



Farmers' Interest in Processing Sweet Potato (*Ipomoea batatas* L.) in South Binjai, Binjai, North Sumatra, Indonesia

Farmers Interest, Factors, Sweet Potato, South Binjai

Nurliana Harahap¹, Gusti Setiavani¹, Ameilia Zuliyanti Siregar^{1,2}(✉), and Lukman Hakim¹

¹ Politeknik Pembangunan Pertanian Medan, Medan, Indonesia
ameiliazuliyanti@gmail.com

² Faculty of Agriculture, Universitas Sumatera Utara, Medan, Indonesia

Abstract. Sweet potato is one of the typical foods of the Indonesian people. In addition to its sweet taste, nutritional value, sweet potatoes are foods that are easy to process so they have the potential to increase added value through processed products. This study aims to analyze the interest of farmers and the factors that influence the interest of farmers in processing sweet potato (*Ipomoea batatas* L.) in South Binjai District. This research was conducted from March to May 2021 in South Binjai District, Binjai City. The research method used was descriptive quantitative with Likert model scoring techniques and multiple linear analysis models. The results showed the interest of farmers in processing sweet potato very increase, influenced by the willingness, awareness, attention and feelings of pleasure can increase the interest of farmers in processing in sweet potatoes. Then T-test calculation shows the significance of farmers' interest in processing sweet potatoes, consist of education, experience, and capital. While the variables of income, community environment and marketing were not significant effect on farmers' interest in processing sweet potato in South Binjai District. So, which producers (farmers) and distributors can market their products properly, it must produce quality sweet potatoes that consumers like.

Keywords: Farmers interest · Processing · Added value · Sweet potatoes · North Sumatra

1 Introduction

Sweet potato or sweet potato (*Ipomea batatas* L.) is a food commodity that has several types such as white sweet potato, yellow sweet potato and purple sweet potato. According to Siburian et al. [1], sweet potato as a source of carbohydrates has the potential to produce high productivity, varied product diversification, contains nutrients with increasing market demand (local, regional and export).

Sweet potato processing in Indonesia is still done simply on a small scale. Various sweet potato products can be developed into: fresh sweet potatoes, ready-to-eat sweet

potatoes, ready-to-cook sweet potatoes, and semi-finished sweet potato products for food raw materials [2].

The potential for sweet potato development in Binjai City is quite high, as evidenced in 2016, sweet potato production in Binjai City was 918 tons with a harvested area of 51 ha, increased in 2017 sweet potato production by 1,170 tons with a harvested area of 65 ha. One of the biggest suppliers of sweet potatoes in Binjai City is South Binjai District, which accounts for 76% of the sweet potato planted area. Seeing these conditions, sweet potatoes are considered capable of producing optimal production and can be used as food diversification ingredients [3].

The selling price of sweet potatoes, especially in South Binjai City, is often in the spotlight because every time the harvest is abundant, the selling price immediately drops. This causes the desire of farmers not to sell their crops so that it has an impact on farmers' incomes which decrease. Sweet potato is also a commodity that has a shelf life that does not last long. Storage of sweet potatoes in the long term results in a decrease in the quality of sweet potatoes and reduces the selling value of sweet potatoes. Therefore, it is necessary to diversify through processing processes that can extend the shelf life of sweet potatoes. Sweet potato processing can also increase the added value of sweet potatoes and can improve the welfare of farmers.

To be able to process sweet potatoes into various kinds of processed high value, it takes the interest of the community. According to A. Susanto [4], interest is influenced by encouragement in a person or factors that cause interest or attention effectively, which causes the choice of an object or activity that is profitable, enjoyable and brings satisfaction.

Based on these conditions, the research team was interested in studying "Farmers' interest in processing sweet potato (*Ipomoea batatas* L.) in South Binjai District". This study aims to analyze the extent to which farmers are interested in increasing the added value of sweet potato and what factors influence farmers' interest in processing sweet potatoes in South Binjai City, North Sumatra.

2 Methods

The study was conducted from March to May 2021 in South Binjai District. The selection of the location for this study was carried out descriptively [5] with purposive sampling intentionally, using observations, interviews, and distributing questionnaires [6] to 62 respondents in 3 urban villages (Bhakti Karya, Tanah Merah, Tanah Seribu) in South Binjai. The measurement of variables in this study uses a Likert scale, consisting of a score of 1–5 with the criteria of strongly disagree, disagree, undecided, agree, and strongly agree. The observed factors include education, income, experience, capital, community environment and marketing. Furthermore, the data were tested for validity (T test, ANOVA), reliability test, and testing the hypothesis of farmers' interest in processing sweet potato (*Ipomoea batatas* L.).

3 Results

From the results of the description of the characteristics of the respondents, it shows that the comparison of male farmers' interests dominates over female farmers (37 respondents

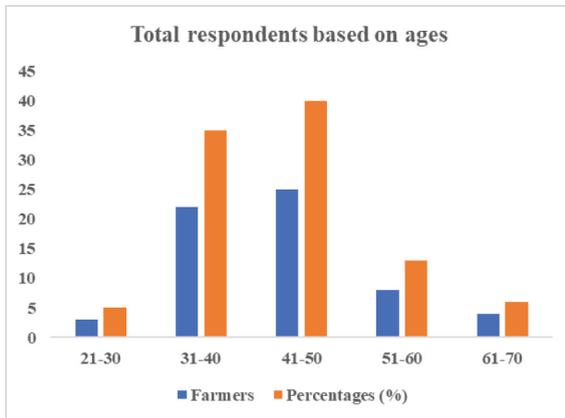


Fig. 1. Respondents based on ages.

= 60%: 25 respondents = 40%) for managing sweet potatoes. Meanwhile, the Fig. 1 showed ages of farmers are 21–70 years old. The 37 females recorded as farmers, working in the field and working in the house as household too.

Based on Fig. 1 showed all respondents are in the category of productive age (21–70 years old). The age of respondent farmers is dominated by farmers of productive age, aged 41–50 years old with a percentage of 40% of the total respondents. According to Lailani [7], states that at a young age a person usually has a good ability to work and knows what is not yet known about new things in business development to be more advanced. Based on calculation, it can be seen that the level of interest of farmers in processing sweet potato (*Ipomoea batatas* L.) in South Binjai District is very high category (81%) with a total score of 50 respondents from both of gender.

Based recorded showed the farmers' land area is dominated by a land area of 0.6–1.0 ha as many as 30 respondent (48%), followed by 1.1–1.5 Ha (36%) with 1.6–2.0 ha (13%), and the smallest were 0.1–0.5 ha (3%). The areas of land owned by respondents in this study is not too wide due to the division of land with other members, so it can be concluded that the area of land owned by respondents is included in the very low category, the wider the farm, the faster the adoption process.

Based on Fig. 2, respondents with farmer education are dominated by primary school were 34 respondents (55%), followed by secondary high school graduates (16 respondents, 26%), senior high school (7 respondents, 11%) and bachelor degree (5 respondents, 8 respondents) %). The higher the level of education of a person, the better in increasing added value. To maximize the management of their farming business, farmers are strongly influenced by the level of knowledge. According to Lestari [8], a person's level of education will affect a person's learning capacity, because learning activities require a certain level of knowledge to be able to understand it. So it can be concluded that, the higher a person's education, the more open they are to accept and try new things. Some farmers detected want to study and to know how to cultivate, fertilize and handle potato pests in an appropriate manner in the field.

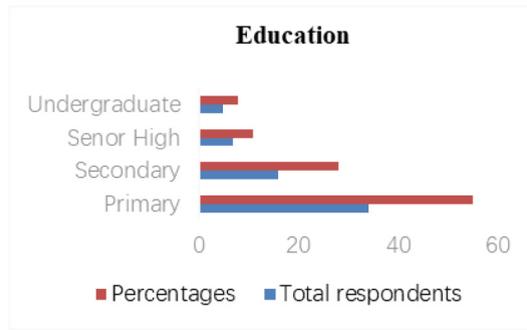


Fig. 2. Respondents based on education.

The level of education and experience as the basis for farmers' interest in processing. Feelings of pleasure arise from within itself and there is awareness, willingness and attention by seeing that what will be done is good, therefore feelings of pleasure will be experienced by every farmer who wants to do a processing.

This is in accordance with the opinion of Dayshandi et al. [9], interest is when someone has a sense of interest in a particular topic or activity that is considered more interesting and challenging, so that it can cause a sensation to follow or explore a topic or activity.

There is a willingness from farmers to carry out product processing, because their awareness of the selling price of sweet potatoes is still considered low and will be helped from processing. Awareness is the identity of every human being that he understands what is happening at this time, so that with the awareness of farmers, the interest of farmers in processing is high. Therefore, farmers' attention to processing is considered capable of increasing farmers' income. Then the feeling of pleasure encourages farmers to do processing is high. So that the willingness, awareness, attention and feelings of pleasure can increase the interest of farmers in processing.

Then the influence or obstacle in developing farmers' interest in processing itself is the limitation of innovation in product processing, farmers still do not understand the processed that will be made and there is no counseling about processing to farmers. This is reinforced by the opinion of Sormin [10], which states that knowledge is one component of farmer behavior that is also a factor in the adoption of innovation. Meanwhile, the lack of financial support from farmers, so that processing is hampered, therefore there must be action and support from related parties.

Analysis of the factors that influence farmers' interest in processing sweet potato (*Ipomoea batatas* L.) in South Binjai District, consisting of education (X1), income (X2), experience (X3), capital (X4), community environment (X5) and marketing (X6). Test the results of the study data using multiple regression test with SPSS 20 program with a confidence level of 95% ($\alpha = 0.05$) and 100% (< 0.01). This analysis was carried out with two tests, namely the simultaneous effect test (F) and the partial effect test (t). The results of the analysis of the simultaneous influence test (F) and partial test (t), are presented in the Table 1.

Table 1. Analysis of the factors of farmers' interest in processing sweet potato (*Ipomoea batatas* L.) in South Binjai

No.	Variable	Regression Coefficient	t calculated	Significant	Standardized Coefficient beta	Information
1.	Education	0.598	5.902	0.000	0.535	Very significant
2.	Income	0.019	0.166	0.869	0.016	No significant
3.	Experience	0.233	2.510	0.015	0.213	Very significant
4.	Capital	0.318	2.884	0.006	0.238	Very significant
5.	Community environment	0.002	0.016	0.987	0.002	No significant
6.	Marketing	0.153	1.524	0.133	0.138	No significant
	R	0.835a				
	R Square	0.697				
	Konstanta	6.088				
	F _{hit}	21,099				
	F _{tab}	2,98 (1%) 2,18 (5%)				
	t _{tab}	2,668 (1%) 2,004 (5%)				

Sources: Analysis of Data Primer (2021)

Based on Table 1, it is known that the value of Fcount (21.099) > Ftable (2.98) and a significance value of 0.000 < 0.050. Thus, H₀ in this study was rejected and H₁ was accepted. This means that the variable X simultaneously (simultaneously) has a significant influence on the variable Y. So that the second hypothesis can be accepted or H₁ is accepted, which states that there is a very significant influence on factors of education, income, experience, capital, community environment, marketing on farmers' interests. in processing sweet potato (*Ipomoea batatas* L.) in South Binjai District is accepted.

Partial effect test (t) to see the influence of education, income, experience, capital, community environment, and marketing on farmers' interest in processing sweet potato (*Ipomoea batatas* L.) in South Binjai District can be explained as follows partially (alone) performed t test. The t-table test was carried out at significant $0.01/2 = 0.005$ (2-sided test) with degrees of freedom $df = n - k - 1$ or $62 - 6 - 1 = 55$. The results of the t-test obtained for ttable were 2.668 (1%) and 2,004 (5%). The t-test obtained informs the regression equation model with constant coefficients and variable coefficients in the

Unstandardized Coefficients column B. The regression equation obtained is presented in Table 1. In detail the influence of these variables can be described, namely the factors that significantly influence the education variable (X1), experience (X3), and capital (X4) have a significant effect. While the variables of income (X2), community environment (X5) and marketing (X6) have no significant effect on farmers' interest [11–13].

In addition to the t-test to see the magnitude of the influence of each variable, it can be seen from the standardized coefficient beta value, where the education variable (X1) has a large effect of 53.5% as evidenced by the standardized coefficient beta value of 0.535, where the income variable (X2) has a large effect. 0.16% as evidenced by the standardized coefficient beta value of 0.016, where the level of experience (X3) has a large effect of 21.3% as evidenced by the standardized coefficient beta value of 0.213, where the level of capital (X4) has a large effect of 23.8% which is proven with the standardized coefficient beta value of 0.238, where the community environment variable (X5) has a large effect of 0.02% as evidenced by the standardized coefficient beta value of 0.002, where the marketing variable (X6) has a large effect of 13.8% as evidenced by the standardized coefficient beta value 0.138.

4 Conclusions

The conclusions were:

- Farmers' interest in processing sweet potato (*Ipomoea batatas* L.) in South Binjai District is classified as very high with a percentage of 81.7%.
- Simultaneously the variables of education (X1), income (X2), experience (X3), capital (X4), community environment (X5), and marketing (X6) together have a very significant effect on farmers' interest in sweet potato processing (*Ipomoea batatas* L.) in South Binjai District with an Fcount (21.099) greater than the Ftable value (2.98) at an error rate of 1%. Partially the factors that influence farmers' interest in processing sweet potato (*Ipomoea batatas* L.) in South Binjai District are education with a tcount value of 5,902 > ttable 2,668, experience with a tcount value of 2,510 > 2,004, and a capital of tcount value of 2,884 > table 2,668. Meanwhile, 3 (three) variables, namely income, community environment and marketing did not significantly influence farmers' interest in processing sweet potato (*Ipomoea batatas* L.) in South Binjai District.

Acknowledgments. The authors would like to thank the Politeknik Pembangunan Pertanian Medan, farmers, agricultural extension workers in South Binjai for their research assistance on sweet potato.

References

1. Siburian, Thomson, Luhut, "Analysis of Cassava and Sweet Potato Farming and Marketing in Simalungun," *Journal of Agriculture and Agribusiness Socioeconomics*, vol. 2, no. 4, pp. 25–40, 2013.
2. Juanda and Cahyo, *Sweet potato cultivation and farming analysis*. Kanisius: Yogyakarta, 2000.
3. BPS Binjai, *Productivity of Sweet Potato Plants in Binjai City District Level: BPS Binjai City*, 2019.
4. A. Susanto, *Theory of Learning and Learning in Elementary Schools*. Jakarta: Kencana Prenada Media Group, 2013.
5. T. Mardikanto, *Agricultural Development Counseling*. Surakarta: Eleven Maret University Press, 2009.
6. Sugiyono, *Combination Research Methods (Mixed Methods)*. Bandung: Alfabeta, 2017.
7. Lailani, *Respon Petani Terhadap Program Peningkatan Infrastruktur Perdesaan di Kecamatan Tangerang Kabupaten Semarang*. Skripsi. Fakultas Pertanian, 2011.
8. M. Lestari, *Farmer Group Dynamics and the Independence of Farmer Group Members in Farming Business in Poncowarno District, Kebumen Regency, Central Java Province*. Surakarta: Sebelas Maret University Postgraduate Program, 2011.
9. D. Dayshandi, S.R. Handayani, and F. Yaningwati, "The Influence of Perception and Motivation on Student Interests in the Taxation Study Program (Student Study) Faculty of Administrative Sciences, Universitas Brawijaya," *Journal of Taxation (JEJAK)*, vol. VI, no. 1, pp. 1–11, 2015.
10. E.U. Sormin, "Analysis of the level of knowledge of farmers on the benefits of lowland rice land in Serdang Bedagai Regency," *Journal of Social Economics of Agriculture and Agribusiness*, vol. 1, no. 1, pp. 1–14, 2012.
11. N. Sri Astuti, "Improving Learning Interest and Basic Cognitive Abilities through the Use of Puzzle Media in Group B Children of Dharma Kumara Pedungan Kindergarten Denpasar, 2012/2013 Academic Year," *Journal of Education*, vol. 4, pp. 11–16, 2014.
12. Sudaryono, *Agricultural Marketing*. UMM Press. Poor Suprpto. 2001. *Sweet Potato Planting*. Jakarta: Independent Publisher, 2016.
13. S. Muljaningsih, S. Soemarno, D. Hadiwidjojo and M.M. Mustadjab, "Faktor-Faktor Yang Mempengaruhi Minat Wirausaha Pengolahan Pangan Organik Pada Perempuan Tani Di Desa Wonokerto, Bantul, Malang," *Wacana Journal of Social and Humanity Studies*, vol. 15, no. 2, pp. 12–18, 2012.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

