Jurnal Pengabdian Masyarakat Biologi dan Sains
https://newjournal.unindra.ac.id/index.php/jpmbio/
jpmbio.sains@gmail.com, jpmbio-sains@unindra.ac.id
e-ISSN 2828-6162
Vol. 4 No. 2 (December, 2025) p. 60-67
DOI: https://doi.org/10.30998/tt1h7d61

COMMUNITY SERVICE PROGRAM: TRAINING ON GRAPE CULTIVATION USING THE CIRCULAR TRELLIS METHOD IN PEKAYON, TANGERANG

Ahmad Jahrudin [1]✉, Shafa Noer[2], Iman Noor[1], Popi Purwanti[1], Andry Fitrian[1]

[1]Physics Education Study Program, FMIPA, Universitas Indraprasta PGRI, Jakarta, Indonesia
[2]Biology Education Study Program, FMIPA, Universitas Indraprasta PGRI, Jakarta, Indonesia

ARTICLE INFO
Submitted : 24-05-2025
Accepted : 20-11-2025
Published : 31-12-2025

Kata Kunci:
Anggur
Budidaya
Metode Rambat Lingkar

✉ Corresponding author:
Ahmadjahrudin30@gmail.com

Abstrak

Kegiatan pengabdian ini dilatarbelakangi dengan potensi kebermanfaatan budidaya tanaman anggur yang membawa dampak positif bagi masyarakat untuk memanfaatkan lahan yang tersedia di sekitar rumah. Beberapa masyarakat di Desa Pekayon sudah mencoba menanam anggur di rumah mereka, namun karena kurangnya pengetahuan, seringkali masyarakat mengalami gagal panen bahkan tanaman yang ditanam tidak tumbuh dengan maksimal. Kendala lain dalam penanaman anggur di masyarakat adalah mahalnya pupuk yang digunakan untuk merawat tanaman anggur juga kekhawatiran masyarakat tidak mempunyai lahan yang cukup karena perkarangan rumah yang sempit. Oleh karena itu penting dilakukan PKM pelatihan budidaya anggur. Metode yang digunakan dalam kegiatan PKM ini meliputi sosialisasi dan pelatihan praktek langsung. Dalam kegiatan ini dilakukan sosialisasi dan pelatihan tatacara penanaman dan perawatan tanaman anggur yang benar. Penanaman dilakukan menggunakan metode rambat lingkar sehingga bisa digunakan dalam pot berukuran sedang, tidak memerlukan halaman yang luas. Dalam kegiatan ini juga dilakukan sosialisasi pemanfaatan limbah dapur untuk pupuk organik sehingga tidak memerlukan pupuk yang mahal dalam perawatannya. Dari hasil PKM ini didapatkan presentasi kepercayaan diri peserta meningkat 85% dalam menanam dan merawat tanaman anggur.

Abstract

This activity is motivated by the potential benefits of grape cultivation which has a positive impact on the community to utilize the available land around the house. Some people in Pekayon Village have tried to grow grapes in their homes, but due to a lack of knowledge, they often experience crop failure and the plants do not grow optimally. Another obstacle in growing grapes in the community is the high cost of fertilizers used to treat grape plants as well as the concern that the community does not have enough land due to narrow house gardens. Therefore, it is important to conduct training on grape cultivation. The methods used include socialization and hands-on training. In this activity, socialization and training were carried out on the correct planting and maintenance procedures for grape vines. Planting is done using the ring vine method so that it can be used in medium-sized pots, not requiring a large yard. In this activity, socialization was also carried out on the use of kitchen waste for organic fertilizer so that it does not require expensive fertilizers in its maintenance. From the results of this PKM, the presentation of participants' confidence increased by 85% in planting and caring for grape plants.

Keywords: *Grape, Cultivation, Circular Trellis Method*

1. INTRODUCTION

Grapevines, in addition to producing edible fruit (Refnizuida et al., 2023), also serve an aesthetic function by enhancing the appearance of home gardens. This plant is relatively easy to care for and bears fruit readily. However, grape cultivation is still relatively uncommon. Many people believe that grapevines require a cool climate, are difficult to maintain, and rarely produce fruit. In fact, grapevines are well-suited for hot climates and can fruit easily, even without large yards (Syahputra et al., 2023). It is sufficient to grow them in pots or planter bags. Moreover, the use of technology can greatly enhance grapevine care (Rahman & Akbar, 2024).

Grapes contain a variety of bioactive compounds that have human health benefits, most notably polyphenols such as resveratrol, anthocyanins, flavonoids, and other phenols. These have neuroprotective, anti-inflammatory, antioxidant effects, and aid in the prevention of cardiovascular disease and cancer (Cruz et al., 2024).

Pekayon Village, located in Sukadiri District, is characterized by a relatively hot climate, which is highly suitable for grape cultivation. However, local residents often face challenges in growing grapevines due to the lack of access to accurate information. Crop failure is one of the main concerns when initiating grape cultivation. In addition, limited yard space and the high cost of chemical fertilizers are also significant barriers to successful cultivation in Pekayon Village.

The women of the Pekayon village community, organized under the Family Welfare Movement (PKK), are highly active in women's empowerment programs. Our target audience is the PKK women, most of whom are housewives. These women have access to household and kitchen waste, which can be used as fertilizer to support grapevine care. The utilization of kitchen waste as fertilizer not only supports food security and waste reduction but can also serve as a source of income (Lisnawati et al., 2024).

Therefore, the PKM team conducted a socialization and training program on grape cultivation using the circular trellis method. This method is easy to construct and does not require large land areas. It is also cost-effective. In addition to the training, this PKM activity includes mentoring on grapevine care, including steps from fertilization to fruiting. This community service initiative is expected to improve the skills of local residents and youth (Mahmudah et al., 2024). Furthermore, the acquired grape cultivation skills can be developed into a source of livelihood (Suharyanto et al., 2008).

2. METHODS

The methods employed in this Community Service Program included the following (Figure 1):

1. **Observation**
   Conducted to identify the problems faced by the community partners and to assess the environmental conditions and available facilities at the PKM implementation site.
2. **Interviews**
   Used to explore partner-related issues and uncover potential resources or opportunities within the community.
3. **Documentation**
   Served to record and support all PKM activities relevant to the problems addressed and the solutions provided.
4. **Outreach (Socialization)**

This stage involved the presentation of scientific information and materials on grape cultivation using the circular trellis method, as well as the production of liquid fertilizer from kitchen waste. The goal was to provide understanding, explanation, and training on planting procedures, media preparation, watering, and fertilization techniques.

5. **Training**
   Hands-on practice was conducted on how to plant grape seedlings and maintain them properly.
6. **Monitoring and Evaluation (Monev)**

Performed to assess the outcomes of the PKM activities, identify emerging challenges during implementation, and develop solutions. The evaluation results will also inform follow-up community service programs.

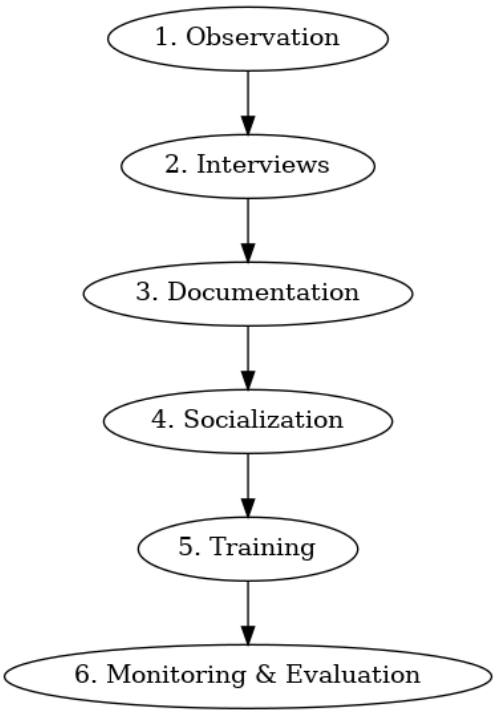

Figure 1. Activity Planning and Strategy Process

The socialization and training processes utilized the following methods:

1. **Lecture-Based Practical Method**

Selected to provide a clear understanding and explanation of the entire process from planting media preparation to fruiting programs through a combination of theory and hands-on practice.

2. **Question and Answer Method**

Designed to allow participants to deepen their understanding of the training materials by engaging in interactive discussion and inquiry.

3. **Online (Remote) Method**

In addition to in-person training, an online support system was provided, allowing participants to ask questions and seek guidance regarding grapevine care at any time.

3. RESULTS AND DISCUSSION

The community service activity in Pekayon Village was successfully held on December 14, 2024, at the Haruna Grape Garden, Pekayon Village. We selected the Haruna Grape Garden as the venue due to its well-equipped facilities that supported the implementation of the PKM (community service program) and the presence of mature, ready-to-harvest grapevines as live examples. This activity introduced an innovative approach to grape cultivation using the circular trellis method, and also showcased other methods with brief explanations.

During the session, we presented material on common problems faced by grape farmers in grape cultivation, which were identified through interviews. In addition, we emphasized the importance of selecting appropriate grape seed varieties (Pratiwi, 2023), and most importantly, the preparation of suitable growing media, which plays a crucial role and is considered a key factor in the success of grape cultivation (Setiawan et al., 2023). The types of growing media used for grape planting are shown in Table 1 below.

Table 1. Composition of Grape Growing Media

No	Materials	Mixing Ratio
1	Burnt Rice Husk	3
2	Raw Rice Husk	1
3	Compost Medium	1
4	Manure Fertilizer	1
5	Soil	1
6	Sand	½

Based on Table 1 above, the most crucial component of the growing media is burnt rice husk, which facilitates the adaptation of grapevine roots. This component helps create a highly porous medium; therefore, the use of a large amount of soil is not recommended. Additionally, sand is essential for maintaining the porosity of the growing medium, while compost and manure fertilizer serve to enrich the medium with nutrients necessary for healthy grapevine growth. A small amount of dolomite lime is also added to maintain the soil pH balance. This prevents the medium from becoming too acidic upon watering, which could otherwise lead to root rot.

In addition to growing media preparation, another important aspect of plant care is watering. Proper watering involves maintaining adequate moisture levels in the growing medium without making it overly damp. Watering once a day with a sufficient amount of water is considered adequate (Suparman & Athennia, 2019). It is also important to protect grape plants from direct rainwater exposure to avoid root rot and fungal infections on the leaves. The next step in plant care is fertilization. The types of fertilizers used in grapevine maintenance are shown in Table 2 below.

Table 2. Types of Fertilizers Used in Grape Cultivation

Fertilizer	Description	Dosage
NPK 16-16-16 and Saprodap (1:1 ratio)	Applied during the growth phase	1 tablespoon mixed with 5 dippers of water, applied once a week, for example every Thursday (for one potted plant, use 2 dippers of the solution)
MPK, KNO_3, Boron	Fruiting fertilizer	MPK (1 tablespoon), KNO_3 (1 tablespoon), and Boron (½ tablespoon) mixed with 5 dippers of water; applied once a week, for example on Thursday
Liquid Organic Fertilizer (LOF)	Growth and fruiting	1 dipper mixed with 5 dippers of water, then sprayed and poured on the plant; applied once a week, for example on Sunday.

Based on Table 2 above, there are three common fertilizers introduced in this study. For growth fertilizer, NPK 16-16-16 combined with Saprodap can be applied once a week, and it can also be alternated with Liquid Organic Fertilizer (LOF), for example, applying NPK on Thursdays and LOF on Sundays. Fruiting fertilizer is applied when the grapevine reaches an appropriate age, characterized by the stem turning brown or peeling like bark, and the older leaves appearing concave due to aging (usually at 5 to 7 months old). The fruiting fertilizer is applied four times, followed by a water stress treatment (no watering) for 7 to 10 days until the plant wilts (without causing death). After this period, the plants are watered thoroughly, and two days later, pruning (defoliation) can be carried out. The PKM activities can be seen in Figure 2.

Figure 2. Documentation of Grape Cultivation Training Activities

In addition to the material, participants also received one seedling, growth fertilizer for six months, fruiting fertilizer for one month, and liquid organic fertilizer for one month. Furthermore, we provided participants with ready-to-mix growing media and trellis media so they could apply grape cultivation at their own homes. This training was conducted both offline and supported by online assistance through a WhatsApp group and grape care tutorial videos that we created on the social media platform TikTok. The participants' enthusiasm was evident from their active engagement in asking questions and sharing photos of their practice results at home.

As part of this community service activity, we also distributed questionnaires to assess the participants' improvement in skills and self-confidence. Data were collected from 20 participants using a structured questionnaire administered after the training. Respondents were asked to rate their confidence and satisfaction levels on a scale of 0–100 and to provide their overall perception of the training (positive, neutral, very positive, or undecided). The data were analyzed using descriptive statistics, including the calculation of mean, standard deviation, minimum and maximum values, and the distribution of responses. This analysis aimed to provide an overview of how the training contributed to participants' improvement in confidence and satisfaction.

The results indicated that the average confidence level of participants after the training reached 89.23% (SD = 17.06), while the average satisfaction level was 85.38% (SD = 16.64) (Figure 3). The high median scores (≥90%) show that most participants perceived the training as effective and beneficial for improving their practical skills and self-assurance .

Figure 3. Average Confidence and Satisfaction Levels after Training

Based on the perception data, approximately 77% of participants expressed positive to very positive views about the training, while about 15% remained neutral and 7.7% were unsure (Figure 4). These findings suggest that the training successfully created an engaging and supportive learning atmosphere that was aligned with the participants' needs. The predominance of positive responses indicates that the training effectively enhanced cognitive (knowledge and understanding), affective (attitude and confidence), and psychomotor (practical skills) aspects of participants' learning experience.

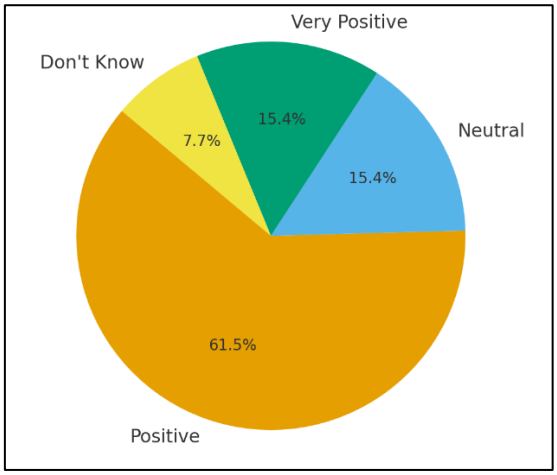

Figure 4. Participant's Perception of the Training

The community service (PKM) implemented in Pekayon village followed a structured approach, starting with observation and interviews to identify the challenges faced by local grape cultivators. These initial steps were crucial in tailoring interventions that addressed the specific needs and environmental conditions of the area. The training focused on practical grape cultivation techniques using the circular trellis method, which is cost-effective and suitable for limited spaces.

The provision of materials such as seedlings, fertilizers, and ready-to-use growing media empowered participants to apply learned techniques directly at home. The combination of offline training and online mentoring through WhatsApp groups and social media tutorials enhanced accessibility and ongoing support. This multi-modal approach

aligns with best practices in adult education and community empowerment, emphasizing the importance of participatory learning and sustained engagement (Fajri, 2020).

This change reflects a shift in local perceptions, countering misconceptions that grape farming is only feasible in cool climates and demonstrating adaptability to warmer conditions. Such empowerment contributes to sustainable agricultural development and potential income generation, echoing findings from related studies (Widiarta et al., 2025) . Overall, the community service initiative not only provided technical knowledge but also fostered social transformation by enhancing community capacity, promoting environmental awareness through organic fertilizer use, and encouraging innovation in small-scale farming practices. These results also confirm that the training program significantly improved participants' confidence, satisfaction, and practical skills, demonstrating the success of the community service activity. With average scores exceeding 85% and a strong dominance of positive perceptions, the program can be categorized as effective and impactful in building local community capacity in sustainable planting and environmental practices. These outcomes also provide a valuable foundation for replicating similar training programs in other communities with comparable contexts.

4. CONCLUSION AND RECOMMENDATIONS

In this activity, participants gained skills in planting and caring for grapevines. They also learned how to make liquid organic fertilizer from household waste. Overall, the participants responded positively, with an 85% increase in their confidence in cultivating grapes. Future recommendations include developing this foundation by incorporating participatory monitoring, integrating other relevant methods, and expanding the model to other regions.

ACKNOWLEDGMENT

We would like to express our gratitude to Universitas Indraprasta PGRI and the Institute for Research and Community Service (LRPM Unindra) for funding and facilitating this activity under contract number 1696/SP3M/KPM/LPPM/UNINDRA/XI/2024.

REFERENCES

Cruz, M. A. de A. S., Elias, M. de B., Calina, D., Sharif-Rad, J., & Teodoro, A. J. (2024). Insights into grape-derived health benefits: a comprehensive overview. *Food Production, Processing and Nutrition*, *6*(1). https://doi.org/10.1186/s43014-024-00267-z

Fajri, T. A. Al. (2020). Pentingnya Penggunaan Pendekataan Multimodal Dalam Belajar. *Gastronomía Ecuatoriana y Turismo Local.*, *1*(69), 5–24.

Lisnawati, A., Hidayah, W., Jamaluddin, Sardianti, A. L., Abidin, Z., & Bustomi, M. Y. (2024). Penggunaan limbah rumah tangga dalam mewujudkan kemandirian pangan lestari skala pekarangan pada kelompok dasawisma RT 32 Kelurahan Sempaja Timur. *Jurnal Budimas*, *6*(2), 1–10.

Mahmudah, N, Shofiyuddin, A., Ilmi, M. M., & Ningrum, I. K. (2024). Hilirization of Processed Seagrape Products to Improve The Economy of The Lamongan Community. *Dinamisia :*

Jurnal Pengabdian Kepada Masyarakat, *8*(2), 540–551. https://doi.org/10.31849/dinamisia.v8i2.16891

Pratiwi, A. O. C. (2023). Klasifikasi Jenis Anggur Berdasarkan Bentuk Daun Menggunakan Convolutional Neural Network Dan K-Nearest Neighbor. *Jurnal Ilmiah Teknik Informatika dan Komunikasi*, 3(2), 201-224.

Rahman, Y. A., & Akbar, M. B. (2024). Rancang Bangun Alat Pintar Menanam Tanaman Anggur Berbasis Internet of Things (IoT). *JID (Jurna l In Fo Digit)*, *2*(2), 709–721. https://kti.potensi-utama.org/index.php/JID/article/view/1364%0Ahttps://kti.potensi-utama.org/index.php/JID/article/download/1364/432

Refnizuida, Nizam, A. K., Friski, F. I., & Salim, N. (2023). Agribisnis Tanaman Anggur. In *Proceedings of the National Academy of Sciences* (Vol. 3, Issue 1). PENERBIT TAHTA MEDIA GROUP. https://tahtamedia.co.id/index.php/issj/article/view/391/389

Setiawan, A., Amrul, H. M. Z. N., & Siswanto, Y. (2023). *TEKNIK TANAMAN BUAH DALAM POT UNTUK BUDIDAYA TANAMAN ANGGUR (Vitis vinifera L.)* (pp. 1–50). Tahta Media Group.

Suharyanto, Parwati, I. A. P., & Rinaldi, J. (2008). Analisis Pemasaran Dan Tataniaga Anggur Di Bali. *SOCA: Socioeconomics of Agriculture and Agribusiness*, *8*(1), 1–16.

Suparman, R., & Athennia, A. (2019). Cemaran Bakteri Dan Residu Pestisida Pada Buah Anggur. *Jurnal Ilmiah Kesehatan*, *11*(2), 147–152. https://doi.org/10.37012/jik.v11i2.91

Syahputra, I., Amrul, H. M. Z. N., & Syahputra, B. S. A. (2023). *PERBANYAKAN TANAMAN ANGGUR (Vitis Vinifera) DENGAN CARA STEK BATANG*. Tahta Media Group.

Widiarta, I. P. G. D., Anindyasari, D., Qamara, C., & Aprylasari, D. (2025). Community Empowerment and Sustainable Economic Development in Karang Tunggal Village, East Kalimantan. *Jurnal Pelayanan Dan Pengabdian Masyarakat Indonesia*, *4*(1), 6–14. https://doi.org/https://doi.org/10.55606/jppmi.v4i1.1734