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SUSTAINABLE ANIMAL AND AQUATIC FOODS

Training of trainers on cattle breeds, breeding management and artificial insemination in Thuan Chau commune, Son La province

19 October 2026

Training Report



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Background and training objectives

The CGIAR Sustainable Animal and Aquatic Foods (SAAF) Science Program supports the development of more productive, inclusive, and sustainable livestock value chains in Son La province, with a particular focus on improving cattle genetics, animal health, and market opportunities for smallholder farmers. An important component of this work is strengthening access to quality breeding services through the establishment and support of cattle artificial insemination (AI) service provider cooperatives and local veterinary networks.

Building on experiences from the SAPLING project (Marshall and Huyen 2024, 2025) and the establishment of cattle AI service provider cooperatives in Chieng Mai and Phu Yen communes (Marshall and Huyen 2026a, b), the SAAF program has identified the need to strengthen both the technical capacity of AI service providers and their ability to transfer knowledge and practical skills to farmers and other livestock service actors. Improving farmers' awareness and understanding of cattle breeds, breeding practices, reproductive management, and the benefits of AI is needed to increase the adoption of improved breeding services and improve cattle productivity.

To address these needs, a training of trainers (ToT) course on cattle breeds, breeding management, and artificial insemination was held in Son La province on 2 June 2026 (Marshall and Huyen 2026c). The course targeted members of cattle AI service provider cooperatives, veterinary personnel at provincial and commune levels, and livestock extension workers who play important roles in providing technical advice and training to farmers. Following the ToT, participants received support from the SAAF program and experts from the Vietnam Institute of Animal and Veterinary Sciences (VIAVS) to organize and deliver two farmer training courses in Chieng Mai and Phu Yen communes. Participating farmers received these courses well and gave positive evaluations (Marshall and Huyen 2026d).

Building on these experiences, the current ToT in Thuan Chau aims to strengthen local capacity to deliver effective training and advisory services on cattle breeding and reproductive management. It will equip participants with updated technical knowledge, practical skills, and appropriate training approaches to support farmers in making informed breeding decisions, improving reproductive performance, and accessing quality AI services. The

training also contributes to strengthening local livestock service networks and supporting existing and emerging AI service provider cooperatives in Son La province.

The overall objective of the ToT in Thuan Chau is to strengthen the technical and training capacities of local livestock service providers and extension personnel to promote improved cattle breeding, reproductive management, and the effective adoption of artificial insemination among smallholder farmers.

The specific objectives are to:

- Strengthen technical knowledge of cattle breeds, breeding management, reproductive physiology, and artificial insemination.

- Improve understanding of reproductive disorders in cattle, including their identification, basic diagnosis, and appropriate prevention and intervention measures.

- Improve training and facilitation skills to enable participants to organize and deliver effective farmer training using participatory approaches and adult-learning principles.

- Strengthen local livestock service networks and the technical foundation of existing and emerging cattle AI service provider cooperatives in Son La province.

- Promote improved breeding practices by raising awareness of the benefits of AI, appropriate reproductive management, and genetic improvement for improving cattle productivity and farm profitability.

Training details

The in-person ToT course was conducted on 19 October 2026 at the Hall of the Thuan Chau commune People's Committee, Son La province. The training was delivered by experts from the Vietnam Institute of Animal and Veterinary Sciences (VIAVS), including Assoc. Prof. Dr. Le Thi Thanh Huyen, Mr. Tran Son Ha, and Mr. Nguyen Huy Huan, with logistical support from Mr. Le Tien Dung.

The training aimed to strengthen participants' technical knowledge of cattle breeding and reproductive management, and to equip them with the skills to organize and deliver subsequent training courses for local livestock farmers.



Introducing the training course (photo: VIAVS/Dzung).

The training covered three main components:

Methods for organizing training courses for livestock farmers

Participants were introduced to the basic steps involved in organizing a training course, including introducing the course and its objectives, and presenting the main training content. Emphasis was placed on preparing and structuring training sessions to ensure that farmers can understand and apply the knowledge in their own production contexts.

Key considerations when training livestock farmers

The trainers stressed the need to understand the target audience and adapting training content and delivery methods to farmers' knowledge, experience, and practical needs. Participants were encouraged to use accessible language, practical examples, and appropriate hands-on activities, while ensuring safety during demonstrations and practical exercises.

An important message was that local trainers have a particular advantage because they understand local farming conditions, cattle production practices, and the challenges faced by farmers. Their local knowledge and experience can help them communicate technical information more effectively and make training sessions more relevant to farmers' needs. However, trainers should share information that they understand correctly and confidently. They need to consolidate their technical knowledge before they deliver training on their own.

Technical topics on cattle breeding and reproductive management

The training covered nine technical topics that participants need to master to provide subsequent training and advisory services to farmers:

1. Beef cattle breeds and breeding management.
2. Anatomical characteristics of the female reproductive organs.
3. Reproductive activity in female cattle.
4. Hormones controlling reproductive activity in female cattle.
5. Estrus detection and the appropriate timing of artificial insemination.
6. Factors affecting the effectiveness of artificial insemination.
7. Common reproductive disorders in cattle.
8. Obstetric diseases in cattle.
9. Methods of assisting cows and intervening in cases of difficult birth.

Printed training materials were provided to all trainees at the end of the course. The complete training document and presentation in Vietnamese are enclosed with this report.

Participants

The ToT in Thuan Chau commune brought together seven male participants involved in cattle artificial insemination (AI), veterinary services, and local livestock support. Their professional backgrounds and levels of experience varied, ranging from experienced AI service providers to veterinary personnel who had not yet performed AI in cattle. This combination provided an opportunity to strengthen existing technical capacity while preparing additional local personnel to support improved cattle breeding and reproductive management.

Table 1: List of trainees

No.	Gender	Position and address
1	Male	Leader of Thuan Chau cattle AI service provider cooperative group, Xi Mang village, Thuan Chau commune.
2	Male	Member of Thuan Chau cattle AI service provider cooperative group, Nga village, Binh Thuan commune bordering with Thuan Chau commune
3	Male	Member of Thuan Chau cattle AI service provider cooperative group, Thuan Chau commune veterinarian, Chiềng Ly village, Thuan Chau commune
4	Male	Member of Thuan Chau cattle AI service provider cooperative group, Pan village, Thuan Chau commune
5	Male	Village veterinarian
6	Male	Pig AI service provider, village vet, Na Kai village, Thuan Chau commune
7	Male	Veterinarian and agriculture extension official of People's Committee of Thuan Chau commune

The participants represented two broad groups. The first consisted of experienced cattle or pig AI service providers, who have provided AI services for many years. Their practical experience is a good base for strengthening breeding services and sharing lessons learned with other local livestock service providers and farmers. The second group comprised veterinary and livestock service personnel with more limited experience in AI. Their participation helps broaden the local technical workforce's understanding of cattle reproductive management and the requirements for delivering effective AI services. Further practical training and supervised experience would be needed before participants without cattle AI experience could independently provide this service.

The participation of both experienced AI service providers and local veterinary personnel strengthens cooperation within the local livestock service network. Experienced providers can contribute practical knowledge, while veterinary personnel can help extend technical advice and farmer outreach across the commune.

Key outcomes and learnings

Improved understanding of the factors affecting AI effectiveness

A key learning from the ToT was the importance of strengthening farmers' understanding of cattle breed selection, breeding management, the benefits of AI, and accurate estrus detection. Although AI service providers possess the technical skills required to perform insemination, the success of the service also depends on farmers' ability to recognize signs of estrus and contact technicians at the appropriate time. Participants recognized that improving farmers' knowledge and cooperation is essential for increasing AI success rates, promoting genetic improvement, and improving cattle productivity. Farmers also need reliable information about suitable breeds and breeding sources, and appropriate reproductive management and animal care practices. This knowledge supports better breeding decisions and more effective use of AI services.

The discussions also showed that cattle AI services provide livelihood opportunities for local service providers. Improving service effectiveness through better farmer awareness and cooperation can therefore benefit both cattle-raising households and the service providers themselves.



Discussion during the training course (photo: VIAVS/Dzung).

Strengthening local trainers' capacity and confidence

The training showed the need to consolidate participants' technical knowledge and strengthen their ability to communicate it effectively to farmers. Several participants had previous experience in veterinary services or agricultural extension and had delivered training or provided technical advice in the past. However, further support is needed to strengthen their knowledge of cattle breeds and breed selection, reproductive physiology, AI procedures, reproductive health, and the management of breeding cows.

Participants recognized that effective farmer training requires more than technical knowledge alone. Trainers must be able to explain information clearly, use practical examples, respond to farmers' questions, and adapt their approaches to local farming conditions. They should also ensure that the information they communicate is technically accurate and within their areas of competence.

The ToT therefore reinforced the need to combine technical capacity development with practical training and facilitation skills. Developing these complementary skills will improve participants' confidence and readiness to deliver farmer training independently, with appropriate technical support where needed.

Identifying practical training needs and technical challenges

Participants shared experiences and challenges encountered in their professional activities, particularly in managing reproductive problems and difficult calving cases. Difficult births and retained placenta were identified as important issues for which further technical guidance and opportunities to discuss practical cases would be valuable.

The discussions indicated that future capacity development should include more practical and case-based learning, supported by experienced specialists. Priority areas include reproductive examination, understanding the reproductive cycle of female cattle, managing breeding cows, identifying common reproductive disorders, and determining appropriate responses to difficult calving and other obstetric complications. Practical sessions should also reinforce the limits of routine intervention and the need for timely referral to qualified veterinary professionals when cases are beyond the provider's competence.

Participants also identified improved feed management, feed processing, and reproductive cow care as relevant topics for future farmer training. These topics complement breeding interventions by helping farmers provide the

nutrition and management needed to support reproductive performance and the development of genetically improved cattle.

Recognizing the importance of local trainers and farmer–service provider relationships

Thuan Chau commune covers a large geographical area, making the timely provision of livestock services challenging. Local trainers and service providers can help because they understand local farming systems, farmers' circumstances, and the practical constraints affecting cattle production.

Participants identified farmer awareness of cattle breeds and reliable breeding sources as an important training priority. They also emphasized the need to teach farmers how to recognize estrus accurately and when to contact AI technicians. This practical knowledge can improve communication between farmers and service providers, reduce delays in service delivery, and support more effective use of AI.

Farmer training can also build mutual understanding and trust. By explaining the benefits and limitations of AI, discussing breeding options, and sharing practical experience, local service providers help farmers make informed decisions and build confidence in using breeding services. Direct interaction also enables service providers to better understand farmers' needs and identify where further technical assistance is needed.

Strengthening cooperation and the sustainability of local AI services

The training reinforced the value of organizing AI service providers into a group that can share knowledge, exchange practical experiences, support one another in addressing technical challenges, and maintain links with experienced VIAVS specialists. Group-based cooperation can help reduce professional isolation, strengthen technical networks, and create opportunities for continued learning.

Participants expressed willingness to continue delivering training for cattle-raising farmers in Thuan Chau commune. They welcomed the prospect of initial support from the SAAF program and VIAVS specialists, while expressing hope that commune authorities and relevant provincial livestock and veterinary agencies would engage the group in future training activities.

This willingness is a good basis for developing a locally anchored training and advisory network. Continued collaboration among AI service providers, commune veterinary personnel, extension staff, VIAVS experts, and local authorities is needed to sustain training beyond the initial project support, improving service quality, and increasing farmer demand for effective AI services.

Key lessons and recommendations for follow-up

The ToT produced several lessons for subsequent farmer training and capacity development:

- Prioritize practical knowledge that farmers can apply directly: Training should focus on cattle breed selection, the benefits and appropriate use of AI, accurate estrus detection, and timely communication with AI technicians.

- Strengthen trainers' technical knowledge before independent delivery: Participants need further opportunities to consolidate their understanding of breeding management, female reproductive physiology, AI procedures, reproductive examination, and the management of breeding cows.

- Adopt participatory and case-based training methods: Real cases and practical experience should be used to help trainers and farmers understand common reproductive problems, difficult calving, retained placenta, and appropriate responses.

- Combine breeding with animal nutrition and management: Farmer training should address feed management, feed processing, and the care of reproductive cattle alongside genetic improvement and AI.

- Provide mentoring and follow-up support: Initial farmer training should be supported by SAAF and VIAVS experts, particularly while participants are building their confidence and facilitation skills. Feedback from farmers and observations of training delivery can guide subsequent improvements.

- Strengthen local coordination and group-based learning: Cooperation among AI service providers, veterinary personnel, extension workers, and relevant local authorities should be encouraged to support farmer outreach, technical exchange, and continuity of training.

- Promote inclusive access to training and services: Given the large geographical area of Thuan Chau and the current absence of female veterinary officers in the commune, future activities should consider how to reach farmers across remote areas and encourage appropriate participation by women and other groups who may face barriers to accessing livestock services.

The ToT laid the groundwork for strengthening the capacity of local AI service providers and veterinary personnel to deliver farmer training on cattle breeding and reproductive management. Participants showed willingness to continue supporting local farmers and recognized that more effective AI services require both competent service providers and informed, engaged farmers. With continued technical mentoring, practical skills development, and institutional coordination, the local training network has the potential to improve farmer access to breeding knowledge, strengthen the effectiveness of AI services, and contribute to more productive and sustainable smallholder cattle production in Thuan Chau commune.

Next steps

Following the ToT, the trained participants are expected to deliver two farmer training sessions in Thuan Chau commune on 26–27 October 2026. The sessions will focus on cattle breed selection, breeding management, and artificial insemination (AI), with the aim of improving farmers' understanding of suitable cattle breeds, appropriate breeding practices, the benefits of AI, and accurate estrus detection.

The farmer training sessions will give participants an opportunity to apply the knowledge and training methods acquired during the ToT. The SAAF program and VIAVS experts should provide initial mentoring to help participants prepare materials, facilitate discussions, respond to questions, and communicate technical content accurately.

Following the sessions, feedback should be collected from both trainers and participating farmers to assess the relevance of the training content, farmers' understanding of key messages, and areas requiring further explanation or practical demonstration. The findings can inform subsequent training activities and identify additional capacity-building needs among local AI service providers and veterinary personnel.

Continued coordination among the SAAF program, VIAVS, local AI service providers, commune authorities, and relevant livestock service agencies will be important for sustaining farmer training and strengthening access to quality cattle breeding services in Thuan Chau commune.

Challenges and recommendations

A key practical challenge for organizing farmer training in Thuan Chau is the seasonal workload associated with coffee harvesting. For over two months before the planned training (September to mid-November), coffee harvesting is the dominant agricultural activity in the commune, requiring substantial time and labor from farming households, including women. Scheduling training during normal working hours may therefore reduce farmers' availability and limit participation, particularly among women who contribute to both agricultural production and household responsibilities.

To accommodate farmers' seasonal workloads and maximize participation, the following measures are recommended:

Schedule farmer training in the evening: The planned training sessions on 26–27 October 2026 should preferably be organized in the evening at villages, subject to consultation with local farmers and consideration of suitable

travel arrangements. This would allow participants to complete their coffee-harvesting activities before attending training.

Promote women's participation: Evening scheduling near home may help women who are occupied with harvesting and other daytime responsibilities to attend. Training organizers should consult women farmers and consider their practical needs when determining the start time, duration, and venue.

Use concise, practical, and locally relevant content: Training should prioritize information that farmers can readily apply, particularly cattle breed selection, breeding management, the benefits of AI, and accurate estrus detection. Practical examples and opportunities for questions and discussion should be incorporated to maximize learning within the available time.

Coordinate closely with local stakeholders: The trained participants should work with commune authorities and local livestock service providers to inform farmers in advance, select convenient training venues, and confirm suitable session times.

Monitor participation and learning outcomes: Attendance, including the participation of women, should be recorded, and brief feedback should be collected to assess whether the timing and delivery methods are appropriate. This information can guide the scheduling of future farmer training activities during periods of high agricultural workload. In Thuan Chau, cows were inseminated mainly during the July–August season. During this period farmers are quite available for the training, and both farmers and service providers are very interested in training on cattle breeds, breeding and AI.

Adapting the training schedule to the local agricultural calendar lets farmers take part without disrupting their livelihoods.

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