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**AMBLYOMMA TICK INFECTION IN THE SAVANNES AREA - VIEUX-FORT - ST. LUCIA**

by

**John Claxton\*, A.G. Greene\*\*****1) PREAMBLE****Position of farming**

Sixty percent of St. Lucia's livestock is kept in the Southern area of the island. Much of the stock belongs to small time farmers who keep a few cows, sheep or goats tethered on vacant land or by the road sides. A significant number of stock, however, belong to farmers who have large flocks or herds running over savanna-type grass lands. These lands are often unfenced or partly fenced, and are covered in low thorn-bushes making it difficult to find all stock.

**Notifiable diseases**

Many countries where certain animal diseases are rare or unknown make such conditions 'Notifiable', i.e. anyone finding such an infected animal must notify the relevant authorities so that monitoring and/or eradication of the outbreak can be undertaken. Even when no such legislation exists it is wise to try to keep out, or in case of the condition occurring eliminate, some diseases by very drastic measures. Examples would be Foot and Mouth Disease, Rinderpest and Hog Cholera (eradicated in St. Lucia). Some diseases are endemic, e.g. Blue tongue, Babesiosis and eradication would need a more thorough evaluation of costs and benefits. In between come diseases which we do not have and which have a debatable economic impact. What does one do in such an instance? The decisions are made more complex by the need for speedy action - the earlier a problem is controlled the easier and cheaper control is - Prevention is better than cure.

**Requirements for disease control**

Unless one intends to treat or slaughter a great deal of healthy stock some form of surveillance and diagnosis is needed. This necessarily

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\*\*Animal Husbandry Officer - St. Lucia.

means getting in contact with farmers and examining their animals. Small-scale farmers can be difficult to trace without records of all stock held. Extension services help in tracing farmers.

On the other hand large-scale farmers, although well known, may not regularly handle stock, so that examination of animals becomes impossible unless some form of handling facilities is constructed. If treatment is envisaged not only must drugs be available but any extra facilities, e.g. sheep-dips, must also be available to enable adequate control.

Animal movement may need restricting, making it necessary for good fencing and identifiability of all animals by some means. In some instances animals may need to be slaughtered.

Physical facilities are needed for all of these. In addition one either has to rely on good will and, indeed, action of farmers or one needs some sort of legislation enforcing such measures as need to be taken.

Good will relies on adequate education of the farmers, but also it needs some form of incentive, whether it be financial, or merely the assurance that preventing a disease getting a hold will be the farmers' long term benefit.

## 2) RESUME OF THE AMBLYOMMA PROBLEM

### The Tick

Amblyomma is a 'hard' tick. Adult males are brightly coloured, the females are very large, 2-3 cm across being common. The mouth parts of the adults and immature forms are very long and cause a great deal of damage to the animals' hides. They live on most animals, but A. variegatum seems to 'prefer' the ruminants (cattle, sheep, goats, etc.). It can remain viable off the host in pasture for at least 2 years.

### Dermatophilosis

This is a skin disease caused by the bacterium Dermatophilus congolense, which is distributed world-wide. Often the disease becomes apparent when rain soaks the skin, softening the outer layers and enabling the bacteria to invade. Typical 'paint brush' lesions form. A colloquial name for the disease is 'Rain Scald'. This type of dermatophilosis is usually readily treated and may regress spontaneously.

It seems that a severe form of the disease is associated with Amblyomma tick infection. Large plaques of tissue grow on the skin. This form of disease requires heavy and sustained treatment to control. One hypothesis is that the long mouth parts of the tick inoculate the organism deep into the skin. In the Gros-Islet area this condition (gal) has been widespread and appears to cause considerable loss in production both directly and indirectly by disinclining farmers to keep animals at all.

### Heartwater

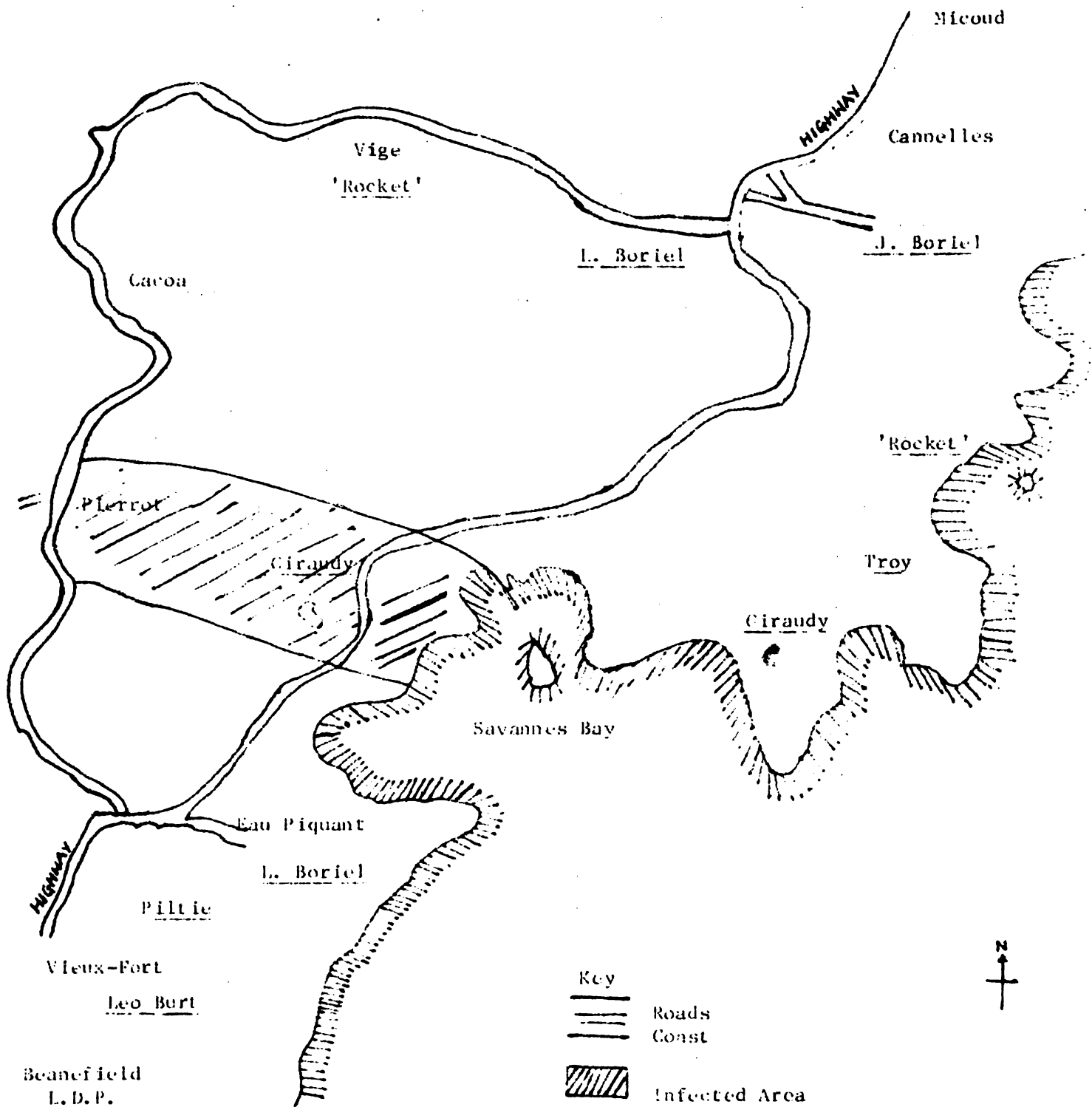
Heartwater is a disease caused by the rickettsia Cowdria ruminantium. This infects cells lining the blood vessels and has its main effect in brain capillaries. Animals may die suddenly in convulsions, or nervous signs may be milder but more prolonged.

As yet no obvious clinical signs of heartwater have been seen in St. Lucia, and we may not have the organism. Amblyomma ticks, however, are the vectors of the disease and should the organism be introduced (it has recently been confirmed in Antigua) the effect on a susceptible livestock population would be devastating.

### Anaemia

Heavy burdens of ticks cause anaemia by removing blood from the hosts' circulation. The physical size of Amblyomma spp. ticks compounds the problem. Anaemia leads to ill-thrift and poor production as well as making the animal more susceptible to concurrent infections.

3) EXTENT OF AREA INFECTED



Underlined names are those of major stockholders

Map: Savannes Area of St. Lucia

1...

## Others

Amblyomma ticks transmit theileriosis (not identified in St. Lucia) and Bovine Farcy (again not identified, but possibly involved in some cases of skin-lumps in cattle).

The infected area centres around the gravel crusher at Savannes and spreads down to the coast and up to Pierrot. So far no infection has been seen outside this strip of land. Infection was first reported on June 19th 1984, but since then stories of similar ticks being present for nearly two years have been heard. Several hypotheses exist of how infection started in the area, none of which is provable, although it would most likely involve movement of ruminant stock into the area.

## 4) STOCK DENSITY

<u>Large Farms</u>	<u>Cattle</u>	<u>Sheep &amp; Goat</u>	<u>Other</u>
L. Boriel	400	20	-
Piltie	30	-	-
Leo Burt	28	-	-
Giraudy	19	70	-
Rocket	18	324	16
Troy	40	100	9
J. Boriel	50	4	-
Beanefield	250	-	-
Beausejour	360	-	-
Total	<u>1,195</u>	<u>518</u>	<u>25</u>

## Small holders

Estimate:	Cattle	- 65
	Sheep/goats	- 170

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Beausejour Livestock Development Programme and the Beanefield communal pastures are both projects aimed at increasing local livestock productivity. Introduction of the Amblyomma tick into these herds would at least double (far more for communal pastures) for LDP and could devastate the herds.

No. of stock affected

	<u>Cattle</u>	<u>Sheep/goats</u>	<u>Other</u>
Savannes Bay - Savannes	-	2	-
Savannes	5	30*	-
Savannes - Pierrot	9	4	-
Total	<u>14</u>	<u>36</u>	<u>-</u>

\*Approx. - 12-18 still to catch.

5) METHODS OF CONTROL

Treatment of host

Ticks on the host are easily killed by using Acaricide sprays or dips. This, however, is temporary. Once the effects of the spray have worn off more ticks can attach to the host. At any one time only a small proportion of the tick population will be on the animals. The rest are in the vegetation. Spraying requires regularity every 2 weeks in this case - to effect a cure, for perhaps 18 months.

Cordon sanitaire

Restricting movement and creating a barrier to spread of infection either by solid fencing or cleaning an area of livestock will contain the problem. It will, however, not remove it and the risk of a breakdown to the barrier with subsequent spread is ever present. In addition to which setting up such a barrier in local conditions would be impractical.

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### Slaughter

Slaughter of affected stock will remove the hosts and eventually the ticks will die out. This requires animals being kept off the land for 2 years. The role of wild animals, e.g. mongoose in the maintenance of the ticks is unclear, but it is thought to be slight.

Slaughtering uncatchable stock which would otherwise allow the ticks an active life cycle, whilst treating all other stock would allow the most rapid eradication of the tick.

### Habitat control

Trying to control the tick on the ground is difficult. Burning will reduce the population, but unfortunately with the rains this is now impossible. In any case the risk of fire spreading in the area during the dry season looks rather high.

Treatment of the ground with acaricide, although used in Puerto Rico, has several problems, namely expense, environmental pollution and difficulty in penetrating thick areas of vegetation.

## 6) PROBLEMS OF HANDLING LIVESTOCK

### Large herds

Most of the larger herds of stock in the region roam wild. They are rarely handled. Animals for slaughter are shot from a distance. One cannot approach animals and handling facilities, paddocks, races, etc. are rare, good handling facilities non-existent. Rounding up animals is hampered by vegetation, thorn bushes preventing visibility and allowing animals to hide. What is more rounding up animals becomes such a chore that farmers are unwilling to do so and doing so regularly, i.e. every fortnight, would be out of the question.

**Small holders**

Small holders usually have their stock tethered and so handling is easier. It is, however, more of a problem getting in touch with all owners and although they are generally willing to help - livestock is a secondary occupation and obviously they have other priorities. Although animals can be readily caught treating them on an individual basis is time consuming.

**7) REQUESTS AND CONCLUSIONS**

In view of the nature of the problem described above, and the fact that large herds are - effectively - at present untreatable the following suggestions are made:

- That although it appears these ticks may have been present for up to two years only now is clinical infection being seen. In the rains this problem is likely to be explosive. Therefore all control measures are URGENT.
- The infected area should be as effectively Quarantined as possible, i.e. animals are not allowed to leave or enter the area. This has already been done on a good-basis by local farmers.
- Provision should be made to construct sheep dips or spray races or even cattle dips near large farms so that if these become infected animals can be treated without them out of the infected area.
- A slaughter and compensation policy should be used for all uncatchable stock in the infected area. The cost of compensation can be offset by carcase value. There is no reason why carcasses cannot be used for human consumption.

- Animals from Gros-Islet area should be prevented from leaving that area without prior notification of Animal Health Authorities.
- Animal-owner recording and animal identification schemes should be introduced to aid control of movement. Penalties and incentives could then be used against owners for stock illegally moved or properly treated, etc.

**Conclusion**

Much of this requires money, and, of course, urgent legislation. We realise that both these criteria are difficult to fill, but in view of a serious threat to the local livestock population, we urge a rapid decision.

## OAS SPONSORED AMBLYOMMA TICK CONTROL PROJECT - ST. LUCIA

by

Keith Scotland\*

## INTRODUCTION

In 1983 representation was made to the OAS for assistance in setting up a programme for the control of the incidence of Amblyomma spp. tick and concomitant Dermatophilosis in livestock in the north of St. Lucia.

The project proposal was for US\$11,000 to purchase acaricide, spraying equipment, antibiotic and other drugs for treatment of livestock animals in the affected areas. The Government of St. Lucia was to provide the technical manpower to run and supervise the project as well as transportation and documentation required at a cost of US\$13,000.

The objective of the programme was to provide a well co-ordinated spray routine for farmers in the Gros-Islet, Rodney Bay, Cas-en-bas, and Bonne Terre areas initially, and to extend this programme to include the Monchy and La-fayeuille areas at a later date.

It was projected that approximately 4,000 cattle (cows, sheep and goats equivalent, 4 sheep, goat = 1 cow) would be treated per year, utilizing a fortnightly spray regimen of 0.1% Asuntol-50 (0.0-Diethyl - 0 Phosphorothionate) wettable powder, treatment of approximately 20% of these animals for Dermatophilosis with intra-muscular injections of oxytetracycline or penicillin/streptomycin suspension twice weekly.

## OPERATION OF PROJECT

Work on project commenced in January 1984, the area was divided into 4 zones, in order to facilitate animal distribution, and to allow orderly execution of spraying, prevent duplication and to permit maximum coverage of as many animals as possible.

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\*Chief Veterinary Officer - St. Lucia.

- ZONE 1 - Rodney Bay area: This included area west of Gros-Islet highway inclusive of land surrounding a yacht marina. Initially sixteen farmers were registered in this area with a total livestock population of eighty cattle.
- ZONE 2 - Reduit Park and Bonne Terre area: This is the region south-east of the Gros-Islet area. Thirteen farmers having a total of fifty four animals were registered in this zone.
- ZONE 3 - Beausejour/Bella Rosa area: This is an area north-east of the Gros-Islet highway, in which six farmers with a total of fifty four animals were initially registered.
- ZONE 4 - Gros-Islet village where twenty four farmers with a total of one hundred and forty one animals were listed

#### DISCUSSION

In affected area a total of 329 animals were initially registered belonging to 59 farmers.

On an average 77% of these farmers have presented their animals for treatment twice a month, with an average of 275 animals being sprayed monthly. This indicates that on an average 83.59% of the initial number of animals registered are being sprayed each month.

#### Appendix I

The majority of farmers currently participating in the programme have in the past experienced serious economic loss from the tick and its associated problems, and as a result these farmers tend to be very responsive to the programme.

With regard to the other farmers it would appear that a number of factors account for the situation observed, viz.:

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- This is not a compulsory programme and utilization of it may wax and wane depending on the situation with tick burden on animals and time available to farmers vis-a-vis other areas of income activity.
- During the last nine months the amount of land available for grazing animals in the area has decreased due to increasing construction and many farmers have disposed of their animals for slaughter.
- The number of farmers in the programme with one or two animals appears to be decreasing in favour of larger numbers per individual farmer.

The situation concerning the incidence of the skin infection Dermatophilosis, which appears to be closely associated with the Amblyomma tick, has improved significantly. Figures show (see Tables V, VI) that twenty (20) new cases were diagnosed in animals sprayed during the nine month period representing 0.81% of total.

The monthly incidence has not exceeded 2% of that population. The instances when no new cases were diagnosed co-incided with the dry months of April and June and also the decreasing level of tick infestation due to constant spraying.

Actual quantification of ticks on animals at each spraying has not been done at this stage and will be provided in future reports, but all indications are that the level of tick infestation has been reduced significantly and also the incidence of Dermatophilosis in both the dry and wet seasons.

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**TABLE I**                      **Farmers and animals registered - January 1984**

ZONE	FARMERS	ANIMALS
1	16	80
2	13	54
3	6	54
4	24	141
<b>TOTAL</b>	<b>59</b>	<b>329</b>

**TABLE II**                      **Spray distribution/month 1984**

ZONE	J	F	M	A	M	J	J	A	S
1	80	74	76	85	94	87	94	77	82
2	54	46	29	43	44	47	54	43	56
3	54	54	54	54	54	54	53	41	43
4	141	81	72	97	74	97	101	94	92
<b>Total # of animals</b>	<b>329</b>	<b>255</b>	<b>231</b>	<b>279</b>	<b>266</b>	<b>285</b>	<b>302</b>	<b>255</b>	<b>273</b>
									<b>2,475</b>

**TABLE III**                      **Animal/farmer distribution**

	J	F	M	A	M	J	J	A	S
<b>Total Animal</b>	<b>329</b>	<b>255</b>	<b>231</b>	<b>279</b>	<b>266</b>	<b>285</b>	<b>302</b>	<b>255</b>	<b>278</b>
<b>Total Farmers</b>	<b>59</b>	<b>46</b>	<b>41</b>	<b>42</b>	<b>45</b>	<b>44</b>	<b>44</b>	<b>44</b>	<b>42</b>



TABLE IV % Variation in animals/farmers/January - base month

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
Animals	100%	77.51%	70.22%	84.81%	80.8%	86.63%	91.80%	77.51%	82.98%
Farmers	100%	77.97%	69.50%	71.19%	76.28%	74.58%	74.58%	74.58%	71.19%

TABLE V New cases of Dermatophilosis diagnosed\*

ZONE	J	F	M	A	M	J	J	A	S	
1	2	-	-	-	-	-	-	-	-	
2	-	-	-	-	2	-	4	-	2	
3	-	2	3	-	2	-	-	1	-	
4	-	-	1	-	-	-	-	1	-	
Total	2	2	4	0	4	0	4	2	2	20

\* Clinical diagnosis and response to treatment

TABLE VI % Animals with Dermatophilosis each month

	J	F	M	A	M	J	J	A	S	Total
# of Der. cases	2	2	4	0	4	0	4	2	2	20
% of Der. cases	0.61%	0.79%	1.74%	0%	1.51%	0%	1.33%	0.79%	0.74%	0.81%
# of animals sprayed	329	255	231	279	266	285	302	255	273	2,475

## EXPENDITURE

1) Purchase (OAS)	US\$	¢	US\$	¢
a) 12 cartons (20 x 1 kg) Asuntol acaricide	4,241.76			
b) 2 x AR19/E spray pumps & spare parts	1,391.36			
				<hr/>
				5,633.12
2) Materials used (OAS)				
a) 122 x 1 kg Asuntol powder at US\$21.77/kg				2,665.94
3) St. Lucia Government (contributions)				
a) Animal Health Assistant (salary) 20 weeks at US\$100/week	2,000.00			
b) Transportation - 2,000 miles at US0.50¢/ mile (petrol, etc.)	1,000.00			
c) Antibiotic drugs TX 20 animals Dermato- philosis	54.00			
d) Documentation	50.00			
				<hr/>
				3,104.00

RABIES

<u>Country</u>	<u>Species</u>	<u>No. of Cases /Quarter</u>	<u>Cumulative Total</u>	<u>No. Vaccinated /Quarter</u>	<u>Cumulative Total</u>
Grenada	Bovine	-	15	-	6
	Canine	-	2	73	175
	Caprine	-	3	-	-
	Feline	-	3	4	14
	Ovine	-	2	-	-
Guyana	Bovine	-	-	-	-
Suriname	Bovine	-	2	-	-
Trinidad & Tobago	Bovine	-	-	-	377
	Caprine	-	-	-	79
	Ovine	-	-	-	39

TETANUS

<u>Country</u>	<u>Bovine</u>		<u>Caprine</u>		<u>Equine</u>		<u>Ovine</u>		<u>Porcine</u>		<u>Total</u>	
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C
Dominica	-	-	-	-	-	-	1	1	-	-	1	1
Grenada	-	1	7*	17*	1	1	7*	17*	2	8	10	28
Jamaica	-	-	14	35	3	3	-	-	20	31	37	69
			(**)	275	-	27	-	-	-	315	-	617
Trinidad & Tobago	-	-	5	35	-	1	1	5	-	-	6	41
			(**)	4	15	2	3	-	21	-	6	39

\*Combined data  
 \*\*Number vaccinated

BRUCELLOSIS

<u>Country</u>	<u>Species</u>	<u>No. tested/ Quarter</u>	<u>No. Farms</u>	<u>No. Pos.</u>	<u>No. Farms</u>	<u>Cumulative Total Tested</u>	<u>Total Pos.</u>
Jamaica	Bovine	8478	40	18	1	20879	92
Suriname	Bovine	-	-	-	-	2736	301
	Equine	-	-	-	-	15	-
Trinidad & Tobago	Ovine	-	-	-	-	3	-

LEPTOSPIROSIS

<u>Country</u>	<u>Species</u>	<u>Quarterly Totals</u>		<u>Cumulative Totals</u>	
		<u>No. Tested</u>	<u>No. Positive</u>	<u>No. Tested</u>	<u>No. Positive</u>
Dominica	Canine	-	2	-	10
Guyana	Bovine	-	-	41	16
	Human	-	-	22	4
Jamaica	Bovine	283	245	794	599
	Canine	48	16	85	26
	Caprine	51	44	104	59
	Equine	-	-	2	0
	Human	136	47	621	246
	Porcine	-	-	50	15

TUBERCULOSIS

Country	Species	No. Tested /Quarter	No. Farms	No. Pos.	Cumulative	
					No. Tested	No. Positive
Guyana	Bovine	2*	-	2*	-	39*
Jamaica	Bovine	1933	64	-	7594	-
Trinidad & Tobago	Bovine	3490	-	14	4040	14
	Buffalo	-	-	-	189	-
	Caprine	55	-	-	56	-
	Ovine	-	-	-	3	-
	Porcine	56	-	-	56	-

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\*Slaughter house/laboratory data

HAEMOPARASITES

Country	Species	No. Cases/Quarter			Cumulative		
		Ana Deaths	Piro Deaths	No.	Ana Deaths	Piro Deaths	No.
Dominica	Bovine	5	-	-	25	2	-
Grenada	Bovine	5	-	-	11	-	3
	Canine	-	-	15	-	-	-
Guyana	Bovine	-	-	-	4	-	-
Jamaica	Bovine	12	-	-	29	-	-
	Canine	-	13	-	-	18	-
Trinidad & Tobago	Bovine	169	9	10	685	29	44
				1			5

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ENDOPARASITES

Country	Bovine		Canine		Caprine		Equine		Feline		Ovine		Porcine		Zoo		Total	
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C
Dominica	174	374	-	-	30	190*	-	-	-	-	45	205*	10	-	-	-	259	619
Grenada	278	559	176*	413*	559*	2388	6	31	176*	413	559*	2388*	226	593	-	-	1245	4021
Guyana	25	113	47	158	16	55	2	7	-	-	19	52	4	12	7	11	120	407
Jamaica	609	1413	-	-	480	764	-	187	-	-	245	272	189	726	-	-	1523	3362
Suriname	-	60	-	51	-	20	-	10	-	-	-	-	-	33	-	-	-	164
Trinidad & Tobago	274	857	93	311	170	488	-	1	-	-	115	214	62	97	-	-	714	1938

\* Combined data

SCREWORM

Trinidad & Tobago	17	48	8	11	15	30	3	5	-	-	3	10	12	17	-	-	-	58
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Country	Bovine		Canine		Caprine		Equine		Feline		Ovine		Porcine		Total	
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C
<u>MASTITIS</u>																
Dominica	10	34*	-	-	2	26*	-	-	-	-	-	-	3	-	15	39
Grenada	34	99	-	1	28*	94*	-	-	-	-	28*	94*	17	25	79	219
Guyana	4	31	-	-	-	-	-	-	-	-	-	-	-	1	4	32
Jamaica	494	1058	-	-	60	156	-	-	-	-	-	-	33	84	587	1298
Trinidad & Tobago	224	763	1	1	27	72	-	-	-	-	1	2	3	55	256	893
<u>METRITIS</u>																
Dominica	2	12	-	-	1	1	-	-	-	-	-	-	3	3	6	16
Grenada	-	-	-	-	-	-	-	-	-	-	-	-	3	12	3	12
Guyana	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Jamaica	146	428	-	-	78	163	2	2	-	-	-	1	78	115	304	709
Trinidad & Tobago	73	245	4	6	7	23	-	-	-	-	-	-	50	102	134	377
<u>MANGE</u>																
Dominica	-	-	-	40*	-	40*	-	-	-	-	27**	67*	-	-	27	67
Grenada	-	-	11*	40*	-	1	-	-	11*	40*	-	-	1	1	12	42
Guyana	-	-	-	1	-	1	-	1	-	-	-	-	-	1	-	4
Jamaica	18	18	-	-	13	32	4	4	-	-	-	-	20	41	55	142
Trinidad & Tobago	-	1	3	5	-	-	-	-	-	-	6	-	-	21	3	33

\*Combined data

\*\*Face

ENDOPARASITES

Country	Bovine		Canine		Caprine		Equine		Feline		Ovine		Porcine		Zoo		Total	
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C
Dominica	174	374	-	-	30	190*	-	-	-	-	45	205*	10	-	-	-	259	619
Grenada	278	559	176*	413*	559*	2388	6	31	176*	413	559*	2388*	226	593	-	-	1245	4021
Guyana	25	113	47	158	16	55	2	7	-	-	19	52	4	12	7	11	120	407
Jamaica	609	1413	-	-	480	764	-	187	-	-	245	272	189	726	-	-	1523	3362
Suriname	-	60	-	51	-	20	-	10	-	-	-	-	-	33	-	-	-	164
Trinidad & Tobago	274	857	93	311	170	488	-	1	-	-	115	214	62	97	-	-	714	1938

\* Combined data

SCREWORM

Trinidad & Tobago	17	48	8	11	15	30	3	5	-	-	3	10	12	17	-	-	58
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Country	Bovine		Canine		Caprine		Equine		Feline		Ovine		Porcine		Total		
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	
<u>MASTITIS</u>																	
Dominica	10	34*	-	-	2	26*	-	-	-	-	-	-	3	-	15	39	
Grenada	34	99	-	1	28*	94*	-	-	-	-	28*	94*	17	25	79	219	
Guyana	4	31	-	-	-	-	-	-	-	-	-	-	-	1	4	32	
Jamaica	494	1058	-	-	60	156	-	-	-	-	-	-	33	84	587	1298	
Trinidad & Tobago	224	763	1	1	27	72	-	-	-	-	1	2	3	55	256	893	

Country	Bovine		Canine		Caprine		Equine		Feline		Ovine		Porcine		Total		
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	
<u>METRITIS</u>																	
Dominica	2	12	-	-	1	1	-	-	-	-	-	-	3	3	6	16	
Grenada	-	-	-	-	-	-	-	-	-	-	-	-	3	12	3	12	
Guyana	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Jamaica	146	428	-	-	78	163	2	2	-	-	-	1	78	115	304	709	
Trinidad & Tobago	73	245	4	6	7	23	-	-	-	-	-	-	50	102	134	377	

Country	Bovine		Canine		Caprine		Equine		Feline		Ovine		Porcine		Total		
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	
<u>MANGE</u>																	
Dominica	-	-	-	40*	-	40*	-	-	-	-	27**	67*	-	-	27	67	
Grenada	-	-	11*	40*	-	1	-	-	11*	40*	-	-	1	1	12	42	
Guyana	-	-	-	1	-	1	-	1	-	-	-	-	-	1	-	4	
Jamaica	18	18	-	-	13	32	4	4	-	-	-	-	20	41	55	142	
Trinidad & Tobago	-	1	3	5	-	-	-	-	-	-	-	6	-	21	3	33	

\*Combined data

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INFECTIOUS POULTRY DISEASES

	DOMINICA	GRENADA	GUYANA	JAMAICA		TRINIDAD & TOBAGO	
				No. Vaccinated	No. Farms	No. Cases	No. Farms
Aspergillosis	-	-	-	-	-	45200	8
Candidiasis	-	-	-	-	-	-	-
CRD	-	-	-	-	-	118000	58
Coryza	3	-	-	43000	53	2700	1
Ectoparasites	-	-	-	-	-	2500	1
Endoparasites	6*	-	5	-	-	126100	42
Enteritis	-	-	-	-	-	41300	24
Fowl Cholera	-	-	-	-	-	-	-
Fowl Pox	6	-	2	1200	11	4110	6
Gumboro	-	-	-	-	-	4000	1
Infectious Bronchitis	-	-	40	23500	38	-	-
Infectious Synovitis	-	-	-	-	-	28500	20
Leucosis	-	-	-	-	-	-	-
Marek's Disease	-	-	-	59000	-	3300	3
Mycoplasmosis	-	-	-	-	-	-	-
Newcastle Disease	-	-	-	2800000	-	6000	1
Pasteurellosis	-	-	-	-	-	-	-
Salmonellosis	-	-	-	-	-	-	-
Miscellaneous	-	26	-	-	-	-	-

\*P.M. Data

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BLACKLEG

Country	Species	No. of Cases		No Vaccinated		No. of Farms	
		Q	C	Q	C	Q	C
Jamaica	Bovine	-	11	4809	13377	443	1021

DERMATOPHILOSIS

Guyana	Bovine	2	2
	Caprine	-	1
	Equine	-	1
	Ovine	1	1
Trinidad & Tobago	Bovine	2	6
	Caprine	-	16
	Ovine	-	3

ENZOOTIC BOVINE LEUCOSIS

Guyana	-	1
Jamaica	-	2
Trinidad & Tobago	7	15

EQUINE INFECTIOUS ANAEMIA

	No. Tested		No. Positive	
	Q	C	Q	C
Guyana	-	46	-	29

FOOT ROT (PODODERMATITIS)

	Species	No. of Cases	
		Q	C
Dominica	Caprine	6	-
	Ovine	18	-
Trinidad & Tobago	Bovine	20	48
	Caprine	5	11
	Equine	1	2
	Ovine	5	13
	Porcine	1	17

REPRODUCTIVE HERD HEALTH

Country	Species	No. of Cases Exam.		No. Farms		No. Ancestrus		No. Concep. Failure		Retained Placenta	Prolapse	Dystocia
		Q	C	Q	C	Q	C	Q	C			
Dominica		-	-	-	-	30	-	-	-	12	4	8
Grenada	Bovine	54	-	-	-	-	-	-	-	-	-	-
	Sheep & Goats	47	-	-	-	-	-	-	-	-	-	-
	Porcine	22	-	-	-	-	-	-	-	-	-	-
	Dogs & Cats	27	-	-	-	-	-	-	-	-	-	24.
Trinidad	Bovine	650	2088	90	209	44	212	87	187			

SWINE ERYSIPELAS

Country	No. of Cases		No. Vaccinated		No. Farms	
	Q	C	Q	C	Q	C
Jamaica	-	-	3497	7205	116	315
Trinidad & Tobago	51	75	-	-	-	-

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IMPORT INSPECTIONS - TRINIDAD & TOBAGO

<u>Country of Origin</u>	<u>Avian</u>	<u>Bovine</u>	<u>Canine</u>	<u>Caprine</u>	<u>Equine</u>	<u>Feline</u>	<u>Hamsters</u>	<u>Mice</u>	<u>Ovine</u>	<u>Turtles</u>
Barbados	20	-	10	-	14	-	-	-	72	-
Canada	50	1	2	-	-	-	2	-	-	-
Cuba	2	-	-	-	-	-	-	-	-	-
England	-	-	42	-	2	1	-	-	-	-
Grenada	-	-	-	272	-	-	-	-	757	-
Guyana	59	-	-	-	-	-	-	-	-	-
Holland	6167	-	-	-	-	-	-	-	-	-
St. Vincent	-	-	-	121	-	-	-	-	619	-
USA	9	18	6	-	6	-	-	15	-	5500

25.

EXPORT INSPECTIONS - TRINIDAD & TOBAGO

- 3 horses, 40 birds to Barbados
- 2 dogs to England

ANIMAL DISEASE REPORTING PERSONNEL

<u>Barbados:</u>	Dr. Trevor King Senior Veterinary Officer Ministry of Agriculture, Food & Consumer Affairs Animal Health Services The Pine, St. Michael	Dr. Stephen St. John Veterinary Pathologist Veterinary Laboratory St. Michael
<u>Dominica:</u>	Dr. W.M. Christian Chief Veterinary Officer Ministry of Agriculture Roseau COMMONWEALTH OF DOMINICA	
<u>Grenada:</u>	Dr. Bonus Nutor Veterinary Officer (CFTC) Ministry of Agriculture, Rural Development and Cooperatives P.O. Box 141, St. George's	Ms. Judy Baldeo Laboratory Technician Ministry of Agriculture, Rural Development & Cooperatives P.O. box 141, St. George's
<u>Guyana:</u>	Dr. Resa N.D. Raja Principal Agricultural Officer Ministry of Agriculture Veterinary & Livestock Division Regent & New Garden Streets Georgetown	Dr. Lennox Applewaite Senior Veterinary Officer Veterinary Laboratory Mon Repos East Coast Demerara
<u>Haiti:</u>	Dr. Jolivert Toussainte Chef, Service Veterinaire DARNDR Damien, Port-au-Prince	Dr. Max Millien Chef, Laboratoire Veterinaire DARNDR Damien, Port-au-Prince
<u>Jamaica:</u>	Dr. Linden Bryan Director of Veterinary Services Ministry of Agriculture P.O. Box 309, Kingston	Dr. George Grant Senior Veterinary Officer Linton McDonnough Memorial Veterinary Laboratory P.O. Box 309, Kingston
<u>St. Lucia:</u>	Dr. Keith Scotland Chief Veterinary Officer Ministry of Agriculture Castries	Mr. John Simon Laboratory Technician Ministry of Agriculture Castries
<u>Suriname:</u>	Dr. Robert Lieuw-a-Joe Chief, Veterinary Inspection Ministry of Agriculture P.O. Box 1016, Paramaribo	
<u>Trinidad &amp; Tobago:</u>	Dr. Vincent Moe Director of Veterinary Services Ministry of Agriculture St. Clair Circle, Port of Spain	Dr. Edward P. Cazabon Veterinary Pathologist Veterinary Diagnostic Laboratory Curepe, Port of Spain



