

## Participatory learning for sustainable livestock management: The impact of field school in Tasikmalaya

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### Abstract

Tasikmalaya Regency, with its abundant agricultural potential, is a strategic location for the Integrated Farming System Development Project in the Highlands (UPLAND). This project aims to increase agricultural productivity through a holistic and integrated approach, focusing on developing location-specific, export-oriented agricultural commodities. The 1st Batch of Livestock Business Management Field School was held to improve the knowledge and skills of farmers in livestock business management. The method used was participatory learning based on experience, with 80% of the time spent on direct practice in the field. The evaluation results showed an increase in the average score of participants from 69.60 to 84.40, proving the effectiveness of the Field School in improving knowledge and skills. The practice of cultivating Green Forage was the most popular activity. The Field School has proven to be effective in improving the knowledge and skills of farmers in various agricultural sectors, in line with previous research. This activity ended with the preparation of a follow-up plan by participants to apply the knowledge gained. However, the limited duration of the training and the evaluation that was limited to measuring knowledge were noted. For the future activity, a more comprehensive evaluation and development of a more in-depth training module are needed.

**Keywords:** field school, livestock empowerment, UPLAND project

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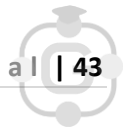
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## INTRODUCTION

Tasikmalaya Regency, with its abundant agricultural potential (Setiani et al., 2021; Sunjaya et al., 2020), is one of the strategic locations for the implementation of the Integrated Farming System Development Project in the Highlands (UPLAND). This project is a government initiative to increase agricultural productivity in the highlands, with a focus on developing location-specific agricultural commodities oriented towards the export market (Kementerian Pertanian, 2022). Its main objective is to reduce dependence on imports and improve farmer welfare through a holistic and integrated approach.

The UPLAND project aims to address agricultural development comprehensively, from improving human resources to post-harvest handling and marketing. This approach is expected to create added value for farmers and absorb local labor through professional agricultural institutions (Direktorat Jenderal Prasarana dan Sarana Pertanian Kementerian Pertanian, n.d.). Strengthening farmer groups is vital to improve farmer welfare, which involves efforts to encourage cooperation, facilitate access to capital, and improve the bargaining position (Hermanto & Swastika, 2016). Post-harvest handling development through agricultural institutions is essential for rural development, which requires pro-farmer policies and institutional support (Herdini & Masduki, 2021). Empowering rural communities in managing highland agroecosystems requires strengthening local social capital, including value systems, human resources, and social organizations (Pranadji, 2016). In order to boost income and wellbeing, farmer empowerment programs must take a participative approach, try to alter behavior, and attend to all facets of farmers' demands (Munir & Cahyati, 2018).



The 2024 UPLAND program will hold the 1st Livestock Business Management Field School at the project site to achieve these goals. This activity is designed to provide intensive training to farmers, to improve their knowledge and skills in livestock business management. This field school is expected to be a forum for farmers to learn and share experiences so that they can manage livestock businesses more efficiently and sustainably.

This field school is also expected to have a positive impact on the development of organic rice cultivation in Tasikmalaya Regency. Integration between livestock farming and organic rice cultivation can create a more sustainable and efficient farming system. For example, livestock waste can be used as organic fertilizer for rice, reducing dependence on chemical fertilizers. In addition, livestock farming can be a source of additional income for farmers, improving their overall welfare.

Field School programs have proven effective in improving the knowledge and skills of farmers and livestock breeders. Various studies have shown high levels of participant engagement, with farmer participation rates reaching 76.36% in some cases (Liza Prayeti et al., 2024a). Field School initiatives have resulted in significant improvements in participant knowledge and skills, as evidenced by an increase in scores from 267 to 896 for knowledge and 146 to 489 for skills in one program (Alam et al., 2023). Factors influencing participation include individual characteristics, learning approaches, and farmer capabilities and opportunities (Liza Prayeti et al., 2024b). The Field School program has been successful in various agricultural sectors, including beef cattle farming, where participants showed an increased understanding of efficient management practices, feed fermentation, and organic fertilizer production (Yuzaria et al., 2024). Overall, the Field School program has proven to be an effective way for improving farmers' behavior, attitudes, and practical skills in agricultural management (Risna et al., 2017).

Thus, the Livestock Business Management Field School activity provided a real contribution to improving the quality of agricultural human resources in Tasikmalaya Regency, as well as supporting the success of the UPLAND project in developing a sustainable and competitive integrated farming system.

## METHODS

The method used in this activity is Field School, a participatory extension approach that emphasizes experiential learning. Field School is designed to create an interactive learning space, where participants, especially millennial farmers, can directly engage with the reality of the field. Through observation, discussion, and direct practice, they are expected to find their own knowledge and principles that are relevant to their conditions.

The educational process in Field School does not only focus on experience but also on developing participants' abilities to "discover knowledge" dynamically. This approach is essential in facing rapid changes in the era because the Field School equips farmers with analytical and adaptive skills. Thus, Field School participants are expected to become resilient farmers, able to overcome current and future challenges.

The characteristics of Field School include learning in the field/location as the main medium, with 80% of time spent in the field for direct practice. Learning is carried out through a cycle of experience, disclosure, assessment, and conclusion. The materials and methods used are practical and appropriate, designed so that they can be directly applied by farmers. The Field School curriculum is designed based on an analysis of the required field skills, in this case, making organic fertilizer, so that participants gain relevant and applicable competencies.

The 1st Batch of Livestock Business Management Field School was held for four days, from 27 to 30 June 2024, at the UPPO-BIO GAS Poktan Sadar Bakti III location, Bantarkalong Village, Cipatujah District, Tasikmalaya Regency. This activity was designed to provide intensive training to 25 livestock farmers representing the Farmer Groups in Bantarkalong Village and Darawati Village. The material presented covered various aspects of livestock business management, from animal feed cultivation, pen management, seed selection, maintenance techniques, and reproductive management, to livestock business analysis. Each session was filled by competent speakers and facilitators, namely the Field Agricultural Extension Workers (PPL) and the UPLAND Activity Field Team.



The participants in the activity consisted of 25 livestock farmers selected based on representation from farmer groups in two villages, with diverse educational backgrounds, from elementary to high school. The daily activity schedule was designed to be dense with a combination of delivering material in class and direct practice in the field. Every day starts at 08.00 and ends at 16.00, with breaks for meals and coffee breaks. The material delivered was adjusted to the needs of farmers in the field, with a focus on the practice of cultivating Green Forage (HMT) which is an important part of the livestock business. The implementation of this Field School is coordinated by the PIU of Tasikmalaya Regency, with support from the Department of Agriculture, Food Security and Fisheries of Tasikmalaya Regency. The organizational structure of the organizers involves various parties, starting from the director, those responsible for programs and activities, to the implementation team consisting of the chief executive, secretary, treasurer, and other sections. The facilitator team consists of 12 people who are experts in their fields. With a clear organizational structure and a competent facilitator team, this activity could run smoothly and achieve the expected goals, namely increasing the knowledge and skills of farmers in livestock business management.

## RESULTS AND DISCUSSION

The 1st Livestock Business Management Field School in Tasikmalaya Regency was carried out in systematic stages, starting from the official opening to the closing (see Figure 1). The opening was attended by representatives of the Department of Agriculture, Food Security, and Fisheries, and was filled with a report on the implementation of the Field School and a presentation of the UPLAND program. This phase is crucial for giving participants guidance and inspiration, as well as outlining the goals and advantages of the Field School activities.



**Figure 1** Opening of the Field School

The next stage is ice-breaking, which aims to build familiarity and cooperation between participants. In this stage, participants were introduced to each other, work groups are formed, and learning contracts are agreed upon. The formation of heterogeneous work groups facilitated the exchange of knowledge and experience among participants. In addition, the election of class leaders was also carried out to ensure smooth communication and coordination during the activity.

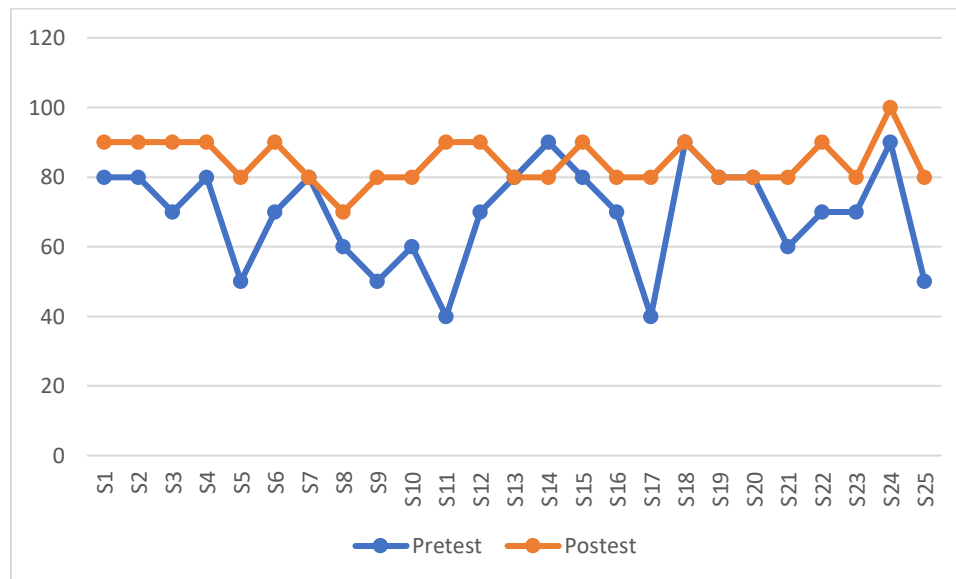
An initial evaluation was carried out to measure the level of knowledge of participants before attending the Field School. The method used was a ballot box, where participants answered 10 multiple-choice questions. The results of the initial evaluation showed that the average score of participants was 69.60. This value is the basis for facilitators to adjust training materials and methods to be more effective.

The training materials were delivered in the form of lectures, discussions, and direct practice. The materials presented include livestock feed cultivation, pen management, seed selection, maintenance techniques, and livestock reproduction management. Participants discussed in groups (see Figure 2). In addition, direct practice of livestock forage (HMT) cultivation was one of the most popular activities for participants. Each group got the opportunity to cultivate land and plant various types of quality grass.



**Figure 2** Group Learning

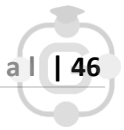
The final evaluation was conducted to measure the increase in participants' knowledge after attending the Field School. The results of the final evaluation showed that the average participant score increased to 84.40. This increase shows that the Field School activity is effective in increasing participants' knowledge and skills in livestock business management. An illustration of the increase in scores from pretest to posttest is in Figure 3. In addition, each participant also prepared a follow-up plan as a guideline for applying the knowledge and skills obtained in their respective livestock businesses.



**Figure 3** Comparison of Pretest and Posttest Scores for Each Field School Participant

Field Schools have proven to be an effective method for improving farmers' knowledge and skills in various agricultural sectors. Various studies have shown a significant increase in participants' knowledge and skills after participating in this program. For example, research on corn seed production technology found that Field Schools increased farmers' knowledge by 93.33% (Risna et al., 2020). Likewise, research on coffee cultivation reported that participants' knowledge levels increased from moderate (33.67%) to high (70.50%) after participating in the program (Wulandono, 2021). The effectiveness of Field Schools was also seen in livestock management, with participants' average scores increasing to 84.40 and each participant developing a follow-up plan to apply their new knowledge (Alam et al., 2023).

The closing of the Field School activities was officially carried out by representatives of the Department of Agriculture, Food Security, and Fisheries. The closing ceremony was filled with committee



reports, speeches, announcements, and prayers. This activity ended with a deliberation session or informal discussion between participants and facilitators.

Overall, the Livestock Business Management Field School Batch 1 activities ran smoothly and successfully. The increase in the average score of participants showed that this activity was effective in improving farmers' knowledge and skills. The direct practice of HMT cultivation was one of the most demanded by participants. The follow-up plan prepared by the participants is expected to be a guideline for applying the knowledge and skills obtained in their respective livestock businesses.

Field Schools have proven to be an effective method for improving knowledge and skills among farmers and livestock breeders. Studies have shown significant increases in participants' knowledge levels after attending Field school programs (Kusuma, Alam, & Zuber, 2023). The effectiveness of Field Schools is attributed to their practical approach, combining lectures, demonstrations, and hands-on applications (Risna et al., 2017). Participants' attitudes toward the material presented were generally positive, especially when the content offered added value and relative advantages (Risna et al., 2017). Similar improvements were observed in school management training programs, where participants showed increased understanding and skills in developing school programs (Riswandi, 2016). Additionally, Field Schools have been successfully applied to address specific issues, such as livestock waste management, resulting in improved community health and environmental conditions (Musfirah et al., 2018). Overall, Field school programs have demonstrated their ability to enhance participants' knowledge and skills across various sectors.

## CONCLUSION

The 1st Livestock Business Management Field School in Tasikmalaya Regency has been successfully implemented by following systematic stages from opening to closing. This activity is designed to improve the knowledge and skills of farmers in livestock business management. By using participatory learning methods, such as lectures, discussions, and direct practice, the Field School was able to provide a significant positive impact. The evaluation results showed an increase in the average score of participants from 69.60 in the initial evaluation to 84.40 in the final evaluation. This proves that the Field School is effective in improving the understanding and abilities of participants. In addition, the direct practice of cultivating Green Forage is one of the most popular activities, showing the relevance and practical application of the material presented.

The success of this Field School is in line with previous studies that have shown the effectiveness of Field Schools in improving the knowledge and skills of farmers in various agricultural sectors. The significant increase in knowledge, as seen in research on corn seed production technology and coffee cultivation, confirms that Field Schools are an effective method of transferring knowledge and technology. In addition, the preparation of follow-up plans by each participant is expected to be a guideline for applying the knowledge and skills obtained in their respective livestock businesses. Thus, the 1st Batch of the Livestock Business Management Field School not only provides short-term benefits but is also expected to have a long-term impact on the development of the livestock sector in Tasikmalaya Regency.

## Limitations and future direction

Although the Livestock Business Management Field School Batch 1 has shown positive results in improving participants' knowledge and skills, several limitations need to be considered. One of them is the limited duration of the training, which may not be enough to cover all aspects of livestock business management in depth. In addition, the evaluation conducted is still limited to measuring participants' knowledge through pre-tests and post-tests, so it does not fully reflect changes in behavior and application of skills in the field. For future directions, a more comprehensive evaluation is needed, including long-term monitoring of the implementation of the follow-up plan by participants. In addition, it is necessary to consider developing more in-depth and specific training modules, as well as utilizing information technology to support the learning and mentoring of farmers on an ongoing basis.



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## Statement and Declarations

The authors declare that this article is the result of a joint contribution to the implementation of the 1st Batch of Animal Husbandry Business Management Field School in Tasikmalaya Regency. All data and materials used in this article were obtained transparently and can be accessed for further research purposes. The authors also declare that there is no conflict of interest involved in the preparation of this article.

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