SWINE FEVER IN THAILAND

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Introduction

Before the Second World War, the occurrence of swine fever had been suspected in Thailand for years. But it was not considered as a serious problem, because there were no high swine concentration areas nor large herds. Swine raising was not the main occupation of farmers and it was of a backyard raising type. Extensive losses were uncommon. Furthermore, most of the veterinarians were summoned to work on the control and eradication programme of rinderpest which was then the most destructive disease of cattle and buffaloes in the country. The spread of the disease also seemed to be limited to certain areas due to the difficulty in transportation at that time.

In the early 1950s, a strain of swine fever virus was isolated from an infected pig farm near Bangkok. More attention was paid to the disease, because outbreaks occurred more extensively and caused more losses. This was due to the marked increase in swine production both in number and size of herds.

As swine production at present is a major animal industry, with at least 5 farms raising more than 10,000 head of swine, we consider swine fever as the most dangerous disease of swine.

Incidence of the disease

In the early 1950s, outbreaks of swine fever occurred extensively in the central part which had the largest concentration of swine population in the country. After lapinized SFA strain vaccine was applied, the number of outbreaks and loss of pigs decreased gradually. Anyhow, about 20 - 30 outbreaks have occurred annually until now as shown in Table 1.

Table 1 Number of outbreaks and vaccinated pigs

Year	No. of outbreaks	Morbidity (head)	Death	Destruction	No. of pigs vaccinated
1969	30	970	634	336	229,439
1970	31	1,112	835	277	299,939
1971	22	805	704	101	345,217
1972	15	599	435	164	372,802
1973	37	947	891	156	418,547
1974	23	393	368	25	429,222
1975	21	441	407	34	384,153
1976	28	426	408	18	399,138
1977	30	1,187	1,130	157	459,664
1978	26	924	884	40	609,865

From Statistics of Livestock, Department of Livestock Development, Bangkok

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Diagnosis

Diagnosis in the field of cases of swine fever is done by local or provincial veterinarians on the basis of clinical signs, case history and autopsy findings of dead or killed animals. In some cases, specimens are sent to the laboratory for histological studies and animal inoculation tests.

Detection of swine fever virus in tissue culture by END method as discovered by Kumagai *et al.*[2], was introduced to Pakchong Veterinary Biological Laboratory in 1971. Since then, some of the suspected cases of swine fever have been sent to Pakchong Laboratory. About 46.15% (12 out of 26 cases) of the doubtful cases have been found to be positive for swine fever for the past 7 years.

Swine fever vaccine

Since the early 1950s, studies and experiments on the production and use of swine fever vaccines have been made at Pakchong Laboratory (Table 2). These vaccines were crystal violet vaccine, lapinized live virus vaccine and tissue culture live virus vaccine.

1 Crystal violet vaccine (CVV)

The CVV vaccine was tried for a short period in the early 1950s. It was not widely used in the field, because the vaccine produced was not so effective. Immunity was of short duration and antigenicity in some lots of vaccine was insufficient.

2 Lapinized live virus vaccines

1) Lapinized SFA strain

This strain of virus was developed by Hudson.[1] It was sent to Pakchong Laboratory late in 1952 at about the 80th rabbit passage level. The virus was still too strong for use in vaccine production. Further passages and experiments were made up to 120 passages. Then it was decided to use it for vaccine production due to the dissemination of the disease in the country, although unfavourable postvaccinal reactions had been observed in vaccinated pigs. Immune serum was recommended for preventing undesirable side effects. The virus was passaged at Pakchong Laboratory (more than 700 passages) but postvaccinal reactions were not appreciably decreased. However, this lapinized strain had been used for more than 20 years.

Table 2 Production of swine fever vaccine*

Year	Doses	Year	Doses
1954	71,860**	1967	564,720
1955	121,880	1968	269,870
1956	124,260	1969	310,150
1957	126,220	1970	946,850
1958	199,460	1971	137,250
1959	313,200	1972	548,310
1960	247,940	1973	547,050
1961	197,460	1974	661,100
1962	242,760	1975	772,850
1963	275,280	1976	786,800
1964	134,560	1977	516,290***
1965	213,660	1978	990,270
1966	277,620	1979	–

* From vaccine production record of Division of Veterinary Biology.
** From 1954 – 1976 – Lapinized SFA strain.
*** Since 1977 – Lapinized Chinese strain.

2) Lapinized Chinese strain

This strain of virus was well known in Eastern Europe. Pakchong Laboratory received this strain from the Veterinary Institute, Budapest, Hungary in early 1975. After studies in the laboratory and inoculation to more than one thousand head of pigs in field trials the vaccine produced from this virus was considered much safer than the lapinized SFA strain. The vaccine could be used without serum. It was not pathogenic for young pigs. No clinical signs of postvaccinal reaction have been observed in inoculated pigs. Contact infection with susceptible pigs in the same premises has not been observed either. The vaccine was able to confer strong and lasting immunity—at least one year after vaccination. Moreover, this vaccine could protect inoculated pigs within 4 - 7 days after vaccination. This strain of virus has been used for vaccine production at Pakchong Laboratory since 1976.

3 Tissue culture vaccine

In Japan, 3 strains of tissue culture attenuated swine fever virus have been developed—LOM strain, NIBS strain and GPE$^-$strain[3]. The GPE$^-$ strain was introduced to Pakchong Laboratory by Sawada[4] in 1971. This vaccine strain had been studied for more than one year with successful results[4]. Several small lots of vaccine were produced and used in field trials of more than 3,000 head of pigs. We consider that the vaccine was the best one. Unfortunately, the vaccine was not used because of some technical problems for large scale production.

Control of swine fever

Swine fever is an infectious animal disease controlled by the Animal Infectious Disease Control Law (Third Amendment 1954). When an outbreak occurs, provincial veterinarian must be notified. The provincial veterinarian, then, reports to the governor. The governor will announce the area of outbreak. Restriction of pigs' movement is applied until the infected area is free from the disease. At the same time, massive vaccination in a wide zone around the infected area is done by the provincial veterinarian and special unit of veterinarians from the Division of Infectious Disease Control. The vaccine is given free of charge by the Department of Livestock Development.

The control measures of swine fever in Thailand can be summarized a follows:

(1) Prompt reporting to the governor.
(2) Control the movement of all pigs in and around the infected area.
(3) Destruction of infected pigs with compensation payment by the government.
(4) Massive vaccination around the area of outbreak.

Problems in the control of swine fever

The problems in the control of swine fever seem to arise from small herds especially in remote areas. These swine raisers lack the knowledge of prevention against infectious disease. When hearing of a pig killing disease in a neighbouring district, they try to sell out their pigs. This is the cause of dissemination of the disease. Many outbreaks in the north-eastern part could be traced back to the central part from where the piglets were taken. Such cases could happen because the disease had not been reported.

In order to make disease control effective in Thailand, some factors must be improved.

1 Control programme

A well planned control programme must be set up. Every outbreak must be reported. The movement of pigs between provinces must be under strict control.

2 Diagnosis

Diagnosis of swine fever should be rapid and reliable. At present, laboratory diagnosis can be done only at Pakchong Laboratory. However, some veterinarians from the Regional Diagnostic Laboratories are being trained at Pakchong Laboratory.

3 Vaccination

The use of swine fever vaccine must be promoted. The number of vaccinated pigs is estimated at about one-fourth or less of the total pig population in the country.

References

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