Appendix
Technology Implementation Procedure

Fasciolosis of Cattle and Buffaloes and Its Control Measures

I am *Fasciola gigantica*. I inhabit the liver of cattle. I destroy liver cells and drain cattle of blood in order to grow.

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Date: January 2007

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Foreword

The Ministry of Agriculture, Forestry and Fisheries (MAFF) receives funds from the Australian Agency for International Development (AusAID) for the Cambodia Australia Agricultural Extension Project II (CAAEPII – 2001 – 2007). CAAEP has the goal of strengthening the national institutional and extension systems in Cambodia through improving agricultural extension staff’s capacity and agricultural extension planning in line with the Royal Government of Cambodia Decentralization & Deconcentration policy. Tools to help this process are Commune Agro-ecosystems Analysis and Technology Implementation Procedures (TIP).

TIPs are produced by local Subject Matter Specialists (SMS) and have been reviewed, and endorsed by a committee of stakeholders called the TIP Oversight Committee and by the relevant MAFF technical department. TIP terms of reference call for a manual based on local best practice with respect to information, technology, extension methodology, implementing procedure and cost analysis. The manuals are for farm advisers from district agricultural offices (DAO) and other development workers in the provinces using and working directly to train and transfer these technologies to Cambodia’s farmers and producers who will experience increased potential in their different geographic locations in accordance with the local needs and socio-economic conditions.

TIPs are very important manuals to help provincial and district agricultural staff overcome many problems facing Cambodian farmers who are struggling to deal with a rapidly changing agricultural environment of production and diversification while at the same time ensuring food security, improving family income and reducing poverty, in line with the rectangular strategic of the Royal Government of Cambodia.

The Ministry of Agriculture, Forestry and Fisheries fully supports this series of manuals. They are the main resources for provincial and district agricultural staff, NGOs, and other development agencies and stakeholders who will spread their contents widely among Cambodia’s farmers who will intern obtain the fruitful outcomes they expect.

Signed and sealed by

H.E Dr. Chan Sarun, Minister

Ministry of Agriculture, Forestry and Fisheries

Unofficial translation
Preface

The term TIP stands for ‘Technology Implementation Procedure’. TIPs explain how to implement improved agricultural technologies that help to solve important problems faced by farmers. They comprise the entire package of information, procedures and materials necessary for an extension worker to pass on the technology to farmers.

The TIP concept has been developed to facilitate extension across communes, districts and provinces throughout Cambodia. TIPs are intended for use by extension workers, NGOs and others working in agricultural development at the field level. As such, TIPs must be:

- Flexible – so that they can be replicated anywhere in Cambodia
- Simple – so that they can be used by anyone working at the field level
- Comprehensive – so that they provide all necessary information

TIP development is prioritized based on key farmer problems identified from a variety of sources, most importantly the Department of Agricultural Extension’s (DAE) Farming Systems Management Information System (FSMIS) database which contains information on major farmer problems identified by Commune Agro-ecosystems Analysis (CAEA) implemented across Cambodia. TIP topics are obtained from a variety of sources including:

- National research institutes
- Existing extension programs
- Innovative farmers
- Donor projects
- NGOs
- Private sector
- International research agencies

TIPs are commissioned by MAFF’s DAE, and are prepared by experienced subject matter specialists who are leaders in their respective fields in Cambodia. TIPs thus represent ‘current best practice’ for implementing any improved technology. Draft TIPs undergo a peer review before they are endorsed by MAFF and approved for field use.
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Introduction

In Cambodia, cattle and buffalo play a very important role because they provide draught power for ploughing and harrowing, produce manure for fertilizer, and serve as an animal bank for conversion to cash when money is required urgently. Cattle and buffalo production is constrained by low productivity, morbidity and mortality rates due to diseases, especially fasciolosis. Even though fasciolosis causes huge losses among cattle and buffalo in Cambodia, study of the disease began as recently as 1990. From then until 2002, scientists have collected epidemiological data and have accumulated much information about fasciolosis, its seasonal nature and spread and its impact on cattle and buffalo economics. Thus fasciolosis control measures have been devised for the Cambodian situation.

The recommendations on control measures against cattle and buffalo fasciolosis are not yet adequate. Experts and specialists on fasciolosis have introduced recommendations for control in high risk areas. Farmers, animal owners and stakeholders have been exposed to the effects of the disease, the control measures, and the costs incurred and benefits obtained from undertaking control measures. Information obtained by researchers on cost effectiveness and efficacy of control of fasciolosis confirms that the TIP on fasciolosis is technically sound and can be applied in Cambodia.

The fasciolosis control measures in this TIP have been tested successfully. The TIP was reviewed by the TIP oversight committee (TIPOC) comprising specialists and experienced and qualified staff from concerned institutions at national and provincial levels. This TIP may be used with confidence for education, training and extension for the purpose of control and eradication of fasciolosis which is spreading in parts of the region and in Cambodia.

It is hoped that this TIP will reduce cattle and buffalo mortality and morbidity rates. It is expected that productivity will increase and as a result farm incomes will improve.