



Banjar Siam Orange Ice Cream: A Catalyst for Village Tourism

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Abstract: *The main challenge faced by the Karang Bunga Village community is the low price of Siam Banjar oranges during the harvest season, which negatively affects the farmers' economy. To address this issue, it is necessary to diversify processed citrus products as part of the Citrus House business unit managed by the Village-Owned Enterprise (BUMDes) "Berkah Bersama." This Community Service activity utilized the "service learning" method to train students in leadership skills through hands-on community empowerment efforts. One of the main focuses of the community service activity was developing an ice cream product made from Siam Banjar oranges, covering aspects such as production, packaging, and marketing. The results of the community service activity showed an increase in community skills and knowledge, with an average score of 2.99, indicating that the level of knowledge and skills falls within the "good" category. However, there are still challenges in the areas of packaging and marketing. The average score for the evaluation of the activity implementation was 3.42 (good category), and the average score for the resulting ice cream product was 3.13 (also in the good category). This activity is expected to improve product quality, expand market reach, and ultimately have a positive impact on the income of the village community.*



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Introduction

Karang Bunga Village, Mandastana District, Barito Kuala Regency, South Kalimantan Province, has successfully developed its natural potential. The village was once a transmigration area, but now it has several superior products, such as Banjar Siam oranges, local rice, cattle, and fisheries. In Indonesia the phenomenon of village tourism becoming massive after Covid-19 pandemic, in this case to rebuild the economic sector

needs to strength the village economy and the one of the scheme is village tourism^{1, 2}.

The village of Karang Bunga focuses on the potential and uniqueness of the village as an advantage towards becoming a tourist destination. Thus, it is able to promote the welfare of the surrounding community, preserve, and promote cultural, natural, and local heritage³. The community is one of the elements that play an essential role in developing the tourism sector at the local level. In addition, strengthening tourism management in villages needs to involve the community as the leading human resource within the village scope⁴.

Karang Bunga has more than 500 ha of citrus plantations, and each farmer has an average of 2 ha of citrus plantations. The village is one of the areas in South Kalimantan that has cultivated the Siam Banjar orange variety⁵. The results of the productivity analysis of Banjar Siam oranges (*Citrus reticulata*) in the Karang Bunga Village area show that the LQ (local quotient) value of productivity in the 2019-2020 period is 1.025679 or > 1. It means that Banjar Siam orange is a regional superior that has the potential to be an export item of horticultural products to increase community income⁶.

Based on the Karang Bunga village profile document, the Village-Owned Enterprise (BUMDes) "Berkah Bersama" is the institution driving the development of this village's potential. BUMDes "Berkah Bersama" was established in 2014 and has been officially legalized in accordance with the Minister of Home Affairs Regulation No. 39/2010 on Village-Owned Enterprises and other laws and regulations. The business units of BUMDes Berkah Bersama were established based on an analysis of the strengths, weaknesses, and potential of natural resources and human resources in Karang Bunga Village. One of the newest and most economically promising business units is the Orange House Business Unit.

Currently, BUMDes "Berkah Bersama" has business units for savings and loans, rice buying and selling, clean water supply services, multi-purpose building rental services, cattle fattening, and orange ice cream production. The village has also developed

¹ Amin, Muhammad Qowiyul. *Perancangan Destination Branding Wisata Religi Desa Bungah Kecamatan Bungah Kabupaten Gresik*. Yogyakarta: Institut Seni Indonesia Yogyakarta, 2020.

² Edy, Iman Trisno, Fatchiyatun Ni'mah, and Renggo Ariezka. "Pelatihan 'Online Marketing' Bagi Pelaku Usaha di Kecamatan Laren Lamongan dalam Rangka Pengembangan Desa Wisata Menjadi Destinasi Digital." *Martabe: Jurnal Pengabdian Masyarakat* 2, no. 2 (2019).

³ Zaenuri, Ahmad, Desti Ranihusna, Kris Brantas Abiprayu, and Made Virma Permana. "Diversifikasi Olahan Limbah Kulit Durian Sebagai Komoditas Produk Unggulan Desa Wisata Branjang Menuju Sustainable Independent Economic Revitalization." *Journal of Human and Education* 4, no. 5 (2024): 1139-1146.

⁴ Sakir, Rivaldi Alan Saputra, Rosyid Annafi Hakim. "Creating a Cultural Village Tourism Experience in Wirokerten Through the Integration of Village Tourism Potential and Msmes." *SSRN Elsevier* (2024).

⁵ Noveria Sjafrina. *Karakterisasi Mutu Jeruk Siam-Banjar (Citrus nobilis var microcarpa) di Lahan Rawa Pasang Surut dan Lahan Rawa Lebak Kalimantan Selatan*. Bogor: Institut Pertanian Bogor, 2010.

⁶ Dwi Ramadani, Norma Yuni Kartika, Arif Rahman Nugroho, and Ghinia Anastasia Muhtar. "Potensi Ekonomi Masyarakat Melalui Budidaya Jeruk Siam Desa Karang Bunga Kecamatan Mandastana Kabupaten Barito Kuala." *Jurnal Geografika: Geografi Lingkungan Lahan Basah* 3, no. 2 (2022): 102.

several processed products, such as orange ice cream in Karang Bunga Village, which has been marketed in the surrounding area. The community service team has also collaborated by producing a diversification of processed orange peel into hand sanitizer⁷ and soap⁸.

Orange House Karang Bunga Village is a food and beverage production house made from Banjar siam oranges, which is the original commodity of Karang Bunga Village. Currently, orange house has produced Antani Orange Ice Cream, Booble Orange Drink, Pujers Milk Orange Pudding, Jesly Orange Drink, and Blazer Aromatherapy Hand Sanitizer. All citrus processing productions are carried out entirely by the organizers, consisting of a chairman who acts as a manager, a secretary, and members consisting of the Youth Organization and the Family Welfare Group.

The problem of low citrus prices during the harvest season is a challenge for Banjar Siam orange farmers. Based on the field observations and interviews with the community, the price drop is partly due to the lack of purchases from outside the area, so the orange harvest is mostly only sold in the local market. The decline in orders for processed citrus products affects the turnover and income of the village community, especially those who manage the Citrus House. In addition, in the development of a product, there are certainly other problems, including 1) limitations of knowledge and skills, 2) higher production costs, 3) lack of recycling infrastructure, 4) resistance to change, and 5) consumer awareness⁹. Diversification of processed orange products is an alternative to overcoming the decline in citrus fruit prices and the problem of excess citrus stocks during the harvest season. In addition, product promotion efforts and expanding the marketing of ice cream products are needed. Optimizing the role of the Orange House Business Unit of the BUMDes is very important both as a producer of food and beverages made from Banjar siam oranges and its marketing.

As a food product that is suitable for consumption in tropical climates, Ice cream is one of the food choices produced and favored by the public^{10, 11}. Generally, ice cream favored by consumers is ice cream with attractive color, good viscosity, soft texture, distinctive aroma, and good taste characteristics¹². Good ice cream quality is one of the

⁷ Arif Sholahuddin, Rizki Nur Analita, Almubarak Almubarak, and Noor Elfa. "Menggali Potensi Lokal Desa: Pelatihan Pengolahan Penyanitasi Tangan Aromaterapi dari Limbah Kulit Jeruk Siam Banjar." *Bubungan Tinggi: Jurnal Pengabdian Masyarakat* 4, no. 2 (2022): 478-486.

⁸ Rizki Nur Analita, Arif Sholahuddin, and Noor Elfa. "Potensi Lokal Desa Karang Bunga: Sabun Batang Aromaterapi Berbahan Dasar Limbah Kulit Jeruk Siam Banjar." *Community Reinforcement and Development Journal* 2, no. 1 (2022): 31-40.

⁹ Gusnadi, Dendi, Tito Pandu Raharjo, Eva Mardiyana. "Strategi Pengembangan Produk Teh Lokal Melalui Inovasi Kemasan Berkelanjutan di Desa Wisata Patengan, Kecamatan Rancabali, Kabupaten Bandung." *Jurnal Pengabdian kepada Masyarakat* 4, no. 8 (2025): 1515-1522.

¹⁰ Sitti Khadijah Yahya Hiola. *Teknologi Pengolahan Sayuran*. Makassar: Inti Mediatama, 2018.

¹¹ Arun Kilara, A. and Ramesh C. Chandan. "Ice Cream and Frozen Desserts." *Dairy Processing and Quality Assurance*, 2015: 367-396.

¹² I Kadek Arya Darmawan. "Kualitas Es Krim Berbahan Campuran Loloh Daun Jarak Pagar." *Jurnal Ilmiah Pariwisata dan Bisnis* 1, no. 9 (2022): 2357-2378.

factors influencing consumers' preferences. According to the National Standardization Agency¹³, good quality ice cream has an overrun of 70 - 100% for regular ice cream and for home industry overrun of 35 - 50%, which is called soft ice cream. Meanwhile, the range of good melting time in ice cream is 15 - 25 minutes.

Ice cream products in Karang Bunga village have previously been produced but for limited purposes, such as fulfilling consumption orders for village meetings. In other words, it has yet to be produced massively and continuously. In addition, based on tests conducted by the community service team, the texture of the ice cream produced is still relatively rough. However, in terms of taste, it is original, namely the original orange flavor. Besides taste, texture is an essential factor that determines the market success of ice cream products. Ice cream is a complex physicochemical and colloidal system consisting of various ingredients whose composition affects the texture and even the taste¹⁴. Stabilizers and emulsifiers improve the texture of ice cream by increasing its viscosity and limiting the movement of free water molecules. However, their excess can lead to lower liquefaction and less whipping ability. Sugar provides sweetness and increases thickness as well as viscosity, but on the other hand, its excessive use can turn ice cream mushy above a solid content of about 42%. Fat in ice cream can have a good effect on the body, texture, palatability, flavor intensity, emulsion formation, and melting point maintenance. If the fat content exceeds a specific use concentration, it will cause faster melting of the ice cream along with destabilization and agglomeration of fat droplets. Higher overrun causes the collapse of air cells, which in turn shrinks the structure. Hardness may also be reduced due to smaller ice crystals due to high overrun values. The addition of fiber leads to the binding of free water, resulting in a reduced flow rate and improved consistency coefficient and viscosity. The binding of water results in the availability of fewer molecules; the freezing point rises, and the melting point decreases. Therefore, ice cream should contain a balanced composition of various ingredients.

The ice cream product from Orange House in Karang Bunga Village still needs to be packaged more attractively in order to increase market interest in the product along with the equalization of production and market reach. Thus, training is needed for the community, especially the Orange House staff, to improve the quality of ice cream products, packaging, and marketing to increase the product's marketability and ability to compete with similar products. So that the existence of superior local products can attract tourists to visit¹⁵.

¹³ Badan Standarisasi Nasional. *SNI 01-3713 Es Krim*. Jakarta: Dewan Standardisasi Nasional, 1995.

¹⁴ Qamar Abbas Syed, Saba Anwar, Rizwan Shukat, and Tahir Zahoor. "Effects of Different Ingredients on Texture of Ice Cream." *Journal of Nutritional Health and Food Engineering* 8, no. 6 (2018): 422-435.

¹⁵ Zaenuri, Ahmad, Desti Ranihusna, Kris Brantas Abiprayu, and Made Virma Permana. "Diversifikasi Olahan Limbah Kulit Durian Sebagai Komoditas Produk Unggulan Desa Wisata Branjang Menuju Sustainable Independent Economic Revitalization." *Journal of Human and Education* 4, no. 5 (2024):

Based on the above analysis, this community service activity aims to improve the skills of the community and citrus house managers in improving the quality of Banjar chayote ice cream production in terms of composition, taste, and texture and increase their knowledge and skills in packaging and marketing Banjar siam orange ice cream products. The innovations carried out in this community service activity include making ice cream with Banjar chayote flavor based on the principle of making a stable colloidal system so as to obtain a product with a comfortable taste and soft texture worthy of being marketed and registered for copyright/patent, making ice cream packaging with a design/image typical of Banjar siam orange that is attractive to consumers and progressive marketing techniques through offline media (brochures) and online (market place). Furthermore, Banjar Siamese orange ice cream products can be registered for BPOM distribution permits so that products can circulate freely in the market and become evidence of guaranteed safety and quality. The development of this ice cream product is expected to have an impact on the income growth of the Karang Bunga village community.

Method

This community service activity applied the service learning method. Service learning is a teaching approach that combines academic goals and the character education through community service activities. Teaching strategies through knowledge, experiences, and reflections applied in an interdisciplinary course provide opportunities for students to relate knowledge directly from the classroom to community problems with their participation as volunteers in a specified community¹⁶. Through the leadership project course, students are expected to develop leadership skills through projects in community service activities.

Participants and implementers work together to identify problems, develop research questions, collect data, and interpret findings. Participant involvement helps ensure that the activity addresses the real needs and priorities of the community. Implementers and participants constantly reflect on their work, helping to ensure that the research remains relevant and responsive to community needs.

1139-1146.

¹⁶ Setyowati, Endah, and Alviani Permata. "Service Learning: Mengintegrasikan Tujuan Akademik dan Pendidikan Karakter Peserta Didik Melalui Pengabdian kepada Masyarakat." *Bakti Budaya* 1, no. 2 (2018): 143-152.

Community service activities consist of four stages, as presented in Figure 1.

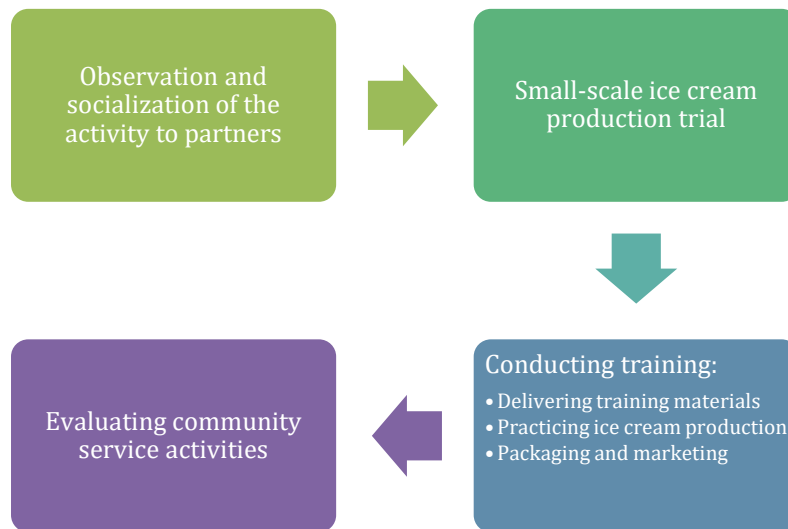


Figure 1. Method of Activity Implementation

Socialization of the activity to partners

The socialization stage is a preparatory stage for collecting data from partners through a survey of resources owned by the village and the Karang Bunga Orange House Business Unit. The team identified the potential conditions of the manager and the partner environment, conducted socialization and coordination with village officials and orange house staff, and then carried out the activity.

Small-scale ice cream production trial

Before the community service activities were carried out, the team conducted a trial/practice of producing ice cream on a small scale in the Chemistry Laboratory Faculty of Education Lambung Mangkurat University. The trials were carried out by the community service team involving lecturers and students.

Conducting training

This stage is the main stage of community service activities together with partners consisting of community representatives and Orange House staff. The training activities carried out include:

Delivering training materials

At this stage, the community service team provided material on ice product development, packaging, and marketing techniques. The results of the training are expected to provide knowledge related to the production, packaging, and marketing of quality ice cream products in terms of composition, taste, texture, and packaging. The methods used in this activity are lectures and interactive discussions between instructors

and trainees.

Practicing ice cream production

At this stage, the trainees will be divided into groups to practice producing Siam Banjar orange ice cream. The community service implementation team accompanied the activity, which involved students. The tools and materials for producing ice cream (Table 1) and the manufacturing procedure are as follows^{17, 18}.

Table 1. Ice Cream Production Equipment and Materials

No	Tools	Materials
1.	Knife	300 mL orange juice
2.	Orange press	125 g sugar
3.	Ice cream container/cup	111 g (3 sachet) Sweetened condensed milk
4.	Spoon	½ tbsp SP
5.	Mixer	200 mL full cream milk
6.	Freezer	Food coloring (if needed)
7.	Measuring cup	10 g cornstarch
8.	Digital scale	Orange flavor (if needed)
9.	Stove	

Ice cream production procedure: 1) Clean the Banjar siam oranges, 2) Split the orange into two halves, 3) Then squeeze the orange using a citrus squeezer, 4) Add sugar, milk, coconut milk, and cornstarch, 5) Bring to a boil, then cool before putting in the freezer until the mixture thickens slightly, 6) Melt the SP with steam technique, 7) Take the dough out of the freezer, add SP, and then mix, 8) After rising, put the dough into the mold according to your taste, 9) Put the dough in the freezer until it freezes and the ice cream is ready for consumption.

On average, ice cream contains 15% sugar, 11% fat, 11% MSNF (milk-solid-non-fat), 0.3% emulsifier and stabilizer, and 38.3% total solids^{19, 20}. High-quality ice cream (colloidal texture and stability) can be produced with a suitable fatty acid composition, usually derived from milk or dairy, provided the ice cream is stored and consumed under

¹⁷ Muhammad Iqbal Nusa, M. D. Masyhura, and Fitra Abdul Hakim. "Identifikasi Mutu Fisik Kimia dan Organoleptik Penambahan Ekstrak Jahe (*Zingiber officinale*) pada Pembuatan Es Krim Sari Kacang Hijau (*Phaseolus radiatus* L.)." *Agritech: Jurnal Teknologi Pangan dan Hasil Pertanian* 2, no. 2 (2019): 47-51.

¹⁸ Waladi, Waladi, Vonny Setiaries Johan, and Faizah Hamzah. *Pemanfaatan Kulit Buah Naga Merah (*Hylocereus polyrhizus*) Sebagai Bahan Tambahan dalam Pembuatan Es Krim*. Pekanbaru: Universitas Riau, 2015.

¹⁹ Arun Kilara, A. and Ramesh C. Chandan. "Ice Cream and Frozen Desserts." *Dairy Processing and Quality Assurance*, 2015: 367-396.

²⁰ Qamar Abbas Syed, Saba Anwar, Rizwan Shukat, and Tahir Zahoor. "Effects of Different Ingredients on Texture of Ice Cream." *Journal of Nutritional Health and Food Engineering* 8, no. 6 (2018): 422-435.

ideal conditions. Even some dairy by-products such as cheese, ricotta, and butter they can be alternatives that replace part or all of the milk^{21, 22, 23}. The practical procedures can also be adapted to the field conditions of the partners, and the essential equipment used is easily obtained and used by the staff of the Orange House.

Packaging and marketing

Packaging

Ice cream packaging in cups requires special attention to maintain its quality and freshness and prevent spoilage during storage and shipping.

Marketing

In the community service program, participants will be equipped with knowledge and practical skills in marketing their products online. One marketplace that can be used as a sales platform is Shopee.

Evaluation of activities

This evaluation was conducted before and after the training to evaluate the knowledge/skills of the trainees. The questionnaire contains questions related to the material presented in the training related to ice cream production, packaging, and marketing. Production and packaging skills are also observed based on the quality of the ice cream produced, which includes indicators of composition, taste, and texture. The success indicator of community service activities is the increase in knowledge and skills of partners in producing Banjar Siamese Orange ice cream products and marketing²⁴ and or the average final score in the good category. The score categories for the assessment of the knowledge/skills of the trainees are presented in Table 2.

Table 2. Category of Knowledge/Skill Assessment Score

Score Interval	Category
3.51 – 4.00	Very good
2.51 – 3.50	Good
1.51 – 2.50	Moderate
1.00 – 1.50	Poor

²¹ Roberta Barbosa de Meneses, et al. "Impact of Different Dairy Wheys on Quality Parameters of Ice Cream." *Revista Brasileira de Ciencias Agrarias* 16, no. 1 (2021): 1-10.

²² Muhammad Iqbal Nusa, M. D. Masyhura, and Fitra Abdul Hakim. "Identifikasi Mutu Fisik Kimia dan Organoleptik Penambahan Ekstrak Jahe (*Zingiber officinale*) pada Pembuatan Es Krim Sari Kacang Hijau (*Phaseolus radiatus* L.)." *Agritech: Jurnal Teknologi Pangan dan Hasil Pertanian* 2, no. 2 (2019): 47-51.

²³ Karen Smet, Jan de Block, Paul van der Meeren, Katleen Raes, Koen Dewettinck, and Katleen Coudijzer. "Influence of Milk Fatty Acid Composition and Process Parameters on the Quality of Ice Cream." *Dairy Science and Technology* 90, no. 4 (2010): 431-447.

²⁴ Muh. Shofi, and Mardiana Prasetyani Putri. "Training on Making Cendol Starch Using Blue Natural Dyes Extracted from Telang Flower Essence." *Journal of Community Service and Empowerment* 1, no. 1 (2020): 25-30.

Production and marketing performance indicators

Table 3 presents the results of observations on the partner’s identified problems, aimed at determining appropriate solutions and setting target performance indicators^{25, 26}.

Table 3. Production and Marketing Performance Indicators

Production	Marketing
The availability of training modules on the topic of product packaging	The availability of a training module on the topic of marketing management
The availability of packaging equipment	The presence of a training module on the topic of photography techniques using a mobile phone
The design plan for the product packaging label	The presence of social media partners on Facebook, WhatsApp, and Instagram
The availability of processed Siam Banjar orange products	The understanding of the importance of branding, the elements that build a brand, and how to create a strong product identity
The existence of halal certification	The presence of basic financial management, how to prepare a budget, record transactions, and long-term financial planning

The community service team

This community service team consists of six people: the chairman, who has expertise in chemical analysis; five lecturer members with qualifications in Chemical Education; and two chemical laboratory technicians. In addition, it involved one resource person related to product marketing, one science teacher professional education student, and two Chemistry Education students.

Recognition of community service activity

The involvement of PPG Science Education students in this community service activity can be recognized as 3 credits for the "Leadership Project" course. Meanwhile, students from the Chemistry Education study program can be recognized as part of the MBKM village development course, which is equivalent to 4 credits of elective courses (181 hours for 4 months of practical activities).

²⁵ Casban, Nur Asni Gani, Umi Marfuah, Athifah Silmi Hapsari, and Sebriana Sobariah. "Pemberdayaan Kemitraan Masyarakat untuk Meningkatkan Kualitas Proses Produksi dan Pemasaran Jamur Tiram pada Kelompok Tani Trah Tiram Mandiri di Parungkuda." *Jurnal Warta LPM* 27, no. 2 (2024): 341-350.

²⁶ Adriati, I Gusti Ayu Wirati, I Kadek Bagus Mahendrayana, Ida Bagus Teddy Prianthara, I Putu Dharmawan Pradhana, and Sahri Aflah Ramadiansyah. "Upaya Peningkatan Produktivitas dan Pemasaran Produk Kripik Bayam Melalui Pemasaran Online." *Jurnal Pengabdian kepada Masyarakat* 4, no. 8 (2025): 1523-1532.

Result

The activity results showed a high level of understanding/skills of the trainees of the training content on processing and packaging Banjar siam orange ice cream products. The trainees' level of understanding/skills is presented in Figure 2.

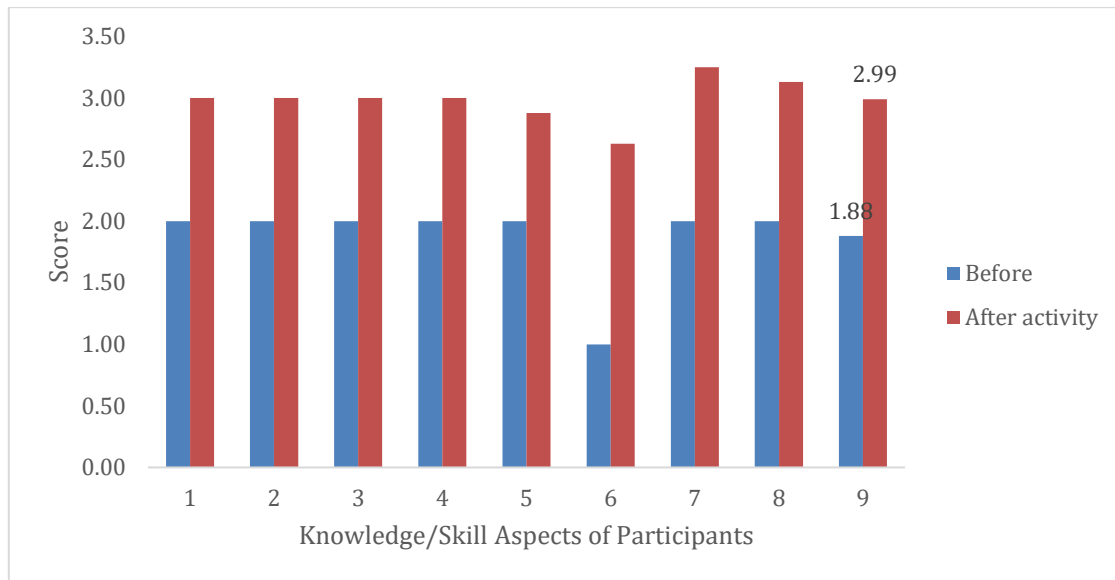


Figure 2. Trainees' Level of Understanding/Skills of the Training Content

Description:

1. Knowledge of Ice cream processing
2. Knowledge of ice cream production methods
3. Ice cream production skills
4. Knowledge of the packaging procedures of ice cream product
5. Skills in packaging ice cream products
6. Knowledge about the procedures for marketing and offering ice cream products
7. Knowledge of the benefits and positive impacts of training
8. Knowledge of the impact of the training to increase community income
9. Average score

Figure 2 shows two indicators with the lowest average percentage achievement: skills in product packaging and understanding of product marketing. Both indicators need further assistance to strengthen them.

The trainees also completed a questionnaire to evaluate the implementation of community service activities. The evaluation is presented in Figure 3.

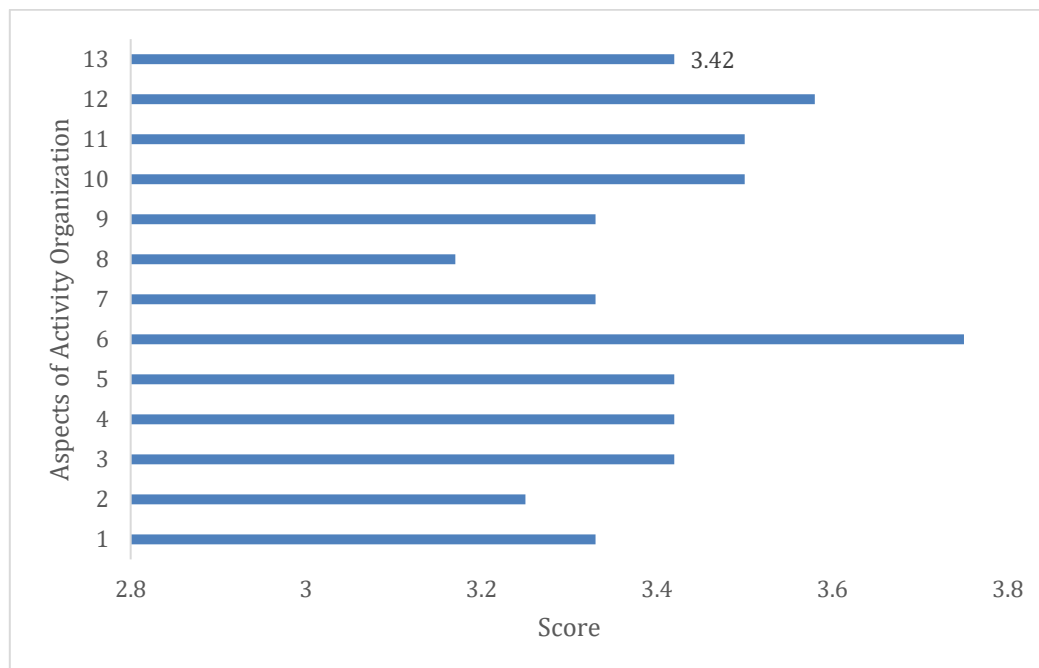


Figure 3. Evaluation of Trainees on the Implementation of Community Service Activities

Description:

1. This community service activity achieved its objectives
2. Trainees are satisfied with the final results of this community service.
3. The community service team is effective in communicating and coordinating.
4. This community service activity is on schedule.
5. This community service activity fulfills the requirements and specifications that have been set.
6. This community service activity is booming in utilizing available resources efficiently.
7. Stakeholders have participated and contributed to this community service activity.
8. Risk management is carried out well in this community service activity
9. This community service activity has a significant impact on the expected benefits
10. This community service activity pays attention to sustainability and environmental impact factors
11. This community service activity is carried out openly and responsibly
12. This community service activity achieves the expectations of the trainees.
13. Average score

Figure 3 shows the high results of the trainees' assessment of the implementation of community service activities for all indicators. This means that the team has succeeded very well in organizing the program collaboratively with the village of Karang Bunga's partners.

The trainees' assessment of the ice cream products that have been produced is presented in Figure 4.

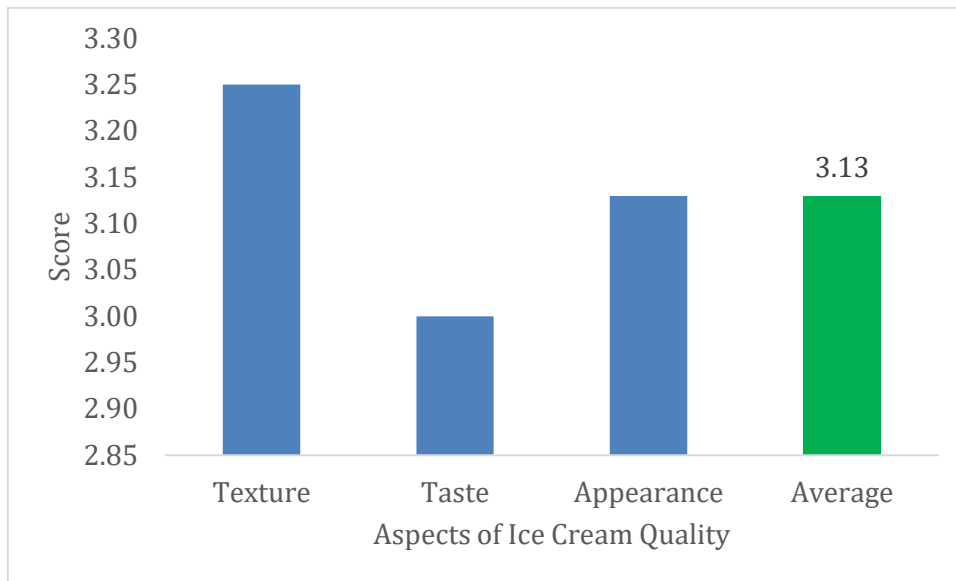


Figure 4. The Trainees' Assessment of the Ice Cream Products

Figure 4 shows that the ice cream product produced is in a suitable category, although it can still be improved, especially in terms of flavor.

In addition to the three aspects that have been measured, there is also data on the sales of Siam Banjar orange ice cream products, which can be seen in Figures 5 and 6.

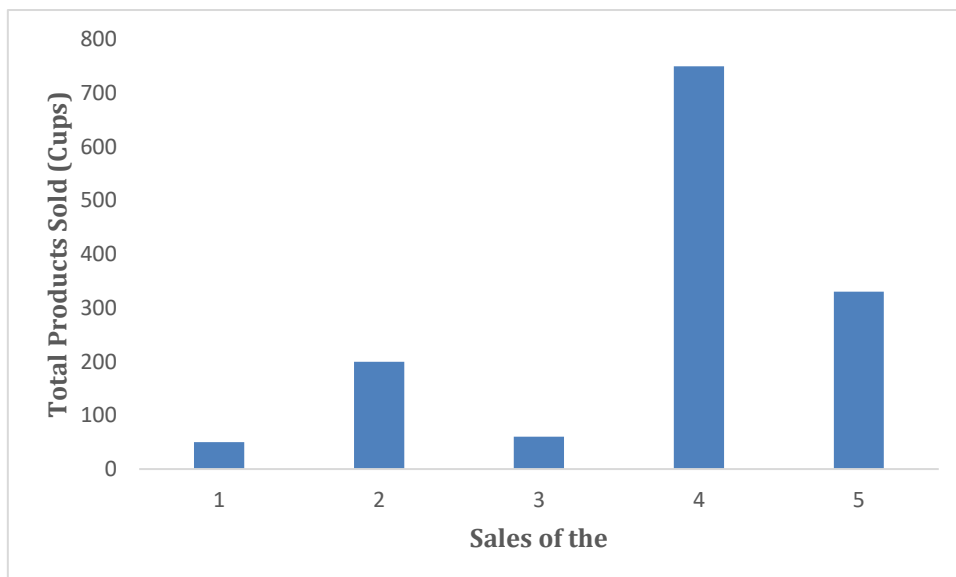


Figure 5. Sales data for Siam Banjar Orange Ice Cream Products

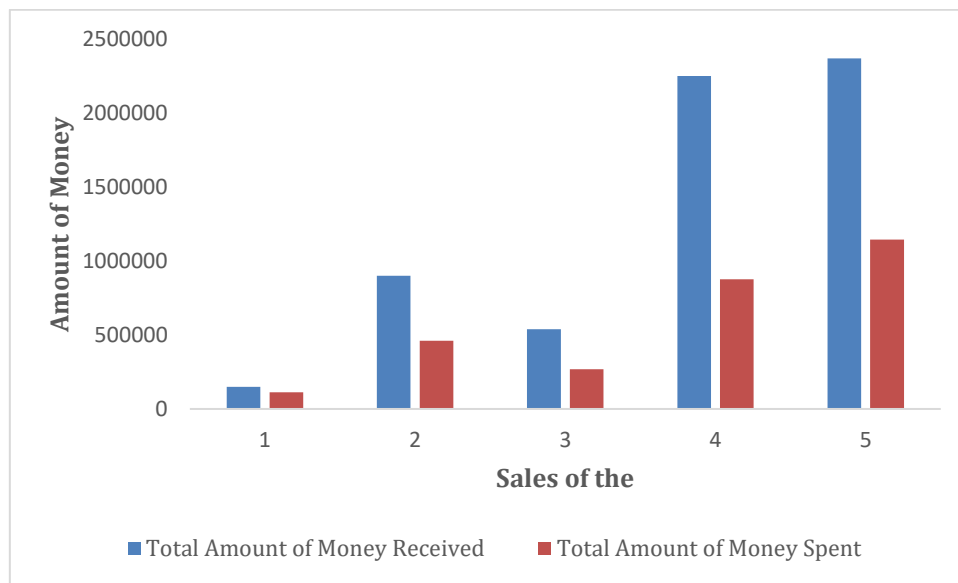


Figure 6. Income and Expenditure Data from Production and Sales

Based on the orange ice cream sales graph from June 26 to September 6, 2024, a sales pattern appears to be significantly influenced by specific moments and activities. In the early period, on June 26, 2024, the number of sales was relatively low, reaching only 50 cups, which likely represents regular daily sales without any promotions or special events. However, on July 10, 2024, a significant increase occurred, reaching 200 cups. This surge may be attributed to increased seasonal demand, the effectiveness of promotions, or market reach expansion.

A decline occurred again on August 23, 2024, with sales totaling 60 cups, indicating that fluctuations still take place when there is no demand surge from major activities. The peak in sales occurred on August 25, 2024, with a record of 750 cups sold in a single day. This extreme increase was due to a special order for the celebration of Bank BRI, demonstrating that major events can significantly drive sales volume. A similar pattern was observed on September 6, 2024, with sales reaching 330 cups due to the events of the Scout Anniversary and KPU, which also serves as a strong indicator that the presence of events has a direct correlation with sales increases.

From this analysis, it can be concluded that event-based or bulk ordering sales strategies have a significant impact on product sales performance. Therefore, this orange ice cream entrepreneur is advised to focus more on establishing partnerships with institutions, communities, or event organizers, while maintaining product quality and availability for regular sales. This event-based approach could be a key driver for business growth in the future.

Discussion

Based on socialization and observation (Figure 7), Karang Bunga village has pioneered as a tourism village. Natural resources that are very dominantly developed in this village include orange plantations and rice paddies. Some residents have other forms of business, such as fishing and cattle farming. The village's primary production is Banjar siam oranges, which, based on economic analysis, is an abundant product category with export potential²⁷. Until recently, Banjar siam oranges were sold directly to nearby markets or purchased by middlemen. The selling price of oranges can drop significantly during the abundant harvest season, making it less profitable for orange farmers. Diversification of orange products is also not yet practiced by farmers, except for a minimal effort by the village business unit orange house, especially in the form of orange syrup and ice cream.



Figure 7. Socialization and Partner Observation Activities

Orange house (Figure 8) is a business unit that was developed by the Village-Owned Enterprise and has diversified citrus preparations in order to support tourism villages and increase community income. One of them is ice cream production. However, the ice cream has not been mass-produced and is still limited to village activities. In other words, marketing still needs to be improved. In addition, the quality of ice cream still needs to improve in terms of texture and taste. Thus, this community service is an effort to improve the knowledge and skills of the community, especially the staff of the Orange House business unit, which is related to the production, packaging, and marketing of ice cream.

²⁷ Dwi Ramadani, Norma Yuni Kartika, Arif Rahman Nugroho, and Ghinia Anastasia Muhtar. "Potensi Ekonomi Masyarakat Melalui Budidaya Jeruk Siam Desa Karang Bunga Kecamatan Mandastana Kabupaten Barito Kuala." *Jurnal Geografika: Geografi Lingkungan Lahan Basah* 3, no. 2 (2022): 102-111.



Figure 8. Orange House

The second stage of the activity is ice cream production trials. Production trials were carried out to ensure the accuracy and effectiveness of the technology applied, primarily related to the production procedures for the quality of ice cream products, and to avoid technical difficulties when the technology was applied directly with partners in the field. The trial phase was carried out by the community service team in the chemistry laboratory of FKIP ULM. Based on this trial, the production procedure was then improved. For example, during the initial trial, the ice cream flavor obtained had a bitter taste due to the orange peel that extracted its components during squeezing. Then, the trial procedure was improved by careful treatment so that the orange peel was not extracted during squeezing. In addition, an evaluation of the appearance of the ice cream produced showed that the ice cream was pale yellow, making it less attractive. Therefore, it is recommended to add a little food color to make the product look more attractive and fresher. The improved procedure was then applied in the ice cream production training to the trainees.



Figure 9. Small-scale Ice Cream Production Trial

The third stage is training activities. It is the main stage of community service, which is done together with partners. The training participants consisted of community representatives and Orange House staff, and it involved 15 people. The training methods include lectures, questions and answers, and practice. At the stage of delivering training materials, trainees were equipped with knowledge about the production process, packaging, and marketing of quality ice cream products. While in the practical stage of making ice cream, the trainees were divided into 3 groups to practice the production of Siam Banjar orange ice cream.



Figure 10. Delivery of training materials and Practice of Banjar Siam Orange Ice Cream Production

The fourth stage is the evaluation of the training activities. Based on the average score of the response questionnaire from the training participants, their knowledge and skills in processing, packaging, and marketing Banjar siam-based ice cream products increased. Marketing skills still need improvement, including how to register an account and manage the market place application.

Participants were also asked to provide an assessment of the implementation of community service activities. The community service activities have been going well in terms of planning, implementation, services, and supporting facilities. In addition, observations were also made by the organizing committee during the learning process. The highest response was "The community service was successful in utilizing available resources efficiently," namely Banjar siam oranges and various production materials such as milk, coloring, SP, cornstarch, and others. The lowest response was, "Risk management was done well in this project." Thus, improvements are needed in future activities related to risk management, such as risks to occupational health and safety, such as mitigating the occurrence of fires and the spillage of materials during the activity process that pose a risk to the safety of participants. For this purpose, it is necessary to provide a more expansive space and sturdy practice tables. Product quality risks are also possible, such as contamination or unhygienic processes that can lead to product contamination and potentially endanger consumer health. In addition, inaccuracies in measuring ingredients according to procedures can affect the taste and texture of ice

cream. Various studies have shown that risk management is critical and determines the success of a project or program²⁸.

The evaluation of the quality of the ice cream product showed that the ice cream produced is good, although it is still possible to improve, especially in terms of flavor. Although the product's focus is Banjar Siam orange flavor, the "Orange House" business unit can still diversify other flavors depending on market demand.

Enhancing the flavor of ice cream can be done through (1) the addition of salt as it enhances the sweetness and brings out other flavors in the ice cream, (2) the addition of certain unique ingredients such as basil, mint, cinnamon, or ginger to create unique flavors, (3) the addition of chocolate chunks, nuts, or thick sauces such as caramel and chocolate can provide a pleasant surprise of flavor and texture. Red ginger extract can enhance the antioxidant activity of ice cream, as well as affect aroma and flavor. The most favorable aroma came from a mixture of 92.5% ice cream and 7.5% ginger extract²⁹. The addition of medium honey caramel produces ice cream with physical and sensory characteristics that panelists most favor compared to light honey caramel and dark honey caramel³⁰. Agar can be used as a thickening agent, which has been proven to have a significant effect on the melting power and organoleptic value of ice cream. A higher concentration of agar-agar resulted in better melting power and more favorable organoleptic characteristics³¹. Even the type of fat ingredients used can be substituted with others to increase the nutritional value and dietary fiber while maintaining the taste³².

This community service has helped equip trainees with both knowledge and skills in properly producing and packaging Banjar Siam ice cream. Meanwhile, developing marketing through online platforms still requires further assistance. The flavor of the ice cream is also still possible to diversify, for example, through the use of certain ingredients to accommodate evolving market tastes. It is also necessary to ensure product quality consistency through the preparation of standard operating procedures for handling materials and production, as well as product durability and safety tests through health

²⁸ Iwan Suryadi, Juherah Juherah, and Nugraheni Widyastuti. "Penguatan Protokol Kesehatan di SMK Kesahatan Terpadu Mega Rezky Makassar dengan Menggunakan Analisis Risiko Kesehatan dan Keselamatan Kerja dengan Teknik Hiradc Pembuatan Tempat Cuci Tangan Sederhana." *Media Implementasi Riset Kesehatan* 4, no. 2 (2023): 75-82.

²⁹ Oktivany Amelia Kusumadewi. *Sifat Fisik, Sifat Organoleptik, dan Aktivitas Antioksidan Es Krim dengan Pencampuran Ekstrak Jahe Merah (Zingiber officinale)*. Yogyakarta: Politeknik Kesehatan Kementerian Kesehatan RI, 2020.

³⁰ Monika Rahardjo, Monang Sihombing, and Maria Kristina Anggraeni. "Karakteristik Fisik dan Sensori Es Krim dengan Penambahan Karamel Madu." *Jurnal Sains dan Teknologi Pangan* 6, no. 2 (2021): 3785-3798.

³¹ Arifin Amrullah, Intan Dwi Novieta, and Rasbawati Rasbawati. "Pengaruh Penambahan Agar-agar Sebagai Bahan Pengental dengan Konsentrasi yang Berbeda Terhadap Kualitas Daya Leleh dan Nilai Organoleptik Es Krim." *Jurnal Ilmu dan Industri Peternakan* 6, no. 2 (2020): 93-106.

³² Carlos, S. A. V., et al. "Production of Cupuacu Ice Cream with Passion Fruit Peel Fiber as a Fat Replacer." *Evidencia - Ciencia e Biotecnologia* 19, no. 1 (2019): 23-44.

laboratories or the Food and Drug Monitoring Center because standard operating procedures are essential to maintain the consistency of product quality so that consumer confidence will be maintained³³.

Conclusion

This community service activity is based on the problems faced by partners (community/staff of the orange house business unit in Mandastana Village) related to the low quality of ice cream that has been produced and its marketing. Community service activities have been carried out successfully using a service-learning approach to improve the knowledge and skills of trainees. However, there are still challenges in the aspects of packaging and marketing. The implementation of community service activities is in a good category. The community still needs further assistance regarding marketing, primarily through online marketing or through marketplaces. This result is expected to improve product quality, expand the market, and ultimately have a positive impact on the income of the village community.

The community, as the manager of the orange house business unit, is also expected to provide feedback services for consumers, allowing them to assess the taste, quality, packaging, marketing, and target market. This is expected to serve as an evaluation material for production, leading to improvements in quality and further diversification of the developed products.

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³³ Rohalu Utami, Dwi Ishartani, and Lia Umi Khasanah. "Peningkatan Potensi Ekowisata di Desa Jatirejo Kecamatan Ngargoyoso Kabupaten Karanganyar Melalui Pengembangan Olahan Jambu Biji Merah Sebagai Oleh-oleh Khas Desa Wisata Jambu Biji Merah." *SEMAR: Jurnal Ilmu Pengetahuan, Teknologi, dan Seni Bagi Masyarakat* 6, no. 1 (2017): 1-13.

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