

Training paths to improve health and livelihoods for Myanmar pig farmers

The Myanmar Pig Partnership piloted two approaches to farmer training in Yangon Region: one participatory, one more advisory. The work offers useful practical advice which can help inform further initiatives. It also highlights the limitations training interventions alone offer.

BACKGROUND

Economic development in Myanmar has been accompanied by growing demand from Myanmar people for livestock products, including pig meat. Better understanding of how different pig farming systems and practices that attempt to meet this new demand affect disease spread between pigs, and from pigs to people, could help to identify safer and more efficient pig production practices. This could result in healthier pigs and people and less precarious livelihoods for farmers.

However, changing farming practices requires effective farmer training offering suitable information and motivation for any change. This is in addition to the removal of structural barriers that may in any case prevent change.

The Myanmar Pig Partnership undertook pilot activities and analysis of different training approaches in different scales of pig farming in Yangon Region to better understand how training could influence changes in farmer practices to decrease disease risk. It also explored other barriers affecting change on pig farms, such as inadequate availability of veterinary expertise and affordable credit to support livestock production. This was important to appreciate the limitations of training alone.

Research implications

- Training topics should be relevant and address what incentivises farmers.
- The desired change should be feasible, so structural barriers to change must be considered when setting objectives.
- Training delivery must be inclusive so marginalised groups such as women can participate.
- Clear, understandable explanations will increase the likelihood of change.
- Multi-target training programmes that address interdependent people, e.g., farmers, traders and veterinarians, could have synergistic outcomes.
- A wider, multisector approach to deliver change, including a strengthening of veterinary health and social protection systems, is needed alongside farm-level intervention.



OBJECTIVE AND APPROACH

This pilot study sought to assess the appropriateness and relevance of training approaches, rather than demonstrate a change in any specific outcome at this preliminary stage. Training approaches were piloted across 19 farms at three scales of pig production: seven backyard farms in peri-urban Township A; 10 semi-intensive farms in rural Townships B and C; and two intensive farms in the designated livestock intensive zone of rural Township C.

Training topics were developed around risks related to health and productivity identified by baseline studies in 2016-17 (see *Further reading*). The topics were as follows:

- **Pig productivity.** This encompassed opportunities to improve farmer incomes through reproductive efficiency and greater piglet survival by better understanding of feeding, general husbandry and infectious disease prevention.
- **Antimicrobial resistance (AMR).** This sought to raise awareness of AMR and the importance of good antimicrobial stewardship.

The project assessed two complementary approaches: Veterinary Advisory Visits (VAVs), an advisory approach, and farm management workshops (FMWs). (See box below.)

Training approaches

Veterinary Advisory Visits (VAVs) were implemented by project veterinarians from Myanmar's Livestock Breeding and Veterinary Department (LBVD). They visited each farm every two months to discuss farming practices and provide tailored information and advice (both therapeutic and preventative). VAVs were conducted by LBVD project staff (supported by project partners with specialist pig health expertise) across all 19 farms. The local Township Veterinary Officer and Community Animal Health Worker were encouraged to attend.

Farm Management Workshops (FMWs) were designed to foster learning based on interaction with peers, sharing experiences and challenges, and participating in farm visits where feasible. A facilitator (an LBVD veterinarian given mentoring in this approach) encouraged the farmers to pay attention to the details of farming techniques and reflect on their own practices based on other people's expertise. The approach drew from the Farmer Field School method. Sessions were themed and conducted fortnightly. LBVD granted permission to run FMWs in one township (B) only, comprising six semi-intensive farmers, who also were exposed to VAVs. Two additional semi-intensive farmers in Township B attended FMWs, though they were not enrolled on the VAVs or in the project's sampling work.

Researchers external to the training team interviewed the six VAV-only backyard farmers in Township A, and the eight semi-intensive farmers in Township B, six who received both VAVs and FMWs and two who received FMWs only. Participant experiences

and reflections on the benefits and limitations of the training were considered alongside preliminary veterinary and microbiological data. Intensive farmers were not interviewed, though production data and progress were reviewed as part of the VAV process.

FINDINGS

1. Understanding the science enhances interest.

Visiting veterinarians used accessible ways to discuss scientific rationales behind recommended practices in both the FMWs and VAVs, for example using pictures to explain diseases transmission. Interviews indicated that these explanations were welcomed.

Experienced semi-intensive farmers in Township B tended to prefer the VAV approach in which they received tailored advice from qualified veterinarians. The FMW approach was though valued with some

farmers commenting that they learned from more experienced farmers.

2. Peer learning motivates farmers

FMWs allowed farmers to learn from others sharing similar constraints, economic opportunities, and ideas and practices. The assumption was that the practices and adaptations of one farmer are likely to be perceived as more applicable to another in a similar context than generic recommendations from outside experts. Interviews indicated that farmers were motivated to learn from peers and adapt new techniques,

through discussion and visits to other farms.

3. Reflecting on practices increases engagement

The systematic and strategic training approach of FMWs and VAVs allowed farmers to reflect on their knowledge and practices developed through experience and interaction with others, as well as to examine what needed to be improved. E.g., the advice provided on nutrition for growing pigs encouraged farmers to plan feeding schedules and the benefits were seen.

4. External challenges constrain change

Interviews reinforced the wider finding from the project that poverty and precarity of livelihoods prevent particularly smaller-scale farmers from investing in improving practices such as biosecurity. Financial constraints were much less apparent for intensive farmers, who implemented recommendations from VAVs, including vaccinations and breeding practices, despite the cost.

Other constraints identified were a lack of awareness of biosecurity by traders and pig buyers and a lack of available expert veterinary services, including laboratory diagnosis. Backyard farms faced affordability constraints to accessing veterinary services.

Women faced challenges in attending training, likely due to the caring responsibilities and household duties that they are expected to prioritise.

5. Incentives differ with farm intensity

Backyard farmers' main concern was to reduce costs. They reported keeping pigs as an insurance policy as the sale of a pig can provide cash at a time of financial need. Investment to increase profitability was neither feasible nor a priority.

The appetite for learning new skills was also lower among backyard farmers. Semi-intensive farmers were more eager to learn and adapt better practices suggested by VAV and FMW facilitators as well as peer farmers because they recognised pig farming as their business. As FMWs were not conducted with backyard farmers, it is unclear whether FMWs in addition to VAVs might have contributed to motivating backyard farmers to adapt improved practices.

6. Complex information limits understanding

Farmers reported that the complexity of some of the information presented limited their ability to understand and thus they did not see the value of addressing these issues. Examples here included antibiotic resistance and recording antibiotic usage and production data.

7. Positive change was difficult to detect, particularly for backyard farms

The pilot study was not intended to result in detectable outcomes. Nevertheless, observations from the follow-up farm surveys and sampling may provide additional tentative information to assist analysis of the training approaches.

Changes in **biosecurity practices** on backyard farms were limited, although more farms reported excluding visitors from pig pens. Semi-intensive farmers reported a range of changes including excluding visitors from pig pens, increased hygiene at entry to pens and other initiatives such as attempts at offsite transport collection. Intensive farms continued with good biosecurity and reported upgrading of vehicle disinfection and tightening of visitor controls.

No changes in **disease management practice** were reported among backyard farms. Changes reported among semi-intensive farms included a collective disease notification system at village level and the provision of an isolation pen for sick pigs. Intensive farms' in-house veterinarians eagerly took up the project's training for diagnostic investigation and antibiotic sensitivity testing.

Changes in **feeding practice** were not detectable across any of the farm scales.

Poor routine data recording by semi-intensive and backyard farmers made it impossible to track **productivity practices**. Intensive farmers collected routine production data and were responsive to recommendations based on specialist analysis of it; one intensive farmer reported an extra live-born piglet in each litter based on VAV recommendations.

Follow-up farm sampling revealed increased prevalence of **ESBL 'E. coli'** in the 2019-20 sampling window, compared with baseline sampling in 2016-17, for all scales of production. Antibiotic use increased on the intensive and semi-intensive farms but stayed at a low and unchanged level on backyard farms.

DISCUSSION

The two approaches to training piloted by the Myanmar Pig Partnership appeared to impact farmer motivation differently across the scales of pig production. The study also confirmed the importance of selecting directly relevant training topics, identified through multidisciplinary studies. This is in addition to selecting topics over which farmers have some agency for control, given structural constraints.

It should be noted that only a small number of farms participated in the study, which was limited by project resources, with some farms ceasing trading and also

some wariness among intensive farmers. In addition, permission to run the FMWs was limited. It is also possible that farmer awareness of structural barriers limited the potential of training to motivate for change. Within these caveats, however, it is possible to say:

Backyard farmers showed little evidence of motivational change from the instructional VAV approach. FMW-based approaches may be more effective in building awareness and motivation to move away from risky practices, such as using kitchen waste as pigfeed and surface water for pigs' drinking. Structural barriers to change, such as a lack of access to credit or affordable veterinary services, were clear.

Semi-intensive farmers who received the combined FMW and VAV approach were well motivated to change behaviour in terms of biosecurity, feeding and other preventive practices. However, the extent was limited by constraints, including a lack of affordable credit or influence over traders' practices and low availability of diagnostics and veterinary healthcare. Increasing motivation for change while not addressing structural constraints in parallel may trigger frustration and reduced uptake of future training initiatives.

Intensive farmers placed high value on the VAVs' supplementary specialist veterinary advice for improving productivity. They were also willing to invest in recommended laboratory investigation and antibiotic sensitivity testing, although constrained by a lack of national veterinary diagnostic laboratory capacity. The FMW approach, although not implemented on intensive farms, may be comparable to the Myanmar Livestock Federation's pig group, which provides a forum for intensive pig producers to meet and exchange experiences.

Low productivity was identified as a leading opportunity for intervention for semi-intensive and intensive farmers, who found the VAVs highly motivational. In contrast, backyard farmers were more concerned to achieve lowest input costs rather than to address low productivity.

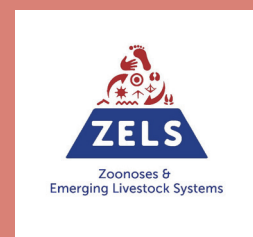
Given that farmers reported the AMR awareness training too complex and they have little control or knowledge of the antibiotics given to their pigs, there could be value in focusing future training on AMR and antibiotic stewardship towards more relevant actors involved in drug administration and supply (as well as within a stronger legislative framework).

About the research

'An integrated management approach for surveillance and control of zoonoses in emerging livestock systems: Myanmar Pig Partnership' was a five-year (2016-2021) interdisciplinary project exploring disease risk accompanying changing pig production patterns in Yangon Region, Myanmar. The project investigated intensification in the production and supply of pig meat and how related factors, including socioeconomic conditions for farmers and people's understandings and practices, may be impacting the risks for human and animal health. The focus was on zoonotic bacterial infections, dynamics of antibiotic resistance, uptake of preventive health practices and, ultimately, achievement of better livelihoods. Fieldwork was conducted before 2021.

Find out more at myanmarpigpartnership.org

The project was a collaboration between the University of Cambridge (leading), Myanmar Livestock Breeding and Veterinary Department, Oxford University Clinical Research Unit, Vietnam, and Institute of Development Studies, UK. It was



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Further reading

This research briefing is best read in conjunction with other research briefings from the Myanmar Pig Partnership:

- Pig meat and food safety in Myanmar: evidence to support practice
- Taking Myanmar's AMR National Action Plan forward

Also, the following papers:

- Value chain governance, power and negative externalities: what influences efforts to control pig diseases in Myanmar. A. Ebata *et al.*
- Why behaviours do not change: structural constraints that influence household decisions to control pig diseases in Myanmar. A. Ebata *et al.*

The following are in production:

- High coliform load and AMR in pig farms and slaughterhouses in Yangon, Myanmar. N.T. Thanh, H.M. Than *et al.*
- ESBL-producing *E. coli* isolated from pig production chain in Yangon, Myanmar. N.V. Trung, T.T.B. Chieu *et al.*
- AMR profile of *E. coli* isolated from farm and slaughterhouse samples. N. T. Thanh, A.Z. Moe *et al.*
- The farming practices and antimicrobial usage in different pig farm-scales in a longitudinal study in Myanmar. N.V. Linh and A. Z. Moe *et al.*

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