

Cambodia Australia Agricultural Extension Project

**Swine Fever Disease Control
Technical Implementation Procedure (TIP)**



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1. Description

Name:	Swine Fever Disease Control
Date:	January 2006
TIP Source:	Murray Maclean
Objectives and Benefits:	<p>To improve farmers knowledge and understanding of Swine Fever disease.</p> <p>To improve farmers' livelihoods through prevention of Swine Fever Disease in pigs.</p> <p>There will be improved relations between, and improved technical and extension skills amongst other stakeholders -Village Animal Health Workers (VAHWs), extension and technical staff.</p>
Technical Suitability Criteria:	<p>Areas with pigs that have a history of outbreaks of Swine Fever and absence of effective control program.</p> <p>Access to key inputs</p> <ul style="list-style-type: none">• presence of an effective VAHW to provide health services. A VAHW is effective if farmers in the village know and have confidence in the VAHW to treat sick livestock. The Office of Animal Health and Production and NGOs can be a source of information on whether a village has an effective VAHW or not. Visiting the village and meeting with farmers and VAHWs is the best way to determine if the VAHW is effective.• effective district livestock staff• Swine Fever vaccine <p>The TIP is aimed at all farmers who are raising pigs, so the economic status of recipient farmers varies from poor to rich.</p> <p>Farmers need about 1,000 riel to vaccinate a pig once.</p>

2. Technical Guidelines

(1) Summary of Technical Guidelines

- i) Vaccinate pigs with Swine Fever as a routine preventive measure
- ii) Buy healthy piglets for fattening.
- iii) Be careful not to let you uninfected pigs come into contact with infected animals.

(2) Notes on Technical Guidelines

- i) **Vaccinate pigs with Swine Fever vaccine as a routine preventive measure**

Swine Fever Disease in Traditional Cambodian Farming Systems

Swine Fever (SF) disease is caused by a virus. The disease is endemic in Cambodia, and is considered as an important disease because of the high mortality in affected pigs. It commonly occurs in outbreak form, and can result in the deaths of many pigs. The virus can be found in the blood, faeces and eye secretions of affected pigs. The virus is easily destroyed by heat and sunlight and disinfectants. It can usually survive in the environment for only 2-3 days.

The virus lives in affected pigs, and also in some pigs which do not show symptoms. It usually enters the pig through the nasal or oral route. The virus then travels around in the blood and goes especially to blood vessels in various parts of the body such as the skin, lymph nodes and kidneys. During this time, the pig shows symptoms. The virus leaves the pigs in the urine, faeces, and eye secretions to infect other pigs.

Infected pigs can have various symptoms

- some young pigs may die with few signs
- some pigs have high temperature, weakness, constipation and lack of appetite



Young piglets affected with Swine Fever are acutely ill, have a high temperature, walk in a stagger, and sometimes have diarrhoea. Occasionally they sit on their hind haunches and huddle together.

- some pigs tend to huddle together with other pigs, sometimes squatting.
- at later stages, the skin over the lower abdomen becomes reddened, and the pig may cough and have runny eyes. When the pigs walk, it may sway from side to side especially in the hind legs.
- many pigs die after a few days, or up to three weeks after the appearance of the symptoms.
- some pigs may die up to 1-3 months after the appearance of the symptoms.

There is no treatment for affected pigs. Most affected young pigs will die. If pregnant sows are affected, the piglets may die and be aborted.

To prevent the disease, pigs should be vaccinated with Swine Fever vaccine. During an outbreak, dead pigs should be buried to reduce transmission, and healthy pigs should be kept away from sick pigs.

In Cambodia, SF vaccines are supplied by the private sector through outlets at provincial or district level. The SF vaccine must be kept cold during the period between production and use.



Swine Fever vaccine produced by the Navetco company in Vietnam is available at provincial and some district outlets.

When outbreaks occur, farmers

- commonly initially use traditional medicines which are not effective, and then later call a VAHW or other technician to treat the animal. This is also not effective.
- may not initially contact technicians as they are afraid the animal will die and they will be stopped from selling the meat of dead animals.

Farmers commonly

- are aware of the symptoms of SF, as most have seen it at some time
- do not understand well about the disease, and how to prevent it
- do not like paying for vaccines, as the animals are healthy and they cannot see the benefit

- expect the government, or projects to pay for vaccines and services

Good progress has been made over the years in improving farmers understanding of the disease, and willingness to pay for vaccine service delivery.

Vaccination recommendations

Sows should be vaccinated at least a week before mating. Piglets should be vaccinated at 6 weeks of age. Vaccination recommendations are shown in pamphlets that accompany the vaccines. Vaccine bottles usually contain either 10 or 25 doses, depending on the source.

Vaccines are usually injected by VAHWs because

- vaccines need to be kept cold until the time they are used
- vaccines come in bottles of 10 or 25 doses, and these need to be all used at the same time to reduce wastage
- vaccines need to be injected with sterile needles and syringes

As a result it is not usually possible for all pig raisers to have their pigs vaccinated at the optimum age. However, if there is an ongoing program of regular vaccination in the village, then there should be enough pigs being vaccinated to avoid large outbreaks of the disease.

ii) **Buy healthy piglets for fattening.**

Farmers who are buying piglets for fattening should buy piglets from farmers they know, and who have healthy pigs, and who regularly vaccinate their sows with SF vaccine. This is better than buying piglets from a trader who has transported pigs a long way on the back of a motorbike.



Piglets which have been bought by traders and traveled long distances on the back of a motorbike have a high chance of having Swine Fever.



Piglets that roam freely in the village can contact other pigs and spread disease.

Piglets that are being sold by traders from the back of motorbikes have experienced considerable stress and also have contacted many other piglets. This increases the chance that they have been infected with SF.

Therefore if farmers can buy healthy pigs directly from a farmer who they know have healthy pigs, this will reduce the chance of buying infected piglets.

iii) **Be careful not to let infected animals come into contact with your uninfected animals.**

Farmers should raise their pigs in pens, so they do not contact other pigs. If there are sick pigs in the village

- farmers should ensure that these pigs do not roam freely throughout the village
- farmers with healthy pigs should not let their pigs roam freely about the village

Call the VAHW if your animals get sick.

3. Economic Benefit

There are a range of possible outcomes resulting from the decision by a farmer to vaccinate or not vaccinate. These include

- the animal may or not get the disease.
- if the animal gets disease, it may get it at various ages, and it may have been fed various feed types (either traditional or improved), and it may or may not be treated

An economic analysis comparing one of these outcomes with the option of vaccination is shown, using an example of a household with one piglet. In this analysis, a single piglet is bought at 7kg and fed traditional feeds of rice bran and broken rice, with some water convolvulus. In the case where the pig is not vaccinated, the pig gets SF 50 days after it has been bought, is treated with medicines, and then dies with no salvage value.

Table 1 Financial comparison of vaccinated and non-vaccinated piglet

Financial Comparison of Vaccinated and Non-Vaccinated Piglet								
Item	Piglet Vaccinated				Piglet Not Vaccinated			
	Unit	Unit Value	No. Units	Value (riel)	Unit	Unit Value	No. Units	Value (riel)
Variable Costs								
Piglet	kg	10,000	7	70,000	kg	10,000	7	70,000
Rice bran	kg	600	20	11,871	kg	600	20	11,871
Broken Rice	kg	800	7	5,276	kg	800	7	5,276
Trachuan	day	100	50	5,000	day	100	50	5,000
Swine Fever vaccine	hd	1,000	1	1,000	hd	1,000	0	0
Medicine	hd	10,000	0	0	hd	10,000	1	10,000
				93,147				102,147
Revenue								
Piglet Value	kg	7,000	15	102,285	kg	0	15	0
Profit A = Revenue - Variable Costs				9,137				-102,147

4. Extension Guidelines

The extension guidelines describe a commune level extension program. These guidelines can be adapted to larger implementation areas (e.g. district, province).

(1) Institutional Arrangements

The participants in the extension program are

- i) Provincial Office of Animal Health and Production staff. A staff member at this level should be responsible for coordination of the extension program.
- ii) Livestock staff of the district agriculture office, under contract to manage the program activities in the district. The chief of the district agriculture office will also have a supporting role.
- iii) Village Animal Health Workers. If VAHWS are organised into an association, then the internal arrangements of the VAHW association are taken into account. i.e. the head of the association has an important role. The VAHWs buy the vaccine and keep the revenue.
- iv) Local authorities at commune and village assist with the program activities.
- v) Vaccine suppliers. These are usually found at province level, and occasionally at district level.
- vi) Farmers attend information events, pay for vaccines, and give feedback on the program effectiveness.

(2) Workplan

The workplan extends over a period of about five months and includes planning, demonstration, implementation and review and evaluation stages. The exact month of the year in which the program will be implemented will vary from commune to commune depending on the most common period of SF outbreaks, and the general agricultural calendar. Outbreaks of SF can occur at any time of the year, but July-August is commonly suggested as a peak time of outbreaks. The following workplan is an example where the program begins after Khmer New Year and vaccination occurs in May.

Figure 1 Workplan for Swine Fever disease control program

Workplan for Swine Fever Disease Control												
Activity	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Site Selection												
Commune Meetings 1, 2 and 3												
Extension Phase												
Vaccination Phase												
Follow-up Phase												
District Manager Monitoring												
Provincial Manager Monitoring												

i) **Site Selection**

All villages in the commune should be targeted since SF can travel from village to village.

ii) **Commune Meeting 1**

This meeting is organised by the district manager, and attended by the commune authorities, and VAHWs. This meeting has

- technical component in which participants are refreshed on technical and financial aspects of SF disease and control, and the current situation of SF in the province, district and commune. The numbers of households and pig numbers in each village of the commune should be reviewed. Benchmarking of the commune with respect to previous vaccination history, and comparison with other communes should be done. VAHWs and technical staff discuss their experiences with vaccination and treatment of SF.
- financial component where financial aspects of the SF vaccination program are discussed. This includes estimates of demand for vaccine, vaccination targets, expected income, and sharing of income.
- organisational component describing the program activities, and includes an extension phase, vaccination phase and feedback phase.

In the organisational component

- VAHWs should be organised into groups of 3-4 who travel successively to each village in the commune. There may be one or two groups in the commune depending on number and size of villages.

At the end of this meeting, all participants should agree on

- formation of vaccination groups
- timetable for vaccination and vaccination targets, and amount of vaccine to be purchased and income sharing
- number of posters and leaflets to be distributed in each village

iii) **Extension Phase**

The VAHWs and village authorities cooperate to inform farmers

- of the date, time, place and cost of the vaccine through placement of posters throughout the village, and through a microphone.
- of the technical aspects of SF through distribution of awareness-raising leaflets
- of technical and financial aspects of SF control through a series of meetings that can be arranged with specific groups such as raisers of single pigs, sow raisers and multiple pig fatteners.
- of the fact that the SF vaccine only prevents SF disease, and does not prevent all pig diseases

- that if they want to have their animals vaccinated they have to pay a fee, which is commonly only 1000 riel.

This is done by the VAHWs in their home villages 1-2 days before the vaccination day.

iv) **Vaccination Phase**

The VAHWs travel in their groups to each of the villages in succession to

- vaccinate animals
- collect service fees
- keep vaccination records
- inform farmers of what the vaccine is for. The VAHWs need to emphasise that the vaccine only protects the pigs from SF disease, not other diseases.

In some cases it can be a good idea for VAHW groups to vaccinate pigs in villages other than their own villages. This tends to increase payment rates.

v) **Commune Meeting 2**

All the VAHWs meet together with the district manager again to assess the technical and financial results of the vaccination program, as well as farmer response and knowledge. This should include comparisons between groups, and suggestions for future improvements.

vi) **Follow-up Phase**

The follow-up phase continues for 3-4 months after the end of the vaccination campaign. During this phase the district staff travel at least twice to each of the villages in the commune to hold meetings with farmers and the VAHWs to review the experience of the vaccination campaign period, to support ongoing SF vaccination that is done more on an individual farm or group basis, and to check on disease status of pigs in the village.

vii) **District and Province Coordinator Monitoring**

The District Manager should make regular and random visits during the extension and implementation phases to check on the activity of the VAHWs, and check disease status. The district manager should meet at least twice with focus groups of farmers who attended meetings during the extension phase before vaccination. The provincial coordinator should make at least one visit to the commune during each of the vaccination and follow-up phases.

viii) **Commune Meeting 3**

All the VAHWs meet together with the district manager and province coordinator again to assess the technical and financial results of the vaccination program, as well as farmer response and knowledge. This should include comparisons between villages, and suggestions for future improvements. Future activities with respect to Swine Fever control should be discussed. The district manager writes a report summarising the meeting results.

5. Equipment/Materials

The following materials and equipment are needed for implementation.

Table 2 List of equipment and materials

District manager book
VAHW record book
Leaflets
Posters
Coupons
VAHW technical document

Examples of the district manager book, VAHW record book, leaflets, posters and coupons are shown in the Annexes.

The VAHW Training Manual, available at Provincial Office of Animal Health and Production is a source of information on livestock health and management issues, and can be used as the VAHW technical document.

The coupon system is an optional activity. The coupon system works as follows:

- coupons of a set number per village are distributed to farmers who fulfill certain criteria (e.g. poor farmers with a single pig) by the village chief during the extension phase. These coupons are valued at 1000 riel (i.e. the value of one vaccine), and the value and purpose of the coupon is shown on the coupon. The village chief keeps a record of the coupon distribution and gives it to the VAHW.
- the farmers keep the coupons until the vaccination day arrives
- the farmer gives the VAHW the coupon instead of paying for the vaccine
- the VAHW presents the coupon at the final commune meeting and is paid according to the number of coupons.

The objective of the coupon system is to enhance the extension aspects of the program and allow for use of funds targeted to certain groups in the village. It requires some administration. This may suit some situations and not others, so it is an optional activity.

6. Budget

Table 3 Implementation budget

Implementation Budget				
Item	Unit	Unit Value	No. Units	Value
District staff record book	unit			
VAHW record book	unit			
District staff contract	unit			
Commune Workshops				
Snacks	person			
Wallcharts	unit			
Training Materials	LS			
Technical documents	unit			
Posters	unit			
Leaflets	unit			
Coupons	unit			
Banners	unit			
Farmer Group Meetings in Extension and Follow-Up Phases				
Snacks	unit			

7. Implementation Sites

Activities such as this have been implemented successfully in Battambang under the ADESS project.

Annex 1 District Manager Book

Swine Fever Vaccination Program						
District Manager Record Book						
Commune Meeting 1 Records						
District Manager Name and Role:						
Meeting Date:						
Province:						
District:						
Commune:						
Participant List						
No.	Name	Role				
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
Vaccination Groups, and Vaccination Targets						
No.	Village	VAHW Names	Vaccination Target (no. Pigs)	Target Income (riels)	Vaccine required (bottles)	Vaccine Cost (riel)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Swine Fever Vaccination Program						
District Manager Record Book						
Commune Meeting 2 Records						
District Manager Name and Role:						
Province:						
District:						
Commune:						
Participant List						
No.	Name	Role				
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
Vaccination Records on Vaccination Day						
	Village	Total Pigs in village	No. Pigs vaccinated	Date of vaccination	Total Paid (riel)	Total owed (riel)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Swine Fever Vaccination Program						
District Manager Record Book Commune Meeting 3 Records District Manager Name and Role: Province: District: Commune:						
Participant List						
No.	Name	Role				
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
Vaccination Results from start of program until end						
	Village	Total Pigs in Village	Date of Vaccination	No. Pigs vaccinated	Total Paid (riel)	Total owed (riel)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
Conclusions and Recommendations						
1 What percentage of farmers understood about Swine fever Disease? Before the extension program? After the extension program? 2 What percentage of farmers are willing to pay for SF vaccine? Before the extension program? After the extension program? 3 Were there any disease outbreaks in pigs after the vaccination? Give details: 4 What were the weak points of the extension program? 5 What were the strong points of the extension program? 6 How can the extension program be improved?						

Annex 2 Village Animal Health Worker Records

Swine Fever Vaccination Program Village Animal Health Worker Records Province: District: Commune: Village: VAHW Group Members: Date:					
No.	Family Name	No. Pigs Vaccinated	Amount (riel)	Amount Paid (riel)	Amount Owed (riel)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
	Total				

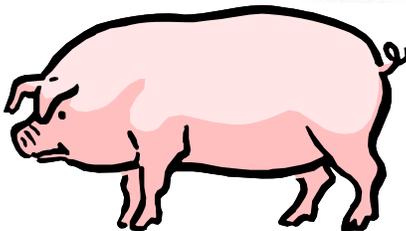
Annex 3 Swine Fever Leaflet

Front Side

Swine Fever Disease can kill your pigs



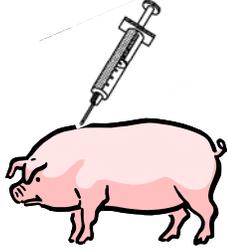
You can protect your pigs from Swine Fever disease by vaccinating them



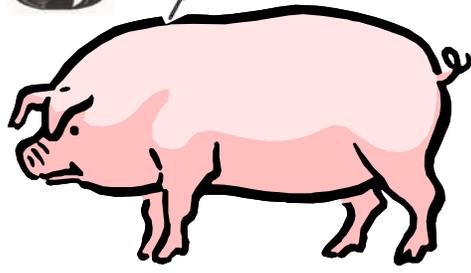
Vaccination costs only 1,000 riel

Reverse Side

If you are raising growing pigs you should vaccinate them one week after you buy them

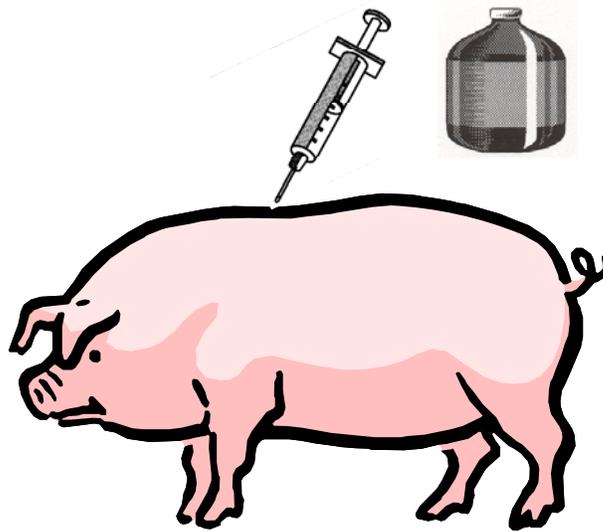


If you have sows you should vaccinate the sow at least one week before each mating



Annex 4 Swine Fever Poster

Swine Fever Vaccination Day



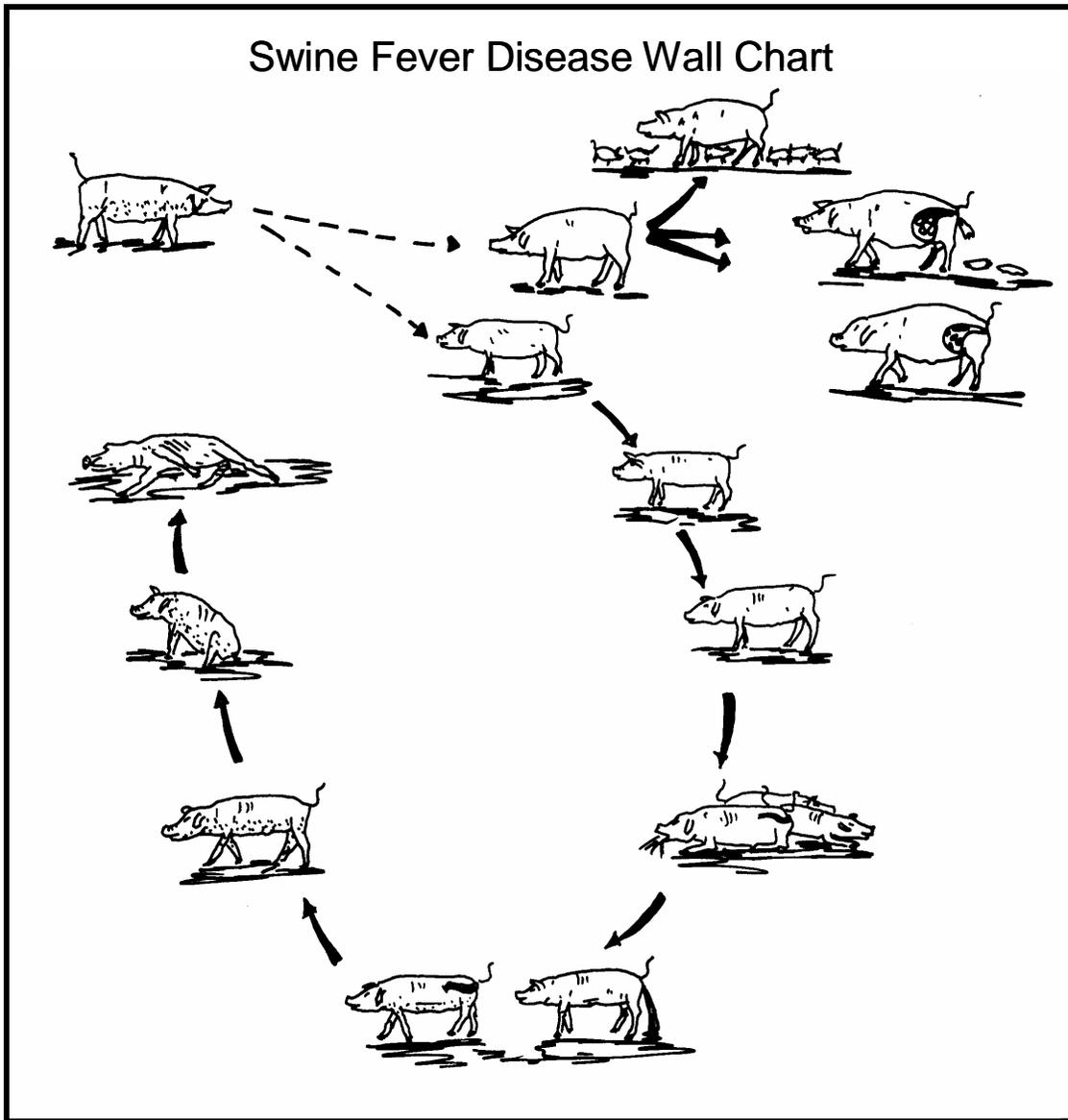
Date:

Place:

Swine Fever vaccine costs
1,000 riel per pig

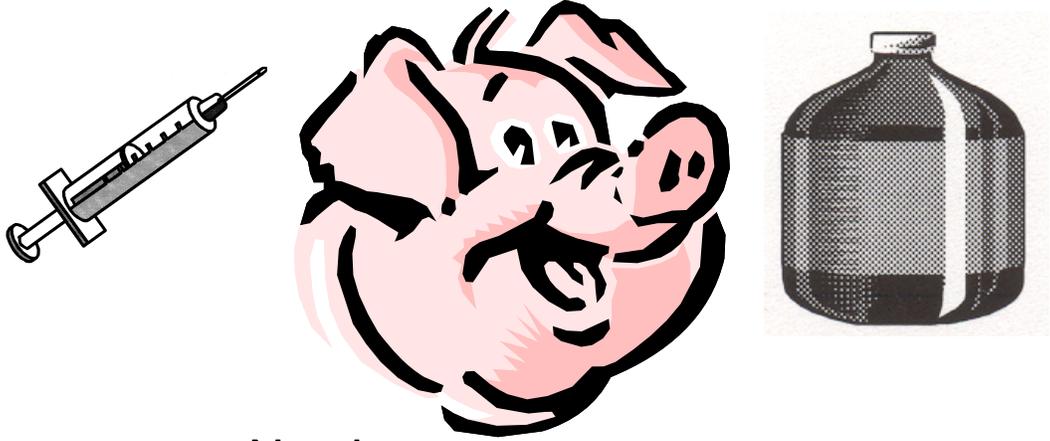
Wait at your house and the
vaccination team will come to
your house.

Annex 5 Swine Fever Wall chart



Annex 6 Swine Fever Vaccine Coupon

Swine Fever Vaccine Coupon



Number.....

Value 1,000 riel

The coupon features three illustrations: a syringe on the left, a pig's head in the center, and a dark glass vaccine bottle on the right. Below the pig's head is a dotted line for a number, and below that is the text 'Value 1,000 riel'.