

## Assistance for Micro Businesses in Processing Rice Bran as Alternative Nutrition to Prevent Stunting

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### Abstract

Stunting is a condition that can interfere with the growth and development of children. There are several causes of stunting, including the lack of high nutritional intake by pregnant women. Rice bran is one of the processed rice wastes which has nutritional content and is very good for health, which can be used as an alternative nutritional basis for pregnant women. Until now, the use of rice bran as an alternative nutrient has not been optimally utilized by the people in Silo village. The purpose of this activity is to assist micro businesses in processing rice bran as an alternative nutrition to prevent stunting.

The method for carrying out this activity is assistance to partners in the "Azzahra" home industry group who are developing their business in the field of processing with bran-based ingredients. The technique of implementing this community service is assistance and demonstration of how to choose and store rice bran so that it remains of good quality. There are 6 housewives involved in bran processing. The result of the activity is an increase in partners' knowledge of 70% in selecting and storing rice bran as an alternative nutrition for prevention.

**Keywords:** Bekatul; mentoring; stunting

### Abstrak

Stunting merupakan suatu kondisi yang dapat menyebabkan gangguan pertumbuhan dan perkembangan bagi anak. Ada beberapa penyebab terjadinya stunting, diantaranya adalah kurangnya asupan nutrisi yang bergizi tinggi oleh ibu hamil. Bekatul merupakan salah satu limbah olahan padi memiliki kandungan gizi dan sangat baik untuk kesehatan, yang dapat digunakan sebagai bahan dasar nutrisi alternatif bagi ibu hamil. Sampai dengan saat ini pemanfaatan bekatul sebagai nutrisi alternatif masih belum optimal dimanfaatkan oleh masyarakat di desa Silo. Tujuan dari kegiatan ini adalah memberikan pendampingan usaha mikro dalam mengolah bekatul sebagai nutrisi alternatif untuk mencegah stunting..

Metode pelaksanaan kegiatan ini adalah pendampingan pada Mitra kelompok industri rumah tangga "Azzahra" yang mengembangkan usahanya dibidang olahan dengan bahan dasar bekatul. Metode pelaksanaan pengabdian masyarakat ini adalah pendampingan dan demonstrasi cara memilih dan menyimpan bekatul agar tetap berkualitas. Ada 6 ibu rumah tangga yang ikut terlibat dalam pengolahan bekatul.

Hasil dari kegiatan terjadinya peningkatan pengetahuan mitra sebanyak 70% dalam memilih dan menyimpan bekatul sebagai nutrisi alternative untuk mencegah.

**Kata Kunci:** Bekatul; pendampingan; stunting

## INTRODUCTION

Stunting is a major threat to human quality and a threat to the nation's competitiveness (Fentiana et al., 2022). Stunting is a chronic malnutrition problem caused by a lack of nutrition for a long time and can cause growth disorders in children (Ponum et al., 2020; Prendergast & Humphrey, 2014)percentage of prevalence of stunting among children under 5 years of age in Indonesia is 31.8 percent. This number has put Indonesia in 10th place in the stunting rate in the Southeast Asia region (Fentiana et al., 2022). Jember is one of the regencies in East Java that has been designated as a national food barn since 2021. Ranked 5th as a rice producer in East Java, Jember has the largest rice surplus in Indonesia. Even though Jember is designated as a national rice barn, it is inversely proportional to the nutritional status of its people. The results of the 2022 Indonesian Nutrition Status Survey (SSGI) released by the Ministry of Health stated that Jember Regency ranks first in East Java in the prevalence of stunting under five, reaching 34.9 percent or around 35,000 under five (Maliati, 2023). In 2021 the stunting rate in Jember Regency is 29.55%, higher than the normal limit of 20%, this condition may be due to a lack of public understanding of food processing and inappropriate nutritional consumption patterns (Dinas Kesehatan Kabupaten Jember, 2019; Maliati, 2023). Rice bran is a waste in the grain milling and rice milling process, usually, this part is not wanted in rice because, in addition to shortening the shelf life of rice due to the rancid odor it causes, it also worsens the appearance of rice because of its brownish color (Sapwarobol et al., 2021; Taurita et al., 2017). The nutrients contained in bran itself are very good for health, including dietary fiber, unsaturated fatty acids, sterols, protein, and minerals (Sharma et al., 2015; Susanto et al., 2017). In addition, rice bran is also a hypoallergenic food ingredient and a good source of dietary fiber (Issara & Rawdkuen, 2016). Rice bran as another product of rice processing can be an alternative source of nutrition that is safe for consumption (Sapwarobol et al., 2021; Sharma et al., 2015). Although rice bran is very abundant in Jember, its utilization is not optimal. This is a challenge in itself for the development of bran considering its health potential which is very promising as an alternative nutrition to prevent stunting. Partners' low knowledge of stunting prevention and utilizing rice bran as an alternative nutrition is the basis for this activity.

## GENERAL DESCRIPTION OF THE COMMUNITY, PROBLEMS, AND TARGET SOLUTIONS

### General description

Mitra is a home industry group with the name "Azzahra" which is developing its business in the field of processed food with rice bran as the main ingredient. The location is on Jalan Pertelon RT 01/RW 01, Silo Village, Silo District. This household industry produces various processed foods made from rice bran. Silo is a village located in the Jember district which has a superior program in the form of agriculture which is the potential of the Jember district. In general, the geographical location of Silo Village is in a flat and mountainous area which is a fertile plain. In terms of topography, Silo Village is located in the eastern part of the Jember district, which is a fertile area for the development of crops and plantations (Dinas Kesehatan Kabupaten Jember, 2019). To the existing economic potential, the economy in Silo Village still relies on the agricultural sector as the basis and driving wheel of the regional economy. Agriculture, as the leading sector, still has a dominant and strategic role in economic development, both for food providers, as well as increasing village and community income and employment, especially for hatchery partner farmers. However, the community still does not have a good understanding of

the processing of agricultural products. The people only know that the staple foods that can be consumed are rice and corn. This condition was utilized by the household industry group "Azzahra" to develop various preparations from rice milling waste, namely bran. Rice bran contains nutrients that are good for health, including dietary fiber, unsaturated fatty acids, sterols, protein, and minerals. In addition, rice bran is also a hypoallergenic food ingredient and a good source of dietary fiber. The nutritional content of rice bran is protein 13.11-17.19 percent, fat 2.52-5.05 percent, carbohydrates 67.58-72.74 percent, and crude fiber 2 370.91-387.3 calories and Rich in B vitamins, especially vitamin B1 (thiamin) (Sapwarobol et al., 2021). The very diverse nutritional content of rice bran can be an alternative source of nutrition for the community. A good storage process as a basic ingredient for alternative nutrition can maintain its nutritional content (Sharma et al., 2015; Taurita et al., 2017).

The low level of partner's knowledge about preventing stunting and using rice bran as an alternative nutrition is the basis for this activity.

### **Problem**

The current partner problem is the lack of public knowledge about the benefits and nutrients contained in rice bran, this causes business production to not be maximized. Partners do not understand how to choose quality rice bran and how to store it, so that the nutritional content is not damaged.

The low knowledge and skills of partners in choosing rice bran as an alternative nutrition causes the production of processed rice bran by Azzahra partners to be less than optimal

### **Target solution**

The solution in solving partner problems is assistance in processing rice bran as an alternative nutrition through counseling and training as well as coordinating the development of processed rice bran production and demonstrations on the selection and processing of quality rice bran, so that the productivity of partners in producing bran-based nutrition can be maximized. In addition, the impact of sustainable production can provide benefits to the surrounding community, and rice farmers/mills and become an alternative nutrient that is cheap and easy to process.

### **METHOD**

Coaching for Azzahra's partners in Silo village is carried out by coordinating partners' readiness and how to select and store rice bran so that it becomes the basic ingredient for quality processed cereals. The implementation of this activity was carried out with open discussions and interviews as well as demonstrations on how to store rice bran so that it is durable and not easily damaged. There were 4 people involved in this activity, with the implementation taking place at a partner production house in Silo Village.

### **RESULTS AND DISCUSS**

The willingness of partners to collaborate in the implementation of coaching so that the production of nutrition made from rice bran is of a higher quality and can improve the economy of the community around partners and farmers in Silo village.

The implementation of activities that have been carried out include:

#### **Preparation and licensing**

1. Coordination with the Implementation Team

A joint team from the Nursing and Agriculture study programs carried out activities for assistance to "Azzahra" partners. The team coordinates to prepare for the implementation of assistance. Some agreements from coordination are: Time of visit, Preparation of election demonstrations, and processing of rice bran

## 2. Coordination with Partners

To determine agreement on activity steps and involvement of partners and housewives working for partners. As well as determine the implementation time.

a. Implementation of coaching and demonstrations:

a) Direct coaching to "Azzahra" partner managers



Figure 1: Coaching and sharing about partner assistance

b. Demonstration of how to select, process and store rice bran so that it is not easily damaged. The steps are taken:

a) Choose bran with a smooth texture, which can be tested by soaking it in water. Usually, bran will be submerged not floating.

b) Assistance on how to process and store rice bran

Rice bran is processed into food-grade products that are of good quality and high industrial value when all components that cause damage are removed or their activity is prevented by inactivating lipolytic enzymes (Bhosale & Vijayalakshmi, 2015). Enzyme inactivation method that can be developed commercially is in the form of heat treatment of freshly ground rice bran. One of the heat stabilization procedures that partners have implemented is storage in a plastic container. This storage has the potential to shorten the shelf life of rice bran because the water content in the ingredients can easily increase depending on environmental conditions, and the enzymes contained in rice bran have not been inactivated so they will easily become rancid (Huang & Lai, 2016; Sharma et al., 2015). In this mentoring process, suggestions were given that the rice bran processing should be processed using microwave heating. Processing of bran using microwave heating is effective in inactivating the lipase enzyme which plays a role in forming rancidity in bran products.

c) Heating using a microwave for 3 minutes and storing in sealed packages at 4-5°C can extend the shelf life of rice bran for 8 weeks.

The bran storage process can maintain the nutritional quality in the bran. Processing into various alternative nutrients also risks reducing the nutritional content (Susanto et al., 2017). Continuous assistance is needed so that processed rice bran can provide good nutritional value for pregnant women. Partners are very enthusiastic about the coaching and mentoring program to help increase the production of alternative nutrition made from rice bran. Partners will try the bran processing and storage techniques that have been taught.

## CONCLUSIONS AND SUGGESTIONS

Assistance activities and demonstrations on the selection and storage of rice bran can increase partners' knowledge. In addition, this activity can provide insight into micro-enterprises in order to increase their production.

There must be support and participation from the local government for the continuation of this activity.

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