SOME IMPORTANT POULTRY DISEASES AND PROPHYLATIC MEASURES IN THAILAND

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At the present time Poultry raising is an important industry in Thailand. There are about 200 poultry farms raising 1,000 to 10,000 layers for egg production. Most of these farms are located in the suburb of Bangkok. The poultry population of Thailand consists about 33 million of chickens and 11 million of ducks and in each year thousands of eggs, chickens and ducks are exported to the neigbouring countries

In Thailand the most obstacle in poultry raising is the fatal infectious diseases. About 20 years ago, poultry raising in a large commercial scale seemed to be impossible due to the lack of knowledge and experience to combat the highly contagious diseases. With the aid of F.A.O. and other foreign organizations the poultry experts, laboratory equipments as well as the fellowships were given to Dept. of Livestock Development in establishment the poultry disease laboratory and developing some kinds of poultry vaccine. The assistanceship made Thailand have means and ways for controlling the diseases. The following diseases are considered as the important infectious diseases in poultry raising in Thailand.

1. NEWCASTLE DISEASE

Newcastle disease is highly contagious disease of poultry. In Thailand at one time about 30 years ago this disease caused the collapse most of the poultry farms due to the death of all chickens in the flock. In 1944 the disease was identified and few years later a formalinized tissue vaccine against the NCD was developed But the duration of immunity was last long. In 1948 the attenuated virus of NCD (Mukteswar Strain) was received through F.A.O. for the production of vaccine. The Mukteswar strain vaccine can be used only in the old chickens. In 1952 the attenuated virus of NCD (F. strain) was received from Weybridge Laboratory, England, for vaccine production. The F. strain vaccine

can be used in the baby chicks. Both live vaccines have been widely used since that time.

Prophylaxis Vaccination as well as long range program of sanitary management were recommended to poultryman through extension service and local Veterinary officers of the Dept. of Livestock Development. The production of live vaccine against NCD was performed in large scale by the Dept. of Livestock Development. The vaccine was shipped through out the country by plane, railroad, and bus to the Provincial Veterinary officers. The vaccine was kept in thermos with ice during transportation. The cost of vaccine is only 5 stangs (1/4 U.S. cent) for one dose and the poultryman can buy directly from the Veterinary office.

In vaccination the F. strain vaccine was recommended for chicks of 2 weeks old by intranasal method. The immunity lasts only 2–3 months. Then the chicks were revaccinated with Mukteswar strain vaccine by stick method which produced immunity at least a year.

2. INFECTIOUS BRONCHITIS

This disease is also a serious disease of poultry. It frequently occurs in young birds of 3–4 weeks old with high mortality. The disease also affected the egg production in layers causing the change in size, shape and shell of eggs. In Thailand, the disease was identified in 1954. Attempt to make live vaccine by using our local strain has been carried on since 1955. After passage in chick embryo for 144 passages, the virus was attenuated and could be used as live vaecine in 1961. After successful field trial, the vaccine was produced in commercial large scale in 1965

Prophylaxis Sanitary management is emphasized to the poultryman. Vaccination by intranasal method for the chicks of 2 weeks old are widely practised. The immunity lasts only 3 months. Replacement stock should be vaccinated at least 4 weeks before the expected beginning of egg production.

3. INFECTIOUS LARYNGOTRACHEITIS

This is an acute highly contagious respiratory disease of chickens. It usually occurs in old birds than chickens of brooding age. Death losses in some outbreaks may be up to 50 percent. Egg production in layers is sudden dropped and stay down for a month. In Thailand before the disease was known, it was

confused with Newcastle disease and Infectious Bronchitis. In 1960 the disease was identified from cases of outbreak in Bangkok.

Prophylaxis Sanitary practices and sound management were recomm nded Hatching eggs or day old chicks should be obtained from flock free of the disease. Hot virus of local strain was und r experimental studies for developing live vaccine.

4. CHRONIC RESPIRATORY DISEASE

This disease is commonly found in poultry farm with improper sanitation and management. It is serious disease of birds 5–10 w eks old and usually occurs in hot dry summer. The disease also caused the sharp drop of egg production in laying birds. In Thailand, the disease was identified in 1955. At the present time the disease is still dreadful for the poultry farmers.

Prophylaxis No vaccine has not been developed against the disesae successfully anywhere. Strict in sound sanitation and management are the most important measures in controlling the disease. Hatching eggs, day old chicks or replacement stocks must be obtained from flock of the disease. Newly developed antibiotic (Tylan) is being used in small scale to control the disease.

5. DUCK VIRUS HEPATITIS

The disease frequently occurs in ducklings under 4 weeks old. It is a serious disease with high mortality up to 90 % and the losses may occur within a few days. The disease usually outbreaks after the raining season when the beginning of duckling raising time. In Thailand the disease was identified in 1958. Attempt has been made to produce the live vaccine but it was unsuccessful. The imported vaccine from European countries failed to protect the ducklings on challenge with local strian.

Prophylaxis Strict in sound management and sanitary practices were emphasized to the duck raisers. Ducklings should be obtained from reliable hatchery.

6. PULLORUM DISEASE

This is the common disease of baby chicken under 3–4 weeks old. Death losses occur mostly on 7–20 days of brooding. The servive may become the carrier of the disease for life time. In Thailand the disease was unknown until it was identified in 1951. Pullorum antigen was produced later using the strain obtained from Weybridge laboratory, England. In 1963 the eradication program of pullorum disease was declared by the Dept. of Livestock Development. Up to the present time, about 25 poultry farms are certified by the Dept. of Livestock Development as flocks existing reactor less than 1 percent.

Prophylaxis The following practices are widely used in the poultry farms. Hatching eggs, baby chicks and older birds are purchased from certified poultry farms. Birds of 4 months old are tested and the reactors are eliminated. The breeding flocks are also routinely tested once a year. The wholeblood plate test is used in checking pullorum carriers. Furazolidone in the feed has been used successfully to prevent the infection in baby chicks.

7. FOWLPOX

Fowlpox is a highly infectious skin disease of chickens. It is se ious when the disease occurs in baby chicks. The disease is very famillar to the poultry farmers due to the characteristic lesions. In Thailand the disease occurs frequently in the unvaccinated chicks.

Prophylaxis Vaccination the birds at 2 weeks old is recommended. Usually Fowlpox vaccine & Newcastle vaccine are administered at the same time. The immunity produced by Fowlpox vaccine is about a year.

8. FOWL CHOLERA

This disease occurs frequently in acute form of sporadic outbreaks. It is the disease of chickens and ducks of any age. In Thailand the disease has been known for a long time and usually occurs in poultry farms which have improper sanitation and management.

Prophylaxis Fowl Cholera vaccine is widely use iu prevention the disease. The immunity lasts about 3–6 months. Sound sanitation and management are also recommended. Sulfa drugs and antibiotic are also used in controlling the outbreaks.

9. COCCIDIOSIS

Coccidiosis is the disease of baby chicks from few days up to 2 months of age. It occurs frequently in the poultry farm which have poor sanitation and management. The disease has been known for a long time in Thailand and most of the outbreaks are caecal coccidiosis.

Prophylaxis Sound sanitation and management are the important measures in prevention the disease. Sulfa drugs and nitrofurczone are widely used in controlling the infection.

SUMMARY

Poultry raising is now a big industry in Thailand. The important poultry diseases are: Newcastle Disease, Infectious Bronchitis, Infectious Laryngotracheitis, Chronic Respiratory Disease, Duck Virus Hepatitis, Pullorum Disease, Fowlpox, Fowl Cholera and Coccidiosis. Vaccine is widely used in prevention most of the infectious disease. Several types of vaccine are produced inlarge scale by the Dept. of Livestock Development and the cost of vaccine is about 5 stangs (1/4 U.S. cent) for a dose. The vaccine is also distributed to the poultryman through local Veterinary officer. Vaccination is performed mostly by the poultryman under the advice of local vaterinary officers. The Pullorum eradication program is also practised.

APPENDIX

TABLE I Number of outbreaks & birds infected with some poultry diseases in 1964 – 1966.

NAME OF DISEASES	Year 1964		Year 1965		Year 1966	
	N.O.	N.B.	N.O.	N.B.	N.O.	N.B.
1. Newcastle Disease	94	3,964	231	8,771	191	3,710
2. Infectious Bronchitis	17	9,088	40	3,300	16	585
3. Infectious Laryngotracheitis	20	28,178	26	4,763	25	4,213
4. Chronic Respiratory Disease	6	804	57	4,288	80	14,750
5. Duck Virus Hepatitis	15	2,044	21	1,557	12	6,026
6. Pullorum Disease	15	2,044	219	4,978	179	2,746
7. Fowlpox	12	312	31	1,405	16	420
8. Fowl Cholera – in Chicken	49	5,060	59	5,476	66	1,780
– in Ducks	22	2,173	58	2,235	56	722
9. Coccidiosis	20	1,970	59	1,260	71	4,313

N.O. = Number of outbreaks

N.B. = Number of Birds infected

TABLE II Number of doses of vaccine and antigen produced by Dept. of Livestock Development in 1964 – 1966

Kind of Vaccine or Antigen	Year 1964	Year 1965	Year 1966
Newcastle	11,863,800	14,858,600	14,058,400
Fowl Cholera	2,704,600	527,475	685,150
Fowlpox	622,825	2,246,400	3,898,200
Infectious Bronchitis	–	1,105,500	811,000
Pullorum antigen	134.210	109,600	137,750

THE WORM PARASITES OF CATTLE AND BUFFALO AND THEIR CONTROL IN THAILAND

by

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As in most agricultural countries in Asia, Thailand use cattle and buffalo as the main source of draught power in agriculture practices. Experience has shown that if there were any infectious diseases caused heavy losses of cattle and buffalo, the sharp drop in rice production as well as other agricultural products are observed in the same year. After the completion of their working life, they are slaughtered and the meat represents one of the principle protein diets for Thai people. The animal population of Thailand consists of 5 millions ons of cattle and 6 millions of buffalo. In each year nearby 60,000 heads of cattle and buffalo are exported to the neighbouring countries. It is no doubt to say that cattle and buffalo play important role in the economy of Thailand.

The worm parasites of cattle and buffalo have known as the cause of economic losses by scientists in all countries. These losses are all the more serious because they do not show up as death losses but manifest themselves in stunting, poor feed utilization, slow growth role reduction of milk yeild, a general unthrifty condition, and lowering the working ability of the animals the reduction in selling price of animal due to the poor quality of meat and the condemnation of carcasses or organs in meat inspection are the other economic losses. Therefore the losses are not clearly understood by farmers and make them have less attention in parasites control. Economic losses caused by parasites in cattle and buffalo are roughly estimated about 5 millions dollars a year in Thailand

In order to get the incidence of worm parasites in live cattle and buffalo, survey was made by the Veterinary Research & Education Division of the Dept. of Livestock Development in 1959 – 1966.

The area of investigation involved the North Nastern, North and Central parts of country. The animal population in the mentioned areas comprise of 80% of cattle and buffalo of the whole country. About 20 villages from each province

were selected for the survey. The fecal samples were collected at random from about 10 % of the animals of 4 – 6 years old in each village. Formalin ether sedimentaion method is use for fecal examination. The incidence of worm parasites of cattle and buffalo is shown in table I, II, and III.

The data indicated that the incidence was rather low when compared with examination of carcasses in the abbattoir when the old aged animals were slaughtered. However, the result obtained by this survey could represent the general pictures of the incidence of worm parasites of cattle and buffalo in Thailand.

CONTROL

The parasites control is widely practiced mostly in the livestok breeding stations of the Department of Livestock Development and in some modern dairy farms. Recomendation for parasites control is also instructed to the farmers through Extension Service unit of the Department of Livestock Development routinely. In order to emphasise the farmers in controlling parasites, the mentioned survey Team of Veterinary Research & Education Division also gave instruction for sound sanitation and management by leaflets and movies. About 21,467 cattle and 49,614 buffaloes in the survey villages were also treated with worm medicine (Hexachloroethane and Phenothiazine) for demonstartion purpose. Worm treatment twice a year at the beginning of raining season (May or June) and at the end (November) is recommended to the farmers.

SUMMARY

Cattle and buffalo play important role in the economy of Thailand. Economic losses caused by parasites are about 5 million dollars a year. The common parasites of cattle and buffalo obtained by the survey are Rumen flukes, Liver flukes and Gastro – intestinal worms. Parasites control is widely practised mostly in livestock breeding stations of the Government and some modern dairy farms. Worm medicine (Hexachloroethane and Phenothiazine) is also given to the animals of the farmers for demonstraion purpose. Methods of Parasites control are also recommended to the farmers through extension service.

Table I The incidence of worm parasites of Cattle & Buffalo in the North-Eastern part of Thailand in 1959 – 1961.

Name of worm parasites	Cattle			Buffalo		
	N.E.	N.I.	%	N.E.	N.I.	%
1. Liver flukes	1359	123	9.01	2065	313	15.15
2. Rumen flukes	,,	682	50.18	,,	1322	64.60
3. Eurytrema pancreaticum	,,	9	0.66	,,	3	0.14
4. Schistosoma spindale	,,	1	0.07	,,	1	0.48
5. Strongyloides papillosus	,,	1	0.07	,,	5	0.24
6. Haemonchus placei	,,	96	7.06	,,	132	6.39
7. Mecistocirrus digitatus	,,	6	0.44	,,	11	0.53
8. Ostertagia ostertagi	,,	92	6.77	,,	39	1.88
9. Oesophagostomum radiatum	,,	83	6.10	,,	73	3.53
10. Trichostrongylus axei	,,	45	3.31	,,	11	0.53
11. Cooperia Spp.	,,	73	5.37	,,	38	1.84
12. Bunostomum phlebotomum	,,	1	0.07	,,	0	0
13. Trichuris Spp.	,,	40	2.94	,,	11	0.53
14. Ascaris vitulorum	,,	0	0	,,	0	0
15. Coccidia	,,	103	7.59	,,	137	6.63
16. Syngamus laryngeus	,,	0	0	,,	0	0

Note : N.E. = Number of examined

N.I. = Number of infected

Table II The incidence of worm parasites of Cattle & Buffalo in the Northern part of Thailand in 1962 – 1964.

Name of worm parasites	Cattle			Buffalo		
	N.E.	N.I.	%	N.E.	N.I.	%
1. Liver flukes	2475	239	9.60	3993	278	7.78
2. Rumen flukes	,,	1705	60.77	,,	2434	60.95
3. Eurytrema pancreaticum	,,	9	0.36	,,	16	0.41
4. Schistosoma spindale	,,	27	1.12	,,	7	0.17
5. Strongyloides papillosus	,,	18	0.64	,,	24	0.64
6. Haemonchus placis	,,	27	1.90	,,	11	0.28
7. Mecistocirrus digitatus	,,	89	3.60	,,	62	1.55
8. Ostertagia ostertagi	,,	0	0	,,	0	0
9. Oesophagostomum radiatum	,,	534	21.50	,,	165	4.13
10. Trichostrongylus axei	,,	88	3.51	,,	18	0.47
11. Cooperia Spp.	,,	175	7.25	,,	18	0.47
12. Bunostomum phlebotomum	,,	6	0.24	,,	1	0.02
13. Trichuris Spp.	,,	88	3.51	,,	43	1.11
14. Ascaris vitulorum	,,	8	0.32	,,	4	0.10
15. Coccidia	,,	175	7.25	,,	194	4.88
16. Syngamus laryngeus	,,	19	0.75	,,	7	0.17

Note : N.E. = Number of exammined

N.I. = Number of infected

ANAPLASMOSIS AND THE PROPHYLACTIC MEASURES IN THAILAND

by

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In Thailand Anaplasmosis was the serious disease problem in raising imported cattle during the past two decades. The superior breeding stocks of beef and dairy cattle from Europe, U.S.A. and Australia, where the disease does not occur, are very susceptible to the disease. The mortality rate was rather high and it ranged from 50 – 90 percent. The native cattle seemed to have some resistance and showed no clinical symptoms. They are the carrier of the disease and transmit the disease to the introduced susceptible animals. In 1963 the carrier state of native cattle was studied by R.S. Bain, P. Aranyakananda and K. Thirapat. It showed that several days after splenectomy many blood protozoan parasites such as A. marginale, B. bigemina and T. mutans were found in the peripheral blood. Later on, R. Dissamarn and K. Thirapat in 1965 demonstrated the carrier state of native cattle and buffalo by using Capillary tube agglutination test (Anatests of Diamond Laboratory, U.S.A.) and found that 37.37% (108/289) of cattle and 2.33% (15/588) of buffalo were reactors. So it was proved that native cattle and buffalo were the reservoirs of the disease.

After combating the anaplasmosis in Thai Danish Dairy Farm, Thailand for 3 years and it was found that anaplasmosis was a serious problem of the farm. So in 1964 anaplasmosis vaccine was decided to be used in prevention the disease by the Director (G. Sandergarrd) and Veterinarian (E. Stugaud) of the farm. The vaccine was obtained from the Parasitology Department of Veterinary Institute, Bat Dagan, Israel. The vaccine was in the wet form of refrigerated whole blood of A. centrale and shipped directly by plane from Israel to Bangkok. The first lot of vaccine was also vaccinated to 8 heads of Jersey cattle from Australia of the Dept. of Livestock Development. The detail in the use of anaplasmosis vaccine in those Jersey cattle were studied by R. Dissamarn, P. Chaianan and T. Sichanakul in the way such as the change in body temperature, blood haemoglobin content, the control of reaction after vaccination. The result of these studies helped for the use of the anaplasmosis vaccine afterwards.

Vaccine Production

According to the plan of the Dept. of Livestock Development to improve and expand the beef and dairy industries, hundreds of superior breeding stocks from Europe, U.S.A. and Australia are imported every year. So it is necessary to produce anaplasmosis vaccine locally. With the cooperation of Dr. R.B. Griffith in 1965 the seed of attenuated strain of A. centrale was obtained by the courtesy of Dr. R.F. Riek of Veterinary Parasitology Laboratory, Yeerongpilly, Australia. The attenuated A. centrale strain was passaged in splenectomized calves for 2 serial passages. After successful fieldtrial the blood of infected calves can be used as a vaccine. The blood drawn during the peak of infection is known as "Hot Blood," and the blood drawn after the recovery of the disease is known as "CARRIER BLOOD."

Control of Reaction

After vaccination, the vaccinated animals should be closed observed. If the animals show any sign of clinical symptoms such as high fever, off feed or sharp drop in blood Haemoglobin content, the animals must be treated with tetracycline compound at the dosage 3 mg./lb. for 1 -- 2 days. Supportative treatment is necessary in some cases.

Conclusion

The Anaplamosis vaccine produced in Thailand seemed to give a good protection to the susceptible animals. The vaccinated cattle raised dairyfarm condition showed no sign of clinical anaplasmosis at least 14 months.

SUMMARY

Anaplasmosis is the serious disease among the imported cattle in Thailand. The native cattle and buffalo are the reservoirs of the disease. The Anaplasmosis vaccine is now being produced in a small scale and the use of vaccine in some breeds of imported cattle are studied. No death occured in 290 vaccinated animals.

Table I. Number of imported cattle vaccinated with Anaplasmosis vaccine (Thailand)

Date of vaccination	Type of vaccine and dose	No. of animal	Result
July 29, 1966	Hot blood, 5 c.c. Subcutaneously	**From Australia** 25– **A.I.S.** Australian Illawara Shorthorn	All of them reacted. A. centrale was found in peripheral blood about 29 days after vaccination. No. of parasited ranged < 1–19 per field and 17 of them were treated with tetracycline compounds.
		21 Holstein Friesian	All of them reacted. A. centrale was found in the peripheral blood about 29 days after vaccination. No. of parasite ranged < 1–23 per field and 12 of them were treated with tetracycline compounds.
		10 Jersey	All of them reacted. A. centrale was found in the peripheral blood about 29 days after vaccination. No. of parasites ranged < 1–23 per field and 7 of them were treated with tetracycline compound.
		1 Dairy Shorthorn	Reacted by showing A. centrale in the peripheral blood 29 days after vaccination. The minimum number of parasite is 17 per field.

Date of vaccination	Type of vaccine and dose	No. of animal	Result
Jan. 18, 1967	Carrier blood 10 c.c.	**From Indian U.S.A. 40 Brown Swiss**	All of them reacted. A. centrale was found the peripheral blood about 25 days after vaccination. No. of parasites ranged < 1–13 per field. Six of them were required for treatment.
Nov. 23, 1966	Hot blood 5 c.c. subcutaneously	**From Texas U.S.A. 50 Brahman**	Fourty one of them reacted. A. centrale was found in peripheral blood about 29 days after vaccination. Only few parasites were found in blood smear. Two of them were required two treatment.
		49 Santa Kertrudis	Thirty nine of them reacted. A. centrale was found in the peripheral blood about 29 days. The number of parasites per field is less than 1. Thirteen of them were treated with tetracycline compound.
April 13, 1967	Carrier blood 10 c.c. subcutaneously	**From Australia** (Queensland) **35 A.I.S.**	All of them reacted. A. centrale was found in the peripheral blood about 26 days after vaccination. No. of parasites ranged < 1–8 per field. Sixteen of them were required for treatment.
July 22,1967	Carrier blood 10 c.c. subcutaneously	**From Australia** (Queensland) **59 Devon**	All of them reacted. A. centrale was found in the peripheral blood about 31 days after vaccination. No. of parasites ranged < 1–18 per field. Five of them were treated with tetracycline compounds.