

# INNOVATION IN PROCESSING SPINACH (*Amaranthus, Sp*) PLANT INTO SPINACH JERKY TO INCREASE THE INCOME OF THE COMMUNITY

Dyah Erlina Sulistyningrum<sup>1</sup>, Tri Rahayuningsih<sup>2</sup>, Suryadi<sup>3</sup>, Fiko Aditya Saputra<sup>4</sup>

<sup>1</sup>Universitas Merdeka Malang, <sup>2</sup>Universitas Merdeka Malang, <sup>3</sup>Universitas Merdeka Malang, <sup>4</sup>PSDKU  
Ponorogo

e-mail: [1dyah.sulistyningrum@unmer.ac.id](mailto:dyah.sulistyningrum@unmer.ac.id), [2tri.rahayuningsih@unmer.ac.id](mailto:tri.rahayuningsih@unmer.ac.id), [3suryadi@unmer.ac.id](mailto:suryadi@unmer.ac.id),  
[4fikoaditias1707@gmail.com](mailto:fikoaditias1707@gmail.com)

\*Fiko Aditya Saputra

## ABSTRACT

This service aims to: (1) Provide new skills training regarding processing spinach (*Amaranthus Sp*) into spinach jerky to members of the TP PKK Bangunrejo Village, Sukorejo District, Ponorogo Regency. (2) Increasing TP PKK income through processing spinach (*Amaranthus Sp*) into spinach jerky in Bangunrejo Village, Sukorejo District, Ponorogo Regency. Our type of service is community service. One effort to increase TP PKK's income is by processing spinach (*Amaranthus Sp*) into snacks that have a higher selling value. Processing of spinach (*Amaranthus Sp*) is still limited to date. Villagers cultivate a lot of spinach plants, so the quantity of spinach is very abundant, especially in Bangunrejo village. The price of spinach is so cheap that it is not even marketable. Participants in this PKM activity are TP PKK in Bangunrejo Village, Sukorejo District, Ponorogo Regency. The activity carried out was by providing socialization on the benefits and how to make spinach jerky to TP PKK. Provide knowledge about tools for the process of making spinach jerky. Informing

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about how things work up to the packaging process until it is ready to be marketed. TP PKK in Bangunrejo Village is expected to be able to utilize spinach to make spinach jerky which has a higher selling value, so it is hoped that it can provide benefits in terms of economics and environmental preservation.

**Keywords:** *Community research, spinach, spinach jerky*

## I. Introduction

### Situation Analysis

Indonesia is an agricultural country, therefore the majority of its population works in the agricultural sector. Such extensive agricultural land supported by abundant natural resources is Indonesia's gift. The agricultural sector plays an important role in improving welfare and food security (Research Department of Agriculture, KP Banyumas, 2022). Agriculture can be broadly defined as the use of biological resources by planting productive plants that are useful for life. The narrow meaning of agriculture is the process of multiplying plants on large areas of land to meet human needs (Lingga, 2019). Globally, agriculture is a human activity in cultivating natural resources so that they can produce food, raw materials for industrial processes, energy sources, and manage the environment (Suryadi, 2023). There are several types of agriculture in Indonesia, namely wetland agriculture and dry land agriculture (Lingga, 2019). Wetland farming is agricultural activities using wetlands. The wetland referred to in this type of wetland agriculture refers to land whose land contour is a type of soil that is saturated with water. According to Maltby, (Maltby, 1986) wetland is one term for an ecosystem formed by the dominance of water, and its characteristics and processes are controlled by water. This means that the soil in the wetland has a high water content, and is even waterlogged all the time. Examples of wetland agriculture include rice fields (rice), peatlands, swamps and mangrove forests. Dry land farming is a type of farming carried out on land that lacks water. Meanwhile, dry land is land that tends to be dry and does not have a definite source of water, such as rivers, lakes or irrigation



canals. Dry land is defined as land that has never been flooded or inundated with water throughout the year or at all times. Examples of dry land agriculture include legumes, tubers, shade trees, fruit tree plantations, ornamental tree plantations, and also horticultural crops (Sulistyaningrum, 2024).

Dry land is often found in rural areas, so many horticultural plants are found. Horticulture can be defined as a method of cultivating plants carried out in gardens and home gardens. Horticultural plants have several types, such as floriculture, fruticulture, biopharmaceuticals and oleculture. Olericulture plants (vegetables) are a type of horticultural plant in the form of vegetable plants and are easily found in the environment near the house. Because vegetables are one type of plant that is generally processed by people to make food or side dishes (UMA, 2020). Olericultural horticulture plants (vegetables), especially spinach (*Amaranthus Sp*), are widely cultivated and consumed in rural areas.

Spinach (*Amaranthus Sp*) is a vegetable commodity that is well known to various levels of society in Indonesia. Along with the rate of population growth and meeting the need for nutritious food, spinach (*Amaranthus Sp*) is one of the vegetable commodities that can be relied on to fulfill the need for vitamins and minerals relatively easily and cheaply. Spinach plants (*Amaranthus Sp*), especially spinach seeds, are a very reliable source of vitamins and minerals. However, spinach (*Amaranthus Sp*), which has the prospect of being a reliable source of vitamins and minerals, has not been cultivated on a wide scale in Indonesia. Technical information regarding spinach (*Amaranthus Sp*) as a vegetable source of vitamins and minerals as well as opportunities for cultivating this plant as an additional source of income for farmers in Indonesia (Sahat, 1996).

Spinach (*Amaranthus Sp*) is a type of green vegetable that is widely grown and developed in Asia, including Indonesia. People from all walks of life can consume it. Apart from being delicious and refreshing, spinach (*Amaranthus Sp*) is also very rich in various vitamins and other nutrients. Get to know the benefits of spinach leaves and their refreshing nutrition. Spinach contains vitamins (A, B, C, K) and main minerals such as niacin, thiamin, phosphorus, riboflavin, sodium, potassium, magnesium, iron, folic acid, calcium, potassium, and sodium. Another compound found in spinach (*Amaranthus Sp*) is carotenoids. Because of its many



contents, spinach (*Amaranthus Sp*) has a multitude of benefits for body health (Hesti 2021).

Spinach (*Amaranthus Sp*), which has a multitude of health benefits, has made people process spinach into various dishes. (Sulistyaningrum, 2024). Spinach is one type of vegetable that can be prepared in various soup recipes such as clear or soup. The spinach recipe is considered the most practical to make at home with a delicious and appetizing taste. Spinach is a vegetable that is quite often used as a menu for local people (Kan Jabung, 2022). There are a number of spinach recipes that can be made, ranging from spinach salad, gado-gado, spinach chips or clear spinach (Nurul, 2021). On internet sites you can also find many recipes for dishes made from spinach. No less than twenty recipes were found on the brilio.net site, such as spinach bread balls, corn spinach soup, ground beef spinach and others (Lola, 2019). Spinach-based culinary businesses are starting to emerge by processing spinach into snacks.

In the business world, intense competition in the culinary business means that business people must be smart in making new breakthroughs and innovations in order to stay at the forefront in the culinary business (Murdiono, 2014). One of these innovations is the spinach jerky business. Spinach jerky is not yet widely available on the market. Dishes made from spinach (*Amaranthus Sp*) are assumed to have many fans because of the many ingredients and benefits they contain. Spinach (*Amaranthus Sp*) has a savory taste and crunchy texture. This can support the large number of buyers in outlets selling spinach jerky. This business can also be supported by the superiority of the raw materials which are rich in benefits for the health of the body.

### **Solutions and Targets**

With this training, it is hoped that we will be able to elevate and promote Indonesian (traditional) food to become popular food among the community. Another hope is to take advantage of and collaborate with existing spinach (*Amaranthus Sp*) cultivators/farmers. This spinach jerky business opportunity can be very promising, because the consumption culture and habit of eating or tasting snacks is popular with almost everyone, both adults and children. (Murdiono, 2014).



Based on observations we made in Bangunrejo Village, Sukorejo District, Ponorogo Regency, we have not found any use of spinach (*Amaranthus Sp*) to make spinach jerky. Therefore, we conducted research with the community so that we could educate members of the PKK Mobilization Team to learn together in processing snacks made from spinach (*Amaranthus Sp*) into spinach jerky. Based on this description, this community research can be entitled "Training on processing spinach plants (*Amaranthus Sp*) into spinach jerky to increase the income of TP PKK Bangunrejo Village, Sukorejo District, Ponorogo Regency".

### **Implementation Method**

The implementation of activities is carried out using four methods, namely:

#### Presentation And Questions And Answers

A presentation and question and answer regarding the processing of spinach into spinach jerky was given by the implementer to the participants, namely, members of the PKK Mobilization Team in Bangunrejo Village, Sukorejo District, Ponorogo Regency.

#### Practice

Practices are carried out jointly by TP PKK members with guidance from the implementer. The practice was carried out in one of the TP PKK members' homes in Bangunrejo Village, Sukorejo District, Ponorogo Regency.

#### Module

The use of the module in this training is intended to serve as reference material for participants to find out how to process spinach into spinach jerky snacks.

#### Evaluation Plan

In implementing this service program in the form of research, there are three criteria that serve as basic benchmarks for the achievement of training activities.

1. The benchmark for the success of implementing activities is carrying out activities according to the time and number of meetings that have been



- determined, so there needs to be good communication and cooperation between implementers and participants.
2. Measures of success for participants include: being able to apply or practice and know the methods used to process spinach (*Amaranthus Sp*) into spinach jerky snacks.
  3. Benchmarks for the success of the implementer include: being able to provide explanations and assistance that can help participants in practicing and knowing the methods used to process spinach (*Amaranthus Sp*) into spinach jerky snacks.

## II. Results and Discussion

### Results of Service

The implementation of community service program activities is divided into several stages, namely: The first stage is an explanation of the activities that will be carried out during the training and also an explanation of the practical material from the training on processing spinach (*Amaranthus Sp*) into snacks in the form of spinach jerky. The second stage is the practice of processing spinach (*Amaranthus Sp*) into spinach jerky snacks. The third stage is an evaluation of the plan and realization of processing spinach (*Amaranthus Sp*) into spinach jerky snacks.

### Implementation Stage

#### 1. Presentation

The organizer presented the benefits of spinach, the results of processing spinach and its selling value when it has been converted into snacks.



Figure .1 Presentation to TP PKK members

## 2. Selection of materials

At this stage, the aim is for the participants to know which spinach leaves can be used to make spinach jerky.



Figure 2. Material selection

## 3. Planning or design

Processing spinach (*Amaranthus Sp*) into spinach jerky snacks requires the following tools: mortar, knife, cutting board, dough board, wooden spatula, 1kg plastic, rubber/rafia rope, steamer and stove. The ingredients needed are spinach (*Amaranthus Sp*), water, eggs, tapioca flour, wheat flour, MSG (not necessary), shallots, garlic, coriander, table salt.

## 4. Material Processing

At this stage, it is intended that participants will be able to process spinach (*Amaranthus Sp*) to make spinach jerky by preparing the necessary tools and ingredients, slicing/chopping the spinach until smooth, grinding all the spices that have been prepared, mixing all the dough ingredients and spices in a bowl. dough, put the dough into plastic, steam until cooked and drain the cooked dough, wait for the dough to cook and slice it 1mm thick and dry in the sun.



Figure 3. Required tools and materials

### 5. Review



Figure 4. Results made by participants

### 6. Displays



Figure 5. Ready-made spinach jerky can be marketed

### 7. Closing

The final stage of this community service is the closing in the form of farewell to the implementing team and participating members of the TP PKK Bangunrejo Village, Sukorejo District, Ponorogo Regency.



Figure 6. Closing of activities

#### Activity Materials

#### Schedule of training activity meetings

##### 1. First Meeting

Activities - Introduction to implementing groups

- Introduction to the tools and materials that will be used
- Explanation of implementation methods
- Introduction to examples of work that will be created during the implementation of the service program

Objective - Introduce the implementing group

- Introduce the method of making spinach-based snacks
- Provide an introduction to equipment for making spinach jerky

##### 2. Second Meeting

Activity - Selection of materials to be used

- Explanation of snacks to be made from spinach
- Processing spinach into spinach jerky

Goal - The product that will be produced meets expectations

##### 3. Third Meeting

Activity - Measure product weight

- Packing before marketing

Objective - The resulting product has the same weight before being marketed

- The resulting product has a good appearance before being marketed

##### 4. Fourth Meeting - Sales

Activities - Selling spinach jerky both online and offline by entrusting goods to snack shops and forming a reseller network.

Objective - The resulting product has a wide marketing network

##### 5. Fifth Meeting

Activity - Give closing remarks and thanks to the participants

- Distribute mementos to the participants

Objective - PKM activities are always carried out with pleasure

The first day of implementation began with an introduction to the implementing team which included an explanation of the implementation method. Explanation of implementation procedures and introduction to the tools and materials needed to make spinach jerky to members of the TP PKK Bangunrejo Village, Sukorejo District, Ponorogo Regency.



Figure 7. First meeting with TP PKK members

The second meeting is the selection of materials to be used and processing. Explanation of spinach jerky which will be made from spinach (*Amaranthus Sp*), processing spinach (*Amaranthus Sp*) into spinach jerky with the aim of the product being produced as expected. The activities carried out at this meeting were: preparing the necessary tools and materials in the form of a mortar, mortar, knife, cutting board, dough machine, wooden spatula, 1kg plastic, rubber/rafia rope, steamer and stove. The ingredients needed are spinach (*Amaranthus Sp*), water, eggs, tapioca flour, wheat flour, MSG (not necessary), shallots, garlic, coriander, table salt. Next, slice/chop the spinach until smooth, grind all the spices that have been prepared, mix all the dough ingredients and seasonings in the dough box, put the mixture into plastic, steam until cooked and drain the mixture, wait for the dough to be cooked and slice thickly. 1mm, drying. Below we present a picture of the process:



Figure 8. Second meeting of material selection and processing

At the third meeting, the activity carried out was measuring the weight of the product with the aim of the resulting product having the same weight before being marketed. The product is weighed at 450 grams then packed. Then carry out packaging before marketing so that the resulting product has a good appearance before being marketed. The finished spinach jerky is then packaged in plastic clips (PP). Each plastic is sold for fifteen thousand rupiah. This is very different when compared with spinach that has not been

processed with the products produced because the price of unprocessed spinach is very low.

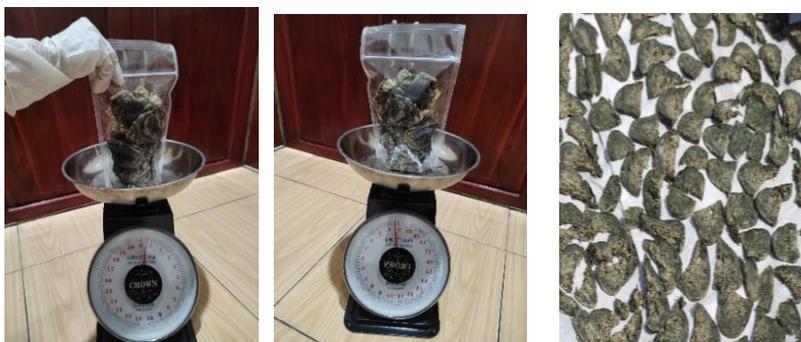


Figure 9. The third meeting measures the weight of the product and packaging  
 The fourth meeting is marketing or sales. Each product is sold for fifteen thousand rupiah. This is very different when compared with spinach (*Amaranthus Sp*) which has not been processed with the products produced because unprocessed spinach is only usually sold in traditional markets for vegetables (Lola Lolita, 2019). Spinach jerky sales are carried out offline and online. Offline sales by entrusting goods to snack shops/gift shops, forming a reseller network with the aim of producing products having a wide marketing network. Online sales via social media such as on FB and WA stories.

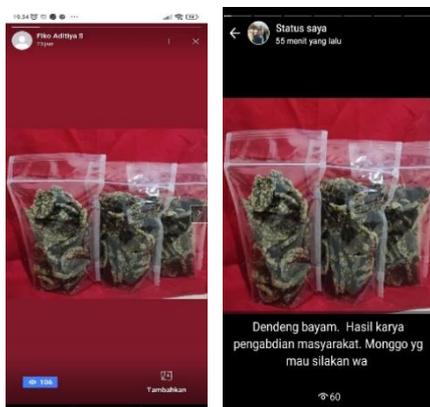


Figure 10. Online Promotion

The final activity was to provide closing remarks and thanks and distribute mementos to the participants.



## Figure 11. Closing of Activities

### Discussion

Community service program activities in the form of processing spinach (*Amaranthus Sp*) into spinach jerky snacks with activities in the form of training are relevant to the need to master the use of an abundant and unused ingredient in the form of spinach (*Amaranthus Sp*). In implementing this service program in the form of training, the aim is to increase participants' knowledge regarding the mastery and application of knowledge regarding food, namely the processing of ingredients to be applied into a product. Therefore, the target participants who are TP PKK members think that the community service program in the form of training in processing spinach (*Amaranthus Sp*) into spinach jerky snacks is considered to be able to help them increase their knowledge regarding the techniques and processes of processing spinach. (*Amaranthus Sp*) is a spinach jerky snack which has a higher selling value.

Based on the results of interviews between the implementation team and participants which included direct observations during the activity, the implementation of the community service activity program by the implementation team gave the following results: 1) from the implementation of the community service program increased knowledge regarding the techniques and processes of food processing light Spinach Jerky to be used as food that has selling value. Increased knowledge can be seen from the results in the form of spinach jerky products produced by participants. Apart from that, the increase in participants' knowledge can be seen from the participants' activeness in participating in the program from start to finish because in practice at each meeting, the implementation team provides different information in theoretical and practical terms which participants are directly required to follow. 2) Increased knowledge of participants regarding processing of materials, one of which is raw materials derived from spinach (*Amaranthus Sp*) as well as additional knowledge regarding the processing of products that use spinach (*Amaranthus Sp*). This is because the implementation method in the form of a case study in the use of spinach (*Amaranthus Sp*), can focus participants' knowledge regarding the process of selecting ingredients up to the level of processing spinach (*Amaranthus Sp*) into spinach jerky snacks that have sales value.

In implementing the community service program there are several factors that support the implementation of the activity, namely: 1) There is assistance provided by partners in providing facilities for the implementation location and participants who are members of the TP PKK movement to be directly involved in the implementation and success of this service program in the form of training . 2) There is interest and enthusiasm of

participants during the activity. This can be seen from the number of participants who did not experience a reduction as well as the participants' response in carrying out the practice. 3) There are no other activities that interfere with the ongoing community service program. This is because in the process, this program has asked for permission first from all elements of society where the program takes place.

In implementing this community service program there are several inhibiting factors, namely; 1) Because the training is carried out in the form of direct training, it is necessary to explain the practice at each meeting to the participants at each meeting. This is based on the knowledge of the participants who are new to the existence of a product processing method that uses spinach (*Amaranthus Sp*). 2) The time period is limited so there needs to be a clear division of time in this community service program.

### III. Conclusion

This community service program aims to provide training in new skills and knowledge to participants who are members of the PKK Mobilization Team in Bangunrejo Village, Sukorejo District, Ponorogo Regency regarding processing spinach (*Amaranthus Sp*) into spinach jerky snacks. The target to be achieved in this training is that participants are able to know and process the main ingredient in the form of spinach (*Amaranthus Sp*) into spinach jerky snacks. Equipment and supporting facilities, availability of space, participant involvement and support from the community are the main factors in successfully achieving the goals of this program. The results achieved were the participants' ability to process spinach (*Amaranthus Sp*) into spinach jerky snacks which produced economic value. It is hoped that with this activity participants will take part in protecting the surrounding environment by processing spinach (*Amaranthus Sp*) into spinach jerky snacks.

There needs to be socialization and promotion regarding this program, so that participants are not limited to one area of Bangunrejo Village, Sukorejo District, Ponorogo Regency. It is necessary to provide continuous assistance and monitoring to the participants so that this program can be continued periodically. It would be better if the program could be followed up through collaboration with other parties, so that we can find out the broader response to the processing of spinach (*Amaranthus Sp*) into spinach jerky snacks.



#### IV. Reference

- E-library Unikom. [UNIKOM Viery Hatami Pratama Bab II.pdf](https://elibrary.unikom.ac.id/id/eprint/5261/8/)  
<https://elibrary.unikom.ac.id/id/eprint/5261/8/>
- Fakultas Pertanian Universitas Medan Area. (2020). *Tanaman Hortikultura*.  
<https://pertanian.uma.ac.id/tanaman-hortikultura/>
- Hesti Nafa Andriyani. (2022). *8 Manfaat Bayam Untuk Kesehatan, Baik Untuk Mata Hingga Mencegah Anemia*. <https://www.portalrepublik.com/kuliner/pr-671485631/yuk-makan-sayuran-8-manfaat-bayam-untuk-kesehatan-baik-untuk-mata-hingga-mencegah-anemia>
- Lingga. (2019). *Jenis – Jenis Pertanian Berdasarkan Lahan Pertaniannya*.  
<https://usaharumahan.id/jenis-jenis-pertanian-berdasarkan-lahan-pertaniannya/>
- Lola Lolita. (2019). *20 Resep Olahan Bayam Yang Praktis, Unik Dan Menggugah Selera*.  
<https://www.briliofood.net/resep/20-resep-olahan-bayam-yang-praktis-unik-dan-menggugah-selera-190821h.html>
- Murdiono. (2014). *Program Kreativitas Mahasiswa Judul Program Usaha Jamur*.  
<https://www.studocu.com/id/document/universitas-muhammadiyah-jakarta/hukum-informatika/pkm-k-usaha-jamur-crispy-kriuk/21510174>
- Nurul Wahida. (2021). *9 Resep Sayur Bayam Enak dan Paling Praktis, Jadikan Menu Andalan di Rumah*. <https://plus.kapanlagi.com/9-resep-sayur-bayam-enak-dan-paling-praktis-jadikan-menu-andalan-keluarga-di-rumah-8517b3.html>
- Pindah Jateng. (2022). *Pertanian Berbasis Perlebaran*.  
<https://pindah.jatengprov.go.id/data/detail/685>
- Sudjoko Sahat dkk. (2022). *Sayuran Penyangga Petani Di Indonesia*.  
<http://repository.pertanian.go.id/handle/123456789/10059>
- Sulistyaningrum, 2023. Pelatihan Pembuatan kerajinan Limbah Kayu Gergaji untuk Meningkatkan Pendapatan Karang Taruna Desa .<https://jiip.stkipyapisdampu.ac.id/jiip/index.php/JIIP/article/view/1351>
- Sulistyaningrum, 2024. PELATIHAN PEMBUATAN NUGGET SUSU KAMBING ETAWA PADA KELOMPOK TERNAK BONTIL GRUP diunduh dari <https://journal.universitaspahlawan.ac.id/index.php/cdj/article/view/21673/15326>
- Sulistyaningrum, 2024. PELATIHAN PENGOLAHAN SAMPAH ORGANIK MENJADIE COENZYM UNTUK MENGURANGI PENCEMARAN LINGKUNGAN. <https://journal.universitaspahlawan.ac.id/index.php/cdj/article/view/16407/12569>
- Suryadi, 2023. Pemanfaatan Limbah Sekam Padi sebagai Media Tanam Hidroponik untuk Meningkatkan Pendapatan Petani. Diunduh dari <https://jiip.stkipyapisdampu.ac.id/jiip/index.php/JIIP/article/view/1620>



Kan Jabung, 2022. [Inilah Jenis-Jenis Lahan Pertanian di Indonesia.](https://www.kanjabung.com/inilah-jenis-jenis-lahan-pertanian-di-indonesia/)  
<https://www.kanjabung.com/inilah-jenis-jenis-lahan-pertanian-di-indonesia/>

