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PROGRAM OF MAKING ORGANIC PESTICIDES ON THE MEUGAH RAYA WOMEN'S FARMER GROUP AND RASEUKI SEUMULA WOMEN'S FARMER GROUP IN UTARA ACEH

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ABSTRACT

Using pesticides is familiar to farmers, especially in North Aceh Regency. But the use of chemical pesticides continuously is not recommended because it have negative impacts such as increasing pest resistance, the emergence of new pests, killing the natural enemies/predators, buildup of chemical residues in crops and causing environmental pollution. Pesticides are chemical substances and other substances which use to control various pests. For farmers, the types of pests are mites, nuisance plants, plant diseases caused by fungi (fungi), bacteria, viruses, nematodes (worms that damage roots), snails, rats, birds and other animals that are considered harmful to the corps. The sustainable use of chemical pesticides will certainly damage the environment so that it can harm rural communities who generally work as farmers. The best solution is to produce organic pesticides independently with ingredients that are easily available in the surrounding environment. Therefore, State Universities in Sumatra collaborate with Corporate Social responsibility PT. Pupuk Iskandar Muda (CSR PT. PIM) as a partner of DUDI (Industrial Side) also contributed to solving this problem by implementing a training program for making organic pesticides for the women's farmer group Meugah Raya and the Raseuki Seumula farmer group in North Aceh.

Keywords: ***Farmers, Organic Pesticides, Woman's Farmer Group***

1. INTRODUCTION

There are various limiting factors in every cultivation process that result in suboptimal yields. This has been experienced by the Meugah Raya farmer women's group and the Raseuki Seumula farmer group which is a farmer assisted by PT CSR. PIM in North Aceh. The existence of plant-disturbing organisms (OPT) has become one of the main inhibiting factors that can reduce the quality and quantity of crop yields, especially in horticultural crops. Control of pests in horticultural crops using chemical pesticides could damage the environment. The use of chemical pesticides can pollute the soil and leave residues on cultivated plants.

Using pesticides is familiar to farmers, especially in North Aceh Regency. But the use of chemical pesticides continuously is not recommended because it have negative impacts such as increasing pest resistance, the emergence of new pests, killing the natural enemies/predators, buildup of chemical residues in crops and causing environmental pollution. Using chemical pesticides in long term can also interfere with human health due to the presence of carcinogenic chemicals. One of the effects of using pesticides is that it would reduce the level of immunity. In addition, it can also cause various other diseases such as cancer, Parkinson's and several other disorders (Poudel et al., 2020).

Pesticides are chemical substances and other substances which use to control various pests. For farmers, the types of pests are mites, nuisance plants, plant diseases caused by fungi (fungi), bacteria, and viruses, nematodes (worms that damage roots), snails, rats, birds and other animals that are considered harmful. Humans used a plant-based pesticides to eradicate pests, but since the discovery of dichlorodiphenyl trichloroethane (DDT) in 1939, the use of plant-based pesticides has been gradually abandoned so that humans have turned to chemical pesticides. Using chemical pesticides continously also would harm the environment such as causing the water pollution which has a wide impact, for example poisoning drinking water sources, poisoning animal food, imbalances in river and lake ecosystems, forest destruction due to acid rain, and so on (Kalkura et al. al., 2021).

Organic pesticides are pesticides made from plant materials. The ingredients are natural so they are safe to use. The residue left behind is also easier to remove so it is not harmful to humans or the environment. Several types of plants that are known to have potential as pesticides include soursop leaves, papaya leaves, and garlic. Organis pesticides can be made in a simple way so that they are easy to make and at a relatively cheaper price which is amount Rp. 25.000, rather than chemical pesticides which is amount Rp. 97.000 (Cronus)

Kardinan (2022) aslo stated that one of the plants that can be used as organic pesticides is soursop (Annona muricata, L). Soursop leaves and seeds can act as insecticides, larvicides, revellents (insect repellents), and antifeedants (food inhibitors) by working as contact poisons and stomach poisons. Soursop leaf extract can be used to treat grasshoppers and other pests. The active ingredients contained in soursop are unripe fruit, seeds, leaves and roots containing the chemical compound annonain which is toxic to insects.

The sustainable use of chemical pesticides will certainly damage the environment so that it can harm rural communities who generally work as farmers. Therefore, one solution is to produce organic pesticides independently with ingredients that are easily available in the surrounding environment. Therefore, State Universities in Sumatra collaborate with Corporate Social responsibility PT. Pupuk Iskandar Muda (CSR PT. PIM) as a partner of DUDI (Industrial World) also contributed to solving this problem by implementing a training program for making organic pesticides for the Meugah Raya women's farmer group and the Raseuki Seumula farmer group in North Aceh.

2. METHOD OF IMPLEMENTATION

This program is taken in Geulumpang Village, Sulu and Tambon Baroh Village, North Aceh Regency. The determination of this location is because these two have the villages under PT. PIM guidance as a DUDI stakeholder. In this service activity, it is hoped that academics can make a direct contribution to solve the problems in the assisted villages.

To determine the problems in the community, team held an in-depth discussions with the community. In this phase, the Community Service Team listens to community problems. The implementation method is designed in the form of mentoring, namely a participatory approach and refers to the adult learning process (adult-learning), which consists of: (1) Providing information related to the dangers of using chemical pesticides in a sustainable manner, (2) Providing information related to the process of making organic pesticides and ways its application, (3) The practice of applying organic pesticides to horticultural plants at the service location, and (4) Observing the impact of using organic pesticides on horticultural

plants at the service location. The training and practice of making organic pesticides to control pests and pathogens in horticultural crops will be held on July 10, 2022.

The participants in this program is amount 15 women farmers and 15 women farmers Raseuki Seumula. This service activity is expected to continue and be able to make a real contribution to the problems of female farmers assisted by PT. PIM. Women farmer groups are expected to play an active role in participating in this program to increase their capacity. The impact of the activity was measured using an evaluation instrument for the results of service activities in the form of a questionnaire with open-ended questions regarding the understanding of the training participants about the materials and practices presented in this training and observations of the use of organic pesticides on horticultural crops for 4 weeks of use. The expected impact of service activities are :

1. The increase in the knowledge of women farmers to produce organic pesticides that are environmentally friendly
2. The impact of using organic pesticides on reducing the number of pests and increasing environmental sustainability.

Observations is by looking at the level of pest attack on horticultural crops such as onions, kale, mustard greens, chilies and tomatoes (depending on what plants the farmer group is currently promoting). To find out the potential for insect repellent or natural pesticide insecticides, observations will be made on horticultural plants accompanied by the service team. Furthermore, the percentage of activity mortality/pest loss in 4 weeks will be calculated with the equation :

$$Q = \frac{M}{N} x100\%$$

Keterangan:

Q: Percentage of potential mortality/loss of insecticides to pesticides

M: Number of dead and missing pests

N: Number of pests before organic pesticides are applied

Furthermore, observations were made on the condition of the soil at the location of horticultural cultivation by taking into account the level of soil friability.

3. RESULTS AND DISCUSSION

This Program was arranged from July 10, 2022 by forming a collaboration team from higher education institutions and CSR PT. PIM as the DUDI party. The team leader is also the head of the Malikussaleh university's agricultural and biodiesel research center, namely Emmia Tambarta S.P, M.Si (Lecturer of the Agriculture Faculty of Malikussaleh University). Then the team members come from various universities in the Sumatran region, namely: Ir. Ramayana Tarigan (Technology Faculty of HTI Cut Mutia University), Fadli, S.P, M.Si (Fakultas Pertanian Universitas Malikussaleh), Dr.Ir. Romano, M.P (Agriculture Faculty of Syiah Kuala University), Coki Ahmad Syahwier, S.E, M.P (Economic Faculty of Sumatera Utara University) dan Nura, S.P, M.Si (Agriculture Faculty of Syiah Kuala University).

The service team consists of collaborations between universities in the Sumatran region with DUDI (CSR PT.PIM) which has expertise on how to make organic pesticides using organic materials. The following is the schedule of services that have been carried out from the beginning of the team preparation to the report preparation process.

Tabel 1. Jadwal Kegiatan

No	Kegiatan	Bulan					
		3	4	5	6	7	8
1	Preparation of TEAM implementing community service with DUDI partners (PT. PIM)						
2	Preparation of Pra-Activities (Print Letters, purchase of consumables)						
3	In-depth interviews with the community regarding service activities						
4	Training Program for making organic pesticides						
5	The process of observing the impact of organic pesticides on the environment						
6	Preparation and Submit Journal Articles						
7	Preparation of Activity Reports						

The service team started the service activity by explaining the dangers of using chemical pesticides in a sustainable manner. This is in accordance with the opinion of Hasanah (2021) which states that chemical pesticides can also poison humans through the mouth, skin, and breathing. Often unwittingly these toxic chemicals enter a person's body without causing sudden pain and causing chronic poisoning. A person suffering from chronic poisoning is discovered after a long lapse of time, after months or years. Chronic poisoning due to pesticides is currently the most feared, because the toxic effects can be carcinogenic (formation of cancer tissue in the body), mutagenic (genetic damage for future generations), and teratogenic. Therefore, the use of environmentally friendly botanical pesticides is recommended rather than the use of chemical pesticides (Hasanah & Sutrisno, 2021).

Picture 1. Academics Explain The Dangers Of Sustainable Use Of Chemical Pesticides On The Environment

Various types of plants that are known to have potential as pesticides include soursop leaves, papaya leaves, and garlic (Apriliyanto et al., 2017). This is in accordance with the research of Lebang et al. (2016) who proved soursop leaf extract at a concentration of 5% could suppress the pest with a mortality rate of 55%, while at concentrations of 15% and 20% it could suppress the mortality of stink bugs up to 65% and 83%, respectively. The higher the concentration, the greater the effect on pest mortality. This is similar to the research of Hartini and Yahdi (2015), the higher the concentration of soursop leaf extract, the higher the mortality rate of aphids (Myzus persicae) on chili plants, even at a concentration of 10% the mortality reaches 100%. Soursop leaves contain flavonoid compounds, saponins and steroids that are stomach poison at high concentrations, causing the death of pests.

Organic pesticides can be made in a simple way so that they are easy to make and at a relatively cheaper price, they are very useful for women farmers in the village where the service is located. In the second stage, the presenters from the CSR team of PT. PIM explained the ingredients to produce organic pesticides for tripping pests and aphids consisting of 100 soursop leaves, 3 tablespoons of soap, 3 liters of clean water. The method of making it is:

1. Wash soursop leaves until clean
2. Put it in the cauldron
3. Add 1.5 liters of clean water
4. Boil until boiling until the remaining approximately 1 liter of water
5. Turn off the stove and cool the ingredients
6. Strain the soursop leaves that have been boiled with a filter cloth
7. Enter the dab soap into the boiled water of soursop leaves and stir until evenly distributed

To apply organic pesticides in plants is by mixing a solution of soursop leaves with water 1:1 and spraying on plants in the morning or evening. This activity is carried out 2 times a week so that pests do not come again. Furthermore, organic pesticides for Trip, caterpillar and aphid pests use 3 pieces of papaya leaves, 10 soursop leaves, 5 cloves of garlic, 2 liters of clean water, 3 tablespoons of soap/dishwashing soap. How to make it as follows:

1. Chop the papaya leaves, soursop leaves and garlic
2. Mash until smooth or in a blender
3. Filter the results of the collision / blender with a filter cloth
4. Put it in a bucket and mix it with 2 liters of clean water
5. Store in a safe place for 24 hours.
6. Mix the stored solution with 3 tablespoons of dab soap/dish soap

To apply organic pesticides in plants is by mixing the solution with 1:5 water (1 liter of solution and 5 liters of water) and spray on plants in the morning or evening. This activity is carried out 2 times a week so that pests do not interfere with cultivated plants. The presenters also taught how to make organic pesticides to deal with aphids, caterpillars, and insects with 100 grams of garlic, 250 grams of lemongrass, 100 grams of tobacco, 2 liters of clean water, 4 tablespoons of dab soap/dishwashing soap. The method of making it is as follows:

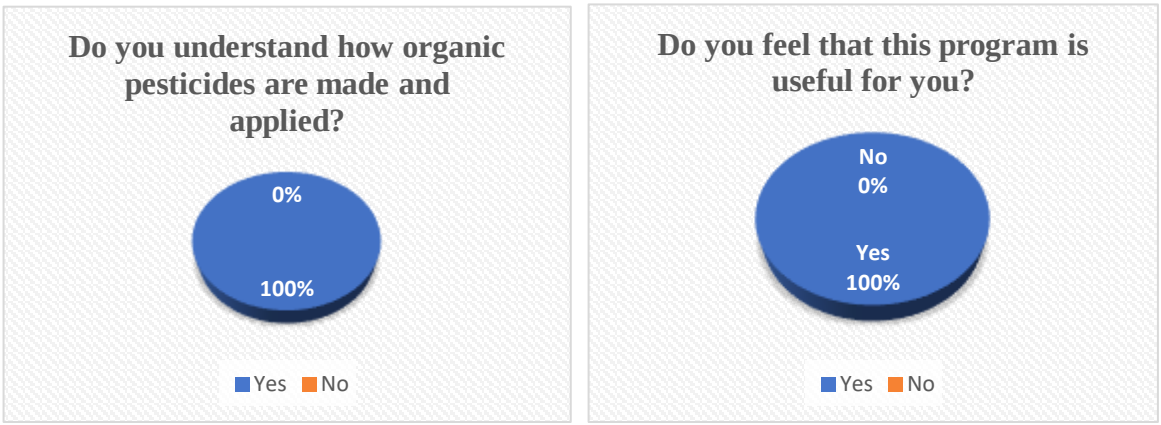
1. Chop the garlic and lemongrass into small pieces (for easy blending)

2. Finely chop the tobacco
3. Put the ingredients in a blender and add 500 ml of water
4. Strain the mixture of ingredients that have been blended with a filter cloth and store for 24 hours.
5. Mix the stored solution with 2 liters of water
6. Enter the dab soap / dish soap into the solution and stir until blended

To apply organic pesticides in plants is by mixing the solution with 1:10 water (1 liter of solution and 10 liters of water) and spray on plants in the morning or evening. This activity is carried out 2 times a week so that pests do not like the cultivated plants.

Picture 2. Speakers from PIM Explain How to Make Organic Pesticides to Women Farmers at Service Locations

The impact of the training activities was measured by: (1) an instrument for evaluating the results of service activities in the form of a questionnaire with open-ended questions regarding the understanding of the training participants about the materials and practices presented in this training, and (2) the results of observing the application of organic pesticides to horticultural crops for 4 weeks. The impact of service activities can be seen in the following questionnaire results :



Picture 3. The Answers To Questionnaire On The Impact Of Community Service

The results of the questionnaire show that there is an increase in the knowledge of female farmers to produce organic pesticides that are environmentally friendly. Women farmers think that this training will be very useful for them. Besides being able to save on the cost of buying expensive chemical pesticides, they can also take advantage of materials that are easily available in the environment around their homes. The next impact is the results obtained from observing the use of environmentally friendly organic pesticides on reducing the number of pests on horticultural crops.

Ir. Ramayana, M.Si from the Faculty of Chemical Engineering, Cut Mutia University, explained that natural pesticide products that were processed using a mixture of soursop leaves, papaya leaves, garlic and lemongrass had been investigated for their content in the chemical laboratory by HTI Medan students in their eyes. organic chemistry course. The results prove that this natural pesticide contains phenolic (+++), alkaloids (++++) and saponins (+). The content of alkaloids and phenolic organic pesticides can protect plants from pests such as ants, caterpillars, small insects and fertilize the soil because it contains high nitrogen (N) nutrients. Making organic pesticides from organic waste can reduce the negative impact of chemical pesticides on the surrounding environment. The advantages of this innovation are that it is easy to produce, efficient, has no side effects and is environmentally friendly because it does not use chemicals.

Picture 4. The process of applying organic pesticides with Women Farmers at Service Locations

The process of applying organic pesticides is to mix 1 liter of biological pesticide from soursop leaves with 10 liters of clean water, then spray it on plants that are attacked by

pests. Spraying time is carried out in the afternoon. The use of organic pesticides is done regularly once a week. Then observations were made on the sprayed horticultural plants. The results of the observations can be seen in the following table :

Weeks	Q
1	20%
2	28%
3	33%
4	42%

The results showed an increase in the percentage of mortality/loss of pests due to the application of organic pesticides from soursop leaves, papaya leaves, garlic and soursop. Meanwhile, soil fertility was observed with the level of soil friability by comparing the soil conditions before organic pesticides were applied with the soil conditions in the last week of observation. The condition of the soil before the application of organic pesticides looks lumpy because chemical pesticides have been applied which can damage the soil/environmental conditions in the previous period. After applying organic pesticides for 4 weeks, there was a change in the level of soil friability. Soil becomes easier to break down even if you only use your hands. This indicates an increase in soil fertility after the application of organic pesticides.

4. CONCLUSION

This program was arranged starting from July 15, 2022 by forming a service collaboration team from higher education institutions and PT PIM as the DUDI party. The team leader is also the head of the Malikussaleh university's agricultural and biodiesel research center, Emmia Tambarta S.P, M.Si (Lecturer of the Faculty of Agriculture). There are 4 service members consisting of collaborations between universities in the Sumatran region and DUDI (PT.PIM) who have expertise on how to make organic pesticides using organic materials. In the first stage, the service team started service activities by explaining the dangers of using chemical pesticides in a sustainable manner. Then the speaker from PT. PIM explained the ingredients to produce organic pesticides from soursop leaves, papaya leaves, and garlic. The higher the concentration, the greater the effect on pest mortality. Organic pesticides can be made in a simple way so that they are easy to make and at a relatively cheaper price amount Rp. 25.000, they are very useful for women farmers in the village where the service is located. This service activity is expected to continue and can make a real contribution to the problems of women farmers. The impact of this activity according to the results of the questionnaire is an increase in the knowledge of women farmers to produce organic pesticides that are environmentally friendly.

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5. ACKNOELEDGMENT

Acknowledgments is for Corporate Social responsibility of PT. Pupuk Iskandar Muda (CSR PT. PIM) as a DUDI partner who provides opportunities for the team to provide knowledge and assistance to the community. It is hoped that the service team will continue to be able to carry out community service activities like this to channel innovation and new knowledge that can be utilized by female farmers.

REFERENCES

Apriliyanto, E. (2017). Santri Empowerment Through Training on Making Organic pesticides Santri Empowerment Toward Training Development Of Botanical Pesticides 1). Jppm Lpip Ump, 1(2), 53–61.

Bustani, B., Khaddafi, M. ., & Nur Ilham, R. (2022). Regional Financial Management System of Regency/City Regional Original Income In Aceh Province Period Year 2016-2020. *International Journal of Educational Review, Law And Social Sciences (IJERLAS)*, *2*(3), 459–468. https://doi.org/10.54443/ijerlas.v2i3.277

Cardinan, Agus. 2002. Vegetable Pesticide Herbs and Applications. Jakarta: Self-Help Spreader.

Falahuddin, F., Fuadi, . F., Munandar, M., Juanda, R. ., & Nur Ilham, R. . (2022). Increasing Business Supporting Capacity In Msmes Business Group Tempe Bungong Nanggroe Kerupuk In Syamtalira Aron District, Utara Aceh Regency. *Irpitage Journal*, *2*(2), 65–68. https://doi.org/10.54443/irpitage.v2i2.313

Geovani, I. ., Nurkhotijah, S. ., Kurniawan, H. ., Milanie, F., & Nur Ilham, R. . (2021). Juridical Analysis of Victims of The Economic Exploitation of Children Under The Age to Realize Legal Protection From Human Rights Aspects: Research Study At The Office of Social and Community Empowerment In Batam City. *International Journal of Educational Review, Law And Social Sciences (IJERLAS)*, *1*(1), 45–52. https://doi.org/10.54443/ijerlas.v1i1.10

Hartini, F., Yahdi. (2015). Potency of Soursop Leaf Extract (Annona muricata L.) as Insecticide for Peach Aphid (Myzus persicae Sulz) on Cayenne Pepper (Capsicum frutescens) Leaves. BIOTA, 107-116.

Hasanah, U., & Sutrisno, A. (2021). Making Papaya Leaf Organic pesticides in Sumber Ketempah Village. Journal of Community Service, 2(1), 49–62.

Ilham, Rico Nur. *et all* (2019). Comparative of the Supply Chain and Block Chains to Increase the Country Revenues via Virtual Tax Transactions and Replacing Future of Money. International Journal of Suplly Management.Volume 8 No.5 August 2019.

Ilham, Rico Nur. *et all* (2019). Investigation of the Bitcoin Effects on the Country Revenues via Virtual Tax Transactions for Purchasing Management. International Journal of Suplly Management.Volume 8 No.6 December 2019.

Kalkura, P., B, P. R., N, S. K., Surya, & Ramyashree, M. (2021). Pest control management system using organic pesticides. *Global Transitions Proceedings*, *2*(2), 175–180.

Lasta Irawan, A. ., Briggs, D. ., Muhammad Azami, T. ., & Nurfaliza, N. (2021). The Effect of Position Promotion on Employee Satisfaction With Compensation As Intervening Variables: (Case Study on Harvesting Employees of PT. Karya Hevea Indonesia). International Journal of Social Science, Educational, Economics, Agriculture Research, and Technology (IJSET), 1(1), 11–20. https://doi.org/10.54443/ijset.v1i1.2.

Lebang, M.S., Dantje, T., Jimmy, R. (2016). The Effectiveness of Soursop Leaves (Anona muricata L) and Gamal Leaves (Gliricidia sepium) in Control of Walang Sangit (Leptocorisa acuta T) Pests on Rice Plants. Journal of Bioslogos, 6(2), 51-58

Likdanawati, likdanawati, Yanita, Y., Hamdiah, H., Nur Ilham, R., & Sinta, I. (2022). Effect of Organizational Commitment, Work Motivation And Leadership Style on Employee Performance of Pt. Aceh Distribus Indo Raya. International Journal of Social Science, Educational, Economics, Agriculture Research, and Technology (IJSET), 1(8), 377–382. https://doi.org/10.54443/ijset.v1i8.41

Majied Sumatrani Saragih, M. ., Hikmah Saragih, U. ., & Nur Ilham, R. . (2021). Relationship Between Motivation And Extrinsic Motivation to Icreasing Entrepreneurship Implementation From Spp Al-Falah Group At Blok 10 Village Dolok Masihul. *Morfai Journal*, *1*(1), 1–12. https://doi.org/10.54443/morfai.v1i1.11

Nur Ilham, R. ., Arliansyah, A., Juanda, R., Multazam, M. ., & Saifanur, A. . (2021). Relathionsip Between Money Velocity and Inflation To Increasing Stock Investment Return: Effective Strategic By Jakarta Automated Trading System Next Generation (Jats-Ng) Platform. *International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJEBAS)*, *1*(1), 87–92. https://doi.org/10.54443/ijebas.v1i1.27

Nur Ilham, R., Heikal, M. ., Khaddafi, M. ., F, F., Ichsan, I., F, F., Abbas, D. ., Fauzul Hakim Hasibuan, A. ., Munandar, M., & Chalirafi, C. (2021). Survey of Leading Commodities of Aceh Province As Academic Effort to Join and Build The Country. *Irpitage Journal*, *1*(1), 13–18. https://doi.org/10.54443/irpitage.v1i1.19

Nur ilham, R., Likdanawati, L., Hamdiah, H., Adnan, A., & Sinta, I. . (2022). Community Service Activities "Socialization Avoid Study Investment" to The Student Bond of Serdang Bedagai. *Irpitage Journal*, *2*(2), 61–64. https://doi.org/10.54443/irpitage.v2i2.312.

Poudel, S., Poudel, B., Acharya, B., & Poudel, P. (2020). Environment & Ecosystem Science (EES). *Environment & Ecosystem Science (EES)*, *4*(1), 47–51.

Rahmaniar, R., Subhan, S., Saharuddin, S., Nur Ilham, R. ., & Anwar, K. . (2022). The Influence of Entrepreneurship Aspects on The Success of The Chips Industry In Matang Glumpang Dua and Panton Labu. International Journal of Social Science, Educational, Economics, Agriculture Research, and Technology (IJSET), 1(7), 337–348. https://doi.org/10.54443/ijset.v1i7.36

Sandi, H. ., Afni Yunita, N. ., Heikal, M. ., Nur Ilham, R. ., & Sinta, I. . (2021). Relationship Between Budget Participation, Job Characteristics, Emotional Intelligence and Work Motivation As Mediator Variables to Strengthening User Power Performance: An Emperical Evidence From Indonesia Government. *Morfai Journal*, *1*(1), 36–48. https://doi.org/10.54443/morfai.v1i1.14

Sinta, I. ., Nur Ilham, R., Kumala Sari, D. ., M, M., Khaidir, K., & Ekamaida, E. (2021). Training The Processing of Tomato Sauce For A Home-Based Business The Scale of SMES. *Irpitage Journal*, *1*(1), 26–28. https://doi.org/10.54443/irpitage.v1i1.24

Sinurat, M. ., Heikal, M. ., Simanjuntak, A. ., Siahaan, R. ., & Nur Ilham, R. . (2021). Product Quality On Consumer Purchase Interest With Customer Satisfaction As A Variable Intervening In Black Online Store High Click Market: Case Study on Customers of the Tebing Tinggi Black Market Online Store. *Morfai Journal*, *1*(1), 13–21. https://doi.org/10.54443/morfai.v1i1.12

Yusuf Iis, E., Wahyuddin, W., Thoyib, A., Nur Ilham, R., & Sinta, I. (2022). The Effect of Career Development And Work Environment On Employee Performance With Work Motivation As Intervening Variable At The Office Of Agriculture And Livestock In Aceh. *International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJEBAS)*, *2*(2), 227–236. https://doi.org/10.54443/ijebas.v2i2.191.