



Better lives through livestock

Parasitic pig-borne diseases assessment, capacity building, communication and policy engagement

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13th meeting of Vietnam Food Safety Working Group
Hanoi, 17 December 2020



Objectives



To assess and reduce both parasitic pig-bone

Specific objectives:

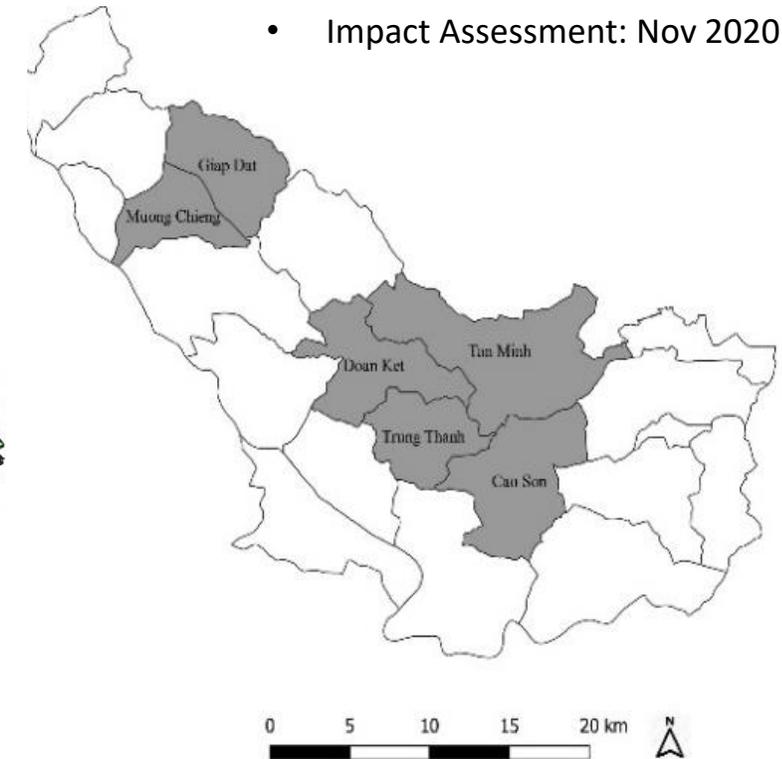
1. To assess the prevalence for both PPB hospital records
2. To determine the perception and awareness of consumers on both PPBD
3. To improve diagnostic capacity to detect PPBD through inspection and laboratory testing.
4. To develop and test promising intervention strategies aligned with the Safe pork project
5. To build capacity and engage with policy makers for future interventions



in ethnic minorities

Timelines:

- Inception: Mar 2018
- Assessment: Jun – Dec 2018
- Intervention: Since Oct 2019
- Impact Assessment: Nov 2020



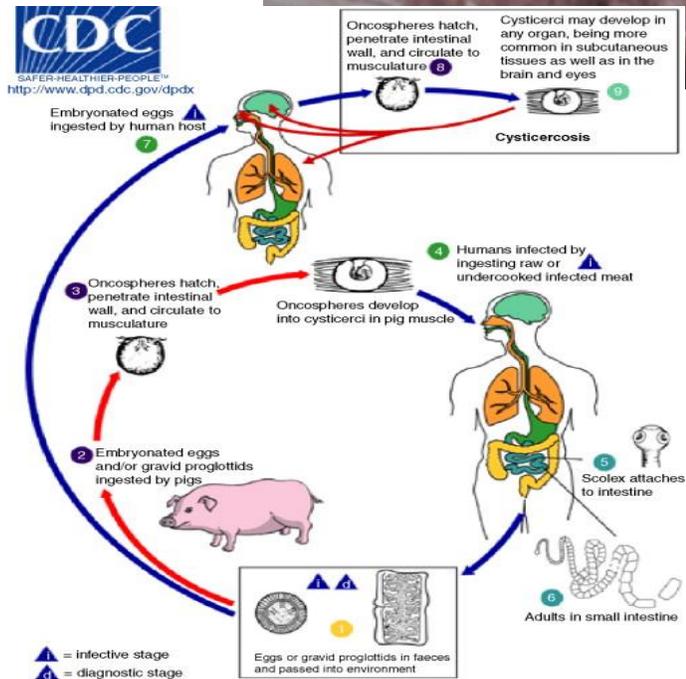
Assessment: 6 communes

Intervention: 6 + 15 additional
communes in Da Bac

Bệnh ấu trùng sán lợn và bệnh giun xoắn: tầm quan trọng và vòng đời ký sinh trùng

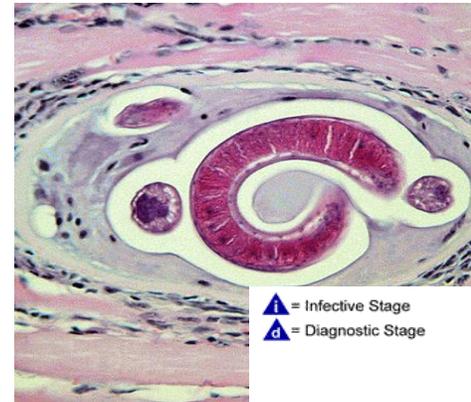
Cysticercosis:

1st ranked parasitic FBD worldwide

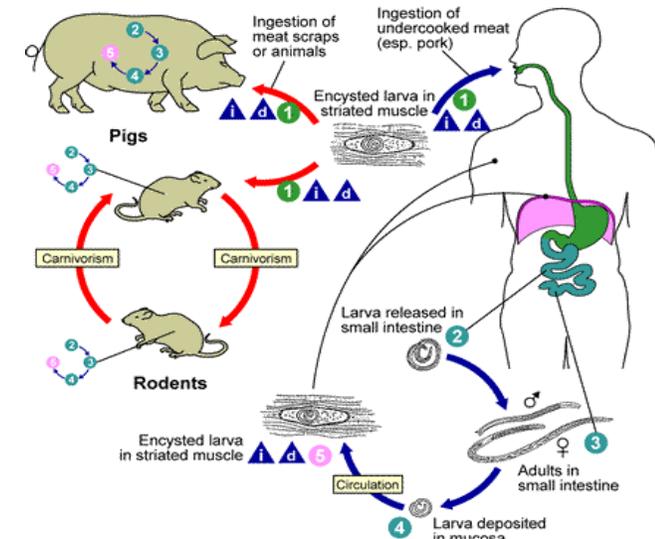


Trichinellosis:

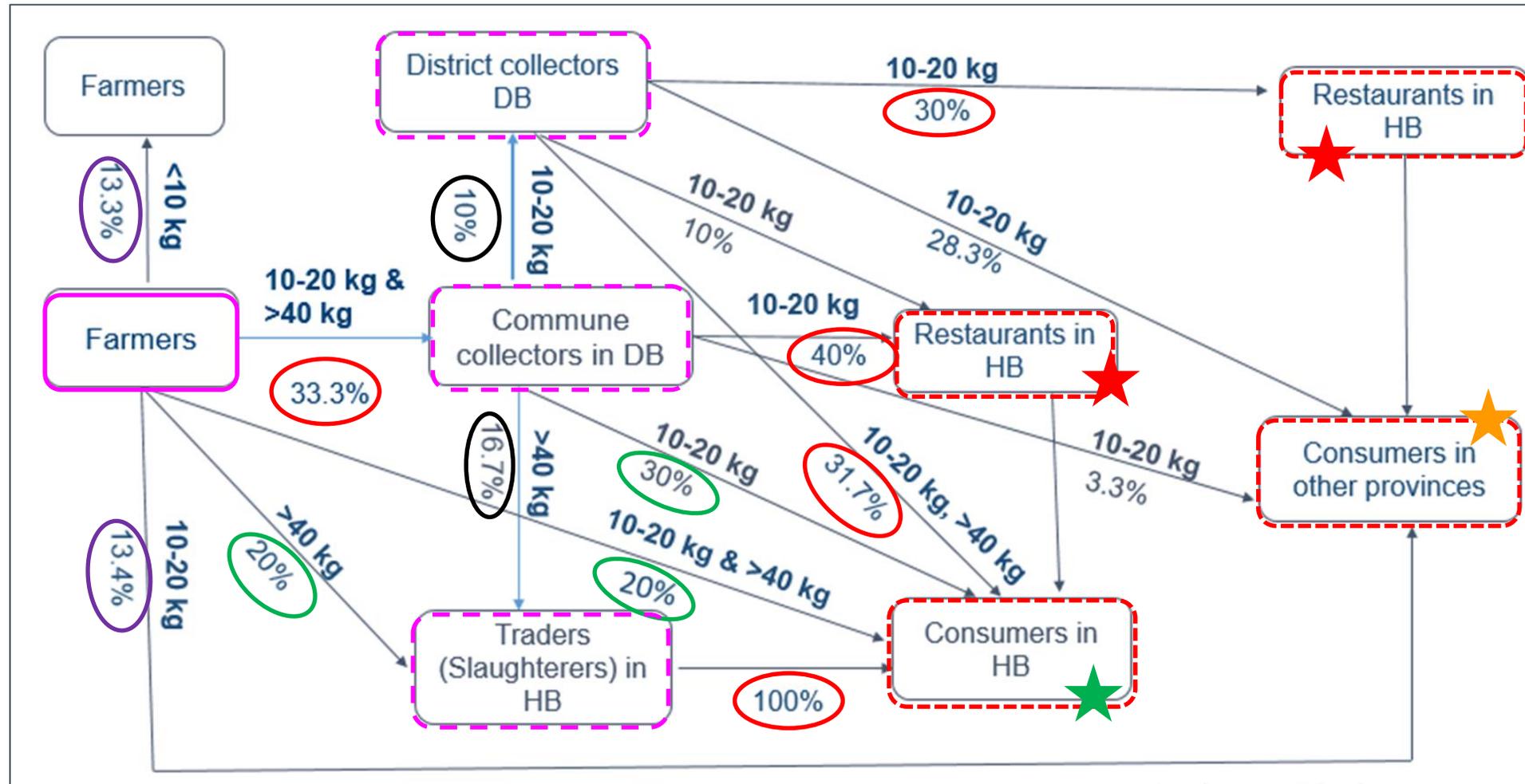
7th ranked parasitic FBD worldwide



▲ = Infective Stage
△ = Diagnostic Stage



Indigenous (Ban) pork chain in Da Bac District, Hoa Binh



Achievements

Objective 1:

Surveys:

Prevalence estimates for both PPBD in pigs (352) and humans (300)

Pigs:

Trichinella: 13.6%

Cysticercosis: 1.7%*

(*confirmed by CDC Atlanta)

Humans:

Trichinella: 0.6%

Cysticercosis: 0.8%

Note: Safe Pork Salmonella contamination 41% from FSPT (lowest among all tested PVC)

Very low risk for humans



Achievements

Objective 2:

Surveys:

Awareness/perception on both PPBD, pig owners and volunteers in health centers.

Pig keepers:

Poor knowledge on PPBDs

Free range/semi-free range of pig's common practice

Human volunteers:

Moderate knowledge on PPBDs

Risky consumption practice still exists



Risky practices on farm and in humans still exist

Achievements

Objective 3: Capacity building

Training on improved lab diagnostic (ELISA, muscle digestion), Sep & Oct 2018
Hands-on training on field diagnostic and meat inspection, Nov 2018

1 NIVR researcher (BfR)

17 Trainees
Lab diagnostic for PPBDs

>50 Trainees, Hoa Binh



Training materials shared with OIE regional office

Meat inspection: Key points with focus on pig slaughtering

Aim: to prevent and detect public health hazards such as foodborne pathogens or chemical contaminants in meat

Only accept pigs with known origin and supporting documents required by vet authorities (e.g. health/transportation certificates), according to Vietnamese Veterinary Law and Circular No.09/2016/TT-BNNPTNT

Assessments: to screen an animal selected to slaughter for health, and to separate and treat suspected cases (singed, sick) separately

Key steps for assessment:

- Inspection of **eyes** (during unloading, and at lairage to observe the animal in movement, appearance, or conditions (jaundice, lameness, sick or diseased))
- Suspected cases and decisions from assessment:**

Suspicious cases

- Bad general condition, lesion visible
- Symptoms of chronic disease, epidemic disease, fever

Separation of the animal at lairage

- Yes: Definitive examination
- No: Better general condition?
 - Yes: No risk for human health
 - No: Risk of chronic disease, epidemic disease, fever

Assessments: to examine all slaughtered animals (carcasses, organs, blood, carcasses and organs separately be prepared in a specific way (all surfaces inspected)).

Key steps for post-mortem:

- Carcass (external)
- Head with tongue
- Thorax organs
- Abdominal organs

Carcass lesion, symptoms visible

- Local lesion: Parts
- Disorder with general effect: Laboratory tests
- Local or general lesion: Parts

Supporting materials (photo, video, or graphs)

Acknowledgement: German Federal Ministry for Economic Cooperation and Development (GIZ) and Prof. Dr. Gero Bannert, BfR, Berlin, Germany

Achievement - Objective 4: Community intervention

1) Follow up positive cases in humans; 2) Awareness campaigns; 3) Strengthen linkages between producer and market; 4) Evaluation



Risk communication campaign at village and commune
> 600 leaflets

Local loudspeakers system belong to Da Bac district
- 208 times, twice a day
- Coverage: 60%

15/09/2020

Evaluation

07/03/2020

12/10-20/11/2020

30/11/2020

25 posters hanged at the health station, and communal people's committee



Community campaigns reached all 21 communes of Da Bac

Achievements

Objective 5: To engage with policy makers

Inception workshop (March 2018)

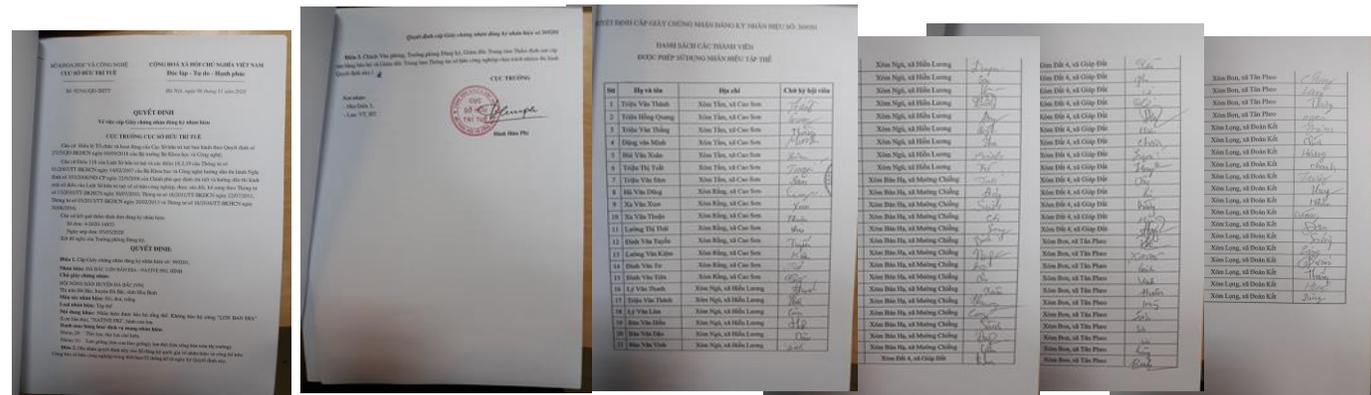
Training workshops (Nov 2019, Oct and Nov 2020)

Feedback workshop (18 Oct 2019)

Final workshop (Nov 2020)



Trademark Registration Certificate



QUYẾT ĐỊNH

CHỨC VỤ/ĐƠN VỊ

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1	Trần Văn Thành	Xuân Tân, xã Cao Sơn	
2	Trần Hồng Quang	Xuân Tân, xã Cao Sơn	
3	Trần Văn Thịnh	Xuân Tân, xã Cao Sơn	
4	Đông Văn Minh	Xuân Tân, xã Cao Sơn	
5	Hải Văn Xuân	Xuân Tân, xã Cao Sơn	
6	Trần Văn Tuấn	Xuân Tân, xã Cao Sơn	
7	Trần Văn Sơn	Xuân Tân, xã Cao Sơn	
8	Hải Văn Dũng	Xuân Tân, xã Cao Sơn	
9	Xu Văn Xuân	Xuân Tân, xã Cao Sơn	
10	Xu Văn Tuấn	Xuân Tân, xã Cao Sơn	
11	Lương Văn Bình	Xuân Tân, xã Cao Sơn	
12	Đông Văn Tuấn	Xuân Tân, xã Cao Sơn	
13	Lương Văn Kiên	Xuân Tân, xã Cao Sơn	
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19	Lê Văn Tuấn	Xuân Tân, xã Cao Sơn	
20	Trần Văn Tuấn	Xuân Tân, xã Cao Sơn	
21	Hải Văn Tuấn	Xuân Tân, xã Cao Sơn	

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Achievements

(international workshops and publications)

Sero-prevalence of human trichinellosis and cysticercosis and associated epidemiological characteristics in communities of Da Bac District, Hoa Binh Province, Vietnam

Luong Nguyen-Thanh¹, Phuc Pham-Duc¹, Sinh Dang-Xuan^{1,2}, Dung Do-Trung³, Hung Nguyen-Viet², Meghan A. Cook⁴, Anne Mayer-Scholl⁴, Diana Meemken⁵, Fred Unger²

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²International Livestock Research Institute, Hanoi, Vietnam

³National Institute of Malaria, Parasitology, and Entomology, Hanoi, Vietnam

⁴Federal Institute for Risk Assessment, National Laboratory for Trichinella, Berlin, Germany

⁵Freie Universität Berlin, Institute of Food Safety and Food Hygiene, Working Group Meat Hygiene

Abstract

Trichinella spiralis and *Taenia Solium/Cysticercus cellulosae* are two pork-borne zoonotic parasites of concern in mountainous provinces of Northwest Vietnam. These parasites have been attributed to a number of recorded outbreaks in humans, though robust prevalence data for each is limited. This study was undertaken to evaluate serological prevalence and behavioral factors associated with *T. spiralis* and *T. solium/Cysticercus cellulosae* infection in communities of Hoa Binh Province. Three hundred residents in six communes of Da Bac District were asked to provide a blood sample and answer a questionnaire to capture demographic information and self-reported behaviours. *Trichinella spiralis* IgG ELISA (DETRIG0480) and apDia Cysticercosis Antigen (Ag) ELISA were used to confirm the presence of *T. spiralis* and *T. solium*, respectively. ELISA testing indicated two cases of

The occurrence and associated risk factors of *Trichinella* spp. and *Taenia* spp. in indigenous pigs in Hoa Binh province, Vietnam

T.H. Le ^{a,*}, Nga Vu-Thi ^b, Hung Nguyen-Viet ^a, Sinh Dang-Xuan ^{a,c}, Phuc Pham-Duc ^c, Luong Nguyen-Thanh ^c, Ngoc Pham-Thi ^b, John Noh ^d, Anh Nguyen-Lan ^b, Anne Mayer-Scholl ^e, Maximilian Baumann ^f, Diana Meemken ^f, F. Unger ^a

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^cCenter for Public Health and Ecosystem Research, Hanoi University of Public Health, Hanoi, Vietnam

^dCenters for Diseases Control and Prevention, CDC, Atlanta, Georgia U.S.A.

^eFederal Institute for Risk Assessment, National Laboratory for Trichinella, Berlin, Germany

^fFreie Universität Berlin, Institute of Food Safety and Food Hygiene, Working Group Meat Hygiene, Berlin, Germany

Highlights

- *Trichinellosis* is endemic and cysticercosis is sporadic in indigenous pig population of Hoa Binh
- The prevalence of *trichinellosis* infection were higher in female and older pigs
- Risk perception and knowledge of people on food-borne diseases was poor
- Risky practices such as free roaming of pigs or eating raw fermented pork still occur



What is next?

Aligned to the ongoing SafePORK project in Hoa Binh:

Follow-up on Ban pig brand with local authorities and include a Safe Pork label under the Safe PORK project.

Train butchers linked to a Ban pork producer cooperative on more hygienic pork handling and detection of pork parasites

- Share booklet for hygienic handling and basic guideline for meat inspection

Acknowledgements



- BMZ/GIZ
- CGIAR CRP A4NH
- National partners and authorities
- International partners
- Value chain actors and communities





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