

Strengthening the Management Capacity of Joint Business Groups (KUBE) in Utilizing Raw Corn Materials as Products in Barakati Village

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Abstract. The level of marketing of raw corn materials is still relatively low. This is because corn farmers only sell their produce in the form of raw corn directly to traditional markets. This program aims to strengthen the management capacity of community groups in increasing the added value of raw corn materials as a product variety. In addition, this program also aims to absorb labor and increase people's income through increased creativity and local innovation that can be made into regional specialties. The method used in this program is the technical guidance method. The results of this service program include increasing understanding of community groups processing corn into products of economic value as an effort to improve welfare, fostering group independence in processing corn into various healthy and hygienic snack products, and increasing the income of target community groups as a result of selling snack products.

Keywords: Corn; Empowerment; Joint Business Group (KUBE); Management Capacity

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1. INTRODUCTION

Corn is a prevalent food crop for people in agricultural countries and regions. Besides being a staple food and a source of carbohydrates, corn can also be used as animal feed and fuel. Maize for food, feed, and fuel is a jargon often echoed regarding corn's importance as a food, feed, and energy source (Klopfenstein et al, 2013). In addition, shelled corn can be diversified into processed food ingredients such as crackers, chips, sticks, biscuits, milk, and many other variants. Gorontalo is one of the main corn-producing provinces in Indonesia. Corn production in the Gorontalo area has been exported to several countries, including the Philippines, Malaysia, and South Korea (Susilowati et al., 2021). Apart from being used as raw materials for feed and industry, corn can also be produced into economic value products. The Barakati Village, Batudaa District resident Gorontalo Regency tried his luck by creating snacks from corn as raw material. Barakati Village is one of the eight villages in Batudaa sub-district, which, based on its geographical location, is in the west of Payungga Village with an area of ± 910 Ha (Payu et al, 2017). With the condition of the natural topography, Barakati Village, as in other villages, has a dry and rainy climate. Barakati Village is divided into four hamlets: Ilito Hamlet, West Ilito Hamlet, Hungayo Hamlet, East Hungayo Hamlet, and South Hungayo Hamlet. Regarding demographics, in 2009, the villages of Barakati Dusun Ilito, West Ilito, Hungayo, East Hungayo, and South Hungayo had a population of 2630 people, and in 2010 increased by 1.07% to 2658. The sector dominates the economic situation in Barakati Village. Agriculture and fishing. From the existing data, the agricultural land in this village is 113 ha (Payu et al, 2017).

Corn (*Zea mays* L.) is a grain crop from the grass family (Graminae). Corn is one of the world's most important carbohydrate-producing food crops (Kumaji & Katili, 2019). The part of corn that humans usually eat is the grain, both young when the contents have not dried or after it is old and dry. Corn kernels are rich in carbohydrates. Most of it is in the endosperm. Carbohydrate content can reach 80% of the dry matter of seeds (Musita, 2018). In addition, corn is an annual plant. One life cycle is completed in 80-150 days. The first half of the cycle is the vegetative growth stage, and the second half is the generative growth stage. The phytate (hexaphosphoric ester of myoinositol) is known as the only sugar alcohol found in corn kernels. About 90% of phytates are found in the scutellum, and 10% are in aleurone. In the same year, Watson found that corn kernels also contain several vitamins such as choline (567 mg/kg), niacin (28 mg/kg), pantothenic acid (6.6 mg/kg), pyridoxine (5.3 mg/kg), thiamine (3.8 mg/kg), riboflavin (1.4 mg/kg), folic acid (0.3 mg/kg), biotin (0.08 mg/kg), and vitamin A (β -carotene) and vitamin E (α -tocopherol) of 2.5 mg/kg and 30 IU/kg, respectively (Watson et al, 2003). The content of substances in yellow and white corn are presented in Table 1 and Table 2, respectively.

Table 1. Content of components in 100 g of New Harvest yellow corn

Component	Rate	Component	Rate
Water (g)	24	P (mg)	148
Calories (kal)	307	Fe (mg)	2,1
Protein (g)	7,9	Vitamin A (SI)	440
Fat (g)	3,4	Vitamin B1 (mg)	0,33
Carbohydrate (g)	63,6	Vitamin C (mg)	0
Ca (mg)	9		

Source: (Ignjatovic-Micic et al., 2015)

Table 2. Content of components in 100 g of New Harvested white corn

Component	Rate	Component	Rate
Water (g)	24	P (mg)	148
Calories (kal)	307	Fe (mg)	2,1
Protein (g)	7,9	Vitamin A (SI)	0
Fat (g)	3,4	Vitamin B1 (mg)	0,33
Carbohydrate (g)	63,6	Vitamin C (mg)	0
Ca (mg)	9		

Source: (Ignjatovic-Micic et al., 2015)

The part that is rich in carbohydrates is the seed. Most of the carbohydrates are in the endospermium. Carbohydrate content can reach 80% of the dry matter of seeds. Carbohydrates in the form of starch are generally a mixture of amylose and amylopectin. In glutinous corn, most or all of the catfish is a mylopectin (Deepak & Jayadeep, 2022).

Barakati Village is one area with a wide potential for corn, with most of its agricultural commodities being corn. As revealed by the Village Head in Barakati Village, he explained that Corn Production for Planting Season I = 94,761 Tons. Corn production in Gorontalo is relatively large in terms of commodities. However, to increase the selling value of corn and improve the welfare of farmers, it is necessary to do industry in the food sector and the creative economy. So far, the raw material for corn in Gorontalo is only used for the basic ingredients of a typical Gorontalo food, namely Binthe Biluhuta. In addition, raw corn materials are exported to several countries, such as the Philippines, Malaysia, and South Korea, increasing yearly. However, only raw materials are exported, which cannot increase corn's selling value (Santoso & Olilingo, 2019). According to the results of interviews with corn farmers in Barakati village, all farmers said that corn harvests were sold directly in traditional markets with relatively low prices. Prices tend to be low; one of the reasons is the need for more local creativity and innovation that can be used as products typical of the Gorontalo region. Very minimal or even the absence of technological intervention or processing processes to add value to the product. At the same time, corn can be relied upon as the Gorontalo industry's core competence. Demand from several countries such as Malaysia, the Philippines, Japan, and Korea also tends to increase. Due to the lack of creativity and local innovation, it is difficult to find industrial products based on corn and fish that can be used as regional specialties (Sulila, 2021). By utilizing agricultural and fishery production technology, corn and fish can be used as opportunities for micro, small, and medium enterprises (MSMEs), especially for students willing and able to start a business (Mopangga & Niode, 2018).

Based on the potential and problems, concrete and measurable efforts are needed in processing agricultural corn products, one of which is through corn processing with partners of the collaborative business group (KUBE) in Barakati village. This program has been prepared and designed based on the target group's needs with measurable targets that have been set, which can be explained in detail in the next section. The proposed service program is a form of higher education concern in maintaining and developing original regional products based on the local community's wisdom. The problems faced by these partners can be overcome by universities' application of science and technology. Therefore, the program for improving KUBE is carried out according to the group's needs by strengthening the capacity of the management function of effective and sustainable

business governance.

2. METHOD

The method used in this program is a technical guidance method that is carried out through several stages:

Preparation: Prepare locations that become centers for providing materials and training for the community. Location preparation will be carried out by coordinating with the Barakati Village office, Batudaa sub-district, Gorontalo Regency. This coordination is needed because the local government knows the conditions of the Barakati community, Batudaa sub-district, and Gorontalo Regency and can help during the process of providing materials and training to the community. Coordination is also carried out with target groups as beneficiaries of capacity building.

Processing: After carrying out technical guidance on strengthening management capacity, the practice of processing raw corn materials into snack products in the village of Barakati will also be carried out. The tools used to process pastries (snacks) made from corn are grinders, fried pots, drains, large pans, large trays, small trays, large spoons, pans, stoves, stoves, grinders, stoves, pans, drains, silver, scales, and polyethylene plastic.

Implementation steps in the form of the program that will be implemented are the production program for making Corn Sticks. The method used in empowering the target group is learning the technique of making quality Corn Sticks accompanied by direct theory and practice. Learning accompanied by practice will be carried out by students together with the target group whom professional partners in their fields also accompany.

The flow of the implementation of activities is given as shown in the diagram below:

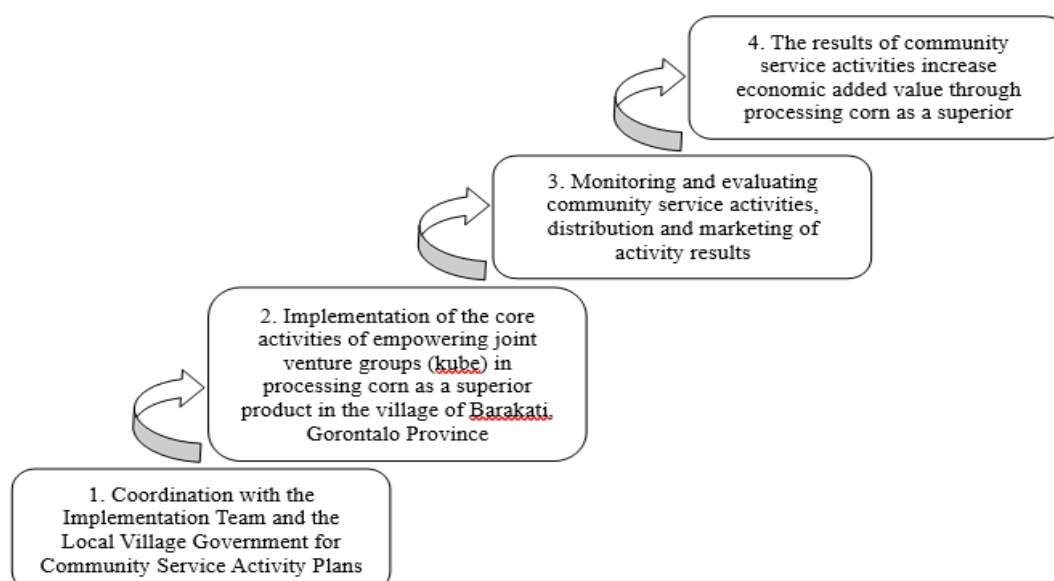


Figure 1. Flowchart of the implementation of the community service program

3. RESULT AND DISCUSSION

Various advantages of corn and its processing results that provide benefits have become the main focus of the community service program by developing corn in a joint business group in Barakati Village, Batudaa District, Gorontalo Regency. Furthermore, to strengthen and develop corn processing capacity, the core activities of this service program are carried out with Technical Guidance activities to strengthen management and entrepreneurship for groups of craftsmen in corn processing. This technical guidance covers all crucial aspects of corn business management. Broadly speaking, the results of technical guidance activities can be explained as follows.

- a. **Material: Utilization of village potential (maize) as a snack product with high economic value in Barakati Village, Batudaa District, Kab. Gorontalo.** This material reveals the real potential of the village, one of which is corn, which is widely cultivated in this area. In addition, various problems farmers and corn processing community groups face are described in detail, both production and marketing problems. 1) Production problems: high number of harvests over time and has yet to be able to provide high economic benefits for the local community. The concrete solutions are: making various products from raw processed corn materials. 2) Marketing issues: mapping the needs for various processed corn products at the sub-district and regional levels, making sales contracts with marketing partners, and direct marketing to consumers. The solution implementation results are expected to provide value for benefits in improving the welfare of farmers and local community groups as processors of various corn snack products.
- b. **Material: The strategic role of universities in utilizing the strategic potential of the region through the implementation of service programs.** This material emphasizes the importance of the role of universities in Gorontalo State University in implementing the Tri Dharma College program, especially community service. As a higher institution that develops science and technology, it is necessary for the role of universities to lift and develop the region's potential (Sahrin, Arafat, & Hadi, 2022)—especially the abundant potential of corn in Barakati Village, Batudaa District, Gorontalo Regency. The problems faced are: 1) The study of rural-based superior potential has yet to be maximized as a basis for implementing science and technology and rural development programs. The concrete solutions offered are: carrying out collaborative research on exploiting the rural-based superior potential. The expected results are the existence of superior village-based research results as a basis for carrying out downstream research in a sustainable manner; 2) There is still a lack of downstream research results to improve people's welfare. The concrete solutions that are offered are: making partnerships between the universities of the State University of Gorontalo and the target villages for the exploitation and development of village potential. The expected results are the increasing role of universities in applying science and technology to improve the community's welfare.
- c. **Material: The importance of legal aspects in business and the practical theory of drafting a sale/purchase contract.** This material emphasizes the importance of considering legal aspects in business through actions that do not conflict with the law, both criminally and civilly. Criminally, that must be considered, for example, regarding the guarantee of the content of snack products that do not contain harmful ingredients that can result in health problems and even death for consumers (Lestari, 2020). Meanwhile, in civil terms, for example, regarding the importance of using trademarks independently without duplicating other products.
- d. **Material: Theory and practice of management aspects of Micro, Small, and Medium Enterprises (MSMEs) in the processed food industry.** This material emphasizes the importance of professional business management in business operations. Management as the key

to business success is carried out through the practice of management functions, which include: planning, organizing, implementing, marketing, and evaluating for business sustainability (Fuertes et al., 2020). Besides the management function, this material also discusses the elements of management, which include: human, material, machine, money, and market. The combination of management functions and elements results in sustainable business management's effectiveness and efficiency. The results show: that community groups as the target gain new knowledge about business management of corn processing as a healthy and hygienic snack product.

- e. **Material: A management strategy for local food processing as a superior product for community groups with high economic value.** In this material, members of the target group gain knowledge and experience in developing realistic work programs based on internal and external conditions faced by artisan groups at present and in long-term business planning. The experience convinced the group members about the promising and definite business prospects for corn snack products that were realistically planned, planned, and systematic. This material is also practiced in the preparation of business plans on a monthly and annual period. Practice is also focused on the periodical preparation of the stages in achieving the plan. Another activity is a simulation of how to deal with problems that arise both internally and externally and how to deal with the external business environment that is changing very quickly. The results showed: There was an increase in the capacity of the corn processing group in terms of preparing monthly and annual business plans.
- f. **Material: Procedure for processing corn raw materials as a healthy and hygienic food product.** The practice for product innovation is carried out by practitioners, in this case, one of the partners with extensive knowledge and experience about the production of corn snacks following modern market standards. All participants followed well and practiced these innovations to produce the latest products about corn snacks. The innovation is carried out in the form of various flavored snacks, namely spicy, sweet, and salty flavors, as new flavor innovations for corn snacks. This innovation is also an opportunity for business groups to produce various flavors of snacks typical of Barakati Village.



Figure 2. Corn processing activities for the production of various snack

The results of the technical guidance activities on the process of making corn snacks into a variety of healthy and hygienic products in Barakati Village provide experience and reinforcement for members of the craftsman group on the huge business potential of corn snack products. Besides that, technical guidance also provides knowledge of business processing management and its implementation in business activities. Another important aspect of technical guidance is that knowledge for business groups is also provided regarding the legal aspects of the business. This is to provide legal certainty and legal certainty for the business being carried out, as well as to provide knowledge about various risks that may occur in the business. Besides that, participants as the target

group are also provided with partnerships with other business parties, market planning, and so on. The technical guidance activity was followed by the theory and practice of preparing a business plan for the small and medium business sector, which all group members attended.

In implementing the Service program in Barakati Village, the results achieved can be detailed as follows:

- a. Carry out community empowerment activities for corn farmer groups in processing corn harvests into various healthy and hygienic snack products with high economic value.
- b. Increased knowledge and understanding of community groups of farmers and corn processors in processing raw materials to marketing as an effort to improve welfare.
- c. Carry out technical guidance activities for corn processing, starting from the stages of selecting raw materials, processing, management, and reaching marketing activities.
- d. Carry out marketing activities for various corn snack products around the location of the service implementation and to meet the local market.
- e. Carry out marketing activities for the Barakati Village service program partners.

4. CONCLUSION

Based on the implementation of the service program in Barakati Village with the theme of developing joint business groups in corn processing, this program has provided very beneficial results for the target group, including 1) Increased understanding of corn processing community groups into products of economic value as an effort to improve welfare; 2) Growing group independence in processing corn into a variety of healthy and hygienic snack products; 3) Increased income of target community groups as a result of sales of Corn snack products that already have regular customers according to partners in service work programs; 4) Increasing the productivity of community groups as the target of the program, in utilizing the abundant sources of raw corn materials in Barakati village; 5) The existence of sustainable productivity of community groups for the production of healthy, hygienic and high economic value sago snacks according to market demand.

Based on the results and conclusions above, some suggestions can be made: 1) The surrounding villages also experience great agricultural corn products. Therefore it is recommended that neighboring villages can also follow the program model that has been implemented in Barakati village to increase the economic empowerment of the target group; 2) The results obtained by the target group are suggested to be followed up/improved in the future, as an effort to improve the welfare of the community; 3) To make the productivity of corn processing community groups effective, it is advisable to partner with other business groups to increase production, product hygiene, and product marketing on a broader scale.

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REFERENCES

- Deepak, T. S., & Jayadeep, P. A. (2022). Prospects of Maize (Corn) Wet Milling By-Products as a Source of Functional Food Ingredients and Nutraceuticals. *Food Technology and Biotechnology*, 60(1), 109–120. doi: 10.17113/ftb.60.01.22.7340
- Fuertes, G., Alfaro, M., Vargas, M., Gutierrez, S., Ternero, R., & Sabattin, J. (2020). Conceptual Framework for the Strategic Management: A Literature Review - Descriptive. *Journal of Engineering (United Kingdom)*, 2020, 6253013. doi: 10.1155/2020/6253013
- Hamaker, B. R., Tuncil, Y. E., & Shen, X. (2018). Carbohydrates of the Kernel. In S. O. B. T.-C. (Third E. Serna-Saldivar (Ed.), *Corn: Chemistry and Technology*, 3rd Edition (pp. 305–318). Oxford: AACC International Press. doi: 10.1016/B978-0-12-811971-6.00011-5
- Ignjatovic-Micic, D., Vancetovic, J., Trbovic, D., Dumanovic, Z., Kostadinovic, M., & Bozinovic, S. (2015). Grain nutrient composition of maize (*Zea mays* L.) drought-tolerant populations. *Journal of Agricultural and Food Chemistry*, 63(4), 1251–1260. doi: 10.1021/jf504301u
- Klopfenstein, T. J., Erickson, G. E., & Berger, L. L. (2013). Maize is a critically important source of food, feed, energy and forage in the USA. *Field Crops Research*, 153, 5–11. doi: 10.1016/j.fcr.2012.11.006
- Kumaji, S. S., & Katili, A. S. (2019). Pemberdayaan Masyarakat Petani Jagung (*Zea mays* L.) Melalui Pengembangan Kelompok Usaha Bersama (KUBE) Melati. *Jurnal Pengabdian Kepada Masyarakat (JPKM)*, 25(1), 36–41. doi: 10.24114/jpkm.v25i1.13937
- Lestari, T. R. P. (2020). Keamanan Pangan Sebagai Salah Satu Upaya Perlindungan Hak Masyarakat Sebagai Konsumen. *Aspirasi: Jurnal Masalah-Masalah Sosial*, 11(1), 57–72. doi: 10.46807/aspirasi.v11i1.1523
- Mopangga, H., & Niode, I. (2018). Pengembangan Metode Produksi dan Pemasaran Stik Jagung Ikan Sebagai Produk Unggulan Ekspor Gorontalo. *Jurnal PROFIT: Kajian Pendidikan Ekonomi Dan Ilmu Ekonomi*, 4(2), 111–121.
- Musita, N. (2018). Kajian Kadar Aflatoksin dan Proksimat Tepung Jagung Nikstamalisasi pada Berbagai Lama Perendaman. *Prosiding Seminar Nasional*, 1(1), 98–105. Retrieved from <http://ejournal1.kemenperin.go.id/pmbp/article/view/4466>
- Payu, C. S., Ismail, Y. L., & Kumaji, S. S. (2017). Pemberdayaan Ekonomi Masyarakat Petani Melalui Pengolahan Labu Kuning (*Curcubita Mochata*) Menjadi Produk Cemilan Di Desa Barakati Kabupaten Gorontalo. *Jurnal Pengabdian Kepada Masyarakat*, 23(3), 344. doi: 10.24114/jpkm.v23i3.7457
- Sahrin, A., Arafat, Y., & Hadi, A. M. (2022). Peran Perguruan Tinggi dalam Meningkatkan Daya Saing Daerah di Era Otonomi. *DIKSI: Jurnal Kajian Pendidikan Dan Sosial*, 3(2), 51–60. doi: 10.53299/diksi.v3i2.202
- Santoso, I. R., & Olilingo, F. Z. (2019). Analysis of Regional Economic Competitiveness of Gorontalo Province (Case Study of Gorontalo Province Corn Commodity). *Jambura Equilibrium Journal*, 1(1), 1–10. doi: 10.37479/jej.v1i1.1989
- Sulila, I. (2021). Pemberdayaan Masyarakat Terdampak Covid-19 melalui Penguatan Aspek Manajemen dan Teknologi Pemasaran bagi UKM. *Jurnal Pengabdian Pada Masyarakat (JPPM)*, 6(4), 1096–1105. doi: 10.30653/002.202164.893
- Susilowati, S. H., Ariningsih, E., Saliem, H. P., Roosganda, E., Adawiyah, C. R., & Muksin. (2021). Opportunities and challenges to increase corn export from Gorontalo province of Indonesia. *IOP Conference Series: Earth and Environmental Science*, 672(1), 12027. doi: 10.1088/1755-1315/672/1/012027

Watson, S., White, P., & Johnson, L. (2003). Description, development, structure, and composition of the corn kernel. *Corn: Chemistry and Technology*, (Ed. 2), 69–106. Retrieved from <http://www.cabdirect.org/abstracts/20033163536.html>