Welcome to the third instalment of the Mekong Livestock Research (MLR) newsletter! 2017—18 was another exciting year for the teams in Laos, Cambodia and Australia, with the Cambodian based project drawing to completion at the end of 2018 and our two Laos projects entering the second half of their five-year span. A lot of work has gone into the success of all three projects, with the team observing and recording numerous positive results and impacts of the research activities. This newsletter contains updates on core project activities, information on new initiatives, and updates on student research activities. Feedback, as always, is welcome as the team strives to achieve successful outcomes for our collaborating smallholder farming families and support staff.

2017—2018: What’s been happening?

Village-based biosecurity for livestock disease risk management in Cambodia (AH/2011/014)

The Cambodian project entered the final stages during the 2017—18 year. The final phase consolidated project activities that had been occurring throughout the project, including biosecurity and forage training, plus conducted investigations into the livelihood impacts of livestock and forages.

By the end of 2017, there were 178 farmers planting a total of 438,800m² of forages. Some farmers were also observing the potential of forages to create a new income source through a market for the sale of cut grass and seedlings. The forage plots have generated household time-savings of 2.1 hrs/day with a marked reduction in the number of children involved in forage and feeding activities; down to 5%. These time savings translate into children spending more time on their education, plus adults undertaking other income-generating activities. Increased incomes from cattle has meant farmers are able to stay in their communities rather than seeking work elsewhere.

The final six months of 2018 will see completion of our project activities, with a focus on both the final surveys that will assess the overall impact of project activities, and the development of extension resources for dissemination to stakeholders throughout Cambodia.
Project AH/2012/067 has entered its second half and is still enjoying a high level of village and farmer retention and engagement. Between November 2015 and November 2017, a total of 13,277 Foot-and-Mouth disease (FMD) and Haemorrhagic Septicaemia (HS) vaccinations were administered to cattle and buffalo located in project sites, accompanied by biosecurity extension activities. Collectively, farmers are now growing 1,481,000 m² of forages for use in target feeding and fattening of livestock.

The project team and collaborators initiated a range of studies in the last 12 months, including an investigation of the seroprevalence of reproductive and zoonotic diseases of importance in Laos, and a financial impact survey of a large tropical blackleg outbreak that occurred in cattle in Savannakhet province in 2017. Zoetis Australia Pty Ltd donated several thousand doses of vaccine to combat the outbreak. Importantly, the seroprevalence of Q Fever and Brucellosis in goats was investigated in collaboration with the Mahidol Oxford Tropical Medicine Research Unit, identifying that seropositive animals appeared confined to recently imported animals in developing commercial enterprises.

Negative disease reporting continues and has successfully provided evidence of absence of 9 of the 11 focus diseases (HS, anthrax, Classical swine fever, porcine respiratory and reproductive syndrome, avian influenza, fowl cholera, Newcastle disease, duck plague and rabies). FMD was detected near one of the project locations in Xayabouly province. However no cases were reported in project sites.

The AH/2012/068 project also entered the second half of the project timeline and has witnessed many positive outcomes and feedback. For example, farmers were enthusiastic in their appreciation of the use of molasses-based block supplements provided to the project by the Four Season Company Pty Ltd from Brisbane. Currently, urea molasses blocks (UMB) are being trialed, providing N to animals in palatable blocks to supplement low quality dry season feed; trends of increased weight gains and increased milk production from lactating cows with calves is emerging. Medicated molasses blocks containing triaclabendazole or fendendazole were initially trialed successfully in 2017 and each be trialed again in the second half of 2018 (with modified dosages of the actives), with parasitological investigations to monitor the impact and efficacy of controlling *Fasciola* sp and *Toxocara* sp in cattle and buffalo, respectively. The farmers have enjoyed using these blocks due to their high palatability for cattle and the added benefit of animals being easier to handle.

Project staff have conducted meetings to educate traders on their responsibilities under the new veterinary law that have been initiated in Laos. The new law aims to more safely facilitate the quantity and quality of animals and animal products produced. The younger traders were positively engaged in these meetings and it is hoped trader compliance will improve the uptake of project-promoted biosecurity practises.

Since the FMD and HS vaccination activities began in November 2015 the project team has administered a total of 59,726 FMD and HS vaccinations.
Reproduction Workshop, Cambodia 2017

Following on from the highly successful large ruminant reproduction workshop held in Luang Prabang in 2017 for the AH/2012/068 project (see newsletter 2), the Cambodia and Australian project team, with the assistance of Dr Peter Alexander, from Bega Veterinary Hospital, NSW, Australia, conducted a two day reproduction workshop for provincial and district staff. The workshop was held in Phnom Penh and the Tamao breeding station and involved theoretical and practical based activities. The participants were given tutorials focusing on the status and importance of improving Cambodian cattle reproductive efficiency, applied reproductive physiology and anatomy, bull selection and soundness exams and the use of a reproduction management calendar was also introduced.

The practical activities at the Tamao breeding station involved learning how to do a physical exam of a cow and rectal palpation for pregnancy diagnosis. The participants were all extremely enthusiastic and the workshop highlighted the increase in artificial insemination that is occurring in Cambodia. The workshop was also a great opportunity for the MLR team to reassess the methodology of the way these types of projects are run. An alternative that was considered was to integrate the theoretical and practical session more so that participants can apply their knowledge and skills as they are learning.

As part of ongoing training in the AH/2011/014 project the in-country team has conducted further reproduction training, including Artificial Insemination demonstrations.

Student Contributions

University of Sydney undergraduates were again awarded New Colombo Plan grants to assist with their travel and participation in project activities in Laos and Cambodia.

This year, the project has five Bachelor of Animal and Veterinary Bioscience honours student participating in project activities. They are investigating a range of topics from reproduction in Buffalo, impacts of urea and medicated molasses blocks, biosecurity knowledge changes and a benefit:cost analysis of biosecurity interventions.

Veterinary Science students continue to take part in project activities as part of their final year rotations. Students also have the opportunity of volunteering in the small animal veterinary clinic in Luang Prabang. The students have organised numerous donations to assist the staff and have enjoyed sharing their knowledge.

Australian Business Partnership Platform

The Australian Business Partnership Platform (AuBPP) is a platform designed to support the Australian Department of Foreign Affairs and Trade (DFAT) to assist Australian businesses to invest in projects located in developing countries with a social and potentially, commercial return. The MLR group, Department of Livestock and Fisheries, Laos and Four Season Company Pty Ltd were awarded an AuBPP to investigate the efficacy, and feasibility of developing high quality, locally manufactured and locally affordable molasses-based supplement blocks that are able to withstand the tropical climate and bring financial benefits to smallholder farming families. This project emerged from the block trials initiated in AH/2012/068 when a locally developed block was sought.
Conference and meeting attendances

The MLR team has been busy with conference presentations and participation in regional meetings

Global Foot-and-Mouth Disease research Alliance Meeting, 25—27 October 2017, Incheon, South Korea:


Nampanya, S., Khounsy, S., Abila, R., Bush, R. and P. Windsor The socioeconomic impact of the foot-and-mouth disease vaccination project implemented in northern and central Lao PDR

Windsor, P., and R. Abila Was biosecurity awareness more effective that vaccination of pigs for FMD in the Philippines?


20th SEACFMD National Coordinators Meeting, 16–18 August 2017, Pakse, Lao PDR

2018 SEACFMD Epidemiology Network Meeting, 5–6 April 2018, Yogyakarta, Indonesia

26th International Conference of the World Association for the Advancement of Veterinary Parasitology, 4–8 September 2017, Kuala Lumpur, Malaysia

Calvani, N., Windsor, P, Bush, R and J. Slapeta, Scrambled eggs: a highly sensitive molecular diagnostic workflow for Fasciola species-specific detection from faecal samples

Nampanya, S., Khounsy, S., Kinnavong, B., Phommasone, P., Bush, R. and P. Windsor, Fasciola gigantica control in smallholder large ruminants by use of anthelmintic medicated molasses blocks


10th International Leptospirosis Society Conference, 27 Nov – 1 Dec 2017, Palmerston North, New Zealand


ISSESAH-InnovSur 2018 Conference, 14—18 May 2018, Montpellier, France


EuFMD Webinar series, Progressive control practitioner’s network, 17 May 2018

Young, J. A change management framework for improving farmer biosecurity - progressive control of FMD in the Greater Mekong Subregion.
New publications


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MLR Blogs!

All staff and students involved in MLR project activities contribute to the MLR website by compiling blogs highlighting activities and giving an insight into some of the experiences students and team members have.

Go to https://mekonglivestock.wordpress.com/ to check them out along with other useful resources!

Going with the flow in Laos—vet student’s experiences in the field
Prepared by final year Veterinary Science Students Audrey Yu and Curtis Goding

2018 SEACFMD EpiNet Meeting, Yogyakarta, Indonesia
Prepared by team members Isabel MacPhillamy and Peter Windsor

City University of Hong Kong helps to progress bovine reproductive disease knowledge in smallholder farms in Laos and Cambodia
Prepared by PhD student Luisa Olmo

Perspectives of the ACIAR-funded research projects in Northern Lao PDR
Prepared by Animal and Veterinary Bioscience Honours students Bethanie Clark, Brianne Pepper and Amanda Bouassi

Progressing research for control of Toxocara mortality in calves in Laos, January 2018
Prepared by final year Doctorate of Veterinary Medicine student Geri Pearson

Perseverance and Patience on the MAD journey
Prepared by team member Isabel MacPhillamy

MLR team present recent FMD research at the 2017 GFRA Conference in Korea
Prepared by team members Peter Windsor and Jim Young

Sharing knowledge and understanding of important livestock parasites and their control at the 26th WAAVP conference in Malaysia, September 2017
Prepared by team member Sonevilay Nampanya and PhD students Luisa Olmo and Nichola Calvani

The Cambodian champion smallholder farmer raising cattle for business
Prepared by team member Dr Sothoeun

Australian students experience smallholder cattle farmer productivity research and extension in Cambodia
Prepared by Animal and Veterinary Bioscience honours students Holly Harrison, Holly Laurence and Rhiannon Phillips

Student perceptions of an FMD serological monitoring program and Goat production workshop in Laos
Prepared by final year Veterinary Science students Cameron Grundy and Georgia Andrews

Student Cameron Grundy taking blood samples for the FMD Serology

L-R: Peter Windsor, Jim Young, Corissa Miller and Sonevilay Nampanya at the 2017 GFRA Conference in Korea

Students Bethanie, Brianne and Amanda visiting the Buffalo dairy in Luang Prabang
Team member updates

**Bun Chan, PhD awarded**

Congratulations to Cambodian team member Bun Chan, who successfully submitted and defended his PhD with Nagoya University, Japan. Chan was investigating the effects of heat stress on dairy cows in tropical systems. Chan has been an integral part of the MLR team in Cambodia, leading the longitudinal survey and other animal health related activities. He has done this whilst also undertaking his regular General Directorate of Animal Health and Production duties as well as commitments with the Royal University of Agriculture, Cambodia.

**Jim Young, PhD awarded**

Past project officer Jim Young was awarded his PhD ‘Change management for sustainable foot-and-mouth disease control in Cambodia’ in December 2017. Since stepping down, Jim has maintained involvement with the MLR team, presenting and advocating our research at conferences and meetings. Jim has also been busy developing a range of online biosecurity training modules for livestock producers in different geographical areas. The New Zealand module has been the first one launched (www.closethegate.co.nz), and a Mekong focused module is under construction.

**Katherine Ashley, PhD submitted**

Kath has submitted her PhD ‘Understanding smallholder farming households in Cambodia and assessing benefits of research for improved livestock management’, and is awaiting results from her examiners. Kath worked closely with our Cambodia team members, particularly Phalleap, driving the investigations into the social impacts of the AH/2011/014 project, which has been evident in her publications found on the previous page. Kath was involved with mentoring and supervising many of the undergraduate students who visited Cambodia for their placements. We wish Kath all the best in her post PhD activities.

**Luisa Olmo, PhD Student, Laos and Cambodia**

Luisa has spent the last 12 months living in Laos and pursuing a reproductive disease investigation in smallholder cattle and buffalo. She also teamed up with AVID volunteers in Savannakhet to discuss trends and motivations in reproduction and breed improvement with smallholders. With support from our in-country team, Luisa transported over 1000 cattle and buffalo serum samples from Cambodia and Laos to College of Veterinary Medicine and Life Sciences at the City University of Hong Kong. Not only did she receive a crash course in traversing lengthy customs procedures, but also learnt how to conduct enzyme-linked immunosorbent assays when she was hosted for two weeks at City University of Hong Kong’s brand new Veterinary Diagnostic Lab. The preliminary results are astounding, with both Laos and Cambodia showing no
Nichola Calvani, PhD Student, Laos

Nichola has been very busy in the last 12 months, producing three peer-reviewed publications resulting from her current work around designing and validating a molecular diagnostic workflow for the diagnosis of fasciolosis in ruminant faecal samples. As a budding parasitologist, Nichola is excited to be travelling to Italy in July to attend a parasitology summer school before heading to Laos to participate in field trials, data collection and processing. From there she will head back to Europe to undergo a research exchange at The University of Liverpool under the guidance of Jane Hodgkinson.

Isabel MacPhillamy, Project Officer

Isabel has settled well into her role as Project Officer, and has been kept very busy with all three projects. She also has begun her part-time PhD investigating transboundary disease reporting and response challenges to improve livestock food security in Cambodia and Laos.

Isabel and her Cambodian colleagues, Dr Bun Chan and Mr Siek Sophary, introduced the mobile acquired data collection technology, CommCare into the longitudinal survey in late 2017. The team were all very happy with time savings this platform created for data entry and cleaning. They hope the technology will be utilised in other areas of the projects in the future.

Sonevilay Nampanya, Project Officer

Sonevilay has been busy over the last 12 months, managing the two Laos projects in-country. He has been leading the molasses based supplement block trials, along with the many other project activities that have been occurring. Sonevilay supervises and mentors many of the undergraduate and post-graduate students and is prolific in his writing, co-authoring many of the team’s recent publications as well as conference presentations.
Over the last three years, the Queensland-based animal nutrition manufacturer 4 Season Company Pty Ltd have donated supplies of anthelmintic medicated molasses blocks for use in our current projects. We are very grateful for their ongoing support and are excited to see the relationship progress with the AuBPP, and hope that one day in the not-too-distant future farmers in South East Asia can access these high quality products from a local manufacturer.