ANIMAL DISEASE REPORT

ANTILLES ZONE

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C O N T E N T S

BLUETONGUE STUDIES IN THE CARIBBEAN

Neutralising Antibody Studies at A.V.R.I., Pirbright

by

W.P. Taylor and I.D. Gumm (May, 1983)

As a general principle cattle, sheep and goats show a type-specific neutralising antibody response following a primary infection with bluetongue. If paired sera can be obtained it can be expected that the specificity of the neutralising antibody response will give a clear indication of the infecting type. However, it must sometimes be expected to find low levels of cross-neutralising antibody (antibody neutralising types other than those causing infection) even after the prime infection in life. This does not negate the value of the "neutralising antibody diagnostic test" as cross-neutralising levels will be low with respect to specific-neutralising levels. In our experience cattle tend to produce cross-neutralising antibodies more frequently than sheep or goats. Difficulty may arise - again in cattle - in that in some individuals diagnostic antibody levels may be only slightly higher than non-specific levels.

In cattle we have claimed to be able to diagnose a second infection either along with or sometime after the first (Herniman et al, 1983), based on the appearance of a high level of neutralising antibody to a second type. Our ability to do this was based on the availability of sera collected at monthly intervals from individual animals. In general though, the level, valency and duration of cross-neutralising antibody may be expected to rise the more frequently an animal is exposed to bluetongue and ultimately it will be impossible to use the neutralising antibody approach to diagnose the virus types present in an area.

As we had no detailed knowledge of the present study area and are unaware if bluetongue activity is seasonal or on-going throughout the year, we attempted

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to work with sera collected from young animals (not older than 18 months) in the hope of selecting animals that had undergone only one or two infections and in which a broadened response had not occurred. In general, this approach seems to have succeeded and it is noticeable in the occasional two year old animal included to test our theory, that the response is in fact much broader. However, in viewing the results, it is apparent that very few sera give a mono-specific diagnostic response of the sort described above. On the other hand, very few sera are given antibody levels to a large number of types and we would suggest that most sera have been collected that have been infected with only a few virus types.

In attempting to interpret these results we have adopted a new approach - that of looking for antibody clusters, arguing that overall cross-neutralising will probably be low and random and that by looking at antibody titres at higher levels, some indication of the infecting type(s) may appear. For example, if we look at the results from Suriname it is apparent that 6 cattle sera of the 9 tested have antibodies at above a titre of 1:20 against BTV 6, that BTV 14 antibodies are found in 8 animals. No other virus types gives these clusters. When the threshold for examination is raised to 1:30 the BTV 6, 14 and 17 clusters become even more apparent. Of further significance, when the same method is applied to the (less cross reactive) sheep sera, the same three types give clusters and when goat sera are examined clusters appear for type 14 and 17. This reinforces the impression that the method of interpretation has an epidemiological basis as it might be expected that the same virus types would be found infecting all three host species.

Adopting this approach, we have tabulated what appears to be the infecting BTV types in each species in each area studied.

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ANTIBODY CLUSTERS TO SEROTYPES OF BLUETONGUE VIRUS RECOGNISED IN CATTLE, SHEEP AND GOATS IN THE CARIBBEAN REGION AND COUNTRIES OF SOUTH AMERICA:

Country*	Species	No. Samples Examined	Antibody cluster(s) to BTV
Jamaica	Cattle	1	Insufficient results
	Sheep	3	Insufficient results
	Goats	15	6, 14, 17
Antigua	Cattle	10	6, 12, 14, 17
	Sheep	6	6, 17
	Goats	10	6, 14, 17
Barbados	Cattle	11	1
	Sheep	24	1, 6
Grenada	Cattle	8	6, 14, 17
	Sheep	15	6, 17
	Goats	16	6, 14, 17
Trinidad	Cattle	56,	6, 14, 17
& Tobago	Sheep	17	14, 17
	Goats	20	6, 14, 17
Guyana	Cattle	9	14, 17
	Sheep	8	14
	Goats	6	Insufficient results
Suriname	Cattle	9	6, 14, 17
	Sheep	10	6, 14, 17
	Goats	10	14, 17

*Countries listed by latitude from north to south

Number of sera tested

	Cattle	Sheep	Goats
Jamaica	1	3	15
St. Kitts/Nevis	1	-	4
Antigua	10	6	10
St. Lucia	No ages known .·. not tested		
Barbados	11	24	-
Grenada	8	15	16
Trinidad & Tobago	56	17	20
Guyana	9	8	6
Suriname	9	10	10
	105	83	81

TOTAL: 269

CONCLUSION

In certain areas and in certain species there is good evidence in individual animals for recent infection with either BTV 6 or BTV 14; no similar evidence for BTV 17 exists but antibody to this type is ubiquitous. It is suggested that all three BTV types have been prevalent in the Caribbean during 1981 or the first half of 1982. It is impossible to determine the factors that control the spread of BTV in this area but it is quite striking that, with the possible exception of Barbados, the same viruses have been distributed throughout the entire study area in the course of a year. Further studies should be undertaken to determine the time of virus onset in each area.

REFERENCES

Herniman et al (1983) J. Hygiene.

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P R E S S R E L E A S E

Bluetongue Studies in the Caribbean

Bluetongue is a virus disease of ruminants transmitted by midges. In some areas of the world like the Caribbean, bluetongue virus is of little clinical concern. To date no clinical cases have been confirmed in the region. The potential of the disease, however, to cause epidemics, has led to the imposition of severe restrictions on the international movement of breeding livestock and germ plasm. Such restrictions led to the loss of exports of sheep from Barbados to Canada in 1972 and recently to Mexico. Jamaica has had a cancellation of a shipment of bovine semen to Nigeria. Caribbean countries wish to expand ruminant livestock development which focus on the Barbados Blackbelly Sheep, the developed cattle breeds of Jamaica and the Trinidad Water Buffalo. A policy governing the movement of ruminants within the Caribbean is required.

At the Regional Meeting of the Directors of Animal Health of the Antilles Zone held under the sponsorship of the Inter-American Institute for Cooperation on Agriculture in Barbados in 1981, it was decided to begin a study of the epidemiology of Bluetongue Virus in the Zone.

The first objective of the study, a serological survey to determine the prevalence of antibody to the common group antigen of Bluetongue Virus in cattle, sheep and goats from the region, was undertaken and executed by the Ministry of Agriculture, Food and Consumer Affairs, Barbados, at the Veterinary Diagnostic Laboratory, the Pine, St. Michael, in collaboration with consultants from the Centre of Tropical Animal Health, Department of Veterinary Medicine, University of Florida, USA.

The serological survey involving 500 sera from animals in participating countries showed overall prevalences of 70% in cattle, 66% in sheep and 76% in goats. Within countries, the prevalences were Jamaica 77%, St. Kitts/

Nevis 70%, Antigua 76%, St. Lucia 82%, Barbados 61%, Grenada 88%, Trinidad & Tobago 79%, Guyana 52% and Suriname 84%.

Following these results, 269 positive samples were tested at the Animal Virus Research Institute, Pirbright, England, in order to determine which of the 22 known serotypes were involved. Sera from young animals (not older than 18 months) were selected using an approach of looking at clusters of neutralising antibody titres at higher levels. Bluetongue Virus clusters 6, 14, 17 were disclosed throughout the region and in all three host species.

The conclusion was reached that in certain species there is good evidence in individual animals for recent infection with either Bluetongue Virus 6 or Bluetongue Virus 14. No similar evidence for Bluetongue Virus 17 exists but antibody to this type is ubiquitous. It is suggested that all three Bluetongue Virus types have been prevalent in the Caribbean during 1981 and early 1982. It is quite striking that the same viruses have been distributed throughout the entire study area in the course of a year. Further studies should be undertaken to determine the time of virus onset in each area, to identify the transmitting midges and to attempt virus isolation.

At a recent meeting in Kissimmee, Florida, USA, during May, 1983, a consultation was held with the leading authorities on Bluetongue Virus disease. There was unanimous opinion that the consistent results show that there would be little or no justification for restricting the movement of animals within the Caribbean Area, because of Bluetongue. They recommended that the respective Governments of the Region should be so advised and that research as indicated should be pursued.

In St. Vincent and Barbados, the serotypes disclosed by previous analysis were 1, 2, 4, 14, 15 and 1, 2, 5, 6, 7, 10 respectively. In the light of the results shown by the antibody cluster technique, sera can be retested accordingly.

The virus isolates present in the USA are 2, 10, 11, 13 and 17.

AFRICAN SWINE FEVER PROJECT

Country	Size	No. Slaughtered	Compensation Paid May, 1982 - June, 1983
Haiti	Adults	168007	6,720,280
	Young	116444	2,328,880
	Piglets	99940	499,700
	TOTAL	384391	9,548,860

Laboratory Report - April - June, 1983

Week	No. of Blood Samples	No. Positive	% Positive
April 4-8	778	34	4.4
9-15	772	42	5.4
16-22	633	12	1.9
23-30	825	15	1.8
May 1-6	826	24	2.9
7-13	429	11	2.6
14-20	733	27	3.7
21-27	349	2	0.6
May 28-June 3	739	23	3.1
June 4-10	860	45	5.2
11-17	353	9	2.6
18-24	1120	41	3.7
25-31	1591	75	4.7
	10008	360	% 3.6

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Raking Operations

Date	Chefs de Section	Pigs Captured	Claimed	Unclaimed	No. of Owners
June 1983	249	233	199	34	95

Cleaning and Disinfection

	April - June 1983	Sept 1982 - June 1983
Slaughter/Compensation Sites	147	438
Piggeries	2	7
Abbatoirs	16	42
Positive Cases Sites	75	224
Markets	31	92
	271	803

Epidemiological Surveillance

	April - June 1983	August 1982 - June 1983
Roads		
Vehicles Inspected	26557	77388
Vehicles Disinfected	1295	3134
Meat Seized (kg)	216825	6236.25
Maritime		
Boats Inspected	1843	6258
Boats Disinfected	24	230
Meat Seized (kg)	494.5	677.5 + 2pigs
Airport		
Aircraft Inspected	129	252) Feb - June 1983
Meat Seized (kg)	23	89.5)

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	April - June 1983	August 1982 - June 1983	
Haitian/Dominican Border			
Vehicles Inspected	1071	1357	) Feb - June 1983
Vehicles Disinfected	19	19	)
Meat Seized (kg)	627.25	1256.5 + 2 Pigs	

Turks & Caicos Islands

All fourteen sera (14) submitted were negative for African Swine Fever by the Indirect Fluorescent Antibody Test. Ten (10) sera were positive for Hog Cholera by the IFA Test and the FA Neutralisation Test. Positive Hog Cholera sera were obtained from all islands surveyed.

(USDA Report - Following Visit - Eskew/Alexander, May 1983)

RABIES

Country	Species	No. of Cases /Quarter	Cumulative Total	No. Vaccinated /Quarter	Cumulative Total	
Grenada	Bovine	-	3	13	35	
	Canine	-	-	45	181	
(April Report Only)	Caprine	-	6	14)	83	299
	Ovine			)		
Suriname	Bovine	5	5	-	-	5
Trinidad & Tobago	Bovine	-	-	1026	1781	
	Buffalo			19	19	
	Caprine			433	586	
	Equine			6	25	
	Ovine			22	47	2458

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TETANUS

Country	Bovine		Caprine		Donkey		Equine		Ovine		Porcine		Total	
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C
Grenada	-	-	4*	12*	-	-	1	2	4*	12*	2	8	7	22
Guyana	-	-	-	-	3	3	8	12	5	18	-	-	16	33
Jamaica	3	6	5	35	-	-	10	14	-	-	26	40	44	95
Trinidad & Tobago	1	1	11	15	2	2	-	1	-	-	-	-	14	19

* Grouped Data

BRUCELLOSIS

Country	Species	No. Tested/Quarter		No.	No.	Cumulative		
		Slaughter	Field	Farms	Pos	Slaughter	Field	Pos
Barbados	Bovine	-	3	-	-	-	6	-
Jamaica	Bovine	8483	5402	85	4	18907	12724	22
St. Lucia	Bovine	-	-	-	-	-	50	-
Suriname	Bovine	-	335	5	3	91	610	7
Trinidad & Tobago	Bovine	-	2	-	-	-	2	-
	Ovine	-	-	-	-	-	12	-

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TUBERCULOSIS

Country	Species	No. Tested /Quarter	No. Farms	No. Positive	Cumulative No. Tested	Cumulative No. Pos.
Jamaica	Bovine	3916	46	0	9085	4
St. Lucia	Bovine	-	-	-	50	-
Suriname	Bovine	-	-	-	1	1
Trinidad & Tobago	Bovine	-	-	-	25	-

HAEMOPARASITES

Country	Species	No. Cases /Quarter		No. Deaths	No. Tested	No. Farms	Cumulative No. of Cases	
		Ana	Piro				Ana	Piro
Barbados	Bovine	-	-	-	-	-	33	4
	Canine	-	-	-	-	-	-	1
	Caprine	-	-	-	-	-	15	-
	Equine	-	-	-	-	-	-	3
	Ovine	-	-	-	-	-	1	-
Grenada	Bovine	2	-	-	2	2	9	-
Guyana	Bovine	17	8	7	-	-	118	36
	Ovine	8	-	-	-	-	29	-
Jamaica	Bovine	21	-	-	-	21	46	-
	Canine	-	7	-	7	7	-	20
	Caprine	-	-	-	-	-	1	-
Trinidad & Tobago	Bovine	251	4	9	-	-	439	11
	Caprine	1	-	-	-	-	-	-

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LEPTOSPIROSIS

Country	Species	No. Tested/ Quarter	No. Positive	Cumulative No. Tested	Cumulative No. Positive
Barbados	Bovine	12	12	13	12
	Canine	9	8	11	8
	Equine	12	12	13	13
Guyana	Bovine	-	-	594	339
	Human	29	11	78	22
Jamaica	Bovine	1132	588	1593	742
	Canine	54	19	89	31
	Caprine	20	4	116	40
	Human	120	57	224	83
	Ovine	3	0	13	1
	Porcine	-	-	1	-
Trinidad & Tobago	Bovine	2	-	2	-
	Ovine	12	-	12	-

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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
Barbados	(21)11	17	(86)55	117	(19)17	22	(8)8	12	(4)2	3	(17)15	39	(1)1	1	-	-	109	211
Grenada	9	240	39*	112*	249*	1011*	-	20	39*	112*	249*	1011*	79	357	-	-	457	1821
Guyana	19	1659	35	75	-	372	8	20	5	5	5	322	3	522	5	14	80	3036
Jamaica	617	1469	-	-	596	1197	53	131	-	-	296	613	462	981	-	-	2024	4391
Trinidad & Tobago	220°	499°	-	2	90	295	-	1	-	-	8	39	3	15	-	-	321	851

( ) Total Tested

* Grouped Data e.g., Dogs & Cats
Sheep & Goats

o Includes Buffaloes

INFECTIOUS POULTRY DISEASES

Country	Aspergillosis	CRD	Coryza	Encephalomalacia	Endoparasites	Fowl Pox	Gumboro Disease	Infectious Bronchitis	Leucosis	Marek's Disease	Mycoplasmosis	Newcastle Disease	Pasteurellosis	Salmonellosis
Guyana														
No. of Farms Affected	-	-	-	-	-	-	-	-	-	-	-	-	-	-
No. of Birds Affected	-	49	78	-	6903	-	-	-	-	7	-	-	-	-
Mortality	-	49	37	-	50*	-	-	-	-	7	-	-	-	-
Jamaica														
No. of Farms Affected	-	-	69	-	12	-	-	47	-	-	-	-	-	-
No. of Birds Affected	-	-	37500	-	14500	-	-	-	-	-	-	-	-	-
No. Vaccinated	-	-	-	-	-	-	-	61000	-	200000	-	6700000	-	-
Suriname														
No. of Birds Affected	-	-	-	-	1°	-	-	-	-	-	-	-	-	-
Trinidad & Tobago														
No. of Farms Affected	11	82	3	1	14	-	1	-	-	11	-	3	-	1
No. of Birds Affected	56000	273800	1480	120	61300	-	200	-	-	10400	-	49700	-	10000

* Includes 23 dead from Histomoniasis

° Reported Syngamus Trachea in imported guinea Fowl

	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
MASTITIS	Grenada	15	37	-	-	13*	49	-	-	-	-	13*	49	11	27	39	113
	Guyana	246	266	-	-	11	20	-	-	-	-	-	-	72	72	329	358
	Jamaica	484	882	-	-	24	47	-	-	-	-	-	-	18	36	526	965
	Trinidad & Tobago	184	383	-	-	14	25	-	-	-	-	-	-	-	1	198	409
METRITIS	Guyana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	-
	Jamaica	289	465	-	-	86	120	-	-	1	-	21	25	40	63	436	674
	Trinidad & Tobago	82	210	-	-	5	9	-	-	-	-	1	1	19	33	107	253
MANGE	Barbados	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	4
	Grenada	-	-	4	13	-	-	-	-	-	-	2	2	-	3	6	18
	Guyana	-	-	-	9	8	8	1	1	-	-	-	-	23	50	32	59
	Jamaica	22	39	-	-	-	-	2	2	-	-	-	-	25	48	49	89
	Trinidad & Tobago	-	9	-	-	-	-	-	-	-	-	1	1	1	28	2	38

* Grouped Data

BLACKLEG

Country	Species	No. of Cases	No. Vaccinated		No. of Farms	
			Q	C	Q	C
Jamaica	Bovine	-	8170	12497	1706	2137

SWINE ERYSIPELAS

Country	No. of Cases		No. Vaccinated		No. of Farms	
	Q	C	Q	C	Q	C
Jamaica	-	-	1732	2935	73	142
Trinidad & Tobago	37	60	-	-	-	-

SCREWWORMS

Country	Bovine		Caprine		Equine		Ovine		Porcine		Total	
	Q	C	Q	C	Q	C	Q	C	Q	C	Q	C
Guyana	320	940	43	43	27	27	53	63	-	-	443	1073
Trinidad & Tobago	9	21	2	5	-	2	-	1	4	5	15	34

REPRODUCTIVE HERD HEALTH

Country	No. of Cows Examined		No. of Farms		No. Vaccns Campylobacter		No. of Farms		No. Bulls Exam.	
	Q	C	Q	C	Q	C	Q	C	Q	C
Jamaica	4402	9101	103	194	3065	83	83	83	-	194
Trinidad & Tobago	755	2233	75	158	-	-	-	-	-	-

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IMPORT INSPECTIONS - TRINIDAD & TOBAGO

Country of Origin	Avian	Bovine	Canine	Caprine	Equine	Ovine	Porcine	Turtles	Total
Barbados	-	-	25	-	22	-	-	-	47
Canada	-	-	1	-	3	-	18	-	22
England	200	-	50	-	3	-	-	-	253
Germany	-	-	1	-	-	-	-	-	1
Grenada	-	-	-	266	-	650	-	-	916
Guyana	106	-	-	-	-	-	-	-	106
Martinique	-	-	-	-	7	-	-	2	9
Netherlands	3898	-	-	-	-	-	-	-	3898
Peru	-	-	1	-	-	-	-	-	1
Puerto Rico	23	-	-	-	1	-	-	-	24
St. Lucia	3	-	-	-	-	-	-	-	3
St. Vincent	-	-	1	19	-	174	18	-	212
USA	44	97	9	-	8	-	13	2070	2241
TOTAL	4274	97	88	285	44	824	49	2072	7733

ANIMAL DISEASE REPORTING PERSONNEL

Barbados:	Dr. Trevor King Senior Veterinary Officer Ministry of Agriculture, Food & Consumer Affairs Animal Health Services The Pine, St. Michael	Dr. Vincent St. John Veterinary Pathologist Veterinary Laboratory St. Michael
Dominica:	Dr. W.M. Christian Chief Veterinary Officer Ministry of Agriculture Roseau, Commonwealth of Dominica	
Grenada:	Dr. K.S. Manyam Chief Veterinary Officer Ministry of Agriculture, Rural Development & Cooperatives P.O. Box 141, St. George's Tanteen	Miss Judy Baldeau Laboratory Technician Ministry of Agriculture, Rural Development & Cooperatives P.O. Box 141, St. George's Tanteen
Guyana:	Dr. R.N.D. Raja Principal Agriculture Officer (Ag.) Ministry of Agriculture Veterinary & Livestock Division Regent & New Garden Sts. G'town	Dr. Lennox Applewhaite Senior Veterinary Officer Veterinary Laboratory Ministry of Agriculture Mon Repos, East Coast Demerara
Haiti:	Dr. Fred Calixte Chef, Service Veterinaire DARNDR Damien, Port-au-Prince	Dr. Max Millien Chef, Laboratoire Veterinaire DARNDR Damien, Port-au-Prince
Jamaica:	Dr. Clifford L. Grey Director of Veterinary Services (Ag.) Ministry of Agriculture P.O. Box 309, Kingston	Dr. George Hylton Deputy Director Linton McDonnough Memorial Veterinary Laboratory P.O. Box 309, Kingston
St. Lucia:	Dr. Keith Scotland Chief Veterinary Officer Ministry of Agriculture Castries	Mr. John Simon Laboratory Technician Ministry of Agriculture Castries
Suriname:	Dr. Robert Lieuw-a-Joe Chief, Veterinary Inspection Ministry of Agriculture P.O. Box 1016, Paramaribo	Dr. Ken Moll Veterinary Diagnostic Laboratory P.O. Box 1016, Paramaribo
Trinidad & Tobago:	Dr. Vincent G. Moe Technical Officer - Livestock Div. Ministry of Agriculture St. Clair Circle, Port of Spain	Dr. Edward P. Cazabon Veterinary Pathologist Veterinary Diagnostic Laboratory Curepe, Port of Spain