

# Performance and Impact of Horticultural and Hydroponic Cultivation Training Program for Farmers in Blitar City, Indonesia

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**Abstract.** Training for farmers in agricultural sector is an important effort to improve farmers' skills. Entrepreneurs of vegetables, fruits, ornamental plants and hydroponics need to have an important role. The training helps business actors find social and economic benefits for superior agricultural products in Blitar City. The objectives of monitoring and evaluating agricultural training programs are 1) to identifying the problems of the training participants, 2) to monitor the performance of training programs for farmers, 3) to understand the impact and evaluating indicators of the success of the training. The data analysis model used includes Problem Analysis, Analysis of Program Implementation Success, Impact Analysis on the output of the training program, and Policy Analysis. This research activity explains that participants have an excellent level of need, preparation, and ability to overcome obstacles in general. The implementation of the training has a success rate that is categorized as good.

**Keywords:** training, performance, impact, farmers

## 1 Introduction

Business performance in agriculture is good, one of which is triggered by implementing various training activities in agriculture (James Ledo, 2021). Therefore, it is necessary to monitor and evaluate the results and impacts obtained by the training participants. In addition, monitoring and evaluation are needed to consider the sustainability of the program (Widiasih, 2015). The results of this monitoring and evaluation can be used as a basis for the Department of Food Security and Agriculture in planning a more effective training program policy direction and providing tangible benefits to the community in the future (Ahmad E Y, 2004).

It is very important to share training for business groups that carry out agricultural business (Yuko Nakano, 2018). Training for business actors engaged in agriculture such as vegetables, fruits, ornamental plants and hydroponics business actors must have an important role in providing information on potential agricultural products in Blitar City (Dinas Ketahanan Pangan dan Pertanian Kota Blitar. 2018). Information on possible agricultural products is still relatively

simple and has not been explained in detail (Ru Guo, 2021). Therefore, training is gathering information and oriented to how such knowledge and skills can be integrated with other potentials (Istriningsih, 2022).

The integration of knowledge and skills needs to emphasize the collaboration of commodity data and business actors, which is then directed at strengthening networks between business practices (Istriningsih, 2022). In principle, training can not only be used by academics for research but can also be used for the benefit of business actors in obtaining raw materials, bartering, and organizing business actors in each commodity so that institutional strengthening occurs (Jusuf Bintoro, 2012). Institutions contain elements of cooperation between parties, and the goal is to produce quality and superior products (Yuni Sugiarti, 2014).

The training helps business actors find social and economic benefits for superior agricultural products in Blitar City. Through the existing training, each business actor is directed towards sustainable benefits for the local community (Md Sadique Rahman, 2020). Blitar city has a variety of superior plant potentials that can be developed commercially. However, many developments of excellent crop commodities in Blitar City have not been carried out effectively and efficiently, profitably and sustainably (Akatiga, 2004). On the other hand, consumers of ornamental plant products, vegetables and fruits, especially the people of Blitar City, no more extended look at the quality of the product and the ease of accessing agricultural products, namely easy access and price (Dinas Ketahanan Pangan dan Pertanian Kota Blitar, 2018). Therefore, according to (Md. Najmol Hoque, 2022) before leading to the development of quality agricultural products, skills training is needed that presents cultivation techniques and agricultural product innovations along with other attributes in each production centre, industrial centre and trade centre to the people of Blitar City and the general public outside the City Blitar (Retno Sri, 2004).

The Department of Food Security and Agriculture of Blitar City, East Java Province, has carried out training activities in the Field of Food Crops and Horticulture in 2019. The success or failure of a program must be monitored and evaluated to assess the success of the program and the sustainability of the program (Widiasih, 2015). Therefore, the monitoring and evaluation program of training in agriculture is important for the improvement and sustainability of the program. The monitoring and evaluating agricultural training programs in Blitar City aims 1) to identify problems and obstacles faced by the training participants before participating in the training, 2) to monitor the implementation of the training results in the business activities of the training participants, to find out the conditions and developments of the trainees, 3) to evaluate the indicators of success in the implementation of the training by referring to the level of participation of the participants, the outputs obtained and the increase in the trainees' efforts, 4) to provide recommendations for follow-up of training participants in improving and developing businesses in agriculture.

## **2 Research Method**

This research was carried out in three stages. *First*, identifying problems from each group that has carried out training on cultivating vegetables, fruits, ornamental plants, mushrooms and hydroponics. *Second*, analyzing the findings of each training participant who has received training on the cultivation of vegetables, fruits, ornamental plants, mushrooms and hydroponics.

*Third*, provide recommendations to policymakers for the improvement and development of ongoing activities (Van den Ban, 1999).

This research uses two types of data, namely primary data and secondary data. Primary data is obtained and collected directly from respondents, and key informants in the field through direct interviews based on a list of questions (questionnaires) prepared previously in the form of a list of questions for business actors and farmers. The analysis used to find potential business groups is integrated with business pioneers using business feasibility. The detailed analysis of the feasibility of programs and businesses that will be implemented includes 1) Analysis of Training Problems and Obstacles, 2) Analysis of Program Implementation Success, 3) Impact Analysis on the output of the training program, and 4) Policy Analysis.

### **3 Results and Discussion**

The success of a training program is determined by the presence of adequate human resources and facilities (Badan Litbang Pertanian Jakarta, 2004). In addition, participants' readiness in participating in the training is also a certain parameter of the success or failure of the training process. On the side of the trainer or facilitator, the more they can convey new, complete and implementation knowledge and skills, the possibility of obstacles in training can be overcome. On the other hand, on the part of the participants, mature self-preparation is required to receive messages and skills from the training easily.

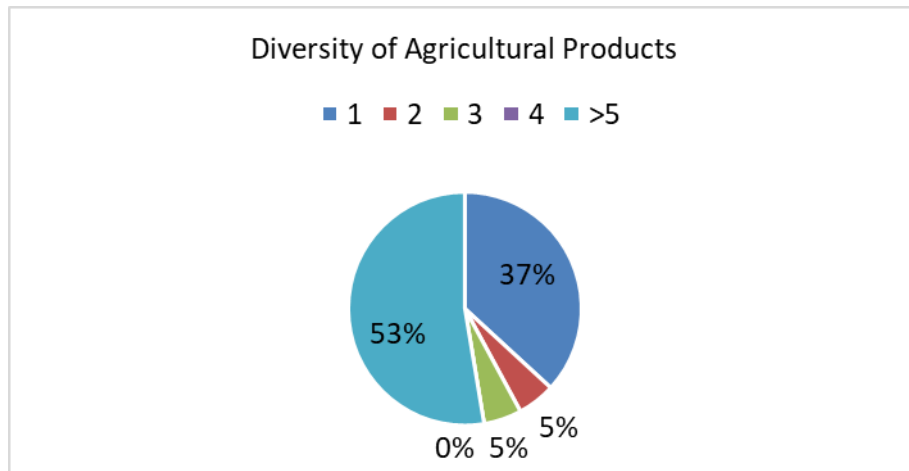
In the results and discussion section on monitoring and evaluation of training in Food Crops and Horticulture (TPHP), the Food Security and Agriculture Office of Blitar City emphasizes several important things for improvement and follow-up of subsequent training activities. It is divided into five important parts that need to be studied in training evaluation, including the characteristics of training participants, obstacles faced by the organizers and participants, implementation of training activities, participation and output of training activities, and strong recommendations for improvement of subsequent training activities.

#### **3.1 Characteristics of Training Participants**

Characteristics need to be discussed in detail to see education, experience, type of business, number of types of business and income from the business being run. Several types of businesses run by business actors in Blitar City are hydroponics, vegetables, mushrooms, ornamental plants and fruits. Specifically, agricultural business products can be processed in processed vegetables, processed fruit, processed mushrooms and packaged fruit vegetables. Some are dominant among these several types of businesses, and some are still relatively few in Blitar City, which is described in the discussion below.

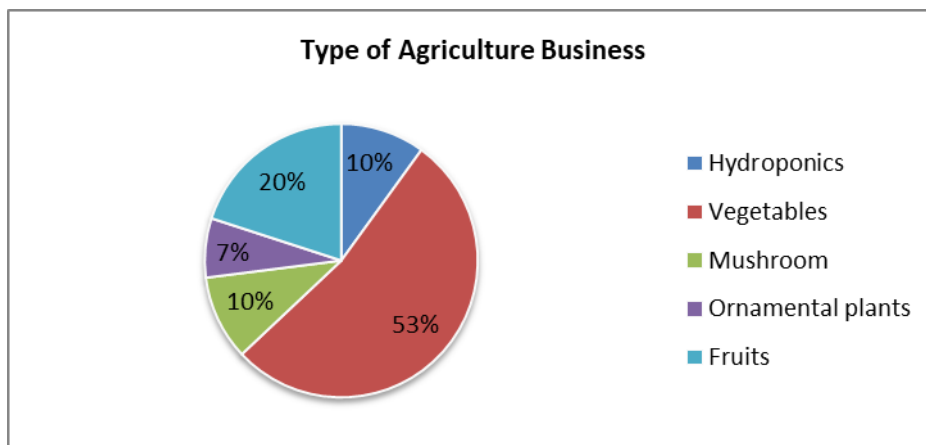
The education of most of the training participants is high school, which is 63%. With this condition, knowledge transfer becomes faster because of their habit of receiving knowledge taught up to high school. In addition, formal learning experiences indirectly also encourage participants to accept knowledge and skills quickly even though sometimes the material tends to be complicated.

Regarding the number of family members, most of the participants in the training were four (4) family members, by 42%. This condition can support when the number of family members is involved as labour, which can indirectly minimize production costs.



**Fig. 1.** Total Diversity of Agricultural Products

It can be seen in the data above related to the number of agricultural products owned by the training participants. A total of 53% of participants own more than five products. This condition can minimize losses for business actors because there are many alternative products when there is one product that does not sell well in the market.



**Fig. 2.** Type of Agricultural Business

According to the information obtained, agricultural business actors involved in the training tend to have a vegetable business type by 53%. This condition occurs considering that vegetable products are human consumption in general to support food and nutritional needs.



**Fig. 3.** Income per Month

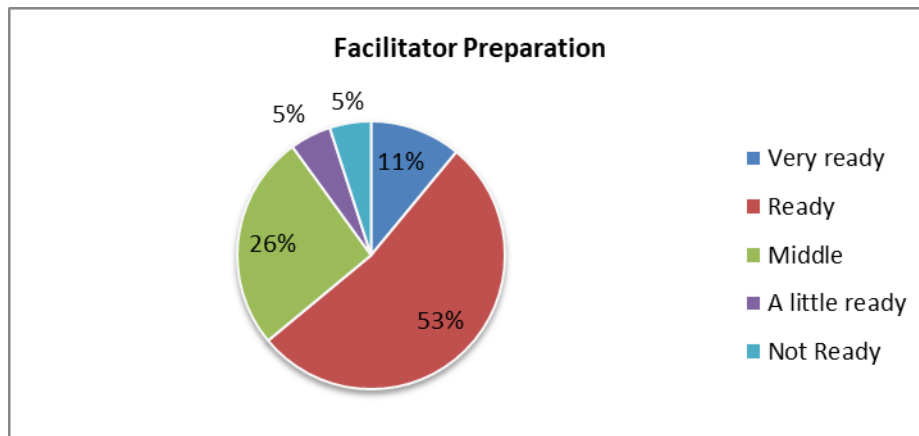
The average income of business actors involved in the training is Rp. 1,000,000 per month with a percentage of 42%. This condition reflects that their economy is in a developing period which can be improved again through product development and innovation. From the evaluation results, it is known that most of the training participants have less than one year of business experience with a percentage of 79%. This means that some of the trainees are still relatively new to running a business.

### 3.2 Implementation of Training Activities

Preparation of training on the part of the organizers in Food Crops and Horticulture is important to be studied in more detail in the training evaluation program in the agricultural sector. When there is good technical preparation and physical facilities, the implementation can be said to be good. In addition, the preparation of the training on the part of the organizers can be seen from the readiness of the presenters or facilitators, the substance, and all the ease of transfer of knowledge and skills received by the trainees.

**Technical Preparation and Physical Facilities.** The results of extracting data on technical preparation and physical facilities show that the training organizers have prepared the technical and physical facilities thoroughly or can be said to be ready with a percentage of 69%. This can be demonstrated by the seriousness of the organizers in preparing training support equipment and a conducive place.

**Execution Timeliness.** The timing of the training was carried out on time by the event rundown based on the response of the training participants by 63%. The punctuality of the start of the event to its completion was due to the well-organized arrangement of events and the ability of the presenters to manage the time of the event.



**Fig. 4.** Facilitator Preparation

The presenter or facilitator can be ready to deliver the material with a percentage of 53%. This is shown, the presenters are selected by the organizers according to their expertise. In addition, the presenters have prepared themselves thoroughly.

**Suitability of Materials with Participant's Needs.** The material's suitability with the participants' needs can be said to be by the percentage of evaluation results of 84%. It is said to be appropriate because there are several impacts experienced by participants on their business performance. In addition, the presenters studied the needs of the participants before the training.

**Completeness of Training Materials.** From the responses of the training participants, most said the content of the material presented was complete with a percentage of 63%. The completeness of the material is indicated by the presence of clear introductory material, method, technical and substance.

**Material Update.** Based on the responses received from the training participants regarding the update of the material, they said that the training material obtained was new with a percentage of 53%. This is because the facilitator always updates information that develops according to the needs of business actors in the agricultural sector.

**The Convenience of Understanding Material.** Related to the ease of participants in understanding the material, the tendency of the training material provided is quite easy to understand with a percentage of 63%. However, due to the response from the training participants being judged sufficient, there are still difficulties experienced by participants in understanding the training material.

**Participants' Interest in the Material.** Based on the training evaluation process that focused on implementing the training, information was obtained that the material presented was classified as attractive by 74%. This happens because the information in training delivered is important and not boring.

**Fun Facilitation Skills.** The presentation of training materials by the presenters or facilitators can be said to be pleased with a percentage of 63%. This is due to variations in training methods so that participants do not get bored, and some interludes contain a relaxed and humorous feel.

**More Applicable Follow-up Training.** Almost all participants agreed that if the training activities can be followed up with a more practical training design with 48%, it is very important to be followed up, and 47% is important to be followed up. This is considered important because the training that has been carried out has more or less had an impact on the participants.

### **3.3 Training Participation and Output**

Active participation in participating in training can create a dynamic training atmosphere. So it is necessary to evaluate the participation of participants in the training as well as to see the output of the training, which in the short or long term can be a meaningful input for the trainees.

**Discipline in Attending Training and Attendance Rate of Trainees.** Most of the participants felt that they were on time in attending the training with 79%. The participants' punctuality is supported by clear information from the training organizers. In addition, it is also supported by the discipline of the training participants.

From the information obtained from respondents, most of the participants always and frequently attended training activities, with the percentage always attending 58% and often attending 42%. However, if participants are often present, sometimes participants are late or not present at training activities.

**Active Discussion during Training and Seriousness in paying attention.** As many as 89% of the training participants were active because of the two-way discussion between the presenters and the participants. Discussion due to the large interests of participants in developing their business, so that questions often arise for presenters to obtain important information in developing their business.

95% of the participants were serious in paying attention to the material. This is because the content of the material is important and meaningful. In addition, the presenter explained carefully and seriously but in a relaxed atmosphere in delivering the material.

Most of the participants were able to participate in the training skillfully during the simulation or demo, with 53%. Participants' skills in participating in the training because of the participants' technical experience before the training.

**Economic and Business Motivation Impact of Training.** Based on responses from participants, 84% of them said that the training held by the food crops and horticulture sector was able to have a change impact on the business economy. This means that from this training, there are indications that there has even been an increase in income from the businesses that the training participants have run.

79% of the participants were enthusiastic and motivated to continue running their business after attending the training. This happens because of participants' moral and motivational messages to be consistent in running the business.

90% of the training participants said they felt optimistic and able to develop their business even better because of the training activities. This is due to the turnover and income targets they will achieve.

## 4 Conclusion

The results of the monitoring and evaluation of skills training organized by the Food Crops and Horticulture Division described in the previous section can be concluded in general terms on important points. First, related to the characteristics of respondents who are also participants in the training, the last education is mostly high school, with an average family size of 4 people. Second, the average number of agricultural products they manage is more than five products, with the most widely managed type of business being vegetables. Third, their average monthly income is Rp. 1,000,000, which means that it is in the developing stage because the work experience tends to be just starting a business, which is about one year.

They were second, related to needs, preparation and ability to overcome obstacles. Most of the respondents need training (89%) to improve their business skills. To prepare themselves in participating in the training, all participants answered yes (100%). Then the majority of respondents did not experience any problems in preparing for the training (85%). The most common form of obstacle in self-preparation experienced by trainees was the time (84%). As a result of these obstacles, most participants overcame these obstacles (90%). About facilities and infrastructure constraints, participants considered it not to be an obstacle (74%). If there is a slight problem with facilities and infrastructure for participants, what usually happens is cost constraints and typewriters such as laptops (53%). From the constraints of infrastructure, participants were able to overcome them (74%). So broadly speaking, participants have a level of need, preparation and ability to overcome obstacles with a percentage of 85.33%, which means it is classified as very good.

It was third, related to the implementation of activities by the organizers, namely the Field of Food Crops and Horticulture, Department of Food Security and Agriculture, City of Blitar. According to respondents, it started with technical preparations and physical facilities, which could be said to be ready (74%). Then the implementation took place on time (74%). On the part of facilitators, respondents rated the facilitators as relatively ready (64%). Almost all respondents said it was appropriate for the material's suitability to the participants' needs (90%). Including the completeness of the material, most of the respondents said it was complete (74%). Then the novelty of the material slightly leads to something new (53%). The problem is that the ease of understanding the material is relatively low (37%). Regarding the process of delivering material by the facilitator, it was interesting (79%) and presented in a pleasant way (84%). Based on the learning process through the training, participants wanted to be followed up with more practical training (95%). In general, the implementation of the activity has a success rate of 72.4%, which is categorized as good.

Fourth, regarding participant participation and training outputs obtained by participants. Punctuality in attending the training almost all participants attended on time (96%). Also, with the level or frequency of participant attendance, it is very dominant that the trainees frequently attend (96%). For active discussion during the training, participants were classified as active (89%). In addition, respondents answered the seriousness of the participants in the training (95%) seriously. Then the participants considered themselves to be skilled in participating in the training (63%). According to respondents, the training provided a relatively impactful economic impact for participants (84%) and provided business motivation (84%). Also, directly or indirectly able to encourage participants to develop their businesses (90%). In general, the



participation and output of the training participants have a success rate of 87.12%, which is classified as very good.

Overall, each of the training evaluation assessment indicators includes 1) the level of need, preparation and ability to overcome obstacles, 2) implementation of training, 3) participation and output organized by the Food Crops and Horticulture Sector, Department of Food Security and Agriculture, City Blitar have program feasibility of 81.6% which is in the very good category, including participants who have experienced a positive impact from the training that has been held.

**Recommendation.** There is a need for training materials that explain market-oriented food crops. This is important so that the resulting product is ready to be sold and marketed. In addition, training on mushroom cultivation and mushroom processing skills is important for an alternative income and experience for business actors in the agricultural sector.

The fields of expertise of the expected facilitators are experts in nurseries, food crops, and agricultural waste processing. Consider that processed waste can also be used as animal feed which has a high selling value. The intensity or time of implementation is attempted to be held three times for one year. In 1 training, it can be carried out for three days continuously with the contents of the material, simulation, practice, to marketing.

Stakeholders who need to be involved in improving the substance and technicality of the training are related agencies or institutions such as the Cooperatives and UMKM Service, the Market Service, the Industry and Trade Service, and the Health Office. In addition, it is also necessary to involve experts and academics to add weight to the material. Finally, do not forget to involve entrepreneurs who are already competent with a large business scale.

Dissemination and virtual training through social media, youtube channels, and other digital applications are important to be followed up in line with the advancement of the digital era and the industrial revolution 4.0.

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