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EVALUATION TOWARDS THE EFFECTIVENESS OF TECHNICAL GUIDANCE TO ENHANCE THE CAPABILITY OF INSTRUCTORS AND FARMERS IN MOJOKERTO DISTRICT

Evaluasi Efektifitas Bimbingan Teknis Untuk Meningkatkan Kapasitas Penyuluh dan Petani di Kabupaten Mojokerto

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ABSTRACT

This study aims to evaluate the improvement of knowledge after following technical guidance which consists of several materials on seeding, cultivation and post-harvest handling of sorghum, porang and orchids. Implementation of Technical Guidance was carried out by discourse and discussion methods. This research was conducted from November to December 2021 in Mojokerto Regency. The material was presented included Plant Propagation Technology with Tissue Culture, Certified Porang Seedling Procedures, Sorghum Cultivation, Sorghum as Animal Feed, and Sorghum Processed Technology. This quantitative assessment was chosen to measure the effectiveness of the implementation of technical guidance (Kartika & Simorangkir, 2019). Data was collected using knowledge improvement evaluation by distributing pre-test and post-test questionnaires to assess the enhancement of knowledge among farmers based on the counselling results that had been implemented. The effectiveness of knowledge enhancement among participants in technical guidance was 36.95%, meaning that knowledge enhancement among participants through technical guidance was categorized as quite effective. Thus, technical guidance was quite effective to be sustainable and able to provide positive value for instructors and farmers, especially if the material presented

is relevant and in accordance with the improvement of required innovations and their implementation practices.

Keywords: effectiveness of technical guidance, farmers and extension workers, technical guidance

ABSTRAK

Tujuan penulisan makalah adalah mengevaluasi peningkatan pengetahuan setelah mengikuti bimbingan teknis yang terdiri dari beberapa materi pembibitan, budidaya serta penangan pasca panen tanaman sorgum, porang dan anggrek. Pelaksanaan Bimbingan Teknis dilakukan dengan metode ceramah dan diskusi. Pengkajian dilaksanakan pada bulan November sampai dengan Desember 2021 di Kabupaten Mojokerto. Materi yang disampaikan mengenai teknologi Perbanyakan Tanaman dengan Kultur Jaringan, Prosedur Benih Porang Bersertifikat, Budidaya Sorgum, Sorgum Sebagai Pakan Ternak, dan Teknologi Olahan Sorgum. Pengkajian ini bersifat kuantitatif dipilih untuk mengukur efektivitas pelaksanaan bimbingan teknis (Kartika & Simorangkir, 2019). Teknik pengumpulan data menggunakan Evaluasi peningkatan pengetahuan dilakukan dengan cara penyebaran kuisioner pretest dan posttest untuk mengetahui peningkatan pengetahuan petani dari hasil penyuluhan yang telah dilaksanakan. Efektifitas Peningkatan Pengetahuan peserta bimtek menunjukkan angka 36,95%, artinya peningkatan pengetahuan peserta melalui bimtek ini masuk dalam kategori cukup efektif. Dengan demikian bimbingan teknis cukup efektif dapat berkelanjutan serta mampu memberikan nilai positif bagi penyuluh dan petani terutama jika materi yang disampaikan relevan dan sesuai perkembangan inovasi yang diperlukan disertai dengan praktik aplikasinya.

Kata Kunci : efektifitas bimtek, petani dan penyuluh, bimbingan teknis

INTRODUCTION

In the midst of the Covid-19 pandemic, it is needed to maintain the welfare of farmers to prevent it declines, thus the development of agricultural sector which can be observed from the exchange rate of farmers can be improved. Agricultural instructors are the mainstay of Special Forces in agricultural improvement, so they must have the ability, knowledge, skills and good attitudes (Tambi, 2019; Marler et al., 2006). According to Indraningsih (2017) that the dissemination of innovations from agricultural research/studies is an important communication activity in encouraging the process of dissemination and application of technology in a rural social system.

Dissemination of agricultural technology innovations has a strategic role in supporting the acceleration of adoption of agricultural technology. The results of research and or studies in its operations are influenced by the existence of institutions for the creation of agricultural innovations and the dissemination of agricultural innovations (Narman, 1994**;** Noor & Dola, 2011; Abay, 2020). The

objective of disseminating and down streaming innovation is to disseminate and bring innovations from research and study results closer to users. Down streaming of technological innovation by users is expected to increase productivity, farm efficiency and lead to an increase in farmers' income and welfare. Downstream agricultural technology innovation that is disseminated should be in accordance with user needs and must be available or in other words the logistics of innovation is easily accessible. According to Lakitan (2013) there are four conditions for the success of technology transfer, including: (1) Technology that is technically developed according to user needs, (2) The technology offered must match the capacity of potential users, (3) The technology offered is able to compete with similar technologies available in the market; as well as, (4) The application of a given technology can increase profits compared to which they currently apply.

Implementation of technical guidance through activities such as education and training, seminars, technical guidance, workshops, symposiums, discussions, talks and or lectures in as well as active participation in disseminating programs and policies of the central and regional governments in order to achieve equity in implement National Improvement (Adminlediknas, 2021).

Technical Guidance is a guidance and counselling service provided by experts or professionals in their field in order to improve the quality of Human Resources. In general, the objectives of technical guidance are as following: (1) Improving the quality of human resources, (2) Improving coordination, (3) Improving the performance of institutions and organizations to support the success of an institution, (4) Gaining the competence to optimally carry out the duties of the occupied position, (5) Having the competence to occupy a higher position (Adminlediknas, 2021). According to Slamet (2002) the implementation of effective activities is defined as the relationship between the output and the goals or objectives of the activities to be achieved. An activity can be said to be effective if the objectives of the activity and the final policy objectives can be achieved. Conducting activities in accordance with the expectation, as well as the success of activities according to the original goals and plans (Muslimah et al., 2021). To find out the improvement in knowledge among farmers and instructors after following technical guidance, an evaluation can be carried out to assess their knowledge prior and after following technical guidance in order to ensure the effectiveness of the implementation of this program and achieved the determined objectives (Risna et al., 2020; Noor & Dola, 2011). The evaluation can be carried out by giving pre-test and post-test to the participants. Mardikanto & Soebianto (2015) suggest that based on evaluation results, the conclusions can be drawn about everything that has happened, as well as providing the basis and direction for further activities that need to be carried out. Porang (Amorphophallus muelleri Blume) is a food commodity that has the potential to

be developed in Indonesia because of its economic value. Challenges in the improvement of porang include the unavailability of sufficient quantities of seeds and most farmers did not know the benefits and technology of cultivation and post-harvest porang commodities. Therefore, it needs support from various parties, especially the government, to overcome existing problems as well as socialize porang improvement. From the technical aspect of improvement, the Agency for Agricultural Research and Improvement (Balitbangtan) has produced technology for seed production, cultivation, harvesting, and post-harvest porang through various studies (Sasmita, 2021).

Orchid is one of the most popular types of ornamental plants and interested by many consumers, because of their unique and attractive flower shapes and colors, durable and uneasy to wither. In order to support the improvement of competitive orchid agribusiness, it is needed competent and high skilled human resources (Andri & Tumbuan, 2015).

Sorghum is an annual plant that is drought tolerant and does not require much water during its growth. Sorghum is not limited use as food and feed. As food, sorghum can be consumed in various forms of processed products, including rice, bread, noodles, pastries, cakes, cakes, and various snacks. The wide variety usage of sorghum as food shows the wide market opportunity for sorghum. Sweet sorghum from the stem sap can be used for the sugar industry. Sorghum seeds can be processed into bioethanol as engine fuel. Starch from sorghum seeds can also be used as industrial raw materials. The harvested biomass in the form of waste can be used as raw material for biogas. This shows the multifunctionality of the sorghum plant which has been forgotten so far. In Indonesia, if in the next 6-15 years (2020-2030) sorghum can be developed as a staple food supplementation of rice and a component of feed rations, then it will be a revival of sorghum plants that have been abandoned so far (Sumarno, 2013). This paper aims to evaluate the enhancement in knowledge after following technical guidance consisting of several materials for seedling, cultivation and post-harvest handling of sorghum, porang and orchid plants.

RESEARCH METHOD

Implementation of Technical Guidance was carried out by discourse and discussion methods. This study was conducted from November to December 2021 in Mojokerto Regency. The material which was presented consists of Plant Propagation Technology with Tissue Culture, Certified Porang Seed Procedure, Sorghum Cultivation, Sorghum as Animal Feed, and Sorghum Processed Technology. This quantitative assessment was chosen to measure the effectiveness of the implementation of technical guidance (Kartika & Simorangkir, 2019). Data collection techniques using knowledge improvement evaluation was carried out by distributing pre-test and post-test questionnaires to determine the enhancement knowledge among farmers based on the results

of counselling that had been implemented. 43 Respondents filled out the questionnaire were taken intentionally (purposive sampling) on farmers and instructors who took the Technical guidance from farmers and instructors in Mojokerto Regency. The data collected consisted of score from initial test (pre-test) which was carried out before the material was given and the final test (post-test) was carried out after the activity.

According to Ginting (1991) the measurement of the effectiveness of knowledge improvement uses the following formula:

$$\text{EPP} = \frac{Ps - \text{Pr}}{N \times 1 \times Q - \text{Pr}} \times 100\%$$

Information :

EPP = Knowledge Improvement Effectiveness
Ps = Posttest Value
Pr = Pretest Value
N = Number of Respondents
1 = Maximum Score of Each Question Item
Q = Number of Questions

The effectiveness scale of knowledge improvement was carried out through pre-test and post-test. There were 3 categories in this scale, namely: <33.33%: Less Effective Category; 33.33%-66.66%: Quite Effective Category >66.66%: Effective Category.

RESULT AND DISCUSSION

Characteristics of Technical Guidance Participants

The characteristics of the Technical guidance participants were identified from several factors, namely age, formal education base, and technical experiences as internal factors that influenced the capability of Technical guidance participants. In this case, the capability of Technical guidance participants was reflected in their insight into the knowledge level, and their appreciation of Technical guidance activities. Therefore, it is important to understand the characteristics of Technical guidance participants. Based on the observations, it can be seen that the technical guidance participants have a pretty good capability. 50 percent of Technical guidance participants were agricultural instructors, 40 percent of participants were millennial farmers who already exist in their respective areas and the remaining 10 percent were general participangs. On average, Technical guidance participants have a relatively sufficient formal education base. In fact, there were around 75 percent of Technical guidance participants who have completed their education to the upper advanced level (12 years). Although it is known that there were also some participants that only have less than seven years of education, the proportion is relatively low at around 10 percent. The basic aspects of formal education owned by technical

guidance participants are important because it is the foundation of a person's ability to act and make decisions (Sehat & Rita, 2014).

To determine the effectiveness of the implementation of this technical guidance, an evaluation of the participants knowledge was carried out before and after receiving the material. The results of the pre-test and post-test that have been carried out,the following results:

Table 1. Results of Pretest, Posttest and the Percentage of Knowledge Improvement Effectiveness of Bimtek Participants

No.	Material	Speakers	Pretest Score	Posttest Score	EPP Score (%)
1.	Plant Propagation by Tissue Culture	Paulina Evy	245	257	6.486
2.	Certified Porang Seed Procedure	Agus P	64	93	19.205
3.	Sorghum Cultivation	Herman S.	135	280	54.717
4.	Sorghum as Animal Feed	Setiasih	151	293	54.826
5.	Sorghum Processing Technology	SS. Antarlina	198	298	49.505
	Average				36.95

Tissue Culture Technical Guidance

The evaluation activity of technical guidance aims to determine knowledge improvement among respondents who participated the technical guidance that had been carried out. The following are the results of tabulated data showing the knowledge improvement among farmers:

EPP $= (Ps - Pr)/(N \times 1 \times Q - Pr) \times 100\%$

$= (257 - 245)/(43 \times 1 \times 10 - 245) \times 100\%$

$= 12/185 \times 100\%$

$= 12/185$ x100%

$= 6.5\%$

Based on the results of knowledge improvement in the Table 1. it can be seen that the effectiveness of knowledge improvement among participants against the results of the technical guidance on tissue culture reached 6.5%, which means "less effective". Agricultural Technical guidance activities were considered less effective, it can be seen from the selection of Technical guidance materials, the methods used in Technical guidance and the media used in delivering Technical guidance materials. The knowledge improvement of Technical guidance participants was lack, due to several factors. The main factor that causes the knowledge improvement was low included the lack of intensity of technical guidance carried out by researchers in delivering tissue culture technology innovations. Another factor was Technical guidance material which had been delivered was still new for the participants. The results of research by

Singh & Singh (2014) stated that adequate and easy-to-understand information is an important aspect for technical guidance that is considered effective, but the most important thing to produce effectiveness is the material provided according to the needs of participants, this is also supported by research by Patil and Kokate (2011), who found that the respondents' overall training needs were high (78.42%) in various fields of agriculture when studying the training needs assessment. The training needs assessment factor is the main factor of any effective and participatory training program to increase the effectiveness of technical guidance.

According to Siska et al. (2020) that training is able to improve outcomes in the form of increased awareness, skills and self-confidence of the participants. The research results of Wardhana et al. (2020) show that it is necessary to know the response of technical assistance participants to a program, because the results of the responses can determine the participants' level of understanding of the material presented. Besides that, you can find out the level of participant satisfaction with the program being implemented (Radeswandri et al., 2021).

Technical guidance is needed to improve work efficiency due to the participants' lack of experience. Agricultural experts strive to provide guidance for novice farmers. Even though it is difficult, technical guidance continues to be given because it is a big burden for experts.

Guidance on Procedures for Becoming a Certified Porang Seed Breeder

The evaluation activity of technical guidance aims to determine the knowledge improvement among participants of the technical guidance that had been carried out. The following are the results of tabulated data showing the knowledge improvement:

$$\begin{aligned} \text{EPP} &= (Ps - \text{Pr})/(N \times 1 \times Q - \text{Pr}) \times 100\% \\ &= (93 - 64)/(43 \times 1 \times 5 - 64) \times 100\% \\ &= 29/151 \times 100\% \\ &= 19.2\% \end{aligned}$$

Based on the results of knowledge improvement in the table above, it can be seen that the effectiveness of knowledge improvement from the results of the technical guidance on the procedure for becoming a certified Porang seed breeder reached 19.2%, which means "less effective". Agricultural Technical guidance activities were considered less effective, it can be seen from the selection of Technical guidance materials, the methods used in Technical guidance and the media used in delivering Technical guidance materials. A low knowledge improvement on Technical guidance participants due to several factors, namely lack of intensity of technical guidance carried out by researchers in conveying the Procedure to Become a Certified Porang Seed Breeder. Another factor was due to new Technical guidance material that was delivered to the participants. In addition to the material provided, the effectiveness of technical

guidance was also influenced by the process of delivering material, , motivation techniques and the mentoring process (Sehat & Rita, 2014; Tanaka & Otsuka, 2017; Gao et al., 2020).

Guidance on Sorghum Plants (Cultivation of Plants and Varieties)

The evaluation activity of technical guidance aims to determine the knowledge improvement against technical guidance that had been carried out.

$$\text{EPP} = (Ps - \text{Pr})/(N \times 1 \times Q - \text{Pr}) \times 100\%$$
$$= (280 - 135)/(40 \times 1 \times 10 - 135) \times 100\%$$
$$= 145/265 \times 100\%$$
$$= 54.7\%$$

From the results of increasing knowledge in the table above, it can be seen that the effectiveness of increasing participants' knowledge from the results of the technical guidance on Sorghum (Cultivation of Plants and Varieties) reached 6.5%, which means "less effective". Agricultural counselling activities were considered quite effective, which can be seen from the selection of materials, methods and media used in delivering the materials. Counselling activities can be said to be quite effective because the method used in counselling was discourse and discussions so that respondents were able to directly ask questions that were considered. The media also highly influenced on the level of effectiveness in knowledge improvement. This study used image display as media to show directly the Cultivation of Plants and Sorghum Varieties.

Technical Guidance Sorghum As Animal Feed

The evaluation activity of technical guidance aims to determine the knowledge improvement against the technical guidance that had been carried out.

$$\text{EPP} = (Ps - \text{Pr})/(N \times 1 \times Q - \text{Pr}) \times 100\%$$
$$= (288 - 143)/(40 \times 1 \times 10 - 143) \times 100\%$$
$$= 145/257 \times 100\%$$
$$= 56.4\%$$

Based on the results of knowledge improvement which shown in the table above, it can be seen that the effectiveness of knowledge improvement among participants based on the results of Technical guidance about Sorghum as Animal Feed reached 56.4% which means "Quite effective". Agricultural counselling activities were considered quite effective, it can be seen from the selection of materials, method and media used in delivering the materials. It can be said that counselling activities was quite effective because it used discourse and discussions so that participants could directly asked questions that were considered unclear. The media has a high impact on the level of effectiveness in the knowledge improvement. This study used image display as a media to show

directly about Sorghum as Animal Feed. Knowledge among participants through the technical guidance method was improved because the technique of delivering material and the competence of the expert speaker was good. Haslinda et al. (2009) reinforce the statement that the competence of the expert speakers is an important factor that contributes to increasing participants' knowledge. Moreover, the condition of education level and functional position of the participants also affect the effectiveness of knowledge improvement.

Technical Guidance for Sorghum Processing Technology

The evaluation activity of technical guidance aims to determine the enhcancement in respondents' knowledge against the technical guidance that had been carried out.

$$\begin{aligned} \text{EPP} &= (Ps - \Pr)/(N \times 1 \times Q - \Pr) \times 100\% \\ &= (298 - 189)/(40 \times 1 \times 10 - 198) \times 100\% \\ &= 100/202 \times 100\% \\ &= 49.5\% \end{aligned}$$

Based on the results of knowledge improvement which shown in the table above, it can be seen that the effectiveness of knowledge improvement among participants based on the results of Technical guidance on Sorghum Processing Technology reached 49.5% which means "quite effective". Counselling Agricultural activities was considered quite effective based on the selection of materials, methods and media that used in delivering the materials. It can be said that counselling activities was quite effective because it used discourse and discussions so that participants could directly asked questions that were considered unclear. The media has a high impact on the level of effectiveness in the knowledge improvement. This study used image display as a media to show directly about Sorghum Processing Technology. Kartasapoetra (1988), stated that materials must be in accordance with the needs of instructors and farmers related to improve production, improve income and improve the living standard.

According to Mangkin (2018) that there are several weaknesses that cause a low value for the effectiveness of the implementation of technical guidance, including the lack of ability of the resource persons in delivering material and the not yet optimal interaction between technical guidance participants and resource persons (Vyas et al., 2020; Liu et al., 2022; Nawab et al., 2011).

CONCLUSION AND SUGGESTION

Conclusion

Technical guidance that had been carried out to develop the capability of instructors and farmers with 6 technological innovation materials, namely Certified Porang Seedling Procedures, Porang Cultivation, Plant Propagation by

Tissue Culture, Sorghum Cultivation, Sorghum as Animal Feed, and Sorghum Processing Technology, showed an average value of Knowledge Improvement Effectiveness of 36.95%, which means that the improvement in participants' knowledge through the technical guidance was categorized as quite effective. Thus, technical guidance was effective enough to be sustainable and able to provide positive value for instructors and farmers, especially if the material that had been presented was relevant and in accordance with the improvement of the required innovation along with its application practices.

Suggestion

Moreover, to support the success of Technical guidance, it is necessary to plan an effective Technical guidance related to the determination of materials that have been adjusted to specific improvement issues and the requirements of participants, as well as the determination of competent instructors.

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