

## Dedication to the Community on Cultivation of Corn Plants in the Village of Taen Terong II Riung District of Ngada Regency

David J. Djawapatty<sup>1</sup>, Umbu N Limbu<sup>2</sup>, Antonia P. Bao<sup>3</sup>, Egydius Rembo<sup>4</sup>, Christianus Y. N. Bhae<sup>5</sup>, Anselmus R. Radja<sup>6</sup>

<sup>1,2,3,4,5,6</sup>Applied Biology Study Program, *Sekolah Tinggi Pertanian Flores Bajawa*, Jln Kapten Piere Tendean-Tanalodu-Bajawa-Flores-East Nusa Tenggara-Indonesia

**ABSTRACT:** The purpose of this project is to improve the productivity of the cultivation of corn crops in Taen Terong II village, Riung district, and Ngada district. By using the Student Creativity Program (PKM), it is done to identify the right cultivation techniques in accordance with the environmental conditions and local potential that exists in the village. Through a participatory approach, the village community will be involved in the activities of this PKM to ensure the sustainability of the implementation of the proposed cultivation techniques. The methods used include field surveys, interviews with farmers, direct observations of farmland, and data analysis. With this research, the community of Taen Terong II will be able to acquire new knowledge and skills in the cultivation of corn that can improve crop yields and farmers' well-being. In addition, the outcome of this PKM is also expected to be a benchmark for the parties involved in the development of agriculture in the region. Thus, this PKM program is expected to make a positive contribution to the development of the cultivation of corn crops in Taen Terong Village II, Riung District, and Ngada District. By involving the local community in this activity, it is expected that the implementation of the cultivation techniques proposed can be sustainable and provide long-term benefits for farmers and the surrounding region.

**Published Online:**  
**August 15, 2024**

**KEYWORDS:** Devotion\_to\_the\_community; Taen\_Terong\_II; Cultivation; Corn.

**Corresponding Author:**  
**David J. Djawapatty**

---

### INTRODUCTION

Changes in economic conditions, market demands for business efficiency, demand dynamics, and changes in preferences (gust) for nutritional information are challenges for product processing and marketing development. (Yanti et al., 2019).

The agricultural sector, as part of national development, plays an important role, as it is able to absorb the largest human resources or labor force and is a source of income for the majority of the Indonesian population in general. (Damayanti et al., 2012).

Maize is rich in carbohydrates and fiber, with a protein content of 8–12%; raw fiber of 0.8–2.5%; and 68–73% carbohydrates. (Ullah et al., 2010). Corn, according to Wulandari and Batoro (2016), has a lifespan of 70–210 days and is a tropical reservoir that is highly resistant to climate change. This *Zea mays* plant can reach a height of three meters. According to Belfield (2008), corn is the only plant that does not have separate male and female flowers.

Corn has a strategic role in the growth of our country's agriculture and economy. Corn can help the livestock feed industry, especially ungags. Increased corn production, along with larger-scale development, can boost farmers' income as well as local and national economies. (Haryati dan Permadi, 2015). It can be understood that the lives of most households depend on this sector (Anton and Marhawati, 2016).

The use of corn as a livestock feed is driven by its low price and high calorie content, as well as its complete protein and amino acid content. Corn is also preferred by cattle over other feed raw materials (Kasryno et al., 2008).

In the production of livestock feed, it takes 51% of the maize it takes for the feed of cattle (Hudoyo dan Nirmalasari, 2019). Increasing corn needs are sometimes inconsistent with corn production, so more attention is needed to corn grain.

Climate factors, soil fertility, use of superior seeds, rates of disease and pest attacks, as well as the use of pesticides and fertilizers, can contribute to increased soil productivity. (Andjani et al., 2010).

## David J. Djawapatty et al, Dedication to the Community on Cultivation of Corn Plants in the Village of Taen Terong II Riung District of Ngada Regency

The village of Taen Terong II is one of the villages in the Riung district and has an area of 14.1 km<sup>2</sup>. (BPS, 2023). The people in the village of Taen Terong II are mostly farmers, mostly producing corn. They grow local yellow maize both on dry land and in the meadow after the harvest. By 2023, the maize area in Taen Terong II Village had reached 100 hectares, with an average productivity of 4-5 tons/ha. This shows that the productive potential of the superior local maize varieties is still far from its potential. This is due to differences in the level of advancement of the cultivation technology used by farmers, including water management, the use of fertilizers, and the seed material and varieties planted. (Sebayang dkk., 2019).

To meet the needs of such corn crops, balanced fertilization can be used. Balanced fertilization is specific to a particular location and is based on the land status, plant needs, and target yields. (Balittanah, 2013).

An imbalanced method of fertilizing corn crops will reduce yields. Nitrogen deficiency in corn crops can reduce production by up to 30%. Phosphorus deficiency affects metabolism and growth, especially the formation of rodents and seeds. On the contrary, a deficiency of potassium can reduce corn yields by 10%. (Nurmegawati, 2014). Balitserial suggests fertilizing corn with 250 kilograms of urea per ha, 300 kilograms of NPK phonska, and 2 tons of cage fertilizer per ha. However, a specific fertilization site for the Taen Terong II village corn crops must be chosen to increase the corn yield.



**Figure 1. Maize Plantation Activities**

Indonesia has natural resources and a supportive agro-ecological environment; achieving a sustainable corn supply is an ideal condition. As demand for feed raw materials continues to increase, there is a considerable gap between corn demand and supply. (Panikkai et al., 2017).

One of the cultivation approaches known as integrated crop management (PTT) prioritizes the synergistic management of plants, land, water, and plant disruptors (OPTs). (Zubachtirodin dkk., 2016).

Maize farmers in Taen Terong II Village still need more knowledge about maize management if they want to increase their maize productivity, which is still well below the potential yield of the superior maize varieties planted.

Having large, dry land that can be used to grow corn still requires additional farmer skills and knowledge, especially in integrated farming techniques. Until now, land management for corn planting has been compensatory. Not many farmers are terracing when opening new land, so they fear erosion will damage the top layer of the soil.

Besides, farmers have not yet returned organic material to the soil after harvest. In accordance with maize cultivation standards, planting distance settings have been implemented. While the amount of fertilizer given is sometimes very low, causing high fertilization costs and worries about the about the negative impact on the soil,.

In order to address this problem, the servants, in collaboration with the farmers in the village of Taen Terong II, held a consultation on the management of integrated corn crops. The purpose of this consultation is to improve the knowledge, ability, and attitude of corn farmers on how to manage their corn farms according to the principles of integrated crop management.

## METHOD

Starting with the socialization of the program to the partner group, the next activity is the dissemination in the village of Taen Terong II District of Riung, which was attended by the members of the partner group. The whole village group welcomed the event. One of the things described in this socialization activity is the purpose of the ministry, the type of implementation, its stages, and how partners participate in its implementation. The group of partners followed this socialization and dissemination event and acted as a facilitator and source. The material provided in the cultivation activities is information about the methods of cultivation

## David J. Djawapatty et al, Dedication to the Community on Cultivation of Corn Plants in the Village of Taen Terong II Riung District of Ngada Regency

of corn crops that must be done by farmers. Special emphasis is placed on the use of plant spaces and fertilizer use, including dosage, timing, and how to use it on corn crops to boost growth and production.

The plot demonstration was carried out on the farmland of the partner farmers by planting with a planting distance of 70 x 25 cm and fertilizing using liquid organic fertilizer from Fruitful Bowuli Makmur (Nutrisi). Fruitful Bowuli Nutrition is processed with the raw materials of choice and is a source of organic material that contains both macro elements, including nitrogen (N), phosphorus (P), potassium (K), and C.H.O. The secondary elements include calcium (Ca), magnesium (Mg), and sulfur (S), and microelements include iron (Fe), manganese (Mg), zinc (Zn), copper (Cu), boron (B), molybdenum (Mo), and chlorine (Cl).

BSM nutrients in it are supplemented with soil microbes such as *Lactobacillus* sp. *Azotobakter*, *Rhizobium*, *Mikoriza*, and These nutrients are used as the basic fertilizer for plants because they contain complete nutrient elements. Dosage POC Nutrition 200 ml/tank, then spray on corn crops when the corn is 1, 2, 4, and 6 weeks old after planting. Maize crop maintenance, such as cultivation, planting, and irrigation of crops, is carried out by farmers with the accompaniment of students involved in this activity.

The demplot phase carried out by the dedication team together with the partner group suffered little impediment due to weather factors, but the partner group strongly expected such activities to remain sustainable in the village of Taen Terong II as they greatly benefit corn farmers by increasing crop growth. Students, as companions and leaders of partner groups, are tasked with regularly monitoring planting conditions.



Figure 2. Discussions with the Group of Partners

### RESULT AND DISCUSSION

In the Taen Terong II office hall in Riung West district, Ngada District, on Wednesday, December 20, 2023, a meeting was held on the management of integrated corn crops. Thirty representatives of maize farmers from the village of Taen Terong II were present at the ceremony. Discussions with the village coordinator, Taen Terong II, gave an overview of the current conditions of the corn industry and the potential for progress.

Before further discussing the components of integrated corn crop management, a discussion session was held with the participants in the examination. The aim of this discussion session is to find out whether the farmers have used the integrated corn crop management technology package or not. It's meant to compare rowing technology with field applications, which makes technology transfer easier.

One of the topics that was most interesting to the attendees was the discussion of the application of fertilizers because they had just learned that the improper application of fertilizer was one of the important factors that interfered with the growth rate of corn crops, which obviously had a significant impact on the outcome. In the cultivation of maize in the village of Taen Terong II, most of the participants who attended the ceremony said that they had not used organic material or composite fertilizer for their maize soil. They stated that the acquisition of organic fertilizers required more labor and costs.

The servant gave an overview of the benefits of using organic fertilizer to the participants, including that organic material improves soil fertility physically, chemically, and biologically and that its affliction can be used as a cover for planting holes. It is also explained that organic fertilizers can be made by using organic materials available to farmers, such as cage fertilizer, serasah, straw, and corn beetle.

The control of weeds is ideally done mechanically because of the following benefits: it is environmentally friendly, increases the amount of air in the soil, and stimulates root growth. In addition, the herbicide can be used mechanically with a capacity of 1-2 liters per hectare at a time when the plant is 30-35 HST.

In the first two months of growth, corn plants are highly susceptible to weeds, according to weed control. Farmers in the village of Taen Terong II generally use herbicides to eradicate weeds. They believe that this is more efficient in eradicating weeds and saving labor. The herbicide used has been widely available in farm stores with a variety of brands, and the way it works selectively kills weeds but does not kill corn, one of which is the active herbicide Atrazin (Mustajab dkk., 2014).

The results of the evaluation showed that the partner farmer group had a good understanding of the methods of cultivation of corn crops and had applied them in the field in accordance with what was taught in the cultivation activities. Similarly, post-

## David J. Djawapatty et al, Dedication to the Community on Cultivation of Corn Plants in the Village of Taen Terong II Riung District of Ngada Regency

harvest handling of corn has been done well to reduce the level of damage to the high harvest. The group of farmer partners responded very well to this dedication; they were enthusiastic and eager to follow the whole activity, from discovery to evaluation. The knowledge and skills of the partner group on the application of corn culture technology have been enhanced through this dedication activity.

### CONCLUSION

Maize cultivation in the village of Taen Terong II shows that the cultivation of maize has great potential for improving the well-being of local communities. Farmers in this village can significantly increase the productivity of corn crops by using appropriate scientific approaches and agricultural technology. With directed training and technical support, farmers can implement corn cultivation practices.

In addition, the cultivation of maize also has a positive impact on the economy of the village of Taen Terong II. Farmers can earn higher incomes, which helps reduce the poverty rate in the village. With more corn production, the village can also meet its own farm needs and potentially develop farms.

In addition to economic benefits, cultivating corn also benefits the environment. Maize cultivation activities in Taen Terong Village II can help maintain the balance of the ecosystem and mitigate its adverse impact by implementing environmentally friendly farming practices, such as the use of organic fertilizers and natural pest control techniques.

As a result, it can be concluded that the CMP cultivation of corn in the village of Taen Terong II has great potential for improving community prosperity, local economic growth, and environmental sustainability. In order to achieve optimal and sustainable results for the community of the village, the continuous development and implementation of corn cultivation activities require continuous support from various parties, both the government and related institutions.

### REFERENCES

1. Andjani, T. K., Koestiono, D., and Yushendra, I. (2010). Income Analysis and Labor Absorption of Farmers' Families. *Journal AGRISE* Volume X No. 1 of January 2010. Pages 65-77.
2. Anton, G. Mahartawi, 2016. The contribution of Usahatani Padi Sawah to the income of the family in the village of Ogoamas, North Sojol district of Donggala. *Journal e-J. Agrotekbis* 4 (1): 106–112.
3. Balittanah, 2013. Balanced Fertilization. <http://balittana.litbang.farm.go.id/pupuk/index.php/publikasi/102-comprehension-fertilisation-balanced>. Accessed February 8, 2021.
4. Belfield, S. (2008). *Field Crop Manual: A Guide to Upland Production in Cambodia Maize*. New South Wales: NSW Department of Primary Industries.
5. BPS (2023). *Ngada in numbers*.
6. Damayanti, Afifuddin, S. Rahmanta. 2013. Analysis of the Impact of Maize Commodities on Regional Development in Dairi District. *Economic Journal*, Vol. 16, No. 2, pp. 54–63.
7. Haryati, D., and Permadi, K. (2015). Implementation of Integrated Plant Management in Hybrid Corn (*Zea mays* L.). *Agrotop Journal*, 5 (1): 101–109 (2015).
8. Hudoyo, A., and Nirmalasari. (2019). Increased maize productivity in Indonesia. *Journal of Socioeconomics*, Volume 1, No. 2, Pages 102–108 (2019).
9. Mustajab, Dad, R., J., Sembodo, and Herawati. (2014). Effect of the Atrazin Herbicide on Common Grasses on Corn Growth Grounds (*Zea mays* L.). *Journal of Applied Agricultural Research*, Vol. 15 (1): 8–14.
10. Nurmegawati, Afrizon, and Sugandi, D. 2014. Study of the Fertility of People's Rubber Farming Land in Bengkulu Province.
11. Panikkai, S., Nurmalina, R., and Mulatsih, S. (2017). National Maize Availability Analysis Towards Swasembada Achievement with a Dynamic Model Approach. *Journal of Agricultural Informatics*, Vol. 26 No. 1, June 2017: 41–48.
12. Sebayang, V. Br., Sinaga, M., Harianto, I., and Kariyasa, K. (2017). The impact of the decline in U.S. corn production on the Indonesian corn industry. *Journal of Social and Agricultural Economics*, Vol. 13 (2), 64–86.
13. Wulandari, F., & Batoro, J. (2016). Etnobotani Maize (*Zea mays* L.) on a local farm in the village of Pandansari Prefecture, Poncokusumo district, Malang. *Journal of Biotropics*, 17–24.
14. Yanti, Y., Busniah, M., Syarif, Z., & Pasaribu, I.S. (2019). Increased Creativity of the Society through the Production of Palawija Plants in Nagari River Durian, Solok, West Sumatra. *Agrokreative*, 58-63.
15. Zubachtirodin, Saenong, S., Mappaganggang, S., Pabbage, Azrai, M., Setyorini, D., Kartaatmadja, S., and Kasim, F. (2016). Ministry of Agriculture, 11-2-6