



# Veterinary Epidemiological Bulletin Sri Lanka



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Department of Animal Production and Health, P.O. Box 13, Peradeniya, Sri Lanka.

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## Infectious Bovine Rhinotracheitis in Cattle

Infectious Bovine Rhinotracheitis (IBR) is an acute, highly contagious respiratory disease of cattle, which also known as Red-Nose disease. The disease is caused by bovine herpes virus type 1 (BHV-1), which commonly affects the respiratory tract and the reproductive system of the cattle. It can affect all ages of cattle, resulting rapid spread of respiratory disease among cattle in close confinement, particularly in feedlots and when groups of cattle are transported.

### ETIOLOGY

IBR is caused by bovine herpes virus 1 which belongs to the Herpes family of viruses. There are two subtypes of Bovine Herpesvirus type 1. They are BHV-1.1 and BHV-1.2. The viral infection alone is not life-threatening, but predisposing to secondary bacterial pneumonia, may result in death. With regard to pneumonia, two other viruses are commonly involved: bovine respiratory syncytial virus and parainfluenza-3 virus are them.

### PATHOGENESIS

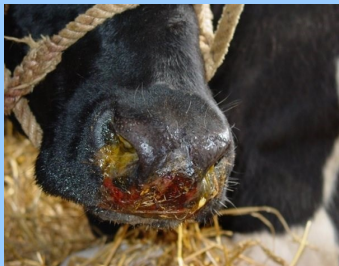
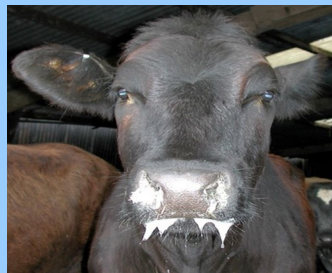
Incubation period for the respiratory and genital forms is 2-6 days. During the primary infection, cattle shed virus in high titers through nasal and ocular fluids for approximately 14 days, which can infect to in-contact animals. After replication in the lining of nose, BHV-1 is transported along nerves and becomes latent in nerve tissue close to where the virus entered, It can remains there throughout the life time of the animal.

Direct transmission can occur through contact with, acutely infected animals. In latently infected animals, reactivation of the virus can happen. Indirect transmission may occur through, contaminated semen, embryo transfer, humans, contaminated materials. Airborne transmission also can happen.

### CLINICAL SIGNS

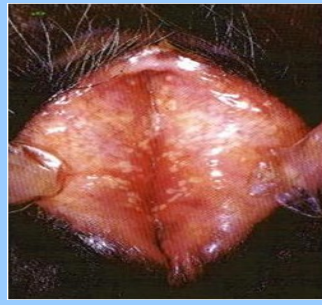
In respiratory form, clinical signs range from mild to severe depending on the presence of secondary bacterial pneumonia. Clinical

signs include high fever, anorexia, coughing, excessive salivation, nasal discharge that progress from serous to mucopurulent, conjunctivitis with lacrimal discharge, inflamed nares (common name is “red nose”) and dyspnea if the larynx become occluded with purulent material. Nasal lesions consist of numerous clusters of grayish necrotic foci on the mucous membrane of the septal mucosae, just visible inside the external nares. Later they may be accompanied by pseudodiphtheritic yellowish plaques. Conjunctivitis with corneal opacity may occur as the only manifestation of BHV-1 infection. In the absence of bacterial pneumonia, recovery generally occurs 4-5 days after the onset of signs. In adult cattle, one of the early signs of the disease is reduction in milk yield.



Abortions may occur concurrently with respiratory disease but may be seen up to 100 days after infection. It can occur regardless of the severity of disease in the dam. Abortions generally occur during the second half of the pregnancy, but early embryonic death also possible.

In genital infections, the first signs are frequent urination, elevation of tail head, and a mild vaginal discharge. Swollen vulva with small papules can be seen initially, then erosions and ulcers may appear on the mucosal surface. If secondary bacterial infection do not occur, animal recovers in 10-14 days. With bacterial infection, there may be inflammation of uterus and transient infertility with purulent vaginal discharge for several weeks. In bulls similar lesions may appear on the penis and prepuce.

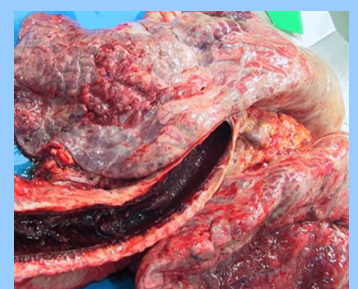


The infection can be severe in young calves and cause a generalized disease. Pyrexia, ocular and nasal discharges, respiratory distress, diarrhea, incoordination, and eventually convulsions and death may occur in a short period after generalized viral infection.

## LESIONS

In uncomplicated IBR infections, most lesions are restricted to the upper respiratory tract and trachea. Petechial to ecchymotic hemorrhages may be found in the mucous membranes of the nasal cavity and the paranasal sinuses. Focal areas of necrosis develop in the nose, pharynx, larynx and trachea. The lesions may coalesce to form plaques.

The sinuses are often filled with a serous or serofibrinous exudates. As the disease progresses, the pharynx become covered with a sero-fibrinous exudate, and blood-tinged fluid may be found in the trachea. The pharyngeal and pulmonary lymph nodes may be swollen and hemorrhagic. The tracheitis may extend into the bronchi and bronchioles, when this occurs, epithelium is sloughed in the airways. The viral lesions are often masked by secondary bacterial infections. In young animals with generalized infection, erosions and ulcers overlaid with debris, may be found in nose, esophagus and forestomachs. In addition, white foci may be found in the liver, kidney, spleen and lymph nodes.



## DIAGNOSIS

Clinical signs of IBR are indicative of BHV-1 infection, but laboratory tests are required for definitive diagnosis. Often respiratory disease in cattle is caused by multiple concurrent viral and bacterial infections.

Laboratory tests are required for a specific viral diagnosis by viral isolation. Samples should be taken in early stage of the disease.

A rise in serum antibody titer also can be used to confirm the diagnosis. It is not possible to detect a rising antibody titer in abortions as a screening method, because infection generally occurs a considerable length of time before the abortion, and titers are already maximal. BHV-1 abortion can be diagnosed by identifying characteristic lesions and demonstrating the virus in fetal tissues by PCR, virus isolation, immunoperoxidase or fluorescent antibody staining. Gross and microscopic lesions can detect shortly after the death, may help to establish a diagnosis.

## TREATMENT

There is no specific anti BHV-1 therapy. The most appropriate treatment is antibiotic therapy which designed to control secondary bacterial infection.

## CONTROL

Control of IBR is based on two important aspects

- Monitoring : This varies depend on the nature and risk status of the herd of animals. Appropriate screening programs need to be implemented.
- Selective culling: Reduction of circulating virus can be achieved with vaccination and progressive culling of those animals that are identified as a potential source of the virus. In the farms with a very low sero-prevalence, culling without vaccination can be an option. In high sero-prevalence farms, it is not economically feasible to test and cull all the sero-positive animals.

## PREVENTION

- Biosecurity: Maintaining biosecurity helps to avoid the introduction of infected animals into the

herd. Implementing strict isolation/quarantine when introductions until proving negative and restrict the access of livestock to external sources of infection are the main important aspects of biosecurity.

- Vaccination: The use of live inactivated vaccines is preferred because of their superior efficacy in clinical protection and more importantly in reduction of the virus circulation in newly infected animals. Both IM and intranasal modified-live vaccines are available, but IM types may cause abortions in pregnant cattle. The timing of the vaccination is depend on the choice of the vaccine. Maximum protection does not generally occur, until approximately three weeks period after vaccination. Calves should not be vaccinated until two to three weeks before weaning, at which time they start to be at risk of infection. Single vaccination will reduce the severity of disease, but not provide complete protection. The use of marker vaccines is preferred since the antibody they stimulate can be distinguished from the BHV-1 antibody that follows a natural infection and so secondary vaccination is required.



*Intranasal vaccination of cattle*

A number of western European countries have eradicated or are attempting to eradicate BHV-1 from their domestic cattle populations. Eradication of the virus is possibly by a combination of serological surveillance, culling of reactors, biosecurity and vaccination. To aid in eradication, deletion mutant vaccines have been developed that permit the discrimination between antibody produced in response to the vaccine and antibody produces in response to natural exposure.

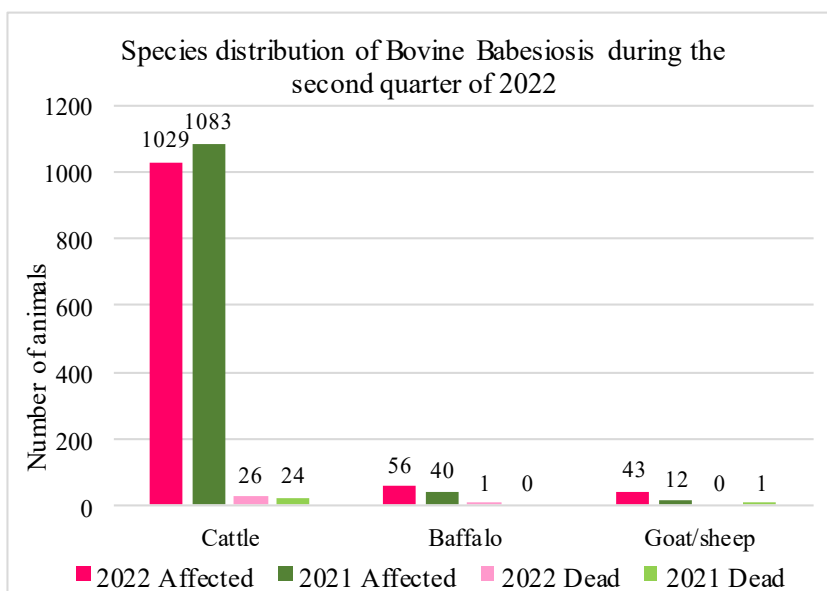
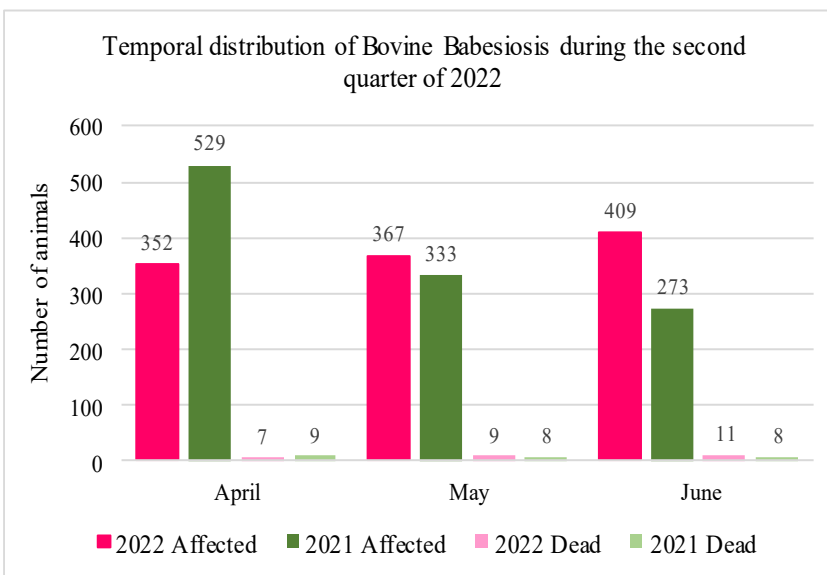
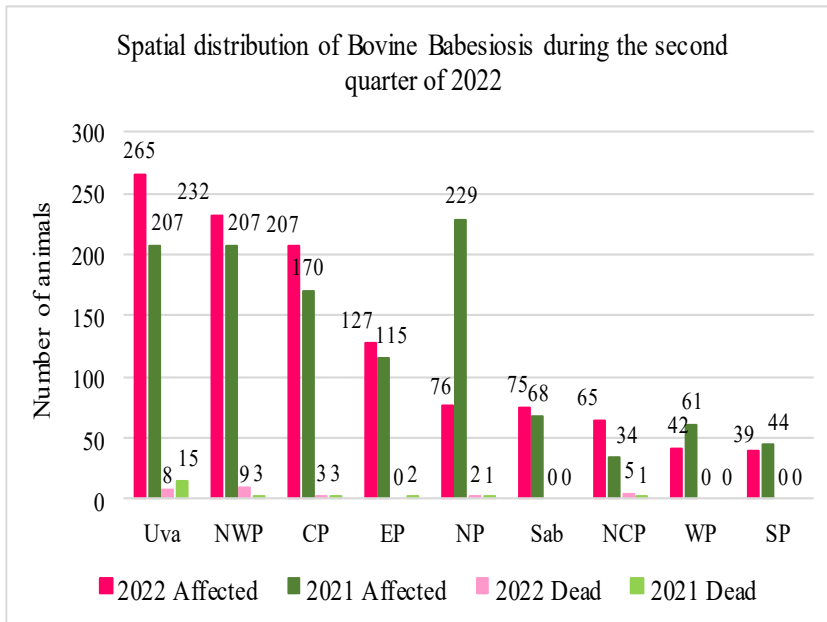
Compiled by: Dr. D. R. K. Perera.

Reference: <https://www.merckvetmanual.com>, <https://www.zoetisus.com>, <https://www.thecattlesite.com>

## 2. Status of Livestock Diseases Second Quarter (April - June) - 2022

### 2.1 Bovine Diseases

#### 2.1.1 Babesiosis :



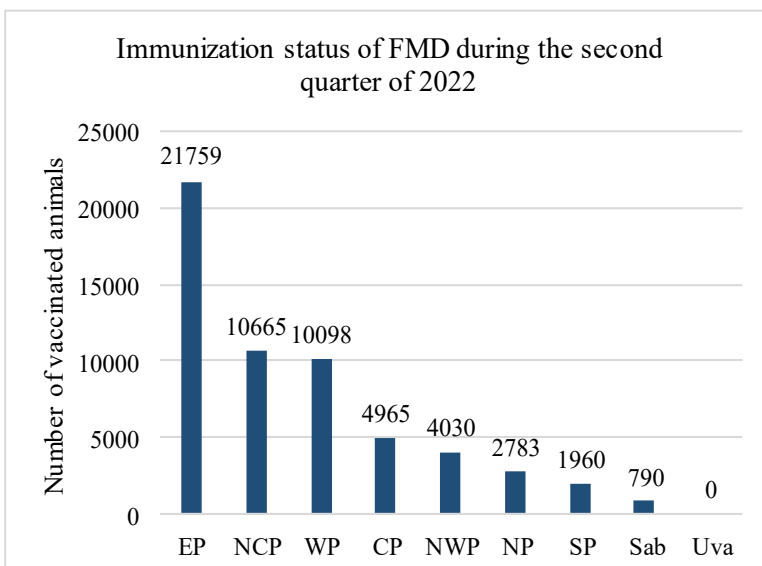
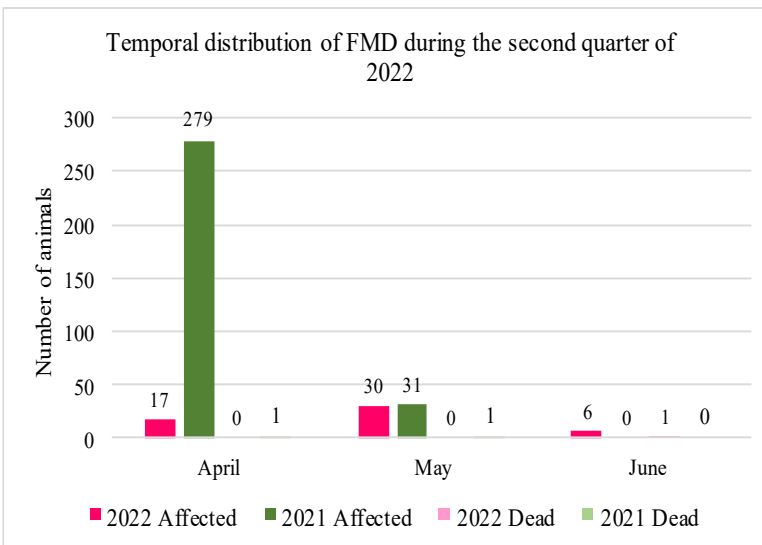
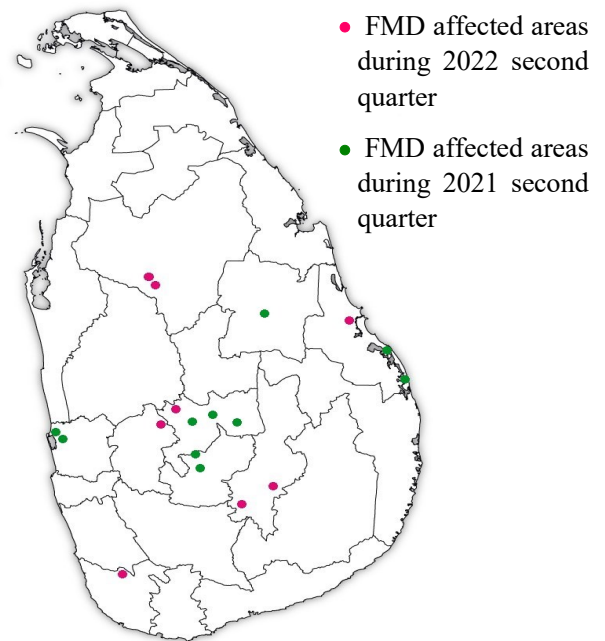
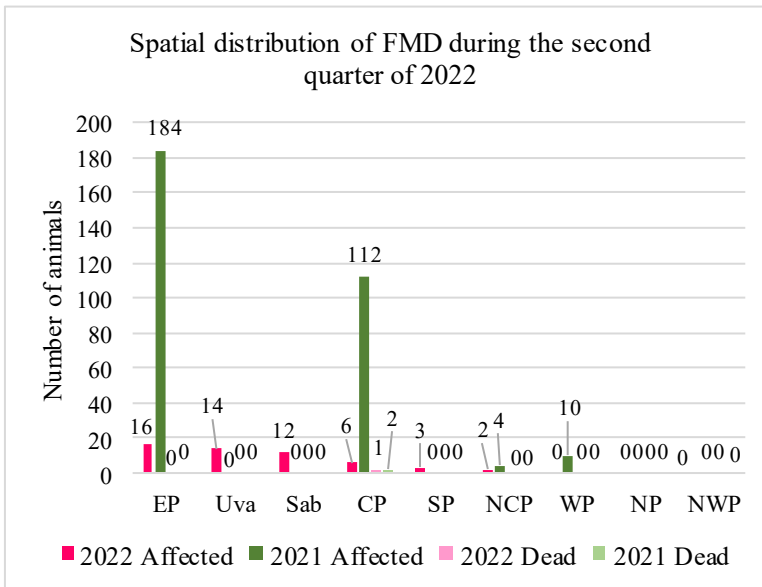
Bovine Babesiosis is one of the major hemoprotozoa animal disease in Sri Lanka which usually reports from almost all the provinces of the country.

During the second quarter of 2022, totally 1128 Babesiosis cases with 27 deaths were reported. There is a slight reduction (0.61%) of total cases in this quarter, as it was reported 1135 cases with 25 deaths in 2021 second quarter. Spatial distribution pattern of the disease during the particular quarter does not show significant difference from the previous year except the Northern Province. 66.81% decrease in number of cases can be observed in Northern Province, which means over three times reduction of disease incidence. Least number of cases were reported from Southern and Western provinces as 39 and 42 cases respectively without any deaths.

Temporal distributions of the disease show converse disease trends as indicated in the graph. In 2021 it was gradually decreased, though it was gradually increased in 2022 second quarter. During the April month, disease incidence was decreased by 33% while it was increased by 49.8% in June month when comparing the second quarters of both years.

Species wise distribution of Babesiosis shows highest disease incidence in cattle in both years, which is over 91% of total reported cases in second quarter. Though the disease affects both buffaloes and goat/sheep as well, the causative organisms are common to all three species as *Babesia bovis* and *Babesia bigemina*.

## 2.1.2 Foot and Mouth Disease:



Foot and Mouth disease is one of the major endemic disease in Sri Lanka which affects cloven hoofed ruminants.

During the second quarter of 2022, totally 53 cases with 1 death were reported from six provinces of the country. This is a significant decrease of reported cases by 82.9%, as 310 cases with 2 deaths were reported during the second quarter of 2021. Majority of the cases (16 cases) were reported from Eastern province, though it has been decreased by 91.3% when comparing to the same period of previous year. Least amount of cases were reported from North Central Province while Western, Northern and North Western provinces were not reported any case of FMD.

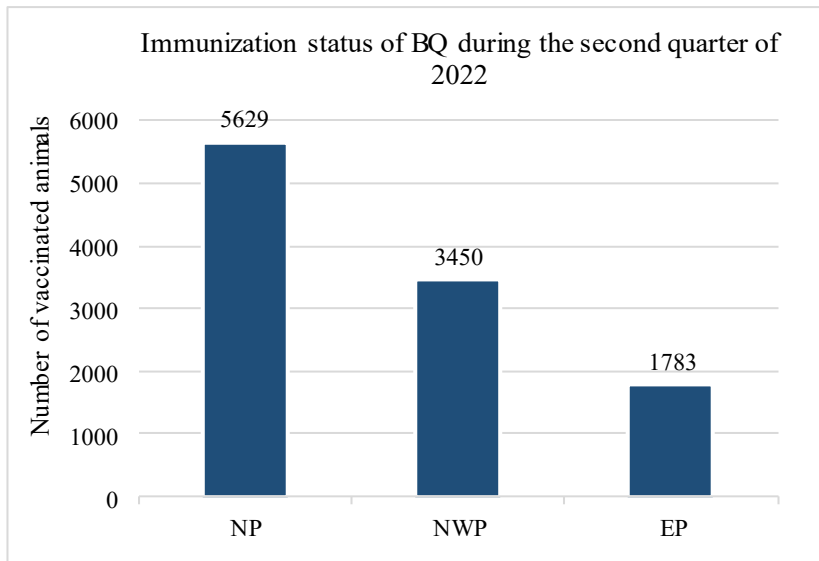
Temporal distribution pattern shows significant reduction of cases in April month by 80% when comparing the both years. During the second quarter of 2022, maximum number of FMD cases were reported in May month as 30 cases which is 56.6% of total number of cases.

FMD vaccination program is mainly focused on the provinces where have higher risk of FMD outbreaks. These high risk areas were identified based on the epidemiological data of the disease during past few years. According to that, higher number of vaccines were distributed to the Eastern province (38.14%) and North central province (18.6%) as most of the FMD hot spots are located in these provinces. Further, considerable amount of vaccines were distributed to Western province (17.7%) as most of livestock trading hubs are located in this province of the country.

### 2.1.3 Black Quarter:

Black Quarter disease is a controlled endemic disease in Sri Lanka. According to its distribution pattern throughout past few years, the disease has been concentrated to Northern, North western, Eastern and North central provinces of the country.

During the second quarter of 2022, disease incidents were not reported from any province of the country, which is same situation as the previous year second quarter. As Northern, North Western and Eastern provinces are considered as more susceptible provinces to the disease, prophylactic vaccination program was conducted targeting them

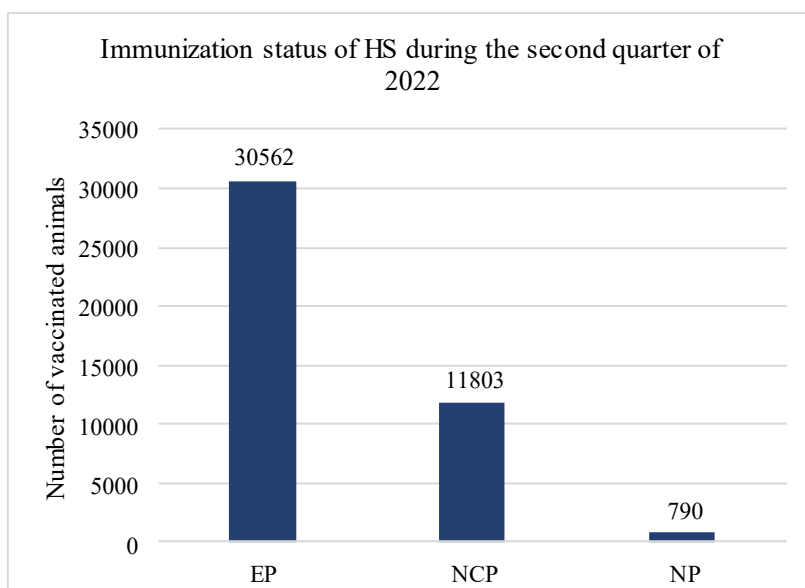


like indicated in the graph. According to that, 51.8% vaccines were used for the animals in Northern province.

### 2.1.4 Hemorrhagic Septicemia:

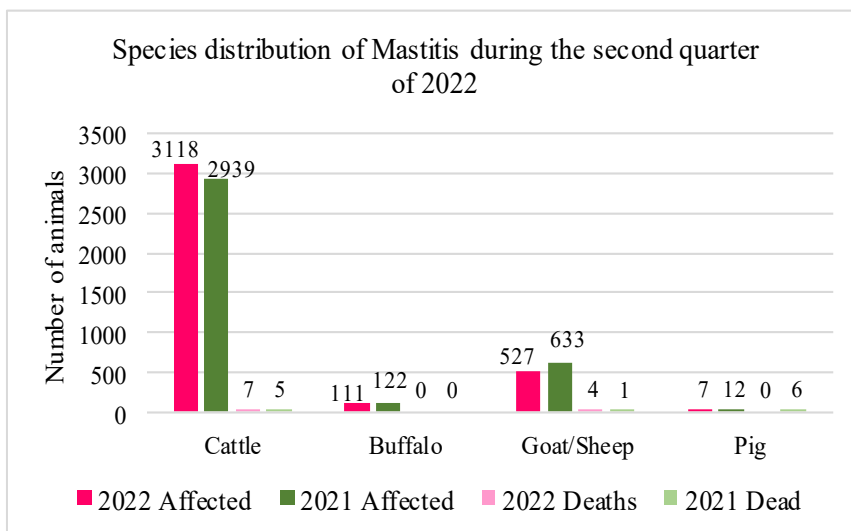
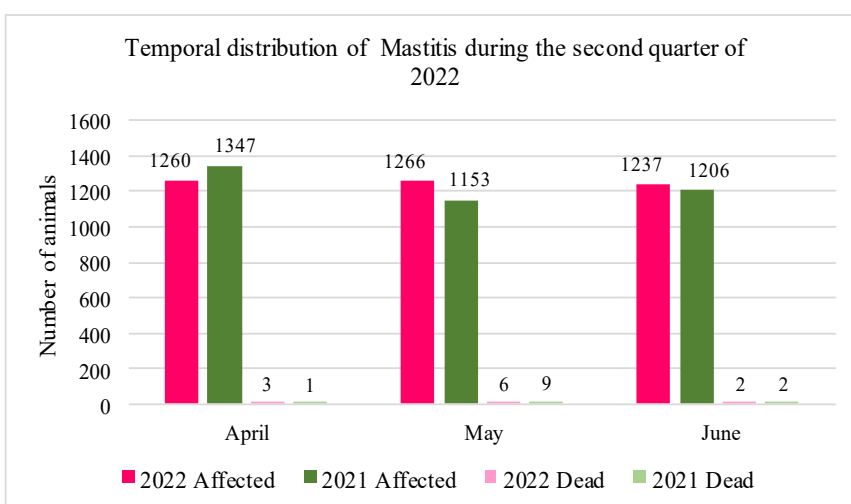
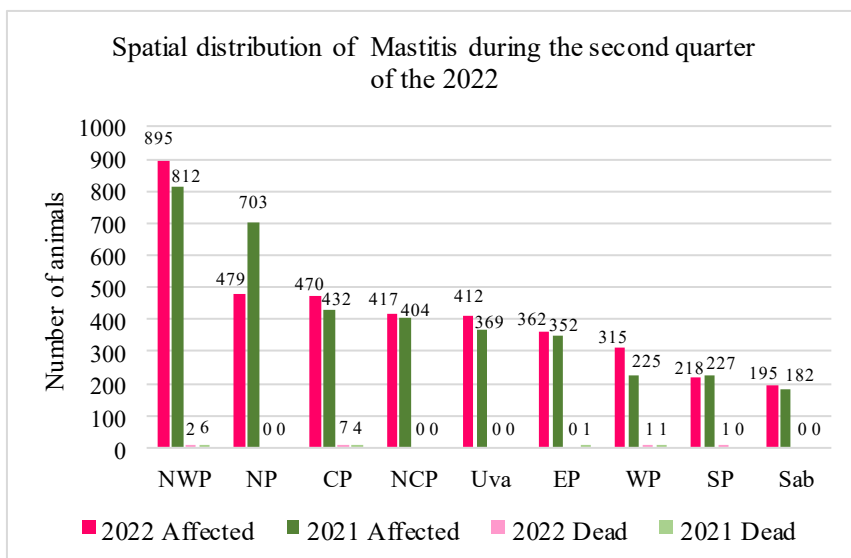
During the second quarter of the 2022, there were no outbreaks of Hemorrhagic septicemia reported in the country. The disease situation is significantly different from previous year as there was an outbreak of the disease in the particular quarter. (34 confirmed HS cases with 27 deaths were reported from Polonnaruwa and Lankapura veterinary divisions of North Central province during May & June months of 2021).

Under the vaccination program conducted by Department of Animal production and Health, mainly three provinces were immunized against the Hemorrhagic Septicemia as they were identified as high risk areas for disease due to interconnected nomadic animals movement pathways along these three provinces.



Immunization details of the Eastern, North Central and Northern provinces through prophylactic vaccination is indicated in the graph. According to that, over 70% of vaccines were used to used in Eastern province.

## 2.1.5 Mastitis:



Mastitis is one of the highly concerning disease condition in dairy industry of the world as it has a huge potential to affect the milk production of dairy animals. In Sri Lanka, generally mastitis reports from all provinces of country throughout the whole year.

During the second quarter of 2022, totally 3763 number of Mastitis cases were reported from whole country, and it is 1.53% increase of the total number of cases when comparing to the same period of previous year. As majority, 895 cases were reported from North western province (23.78%). Significant difference in number of cases during the two quarters, can be seen in Northern province as 31.86% reduction of cases in second quarter of 2022. Lowest number of cases were reported from Sabaragamuwa province as 195 cases without any death.

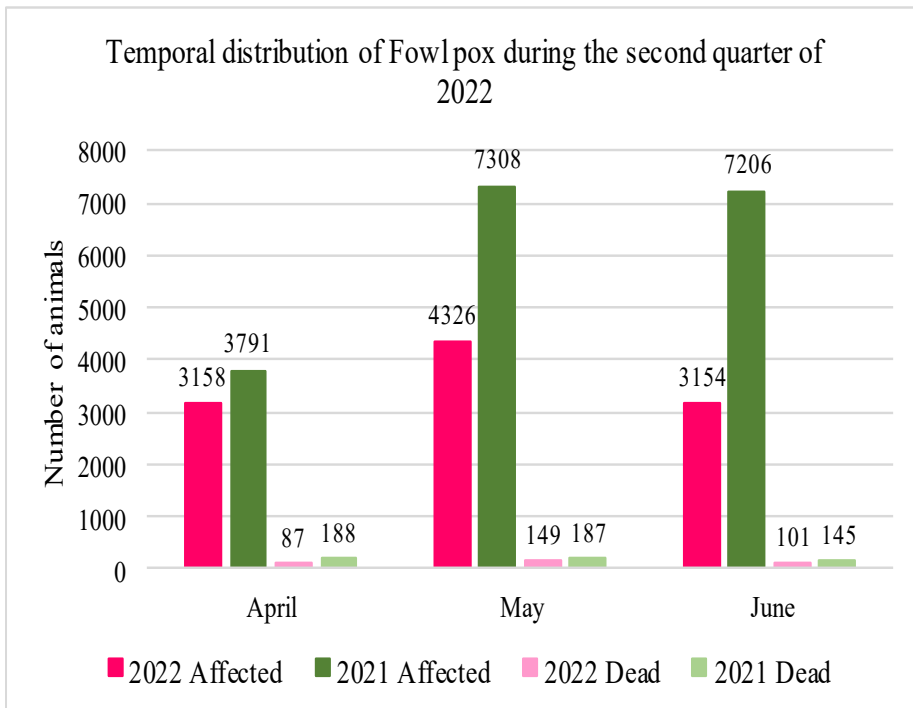
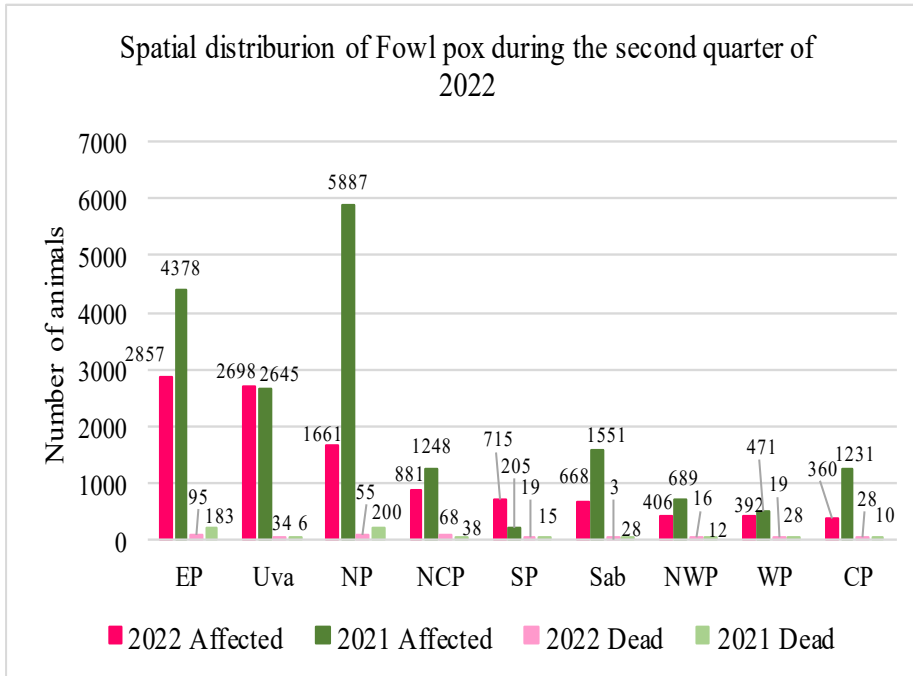
The number of cases during the each month of both years have not been changed significantly throughout the quarter. It reveals the average number of cases per month is 1254 and 1235 during the second quarter of 2022 and 2021 respectively.

In order to control the Mastitis in the country, DAPH has implemented a Mastitis Control Program with the collaboration of Veterinary Investigation Officers. Through this program, field mastitis identification tests, microbial isolation and antibiotic susceptibility tests, issuing of teat dip solution as precautionary measures as well as distribution of udder infusions as treatments for Mastitis, are the services provided to farmers to control and prevent the disease. Contribution of this program towards mastitis control during the second quarter of 2022 is indicated in the table.

Mastitis Control Program	
Amount of CMT reagent issued (Liter)	26.5
Performed Mastitis screening Tests (CMT)	1245
Tested milk samples for ABST	95
Amount of teat dip solution issued (Liter)	464
Amount of Udder infusion vials freely issued	
Lactating Cow	1653
Dry Cow	125

## 2.2 Poultry Diseases

### 2.2.1 Fowl pox:



Fowl pox is a contagious viral infection of chickens and turkeys which have cause morbidity and low mortality. Although this disease is reported from most of the provinces of Sri Lanka, it has been become more common in dry zone of the country, where have higher number of small and medium scale backyard poultry farms.

Spatial distribution of Fowl pox during the second quarter of 2022 shows significant deviation from previous year distribution pattern. Totally, 10638 cases with 337 deaths were reported from whole country which is 41.88% reduction of the diseased cases when comparing to the same quarter of previous year. Northern province where reported highest number of cases in 2021 second quarter, shows remarkable difference in disease incidence during the same quarter of this year. It is 71.78% reduction. Further highest number of cases in this quarter was reported from Eastern province as 2857 cases with 95 deaths (26.85% of total reported cases) while Central

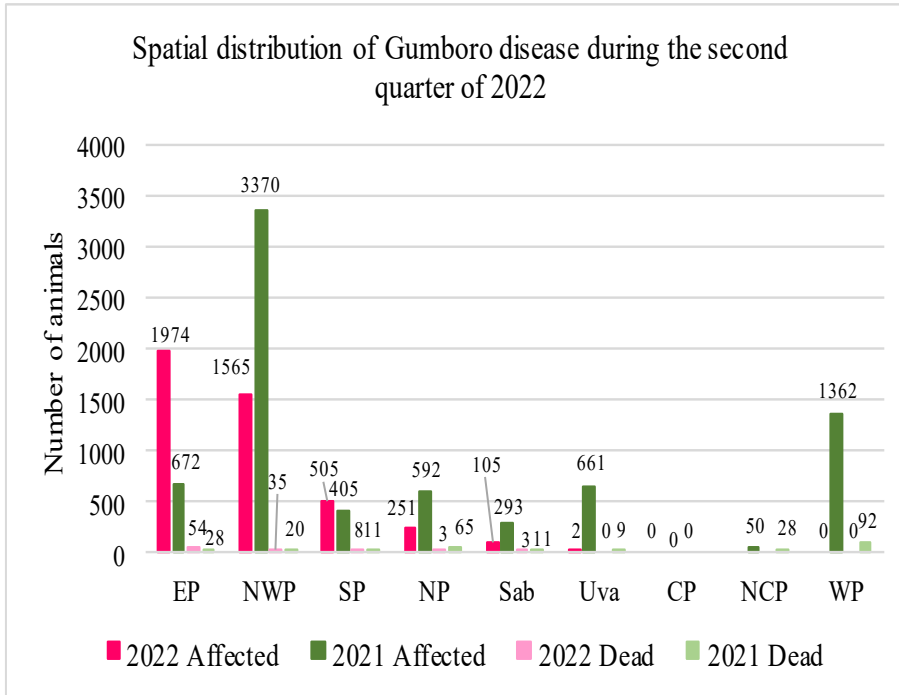
province was reporting the least number of cases as 360 cases (3.38% of total reported cases) with 28 deaths.

Though the Temporal distribution pattern of both quarters show similar trends throughout the period, the quantitative values of them reveal significant difference from each month. As reported by, highest number of cases were reported in May month of both years as 40% and 39% respectively. During 2022 second quarter, least number of cases were reported in June month as 29.64% from total cases, while it was 20.71% in April month of 2021 second quarter.

Fowl pox is a vaccine preventable disease. It is a live vaccine with double doses which need to vaccinate the birds by 6 weeks and 12 weeks of age. As a preventive and control measure, vaccination of poultry flocks with fowl pox vaccine is widely used in Sri Lanka to minimize the production loss caused by the high morbidity of the disease.

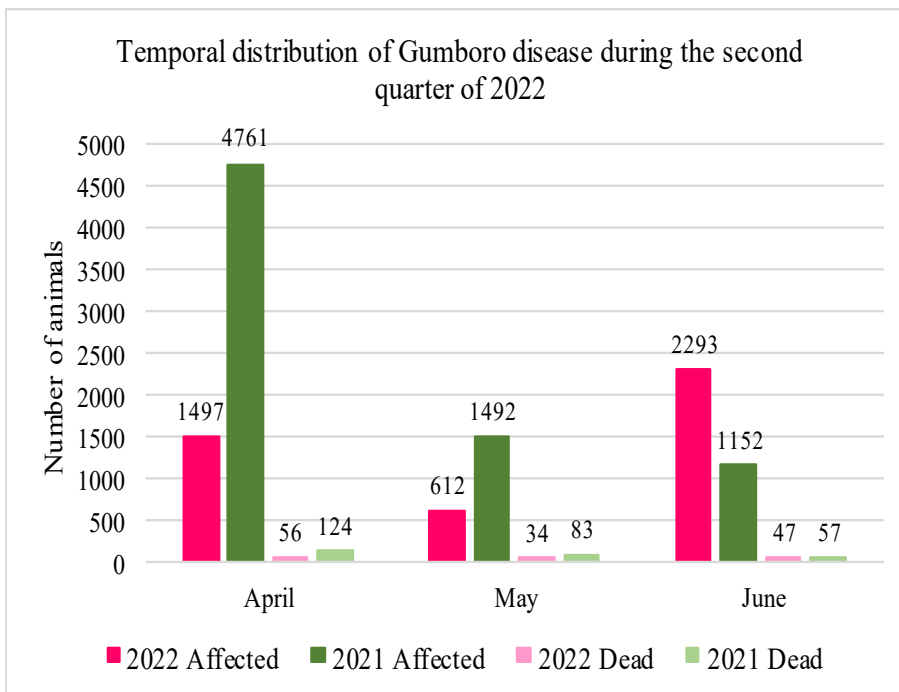


## 2.2.2 Gumboro Disease:



Gumboro disease which is also known as Infectious Bursal Disease (IBD) is a highly contagious viral disease. Though it is not a very common disease in Sri Lanka, it is reported frequently in areas where have high poultry population.

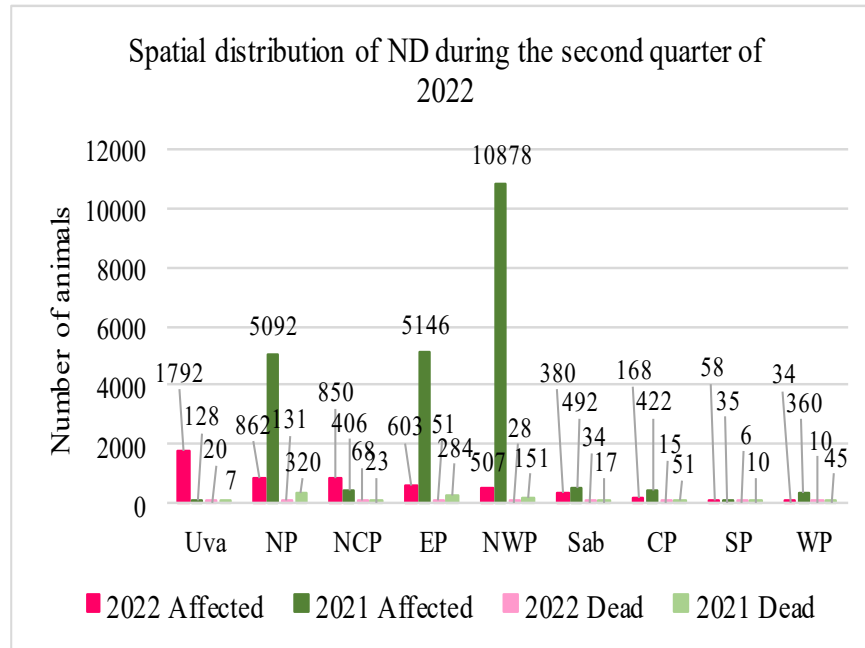
During the second quarter of 2022, totally 4402 Gumboro cases with 137 deaths were reported from whole country. It is a remarkable decrease of the disease incidence (by 40.5%) when comparing to the second quarter of previous year. Highest number of cases were reported from Eastern province as 1974 cases (44.84% of total cases) with 54 deaths. Though Eastern and Southern provinces reported higher disease incidence than 2021 second quarter, huge reduction of disease incidence in North western province (by 53.5%) and Western province were led to reduction of total number of cases in current year. Central province, North central province and Western provinces did not reported any case of Gumboro during the considering time period of the year 2022.



According to the Temporal distribution, highest number of cases were reported in June month, during the second quarter of 2022 as 2293 cases with 47 deaths as 52% from total incidence. But in 2021 second quarter, highest disease incidence was reported in April month as 4761 cases with 124 deaths due to huge Gumboro disease outbreak in North western province. So it created 68.55% reduction of reported cases in April month of this year. Highest affected: death ratios were reported in May month of both 2021 and 2022. But lowest incidence also reported during the May month of 2022, as 612 cases which represent 13.9% from total cases which reported during the considering quarter of 2022.

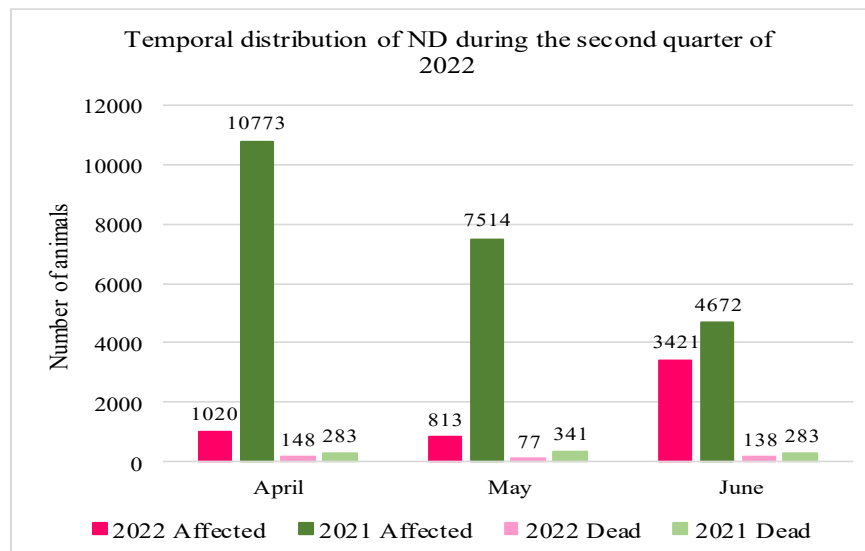
As this is a contagious avian disease with high morbidity and mortality levels as well as high possibility to infect young birds in 3-6 weeks age, most of the commercial level farms use live Gumboro vaccine as the major preventive measure of the disease. Proper immunization with two vaccine doses apart from 1-2 weeks period, provides the protection for 100 days of life. As this viral infection typically affects the birds less than 17 weeks of age, vaccination of older birds against Gumboro is not practiced usually.

### 2.2.3 Newcastle Disease:

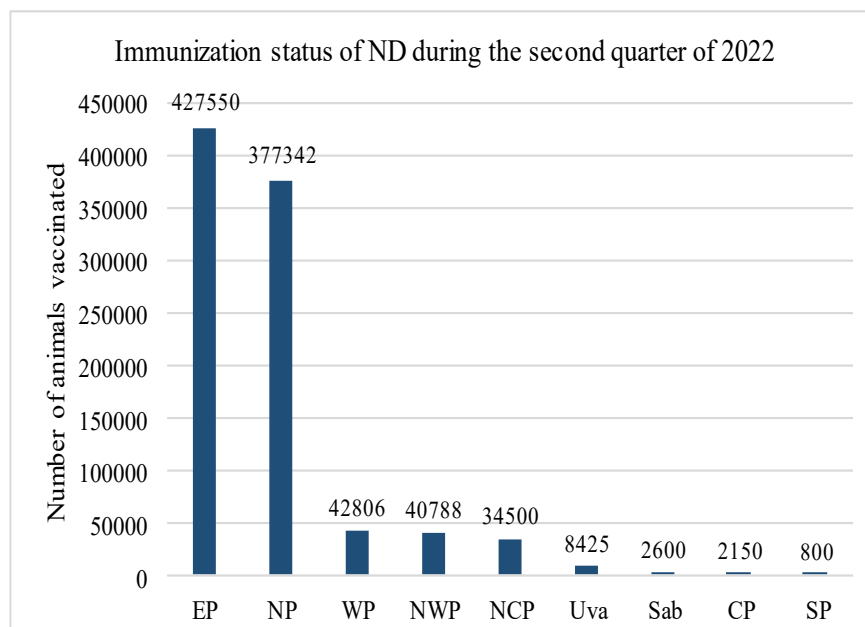


Newcastle disease is one of the highly concerning avian disease in Sri Lanka as it may create huge impact on poultry industry of the country.

During the second quarter of 2022 total diseased cases were reported as 5254 with 363 deaths. It is 77.11% decrease of total cases when comparing the same quarter of the 2021. Majority of the cases were reported from Uva province as 1792 cases, which is 34.1% from total number of reported cases during the quarter. According to the disease data, highest difference in number of cases was reported from North western province as 95.3% reduction of the incidence than the second quarter of 2021. Though all provinces reported ND cases during this quarter, Western and Sabaragamuwa provinces reported comparatively very low number of cases as same as corresponding quarter of the previous year.



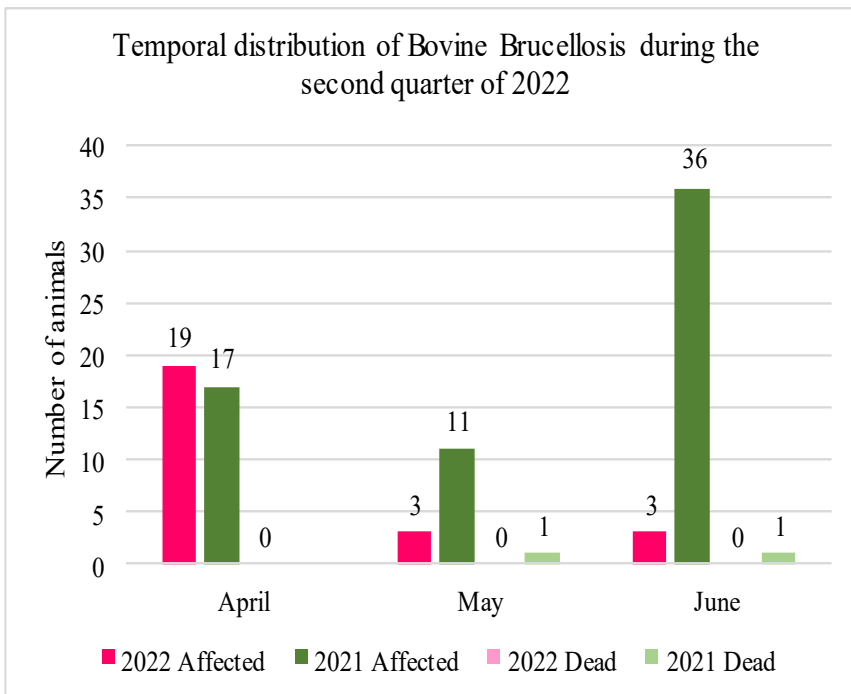
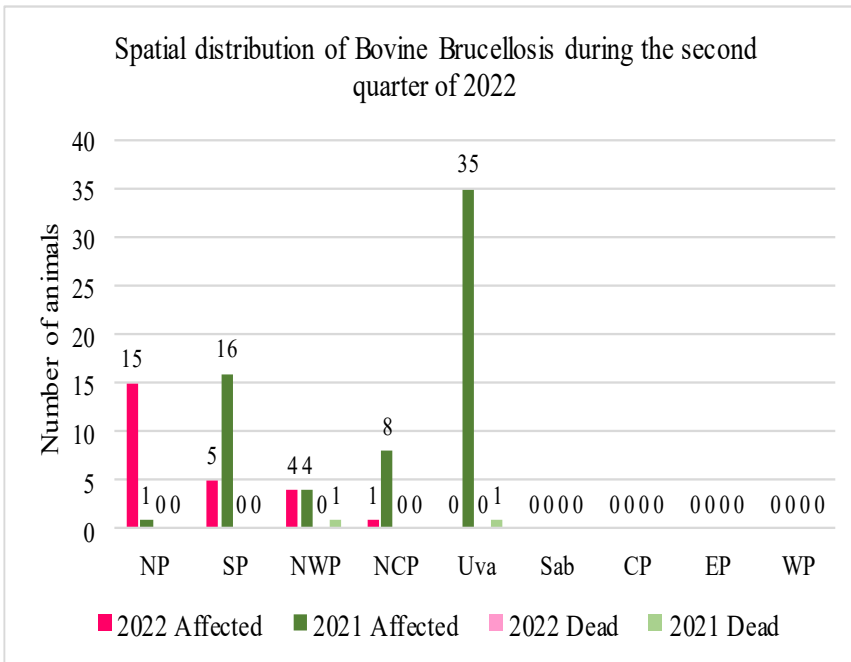
Temporal distribution of the ND shows the highest disease incidence in June month, which is 3421 cases with 138 deaths as 65.11% from total reported cases during the period. The disease distribution pattern throughout the period of 2022 has been significantly deviated from the previous year distribution pattern.



Preventive vaccination program for the disease is carried out by DAPH with the cooperation of range veterinary surgeons. Under this program, VRI prepare alive oral ND vaccine and it is freely distributed among poultry farmers of the country through Veterinary Surgeons' Offices. As per the immunization data, cumulatively 936961 number of birds were vaccinated against ND under this program, during the second quarter of 2022.

### 3. Status of Zoonotic Diseases Second Quarter (April - June) - 2022

#### 3.1 Bovine Brucellosis :



During the second quarter of 2022, Bovine brucellosis has been reported only from four provinces of the country. Total number of reported cases during the current quarter is 25 cases without any deaths, which is 60% reduction in total number of cases than the same quarter of previous year. Highest number of cases were reported from Northern province as 15 cases, but Uva, Sabaragamuwa, Central, Eastern and Western provinces did not report any case of Bovine Brucellosis. Disease incidence of the Uva province has been shown remarkable decline when comparing to the same quarter of the previous year.

Temporal distribution of the disease during the both quarters show significant difference in distribution pattern. In 2022, majority of cases (19 cases; 76%) were reported during April month. But the highest incidence during the 2021 second quarter, was reported in June month as 36 cases (56%) with one death.

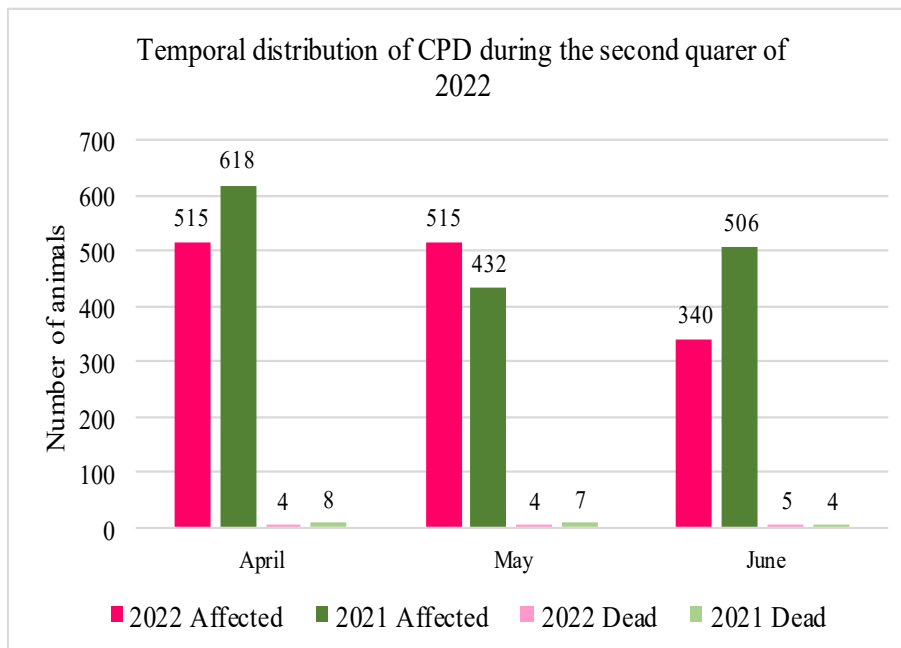
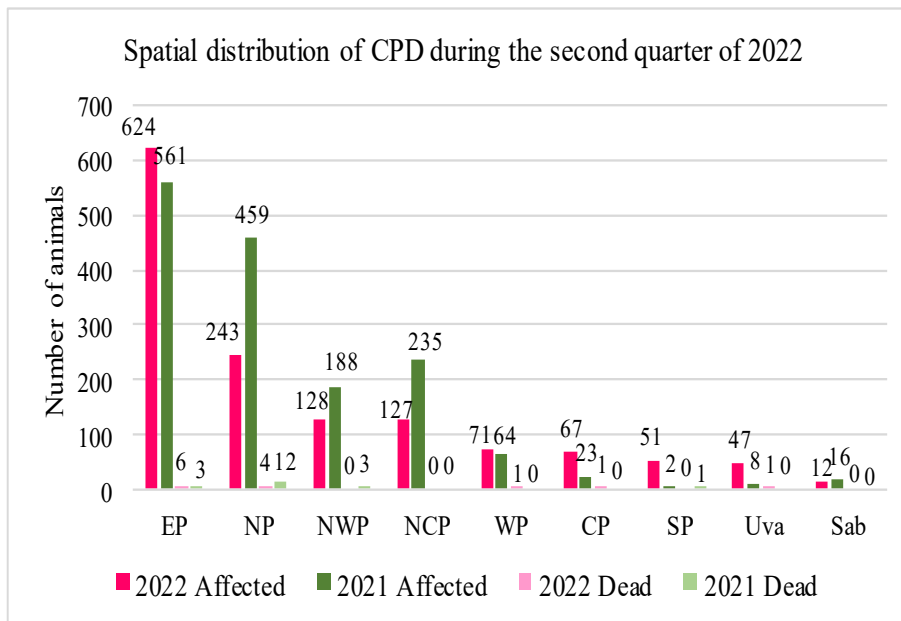
According to the data collected from Bovine Brucellosis Control Program and Surveillance program, during the second quarter of 2022, totally 1321 number of susceptible animals were vaccinated with S19 vaccine against the disease. Further, 753 number of farms were screened through VICs and 132 animals were in those infected farms were subjected to RBPT. In VRI, totally 48 samples were tested for RBPT and 24 (50%) of them were positive. Out of them 6 (12.5%) of samples were got positive for CFT with confirming the presence of Bovine brucellosis in those samples.

Bovine Brucellosis Control Program	
Number of dairy herds screened by VIOs with MRT	753
No. of animals screened by VIOs in suspected herds with RBPT	132
Number of samples submitted by VIOs to VRI for CFT	44
Number of animals vaccinated with S19 vaccine	1321
Total number of samples subjected to RBPT (by VRI)	48
Number of RBPT positive samples	24
Number of CFT positive samples	6

### 3.2 Contagious Pustular Dermatitis:

Contagious Pustular Dermatitis is a zoonotic animal disease which affects small ruminants. Usually, it is reported from all nine provinces of the country during the all four quarters of the year.

The total number of cases reported during the second quarter of 2022 is 1370 and 13 deaths. It is 11.9% reduction in reported cases when comparing to the same period of the previous year. Usually highest number of cases of CPD are reported from Eastern province, it was 45.5% during the considering quarter of 2022. However during the particular period, number of reported cases were increased in Eastern, Western, Central, Southern and Uva provinces while number of cases were decreased in Northern, North Western, North Central and Sbaragamuwa provinces when comparing to the same quarter of the previous year. Lowest number of cases were reported from Sbaragamuwa province during the both

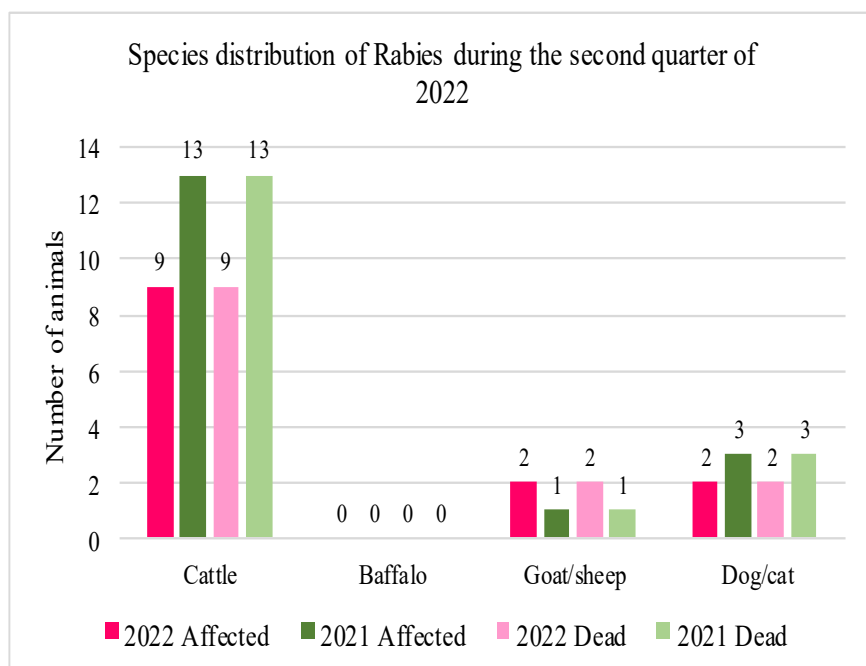
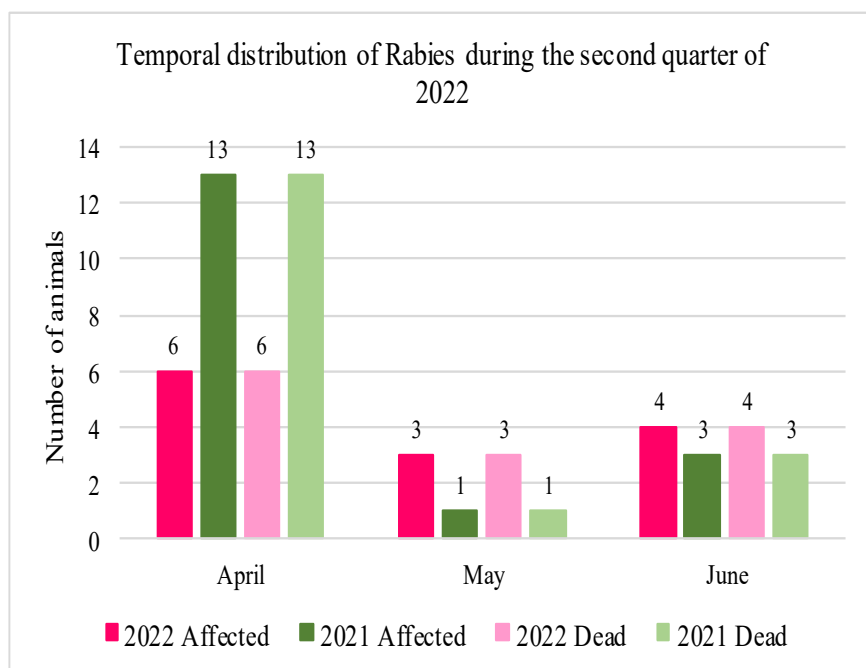
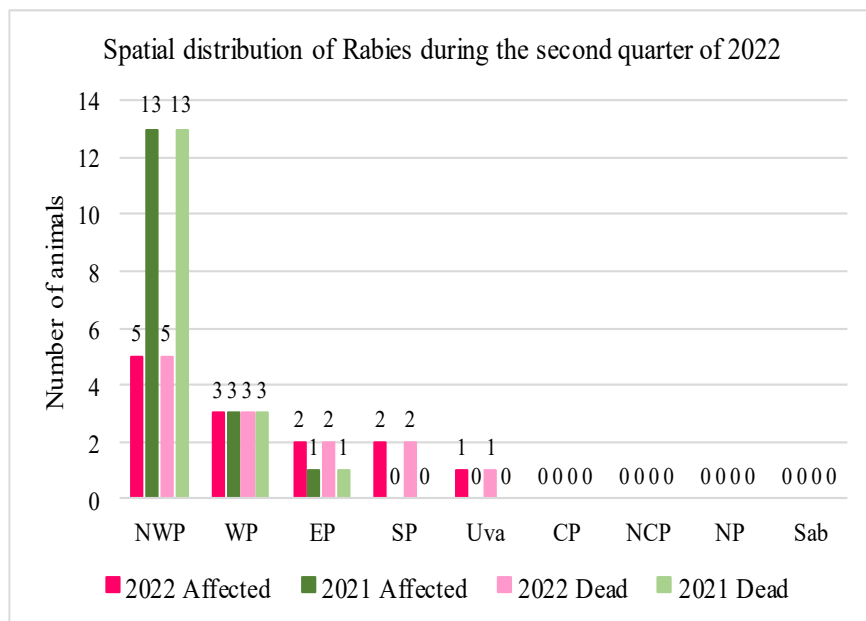


quarters of 2022 and 2021 as 12 and 16 cases respectively in 2022 and 2021. Greatest difference of the disease incidence can be seen from Northern province, as 47% of reduction than 2021 second quarter.

Temporal distribution of the second quarter of 2022 and 2021, show different patterns during the same quarter of 2021 and 2022. In 2022 second quarter, the number of cases were gradually decreased although the similar number of cases were reported during the first two months as highest as 515 cases with 4 deaths. But in 2021 second quarter, highest number of cases were reported in April month as 618 cases which is 39.7% of total cases. The average number of cases per month during the quarters is higher in 2021 than 2022, as they are 519 and 456 cases per month respectively.

As the main control measure of Contagious Pustular Dermatitis in goat and sheep farms, auto-vaccines are produced by Veterinary Investigation Officers in each district Veterinary Investigation Center to immunize the disease incidence in susceptible animals. According to the reported data, totally 19 goat farms were vaccinated by Veterinary Investigation Officers during the second quarter period of 2022 and 12 of them were located in North Western province.

### 3.3 Rabies:



Rabies is a multi-species affecting fatal disease, but preventable by proper vaccination. It can cause encephalitis in humans and other mammalian species and consider as a dead-end disease in them. Though it is present in Sri Lanka, it is not reported very frequently throughout the past few years.

During the second quarter of 2022, totally 13 cases were reported. It is a considerable reduction of cases than the same quarter of previous year. As a result of significant reduction of cases in North western province (8 cases: by 61.54%), total reported cases during the considering period has been reduced by 23.5%. Although the disease incidence has been decreased in NWP of the country, Eastern, Southern and Uva provinces reported higher rabies incidences when comparing to the same quarter of previous year. Central, North Central, Northern and Sabaragamuwa province not reported any cases in second quarters of both years.

Temporal distribution of the disease during the quarters show similar distribution pattern as previous year. But significant difference in disease incidence can be seen in each month of the both years. During the second quarter of both years highest number of cases were reported in April month as 6 and 13 cases in 2022 and 2021 respectively.

When considering the species wise distribution of the disease, around 70% of them were cattle rabid cases (9 cases). Goat/Sheep and Dog/Cat cases were reported as 2 from each group during the second quarter of 2022. But buffalo rabies cases were not reported in both quarters.

### 3.4 Highly Pathogenic Avian Influenza:

#### 3.4.1 National HPAI Surveillance Program:

1. No. of serum samples collected from Commercial Poultry Farms	525
2. No. of dropping samples collected from Hotspots of Migratory Birds	300
3. No. of cloacal swabs collected from Backyard Poultry Farms	1230
4. No. of samples collected from Live Bird Markets	285
5. No. of Cloacal swabs collected from Pet Birds Establishments	40
6. No. of Samples collected from Poultry Processing Establishments	490
7. No. of serum samples collected from Duck farms	28
8. No. of cloacal swabs collected from Ducks	115

Se. No	District VIC	Serum samples from commercial poultry and ducks		Fresh droppings, cage swabs and cloacal swabs of migratory birds & Backyard poultry	
		No. tested	Results	No. tested	Results
1	Ampara	68	Negative	150	Negative
2	Anuradhapura	285	Negative	30	Negative
3	Badulla	–	Negative	–	Negative
4	Batticaloa	15	Negative	45	Negative
5	Chilaw	–	Negative	105	Negative
6	Colombo	0	Negative	120	Negative
7	Dambulla	–	Negative	–	Negative
8	Galle	–	Negative	–	Negative
9	Gampaha	45	Negative	490	Negative
10	Hambanthota	–	Negative	–	Negative
11	Jaffna	120	Negative	0	Negative
12	Kandy	90	Negative	0	Negative
13	Kalutara	40	Negative	0	Negative
14	Kegalle	60	Negative	50	Negative
15	Kilinochchi	0	Negative	90	Negative
16	Kurunagala	371	Negative	120	Negative
17	Matara	–	Negative	–	Negative
18	Moneragala	–	Negative	–	Negative
19	Mullathivu	0	Negative	20	Negative
20	Polonnaruwa	–	Negative	–	Negative
21	Rathnapura	30	Negative	150	Negative
22	Trincomalee	45	Negative	330	Negative
23	Vavuniya	13	Negative	110	Negative
25	Pannala	–	Negative	–	Negative
26	AQC Maththala	–	Negative	170	Negative
27	AQC Katunayaka	30	Negative	201	Negative
	<b>Total</b>	<b>1212</b>	<b>–</b>	<b>2181</b>	<b>–</b>

In order to monitor the Highly Pathogenic Avian Influenza situation of Sri Lanka, Active surveillance program conduct by DAPH in order to detect the disease early as possible. This program consists with sero-surveillance in commercial poultry and epidemiological surveillance (fresh droppings and cloacal swabs) in migratory birds, pet birds, from live bird market and backyard poultry.

Sample collection is carried out by Veterinary Investigation Officers, based on the bird population of their respective areas. During the second quarter of 2022, 525 serum samples from commercial poultry and 28 from duck were collected. The number of fresh droppings and cloacal swabs collected from hotspots, backyard poultry farms, pet bird establishments, duck farms and live bird markets were 1970. The number of samples collected from Poultry processing establishment were 490.

The collected samples are tested in VRI. As reported by, 2181 number of swab samples and fresh droppings as well as 1212 number of serum samples were tested during this quarter in VRI. None of them were got positive for HPAI virus as same as the second quarter of the previous year.

Hence, upto the end of the second quarter of 2022, Sri Lanka is remaining as a disease free country for Highly Pathogenic Avian Influenza.

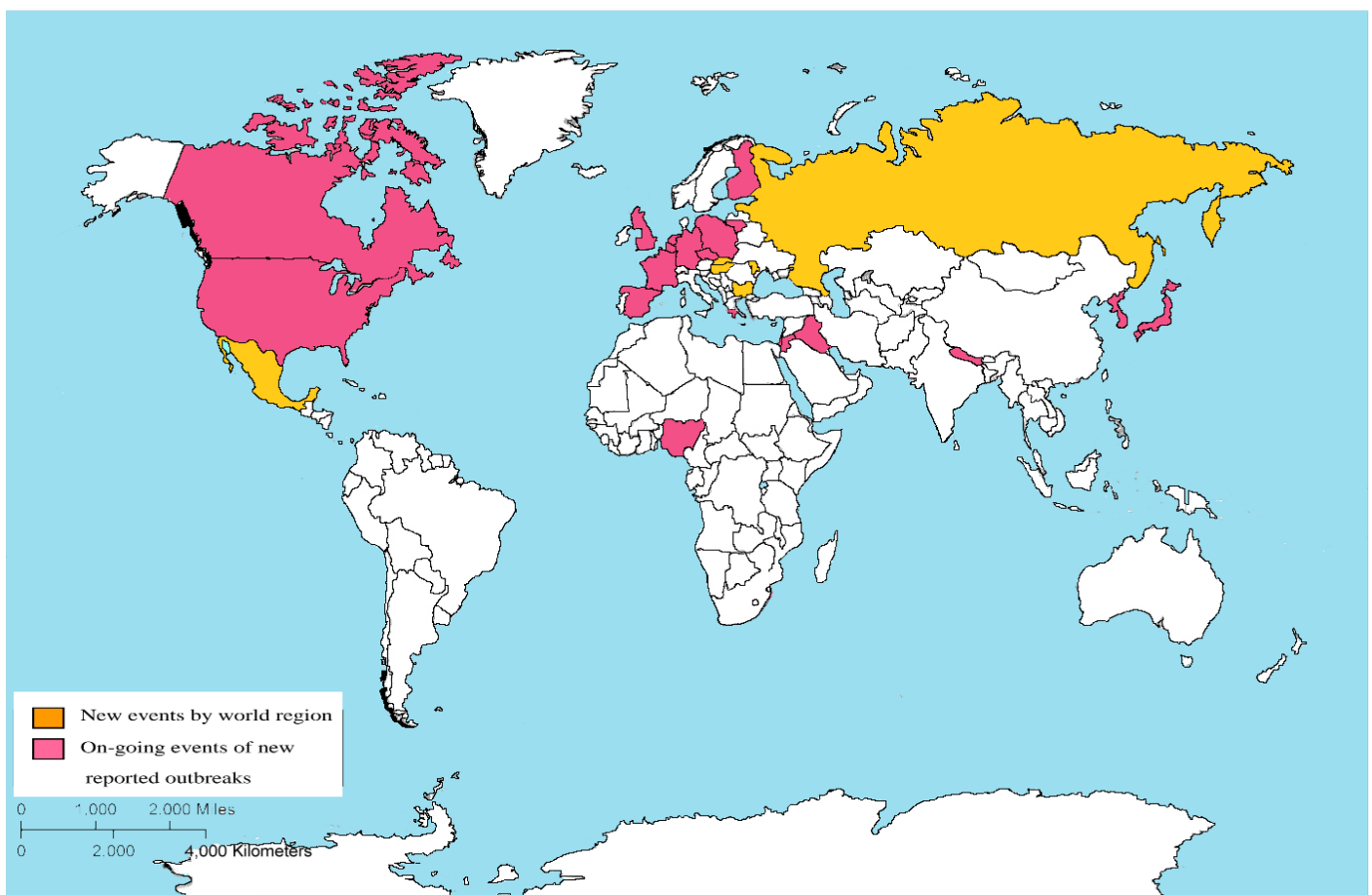
### 3.4.2 Global Distribution of Notifiable Avian Influenza:

During the second quarter of 2022, initial occurrences or reported occurrence of the disease by a new strain of HPAI were not reported from any country, zone or compartment of the world. But on-going events of previously reported outbreaks were reported to World Organization of Animal Health through follow up reports from Nigeria, Canada, United States of America, Japan, Korea, Germany, Netherland, Poland, United Kingdom, Belgium, Czech Republic, Greece, Lithuania, Nepal, France, Israel, Spain, Finland and Iraq. All those events were identified as outbreaks of H5N1 subtype.

New events or recurrence of an eradicated disease were also reported from several countries of the world. According to them, H5N1 outbreaks were reported from Hungary, Bulgaria, Russia and Slovakia. H7N3 outbreak was reported from Mexico. An unknown subtype of the disease was reported from Moldova.

In the second quarter of 2022, HPAI outbreaks were reported in both Poultry and Non-poultry sectors throughout the world. According to the HPAI Situation reports from April to June, 293 outbreaks were reported in poultry sector and 137 outbreaks were reported in non-poultry sector in different countries.

### 3.4.3 Global Situation of Notifiable Avian Influenza outbreaks:



**Compiled by:** Janani Kularathna, Livestock Development Officer.

**Editor:**

Dr. D.R.K.Perera  
Veterinary Surgeon -Animal Health  
Dept. of Animal Production and Health,  
P.Box 13,Getambe, Peradeniya  
e-mail :roshaniperera1919@gmail.com

**Guided By:**

Dr. G.G.I.A. Jayawickrama  
Chief Epidemiologist-Animal Health  
Dept. of Animal Production and Health,  
P.Box 13,Getambe, Peradeniya  
e-mail :jayawickrama64@yahoo.com  
TP : 0812388462

**Advised by:**

Dr. L.W.B. Epakanda  
Director-Animal Health  
Dept. of Animal Production and Health,  
P.Box 13,Getambe, Peradeniya  
e-mail:lakshith63@Yahoo.com  
TP:0812384551