low dimensions, and there are permanent and semi-permanent delimiters/partitions. Furthermore, kiosk storefronts and furniture are arranged in a planned, high-dimensional manner, using permanent materials and retaining natural/original colors.

Of the four formulated kiosks, kiosk type 3 became the most applied model by 28%, and to determine consumer preferences for this dryland agricultural products kiosk model, the type 3 kiosk sample was again confirmed through a questionnaire. By interviewing the kiosk owner, consumer preferences were aligned with seller considerations for setting up the kiosk. The final result is a comprehensive kiosk preference.

Based on typological results, kiosk owners' considerations on which type of kiosk to select can be analysed (type 3) as follows: Based on typological results, kiosk owners' considerations on which type of kiosk to select can be analyzed (type 3) as follows:

- 1 A kiosk owner arranges kiosk room delimiter/partition to attract consumers to shop and visit, while a high-dimensional display grouping is carried out to facilitate consumer choice or purchase of products in storefronts or furniture;
- 2 High-dimensional room delimiters can help kiosk owners to increase their visibility from a distance, making it easier for customers to find them, while high-dimensional storefronts and furniture can help shoppers select specific products;
- 3 For kiosk delimiters/partitions, kiosk owners use semi-permanent materials to modify the area or shape of the kiosk based on the number of products they sell. For kiosk

storefronts/furniture, permanent materials are used based on their durability;

- 4 To emphasize/contrast the naturalness and freshness of their product, which is dominated by dryland agriculture, kiosk owners use natural/original colours on partitions and storefronts/furniture.

Consumer Preferences on the Kiosk Model of Dryland Agricultural Products

By analyzing the questionnaire results, consumers' preferences and considerations are analysed in choosing a particular kiosk model. This study included 100 respondents selected by purposive sampling. The respondents are consumers who had experience shopping at dryland agricultural product kiosks, 80% and 20% male, with 70% of respondents aged 20–30 and 30% aged 31–40 [Figure 2].

The questionnaire results revealed that 80% of respondents purchase vegetable products, while 20% purchase fruits. The arrangement of product groupings chosen by 65% of respondents most influences respondents to shop. Among respondents, 20% chose kiosk representation, 10% storefront arrangement, and 5% product completeness.

In contrast to permanent kiosks, semi-permanent kiosks are more popular with respondents. There is a slight difference; around 60% choose semi-permanent kiosks, and 40% choose permanent kiosks. Concerning colour display, respondents prefer kiosks with natural colours/original materials that attract their attention to shopping, with a significant percentage exceeding 90%, while a mere 10% chose artificial colouring.

To summarize the questionnaire, respondents were asked to choose one of six kiosk models developed from a dry land agricultural product kiosks typology. Among the other five kiosk models, kiosk model number 2 was selected most often by respondents, with a significant percentage reaching 55%. The second kiosk model has a roof covering the back room to storefront/furniture and three-sided walls on the back, right, and left sides, with an open front. Storefront and furniture arrangements have different heights, starting from high, medium, and low. Using high kiosk measurements, consumers can see products from multiple directions and a considerable distance.

In response to the questionnaire results about the physical elements of the kiosk, the considerations consumers in NTT make when choosing a kiosk for shopping can be analyzed as follows:

- 1 Well-planned room delimiter/partition arrangements attract consumers to kiosks. Despite having a roof and high walls on all sides, the kiosk has an open front with a roof and a high wall, floor coverings are not an issue for consumers and this arrangement is visually appealing to consumers.

This allows consumers to see from a distance where the kiosk is located, which products are being sold, and who the seller is

- 2 Consumers prefer shopping at kiosks with a well-planned storefront and furniture arrangement, including variations in height. As a result of product types and sizes being grouped together, consumers find this storefront arrangement more appealing. For example, spices and nuts are in the upper display case, small vegetables or fruits are in the medium-sized display case, large fruits are in the lower display case, and a basket of tubers is on the floor. In addition, the arrangement is related to clean/dirty and dry/wet conditions
- 3 Consumers prefer kiosks that use semi-permanent materials. When it comes to color, consumers prefer kiosks displaying materials like brown wood, bamboo, gewang (*Corypha utan*), and other raw materials in their natural color. In general, kiosks with semi-permanent materials use this material. According to consumers, using semi-permanent materials (wood, bamboo, or gewang (*C. utan*)) retains its natural/original color on the delimiter/partition. It can either be combined with dryland agricultural products that are still raw and fresh because they are harvested from agricultural land or community plantations. Consumers can also have confidence in the naturalness and freshness of agricultural products.

Currently, consumers are interested in permanent materials but with the natural/original colors of the materials used in storefronts and furniture. Using permanent materials in storefronts/furniture provides consumers with more comfort when purchasing. Contrary to this, using natural/original colors from materials can highlight the freshness of products displayed in stores/furniture.

The Comparison Between Seller Considerations and Consumer Preferences on Dryland Agricultural Products Kiosk Model

According to questionnaire analysis and the selected kiosk model, seller, and consumer considerations focus on physical elements and interest in kiosks where comparisons are made. For a more comprehensive understanding, the comparison results can be explained as follows:

- 1 Due to consumer preferences due to visually attractive, the seller arranged the kiosk room delimiter/partition using a complete roof and high-dimensional delimiter/partition on three sides of the wall. It makes it easy to see from a distance where the kiosk is, what it displays, and who is selling
- 2 Based on the type and size of the product and consumers' preferences for product groupings, the seller arranges the storefront/furniture with varying heights. It eases their choice and purchase of various products according to their needs

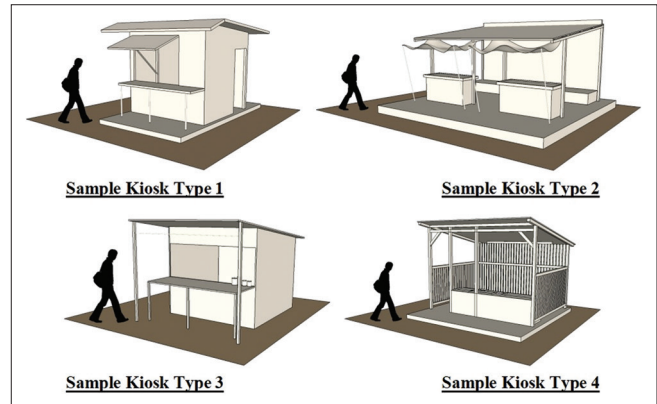


Figure 2: Kiosk sample types according to typology study

- 3 Sellers are considering semi-permanent materials on kiosk partitions based on consumer preferences. The semi-permanent material is easier to modify, while for the consumer, it resembles agricultural or plantation materials. In terms of colour, the natural or original colour is attractive to consumers because it emphasizes a product's naturalness and freshness. Thus, semi-permanent material as a delimiter/partition is preferred by consumers
- 4 In using permanent materials in the furniture and storefront, the seller follows consumers' preferences that the material is visually more attractive and sturdy, making choosing easier. In addition, highlighting the freshness of agricultural products sold in the storefront/furniture with natural/original colors follows consumer preferences [Figure 3].

Description of the Model and Principles of Applying the Kiosk Model for Dryland Agricultural Products

Based on consumer preferences and the kiosk model analysis, kiosk models and their application principles for dryland agricultural products kiosks in NTT can be developed. The tenets of the kiosk application model for dryland agricultural products in NTT can be explained as follows:

- 1 Simple form with well-planned room delimiter/partition, such as the roof on the top and the backs on the right and left. The front is open for furniture or a storefront;
- 2 Delimiters/partitions are made 1.5–2 times the length/width of the kiosk in height;
- 3 Material for room delimiters/partitions is semi-permanent such as wood, bamboo, gewang (*C. utan*), or other natural materials;
- 4 The color of the kiosk is the natural/original color of the material used;
- 5 The arrangement of storefronts and furniture in front of the open side of the kiosk matches the grouping of products;
- 6 Depending on the product type, storefront/furniture dimensions can vary (low, medium, high). For example, Among the display cases, there are herbs and nuts in the

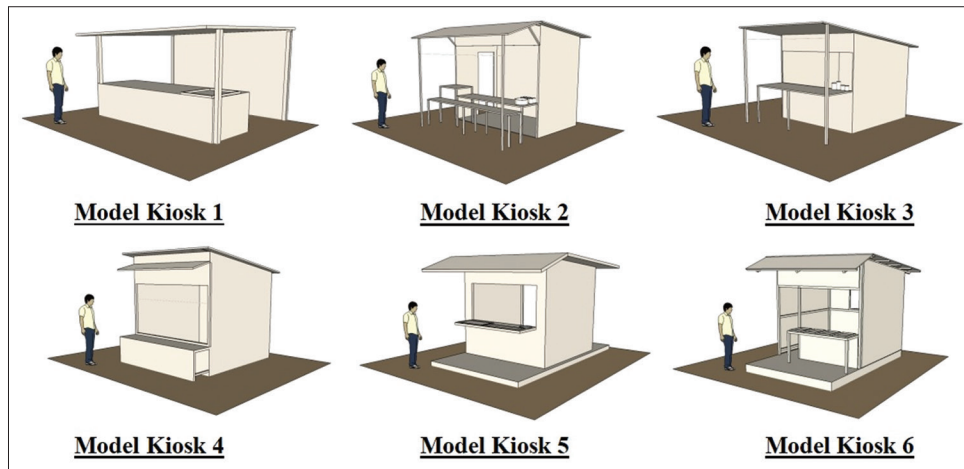


Figure 3: Six kiosk models were proposed to respondents according to typology study

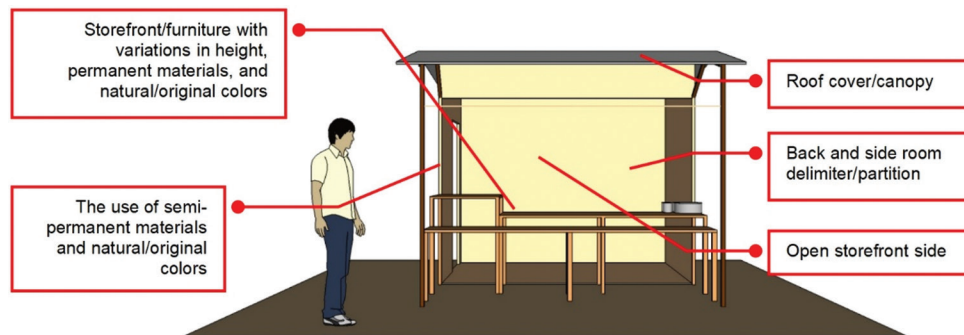


Figure 4: Principles of applying the kiosk model for dryland agricultural products in East Nusa Tenggara (NTT)

upper area, small vegetables or fruits in the middle case, and large fruits in the lower case;

- 7 The display case/furniture material uses a sturdy, permanent material; and
- 8 Furniture and storefronts retain their natural/original colour [Figure 4].

Sellers can use the above principles to set up their kiosks to attract consumers. Nevertheless, modifications and combinations can still be performed in several elements according to capabilities. Depending on the local area's availability, kiosk owners can use natural materials other than wood, bamboo, or gawang (*C. utan*). The kiosk owner also added a new color with consideration of the material's durability. It is better combined with natural colors such as brown, black, and grey in raw materials-the material application.

CONCLUSION

In marketing products, especially dryland agricultural products, various strategies are needed, and one of the main things is the appearance/shape of the stall/kiosk. Building a kiosk takes several considerations, from the seller as the kiosk owner to the

target user as the product consumer. According to the research results in NTT, seller considerations in designing kiosks from physical elements are compatible with consumer preferences. This suitability is related to the visibility of the kiosk, the ease of choosing products, the appearance of product quality, and the ease of modifying the kiosk to meet the owner's and consumer's needs.

Prices and product quality are generally attractive to consumers; however, certain physical aspects, such as product grouping, kiosk display, and storefront/furniture arrangement, cannot be eliminated. Adding specific physical elements to kiosks can indicate consumer preferences. These elements relate to kiosks' arrangement, dimensions, materials, and colors that apply certain principles on room delimiter/partition and storefronts/furniture. By aligning with consumer preferences, the kiosk attracted consumers. Therefore, sellers should understand consumer preferences regarding kiosk models for more significant sales potential.

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