



Veterinary Epidemiological Bulletin Sri Lanka



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Bovine Babesiosis

1.1 Introduction

Mastitis, the inflammation of the udder regardless of the cause is the most costly disease of dairy cattle. It affects not only the quantity but also the quality of the milk produced by the cow.

Mastitis is the outcome of interaction of various factors associated with the host, pathogen(s) and environment. The etiological agents causing mastitis are very vast and complex; large number of micro-organisms are known to cause inflammation of udder. Among the infectious agents, bacterial pathogens are major threat to mammary gland. They are often contagious, widely distributed in the environment of dairy animals and thus increase prevalence rate of intra-mammary infections. In most countries *staphylococcus* is the most predominant cause of clinical mastitis and also sub-clinical mastitis.

Mastitis is characterized by physical, chemical and bacteriological changes in the milk and pathological changes in the glandular tissue.

There is abnormal appearance of milk. Milk may be off color, watery, bloody or have the appearance of serum, pus and clots, flakes and shreds consisting of cellular and fibrin debris. The abnormal colour of milk is the result of changes in vascularity during inflammation and flow of blood to the udder. The shape of udder changes grossly and there is uneven sizes of teats. The udder may turn hard, red and hot to the touch.

Main changes in the udder include leakage of ions, proteins and enzymes from the blood in to the milk due to an increased permeability; invasion of phagocytizing cells into the milk and a decrease in the synthetic capacity of the gland resulting in decreased concentration of certain constituents. The affected quarter may also produce substances related to the inflammatory reaction such as acute phase proteins.

The clinical mastitis is classified based on severity, rapidity of onset and duration into acute, sub-acute and chronic forms. In acute and sub-acute mastitis there are systemic signs like painful quarters, fever and inappetance. In chronic condition of clinical mastitis there is fibrosis of the udder and portion of the gland may become atrophic.

1.2 Sub-clinical Mastitis

Sub-clinical mastitis is characterized by normal mammary gland and normal appearance of milk. It is important due to the fact that it is 15-40 times more prevalent than the clinical form. It is of long duration, difficult to detect and adversely affects the milk quality and thereby the production of dairy animals. Further it constitutes a reservoir of microorganisms that can affect other animals within the herd due to the contagious nature.

Subclinical mastitis persists in the udder without causing any gross abnormality both in the gland and milk. This form of the disease usually precedes the clinical form. It is only detected by testing milk samples. A variety of tests are available to determine the presence or absence of sub-clinical mastitis. The majority of the tests primarily indicate inflammation in the udder. They do not measure infection or bacterial resistance.

The detection of sub-clinical mastitis is generally based upon the indicators of inflammation as a result of intra-mammary inflammation. In response to intra-mammary inflammation significant changes occur in the parenchyma of the udder and in milk. Those changes include infiltration of leucocytes known as somatic cells (SC). Most of the screening tests estimate the somatic cell count (SCC) of milk as an indicator of inflammation of udder.

California Mastitis Test (CMT) is usually carried out in the field at farmer level to detect sub-clinical mastitis. Early diagnosis of subclinical mastitis is important because changes in the udder tissue take place much earlier than they become apparent. The detection of mastitis at an early subclinical phase can avoid the clinical mastitis and the economic losses due to loss of milk, treatment cost and premature culling.

1.3 Control and Prevention

Cleanliness is the basic requirement to prevent occurrence of mastitis in a dairy farm. Proper ventilation and good sanitation at the farm building is necessary to reduce the exposure of pathogens to the mammary gland. Animals should be provided with clean and dry bedding. Dung and urine should be removed immediately as these are constant source of infections at the farm.

Mastitis screening programme will assist to detect the sub-clinical cases early and thereby clinical cases can be prevented. Post-milking dipping of teats of all cows

in an effective disinfectant will reduce the exposure to pathogens.

All the clinical cases have to be treated with appropriate antibiotics. Animals suffering from chronic infections should be culled, as these are carriers of disease and spread infections. Use of dry cow therapy with long acting antibiotic at the end of lactation will effectively reduce the new infections during the pre-parturient period.

1.4 Mastitis in Sri Lanka

Mastitis has been the single disease with highest number of reported cases in the country during the year 2012. In total 11,264 cases have been reported by the government Veterinary Surgeons. The highest number of 2,095 cases have been recorded at the Eastern Province and the lowest number of 732 cases at Sabaragamuwa Province.

For the past few years the Department of Animal Production and Health has been supporting the treatment of mastitis by providing udder-base through the Veterinary Investigation network. Furthermore, antibiotic sensitivity tests (ABST) are carried out in order to select the most appropriate antibiotic.

Since 2012 udder infusions have been prepared with selected antibiotics and produced in large-scale for distribution through government Veterinary offices as ready-to-use preparation.

Cases of Bovine Mastitis in 2012

Province	Cases
Central	1402
Eastern	2095
North central	897
North Western	1903
Northern	975
Sbaragamuwa	732
Southern	817
Uva	1049
Western	1394
Total	11264

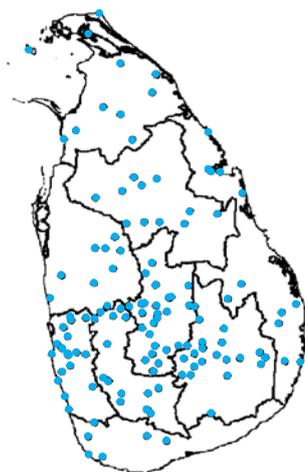
2.1.1. Reported Cases of Foot and Mouth Disease : July - December 2012

The only outbreak of FMD during the second half of the year 2012 was detected among buffalos at Welikanda Veterinary range in Polonnaruwa district during the month of October 2012. Eleven (11) cases were reported during this outbreak. Samples were collected promptly and the causative organism was confirmed as Foot and Mouth of serotype 'O' virus.

2.1.2 Reported cases of Bovine Babesiosis : July - December 2012

Bovine babesiosis is a major economic important disease present among the dairy cattle. A total of 1268 cases have been reported during the second half of the year 2012.

Pre-immunization of calves with *B. bovis* and *B. bigemina* in the field level was introduced during the year 2012. In total 779 calves have been pre-immunized during the period between July to December from six districts in the country.



Month	Cases	Deaths
July	192	5
August	165	8
September	217	9
October	228	5
November	257	8
December	209	10
Total	1268	45

District	No. of Animals Preimmunized
Kandy	192
Matale	156
Kegalle	140
Ratnapura	120
Badulla	51
Colombo	120
Total	779

2.1.3 Reported Cases of Brucellosis : July - December 2012

Brucellosis has been suspected at 20 Veterinary ranges in 11 district during the second half of the year 2012. It has been agreed upon to vaccinate the infected herd using S-19 brucella vaccine and enforce strict movement control into and from these herds in order to control the disease in the absence of implementation of stringent stamping out policy in the country.

A total of 4,583 animals have been vaccinated during the period of July to December.

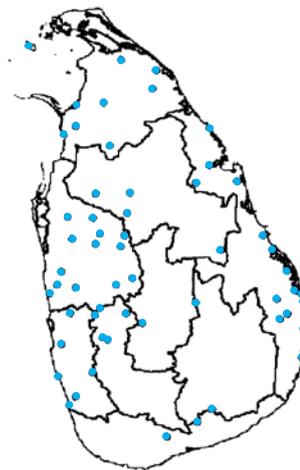
District	No. of Vaccination
Kurunegala	718
Puuttalam	29
Polonnaruwa	670
Anuradhapura	918
Nuwara-Eliya	33
Badulla	200
Ampara	746
Trincomalee	1155
Matale	114
Total	4583

2.2.1 Reported cases of Contagious Pustular Dermatitis : July - December 2012

Contagious Pustular Dermatitis (CPD) is a highly contagious disease in small ruminant and it has been reported at most of the district in the country. All the provinces except for Uva province experienced the disease during the period under review. Veterinary Investigation Centers produce 'Auto Vaccine' against CPD which control the spread of the infection within the flocks. A total of 132 doses of CPD vaccine has been produced via VICC and vaccination has been carried out in the affected goat farms during the second half of the year 2012.

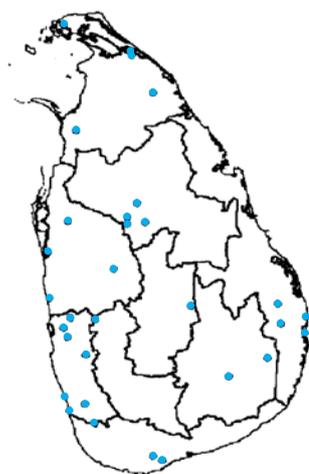
Reported cases of CPD : July - December 2012

Province	Cases	Deaths	Affected District
Central	5	0	Kandy
Eastern	197	0	Ampara, Batticaloa, Trincomalee
North Central	38	5	Anuradhapura, Polonnaruwa
North Western	75	0	Kurunegala, Puttalam
Northern	64	2	Mullaitivu, Mannar, Kilinochchi, Vavuniya, Jaffna
Sabaragamuwa	10	5	Kegalle, Ratnapura
Southern	11	1	Hambantota
Western	34	0	Kalutara, Gampaha



2.3 Reported cases of Rabies : July - December 2012

Cases of rabies among cattle have been recorded at 18 districts in the country with high incidence in Western Province. A total of 66 cases has been recorded during the second half of the year. Furthermore caprine cases too have been detected at Kilinochchi, Batticaloa, Ampara, Mannar and Kalutara districts.



Bovine
Cases 66
Deaths 66



Caprine
Cases 13
Deaths 13



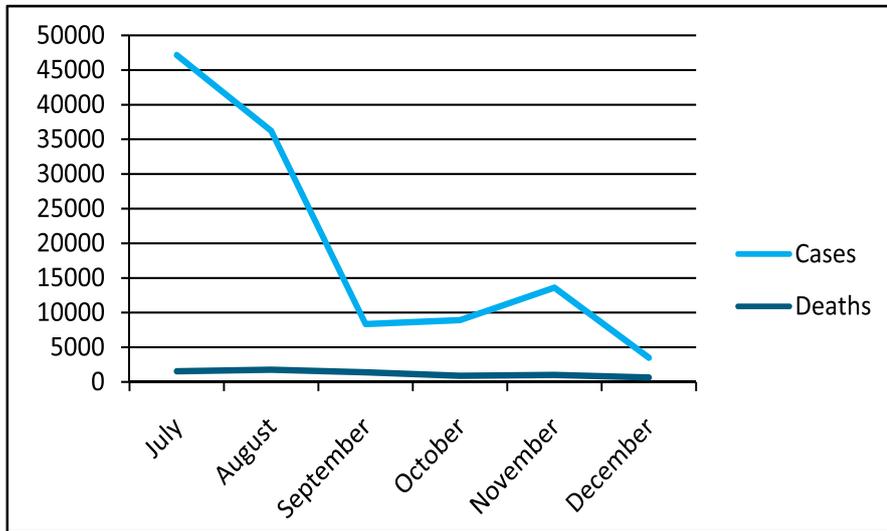
Buffalo
Cases 2
Deaths 2

2.4.1 Reported Cases of Newcastle disease : July - December 2012

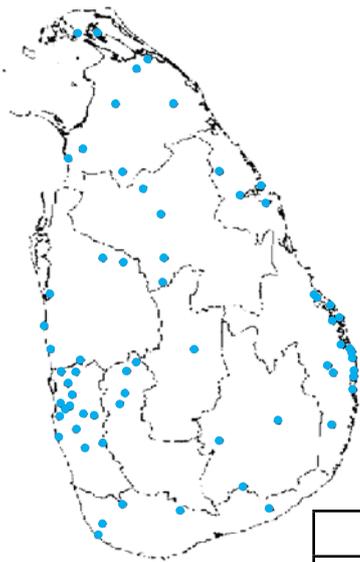
Newcastle disease cases were detected in all the Provinces during the second half of the year 2012. Clinical cases of Newcastle diseases were investigated by the relevant Veterinary Investigation Officers and laboratory confirmation was made by the Veterinary Research laboratory Polgolla. Newcastle disease could be controlled effectively by appropriate vaccination schedule. However preventive vaccination in small scale farms and in backyard population is seldom practiced mostly due to negligence and the cost involved in procurement of vaccine. The Vaccine Production Center at VRI has been producing ND vaccine in small pack size of 200 doses and the vaccine has been distributed via the Government Veterinary Surgeon free of charge mainly to the above category. 3,326,400 doses of NCD vaccine has been issued for vaccination during the period of second half of the year 2012.

Province	Cases	Deaths
North Western	17207	570
Eastern	21948	3077
Central	1409	595
Western	18414	467
Sabaragamuwa	760	183
Northern	51372	1141
Uva	1904	196
North Central	3216	840
Southern	1550	141

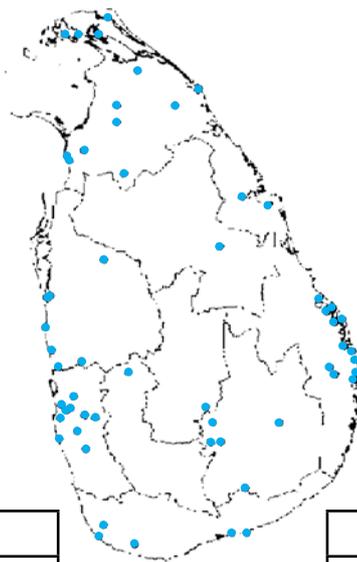
Monthly Distribution of ND Cases



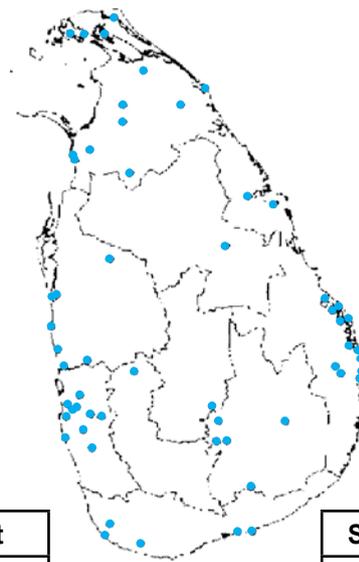
Newcastle Disease Vaccine Issues July-Dec -2012	
Province	No. of Doses
North Western	65,000
Northern	90,000
Eastern	1,30,000
Uva	50,000
Central	50,400
Western	1,50,000
Sabaragamuwa	31,000
North Central	45,000
Southern	1,50,000
Total	3,326,400



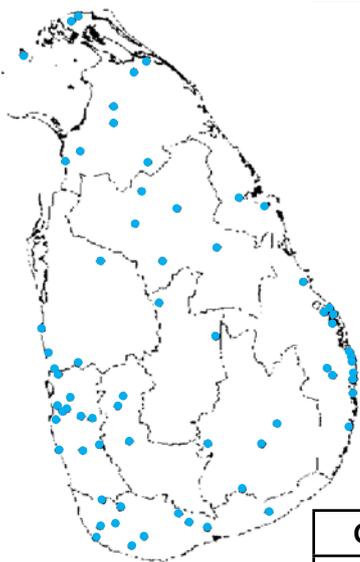
July
47172 Cases
1530 Deaths



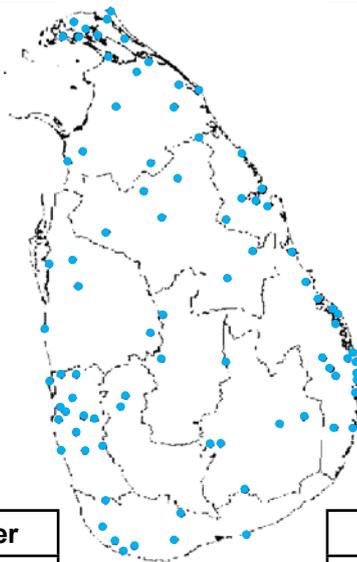
August
36223 cases
1761 deaths



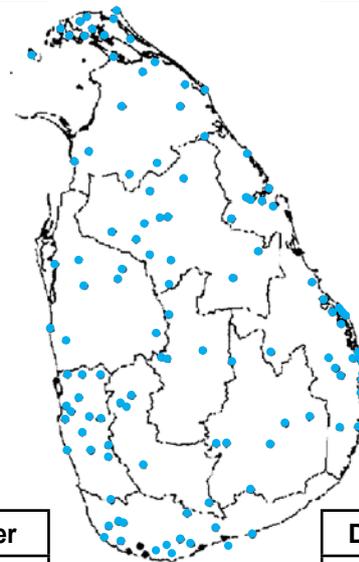
September
8363 cases
1387 deaths



October
8918 cases
879 deaths



November
13608 cases
1018 deaths

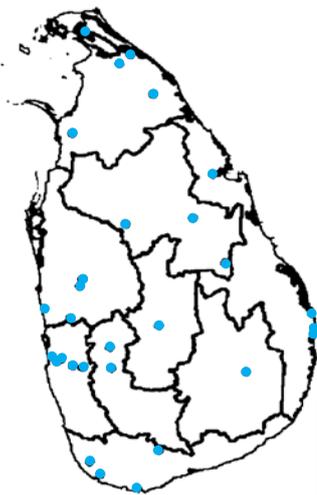
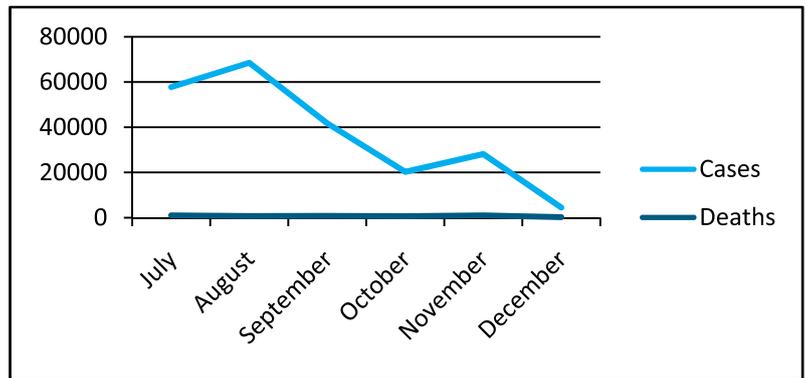


December
3496 cases
635 deaths

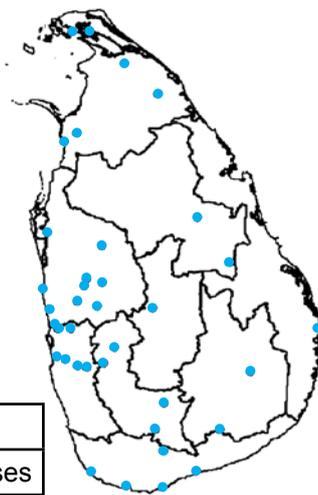
2.4.3 Reported cases of Infectious Bursal Disease : July - December 2012

Infectious Bursal Disease has been detected in 23 districts in the country during the second half of the year 2012. A total of 2,20,858 cases have been recorded during this period with the overall case- fatality rate of 2.1%.

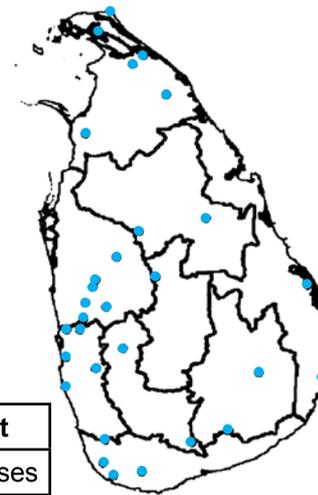
Monthly Distribution of IBD Cases



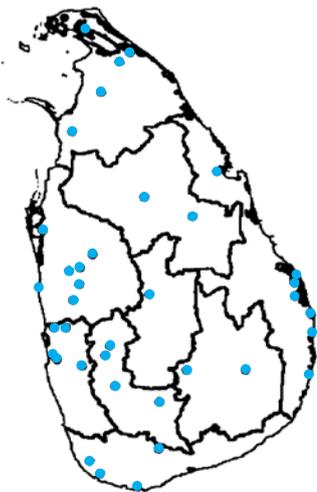
July
57752 cases
1043 deaths



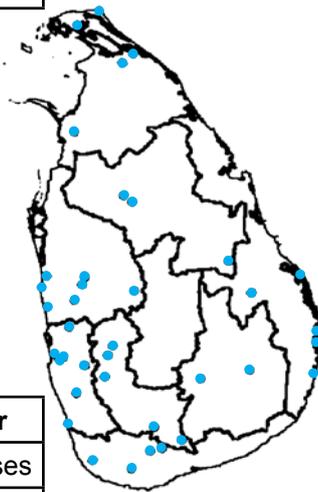
August
68483 cases
748 deaths



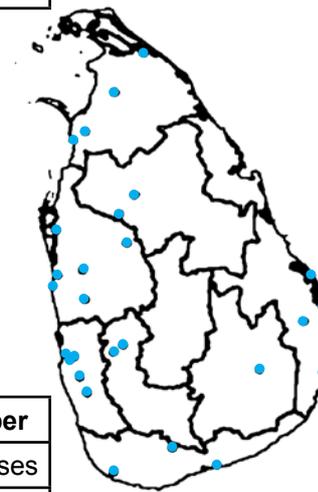
September
41713 cases
857 deaths



October
20299 cases
740 deaths



November
28128 cases
1057 deaths



December
4483 cases
293 deaths

2.4.4 Salmonellosis : July - December 2012

Poultry Breeder farms are subjected to compulsory salmonella monitoring programme; regular flock monitoring by slide agglutination test. Eighteen Poultry Breeder farms were subjected to flock screening programme during the period of second half of the year 2012 and three of them were found to be positive for salmonella infection. Furthermore fourteen hatcheries were subjected to salmonella testing during the period under review and *Salmonella enteritis* was isolated from one of these hatcheries.

Poultry Breeder Farms where Flock Screening Programme was carried out in July - December 2012.

Nova Farm, Dambulla.	Gayana Farm, Chilaw.	Air Force Farm, Dambulla.
Nawagala Farm, Dambulla.	Miriswatta Farm, Homagama.	New Anthony's Farm, Welisara
Green Valley Farm, Welisara	Regional Hatchery, Achchuveli	Hansika Poultry Breeder s, Welisara.
Pussella Farm, Homagama.	Bairaha Farm, Dolosbage	Marist Brothers Farm, Chilaw
Nishadini Farm, Welisara.	Ravi Farm, Kegalle	Sandalanka Farm, Pannala
Three Acre Farm, Kosgama.	Three Star Farm, Chilaw	Nelna Farm Pvt. Ltd., Meethirigala.

3 Highly Pathogenic Avian Influenza

3.1 Highly Pathogenic Avian Influenza Surveillance; July - December 2012

Active surveillance against Highly Pathogenic Avian Influenza has been continued since 2010 in the country. This included the sero- surveillance in commercial poultry and surveillance on migratory birds and backyard poultry. 1635 serum samples, 315 pooled dropping and 353 cloacal samples were collected representing 16 district in the country during the second half of the year 2012. All the sample were detected as negative for the Highly Pathogenic Avian Influenza virus which was confirmed by the Animal Virus Laboratory at Pollgolla.

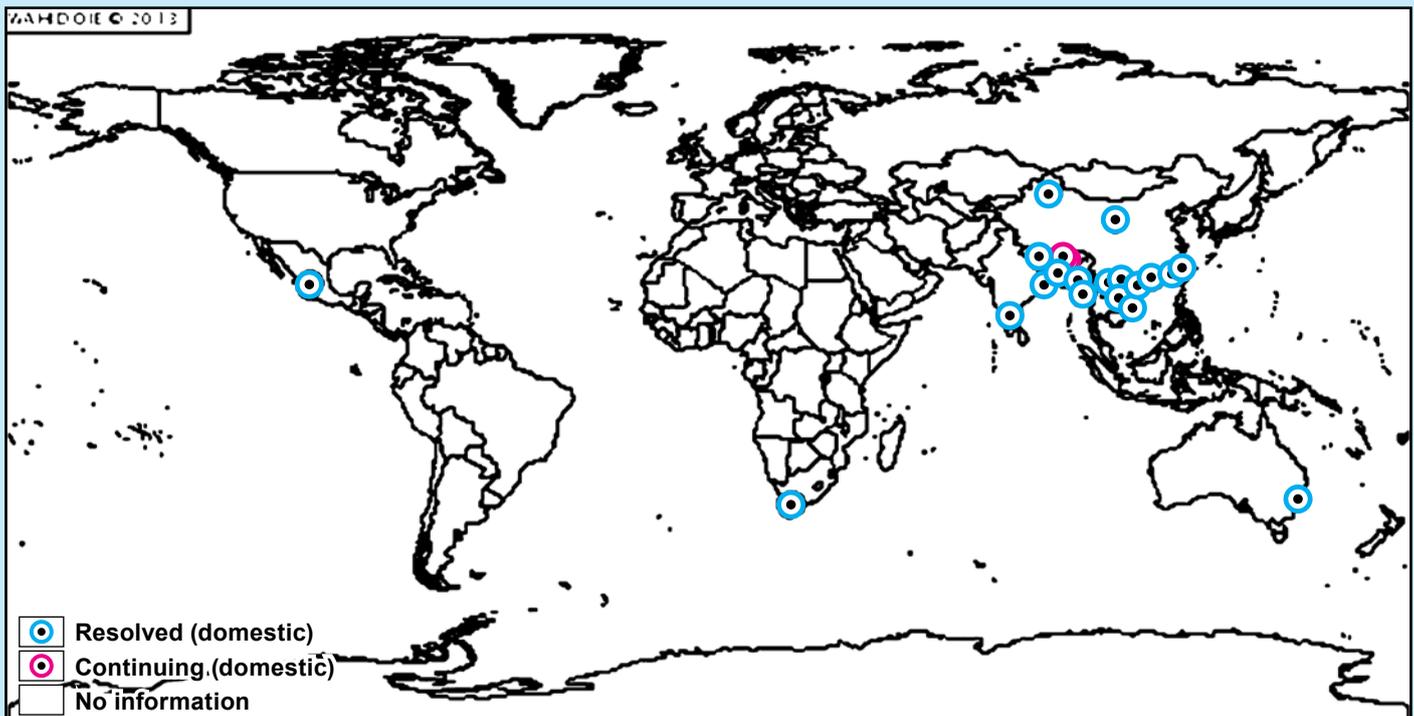
District	Serum samples (Commercial poultry)		Pooled dropping (Migratory birds)		Cloacal swabs (Backyards poultry)	
	No. tested for AIV antibody	Results	No. tested for AIV antigen	Results	No. tested for AIV antigen	Results
Puttalam	540	01 (+)ve *	-	-	18	(-)ve
Nuwara-Eliya	30	(-)ve	60	(-)ve	-	-
Ampara	150	02 (+)ve *	-	-	-	-
Polonnaruwa	106	(-)ve	-	-	-	-
Colombo	483	15 (+)ve *	-	-	11	(-)ve
Kurunegala	338	15 (+)ve *	-	-	6	(-)ve
Jaffna	120	(-)ve	-	-	-	-
Trincomalee	60	(-)ve	20	(-)ve	20	(-)ve
Vavuniya	30	03 (+)ve *	-	-	-	-
Anuradhapura	150	03(+ve)	-	-	-	-
Rathnapura	205	06 (+)ve *	20	(-) ve	146	(-)ve
Kegalle	45	(-) ve	-	-	-	-
Badulla	227	01 (+)ve *	-	-	23	(-)ve
Gampaha	570	07 (+)ve *	12	(-) ve	11	(-)ve
Matale	-	-	35	(-)ve	-	-
Hambantota	-	-	-	-	57	(-)ve
Total	3054		147		292	

* All the AIV positives are negative for H5, H7 and H9

Global Distribution of Notifiable Avian Influenza : July - December 2012

Virus Type	Country
H5N1	Vietnam, Nepal, Myanmar, India, Hong Kong, Chinese Taipei, Cambodia, Bhutan, Bangladesh
H5N2	South Africa, Chinese Taipei
H7N3	Mexico
H7N7	Australia

3.2 Global Situation of Notifiable Avian Influenza Outbreaks 2012



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