

Socialization of KOSJA Processing (Kompos Janjang Kosong) in Oil Palm Farmer Groups in Buatan Baru Village, Siak Regency, Riau Province

Sosialisasi Pengolahan KOSJA (Kompos Janjang Kosong) pada Kelompok Tani Kelapa Sawit di Desa Buatan Baru Kabupaten Siak Provinsi Riau

Agus Sutikno¹, Yelly Zamaya^{*2}, Vivin Jenika Putri³, Angga Pramana⁴, Anania Rahmah⁵,
Nur Hasnah AR⁶, Anthony Hamzah⁷

^{1,4,6,7}Faculty of Agriculture, University of Riau, Pekanbaru, Indonesia

²Faculty of Economics and Business, University of Riau, Pekanbaru, Indonesia

^{3,5}Faculty of Agriculture, Lancang Kuning University, Pekanbaru, Indonesia

*E-mail: agus.sutikno@lecturer.unri.ac.id¹, yelly.zamaya@lecturer.unri.ac.id², vivinjenika@unilak.ac.id³,
pramana.angga@lecturer.unri.ac.id⁴, ananiarahmah@unilak.ac.id⁵,
nurhasnah@lecturer.unri.ac.id⁶, anthony.hamzah@lecturer.unri.ac.id⁷

Abstract

As the area of oil palm plantations increases, the waste from oil palm empty fruit bunches also increases. By reducing the use of excessive chemicals, sustainable oil palm plantations can be achieved. One way to achieve this is by utilizing empty oil palm bunch waste into KOSJA (Kompos Janjang Kosong). This service aims to provide knowledge, understanding, and how to process empty oil palm bunches into KOSJA. This activity was carried out in Riau Province, Siak Regency, Kampung Buatan Baru, Kerinci Kanan District. The output achieved through this service is the increased understanding and knowledge of the community about the importance and benefits obtained from the utilization of empty palm bunch waste into KOSJA (Kompos Janjang Kosong).

Keywords: *Kompos Janjang Kosong (KOSJA), oil palm, socialization, agriculture*

Abstrak

Dengan bertambahnya luasan perkebunan kelapa sawit, limbah dari tandan kosong kelapa sawit juga semakin banyak. Dengan mengurangi penggunaan bahan kimia yang berlebihan, perkebunan kelapa sawit berkelanjutan dapat tercapai. Salah satu cara untuk mencapai hal tersebut adalah dengan memanfaatkan limbah tandan kelapa sawit kosong menjadi KOSJA (Kompos Janjang Kosong). Pengabdian ini bertujuan untuk memberikan pengetahuan, pemahaman, dan cara pengolahan tandan kelapa sawit kosong menjadi KOSJA. Kegiatan ini dilaksanakan di Provinsi Riau, Kabupaten Siak, Kampung Buatan Baru, Kecamatan Kerinci Kanan. Luaran yang dicapai melalui pengabdian ini adalah meningkatnya pemahaman dan pengetahuan masyarakat tentang penting dan manfaat yang diperoleh dari kegiatan pemanfaatan limbah tandan kosong menjadi KOSJA (Kompos Kosong Janjang).

Keywords: *Kompos Janjang Kosong (KOSJA), kelapa sawit, sosialisasi, pertanian*

1. INTRODUCTION

Demand for oil palm fruit increases sharply as demand increases Crude palm oil (CPO) of the world, as has happened in recent years, is mainly in line with the increasing demand for derivative industries and the development of bio energy as an alternative fuel. Expansion of oil palm land on marginal lands such as peatlands is an option in increasing oil palm production (Zamaya et al., 2021). With the increase in oil palm plantations, waste from empty palm bunches also increases. Along with the increase in palm oil production, palm oil also leaves a lot of waste. Waste is a material from the results of human activity processes that have no economic value, but have a negative impact on the environment (Paser, 2023).

The Mitra Usaha Marketing Cooperative is a cooperative that has 600 oil palm farmers, in accordance with Decree 1732/BH/XIII of the Ministry of Cooperatives and MSMEs with a plantation area of around 600 hectares. This cooperative is located in Kampung Arti Baru, Kerinci Kanan District, Siak Regency, Riau Province. This oil palm plant has been managed independently and has not cooperated with the previous company. To succeed the "SIAK HIJAU and RIAU HIJAU" program, it is necessary to carry out education and assistance to the farmers there, so that oil palm plantations can be sustainable, by reducing the excessive use of chemicals. One example is using waste or anything that can be used, including fertilization with KOSJA (Kompos Janjang Kosong).

Palm oil is one of the plantation commodities that has a fairly high economic value and is widely grown by people today. In line with the increasing production of palm oil, palm oil also leaves a lot of waste. Oil palm plantations produce solid waste in the form of empty baskets. Empty basket waste can reach 230 Kg of each ton of Fresh Fruit Bunches (FFB) in each processing that has a negative impact on the environment. Empty benches are often applied to oil palm plants as a mulch that is useful in reducing evaporation from the soil, and supplying organic fertilizer (Agung et al., 2019). The decomposition process in this way takes a long time to be completely decomposed within ten months after application. The length of the decomposition process poses a new problem because the pile of oil palm bunches becomes a habitat for horn beetles (*Oryctes rhinoceros* L.). Horn beetles are pests of oil palm plants, so this decomposition process has an impact on the high attack of horn beetle pests in oil palm plantations. An alternative solution to overcome these obstacles is to process empty janjang waste into KOSJA (Kompos Janjang Kosong) which has nutrient content to become organic fertilizer for oil palm plants.

Tandan Kosong Kelapa Sawit (TKKS) or oil palm empty bunches are one of the materials that can be used as organic fertilizers because they have a fairly high cellulose content, which is 57.04 percent. In addition, TKKS waste also contains nutrients such as Nitrogen (N) by 1.5 percent, Phosphorus (P) by 0.5 percent, Potassium (K) by 7.3 percent and Magnesium (mg) by 0.9 percent. The problem faced by partners is the lack of knowledge about making and processing empty janjang into compost. The sustainability activities of KOSJA production activities are having compost quality test data, increasing KOSJA productivity and issuing Quality Test Result Certificates. The quality of the resulting KOSJA refers to the quality standards of organic fertilizers in accordance with SNI 7763:2018. For this reason, this community service activity is carried out to provide understanding to the community/farmer groups on how to use empty baskets of oil palm into compost. According to Putri et al, (2023) fertilization is the initial phase of oil palm seedling because it can affect the quality and strength of oil palm plants, the compost produced during service can be used for the oil palm nursery fertilization process. In addition, compost derived from TKKS can also be used for ornamental plants and vegetable plants (Ningsih & Siswati, 2021).

2. METHOD

The method used in this activity is lectures and providing examples of direct practice to the target community. The implementation of this activity is divided into several stages:

1. The preparation stage, which is the preparation to conduct socialization about KOSJA
2. The socialization stage, namely providing counseling to the target community about the procedures for making KOSJA
3. The stage of giving examples of making KOSJA to the target community.

KOSJA production is carried out in a sustainable manner, using palm leaf waste, which mostly comes from farmer groups and communities as raw material. The production equipment

owned is in the form of a processing building measuring 4x6 meters, equipped with a fermentation tank, and 1 unit of fertilizer chopper.

3. RESULTS AND DISCUSSION

The service team carried out community service activities regarding the processing of Kompos Janjang Kosong (KOSJA) to the farmer group of the Buatan Baru Village Kerinci Kanan, Siak Regency, Riau Province. For farmer groups in Buatan Baru village, making compost with the main raw material of empty oil palm baskets, with the addition of *Taricoderma*, is very useful. This activity of making compost from empty oil palm baskets is very useful for farmers.

The follow-up activity that is expected after being given socialization and practice of making compost from empty oil palm with the addition of *Tharicoderma* in this farmer group is that the community can make KOSJA in groups with raw materials for empty baskets optimally and can prevent the transmission of *Ganoderma* disease which is very dangerous for oil palm plants (Okalia et al., 2018).

The benefits of compost from empty baskets or oil palm bunches, are:

1. Increased soil fertility because compost from oil palm bunches improves soil structure, increases water retention capacity, and increases soil nutrient content such as nitrogen, phosphorus, and potassium.
2. Reducing pollution by using empty bunches as compost helps reduce waste from the palm oil processing process, reducing the environmental impact caused by waste accumulation.
3. Increased soil biological activity, this is because this compost increases the activity of soil microorganisms that are important for plant health, facilitating the process of decomposition and nutrient cycling.
4. Reduction in the use of chemical fertilizers. By increasing soil fertility, compost can reduce the need for chemical fertilizers, which can reduce the risk of pollution and negative impacts on the environment.

Stages of making compost from oil palm blanks:

- a. Collection and preparation, which consists of collecting empty bunches of unused oil palm, and cutting the empty stems into small pieces to speed up the decomposition process.
- b. Mix with other materials, i.e. with other organic materials such as plant residues, palm fronds, or foliage to increase the diversity of organic matter and improve the carbon-nitrogen (C/N) ratio.
- c. Accumulation and aeration by making compost piles in the area that has been prepared. Make sure the stack has good air circulation by turning it over periodically to improve the decomposition process.
- d. Composting, by allowing the compost pile to decompose for some time, depends on conditions and additional materials. This process involves the activity of microorganisms that break down organic matter into humus.
- e. Monitoring and readiness, by regularly checking the temperature and humidity of the compost pile. Compost is ready to use when it has turned into a dark brown material, smells of earth, and has a smooth texture.



Figure 1. KOSJA Manufacturing Process Famplet

This Kompos Janjang Kosong (KOSJA) is used as an organic fertilizer to increase soil fertility and support plant growth, as a soil amendment that improves soil quality, aids in the rehabilitation of degraded land by improving soil structure and increasing nutrient content (Susanti et al., 2023). The use of oil palm Kompos Janjang Kosong not only improves productivity and soil health, but also supports sustainable farming practices and more efficient waste management (Setyaningsih *et al.*, 2017). In addition to being directly beneficial for plants and soil, the use of empty litter compost (KOSJA) also provides economic benefits for farmers, including:

1. Cost efficiency due to the reduction in the cost of chemical fertilizers. This oil palm empty bin compost can reduce dependence on expensive chemical fertilizers, thereby reducing agricultural input costs.
2. Waste utilization can reduce waste disposal costs and optimize the use of existing resources.

3. Increasing soil fertility can increase crop yields and productivity, potentially increasing farmers' income.
4. Branding for the marketing of quality products, because by improving soil quality and crop yields, farmers can market products with better quality, which can increase selling value.
5. Reduced maintenance costs, as healthier soils require less maintenance and input, reducing overall operational costs.
6. Support for sustainability, as the use of compost supports sustainable farming practices, which can open access to the market for organic or eco-friendly products at a premium.

By utilizing empty oil palm bunches as compost, farmers can optimize resources, reduce costs, and increase income and sustainability of their farming operations.



Figure 2. The Process of Making KOSJA by the Community Service and Service Team

4. CONCLUSION

The conclusions in the implementation of this service are:

1. The target community understands and maximizes the benefits of Kompos Janjang Kosong (KOSJA)
2. The target community knows how to make Kompos Janjang Kosong (KOSJA)
3. The target community is committed to continuing to process Kompos Janjang Kosong (KOSJA) because it can help farmers be protected from Ganoderma disease which will have the potential to attack oil palm plants

ACKNOWLEDGMENTS

The author would like to thank the Directorate General of Higher Education of the Ministry of Education and Culture of the Republic of Indonesia through the DRTPM Grant Community Service Funding for Fiscal Year 2024 which finances all of these service activities. Furthermore,

he would like to thank the Kampung Artificial Baru Oil Palm group, Siak Regency and KUD Mitra Usaha who are always active, enthusiastic and supportive in participating in this service activity.

BIBLIOGRAPHY

- Agung, A. K., Adiprasetyo, T. A., & Hermansyah, H. (2019). The use of oil palm empty bunch Kelapa Sawit Sebagai Substitusi Pupuk Npk Dalam Pembibitan Awal Kelapa Sawit. *Jurnal Ilmu-Ilmu Pertanian Indonesia*, 21(2), 75–81. <https://doi.org/10.31186/jipi.21.2.75-81>
- Ningsih, A.T.R., & Siswati, L. (2021). Pengolahan Sampah Rumah Tangga Menjadi Kompos di Kelurahan Labuh Baru Timur Pekanbaru. *DINAMISIA: Jurnal Pengabdian Kepada Masyarakat* 5.4
- Okalia, D., Nopsagiarti, T., & Ezward, C. (2018). Pengaruh Ukuran Cacahan Tandan Kosong Kelapa Sawit Terhadap Karakteristik Fisik Kompos Tritankos (Triko Tandan Kosong). *Jurnal Agroqua: Media Informasi Agronomi Dan Budidaya Perairan*, 16(2), 132. <https://doi.org/10.32663/ja.v16i2.523>
- Paser. (2023). JALUJUR: Jurnal Pengabdian Masyarakat Penyuluhan Pembuatan Pupuk Organik Limbah Tandan Kosong Kelapa Sawit (TKKS) di Sekolah Salamiyah. *Jurnal Pengabdian Masyarakat*, 2(2), 69–78. <https://doi.org/10.18592/jalujur.v2i2.11022>
- Putri, VJ., Rizal, M & Sari, VI. (2023). Interaksi Pemberian Limbah Cair Kelapa Sawit dan Pupuk Kiserit Terhadap Pertumbuhan Tanaman Kelapa Sawit (*Elaeis guineensis Jacq*) di Main Nursery. *Jurnal Agrotela*, 3 (1), 17-23
- Setyaningsih, E., Astuti, D.S., Astuti, R., Biologi, D.P., & Surakarta, U. M. (2017). Kompos Daun Solusi Kreatif Pengendalian Limbah. *J. Bioeksperimen*, 3(2), 45-51
- Susanti, W., Noratama Putri, R., Tendra, G., Daulay, S., Riko Kurniawan Putra, J., Matematika dan Ilmu Pengetahuan Alam, F., Studi Biologi, P., Riau, U., Bina Widya Km, K., Baru Pekanbaru, S., sistem informasi, P., Tinggi Teknologi Pekanbaru, S., Dirgantara Soekarno Hatta No, J., Marpoyan Damai, K., Pekanbaru, K., & Teknik Mesin, P. (2023). Pelatihan Pengelolaan Limbah Pelepah Sawit Menjadi Pupuk Kompos Dan Pakan Ternak Untuk Pemberdayaan Ekonomi Kepada Masyarakat. *GERVASI: Jurnal Pengabdian Kepada Masyarakat*, 7(3), 1192–1201.
- Zamaya, Y., Tampubolon, D., & Misdawita, M. (2021). Penentuan Penggunaan Lahan Gambut Untuk Peningkatan Ekonomi Masyarakat Di Kabupaten Indragiri Hulu. *Jurnal Planologi*, 18(2), 198. <https://doi.org/10.30659/jpsa.v18i2.15334>