Proceeding of The First International Annual Conference on Economics, Management, Business and Accounting

Optimizing Business Corn Silk as A Fungctional Drink to Enhance Body Immunity

Reni Aprilliya Linawati[1*], Rohmawati Kusumaningtias[2]
[1,2] Accounting Department, Universitas Negeri Surabaya

Article Info:

***Keywords*:**
Cholesterol;
Corn Silk;
Dairy Business;
Diabetes;
Hypertension;

Abstract

Corn silk is an organic waste that has no selling value so if it is not used properly it will pollute the environment by causing bacteria and bad odors. Corn silk contains the minerals calcium, potassium, magnesium, sodium, essential oils, alkaloids, saponins, tannins and flavonoids, proteins, carbohydrates, fiber, vitamins B, vitamin C, vitamin K, steroids (sitosterol and stigmasterol), and protocatechin acid (compounds polyphenols) which are good for consumption for people with cholesterol, diabetes and hypertension. The purpose of this study was to analyze the benefits of corn silk which is processed into a functional drink in the form of milk. The method applied is a literature review by reviewing some of the previous literature and calculating BEP (Break Event Point), ROI (Return On Investment) and NPV (Net Present Value). This research gives the result that this product has a positive value with a total ROI of 33% and has an NPV between present value and cash flow in the next year of IDR 20,998,440. Based on the financial projection analysis that has been carried out, it shows that the corn hair milk business is feasible to implement.

Article DOI :
http://dx.doi.org/

(*) Corresponden Author:
✉ Author Address, Department, Affiliation, City, Country.
Email: reniaprillliya.20024@mhs.unesa.ac.id

INTRODUCTION

Corn (Zea mays L.) is one of the important food crops in the world, besides wheat and rice (Ministry of Trade, 2016). The access points for distribution and production of corn commodities in Indonesia are East Java (5,301,927 tons), Central Java (3,372,459 tons), West Java (952,826 tons), South Sulawesi (1,592,202 tons), North Sulawesi (435,401 tons) , Gorontalo (430,043 tons), Lampung (2,014,418 tons), North Sumatra (1,230,750 tons). East Java is the highest corn producing area in Indonesia because it is supported by its soil and climate conditions. Therefore,

E-ISSN : XXXX-XXXX

specifically in the East Java region, corn cultivation is carried out intensively (Ministry of Trade, 2016).

The corn plant is a multi-benefit plant that can be felt from the seeds, leaves, stems, skin, cobs to hair (Kemendesa, 2018). Corns have hair that is arranged and distributed on the inside of the skin. Corn silk is often considered as waste that has no value so it is thrown away and not used optimally by the community. The higher corn production results in increased corn silk waste. Corn hair waste is classified as wet organic waste so bacteria will easily break it down and pollute the environment because it produces a foul and unpleasant odor (Salsabila et al., 2021).

Optimization in processing corn silk waste into processed products that have sales value must be done because corn silk contains the minerals calcium, potassium, magnesium, sodium, essential oils, alkaloids, saponins, tannins and flavonoids, protein, carbohydrates, fiber, vitamin B, vitamin C , vitamin K, steroids (sitosterol and stigmasterol), and protocatechin acid (polyphenolic compounds) (Guo, et al., 2009). The nutritional value contained in corn silk is very good for body health, such as reducing blood cholesterol levels (Harun, et al., 2011). Corn silk, which is considered waste, can be used as a business opportunity because of the many benefits it has. One way to enjoy the benefits of corn silk is by preparing functional drinks.

Nowadays, functional drinks have become a trend in society for healthy lifestyles and self-medication. Functional drinks are drinks that are processed to fulfill two main functions, namely providing nutritional intake and sensory satisfaction such as good texture and delicious taste (Salsabila et al., 2021). Apart from being good for body health, functional drinks are also widely consumed because of the many variants and preparations made from various herbal ingredients. This functional drink can be a solution to prevent accelerated rates of non-communicable diseases that cause death.

The results of basic health research (Riskesdas) show that the prevalence of non-communicable diseases in Indonesia in 2013 experienced a significant increase in 2018. These diseases include stroke (7 percent to 10.9 percent), cancer (1.4 percent to 1.8 percent), chronic kidney disease (2 percent to 3.8 percent), hypertension (25.8 percent to 34.1 percent) and diabetes mellitus (6.9 percent to 8.5 percent) (RI Ministry of Health, 2018). IDF data (2021) states that 537 million vulnerable adults aged 20-79 years suffer from diabetes or it could be said that 1 in 10 people suffer from diabetes worldwide. Currently, Indonesia is in fifth position in the world with an average of 10.6% of people suffering from diabetes (Diabetes Atlas 10th edition).

Human health risks and disease prevalence rates are predicted to continue to increase over time. 2011WHO (2018) reports that cardiovascular disease, chronic respiratory disease, diabetes mellitus and cancer are non-communicable diseases that are the main causes of death in the world. Therefore, to overcome the combination of problems regarding corn silk waste and non-communicable diseases. Researchers created an innovative functional beverage product in the form of corn silk milk. This product combines UHT cow or soy milk combined with corn silk extract. With the existence of this corn silk milk product, it is hoped that it can answer the

E-ISSN : XXXX-XXXX

problem of corn silk waste and can help people reduce the risk of non-communicable diseases, especially those who have a history of diabetes and hypertension.

RESEARCH METHODS

This research is included in qualitative research using the literature review method. Literature review is a systematic, explicit and reproducible method for identifying, evaluating and synthesizing research works and ideas that have been produced by researchers and practitioners. Identification of problems in this research include: 1) There is no innovation to handle corn silk waste which means it has no value. 2) Lack of initiation in exploring the business opportunities found in corn silk. 3) Lack of financial literacy in implementing business.

RESULT

As support for the research being studied, the author took several references in the form of previous research sourced from fellow journals which will be presented in the form of paragraphs as follows:

1) Previous research was conducted by (Salsabila et al., 2021) in his research entitled "The Potential of Corn Hair as a Functional Drink". This type of research is qualitative research using a systematic review method to summarize evidence and facts regarding the potential of processed corn silk as a functional drink. The similarities between previous research and this research are as follows:
   a) Using the same object, namely corn hair
   b) Using qualitative research methods

   The differences between previous research and this research are as follows:
   a) The focus of previous research was to examine the potential and efficacy of corn silk, while this research focuses on optimizing processed corn silk to be used as a business opportunity.
   b) Previous research did not explain the specifications of functional drinks in the form of products. Meanwhile, this research focuses on functional drinks which are implemented through corn silk milk.

2) Previous research was conducted by (Herawati & Windrati, 2012) in her research entitled "Making Functional Drinks Based on Extracts of Red Dragon Fruit Peel (Hylocereus polyrhizus), Roselle (Hibiscus sabdariffa L.) and Salam Fruit (Syzygium polyanthum wigh walp)". This type of research is qualitative research using parameter analysis methods to observe the organoleptic properties, physical characteristics and chemical characteristics of dragon fruit. The similarities between previous research and this research are as follows:
   a) Using the same variable, namely functional drinks
   b) Using qualitative research methods

   The differences between previous research and this research are as follows:
   a) The focus of previous research was to examine the potential and efficacy of dragon fruit skin, while this research focuses on optimizing processed corn silk to be used as a business opportunity.

b) In previous research, a functional drink made from dragon fruit peel was combined with bay leaves. Meanwhile, in this research, the functional drink implemented was a combination of milk and corn silk.

3) Previous research was conducted by (Damayanti et al., 2021) in her research entitled "Utilization of Corn Hair Waste in Making Healthy Cookies for Diabetes and High Cholesterol Sufferers". This type of research is qualitative research using experimental methods that are structured systematically to build cause-and-effect relationships by looking for the effect of corn silk waste and cookies. The similarities between previous research and this research are as follows:
   a) Using the same object, namely corn silk waste
   b) Type of qualitative research

   The differences between previous research and this research are as follows:
   a) The focus of previous research was to examine healthy cookie recipes from corn silk waste. Meanwhile, this research examines processed corn silk milk.
   b) The method used in previous research was the experimental method, while the method used in this research was the literature review method by identifying fundamental problems.

This research also requires calculations to examine in more depth the feasibility of running a hair milk business. Therefore, this research will discuss BEP (Break Event Point), ROI (Return On Investment) and NPV (Net Present Value). This calculation analysis is used to find out whether this business is worth running or not.

Table 1. Budget plan

Type of Expenditure	Cost
Supporting Equipment	IDR 1,005,000
Consumables	IDR 1,670,000
Miscellaneous expense	IDR 340,000
Total	**IDR 3,015,000**

Operational costs for packaging corn hair milk:

Operational cost = (Consumables + Other costs): 500 Packaging (1)
= (Rp. 1,670,000 + Rp. 340,000) : 500
= IDR 2,010,000 : 500
= IDR 4,020

1. Profit in 1 Month

Profit = Income Costs – Operational Costs (2)
= (Rp. 8,000 x 500packaging) – IDR 2,010,000
= IDR 4,000,000 – IDR 2,010,000
= IDR 1,990,000

2. Financial Analysis

Based on the cost calculation (attached), the following is a business financial analysis in terms of production costs, revenues and profit/loss. Taking

E-ISSN : XXXX-XXXX

into account one month's cycle of selling 500 fruit, the following is data on revenue and profit/loss from the corn silk milk business.

Investment	: IDR 3,015,000
Profit	: Rp. 1,990,000
Price of goods	: IDR 8,000
Break Event Points	: 758 Units
Capacity	: 500 Product/cycle

Break Event Point (BEP)

$$\text{BEP Units} = \frac{\text{fixed cost}}{\text{unit cost} - \text{variable cost}} \quad (3)$$

$$= \frac{\text{Rp } 3.015.000}{\text{Rp } 8.000 - \text{Rp } 4.020}$$

$$= \frac{\text{Rp } 3.015.000}{\text{Rp } 3.980}$$

= 757.5 Units

= 758 Units (rounded)

Return On Investment (ROI)

$$\text{ROI} = \frac{\text{Rp } 4.000.000 - \text{Rp } 3.015.000}{\text{Rp } 3.015.000 \text{ x } 100\%} \quad (4)$$

$$= \frac{\text{Rp } 985.000}{\text{Rp } 30.150}$$

= 33%

Net Present Value (NPV)

NPV = (Rp. 72,768,000 x (33%)(1)) – IDR 3,015,000 (5)

= IDR 24,013,440 – IDR 3,015,000

= IDR 20,998,440

3. Financial Projection Assumptions

In the calculation analysis, it is known that the initial capital required is IDR 3,015,000. This capital will be distributed into several needs that are used to support operational costs such as equipment andequipmentwhich supports the production of corn silk milk. Apart from that, based on the results of ROI calculations, the return on investment for corn silk milk business owners is around 33% of profits, the figure 33% means that the total initial investment can be returned,

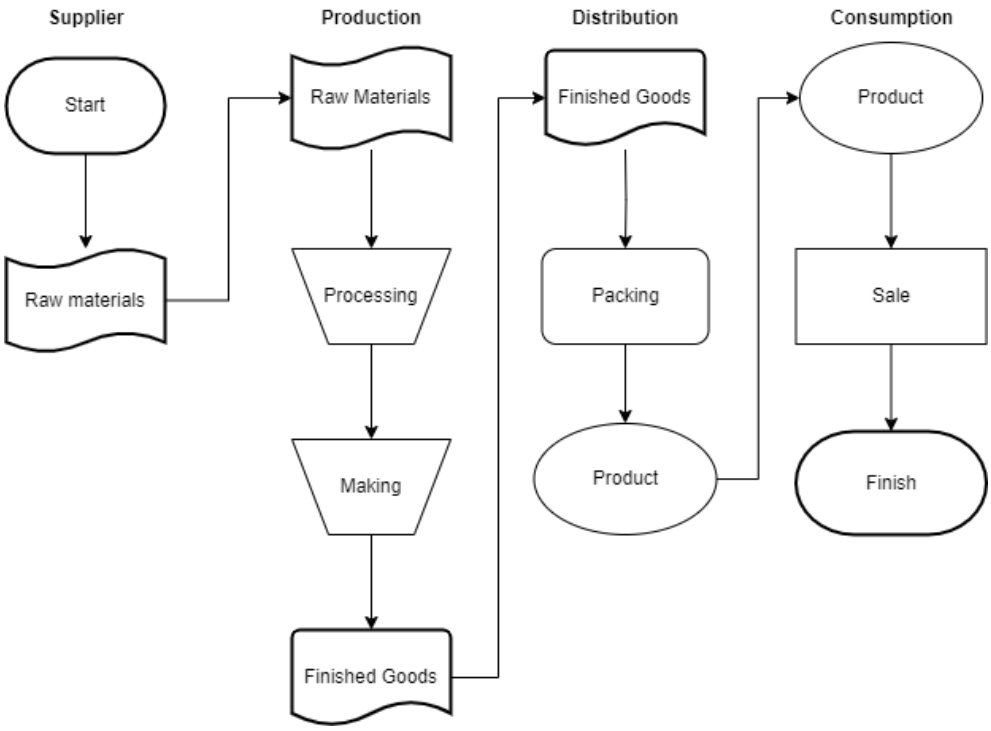
Based on the BEP calculation, the per unit that can be sold based on the initial capital is around 758 units. Apart from being calculated using ROI and BEP, based on NPV, the total difference between the present value and cash flow in the next year is IDR 20,998,440, this will be a toolforWe have determined that investing in corn silk milk products is worth carrying out, because based on this analysis the revenue that will be received in the next year will have quite a large value.

E-ISSN : XXXX-XXXX

4. Flow Chart of Corn Hair Milk Production

The discussion of the results is argumentative in nature regarding the relevance of the results, theory, previous research and empirical facts found, as well as showing the novelty of the findings.

Figure 1. Flow Chart of Corn Hair Milk Production



CONCLUSION

Corn silk waste, which was originally just organic waste, can be processed into an innovative and renewable product into a functional drink such as corn silk milk. The ingredients contained in corn silk milk include:minerals calcium, potassium, magnesium, sodium, essential oils, alkaloids, saponins, tannins and flavonoids proteins, carbohydrates, fiber, vitamin B, vitamin C, vitamin K, steroids (sitosterol and stigmasterol), and protocatechin acids (polyphenolic compounds).

This corn silk milk product is suitable for consumption by all groups, especially people with diabetes, cholesterol and people who are on a diet. So this product has promising economic value and market share.

Based on the financial projection analysis carried out by researchers, this product has a positive value with a total Return On Investment of 33% and has an NPVbetween the present value and the cash flow in the next year is IDR 20,998,440. So we can conclude, that the corn silk milk product business is worthy of implementation and development.

REFERENCE

Damayanti, E. A., Nurlena, N., & Gusnadi, D. (2021). Pemanfaatan Limbah Rambut Jagung Dalam Pembuatan Healthy Cookies Untuk Penderita Diabetes Dan Kolesterol Tinggi. *EProceedings of Applied Science*, *7*(5).

Herawati, N., & Windrati, W. S. (2012). Pembuatan Minuman Fungsional Berbasis Ekstrak Kulit Buah Naga Merah (Hylocereus polyrhizus), Rosela (Hibiscus sabdariffa L.) Dan Buah Salam (Syzygium Polyanthum wigh walp). *Jurnal Agroteknologi*, *6*(01), 40–50.

Kadek, Arika Is This Princess. (2018). Phytochemical Screening And Antioxidant Capacity Testing In Various Formulations In Various Formulations. Health Analyst Affairs, 11.

Marzuki, I. (2008). Corn Commodity Profile. Technoscience, 2(2), 94–101.

Melintang, P., & Vertikal, A. (2008). References Introduction, 1–21.

Prihatin, T., & Stasi, C. (2018). Implementation Of The Simple Additive Weighting Method In Determining Uht Milk For Toddlers. Journal Of Computer Engineering, 4(2), 1–6. Https://Doi.Org/10.31294/Jtk.V4i2.3255.

Salsabila, S., Palupi, N. S., & Astawan, M. (2021). Potensi Rambut Jagung sebagai Minuman Fungsional. *Jurnal Pangan*, *30*(2), 137–146.