

Quality Peanut Seeds Intercropped with Baby Corn to Support Nutritious Food Availability in Sigerongan Village

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Abstract: This application of science and technology was implemented to assist partner groups (1) "Sumber Hidup" Farmer Group and (2) "Tunas Mekar" Farmer Group in utilizing high-quality seeds to increase the yields of peanuts and baby corn grown via intercropping, thereby supporting the availability of nutritious food in Sigerongan Village. To achieve this objective, training sessions and demonstration plots were conducted. The training employed an adult education approach utilizing participatory techniques. Participants included the committee and members of both the "Sumber Hidup" and "Tunas Mekar" farmer groups. The training activities comprised material presentations, discussions, and question-and-answer sessions. The demonstration plots (demplots) served as a form of action research based on findings previously generated by the research team. Farmers were actively involved throughout the process, participating in planning, implementation, and harvest evaluation. These activities aimed to enhance the skills and knowledge of the partner farmers. The results indicate that members of the "Sumber Hidup" and "Tunas Mekar" farmer groups in Sigerongan Village responded very positively to the extension activities and demonstration plots. The farmers engaged seriously with every stage of the program and raised questions regarding intercropping, baby corn cultivation, and superior peanut seed. Intercropping baby corn with peanuts represented a novel practice for the farmers, offering a way to maximize the utility of limited land in Sigerongan Village. Producing baby corn from glutinous corn alongside the superior peanut line G300-II emerged as an optimal strategy for increasing yields and ensuring a supply of nutritious food for the community.

Keywords: Action Research, Farmer Participatory, Intercropping System.

Introduction

Sigerongan Village, Lingsar Subdistrict, is one of the peanut and vegetable production development areas on Lombok Island. The village covers an area of 470 ha with a population of 6,198 people and a population density of 1,319 people/km². Most residents work in the agricultural sector as farmers and livestock raisers, particularly as tenant farmers and farm laborers, with low farmer income levels. The village's farmland consists of technically irrigated paddy fields (225 ha), semi-technically irrigated fields (32 ha), and non-technically irrigated fields (10%). It is one of the agricultural areas with technical irrigation, with both flat

and hilly terrain. Most residents (85%) work in farming, largely on limited landholdings of 5 to 10 are (Kecamatan Lingsar Dalam Angka, 2024).

Two of the farmer groups in Sigerongan Village are "Sumber Hidup" Farmer Group and Tunas Mekar Farmer Group. These farmer groups mostly farm on technically irrigated paddy fields. The crops they cultivate include rice, peanuts, and vegetables.

Peanuts have high economic value as an important source of plant-based protein in the diet and as animal feed. Peanut cultivation in Sigerongan Village is still carried out in a simple manner without the application of standard cultivation technology. Peanut farming is generally carried out by smallholder farmers

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with very limited capital and technology adoption. Developing peanuts on irrigated paddy fields is difficult because it must compete with other, more economically attractive food crops such as rice, maize, and soybean (Hemon et al., 2024; Hemon et al., 2025).

Another problem related to these farmer groups is limited education and understanding of technological innovation. Agricultural technology coaching and mentoring, as well as institutional support, are very limited, and farmers' access to production inputs, technological innovation, and capital is also relatively limited. Adoption of agricultural technology in farming on limited land remains relatively low, characterized among other things by a wide productivity gap between farmers' actual yields and research results. In addition, technological innovations already proven technically and economically feasible at the research and development level are not necessarily adopted by farmers because of weaknesses in the technology transfer system. The role of extension institutions also remains weak, both in transferring technological innovation and in empowering communities (Yuana, 2021). Preliminary field observations indicate that the application of technological inputs in farming remains low. The choice of crops for intercropping remains very limited. Farmers have not yet understood the use of technology packages such as superior varieties, quality seed, and the intercropping of peanut with young corn vegetables (*baby corn*).

Preliminary field observations also show that average peanut production at the farmer level is below 1.0 ton of fresh pods, still very low compared with the national variety average of 3 to 4 tons of fresh pods. This low production results in low farmer income, which in turn contributes to poverty among farmer group members. The preliminary survey also indicates that the potential for developing farming on limited land in Sigerongan Village lies in intensifying that limited land through intercropping technology. Intercropping is a practice of growing several types of crops on the same land and at the same time, arranged in specific planting rows. This method can be applied to two or more crops of relatively similar age, such as young corn (*baby corn*) and peanut, or to several crops of differing ages (Asadi et al., 1997; Hemon et al., 2023). Intercropping success depends heavily on the quality of the peanut seed used. Quality seed ensures field growth ability and vigor capable of adapting to environmental stress conditions.

Baby corn is a corn ear harvested while still very young, before the kernels develop, yielding a small vegetable with a sweet, savory flavor and crisp texture, rich in fiber, vitamins, and minerals. It is often used in stir-fries and soups or eaten raw, and its low calorie content makes it a healthy choice for dieting, with a fairly attractive market value (Rohimawati et al., 2025);

(Roy et al., 2019); (Nurchayati and Yuliana, 2006). The research team has also produced several superior peanut lines, so this community service program carried out by the lecturers will use these superior lines and apply an intercropping system with *baby corn* to increase production, ultimately raising farmer income and serving as a food source to help meet the community's nutritional needs.

In addition, the research roadmap of the Research Group: Management of Genetic Resources of Legume and Horticultural Crops includes the development of peanut. Several superior varieties and quality peanut seed collected by Research Group of lecturers have already been used by partner farmers in Sigerongan Village. Therefore, this activity aims to assist the partner farmer groups "Sumber Hidup" and "Tunas Mekar" in Sigerongan Village through the application of peanut and *baby corn* intercropping technology on limited land. In addition, this activity supports the development of Asta Cita point 1 (food self-sufficiency) of the President of the Republic of Indonesia, the development of SDG 12 (*responsible consumption and production*), and Impactful Campus to help farming communities, and also serves as a site for the Sigerongan Village community service (KKN) program.

Method

The implementation method applied was to assist the partner farmer groups "Sumber Hidup" and "Tunas Mekar" in Sigerongan Village by increasing productivity on limited land through the application of intercropping technology, combining *baby corn* vegetable with several superior varieties and quality peanut seed. As peanut and *baby corn* productivity increases, this is expected, in turn, to help meet the nutritional food needs of partner families.

This implementation method also includes the following achievement indicators:

1. An increase in the productivity of *baby corn* vegetable and peanut on limited land following the use of intercropping technology
2. An increase in partner farmers' understanding of how to apply intercropping technology combining peanut with *baby corn* vegetable
3. An increase in partner farmers' understanding of how to use superior varieties and quality seed of peanut and *baby corn* vegetable on limited land.
4. Coordination carried out to build farmer group capacity together with the agricultural extension officer, the Village Head, and other farmer groups.
5. An increase in farmers' understanding of how to utilize peanut and *baby corn* food products to meet family nutritional needs.

For this community service activity to succeed, several stages of activity will be carried out, as follows:

Preparation

This preparation stage is carried out to draft the proposal and the follow-up plan for implementing the activity. The preparation stage includes:

a. Needs analysis

Information was gathered through observation, interviews, and participation in farmers' activities. Data collection covered the main problems faced and the condition of the farming community in terms of economy, education, and their attitudes toward new innovations, among other factors.

b. Analysis of productive activity creation

Data collection was carried out together with stage (a) above, covering agricultural resource issues (potential, technology application, production, and so on) in relation to creating productive business activities and selecting the cultivation technology package to be developed.

c. Program socialization

This activity involved approaching the farmer groups and presenting the program plan, covering the objectives and benefits of the activity, the activity plan, program sustainability, and its impact on community income levels.

d. Selection of participants

The participants selected were those with the spirit of a motivator, driver, facilitator, and innovator relevant to the activity's objectives. The selected participants consisted of: the Farmer Group Chairperson, the agricultural extension officer, youth leaders, women farmer leaders, local entrepreneurs, and active farmer group members.

Activity Implementation

The problem-solving approach used in this program was to increase productivity on limited land through intercropping several superior varieties and quality peanut seed with *baby corn* vegetable. Increasing the productivity of peanut and *baby corn* required applying the knowledge and technology held by the Proposing Team, in the form of training activities and a demonstration plot (*action research*). The stages of activity carried out included:

a. Training

The method used in the training was an adult education approach utilizing participatory techniques. The technical training participants were the Farmer Group Chairperson, the agricultural extension officer, youth farmer leaders, women farmer leaders, local entrepreneurs, and active farmer group members. The training activities included material presentations (using teaching aids),

discussions, and question-and-answer sessions. The training was conducted over one (1) day, covering the following material:

- The economic prospects of *baby corn* vegetable and peanuts,
- The free nutritious meal program,
- Intercropping cultivation,
- Superior varieties and quality seed of peanut and *baby corn* vegetable,
- Harvesting and post-harvest handling of peanut and *baby corn*

b. Demonstration plot (*demplot*)

The demonstration plot (*demplot*) to be implemented took the form of *action research* based on findings from research the team had already carried out. The demplot compared intercropping of several superior varieties and quality peanut seed with *baby corn* vegetable.

The superior peanut seed used came from the collection of Research Group, the Management of Genetic Resources of Legume and Horticultural Crops at the University of Mataram. The demplot was carried out on farmers' land. Farmers participated together, from planning and implementation through to harvest evaluation.

After the training was conducted, it was followed by an explanation of the demplot. The demplot was arranged following a Randomized Block Design with treatments comparing the intercropping of several peanut varieties with *baby corn* vegetable from the sweet corn variety NB Super F1 and the glutinous corn variety Kumala F1.

The treatments included in the demplot were as follows:

T0 = monoculture of peanut and *baby corn* vegetable

T1 = intercropping of peanut with *baby corn* vegetable

The explanation then covered land preparation, plot construction, planting, crop maintenance, and harvesting. Land preparation was carried out once. After tilling, plots were constructed and cattle manure was applied at a rate of 1 ton/ha. The experimental plots measured 250 x 150 cm.

Baby corn vegetable was planted at a spacing of 70 x 40 cm. Peanuts were planted 7 days after planting (DAP) of the corn, at a spacing of 60 x 20 cm. Crop maintenance was carried out on both the *baby corn* vegetable and the peanut. Weeding was combined with hilling by turning the soil to keep it loose. Peanuts were fertilized only at planting, with NPK (15-15-15) at a rate of 100 kg/ha. Corn was fertilized with 100 kg of NPK (15-15-15) at planting, 100 kg of NPK at 15 DAP, and 100 kg of urea at 35 DAP. Pest control on the corn was carried out using the insecticide Meurtieur 30 EC. Irrigation was applied one day after planting and again

at 20 and 40 days after planting. At 45 DAP, the male flowers (tassels) were removed to prevent fertilization.

Harvesting of *baby corn* began at 45 DAP and continued through 60 DAP, or 2 to 5 days after silk emergence (female flower) (Kaiser and Ernst, 2017). Peanuts were harvested at 90 DAP.

Result and Discussion

The transfer of agricultural technology in the form of intercropping quality peanut seed with *baby corn* has been carried out by the University of Mataram community service team. This community service activity was carried out to improve the knowledge and skills of the partner farmers of “Sumber Hidup” and “Tunas Mekar” in Sigerongan Village. The technology transfer methods developed here were training (extension) and a demonstration plot.

Training Activities (Extension)

Training here was conducted to deliver extension material relevant to the activity's topic. For research findings to be successfully adopted, a technology needs to be heard, seen, and practiced, so the training needed to be followed by hands-on practice in the form of a demplot. Training is one form of communication medium used to develop information in the dissemination of research findings (Indraningsih, 2011). In addition, conducting training and extension also influences farmers' attitudes and motivation, and even leads them to put the knowledge gained in the field into practice by participating in farmer group activities (<https://ugm.ac.id/id/berita/8954-pelatihan-kelompok-tani-penting-untuk-tingkatkan-penerapan-materi-penyuluhan/>).

In theory, agricultural extension is an effort to change farmers' behavior so that they gain broader knowledge, adopt a progressive attitude toward change, respond innovatively to new information, and become skilled in carrying out various activities that benefit agricultural productivity, income and profit, and the welfare of families and communities (Mardikanto, 1996).

This community service activity was carried out to improve the knowledge and skills of the partner farmers of “Sumber Hidup” and “Tunas Mekar” in Sigerongan Village in making use of limited land by intercropping superior varieties of quality peanut seed with *baby corn*. In this activity, the communication technique used by the extension team was direct extension, namely *face-to-face communication* between the extension workers and farmers. This direct method was used so that farmers could hear and give an immediate, direct response to the extension material presented. The extension team delivered the material at the experimental demplot site. According to Martanegara (1993), the direct method is

considered more effective for building trust and rapport between extension workers and farmers, as well as for eliciting a faster response or feedback from the target audience. Figures 1 and 2 show face-to-face lecture sessions between the extension workers and members of the “Sumber Hidup” and “Tunas Mekar” farmer groups in Sigerongan Village.



Figure 1. Farmers taking part in an explanation of peanut intercropping with *baby corn* vegetable

The results of the community service activity show that the extension participants responded very positively to the activities. This was evident from participants' seriousness in listening and taking part in discussions. Attendance met the target of 15 people, made up of members of the “Sumber Hidup” and “Tunas Mekar” farmer groups, the traditional irrigation leader (*Pekasih*), the agricultural extension officer, community leaders, and women farmers. These extension participants were deliberately chosen directly from the farmer groups, since they were considered the ones most likely to directly apply the peanut and *baby corn* intercropping technology. Judging from participants' involvement throughout the extension activities, they turned out to listen very earnestly and take part directly in the question-and-answer sessions.

This lecture activity was carried out to teach the economic prospects of *baby corn* vegetable and peanut, the free nutritious meal program, intercropping cultivation, superior varieties and quality seed of peanut and *baby corn* vegetable, and the harvesting and post-harvest handling of peanut and *baby corn*.

Farmers were more enthusiastic about the hands-on practice, seeing the reality in the field for themselves: from the intercropping planting, the growth of the three

peanut varieties, the growth of the two *baby corn* varieties, through to the *baby corn* harvest. The participatory technique was used mainly to hear directly about problems with intercropping *baby corn* and several peanut varieties, and to invite farmers to work together in finding solutions for improving farm yields (Table 2).



Figure 2. Observation of the row arrangement for intercropping *baby corn* vegetable and peanut

This village is one of the agricultural areas with technical irrigation, with both flat and hilly terrain. Most residents (85%) work in farming, largely on limited landholdings of 5 to 10 are (Kecamatan Lingsar Dalam Angka, 2024). To further optimize the use of this limited land, farming in Sigerongan Village involves growing food crops using intercropping technology. Intercropping is a practice of growing young corn together with peanut on the same land and at the same time, arranged in planting rows (Asadi et al., 1997; Hemon, et al., 2023). Intercropping success depends heavily on the quality of the peanut seed used. Quality seed ensures field growth ability and vigor capable of adapting to environmental stress conditions.

Demonstration Plot

The knowledge and technology produced by researchers need to be transferred to farmers. Farmers' access to information on technological innovation is relatively limited, so socialization and efforts to build farmers' understanding are needed. Understanding a technological innovation naturally involves a mental process, from the individual farmer's initial exposure through to the decision to adopt it (Mardikanto, 1993).

Adoption of *baby corn* and peanut intercropping technology cannot be achieved through lectures or discussion alone; it also needs to be achieved through hands-on practice in a demonstration plot (*demplot*). A

demonstration plot is a form of extension medium carried out through direct field practice, comparing farmers' existing methods with the intercropping technology for young corn and peanut.

The demonstration plot carried out involved intercropping of *baby corn* and peanut. A demonstration plot is a field extension method used to show or demonstrate, in concrete terms, a method and/or the results of applying an agricultural technology that has already proven beneficial to farmers. This technology adoption is expected to bring about a change in farmers' knowledge, attitudes, and skills after they receive the "innovation" delivered by the Extension Team to the partner farmers of the "Sumber Hidup" and "Tunas Mekar" Farmer Groups. Accepting an innovation here means not merely "knowing" it, but genuinely being able to carry it out or apply it correctly and to internalize it.

In this activity, after the theoretical explanation was given, it was followed by an explanation of the demplot. This further explanation covered intercropping of *baby corn* and peanut, land preparation, row arrangement, weeding, irrigation, *baby corn* varieties, peanut varieties, quality seed, and how to obtain *baby corn*. *Baby corn* ears are obtained by harvesting the corn ear once the silk has emerged to a length of about 2 to 3 cm (Figure 3 and 4).

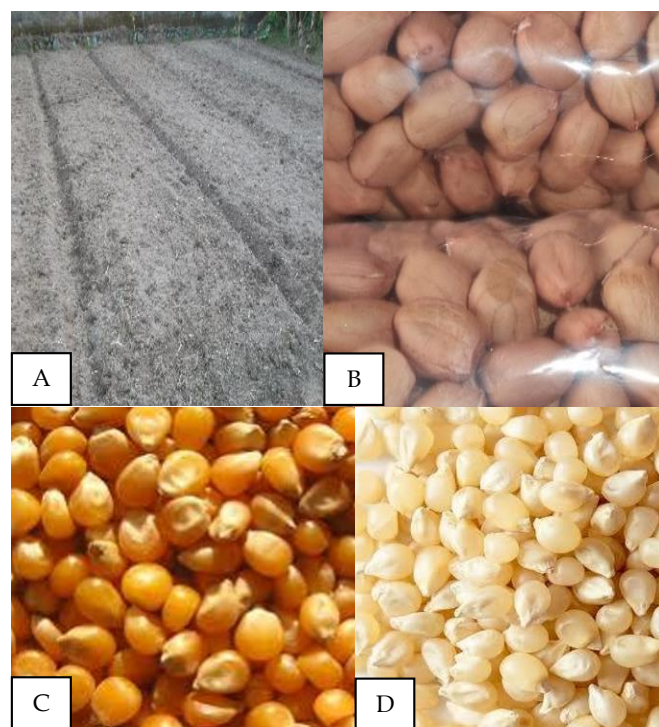


Figure 3. Demplot activities: (A) construction of the experimental plot, (B) peanut seed, (C) sweet corn seed, (D) glutinous corn seed.



Figure 4. Demplot activities: (A) intercropping planting of corn and peanut, (B) growth of the corn and peanut intercrop, (C) explanation of how to harvest *baby corn* ears together with farmer group members, (D) the *baby corn* vegetable harvest.

In this demplot activity, the Team conducted an experiment comparing monoculture planting of peanut and *baby corn* vegetable with intercropping of peanut and *baby corn* vegetable. The efficiency of the intercropping can be observed through the *Land Equivalent Ratio* (LER) value. At harvest, several parameters were also observed, such as the weight of *baby corn* ears per plot and the dry pod weight per plot. The results of the demplot trial can be seen in Table 1.

Table 1 shows that intercropping *baby corn* vegetable from glutinous corn with the peanut line G300-II increased crop productivity more than monoculture planting. According to Rodrigo et al. (2001), intercropping can increase yield per unit of land compared with monoculture of the same crop. This is related to the pattern of resource use by the plants.

Table 1. Observation of several parameters of *baby corn* vegetable and peanut plant

Treatment	Weight of young <i>baby corn</i> ear per plot (g)	Dry pod weight of peanut per plot (g)	LER value
Monoculture <i>baby corn</i>	250.4		
Glutinous corn			
Monoculture peanut, line G300-II	-	900.2	
Intercropping <i>baby corn</i> + peanut	127.6	-	
Intercropping <i>baby corn</i> + peanut	-	435.2	
LER value			1.51

Note: An LER value of 1.51 > 1.0 indicates that intercropping is more efficient than monoculture planting.

Conclusion

The results indicate that members of the "Sumber Hidup" and "Tunas Mekar" farmer groups in Sigerongan Village responded very positively to the extension activities and demonstration plots. The farmers engaged seriously with every stage of the program and raised questions regarding intercropping, *baby corn* cultivation, and superior peanut seed. Intercropping *baby corn* with peanuts represented a novel practice for the farmers, offering a way to maximize the utility of limited land in Sigerongan Village. Producing *baby corn* from glutinous corn alongside the superior peanut line G300-II emerged as an optimal strategy for increasing yields and ensuring a supply of nutritious food for the community.

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References

Asadi D, Arsyad M, Zahara H, Darmijati, 1997. Soybean breeding for shade tolerance and intercropping. *Buletin Agrobio*. Vol. 1 (2):15-20

Hemon AF, Hemon T, Wahyuningsih E, Ujianto L, Sakti DPB., 2025. Shallot Agrotourism Based on Local Resources (Mulch and Organic Fertilizer) to Achieve Sustainable Agroecosystem in Sigerongan Village. *Unram Journal of Community Service*, 6(3), 529-535. <https://doi.org/10.29303/ujcs.v6i3.1163>

Hemon AF, Ujianto L, Yakob UM, 2024. Application of Plant Growth-Promoting Rhizobacteria Technology to Increase Peanut Production Among Impoverished Farmers in the "Sumber Hidup" Farmer Group, Sigerongan Village. *Unram Journal of Community Service (UJCS)* Desember 2024, Volume 5 Issue 4, 358-363. <https://doi.org/10.29303/ujcs.v5i4.779>

Hemon, A.F., Aryana, I.G.P.M., Sutresna, I. W., dan Kisman, 2023. Optimizing Dryland Productivity Enhancement through Maize-Peanut Intercropping in Mbawi Village, Dompu Regency. *Unram Journal of Community Service*, 2023, 4(2), 45-51. <https://doi.org/10.29303/ujcs.v4i2.454>

Indraningsih, K.S., 2011. The Influence of Extension Services on Farmers' Decisions to Adopt Agricultural Technology Innovations. *Jurnal Agro Ekonomi* 29(1): 1-24.

- Kaiser C. & Ernst M., 2017. Baby corn. Center for Crop Diversification Corp Profile: University of Kentucky College of Agriculture, Food and Environment.
https://ccd.uky.edu/sites/default/files/2024-10/ccd-cp-086_baby-vegetables.pdf
- Kecamatan Lingsar Dalam Angka, 2024. BPS-Statistics of West Lombok Regency.
- Mardikanto, T. 1993. Agricultural Development Extension. (Second Printing). Sebelas Maret University Press. Surakarta.
- Martanegara, Achmad B.D. 1993. The Relationship Between the Effectiveness of Extension Methods and the Characteristics and Attitudes of Dairy Farmers Regarding Feeding Practices. Research Report. Faculty of Animal Science, University of Padjadjaran. Bandung.
- Nurchayati Y, Yuliana T, 2006. Growth of Baby Corn (*Zea mays* L.) Ears (Variety Pioneer-11) After Vermicompost Application. Jurnal Sains & Matematika (JSM) ISSN 0854-0675. 14 (4) : 175-181.
- Rodrigo VHL, Stirling CM, Teklehaimanot Z, Nugawela A. 2001. Intercropping with banana to improve fractional interception and radiation-use efficiency of immature rubber plantations. Field Crops Research. 69(3): 237-249.
- Rohimawati NS, Santoso, BB, Nikmatullah A., 2025. Growth and Yield of Baby Corn at Various Dosages of NPK Fertilizer and Cattle Manure Compost. Jurnal Ilmiah Mahasiswa Agrokomplek, 4 (2): 519-528. DOI: <https://doi.org/10.29303/jima.v4i2.7620>
- Roy S, Singh V, Singh S and Singh AC, 2019. Effect of nitrogen and zinc levels on growth, yield and economics of baby corn (*Zea mays* L.). Journal of Pharmacognosy and Phytochemistry 8(4): 1577-1580.
<https://www.phytojournal.com/archives/2019/vol8issue5/PartAD/8-4-541-690.pdf>
- Susilowati, SH. , Maulana, M., 2012. Farm Size and Farmer Welfare: The Existence of Small-Scale Farmers and the Urgency of Agrarian Reform Policy.
<https://media.neliti.com/media/publications/53965-ID-luas-lahan-usaha-tani-dan-kesejahteraan-p.pdf>
- Yuana, AS., 2021. Vulnerability of Small-Scale Farmers Following Agroforestry Changes (A Case Study on the Transition from Sugarcane to Sengon Farming). Jurnal Ekonomi Pertanian dan Agribisnis (JEPA) ISSN: 2614-4670 (p), ISSN: 2598-8174 (e) Volume 5, Nomor 2 (2021): 298-305
<https://doi.org/10.21776/ub.jepa.2021.005.02.02>