## III. Technical progress in DIC, Tanjungkarang

Techniques for the examination and diagnosis of animal diseases have gradually progressed, but there are still unsatisfactory points in DIC.

Present accomplishments are as follows;

## 1. Virology Section

Serological tests such as hemagglutination and hemagglutination inhibition (HI) tests have been routinely applied for the diagnosis of Newcastle disease (ND) as well as for the vaccination response against ND virus in the field. A HI test was also used for the demonstration of Akabane-disease-virus parainfluenza-virus Type 3 and Japanese-encephalitis-virus infections of cattle, etc. But, a neutralization test is not yet well developed.

In order to isolate viruses and to do neutralization tests, the tissue culture should be more studied. In the present situation, chicken kidney (CK) and chicken embryo (CE) cell cultures have only been applied for the isolation of ND virus. As for bovine cells, bovine kidney (BK) and bovine testis (BT) cells are suitable for the isolation of viruses of bovine origin, but it is not easy to obtain BK and BT routinely. Cell lines of HmLu and MDBK have been maintained, so that using both cells, virus isolation and neutralization tests should be carried out at least for the important diseases of cattle.

Fluorescent antibody (FA) techniques have been applied for the diagnosis of rabies, Newcastle disease, avian bronchitis and hog cholera routinely. (This disease is not yet present in Indonesia.) Especially for rabies, in order to make a secure diagnosis, positive control (rabbit brain infected with virus fix of rabies) and negative control (normal rabbit brain) should be used in every examination.

Fluorescent antibodies of these diseases must be supplied by institutes of biology in Indonesia and Japan.

## 2. Bacteriology Section

Serological tests for brucellosis, pullorum disease and my-coplasmosis, and allergy testing for tuberculosis have been routinely carried out. Antigens not only for the above-stated diseases but also for John's disease must be supplied by institutes of biology in Indonesia and Japan.

Techniques for the cultivation and identification of bacteria, especially aerobic ones have been gradually developed, but further efforts are expected. Techniques of how to cultivate anaerobic bacteria must be studied in parallel with those of aerobic bacteria.

## 3. Parasitology Section

Microscopic examinations of parasitic eggs of helminth, and of protozoa and blood parasites using the blood-smear method have been routinely carried out. Identification of helminth is possible, but that of ectoparasite has not yet been developed.

Serological tests such as complement fixation test of Anaplasma marginale, Ratex agglutination test of Toxoplasma gondii and Agar-gel immunodiffusion test of Leucocytozoon caulleryi were performed; however, more development in this field should be expected.

#### 4. Pathology Section

Autopsy, collection and fixation of dissected materials, postmortem diagnosis of diseases have been routinely carried out. When
dead and live animals were dissected at DIC or at the fields where
the animals died, veterinarians of DIC, especially pathologists must
give the suggestion on whether the disease is infectious or not, and
on the kind of disease. According to the suggestions, materials for
the virus isolation and bacterial cultivation should be collected
aseptically. When poisoning is suspected, experiments using feed
and so on must be performed.

Histopathological diagnosis has also been carried out routinely, and more developments are expected in this field.

### Laboratory animals

Such laboratory animals as mice, guinea pigs, rabbits and chickens have been raised at DIC, but their management and feeding methods need improvement. Animals used in the experiments must be healthy, and nearly identical in age, sex and genetics. Veterinarians who visit Japan in the near future, need to have the opportunity of getting enough knowledge about laboratory animals.

# 6. Photography

Macro- and micro-photography are important techniques in laboratory and field works; however, training for the taking of scientific photographs is insufficient. A short term training course in this field needs to be held either in Indonesia or Japan.

## IV. Comments and recommendations for future plan

#### 1. Staff and personnel

As stated in the introductory paragraph, the number of staff veterinarians and supporting personnel has increased gradually; however, in addition to the present staff, at least 2 veteriarians, one pathologist and one entomologist, are needed to strengthen the activities of DIC.

#### 2. Laboratory animal shed

There is no satisfactory shed for laboratory animals in DIC,
Tanjungkarang, As stated already in this report, the role of laboratory
animals in the detection of diseases is important, so that the sheds
for this purpose are urgently required.

## 3. Water supply

DIC has one deep water well which supplies water for the laboratory, animal sheds and staff housing. It seems that the quantity of matter obtained from the one well is insufficient, especially in dry season. One more water well is necessary.

## 4. Managment of laboratory equipments

In order to manage and maintain the laboratory equipment and instruments, a technical engineer consultant is necessary for DIC.

## 5. Library

Textbooks and journals are also insufficient at DIC. It is necessary to increase the number of textbooks and to at least obtain important periodical journals

- a) American Journal of Veterinary Research (U.S.Λ.)
- b) Journal of American Veterinary Medical Association (U.S.A.)
- c) Veterinary Record (U.K.)
- d) Japanese Journal of Veterinary Science (Japan)
- e) National Institute of Animal Health Quarterly (Japan)

6. Strenghening of the DIC and C types the Provinces of South Sumatra and Bengkulu

B Type DIC has been established at Palembang in South Sumatra and at Bengkulu municipality and Kurotidur in Bengkulu Provinces. South Sumatra Province is large, so the establishment of 2 more B type well equipped DIC's is needed.

As for B type DIC located in the Bengkulu municipality, the buildings were finished but equipment not yet prepared. Cooperation is necessary for this purpose.

7. Telecommunication facility of DIS is not available yet. Since this is a tool for communication between the DIC and the Animal Husbandry Offices as well as between field officers, utmost efforts are desirable to facilitate telephone lines.

# V. Lists of table and figures

#### Table:

- 1. Numbers of applicants and specimens in diagnostic services
- 2. Numbers of applicants and specimens in field investigations
- 3. Relationships between diagnostic services and field investigations, and kinds of animals 1 (Jan. 1979/'80)
- 4. Relationships between diagnostic services and field investigations, and kinds of animals 2 (1980/'81)
- 5. Relationships between diagnostic services and field investigations, and kinds of animals 3 (1981/'82)
- 6. Number of specimens submitted to and collected by DIC
- 7. Relationships between kinds of specimens and animals
- 8. Results of diagnose on organs and dead and live animals cattle and buffalo
- 9. Results of diagnoses on organs and dead and live animals Deer
- 10. Results of diagnoses on organs and dead and live animals sheep and goats
- 11. Results of diagnoses on organs and dead and live animals swine
- 12. Results of diagnoses on organs, and dead and live animals chickens and ducks
- 13. Results of diagnoses on organs, and dead and live animals dogs and cats
- Results of Brucella rapid agglutination test in cattle and buffalo
- 15. Results of Brucella rapid agglutination test in sheep and goats
- 16. Final decision of cattle and goats which were positive in Brucella rapid agglutination test
- 17. Results of Salmonella pullorum and Mycoplasma gallisepticum rapid agglutination tests
- 18. Investigations of antibody against Newcastle disease virus by use of hemoagglutination inhibition (H.I) test.
- 19. Serum protein content in cattle
- 20. Hematocrit value in blood of cattle
- 21. Examination of protozoa in blood smears of cattle and buffalo
- 22. Examination of protozoa in blood smears of chickens
- 23. Detection of helminth by examination of parasitic eggs contained in feces of cattle
- 24. Detection of eggs of Ascaridia galli in feces of chickens
- 25. Viruses identified by virology section

- 26. Viral antigens and antibodies detected by virology section of DIC
- 27. Bacteria and fungus identified by Bacteriology Section of DIC
- 28. Bacterial antibodies detected by Bacteriology Section of DIC
- 29. Protozoa and endo- and ecto-parasites identified by Parasitology Section of DIC
- 30. Protozoal antibodies detected by Parasitology Section of DIC
- 31. Main pathological changes of Rama Dewa disease occurring in Lampung Province in the period from 1980 to 1982
- 32. Main pathological changes and bacteriological gindings of Swine pasteurellosis occurring in Lampung Province
- 33. Investigations of Leucocytozoon by use of blood-smear method and agar-gel immunodiffusion test
- 34. Occurrence of rabies of animals in region of DIC in the period from August 1979 to March 1982
- 35. Occurrence of rabies of animals in the provinces of Lampung, South
  Sumatra and Bengkulu

## Figure:

- 1. Scheme of diagnostic services in DIC, Tanjungkaran
- 2. Subdistricts where Rama Dewa disease occurred in Lampung Province in the period from August 1980 to February 1982
- Subdistricts where hemorrhagic septicemia of cattle and buffalo occurred in Lampung Province in the period from January 1979 to March 1982
- 4. Distribution of cattle and buffalo infected with Trypanosoma sp. in Lampung Province
- 5. Distribution of cattle and buffalo infected with Theileria sp. Babesia sp. in Lampung Province
  - 6. Distribution of cattle and buffalo infected with Anaplasma sp. in Lampung Province
  - 7. Distribution of chickens infected with Leucocytozoon caulleryi and L. sabrasesi in Lampung Province
  - Distribution of rabied animals in the provinces of Lampung, South Sumatra and Bengkulu

Table 1. Numbers of applicants and specimens in diagnostic services

	Lamp	Lampung	South &	South Sumatra	Beng	Bengkulu	West Jawa	Jawa	Total	:a1
	No. of* applicants	No. of specimens	No. of applicants	No. of No. of oplicants specimens	No. of No. of No. of No. of applicants specimens	No. of specimens	No. of No. of No. of No. of applicants specimens specimens applicants	No. of specimens	No. of No. of No. of No. of of No. of opticants specimens specimens applicants	No. of applicants
	222	897	7	7	7	7			233	479
5.6	144	506	14	24	16	21	<b>i-1</b>	H	175	552
181 E 1811 1814	279	1,177	.05	455	128	135	5	35	480	1,802

Comments: \* No. of applicants is almost equal to No. of farmers.

Table 2. Numbers of applicants and specimens in field investigations

		Total	197	8,044	255	320	545
		ΙO	2,	∞`	<u> </u>		
		West	4I 2,197	17		7	23
	1981/'82	Bengkulu Jawa	<b>H</b>	207		H	H
		South	114	190	<b>n</b>	12	15
		Lampung	1,794 2,041	3,583 7,606	250	302	506
		Total	1,794	3,583	181	281	421
	81	Bengkulu Total Lampung	4	4			H
	184/0861	South	93	200	4	16	20
		Total Lampung	1,243 1,697	2,284 3,583	176	264	700
		Total	1,243	2,284	180	193	291
	Jan. 1979/'80	Bengkulu					
,	Jan. l	South					
		Lampung	1,243	2,284	180	193	291
		Division	No. of applicants	No. of specimens	Times of investiga-	No. of subdistricts	No. of villages

Comments: \* No. of applicants is almost equal to No. of farmers.

Relationships between diagnostic services and field investigations, and kinds of animals -1 (Jan. 1979/'80) Table 3.

		No. of speci- mens	1,485		18	26	1,186	27	н	4	15	1,0
	Iotai	No. of N appli- s cants m	1,386			7	57 1	17	H	<b>H</b>	2	
		No. of N speci- a mens c	1,234 1		18	25	1,102			4		
	Total	No. of Nappli- s	1,199		7	m	32 1			r-l		
w	J.u	No. of speci- mens										
tigation	Bengkulu	No. of appli- cants										
Field investigations	ımatra	No. of speci- mens										
F.	South Sumatra	No. of appli- cants										
	gun	No. of speci- mens	1,234	<del></del>	18	25	1,002			4		
	Lampung	No. of appli- cants	1,199		7	σ.	32.			H		
	Total	No. of speci- mens	251			H	184	27	H		15	
	To	No. of appli- cants	187			H	25	17	٦		7	
es	Bengkulu	No. of speci- mens	H					m				
c servic	Beng	No. of appli- cants						m				
Diagnostic services	umatra	No. of speci- mens	2				н	4				
o l	South Sumatra	No. of appli- cants	2				A	4				
	Lampung	No. of speci- mens	248			. rd	183	20	ed .		1.5	Y A
	Lam	No. of appli- cants	184			<b>н</b>	24	10	. <b>-</b>		7	
		Animal	Cattle Buffalo	Horses	Sheep Goats	Swine	Chickens	Ducks Dogs	Cats	Monkeys Rabbits	Others	

Relationships between diagnostic services and field investigations, and kinds of animals  $-\ 2\ (1980/\,^{\circ}81)$ 

	locar	No. of No. of appli- speci- cants mens	1,898	. 49		274	116	54	1,685	7,0	37	2	<b>-</b>		ń	4,135
ŧ	01	No. of appli- cants	1,655	42		97	24	22	133	4	37	2	H		8	1,969
	al	No. of speci- mens	1,715	35		09	06	38	1,635	10						3,583
	Total	No. of appli- cants	1,587	31		6.4	7	16	109	(H)						1,794
suc	Bengkulu	No. of No. of appli- speci- cants mens	p	<i>(</i> )						***************************************						7
investigations	Beng	No. of appli- cants		m												4
d inves	ıch ıtra	No. of speci- mens	76	4				27.	7.5							200
Field	South		75	4	·		1 J	Ħ	m							93
	gun	No. of No. of speci-appli- mens cants	1,620	28		9	80	Ħ	1,560	ព						3,379
	Lampung	No. of appli- cants	1,511	24		43		Ŋ	106	H						1,697
	al	No. of speci- mens	183	14		23.4	26	1,6	50	vo	37	2	H		m	552
	Total		89	T T		m	17	9	24	o :	37	2	H		m	175
	ក្ន					. jed.										H
ices	West Jawa	No. of appli- cants				-		·.			- :-				-	н
serv	u]u		7				· 😝			:	12		2.7			2.1
Diagnostic	Bengkulu	No. of No. of No. of speci- appli- speci- mens cants mens	2	5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			7				12		-			16
. C	th	No. of speci- mens	6	H			н				2	<del></del> 				24
	South Sumatra		9	-			Ħ		Ņ		2				2	14
	Sun	No. of No. of speci-appli- mens cants	167	£ H		213	24	16	77	٧	23		H		<b>н</b>	506
	Lampung	No. of appli- cants	80	10		. 2	1.5	9	22	က	23	##	<b></b>		н	144
		Animal	Cattle	Buffalo	Horses	Sheep	Goats	Swine	Chickens	Ducks	Dogs	Cats	Monkeys	Rabbits	Others	ta1
			, a	ng —	H <sub>H</sub>	Sh	ઉ	Sw	ජ —	Ď	õ		Ş.	le St	O	Total
						I	2	29	**:					· · - :		

Table 5. Relationships between diagnostic services and field investigations, and kinds of animals - 3 (1981/'82)

		r				<del></del>				·			<u> </u>		
Total	No. of speci-	4,102	59	7	625	189	6.6	4,305	263	195	,	m	15	ដ	9,846
	No. of appli- cants	2,006	77	63	13	8	6	261.	28	195	7	m	ω	ν)	2,679
3.1		3,057	52	11	486	126	4.5	4,006	261				- Table 1		8,044
Τοτ	No. of N	I	39	73	13	78	7	173	27				·		2,197
lawa	io. of B		33	— <del>-</del> ∶ -1	н	·						÷.			77
West	tppli-		33			•					•	<del></del>			47
1ú	o. of N peci- a	207	1	<u></u>											207
nyguag	o. of N ppli-s	1		·		· .				*.		7			7
និ	o of N peci-a	140	·		-	· ·	<del></del> .	50	<del>-</del>	·		- <del></del>		<u></u>	190
South	opli- spints	111			<del></del>			คา		· :		<del></del>		1 1	114 1
807	of No eci-ap ns ca	710	δÏ	10	485	120	35	976	192						7,606 1
Lampun	of No pli- sp		ç	. e-f	12	7.5	. ~		27					· · · ·	
	of No ci- ap		~		36	63			۲۷.	- 26		<u>.</u>	15	23	1,802 2,041
Total.	of No. Li-spe	<del></del>	<i>ا</i>	·	. 6		2				. ~	m	ø		480 1,
	of No. i- app.	ļ					· · ·		·	- G	· ·	· ·			
st Jawa	of No. (- spec	35									· ·	·			35
33	f No. cante	4		·			<del></del>		· · · ·	· .					5
gkulu	f No. o	3.6						2		110	m			<b>≓</b>	135
Ben	No. o appli- cants	11	 	· 		-		2		ort	m			-	128
uth	No. of speci- mens	435				:		:279		17					455
sns S	No. of appli- cants	31	:.	· ·				. 2		17					20
Sund	No. of speci- mens	560	579		139	9	-1	294	N	89	7	m	1.5	13.2	1,177
เรล	No. of appli- cants	102	<b>ئ</b>		0	1.2	24	78	rd	89	7	m	20	4	297
	Ļ	-		<del>-</del> -			<u> </u>		<del></del> -	<del></del>	-	- 10 - 10	•		
Anima		Cattle	· Buffalo	Horses	Sheep	Goats	Swine	Chicken	Ducks	Dogs	Cars	Monkeys	Rabbies	Others	Total
	Lempung South Bengkulu West Jawa Sumatra	South Sumatra Sengkulu West Jawa Totai Lampung South Bengkulu West Jawa Totai No. of N	Lempung South Bengkulu West Jawa Total Lampung South Bengkulu West Jawa Total South	No. of	No. of	No. of	No. of   N	No. of	No. of	No. of   N	No. of	Month   South   Sout	Annel A		Sunatra   Suna

Table 6. Number of specimens submitted to and collected by DIC

Total	539	5,461	6,000	825	8,209	9,034	2,175	18,612	20,787
Others		2	2	22	Ī	33	20	10	30
F1 00 00 00 00	153	1,206	1,359	335	1,884	2,219	290	3,907	4,197
Blood smears	100	1,590	1,690	173	2,973	3,146	226	7,120	7,346
Blood	133	2,528	2,261	142	3,307	3,449	1,148	7,534	8,682
Organs	65	13	78	54	9	60	102	H	103
Brains				21		21	141		141
Heads				2		2	38	3	38
Dead & live animals	88	122	210	76	28	104	210	07	250
Kinds of specimens	Diagnostic service	Field in- vestigation	Total	Diagnostic service	Field in- vestigation	Total	Diagnostic service	Field in- vestigation	Total
Kinds of	Jan. 1979/'80			1980/'81			1981/'82		
				11 - 3 1					

Table 7. Relationships between kinds of specimens and animals

Period	Kinds of specimens	Cattle	Buffalo Ho	Horses St	Sheep G	Coats S	Swine C	Chickens	Ducks	Dogs	Cats Mo	Monkeys	Rabbits	Others
	Dead & live animals	5	. A		. :			176		7			4	14
	Heads						- :					. · 1		
•	Srains													
08.1/0701 207	Organs	09	7	٠				Ŋ		10	-i			+\$ -:
2011. 12.100	Blood	1,451	H			17	14	1,031						
	Blood smears	1,332			: .	17	1.4	326					:".	
	Feces	1,257	<b></b>			14	23	51		13		٠	•.	
	Others	H				7		146	4.					
	Total	4,106	Ŋ			50	57	1,735		27	라.		4	rl S
	Dead & live animals	11			2		10	59	9	15				7
	Heads							·	a .	ᆏ	H			
	Brains								٠	19	id.			
1980/181	Organs	33	7	٠.	r	6	<b>-</b>	07			:		:	. (4
}	Blood	1,435	37		49	65	31	1,489	10	Н				٠.
	Blood smears	1,828	57		58	92	28	1,085	10	٠		4		 .: .
	Feces	1,638	28	(7)	238	99	20	217	10	Н	. •	+		
	Others	9	r-1		2	20		'n				٦		
	Total	5,251	115	W1	350 . 2	285	. 06	2,863	36	37	2	2		3
	Dead & live animals	17	Т		4	œ	7	160	3	19		14 2 ***	12	22
	Heads	Š					*::			36	7			
	Brains	H								133	7	2		<b>H</b>
1981/'82	Organs	94	2			7		5						
	Blood	3,928	52	11 1	157 1	166	19	4,089	260					
	Blood smears	3,090	. 55	11 1	156 1	169 4	777	3,560	260		еч			
	Feces	2,954	20	5 6	612 I	144	. 51	382	25	9		Н	2	
	Others	15	2		. 2	m		H	m	. 7	<del>,</del>	ì	H	
	Total	10.000	. 676		, , , ,				u	701	o	٠	v	33

Results of diagnose on organs and dead and live animals - cattle and buffalo Table 8.

No. of Diagnosis	Name of disease	Jan. 1979/'80	18,/0861	1981/'82	182	F.
applicants (%)	and pathognomonic signs	bead & Live animals (DLA)	DLA Organs	DLA	Organs	דסיסי
Infectious diseases	Rama Dewa disease	1/1 *1	3/3 2/2	2/2	1/1	6/6
	Hemorrgagic septicemia				(1/1) *2	(1/1)
	Anaplasmosis	1/1				1/1
1,2	Babesiosis			1/1		1/1
Parasitic diseases	Hemonchiasis		1/1	3/3		7/7
	Lungworm disease			1/1		1/1
	Ascariasis		1/1			1/1
5.9	Fasciolasis	1/1				1/1
Diseases of alimentary	Stomatitis ulcerosa				2/2	2/2
organ and liver	Tympanitis acuta		1/1	1/1		2/2
	Enteritis catarrhalis					5/5
	Enteritis hemorrhagica		1/1	4/4		5/5
	Fatty liver				2/2	2/2
	Liver cirrhosis	· · · · · · · · · · · · · · · · · · ·	1/1			1/1
21 17.8	Multiple liver necrosis				7/7	4/4
Diseases of respiratory	Pneumonia lobaris	1/1		1/1		2/2
organs	Pneumonia bronchialis		1/1	2/2	7/7	1/1
	Pneumonia purulenta			1/1	9/9	7/7
	Pneumonia interstitialis			1/1		1/1
18	Pneumonia haemorrhagica				1/1	1/1
Nutritional disorder	Malnutritional cachexia		4/2	2/2	5/1	11/5
4.2						
	Pericarditis fibrinoza		(1/1)			(1/1)
	Hemorrhagic diathesis		(1/1) 3/3	~	न/न	(1/1) 4/4
Others	Nephricis interstitialis				2/2	2/2
	Death due to difficult-			1/1		1/1

Table 8. Continued

	Diagnosis	Name of disease	Jan. 1979/'80	198	18,/0861	1981/	1981/'82	Toral
applicants (%	(%)	and pathognomonic signs	animals (DLA)	DLA	DLA Organs	DLA	DLA Organs	
		Myositis necrotica		1/1				1/1
		Pappilomatosis	1/1		2/2	:	1/1	7/7
15 12	. 7	Dermatitis chronica			1/1			1/1
40.	6.8	Undiagrosable			5/5	3/3	(1/1) 31/31	(1/1) 39/39
118		Total	5/5	12/10	(2/2) 15/15	23/23	(1/1) 65/61	12/10 (2/2) 15/15 23/23 (1/1) 65/61 (4/4) 120/114

\*1 Numerator means number of specimens, and denominator number of applicants, respectively. Comments:

\*2 ( ) means buffalo.

Table 9. Results of diagnoses on organs and dead and live animals - Deer

Name of disease and	Jan. 1979/'80	19	1980/'81	1981/.82	7.82	Tors
pathologic states	animals (DLA)	DLA	DLA Organs		DLA Organs	
Pneumonia parasitica			1/1	-		1/1
Pneumonia bronchialis	: .	÷	1/1	*		1/1
Total			2/2.			2/2

Comments: Numerator means number of specimens, and denominator number of applicants, respectively.

Table 10. Results of diagnoses on organs and dead and live animals - sheep and goats

Total	1/1 (1/1)* <sup>2</sup> (1/1) 1/1	(1/1)	(1/1) 2/2	(1/1)	2/1	2/2	(1/1)	2/1	1/1	(5/5) 15/12	
1981/'82 DLA Organs	(1/1)*2		1/1				2/2	(1/1)	2/1	(1/1) 5/4 $(1/1)$	
1980/'81 DLA Organs	1/1*1		(1/1) 1/1	(1/1)	2/1			T)	1/1	(2/2) 1/1 (1/1) 7/5 (1/1) 5/4 (1/1) (5/5) 15/12	
Jan. 1979/'80 Dead and live animals (DLA)	1/1	1/1								2/2	
Name of disease and pathognomonic signs	Rabies Contagious pustular dermatitis	Bluetongue-like disease Contagious kerato con- junctivitis	Haemonchiasis	Pneumonia catarrhalis	Pneumonia brochialis Pneumonia purulenta		Peritonitis serotibri- noza	Pyometra	Pappiloma	Total	
No. of Diagnosis applicants rate (%)	Infectious diseases	5. 29.4	Parasitic diseases 3 17.6						9 52.9	77	

Comments: \*1 numerator means number of specimens, and denominator number of applicants, respectively

\*\*2 ( ) means sheep.

Table 11. Results of diagnoses on organs and dead and live animals - swine

	s Total	10/4	1/1	2/2	1/1	1/1	1/1	1/1	2/1	19/12
	Organs									
1981/182	Dead and live animals	3/1					1/1			4/2
ν.	organs					1/1				1/1
1980/181	Dead and live animals	7/3			1/1					8/4
80			 							
Jan 1979/180	Dead and live animals		1/1	2/2				1/1	2/1	6/5
	and D signs a	icemia losis)			E .	ver	٠ <del>١</del>	nia	nutri	And the second s
	Name of disease patholognomonic	Hemorrhagic septicemia (Swine pasteurellosis)	Coli bacteriosis	sis	Swine kidney worm disease	Milky spot of liver	Pleure-peritonitis serofibrinoza	Death due to hernia	Death due to malnut tion	Total
	Name o patholo	Hemorri (Swine	Coli ba	Ascariasis	Swine k disease	Milky s	Pleure-peritor serofibrinoza	Death d	Death d tion	
No of Diagnosis	rate (%)	ST	41.7			33.3			25.0	100
No of I	appli- cants	Infectious diseases	'n	Parasitic	0 0 0 0 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0	4	Others		<b>o</b>	12

Comments: \* Numerator means number of specimens and denominator number of applicants, respectively

Table 12. Results of diagnoses on organs, and dead and live animals - chickens and ducks

No. of Diagnosis applicants (%)	Name of disease and pathognomonic signs	Jan. 1979/'80 Dead and live animals (DLA)	1980/'81 DLA Organs	1981/'82 DLA Organs	Total
	Newcastle disease	157/12*1	7/4	43/11	207/27
	Avian lymphoid leukosis	2/2	7/4	9/5	18/11
Infections disease	Marek's disease	1/1	9/3	5/2	15/6
	Fowl pox	1/1	2/1		3/2
	Infectious bursal disease			1/1	1/1
	Coli bacteriosis			1/1	1/1
	Chronic respiratory disease		11/5	5/6	20/10
	Pullorum disease		1/1		1/1
	Leucocytozoonosis		3/1	1/1	4/2
9.85	Coccidiosis	11/4	5/1	1/1	18/7
Parasitic disease	Ascariasis	4/2	1/1	13/5	18/8
6	Tapeworm disease			1/1	1/1
Diseases of	Enteritis catrarrhalis		5/2	5/3	10/5
alimencary	Enteritis haemorrhagica et hecrotica			1/1	1/1
	Fatty liver		(3/1)*2		(3/1)
6 7.8	Hepatitis		(1/1)	(2/1)	(3/2)
Disease of respira-	Pneumonia bronchialis		(2/1) 6/1	2/2	(2/1) 3/3
tory organ 3.4	Peritonitis serofibrinoza			2/1	3/2

Table 12. Continued

Total	2/1	1/1	3/1	1/1	5/3	2/2	14/4	1/1	1/1	1/1	(1/1) 4/4	(9/5) 367/111	<b>[</b> A
1981/'82 DLA Organs	2/1		3/1.			2/2	14/4	1/1	1/1	- Control of the Cont	(1/1) 2/2	(3/2) 121/54 2/2	applicants, respectively
0 1980/'81 .) DIA Organs		1/1		1/1	2/3					1/1	2/2	(6/3) 66/32 2/1	and denominator number of app
Jan. 1979/'80 Dead and live animals (DLA)												176/22	specimens, and deno
Name of disease and pathognomonic signs	Rupture of ovarian follicle and peritonitis	Hemorrhagic diathesis	Myositis purulenta Arthritis purulenta	Abscess of eye	Malnutrition Gout	Cannibalism	Feed poisoning	Hepatoma	Adenocarcinoma in peri- toneal cavity	Sarcoma	Could not diagnose	Total	*1 Numerator means number of speci: *2 ( ) means ducks.
Diagnosis rate (%)							n n			18.1	4.3	100	l i e e e
No. of applicants			Others							21	2	911	Comments:

Comments: \*1 Numerator means number of specimens, and denominator number of applicants, respectively.
\*2 ( ) means ducks.

Table 13. Results of diagnoses on organs, and dead and live animals - dogs and cats

'n	· ··· ··· · · · · · · · · · · · · · ·	<del></del>	<del> </del>	
	T.	140	m a н н н н	150
. }	Total	(3) 140		(3) 120 (3) 150
	182 Organs	(3)* 119		120
	182 Org	(3)*		(3)
	1981/'82 JA Or			
	198 DLA	5.1	2 2	10
	81 Organs	٧.		Ŋ
	1./			
	1980 DLA			
	DL	7		4
	Jan. 1979/'80 Dead and live animals (DLA)			
	1979 and 1s (	7	н ннн	
	Jan. 1979/'80 Dead and live animals (DLA)			
	က်ပို့ခြ			
	nd ns		infec-	i.
	Name of disease and pathognomonic signs		t 6 8 5	
	seas		s s s c c c c c c c c c c c c c c c c c	
	nomor;	os is	omis dise sis Sarc	ı-l
	me c thog	SPlr	lost iasi uria onim	Total
	N G	Rabies Leptospirosís	Anchylostomiasi Tapeworm diseas Ascariasis Trichuriasis Paragonimiesis Demodex. Sarcop	
		K L	4 H 4 H P	
-	Diagnosis rate (%)	ase 94.1	. 5 5. 9	
	iagnos rate (%)	seas 94	ea s s S C	100
		is di	r i n	
	No. of plicant	ctiou 144	0 11 0	53
	No. of applicants	Infectious disease 144 94.	Parasitic diseases	<b></b>
L	.00		L Puis a series and a series an	

Commonto.

Table 14. Results of Brucella rapid agglutination test in cattle and buffalo

Period	Total No. of cattle examined	Positive No. of cartle
1979/	1,451	1.5

Period No. of cattle Apr. May	Apr.	Мау	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Total
Total No. Positive No.	145 119	119	47	66		106 271	104	(10)*	96	78	156	& 60	(10) 1,510 (0) 0
Total No.	91 284	284	338	160	83	100	496	(4)	(4)	453 4	265	(3) 156 26	(39) 3,301 (0) 42

Comments: \* ( ) means buffalo.

Table 15. Results of Brucella rapid agglutination test in sheep and goats

		Sheep		Goats
Period	Total No.	Positive No.	Total No.	Positive No.
18./0861			97	0
1981/'82	39	0	93	1

Table 16. Final decision of cattle and goats which were positive in Brucella rapid agglutination test

				Alger 17	· · · · ·	(, a. st. <del>Itania</del>		
Unknown (head)	2							
and C.F.T. *2) Healthy animals (head)	2	<b>⊢</b>				9		
Decision (T.A.T.*) ed Suspected animals (head)	C				<b>,</b>	2		
Decisi Diseased animals (head)	T		F		r-4	11		
No. of positive cases in rat	8	er!		<b>4 7 7 7 7 7 7 7 7 7 7</b>	2	25		
Animals	Imported cattle						native cattle	goat
Date examined	May, 1981	July, 1981	Oct., 1981	Jan., 1982	Feb., 1982		Mar., 1982	

Comments: \*1 T.A.T.: Tube agglutination test.

\*2 C.F.T.: Complement fixation test.

Table 17. Results of Salmonella pullorum and Mycoplasma gallisepticum rapid agglutination tests

Period	chickens examined	No. of positive cases S. pullorum M. gallis	cases gallisepticum
an. 1979/'80	1,031	7.2	

Period	Number of chickens	Apr.	May	Jun.	Apr. May Jun. Jul. Aug. Sep. Oct. Nov. Dec. Jan. Feb. Mar.	Aug	Sep.	Oct	Nov.	Dec.	Jan	Feb.	Mar.	Total
		22	52	57	22 52 57 103	130	07	235	53	370	297	120	80	130 40 235 53 370 297 120 80 1,559
1980/'81	una				Н					इस				2
	cases M. gallisepticum	9	5 37	37	14	14 27 18	18	53			19	1.5	30	230
	Total No. examined	140	410	627	99	604	40	246	459	327	170	899	221	140 410 627 66 604 40 246 459 327 170 668 221 3,978
1981/'82	positive S. pullorum		22			3			3	25	25 9 47 26	47	26	135
	cases M. gallisepticum	31	31 58 127	127	7	25	Ý	113	85	170	138	668	214	6 113 82 170 138 668 214 1,639

Table 18. Investigations of antibody against Newcastle disease virus by use of hemoagglutination inhibition (H.I) test.

						Dis	tri	cts	of	in	ves	stigat	ion	l.n	Lamp	ung	Pro	ovin	ce						
Period		Nor	th 1	ampu	ıng			Cen Lam					outh ampu					Kara Betu			Ι	Cl	ick Far	en m	*1
Year Mont	h a		HI	iter anti body 64 >		ap ca	pli	f T HI ∣	an bod	ti-		No. o appli cants	RT .	an t ody	i-	ap	pli.	Ti HI b <u>≤</u>	ant odv	i	арі		ant	ibo	of dy > 6
Ser											***	3	<del></del>	0	3				1		-	. ,			
0c1	. !			4.1 			5	. ";"	1		4	4		Ö .	4										
Nov																						3. j.	٠.		
Dec							,					3		2	1		3		3	0		, 19. 1	Self.		
Jar						Ţ				7 (77)		2		0	2	1			<del></del>						<del>```</del>
Feb			; .	1			2		0		2	. 3		1	2				٠,	14. 14. juli			- 4. '1		
Man			191.	-	1 1			. 1	·			3		2	1		7		6	1			Ţ÷.		4.1
Apı					: ·' .												3		2	1					
May	1.1									•	•				· · ·		2		2 .	0					
1980 Jui										<u>.</u>				'n.	4. 1				` · .						
Ju	-			4.1			7.		4		3				11	,		Ĵ.				;			
Auş	ş.											. 5		3	3				1						
Se <sub>l</sub>	. ]			1	4.5		`	٠.									4		4	0			eri Ale	- :	
0c1	. (																14		9	. 11 5		1			
Nov	1.1			-		i	şi.			Ė			· · · .				1		1	0			÷.		
Dec		_,5	-	4	1	<del>+</del>	13		8		5	8	<u> </u>	3	- 5		9		7	2			1	-	
Jar							19		11		8											4		2	1.12
Fel	ļ						at .	:	1 14 144					٠		<b>.</b>	4		1	3		5		2	
Man		٠٠.		:	1	1			:	.:								1	•			3	ş.,	2	
Apr 1981 May				<i>:</i> *				, <sup>15</sup>				6		l .	· 5		3	· .	3	0		5	٠,	1	
1981 May Jur			-	·			•.			4 t		11	: .	5 6	6	i .	7		2	5		0		·.	÷.
Ju]									÷			11		7	3		9	104	ं - 5	4	1	-8		0	2
Aug		- 1,27 			ruit L		1	14	1		n	1.1		,	<b>4</b>	1	11	4.5	o .	1		1.		2	
S.e.		-3	."- 	2	1				7	1												1	*: 	Ü	
0c i		-	'-		:		12	.; .;	11	egi.	1	6		3	2		2		1	1		* # * # 1		67 7 - 37	
Nov										.**	-			-	4		6	100	5	1		3		3	
Dec		3	` .	3	0		6		3		3	12	1	0 .	2		s in							.T. Sv	111
Jar		6	10 s 14	4	2		77.			-				<del></del>	<del></del>		- 11			1 7		6		4	<del></del>
1982 Feb	·0 · 1	- F		0	. 1		9					16		8	8		11		3	8		5	. 4.	3	
Maı	- 1 · 1	1 4	ā.	2	2		9	, S	6		3		a. Light									2		1	

<sup>\*1</sup> Big chicken farm where 20,000 chicken have been raised.

<sup>\*2</sup> GM value.

<sup>\*3</sup> Serum of 10 chickens were taken in one applicant.

Table 19. Serum protein content in cattle

Total	1,192	150	1,302	83
Маг.	7.1	2		
Feb. Mar.	56	κ H		ý
Jan.	63	σ	r r	r .
Nov. Dec.	79	15	i ₽ <sub>Q</sub> ,	
Nov.	79	13	170	
001.	85	ω	133	34
Aug. Sep. Oct.	189	16	7.2	m
Aug.	106	16	134	7
Jul.	79	10	129	<b>60</b>
May Jun.	11-3	<b>,</b> 0	226 305	8
May	113	22	226	Ħ
Apr.	139	20	133	13
Number of cattle	Total No. examined	No. of cattle showing abnormal value	Total No. examined	No. of cattle showing abnormal value
Period		1980/'81		1981/'82

Comments: Abnormal value of serum protein content is less than 6.0% in this instance.

Table 20. Hematocrit value in blood of cattle

Period	Number of cattle	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan	Feb.	Mar.	Total
	Total No. examined	137	66	109	59	7.5	256	77	63:	57	56	24	99	1,108
18,/0861	1980/'81 No. of cattle showing abnormal value	ω.	m	∞	. <b>v</b>	m	<b>~</b>	ო .	œ	4	<b>m</b>	ə		55
	Total No. examined	66	220	111	75	147	72	77	ı	1	1		1	732
1981/'82	No. of cattle showing abnormal value	7		4	<b>, ,,</b>	20.	Ħ	4		ι				£ <b>7</b>

Comments: Abnormal value of Hematocrit is less than 20% in this instance.

Table 21. Examination of protozoa in blood smears of cattle and buffalo

ď		
il		
.		
	3.27	
:		1.
	1,1	
:		1.5
J		
1	5.7%	
	lve in protozoa Babesia sp. Anaplasma sp.	100
1	d.	
٠	ž	
	E	6
	8	\ \ \
:	Ϋ́	ω.
	d T	4.15
	An	
٠.		
	8	
	No. of cattle positive in protozoa Theileria sp. Babesia sp.	
	5 5	111
	. S	1. 3
	10 g	6
	n ii	
	고 š	0
à	a) . w	<b>.</b> ⊢.
	2 8	
	ii.	10 (0)
١.	S	17
:	of cattle por heileria sp.	100
Ì	o c	
Ì	1 8	
	n M	6
·	g Y	28 (0)
٠,	, a	: 60
	of ei	5
	Ë	
	ا تا يوا	
	:25	
		i
	2	
	Sp	1.
i	rd	
	Ĕ	2
	. 0	8
	2	1
		σn.
٠.	) ar	6
	ypar	6
	Trypar	6
	Trypanosoma sp	6
	Trypar	6
	Trypar	6
	Trypar	6
	le Trypar	6
	tle Trypar	6
	artle Trypar	6 *
	cartle ed Trypar	6 *(
	of carrie ned Trypar	6 *(1) *
	of carrle ined	2 (1)*
	of carrle ined	332 (1)*
	of carrle ined	,332 (1)*
	of carrle ined	1,332 (1)*
	of carrle ined	1,332 (1)*
	oral No. of carrle examined Trypar	1,332 (1)*
	of carrle ined	30 1,332 (1)*
	Total No. of cattle examined	1,332 (1)*
	Total No. of cattle examined	9/'80 1,332 (1)*
	of carrle ined	979/'80 1,332 (1)*
	Total No. of cattle examined	1979/'80 1,332 (1)*
	Total No. of cattle examined	1,332 (1)*
	Total No. of cattle examined	in. 1979/'80 1,332 (1)*
	Total No. of cattle examined	Jan. 1979/'80 1,332 (1)*

Comments: ( ) means buffalo.

	14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
ens		
Table 22. Examination of protozoa in blood smears of chickens		
o £		
 lears	sp.	
us p	soma	
0100	No. of chickens positive in protozoa Leryi : sabrasezi Trypanosoma sp.	
in i	n pro	
20.2	i ve i	
roto	ickens positi L. sabrasezi	0
<u>.</u> Ч	ens F	
o uo	chick	
nati	No. of chi	
cam L	No No tulle	6
 ப்	. ca	
22.		
ıble	of xa-	
T.	fotal No. of thickens exa- mined	326
	fotal M Shickens mined	
	-0	08.
	Period	lan. 1979/'80
	-	lan.
1	<u></u>	J.

Period	Number of chickens	Apr.	Мау	May Jun.	յալ.	Aug	Aug. Sep.	Oct.	Nov.	Dec.	Jan.	Jan. Feb.	Mar	Total
	Total No. examined	33	4.1	31	85	72	22	232	57	172	244	124	85	1,196
1980/'81	No. positive L. caulleryi	2									н		н	7
	in processes. L. sabrasezi									m	38	∞		67
	Trypanosoma sp.		٠											0
	Total No. examined	138	222	463	86	452	302	238	393	269	158	682	244	3,647
1981/'82	1981/'82 No. positive L. caulleryi	Ţ	2	12		∞	Ţ	8	7	5	4	<b>e</b>		46
	in protozoa L. sabrasezi								4	m	17	М	10	37
	Trypanosoma sp.								· · ·					A

helminth by examination of parasitic eggs contained in feces of cattle Detection of Table 23. I

Strongy- Trichuris loides sp.	4
Oesopha-Str gostomum loi sp.	17
Cooperia Sp.	129
Bunostomum sp.	7.7
m Sp.	146
Paramphistomum sp.	31.3
Total No. of cartle examined	1,257
Period	Jan. 1979/'80

Period	Number	Number of cattle	Apr.	Мау	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec	Jan.	Feb.	Mar.	Total
	Total No. exa	amined	107	105	106	111	7.1	245	189	192	107	82	69	87	1,471
	No. positive	Paramphistomum sp.	28	10.	80	15	2	25	16	7	7	14	9	9	144
T8, /086T	in parasitic eggs	in parasitic eggs	œ	۳	v	12	m	∞	ó	12	٣	1	<del>,</del>	Ś	77
		Bunostomum sp.	m	2	2	10	'n	∞ .	10	7	^	7	m	2	63
		Cooperia sp.	26	13	, <b>,</b> ,	25	7	0.1	·ν ·	16	17		∞	φ	137
		Oesophagostomum sp.	٧.	. 'n	H	ω		H	Ħ	26	6	7	7	<b>o</b>	76
		Strongyloides sp.								orija Vijet Vijet	H	H	H	in and a second	2
		Trichuris sp.	9	.7	7	7	2	m	2	74	m	· <b>v</b> o	7	4	43
		Haemonchus sp.									7			ᆏ	ო
		Nematodirus sp.									- 			्र स	H
		Ascaris sp.							7		7	įн	ю	7	12
		Syngamus sp.						4		H,					2
		Trichostrongylus sp.							<b>ત</b>						े <b>न</b>

	المستثنين	وتصحتمت			<u> </u>	11.								
	Total	2,860	Z.	315	71	418	427	67	25	3,5	21	œ		
	Mar	117	9	39	'n	26	22					Ħ.		
F) 7	reb.	287		28	П	707	43	7		7	<b>r</b> 4			
	Jan.	380		84	14	84	7.1	m	٦					
	Dec.	312		106	н	7	22		<b>~</b> 1	: :≓ :	. +	amuli. Maj		
	Nov.	443		23.	9	58	47	7		ω.	۲	:		
	0cE.	157	نې ا	7	2 2	10	12	2	10					
T O	Sep.	65	⊢		<b>≓</b>	10	9		H.		급			4
Continued	Aug.	191		O.	. 7	32	24	2		24	н			
23. Cc	Jul.	126			. ਜ <sup>.</sup>	28	32	4			9	4		
Table 2	Jun	338	1.5	vn .	1.5	. 55	34	. 7	2	٠.	H			
<b>8</b> 9	May	309	35	11	ι <b>ດ</b>	43	105	14	ω	n L	'n	, <del>M</del>		
	Apr.	150	4	Φ.	·	E E	o,	m	1			-4		
	Number of cattle	mined	No. positive Paramphistomum sp.	Fasciola sp.	Bunostomum sp.	Cooperia sp.	Oesophgostomum sp.	Strongyloides sp.	Trichuris sp.	Haemonchus sp.	Nematodirus sp.	Ascaris sp.	Syngamus sp.	Trichostrongylus sp.
	Number	Total No. examined	No. positive	in parasitic eggs				:						
	Period		, coo.	78 /1061										

Table 24. Detection of eggs of Ascaridia galli in feces of chickens

. ,	-		
$\{e_i^{(i)}\}$	١.		
1.1	Ι.		٠.
	1.5		
1:00			
	-		
:	:		
130	. ,	4	
400		1	
٠. :			Ġ
10			
F			
			ĺ
\$1.	1	- 1	ŀ
	٠.		
1: -			
<b>1</b>	ń	٠.	
1	i,		ľ
100			
1			1
L	i.		
l S	11	ίŋ	١.
of chicken	ė	00	ľ
Ü	-7	8	l.
1.5	e e	ų.	
v	3	ť	
냋	ositive	ij.	
1 "	8	ď	!
0	ď	a	-
2		Α.	
1	٠.		
			ļ
		. + 2	
	 	2	
	51	=	
	ᅜ		
	51		
	. 51		
Ē	.8-		
of	exa- 51		
o, of	s exa-		
No. of	ens exa-		
al No. of	skens exa-	ed.	
stal No. of	nickens exa-	ned	
Total No. of	chickens exa- 51	mined	
Total No. of	chickens exa-	mined	
Total No. of	chickens exa-	mined	
Total No. of	) chickens exa- 51	mined	
Total No. of	80 chickens exa- 51	mined	
Total No. of	/'80 chickens exa- 51	mined	
Total No. of	79/'80 chickens exa- 51	mined	
Total No. of	1979/'80 chickens exa- 51	mined	
Total No. of	1979/'80 chickens exa- 51	mined	
Total No. of	n. 1979/'80 chickens exa- 51	mined	
Toral No. of	Jan. 1979/'80 chickens exa- 51	mined	
Toral No. of	Jan. 1979/'80 chickens exa- 51	mined	
Total No. of	Jan. 1979/'80 chickens exa- 51	mined	
Total No. of	Jan. 1979/'80 chickens exa- 51	mined	
Toral No. of	d Jan. 1979/'80 chickens exa- 51	mined	
Toral No. of	iod Jan. 1979/'80 chickens exa- 51	mined	
Total No. of	eriod Jan. 1979/'80 chickens exa- 51	mined	
Total No. of	Period Jan. 1979/'80 chickens exa- 51	mined	
Total No. of	Period Jan. 1979/'80 chickens exa- 51	mined	

Number of chickens       Apr.       May       Jun.       Jul.       Aux.       Sep.       Oct.       Nov.       Dec.       Jan.       Feb.       Mar.       7         Total No. examined       1       7       6       2       43       12       8       4         Total No. examined       13       38       48       66       47       8       16       41       22       13       73       23         No. positive in para-       5       21       29       16       4       13       6       3       43       7			
Number of chickens       Apr.       May       Jun.       Jul.       Aux.       Sep.       Oct.       Nov.       Dec.       Jan.       Feb.       Mar.         Total No. examined       1       7       8       2       55       33       21       60       8       5         Total No. examined       13       38       48       66       47       8       16       41       22       13       73       23         No. positive in para-       5       21       29       16       4       13       6       3       43       7	Total	230	77 <sup>T</sup>
Number of chickens       Apr.       May       Jun.       Jul.       Aux.       Sep.       Oct.       Nov.       Dec.       Jan.       Feb.         Total No.       examined       4       23       7       8       2       55       33       21       60       8         No.       positive in paral       13       38       48       66       47       8       16       41       22       13       73         No.       positive in paral       5       21       29       16       4       13       6       3       43			
Number of chickens       Apr.       May       Jun.       Jul.       Aux.       Sep.       Oct.       Nov.       Dec.       Jan.       Feb.         Total No.       examined       4       23       7       8       2       55       33       21       60       8         No.       positive in paral       13       38       48       66       47       8       16       41       22       13       73         No.       positive in paral       5       21       29       16       4       13       6       3       43	Mar	'n	23
Number of chickens       Apr.       May       Jun.       Jul.       Aux.       Sep.       Oct.       Nov.       Dec.         Total No.       examined       4       23       7       8       2       55       33       21         No.       positive in paral       13       38       48       66       47       8       16       41       22         No.       positive in paral       5       21       29       16       4       13       6			
Number of chickens       Apr.       May       Jun.       Jul.       Aux.       Sep.       Oct.       Nov.       Dec.         Total No. examined       4       23       7       8       2       55       33       21         No. positive in paral       13       38       48       66       47       8       16       41       22         No. positive in paral       5       21       29       16       4       13       6	Feb	€0	73
Number of chickens       Apr.       May       Jun.       Jul.       Aux.       Sep.       Oct.       Nov.       Dec.         Total No. examined       4       23       7       8       2       55       33       21         No. positive in paral       13       38       48       66       47       8       16       41       22         No. positive in paral       5       21       29       16       4       13       6	un.	50 4	E] E
Number of chickens       Apr.       May       Jun.       Jul.       Aux.       Sep.       Oct.       Nov.         Total No. examined       4       4       23       7       8       2       55       33         No. positive in paral       13       38       48       66       47       8       16       41         No. positive in paral       5       21       29       16       4       13	1		
Number of chickens         Apr.         May         Jun.         Jul.         Aux.         Sep.           Total No. examined         4         4         23         7         8         2           No. positive in para-         13         38         48         66         47         8           No. positive in para-         5         21         29         16         5         21	Dec.	21 8	22 6
Number of chickens         Apr.         May         Jun.         Jul.         Aux.         Sep.           Total No. examined         4         4         23         7         8         2           No. positive in para-         13         38         48         66         47         8           No. positive in para-         5         21         29         16         5         21			
Number of chickens         Apr.         May         Jun.         Jul.         Aux.         Sep.           Total No. examined         4         4         23         7         8         2           No. positive in para-         13         38         48         66         47         8           No. positive in para-         5         21         29         16         5         21	Nov	33	13
Number of chickens         Apr.         May         Jun.         Jul.         Aux.         Sep.           Total No. examined         4         4         23         7         8         2           No. positive in para-         13         38         48         66         47         8           No. positive in para-         5         21         29         16         5         21			
Number of chickens         Apr.         May         Jul.         Aux.           Total No. examined         4         23         7         8           No. positive in paral         1         7         6           Total No. examined         13         38         48         66         47           No. positive in paral         5         21         29         16           sitic eggs         1         29         16	00	5.	1
Number of chickens Apr. May  Total No. examined 4 4 4  No. positive in para- sitic eggs  Total No. examined 13 38  No. positive in para- sitic eggs	Sep.	2 2	<b>∞</b>
Number of chickens Apr. May  Total No. examined 4 4 4  No. positive in para- sitic eggs  Total No. examined 13 38  No. positive in para- sitic eggs	×	<b>σ</b> σ	7
Number of chickens Apr. May  Total No. examined 4 4 4  No. positive in para- sitic eggs  Total No. examined 13 38  No. positive in para- sitic eggs	A.		7
Number of chickens Apr. May  Total No. examined 4 4 4  No. positive in para- sitic eggs  Total No. examined 13 38  No. positive in para- sitic eggs	Jul.	7	99
Number of chickens Apr. May  Total No. examined 4 4 4  No. positive in para- sitic eggs  Total No. examined 13 38  No. positive in para- sitic eggs			
Number of chickens Apr.  Total No. examined  No. positive in para- sitic eggs  Total No. examined  No. positive in para- sitic eggs	Jun.	23	48
Number of chickens Total No. examined No. positive in parasitic eggs Total No. examined No. positive in parasitic eggs	Мау	7	38 21
Number of chickens Total No. examined No. positive in parasitic eggs Total No. examined No. positive in parasitic eggs	¥ .		
Number of chickens Total No. examined No. positive in parasitic eggs Total No. examined No. positive in parasitic eggs	Apr	7	13
10d Number of chickens 791 No. examined 811c eggs 70tal No. examined 70tal No. examined 82 No. positive in parasitic eggs			
10d Number Total 1.81 No. postitic 10tal 1.82 No. postitic sittic sittic sittic sittic sittic sittic	r of chickens	No. examined sitive in para- eggs	No. examined Sitive in para- eggs
10d	Numbe	Total No. po sitic	Total No. po sitic
8 8			
Per 1980 1981,	Period	1980/'81	1981/.82

Table 25. Viruses identified by virology section

Kind of viruses	Kind of Virus animals isolation	FAT
	Goats	+
Rabies virus	**************************************	+
	Cats	+
	Monkeys	+
Newcastle disease virus	Chickens	+
Avian bronchitis virus	Chickens	+

Comments: \*FAT .... Fluorescent antibody technique.

Table 26. Viral antigens and antibodies detected by virology section of DIC

Viral	Serological	Kind of animals	
disease	test	Cattle Buffalo Swine	Chickens
Japanese ence- phalitis	HI test	+ + + +	
Akabane disease	n .		
Parainfluenza type 3	u .		
Newcastle	HI test		<b>+</b> . •
disease	HA test		+

Comments: HI test .... Hemoagglutination inhibition test

HA test .... Hemoagglutination test

Table 27. Bacteria and fungus identified by Bacteriology Section of DIC

Name of Bacteria isolated	Cattle	Buffalo	Sheep	Goats	Swine	Chickens	Dogs	Rabbits	Others
Bacteroides sp.	+				a Janaan				
Neisseria sp.		· · · · · · · · · · · · · · · · · · ·		+					
Branhamella sp.	+								
Acinetobacter sp.		٠		+			- 1 1 - 1		
Bordetella sp.	+	+						nars.	
" bronchiseptica				+					
Chromobacterium lividum	ing ter Takan tiga				+			e die.	
Alcaligenes sp.	+	+				+		+	
Flavobacterium sp.	+					+			
Pseudomonas sp.	r in de la companya di salah d	+		i i	+				
" diminuta	*.				1 - 1 - 1	+			
ر " aerginosa				astro (1) K		+			
Pasteurella multocida	+	+			+				٠.
aerginosa di Pasteurella multocida di haemolytica	. +. :				P		ak ayta Ti		·
				. :			Š.		. +
Chromobacterium violaceum  Chromobacterium viola	+	+	+	: +,	+	+	+	+	
E. coli (OK I 026 : K60)	+					, . · · ·	:: <sup>1</sup>	: :	
្តី " (OK I 086a: K61)	+		+	i g			•		
ੁੱੱ ' (OK I 0127a: K63)	+		Í						
" (OK II O 146 : K89)	+			in the			٠		
" (OK II O 112ac : K66)	. +		• • •	•				• . • . •	
" (OK III 0 $125_b^a$ : K70)			•	1.5	· ·	+		<i>\$1</i>	
" (OK III 0 143 : KX1)	+					•.*			
" (OK III 0 44 : K74)	+		11 1	+		+ .	1. 1	+ .	
Salmonella sp.	+			. Ч., . т	·	1. 1.			
Typhi	+		11	egeta.	·.		er. À		
Shigella sp.	; <del> </del> -			: [1.1		<b>!+</b> ;.	+		1
sonnei	+					y V			
Proteus sp.	+		i., .	+	+	+		+	
" mirabilis				. <b>+</b>	. :	+			
Klebsiella sp.				+			ķist,		

Table 27. Continued

	Name of Bacteria isolated	Cattle	Buffalo	(ep	ts.	ne	Chickens	Ø	Rabbits	Others
1900 1001 1001		Cat	Buf	Sheep	Goats	Swine	Chi	Dogs	Rab	0th
<del></del>			<del>```</del>			<del>- 1-11-1</del>			<u> </u>	
	Klebsiella edwardsii	Pi The state	***		8	: <b>+</b>	+			
et e	" aerogencs	+:						+		
ris	" ozaenae				+		Ţ.		, 14 1	
bacteria	Enterobacter sp.	+	:			+				er Tysk
	" aerogenes						+			
ΓŢΛ	Citrobacter sp.	+				· .	+	+		
90 00	" koseri			+	+				į	
Gram-negative	Yersinia sp.	4-			· · · ·	+				
Grai	Serratia sp.	.+ "	•			•				
T.	" rubidaea		:	*			. +.			
	" marcescens	+			*					
	Edwardsiella tarda	+						+		:
	Morganella morganii	<del>†</del>						÷		
	Eikenella sp.	+		. :	i.	1 .	Ž.	1 144	. *	
	Streptobacillus sp.	+				<del>,</del>	•			
	Micrococcus sp.	+	+	,	+		+ .	+		:
1	" luteus				+				<i>j</i>	
5	Staphylococcus sp.	+	٠		+	+	+	+ ,.	+.	+
_	" aureus	+ .							+	
rie	Streptococcus sp.						+			
bactería	pneumoniae	+					+			
	Kurthia sp.	+	•				٠			+
Gram-positive	Corynebacterium sp.	+ .			+.					
si.	" pyogenes	+					.:			
n-pc	bovis	+				-				e .
ខ្មាន	Lactobacillus sp.	+-			•	¥		 		
	Bacillus sp.	+	+	٠	+	+ +	+	+	+	+
	" subtilis	+ -				÷				+
	" cereus	+							+	J.
·	Diplococcus sp.	+	+	+	+	+	+	+	+	+ -
Fungus	Aspergillus sp.	+								. N
<u>E</u> 4		71 	1 :.						., .	-

Table 28. Bacterial antibodies detected by Bacteriology Section of DIC

Bacterial	Serologica	Kind of animal							
disease	test		Goats	Chickens					
Brucellosis	CFT*1 TAT*2	+							
	RAT*3	<b>+</b>	+						
Pullorum disease	10 (17) 10 (17) 10 (17)			+					
M. gallisepticum infection	u taga			+					

Comments: \*1 CFT: Complement fixation test

\*2 TAT: Tube agglutination test

\*3 RAT: Rapid agglutination test

Table 29. Protozoa and endo- and ecto-parasites identified by Parasitology Section of DIC

	Name of protozoa and ecto- and endo- parasite	Cattle Buffalo Horse Sheep Goats Swine Chickens Dogs	ABDDIES
Protozoa	Trypanosoma sp.	+ +	
oto	Anaplasma marginale		
Di Fi	Theileria sp.		
	Babesia sp.		
	Leucocytozoon caulleryi		
		· · · · · · · · · · · · · · · · · · ·	
	" sabrasezi		
	Eimeria sp. Sarcocystis sp.		r
	Bunostomum sp.	+	
	Cooperia sp.	+	
	Oesophagostomum sp.	+	
	Nematodirus sp.	+	
	Trichuris sp.		
	Ascaris vitulorum		
1	" lumbricoides	+	
	" galli	+	
	Strongylus vulgaris	en maria de la <b>F</b> arancia de la Caracteria de la Caracter	
tes	Haemonchus contortus	+ +	
as 1	" placei	+	.
o-parasites	Strongyloides sp.	+ +	·
op.	Ankylostoma sp.	+	
End	" caninum	<b>.</b>	
	Toxocara canis	<b>+</b>	
	Raillietina sp.	· Programme · · · · · · · · · · · · · · · · · ·	
	Paramphistomum servi	to the state of th	
	Gastorothylax erumeniver		
	Stephanurus dentatus		
	Setaria sp.		
	Stephanofilaria sp.		
	Dictiocaulus viviparus		

Table 29. Continued

	Name of protozoa and ecto- and endo- parasite The second of the second o	Chickens Dogs Monkeys Rabbits
.:	Dipylidium caninum Fasciola hepatica + +	+
asites		
Endo-paras	Tabanus sp. +  Musca sp. +	
Br	Sarcopts scabei + +	
	Culicoides sp.	

Table 30. Protozoal antibodies detected by Parasitology Section of DIC

Genus of	Serological	Kind of animal							
protozoa	test	Cattle Swine Chickens							
<u>ginale</u>	CFT*1	+							
Leucocytozoon	Ratex AT <sup>*2</sup> AGT <sup>*3</sup>								
caulleryi									

Comments: \*1 CFT : Complement fixation test

\*2 Ratex AT: Ratex agglutination test

\*3 AGT : Agar-gel immunodiffusion test

Table 31. Main pathological changes of Rama Dewa disease occurring in Lampung Province in the period from 1980 to 1982

		Names of village, and subdistrict where Rama Dewa disease	occurred	Astomulyo, Central Lampung	Sidomulyo, Central Lampung	Rama Gunawan, Central Lampung	Rama Utama, Central Lampung	Rama Gunawan, Central Lampung	Astomulyo, Central Lampung	Tanjungkarang-Telukbetung	
		11s	Kidney	+	‡	+	‡	‡	+	+	‡
		shoid ce	Lung	‡	‡	‡	‡	‡	+	$\frac{\mathbf{k}^{-1}}{\mathbf{k}^{-1}}.$	+
	Main pathological changes	Proliferation of lymphoid cells	Lymph	‡	‡	‡	‡	‡		<b>+</b> .	‡
			Spleen	‡	‡.	‡	‡		‡	+	‡
			Liver	‡	‡	‡	i Nejsi	‡	<b>:</b> ‡	<b>‡</b>	‡
		Erosion and ulcer of	upper respi- ratory tract	‡	‡	1 (1) (1) (1) (4) (2) (4)	<b>i</b>			+	‡
		Erosion and ulcer of con-	gue, palate and pharynx	+:	‡	+	+	‡;	is en la companya de la companya de La companya de la co	ng 🕇	#
		Age	(Month)	30	. ° •	, <b>/</b>	84	30	36	24	30
		,	yex	Ħ	Σ	×	ĮΣų	Įz.	Įτι	β <b>24</b>	fr <sub>i</sub>
		Date of	autopsy	23rd, Aug. 1980	6th, Oct. 1980	18th, Nov. 1980	17th, Dec. 1980	18th, Dec. 1980	7ch, May 1981	22nd, Jan. 1982	lst, Feb. 1982
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	No. of	Ball	No. 1	No. 2	No. 3	No. 4	жо. 5	No. 6	No. 7	No. 8

Comments: F: female M: mal +++: severe +++: moderate

+; slight

-: negative

Table 32. Main pathological changes and bacteriological gindings of Swine pasteurellosis occurring in Lampung Province

	Name of subdistrict artached	Kedaton, South Lampung		Tataan, South	Rambank			Seputih	tral Lampung
	Lung	‡	‡	‡	‡			‡	‡
Locida	Spleen Liver Kidney Lung	‡		‡	‡		‡	+ *	+
ella mul	Liver	‡	‡	‡	‡		‡	‡	1
pasteur	Spleen	‡	1	‡	‡	l .	‡	‡	‡
Findings of pasteurella multocida	Subma- xillar Lymph node	‡	‡			‡	‡	+	+
Find	Heart	‡	‡	‡		ı	‡	‡	‡
	Cogention & hemorr- hage of intestine	1	‡		‡	+	‡	1. (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	
1 changes	Pneumo- nia sero- fibrinosa	ı	1	‡	‡	‡	‡		4
Main pathological changes	Edema of pharynx larynx	+	‡	+	+	‡	‡	1	‡
 Main p	Subcuta- neous edema	‡	‡	+	;+	‡	‡	+	+
	Erythema	‡	1	‡	‡	1	1	+	+
	Age (Monch)	2.5	8. 0.	• = :	1. .≠1. 	5.0	2.0		
	<b>9</b> 4 5	1981	1981	F		Ξ.	1981	1981	# # # # # # # # # # # # # # # # # # #
	Date of Autopsy	8th, Jan.	loth, Jan.	o .			16th, Jan.	2nd, Oct.	
	No of Swine	д °	No. 2	Хо. З	No. 4	No. 5	No. 6	No. 7	No. 8

Comments: +++: severe

++: moderate

-: negative

+: Slight

Table 33. Investigations of Leucocytozoon by use of blood-smear method and agar-gel immunodiffusion test

	Subdistricts where chicken farm situate		Terbanggi Besar, Central	Lampung			Nater, South Lampung	Pringsewu, South Lampung	T. Karang - T. Betung	Gading Rejo, South Lampung	T. Karang - T. Betung
	No. of chickens raised in chicken farm	375	1.55	380	007	1,650	945	200	2,500	300	780
No. positive in Leucocytozoon	L.c. L.s. BS AGT BS AGT	\$T	1	(i) (i) (ii) (iii)		71	7 15	1		7	
Total No.	BS Serum	07 07	16 16	38 38	20 20	30 30	76 86	30 30	50 50	16 30	25 40
Name of Dara of	chicken farm	2nd, Feb. 1981		H H	1	E	2nd, May 1981			# 1	u o

Comments: BS: blood smear

L.c: Leucocytozoon caulleryi

L.s: Leucocytozoon sabrasesi

T: agar-gel immunodiffusion test

Occurrence of rabies of animals in region of DIC in the period from August 1979 to March 1982

			····		·											·	
	1e	Ratio pos (%)			:	 	0								0		
	Cattle	No.				. * .	0		ę.						0		
		o No. exam		Îv.			-						, 4 / :		т	8.89	
	wine			., <b>0</b>		4.						13			0		
	Wild swine	n. pos.	- 1	٥		** :							1		0	Ratio pos (%)	case
		o No.		Н		:				ì.,		* ().			0 1	Rat (%)	sitive
	eys	Ratio pos.						100		0				50	0.02	128	of po
1981/'82	Monkeys	No. No.						, <del>н</del> - Д		0		, '			. <b>H</b>	No. pos.	Ratio
198		, w						3		7					0 2		
	U:	Ratio pos.				100	100	33,3					0		50.0	1. 186	sod o
	Cats	No. No.				₽.	r4						0		e.	No. exam. 186	*2 No. pos No. of positive cases; *3 Ratio pos: Ratio of positive cases.
		o No.	0	7	_	7 1	7	5. 3	ω	- 20	7	UN.	਼ਜ : : e	0	5	ON.	*
		No. Ratio	80.0	64.7	66.7	64 7	7 77	62.5	8 89	70 8	79.2	6.06	64.3	80.0	70.5	.54   54   54	re cas
•	родз		8	11	**	11	4	86	Ξ.	17	2.0	10	o,	12	124		ositiv
		No. Ratio No. pos. (2) exam.	10	17	9	17		ET	16	77	24	Π	14	1.5	176	ο.	of p
	Coats			,		٠.	:					100		32 2	100	28.9	No
	8											<b>-</b>		:	<b>-1</b>	Ratio pos. (%)	bos
		o No.		. 5.			:.					.1			7	Rati (%)	2 No.
81	s)	No. Ratio					}			:	:	0		o 	0	1.1	
1980/'81	Cats				1					*. · .		, <del>Q</del> ,		0	0	No. pos.	examined
		o No.	 	· · · · ·			0			 m		- Б		г 9	6 2	Z	
	580Q	OC.	100			0	25.0		0	33 3	0	20.0	25.0	55.6	28.6	38	of ca
<u> </u>	8	No. E. pos.	l r	:		.0	-1	0	0	7	0	.ਜ	н.	5	10	exam.	No. of cases
		to No.	ਦੀ			. ≓.	:n	(J)	-77	נט	<del>е!</del>	0 . 5	, <del>7</del> 9.	9	3.5	43.8 No.	
08.	Sn.	*2 Ratio 5. pos. 5. (%)	!				33.	33.	0	100	66.7	50.0	50.6	0	43.8	43.	No. exam.
08,/6/61	SSog	No. No.					. <del></del> .	-	0	.ਜ. <sup>.</sup>	C¥ .		न.		,	7	
		No.					r)	'n	H		٣	2	2	<b>.</b>	11 16	11 16	Comments: *1
			Apr.	May	Jun.	Jul.	Aug	Sep	oct.	No.v.	Dec.	Jan.	eo.	Мат.	Toral	Total	Сопп

Occurrence of rabies of animals in the provinces of Lampung, South Sumatra and Bengkulu Table 35.

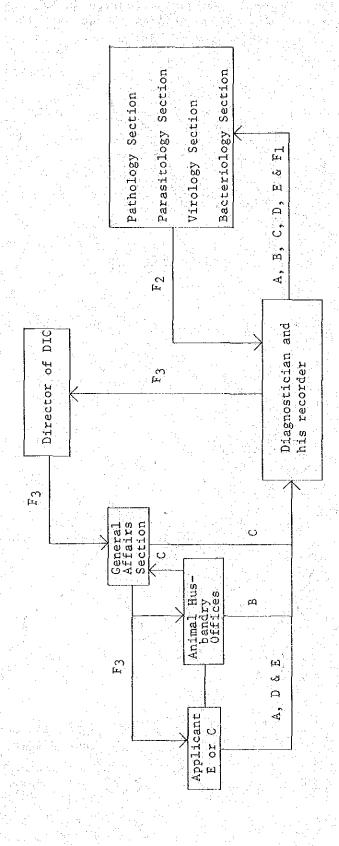
·					
2	Ratio pos. (%)	58.9	2.79	74.3	
1981/185	No. Pos.	33 58.9	H	84	
	No.	56	1.7	113	
	Ratio pos. (%)	27.3	33.3	30.8	•.
181/0861	No. pos.	9	· 🗗 :	4	
·	No. exam.	22	m	13	
	Ratio *3 pos. (%)	33,3	50.0	2.99	
1979/'80	T No.*2 Ratio*3 1. pos. (%)	en .	<b>C</b> 1	7	
	No. exam.	6	4	m	
	Province	Lampung	South Sumatra	Bengkulu	
		1			

Comments: \*1 No. exam. .... No. of cases examined

\*2 No. pos. .... No. of cases positive in Rabies

3 Ratio pos. ... Ratio of positive cases

Fig. 1 Scheme of diagnostic services in DIC, Tanjungkarang



A : Specimens submitted to DIC from applicants.

Specimens submitted to DIC from applicants through Animal Husbandry Offices.

Specimens sent by mail from applicants through Animal Husbandry Offices.

Specimens collected by Survey Team of Animal Husbandry Offices and DIC.

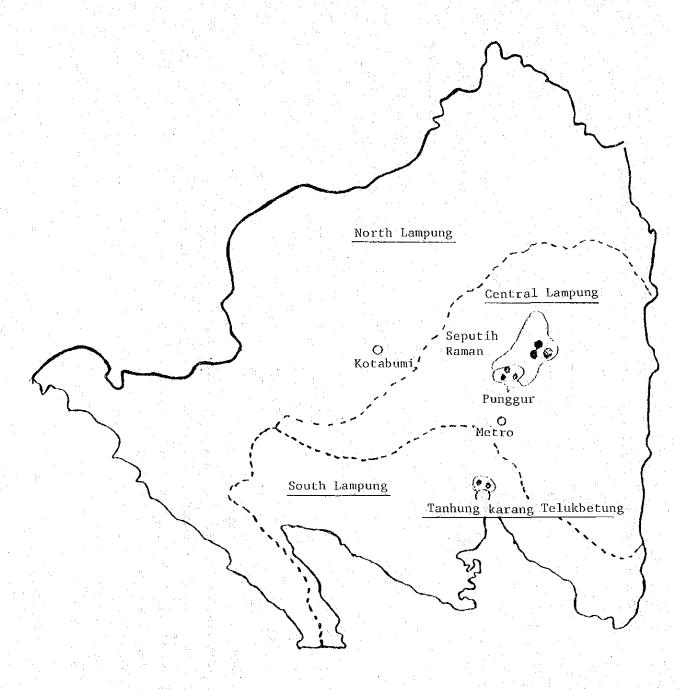
E : Specimens collected by Survey Team of DIC.

F1: Blank Form model F-1.

F<sub>2</sub>: " model F-2.

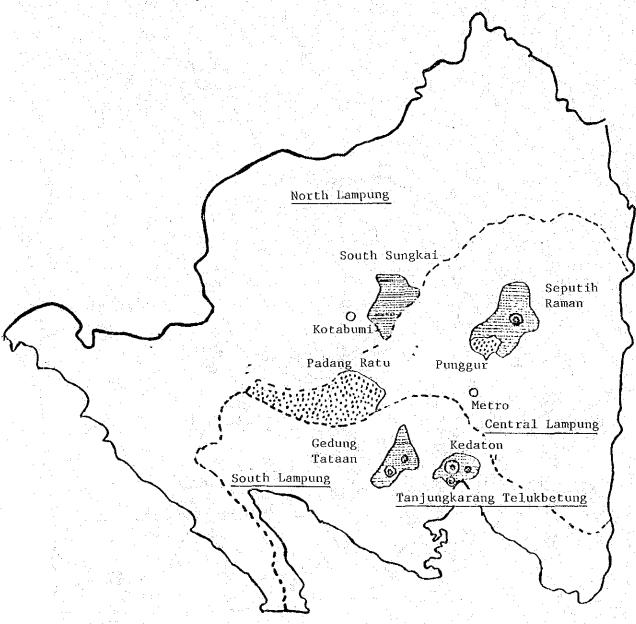
<sup>&#</sup>x27;3 : model F-3.

Fig. 2 Subdistricts where Rama Dewa disease occurred in Lampung Province in the period from August 1980 to February 1982



- Autopsied case of Rama Dewa Disease
- Subdistrict where Rama
  Dewa Disease occurred

Fig. 3. Subdistricts where hemorrhagic septicemia of cattle and buffalo occurred in Lampung Province in the period from January 1979 to March 1982



- Buffalo in which Pasteurella multocida was isolated.
- Swine in which <u>Pasteurella</u> multocida was isolated.

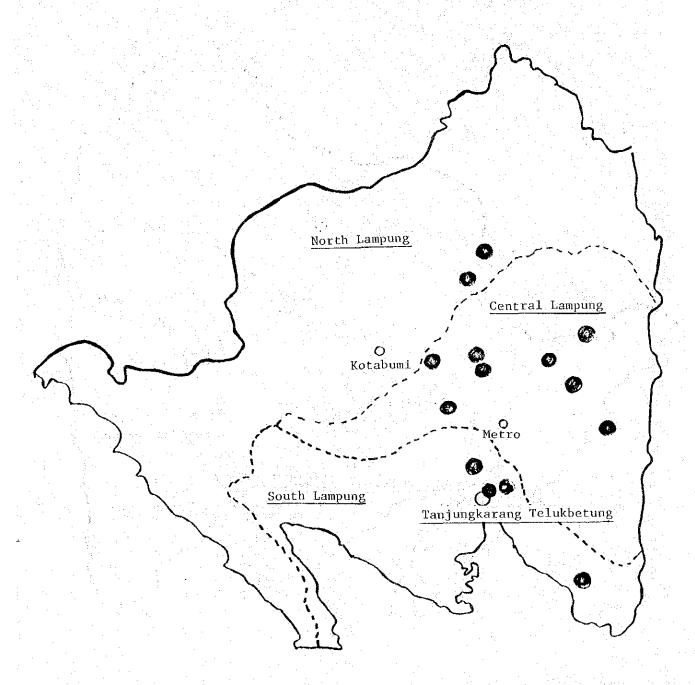


Subdistricts where hemorrhagic septicemia occurred Cattle, buffalo and swine.



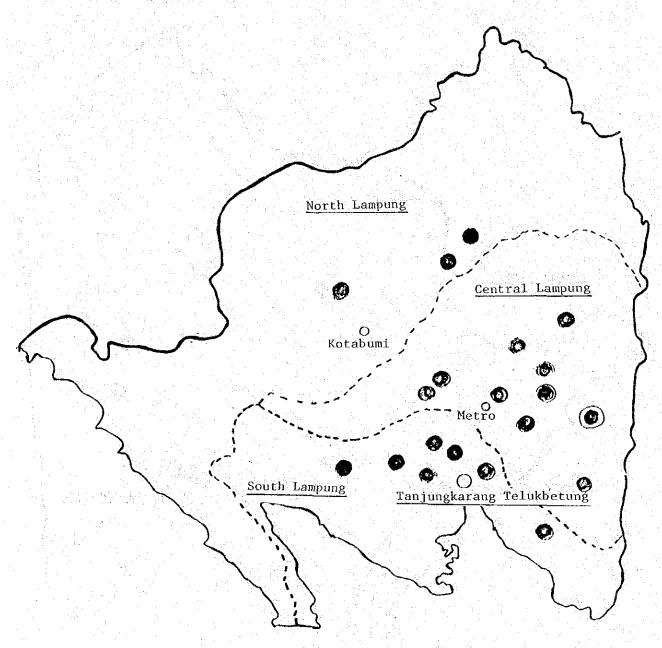
Swine.

Fig. 4 Distribution of cattle and buffalo infected with Trypanosoma sp. in Lampung Province



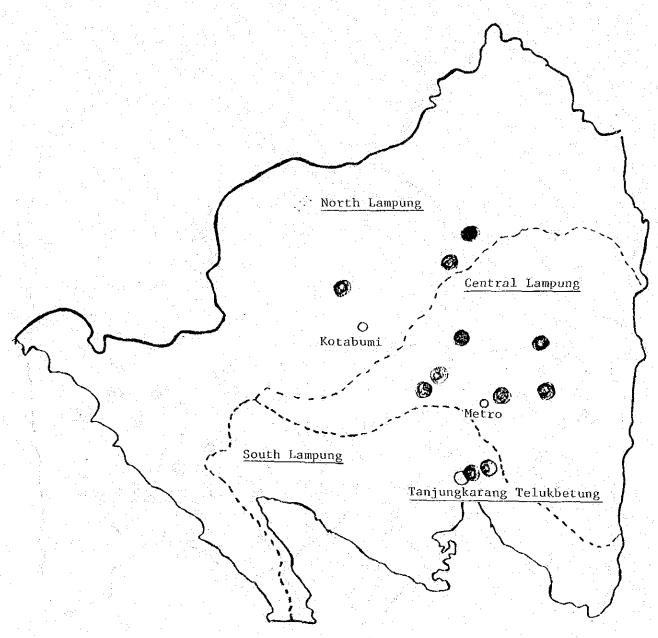
O Subdistricts where positive cases were present.

Fig. 5 Distribution of cattle and buffalo infected with Theileria sp. Babesia sp. in Lampung Province



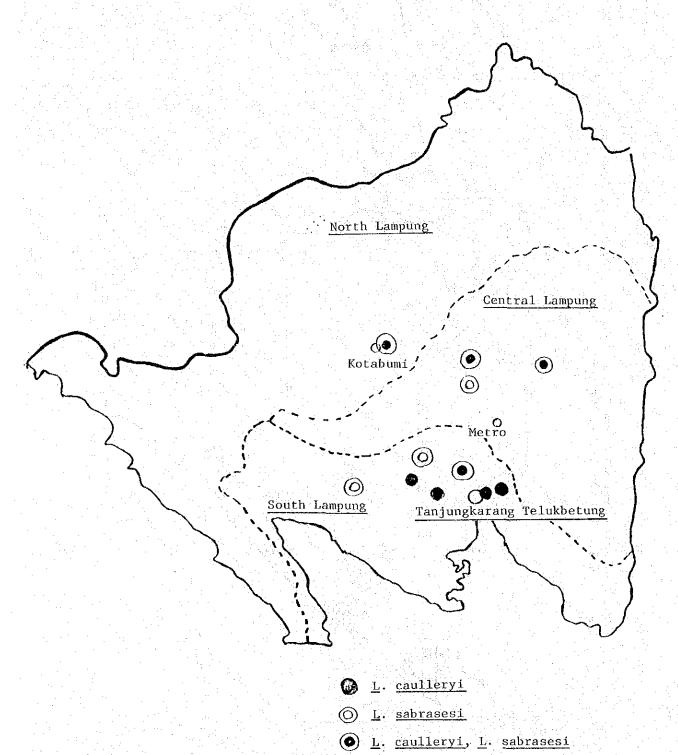
- ( Theileria sp.
- Theileria sp. and Babesia sp.

Fig. 6 Distribution of cattle and buffalo infected with Anaplasma sp. in Lampung Province



Subdistricts where positive cases were present.

Fig. 7 Distribution of chickens infected with <u>Leucocytozoon caulleryi</u> and <u>L. sabrasesi</u> in Lampung Province



· Rabied animals Distribution of rabied animals in the provinces of Lampung, South Sumatra and Bengkulu Lampung Province Fig. 8 Bengkulu

## JAPANESE EXPERTS, CONTRIBUTORS TO THE PROJECT

## I. Long Term Experts

(Medan)		(Tanjung K	arang)
Seiichi	Nagano ,	Ruizo	Ishitani,
Yukio	Oshio ,	Kimiaki	Taguchi ,
Ikuo	Koike ,	Tamotsu	Ogata ,
Norikiyo	Yabe ,	Masashi	Ueda ,
Norihiko	Yoshida ,	Hiromi	Obara ,
Jun	Araki ,	Masahiro	Noda ,

## II. Short Term Experts

Muneo Ogata Mituaki Hayashi  ${\tt Ichizo}$ Iwamoto Yamaguchi, Junji Eiichi Senda Yasuo Miura Kono Toshitaka Eiguchi Yoshio

