

CHAPTER 4

DATA ANALYSIS

The data collected are put into 2 analysis methods: a qualitative method for the observation and interview results and a quantitative method for the questionnaire results. While the prospective customer's perception of the use of cassava packaging is important, an observation made by the writer is also crucial for this study as it can help determine the expiration date of the cookies and as a baseline to develop questions for the respondents.

4.1 Prospective Customer's Perception of Cassava Packaging for *Sweet Lab's* Cookies

The customer's perception sample was collected through a questionnaire followed by a follow-up interview. The observation has 40 respondents selected with an age range from 15 to 64 years old with a wide variety of occupations, from students to corporate employees, all of them fit the target market criteria of *Sweet Lab*, which are those who love sweets, desserts, and pastries. Each respondent was given 2 cookies, one packed in cassava plastic packaging, and the other packed in conventional plastic packaging as can be seen in **figure 1**.

figure 1

Side By Side Comparison of (left) Regular Plastic and (right) Cassava Plastic



4.1.1 Customers' Perception on The Appearance of Cassava Plastic

Table 1

Prospective Customers' Perceptions on the Attractiveness of Cassava Packaging

Variable	N	Min	Max	SD	Mean
1	40	2	4	.599	3.53

Table 2

Prospective Customers' Perceptions on Cassava Packaging Looking Better Than Regular Conventional Plastic, Aesthetically

Variable	N	Min	Max	SD	Mean
2	40	3	4	.483	3.65

The majority of the respondents perceived that the cassava plastic packaging is more attractive when compared to conventional plastic packaging. This is supported by the interview answers of one of the respondents, Respondent H when

asked about which packaging looks the most attractive answered, “*Kalau yang cassava itu ya soale beda, maksude lebih aneh gitu lho, tapi aneh bagus lho ya.*” [It’s because the cassava one is different, I mean, it’s unique but in a good way] (Respondent H, interviewed on December 2, 2022). Another respondent, Respondent I, revealed, “*lebih suka yang cassava sih non, lebih elegan kalau dilihat, lebih cantik.*” [I prefer the cassava one though, it's more elegant and prettier to look at.] (Respondent I, interviewed December 4, 2022).

In contrast, one of the respondents, Respondent B revealed that packaging design and attractiveness do not play a huge role for her. “*Saya gak gitu gimana ya, ga gitu mentingin packaging sih sebenarnya, asal bisa dipake ya udah. Toh juga ujung ujungnya dibuang*” [Actually, I don't care about the packaging. As long as it can be used, that's all that matters. It'll end up in the trash eventually.] (Respondent B, interviewed on December 2, 2022). Although preference can be a broad topic, most respondents agreed that cassava plastic has a better appearance than conventional plastic.

Table 3

Prospective Customers’ Perceptions of The Premium Material and High-Quality of Cassava Packaging

Variable	N	Min	Max	SD	Mean
3	40	3	4	.483	3.65
4	40	1	4	.636	3.57

5	40	2	4	.545	3.60
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Table 4

Prospective Customers' Opinion On How Cassava Packaging Looks Stronger Than Regular Conventional Plastic

Variable	N	Min	Max	SD	Mean
6	40	2	4	.552	3.45

The majority of the respondents perceived that cassava plastic has a premium quality material as can be seen in **Table 3** and **Table 4**. As a matter of fact, only one out of forty respondents disagreed with the statement. Furthermore, the interview result supports the results obtained from the questionnaire. Respondent A testified, “... dan kalau menurut saya cassava Plastik ini buat jadi lebih premium sih gak kayak Plastik biasa.” [... and, in my opinion, the cassava plastic makes the packaging appear more premium than regular plastic.] (Respondent A, interviewed October 10, 2022)

The results from the interview also suggest that 90% of the respondents perceived that cassava plastic is superior to regular conventional plastic in many aspects. Respondent A revealed that, “oh ya ya, bagus sih kelihatan lebih premium, kalau bahasa jawnnya ngelarangi, jadi buat kado kado gitu haruse bagus.” [yes, yes, it’s good, it looks more premium. In Javanese we call it ‘ngelarangi’ or looks more

expensive, so it would be good as a present] (Respondent D, interviewed November 2, 2022)

Cassava plastic not only appears more luxurious but is also eco-friendly and biodegradable; hence, it could be an essential contributor. 70% of the interview respondents agreed with that statement

4.1.2 Customer’s Perception from the Smell of *Sweet Lab*’s cookie

Table 5

Prospective Customer’s Perception on How Cassava Plastic Did Not Produce Any Unpleasant Smell

Variable	N	Min	Max	SD	Mean
7	40	1	4	.616	3.68
8	40	1	4	.675	3.57

The majority (97.5%) of the respondents agreed that the cassava plastic does not transfer any of its scent or smell to the cookie, while only 2.5% (1 person) of the respondents expressed that the cassava plastic does add a distinct or strange smell to the cookie. This could be caused by an error in storage or by consumption time that exceeds the expiry date.

The cassava plastic itself has quite a distinctive smell. It has a hint of latex or rubber scent, almost like a balloon, as Respondent E revealed when asked about it. “... *Ini bau apa sih, kayak bau balon ya?*” [...what is this smell, does it smell like a

balloon?] (Respondent E, interviewed November 18, 2022). Nonetheless, 100% of the respondents agreed that the cassava plastic has no effect on the scent of the cookie; conversely, the cookie changes the smell of the cassava plastic.

For instance, Respondent A revealed, “... *gak kok sama aja, justru kemarin Plastik cassavanya yang bau cookies.*” [... it’s quite the same, actually, yesterday, it was the cassava plastic that smelled like cookies.] (Respondent A, interviewed October 16, 2022). Correspondingly, Respondent E stated “... *kemarin itu baunya jadi semerbak cookiesnya.*” [... When I tried it, the cassava plastic smelled like cookies.” (Respondent E, interviewed November 18, 2022). Respondent D also stated, “*ndak ada bau latex kok, malah bau e cookies kecium dari plastiknya.*” [There is no latex smell, instead, the smell of the cookie can be sensed through the packaging.] (Respondent D, Interviewed on November 2, 2022). Their testimony confirms that cassava plastic does not affect the smell of *Sweet Lab’s* cookie.

4.1.3 Customer’s Perception from the Taste and Texture

Table 6

Prospective Customers’ Perception of How Cassava Plastic Did Not Change The Taste of The Cookies

Variable	N	Min	Max	SD	Mean
9	40	2	4	.526	3.68
10	40	1	4	.549	3.82

Taste testing can be very difficult to analyze as everyone may have different preferences. As can be seen in **Table 6**, the majority of the respondents perceived that cassava plastic does not change or ruin the taste of the cookie. In contrast, one out of 40 respondents disagree with that statement as he/she might have a different experience with both cookies. It could be caused by an error in storage or by consumption time that exceeds the expiry date.

100% of the interview respondents agreed that cassava plastic has no effect on the taste of the cookie. When asked about the taste of the cookie packed in cassava plastic, Respondent B stated, “*sama aja kok.*” [it’s the same.] “*bener bener cuman beda packaging doang.*” [the only difference is just the packaging.] (Respondent B, Interviewed October 18, 2022). Her response is consistent with the responses of the other respondents, suggesting that cassava plastic had no effect on the flavor of the cookies.

Table 7

Prospective Customers’ Perception On Cassava Plastic Being Able To Preserve The Texture of The Cookie

Variable	N	Min	Max	SD	Mean
11	40	2	4	.572	3.67

The texture of *Sweet Lab's* soft cookies should be crunchy on the outside while soft and chewy on the inside. The result of this study shows that the durability of the cassava packaging appears to be a setback, since 80% of respondents perceived

that the cookie wrapped in cassava plastic has gone through a change in texture. Respondent D stated during the interview, “*ndak sih, mungkin cuma tekstur? Rasane agak lebih lembek aja yang di plastik putih, lebih basah. Kalau laine gak ada oq, sama aja.*” [No, maybe it's just the texture? The one in the cassava packaging appears to be softer and wet. Apart from that, it's the same.] (Respondent D, interviewed November 11, 2022)

Respondent E, on the other hand, revealed that it is normal for soft cookies to become softer during the storing process as she, herself, has done a lot of baking before. She revealed that it is due to the amount of butter and other liquid ingredients inside of the soft cookies. “*emang jadi agak lembek, jadi diakalinya itu dengan disuruh re-heat. Biasa disuruh microwave 1 menit atau di oven bentar biar kering lagi.*” [it will be softer, so to deal with it, usually we reheat the cookies. You can suggest the customer to microwave it for 1 minute or put it in the oven so that it can be crispy again] (Respondent E, interviewed November 18, 2022). This may be difficult because not everyone has the luxury of having a microwave and oven in their home. It is also inconvenient to need to re-heat the cookie before consuming it. However, Respondent B, one of the respondents, had done it prior to being instructed. She stated, “*Ya lebih lembek gitu, tapi abis di air-fryer tu jadi kering lagi.*” [Yes, it has gotten softer, but when I air-fry it, it becomes crispy again.] (Respondent B, Interviewed on October 18, 2022)

4.1.4 Customer's Perception on Cassava Plastic for *Sweet Lab's* Cookies

Table 8

Prospective Customers' Perception on Cassava Plastic Being Able to Preserve The Quality of Sweet Lab's Cookies

Variable	N	Min	Max	SD	Mean
12	40	2	4	.586	3.62

The majority of the respondents perceived that cassava plastic is able to preserve the quality of *Sweet Lab's* cookies. The low Standard Deviation number shows that the answers from the respondents are more inclined towards the average scores.

Table 9

Prospective Customers' Preference on Choosing Cassava Over Regular Conventional Plastic

Variable	N	Min	Max	SD	Mean
13	40	1	4	.847	3.48
14	40	1	4	.815	3.55

The majority of the respondents preferred cassava plastic as a food packaging over regular conventional plastic. At least 35 out of 40 respondents perceived cassava plastic as a better food packaging option when compared to regular conventional

plastic. Although, as can be seen from **table 9**, the score of Standard Deviation is quite high, meaning the scores from the respondents are more spread out.

The interview results also suggest that the respondents are more inclined towards cassava plastic over regular plastic. Respondent A revealed that “*Kalau lebih suka saya pribadi lebih suka yang cassava Plastik sih, kalau yang Plastik biasa kan kayaknya udah biasa gitu yah, sedangkan kalau cassava Plastik lebih jarang. Sehingga jadi poin plus juga karena lebih beda.*” [I prefer cassava plastic over regular plastic. Regular plastic is just too common, while cassava plastic is still relatively uncommon. A plus point because it is different.] (Respondent A, Interviewed on October 16, 2022)

4.1.5 Customer’s Perception on The Price of *Sweet Lab*’s Cookies

1. Table 10

Prospective Customers’ Interest in Buying Sweet lab’s Cookies Using Cassava Packaging

Variable	N	Min	Max	SD	Mean
15	40	1	4	.751	3.52

Table 11

Prospective Customers’ Perception of The Increase of Sweet Lab’s Cookies Price Due to The Use of Cassava Plastic

Variable	N	Min	Max	SD	Mean
16	40	1	4	.891	3.22

At the price of Rp. 30.000,- per 150g cookie, the majority of the respondents are interested in buying *Sweet Lab's* Chocolate Chip Cookie, as can be seen in **Table 10**. **Table 11** shows that when the price is increased, adjusted to the price of cassava plastic, which is quite expensive, some of the respondents seem to lose interest. 15% of the respondents become less interested in buying *Sweet Lab's* Cookies with the increase in price, while 80% of the respondents are still interested in buying *Sweet Lab's* Cookies

Two out of forty respondents were not interested in buying *Sweet Lab's* cookies after comparing both cookies packed in different packaging. Even so, the majority of the respondents are still interested in buying the product. Six of the respondents lose interest after the price increase is revealed. On the other hand, Respondent H stated, “*Aku gak gitu masalah sih naik harga, toh ya memang cookiesnya ya enak.*” [I don't really mind the price increase though, the cookie was good anyway.] (Respondent H, interviewed on December 6, 2022) indicating that the price increase does not bother him, as long as the product sold is worth the price.

Another respondent, Respondent D revealed, “*oke sih, lebih mahal berapa, ndak yang sampe naik 10.000 to, masuk lah, tapi plastik singkong itu bagus e apa kok sampe ganti itu barang?*” [Okay, but how much? Not more than Rp.10.000,-, correct?

Still makes complete sense, but what makes cassava plastic better that you need to change the packaging?)] (Respondent D, interviewed November 2, 2022).

This could probably mean that the price increase has to be more specific, meaning the new pricing has to be determined so that the respondents know the exact number instead of guessing the new price. So, the next respondent, Respondent I, was asked the same question but this time a specific price was given, she replied, “*Waduh agak mahal ya segitu.*” [wow it is a little expensive.] “*Ya 30 ribu masih gapapa, kalau bisa turun dikit.*” [well, Rp. 30.000,- is fine, but it’s better if you could make it cheaper] (Respondent I, interviewed December, 4 2022). This means that the original price for *Sweet Lab* cookies is already high, so increasing the price for the packaging will be a problem. The solution is to lower the profit, this will hopefully help regain their interest in buying *Sweet Lab*'s product.

4.2 The Difference in The Use of Cassava Packaging and Plastic Packaging

During the observation process, two freshly baked *Sweet Lab*'s cookies were put into two different packages. One in conventional plastic packaging and the other in cassava plastic packaging. Both cookies were left at room temperature for one week to observe.

The findings obtained from the initial observation revealed that the cookie packed in the cassava plastic packaging showed specs of green dots, indicating the presence of molds on day 5, as can be seen in **figure 2**. Despite the molds, the cookie packed in the cassava plastic does not show any discoloration or change in the

appearance and taste. On the other hand, the cookie packed in conventional plastic packaging showed signs of mold on day 7, as can be seen in **figure 3**

Figure 2

The Cookie Packed in Cassava Plastic Shows Signs of Molds on Day 5



Figure 3

The Cookie Packed in Conventional Plastic Shows Signs of Molds on Day 7



The cookies are then further inspected for smell, taste, and texture. The result showed that both cookies still smell the same; there were no signs of moldy or musty

smell. Taste-wise, both cookies did not lose their original taste and developed a moldy/expired taste, which is contrary to the fact that the molds are visible. Texture-wise, the cookie packed in cassava packaging did not have any drastic texture change, it has lost its crispy exterior, but the texture was not soggy or mushy. With that, it is suggested that the cookies are best consumed within 72 hours of the baking process.

Both packaging are the same shape and size, the color of cassava plastic is opaque white, unlike conventional plastic that has no color or is clear. When trying to display the product inside the packaging. One of the respondents, respondent G revealed, *“Oh, kalau aku pertama tertarik ya sama yang di plastik bening sebenere... kayak kelihatan itu cookiesnya, kalau yang satunya kan putih tok jadi ga gitu menarik.”* [oh, I’m more interested in the one in clear plastic... it’s just more visible to the eyes, the other one is just plain white so it’s not quite as attractive] (respondent G, interviewed on December 1, 2022). In terms of communicating the product, the respondent perceived that conventional plastic packaging does a better job in communicating the product due to its clear color.