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SUSTAINABLE ANIMAL AND AQUATIC FOODS

Training farmers on cattle breeds, breeding management and artificial insemination by trainees in Thuan Chau commune, Son La province

November 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, northwest Vietnam, with a 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 local cattle artificial insemination (AI) service provider cooperatives and veterinary networks.

Building on the experience of the CGIAR Initiative on Sustainable Animal Productivity for Livelihoods, Nutrition and Gender Inclusion (SAPLING) (Huyen and Marshall 2024, 2025) and the establishment of AI service provider cooperatives in Chieng Mai, Phu Yen and Thuan Chau communes (Huyen and Marshall 2026), SAAF has focused on strengthening both the technical capacity of local AI service providers and their ability to pass knowledge on to farmers. Following farmer training in Chieng Mai and Phu Yen communes, supported by SAAF and experts from the Vietnam Institute of Animal and Veterinary Sciences (VIAVS) (Marshall and Huyen 2026b), the same approach was introduced in Thuan Chau commune.

As a first step, a training of trainers on cattle breeds, breeding management and AI was held for local AI service providers and veterinary staff in Thuan Chau on 19 October 2026 (Marshall and Huyen 2026c). SAAF then supported the trainees to organize and deliver two farmer training courses in the commune on 26–27 October 2026. This training cascade transfers technical knowledge from experts to local service providers and then to cattle farmers, while building local capacity to provide continued breeding advice and services.

The farmer training focused on cattle breed selection, breeding management, the benefits of AI and reproductive management, especially recognizing when a cow is in heat (estrus). Particular attention was given to helping farmers recognize heat signs accurately and contact AI technicians at the right time, as these are essential to AI success. The training also gave members of the local AI service provider cooperative an opportunity to introduce their services directly to farmers and build trust with the farming community.

The overall objective was to improve farmers' knowledge and practices in cattle breeding and reproductive management, while strengthening their access to and effective use of local AI services. The specific objectives were to:

- Improve farmers' understanding of cattle breeds, appropriate breed selection and breeding management, to improve cattle productivity and the quality of offspring.
- Increase awareness of the benefits of AI, particularly its contribution to genetic improvement, better calf characteristics and the higher economic value of cattle.
- Strengthen farmers' practical knowledge of reproductive management and their ability to identify heat accurately and contact AI technicians at the right time.
- Introduce local AI service providers to farmers and strengthen communication, trust and cooperation between them.
- Promote the continued provision and adoption of quality AI and reproductive management services through strengthened local service networks.

Training content

The two courses covered four technical topics, focusing on practical knowledge and skills for cattle breeding management and effective use of AI services (Marshall and Huyen 2026b):

- **Beef cattle breeds and breeding management.** Common beef cattle breeds and their characteristics under local conditions, with guidance on selecting suitable breeding animals and improving herd genetic quality. This was a major focus.
- **Benefits of AI.** The advantages of AI over natural mating, particularly access to improved genetics, opportunities for systematic herd improvement and the value of reliable local AI services.
- **Heat detection and timing of insemination.** Common behavioral and physical signs of heat, when to contact an AI technician, and why timely insemination matters for AI success. This was also a major focus.
- **Calving assistance and difficult births.** Normal calving, appropriate assistance during delivery, recognizing difficult births, and seeking timely support from trained veterinary or livestock service providers when needed.

The courses were delivered by trainees from the 19 October training of trainers: the leader and two members of the Thuan Chau cattle AI service provider cooperative, all men. The commune veterinarian for Thuan Chau and the village veterinarian for Linh Luong also attended, to help promote the practices among cattle and buffalo

farmers and to report on project activities to local authorities. VIAVS experts Le Thi Thanh Huyen and Tran Son Ha supported the courses, with logistical support from Le Tien Dung.

Before the courses, the trainees and VIAVS experts jointly reviewed and agreed the main presentation content and illustrations, drawing on results from earlier projects in Son La and on the cooperative members' own field experience. The three trainers were confident presenting to farmers, having previously worked as agricultural extension workers and veterinarians.

Participants

A total of 50 people took part in the two courses, 29 women (58%) and 21 men (42%), from three villages, plus one village veterinarian (Table 1). Farmers were enthusiastic to attend even though the training fell during the coffee harvest season (September to November).

Table 1: Number of women and men trained, by village, Thuan Chau commune, 26–27 October 2026

Village	Women	Men	Total
Bo	19	8	27
Dan Chu	4	7	11
Chieng Pac	6	5	11
Linh Luong (village veterinarian)	0	1	1
Total	29 (58%)	21 (42%)	50

The courses were delivered by three trainers (all men), who are not included in Table 1.

Key outcomes and learnings

Farmers took an active part in the training, sharing their knowledge, experiences and concerns about cattle breeding and reproductive management. Local examples, photographs of AI-crossbred cattle from Son La, and explanations in accessible language, including Thai as well as Vietnamese, helped farmers relate the technical information to their own conditions (Figure 1). Five main outcomes emerged.

Better understanding of cattle breeds and breeding strategies

Discussions compared local Yellow cattle with crossbred and exotic beef breeds in terms of body size, growth potential, carcass characteristics and suitable production conditions. Farmers recognized that carcass yield depends on feeding and management as well as breed. They were familiar with local Yellow and H'Mong cattle and with Lai Sind cattle introduced earlier to improve local herds. Many were interested in larger, more muscular breeds such as Brahman, Droughtmaster and Red Angus, but asked whether these would suit smallholder conditions and whether they could feed and manage them adequately.

The trainers explained the rationale for crossing local cows with improved beef breeds, combining the adaptability and reproductive traits of local cattle with the growth and meat production of exotic breeds. Photographs of crossbred calves produced through AI by the Mai Son cooperative, supported under SAPLING, were particularly well received. The trainers stressed that breed choice should reflect farmers' goals, feed resources and management capacity rather than simply the largest or most attractive animals. Brahman and Senepol were discussed for developing productive breeding cows, while Belgian Blue crossbreeding was presented mainly for beef production rather than for keeping female offspring for breeding, given their reproductive limitations. The cooperative also introduced its ability to supply quality semen from different breeds and to advise on breed choice.

Greater awareness of the benefits and economic value of AI

Farmers showed strong interest in the advantages of AI over natural mating. The trainers explained that AI gives access to genetically improved sires, improves offspring quality, avoids moving cows to find breeding bulls and lowers the risk of disease spread through contact between animals. When asked whether they still took cows to other villages for mating, farmers replied with humor that they now simply called the AI technician instead of spending a whole day moving their cows, a sign of growing familiarity with local AI services.

Some households had not yet adopted AI because natural mating is seen as free, while AI costs about VND 300,000–400,000. A VIAVS expert presented an economic comparison of calves from natural mating with local bulls and from AI with improved beef breeds, showing that the higher growth and weight of crossbred offspring can return substantially more over a similar rearing period. Farmers who had already used AI reported that AI-produced calves looked better, grew faster and sold for more. Breed preferences differed among ethnic groups: Thai farmers favored red and yellow breeds such as Droughtmaster, Brahman and Lai Sind, while H'Mong farmers were also interested in Red Angus.

Improved knowledge of heat detection and reproductive management

Heat detection generated the most interest. Farmers learned the common signs of heat, including vocalization, restlessness, reduced feed intake, mounting or standing to be mounted, and mucus discharge, with particular attention to how the mucus changes through the heat period. Field photographs and local Thai terms helped make the explanations clear. The trainers stressed that not all cows show obvious signs, so regular observation is needed. Farmers were encouraged to tell AI technicians which signs they saw and when, and technicians to ask about them, to judge the best time to inseminate.

The training also covered basic signs of pregnancy and the importance of confirming pregnancy before further treatment, and advised farmers to record insemination dates to track pregnancy and expected calving. Farmers described cows that did not return to heat for months after calving, which were sometimes sold without the cause being known. The trainers explained possible causes, including reproductive tract infections, ovarian problems and persistent corpus luteum, and advised farmers to seek examination by trained AI technicians or veterinary staff rather than attempting treatment themselves. Good nutrition and care during pregnancy and lactation were highlighted as important for reproductive recovery.

Improved awareness of calving management and reproductive health

Farmers shared their experience of assisting at calving and acknowledged uncertainty about recognizing abnormal presentations and when to intervene. Using photographs of normal and abnormal calf positions, the trainers explained that farmers can assist with normal presentations, but difficult cases need timely help from trained veterinary or livestock service providers, as incorrect pulling can seriously injure cow and calf. Farmers observed that cows kept confined with little movement may have more difficult calvings, and the trainers emphasized exercise, balanced nutrition and close monitoring of pregnant cows, together with breeding records to anticipate calving.

Some farmers had used reproductive hormones on the advice of acquaintances rather than after professional diagnosis. The trainers explained that hormones should only be used after proper examination and veterinary guidance, as incorrect use can cause reproductive complications.

Stronger links between farmers and service providers

The training let cooperative members introduce themselves and their services directly to farmers, and farmers asked for their contact details and those of the technical experts. SAAF handed over AI equipment to the cooperative at the end of the training, including a microscope, a liquid nitrogen container and insemination guns, and farmers received measuring tapes and record books for estimating cattle weight. More than 30% of participating households had already used cattle AI, and their positive experience was valuable local evidence. Concerns remained about service costs, breed suitability, reproductive problems and the risk of difficult calving.

The training also showed the value of the training-of-trainers approach: local service providers delivered technical information drawing on their practical experience and knowledge of local conditions, while VIAVS experts added specialist knowledge and answered farmers' technical questions.



Figure 1: Farmer training in Thuan Chau, 26–27 October 2026: (a) a cooperative member delivering a lecture; (b) farmers at one of the training courses; (c) farmers contributing to the discussion with trainers and experts; (d) farmers collecting cooperative members' contact details; (e) handover of AI equipment to the Thuan Chau cooperative; (f) participants with the AI equipment provided by the project. Photos: VIAVS/Le Tien Dung, except (d) VIAVS/Le Thi Thanh Huyen, and (e) and (f) VIAVS/Le Tien Dung and Tran Son Ha.

Key learning

- Farmers increasingly recognize that AI can produce larger, faster-growing and more valuable calves, provided suitable breeds and management are chosen. Concerns about difficult calving with improved breeds were discussed and clarified.

- Farmers improved their understanding of heat detection and timely contact with AI technicians, and became more aware that long absence of heat or repeated failed mating may need professional examination and treatment.
- Farmers recognized the importance of pregnancy monitoring and calving management, and the risks of using reproductive hormones without professional advice.
- Farmers want access to quality semen, more information on suitable breeds and continued contact with local AI service providers.

For future training, technical content should be communicated in simple language with local examples, photographs and farmers' own experiences; real cases of AI-crossbred cattle from Son La are more persuasive than theory alone; and training should cover the whole reproductive process, from breed selection and heat detection to pregnancy monitoring and calving care, not only AI.

Next steps

To build on the momentum from the training and further promote AI, farmer experience-sharing and community-based demonstrations of successful AI breeding will be supported through the AI cooperatives and farmer networks:

- **Commune-level farmer experience-sharing meetings.** Small meetings where farmers who have successfully used AI share their experience of the quality, growth and market value of AI-crossbred calves, breeding decisions and using AI services, with cooperative members adding information on breed selection, semen sources and service delivery.
- **Community showcases of outstanding AI-produced cattle.** Showcases in one community in each of three to four project communes to recognize outstanding AI-produced calves or cattle, assessed by cattle experts, researchers, cooperative members and local authorities. Owners will share their breeding, feeding and management practices and market prospects, and cooperative members will explain the breeds, semen and services available. Selected cases can be documented for use in later training and AI promotion.

Challenges and recommendations

Farmers have different levels of knowledge and experience of cattle breeding and AI, and some remain hesitant because of the cost of AI compared with natural mating. Limited understanding of breed suitability, reproductive management and the long-term economic benefits of genetic improvement may also affect their decisions. Seasonal work, particularly the coffee harvest, can limit farmers' availability for training and experience-sharing.

We recommend continuing practical, locally adapted training and technical advice with more visual materials, local success stories and farmer testimonials; strengthening the role of AI cooperatives and farmer networks in providing reliable services and promoting AI through peer learning; scheduling meetings and showcases at convenient times to encourage broad participation, particularly by women; and following up participating farmers to monitor AI adoption, breeding outcomes and perceptions of economic benefit over time.

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