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Efforts To Increase Agricultural Productivity and Marketing Through The Use Of Environmentally Friendly Products and Packaging Labelling in Pliken Village

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Abstract

Pliken Village is one of the villages in Kembaran Sub-district, Banyumas Regency, which is rich in agricultural potential. The majority of the community work as farmers, but many also work as soybean tempe artisans. Farmers have not realized the importance of environmentally friendly products in agricultural production due to a lack of knowledge of the good and sustainable impacts of environmentally friendly products. In addition, the large number of tempe craftsmen makes Pliken Village the center of soybean tempe production. The high potential of soybean tempe production must be balanced with the widespread marketing of Pliken Village soybean tempe products. One strategy in marketing is seen from product packaging. There is no product labeling on soybean tempe products in Pliken Village. Product labeling will make Pliken Village's tempe soybean famous. In an effort to make farmers aware of the good impact of environmentally friendly products and the importance of product labeling on soybean tempe, it is necessary to empower agricultural productivity by using environmentally friendly products and marketing strategies through labeling. The solution offered is to provide information related to the concept of environmentally friendly products and training in making environmentally friendly products, as well as the concept of marketing strategies with product labeling. The targets of this service are active farmer groups and soybean tempe craftsmen. The methods used are lectures/counseling, mentoring, and direct practice of making environmentally friendly products. Activities began with an environmentally friendly product workshop, then socialization of marketing strategies through product labeling.

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INTRODUCTION

Pliken Village is one of the villages in Kembaran Sub-district, Banyumas Regency, which is rich in agricultural potential. The people of Pliken Village also have a high interest in adopting innovations in the agricultural sector. This can be seen from the plans in developing the agricultural sector, one of which is the plan to make a joint Biosaka. The enthusiasm of the Pliken Village community is very high in following existing developments. Pliken Village has abundant natural resource potential, with an area of agricultural land (rice fields) of around 220 hectares. This is also supported by the existence of superior human resources, such as the existence of people who are members of farmer groups. There are 5 farmer groups that are members of the Farmer Group Association (GAPOKTAN) and one Women Farmer Group (KWT). The majority of people in Pliken Village work as farmers, but there are also people who work as tempe craftsmen. Indonesia is the largest soybean market in Asia and the largest tempe producer in the world. Half of the soybean consumption in Indonesia is tempe, 40% is tempe, and 10% is other products such as soy sauce, tauco, and others. In Indonesia, on average each person eats 0.304 kg of tempe and tempe every week, or about 6.45 kg per tempe (Karnadi, 2022). This shows that Indonesians are very fond of tempe.

The majority of farmers in Pliken Village are rice farmers. The inputs used by Pliken Village farmers in the production process are the use of chemical fertilizers and pesticides. More than 20 active farmer members in the farmer group use chemical fertilizers and pesticides. The use of chemical fertilizers and pesticides causes Pliken Village farmers to spend a lot of money, this is because the price of chemical fertilizers and pesticides is not cheap. The impact of their use on Pliken Village farmers on their agricultural land has also become harder. The use of chemical inputs such as chemical fertilizers and chemical pesticides will have a negative sustainable impact. Inorganic fertilizers and pesticides are more desirable to the community than organic fertilizers and pesticides. This is because their use is practical, easy to obtain, affordable, and the benefits can be immediately felt by farmers. However, the continuous use of chemical fertilizers does not provide good effects, instead it provides harmful effects such as decreased soil organic matter content, soil will be vulnerable to erosion, decreased soil

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permeability, decreased soil microbial population. The health risks caused by chemical pesticides are directly more dangerous than the use of other types of chemicals. Pesticides have indeed proven to be a boon for farmers and people all over the world by increasing agricultural yields and providing innumerable benefits to society indirectly. However, the hazards posed by pesticides to human health and the environment have raised concerns about pesticide safety (Rodrigues. E. T., Alpendurada, M. F., Ramos, F., & Pardal, 2018).

Efforts to minimize the adverse effects of the use of chemical fertilizers and pesticides are to optimize the use of chemical fertilizers and pesticides. Applying organic fertilizer involves more work than applying mineral fertilizers with precisely determined nutrient contents. Conversely, However, when appropriate consideration is given to the composition and choices about rates, time, and location, the fertilizing effect of organic addition to the soil can be increased (Schröder, 2005). Maintaining or increasing organic matter in the soil can reduce the negative effects of drought while increasing crop productivity (Yulianto, 2016). Organic fertilizers such as compost are able to maintain dryland productivity because organic matter affects soil available water capacity and field capacity water content, although it has no effect on permanent wilting point. In addition, organic fertilizers also improve soil physical properties such as soil content weight (Widjajanto, D., Rahman, A., & Zainuddin, 2021). Meanwhile, organic pesticides are medicinal ingredients to control pests and plant diseases made from natural ingredients (Astuti, W., & Widyastuti, 2016). When compared to chemical pesticides, organic pesticides are more environmentally friendly and safer for human health because they are made from natural ingredients. The materials used to make this organic pesticide can be taken from household waste, namely from the remains of food ingredients. By utilizing organic materials to be used as environmentally friendly products, it will be able to improve the quality of land/soil and can produce quality plants. In addition, with the potential of soybean commodities in Pliken Village, it is necessary to maximize marketing to improve the economy of the Pliken Village community.

The amount of soybean tempe production in Banyumas reaches 16 thousand tons in a year. The high consumption of tempe creates business opportunities for tempe producers (Prawioko, 2014). Pliken Village is the center of tempe production in Kabupaten Banyumas. Of the total production of 16,000 tons per year, more than a quarter is produced in this village. In Pliken Village, there are 500 tempe craftsmen. Every day, this tempe village consumes 13 tons of soybeans (Prawioko, 2014). Meanwhile, the monographic data of Pliken Village shows that the number of tempe craftsmen reaches 669. This shows that the number of tempe craftsmen is the largest activity in the economy of Pliken Village. Tempe craftsmen in Pliken Village process tempe into various products, such as tempe mendoan, tempe gembus, and tempe chips.

The high number of tempe craftsmen in Pliken Village must be balanced with the widespread marketing of tempe products in various regions. Marketing in Pliken Village has not been maximized, this can be seen from the consumers of these products which are only in Kembaran District. In addition, there is no differentiation from the packaging of tempe products in Pliken Village with tempe products in other villages. This makes the appearance of Pliken tempe products the same as the appearance of other village tempe products. Whereas with a little differentiation on the packaging of tempe products will be able to distinguish the tempe from other village tempe and can introduce Pliken Village tempe products so that product distribution will be more widespread. To be able to introduce Pliken tempe to the wider community, there is a need for labeling in product packaging. Food labelling and packaging are used to inform consumers about the product's characteristics, in accordance with legislation, and for marketing purposes" (Pulker et al., 2019). Nonetheless, the labelling and packaging are, in some cases, more useful in aiding consumers to identify healthier food rather than trying to influence them to buy these products (Ikonen et al., 2020). The labelling text and design condition the perceptions of the consumers about food goods and services and influence their choices (Grabenhorst et al., 2013). For example, compared to text, information expressed in numbers, figures, or symbols can have a greater impact on consumer preference and can produce a more significant compromise effect (Kim, 2017).

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METHODS

The methods used in this research are counseling (labelling and environmentally friendly products) and training (environmentally friendly products).

1. Counseling
   This outreach activity was carried out by providing an understanding regarding the importance of labeling tempe craftsmen's products so that the attractiveness of tempe products in Pliken village becomes wider, and also providing an understanding regarding the importance and manufacture of environmentally friendly products in the form of liquid organic fertilizer from rice washing waste, tobacco biopesticide, and Trichoderma. to farmers in Pliken village.

2. Training
   The training was carried out after the farmers attended the previous session and in this training activity the farmers were given the opportunity to practice how to make environmentally friendly products that had been explained in the extension session. This activity aims to enable farmers to make their own environmentally friendly products after this activity ends.

In each method session, an evaluation is carried out which aims to measure participants' activeness and understanding of the labeling material and environmentally friendly products provided during the activity.

RESULT AND DISCUSSION

Science and Technology for the Community (IBM) was held on Sunday, May 26, 2024, located at Pliken Village Hall, Kembaran District. IBM is divided into 2 (two) activities, namely Socialization and Workshop on Environmentally Friendly Products, as well as Labelling Socialization. The participants of this activity were farmers and tempe craftsmen in Pliken Village with a total of 20 participants. The majority of the participants were parents aged 30-65 years. The community service provided has succeeded in improving the ability of participants in the aspects of agricultural production and marketing. The stages in community service (IBM) are divided into 4 (four) parts, namely the first stage in the form of activity design, the second stage in the form of coordination with related parties, the third stage, namely during implementation in the form of socialization and discussion related to labelling, and the fourth stage in the form of socialization and workshop of environmentally friendly products. The following is a complete explanation of each stage:

1. Coordination with the Village
   After determining the activities to be carried out with the partners, the next step is to coordinate regarding permission to carry out activities. Coordination according to Handoko (10) is the process of integrating goals and activities in an organization that is useful for achieving organizational goals efficiently.



Figure 4.2 Coordination with Pliken Village

Coordination with the village was carried out at Village hall Pliken 2 months before the activity was carried out. In this second step, it went quite smoothly, the village was happy to accept the service activities. The discussion resulted in several things related to the number of targets, implementation time, and form of activities. The time for implementing activities also adjusts to empty time or no agenda from the village. The permit was approved directly by the Head of Pliken Village, Mr. Harjito, S.H, who strongly supports empowerment programs related to farmers and tempe craftsmen in his

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village. The Village Head also hopes that the farmer groups and tempe craftsmen can implement it. Plus the village also opens cooperation or programs as wide as possible to educational institutions including Muhammadiyah Purwokerto University in the Pliken Village area. The purpose of coordination with the Village so that activities can be licensed and the Village knows the activities to be carried out.

2. Counseling and Discussion on the importance of packaging labelling to Tempe Craftsmen
   The first session began at 11.00 am with socialization and discussion with 11 (eleven) tempe craftsmen. The labelling presentation was delivered by Aden Nuzuli Gita Alkhamdi as the labelling speaker. The speaker session was opened with light games from the speaker which was followed by the tempe craftsmen.



Figure 4.3 Labelling Socialization to tempe craftsmen

In this session, it was explained about the advantages of Pliken tempe products and their shortcomings, namely the absence of labelling. Then the importance of labeling and the types of labeling that can be applied were explained. Counseling does not only provide information, but also involves changing people's behavior so that they know, willing, and able to make changes to increase production, income/profits, and improved welfare (Budiarti et al., 2024). The session was highly interactive. The audience listened fully and actively asked questions about how to make packaging labels. The session ended with the distribution of sample packaging labels in the form of stickers that can be attached to tempe packaging plastic. (Mulyanti et al., 2022) : “Label is part of the packaging that contains information about the product, such as product name, brand, tagline, product description, usage instructions, nutritional information, expiration date, and others.” Therefore, packaging labeling is very important.

3. Counseling and Discussion related to environmentally friendly products to Farmers
   The second presentation session at 13.00 was about environmentally friendly products which was attended by 9 (Nine) Farmers. This session was delivered by the YSAB Community (Youth Sustainable Agriculture Banyumas) which consisted of 4 presenters. The session was opened with the socialization of environmentally friendly products including liquid organic fertilizer from rice washing waste, tobacco biopesticide, and trichoderma. The use of environmentally friendly products such as these organic fertilizers has great benefits in improving soil fertility and agricultural land productivity in the long run, while maintaining environmental balance (Kotler & Keller, 2016).



Figure 4. Socialization of environmentally friendly products to farmers

This socialization explained how to make and apply environmentally friendly products. The session was very interactive, with farmers actively asking questions and discussing with other farmers about the effectiveness of environmentally friendly products, the side effects of environmentally friendly products, and the costs incurred in making environmentally friendly products.

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4. Training on making environmentally friendly products with farmers
   After the session on environmentally friendly products, YSAB Community (Youth Sustainable Agriculture Banyumas) continued with the practice of making environmentally friendly products. Training is a process carried out with the aim of improving abilities, knowledge, and skills of a person/group (Budiarti et al., 2024). In the workshop of environmentally friendly products, the preparation of tools and materials that will be used in the practice of making products is carried out. Tools and materials provided by the Committee from HMPS Agribusiness include crock pots, rice, tobacco, stoves, gallons, buckets, and others.



Figure 4.5 Eco-friendly product workshop

The speaker gave a direct example of how to make environmentally friendly products, and was followed by farmers who directly participated in the practice of making environmentally friendly products including liquid organic fertilizer from rice washing waste, tobacco biopesticides, and trichoderma. In this session all farmers were active in making the products, such as participating in mashing shallots, galangal, and other ingredients. The environmentally friendly product session ended with the distribution of three (3) environmentally friendly products in the form of rice waste POC, tobacco biopesticide, and trichoderma that could be taken home and applied directly by the farmers.

Efforts to increase agricultural productivity and marketing through the use of environmentally friendly products and packaging labeling in Pliken Village, Kembaran District have achieved the planned targets, such as:

1. 90% of farmers are active in the process of making environmentally friendly products and are able to apply them.
2. 95% of tempe makers understand the importance of labeling and are interested in implementing it.

CONCLUSION

Efforts to increase agricultural productivity and marketing were successfully carried out through workshops on making environmentally friendly products and counseling on the importance of labeling in packaging. This service activity was attended by 20 participants from the committee and tempe craftsmen. The activity began with the socialization of the importance of labelling by Aden Nuzuli Gita Alkhamdi, this session ran interactively and at the end of the session the audience was given examples of labelling in the form of stickers. 95% of tempe craftsmen in Pliken Village were also able to understand the importance of labelling. The second session continued with the socialization and practice of making environmentally friendly products by YSAB Community (Youth For Sustainable Agriculture Banyumas) with the socialization of environmentally friendly products in the form of liquid organic fertilizer and rice washing waste, tobacco biopesticides, and trichoderma. The session was very interactive where farmers discussed and made environmentally friendly products together, and farmers were also given samples of environmentally friendly products to use. 90% of the farmers were able to make eco-friendly products such as fertilizers and biopesticides.

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