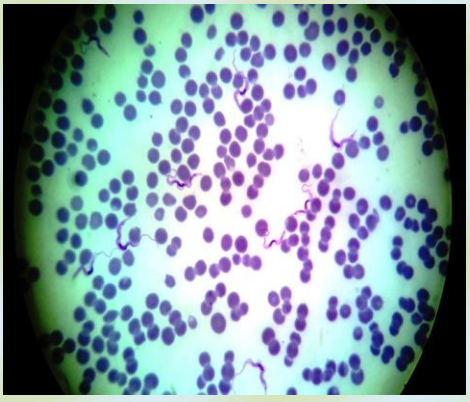
ANIMAL DISEASE SURVEILLANCE

WEST BENGAL



ANNUAL REPORT

2022-2023


EPIDEMIOLOGICAL UNIT

DIRECTORATE OF ANIMAL RESOURCES & ANIMAL HEALTH

GOVERNMENT OF WEST BENGAL

পশ্চিমবঙ্গ সরকার
প্রাণী সম্পদ ও প্রাণী স্বাস্থ্য অধিকার
দূরভাষ ঃ (০৩৩) ২৩৩৫ - ১১৪৫
মোবাইল ঃ ৯৩৩১২৭৫৫২২
ফ্যাক্স ঃ (০৩৩) ২৩৩৫ - ১১৮৭
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PREFACE

The livestock sector as a whole and particularly the rural animal husbandry sector play a pivotal role in the socio-economic development of our State through the encouraging pro-people activities of our esteemed Animal Resources Development Department. Along with animal food production, it is an important source of draught power, manure for crop production and fuel for domestic use. Thus, livestock makes a positive contribution to the socio-economic development of the common people of our State in particular and in general, entire rural India. The growth in the livestock sector is most significant in poverty alleviation, as the livestock elements are largely concentrated among the marginal and small farmers in rural areas. Naturally, the impact of animal diseases can be massive and diversified in the form of short fall in supply of animal foods particularly animal proteins, economic loss of the producer-farmers, deterioration of food quality and safety, loss of jobs and human health hazards through zoonotic diseases.

With such perspective in backdrop, the Annual Report of Animal Disease Surveillance (ADS) of West Bengal for the year 2022-23, reflects the potential activities of the Directorate of Animal Resources and Animal Health under the Animal Resources Development Department of our State. It contains the records of all notifiable livestock and poultry diseases prevailed in the State. The data procured from the districts on different animal diseases scenario with morbidity, mortality etc. are documented, analyzed and presented in the Annual Report by the Epidemiological Unit of the Directorate through Animal Disease Surveillance under Central Sponsored Scheme, **'ASCAD'.** Well-thought-out and carefully planned prophylaxis measures would aptly be implemented to reduce the incidence of animal diseases prevalence in our State, on the basis of the seasonal occurrence and geographical distribution depicted in this e-publication.

Optimistically, this e-publication would help veterinarians, research workers & planners engaged in the prevention and control of the alarming animal diseases and thereby minimising the loss through occurrence of the diseases, would augment the growth of the economy centred on livestock sector of our State, as well as our Country.

[Dr. Yograj Tamang]
Director of Animal Husbandry &
Veterinary Services, West Bengal

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INTRODUCTION

The Epidemiological Unit, Directorate of Animal Resources and Animal Health under Animal Resources Development Department, Government of West Bengal, had been rendered a centrally sponsored Scheme i.e. the Animal Disease Surveillance since 1979.

SCHEME

NAME OF THE SCHEME	ANIMAL DISEASE SURVEILLANCE
LOCATION OF THE UNIT	EPIDEMIOLOGICAL UNIT INSTITUTE OF ANIMAL HEALTH & VETERINARY BIOLOGICALS, 37 BELGACHIA ROAD, KOLKATA-700037
AREA OF OPERATION	WEST BENGAL

The West Bengal is divided in three administrative divisions consisting of a group of districts in each division.

DIVISION	DISTRICTS
A. PRESIDENCY DIVISION	Kolkata, North 24 Parganas, South 24 Parganas, Howrah, Nadia and Murshidabad
B. BURDWAN DIVISION	Purba Burdwan, Paschim Burdwan, Hooghly, Birbhum, Bankura, Purba Medinipur, Paschim Medinipur, Jhargram and Purulia
C. JALPAIGURI DIVISION	Jalpaiguri, Alipurduar, Coochbehar, Darjeeling, Kalimpong, Uttar Dinajpur, Dakshin Dinajpur and Malda.

But for smooth running of the Departmental works, Animal Resources Development Department creates four Administrative zones headed by Joint Director in each zone.

ZONE	DISTRICT
PRESIDENCY	Kolkata, North 24 Parganas, South 24 Parganas, Howrah, Purba Medinipur
BURDWAN	Purba & Paschim Burdwan, Hooghly, Paschim Medinipur, Jhargram ,Bankura, Purulia
MURSHIDABAD	Murshidabad, Nadia, Birbhum, Malda
JALPAIGURI	Coochbehar, Alipurduar, Jalpaiguri, Darjeeling, Kalimpong, Uttar Dinajpur, Dakshin Dinajpur

STAFF PATTERN

a) Deputy Director, ARD (Epidemiology) - W.B.H.A.H.& V.S. - One
b) Assistant Director, ARD (Vety. R & I) - W.B.A.H. & V.S. - Two
d) English Stenographer - Ministerial Service - One
e) Peon - Group 'D' - One

Dr. Bhaskar Prasad Maji, Assistant Director, ARD, IAH&VB was the only person in this Unit and officiating the duties as In-charge, Deputy Director, ARD, Epidemiological Unit during the reporting Period.

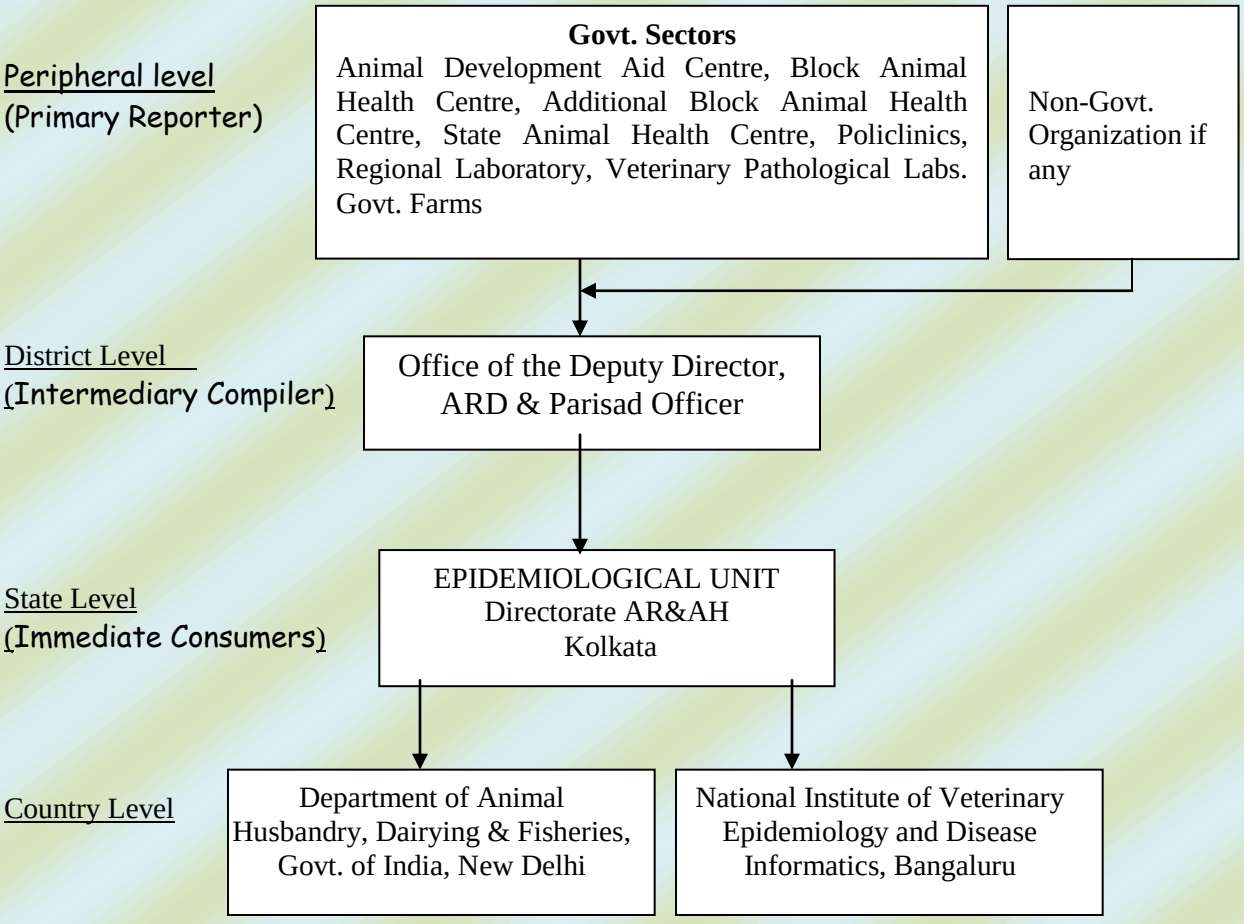
OBJECTIVE OF THE DISEASE SURVEILLANCE SCHEME

Surveillance is a intensive form of data recording. Originally, surveillance was used to describe the tracing and observation of population who were in contact with cases of infectious disease. It is now used in a much wider sense to include all types of diseases - infectious and non-infectious. It is normally a part of control programme for specific diseases.

The disease surveillance system is meant to provide ongoing information of disease in the animal and bird population present in the state and the factor that influence it. This activity necessitates a system for collecting, processing and summarizing data and disseminating information to appropriate agencies as well as individual. This information is supposed to provide a basis for decisions required to be made by the authorities responsible for formulation and management of disease control programme, which needs to be well designed from both biological and economical point of view.

SOURCES OF SURVEILLANCE DATA

The data are collected for Epidemiological study under Animal Disease Surveillance (ADS) Scheme from the existing infrastructure of the Directorate of Animal Resources and Animal Health of the state. For the shake of convenience, the infrastructure has been divided into three tires viz., a) Primary reporter i.e. at peripheral level of detection of diseases b) Intermediary compiler i.e. at the district level c) Immediate consumers i.e. state level (Epidemiological Unit).



NOTIFIABLE / REPORTABLE DISEASE OF THE STATE

Out of the large number of noticeable disease prevalent in the country, only 55 (fifty five) are being routinely reported by the state to the Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture, Govt. of India. These diseases are listed below and out of which a few are described elaborately with epidemiological analysis as they were prevailed in this state during the year 2022 – 2023.

DISEASE INFORMATION REPORTED TO THE GOVT. OF INDIA ANNUALLY

(1)Rinderpest (2) Foot & Mouth Disease (3) Contagious Bovine Pleuropneumonia (4) Blue Tongue (5) Swine Fever (6) Sheep & Goat Pox (7) Ranikhet Disease (8) Duck Plague (9) Black Quarter (10) Anthrax (11) Haemorrhagic Septicaemia (12) Fowl Cholera (13) Marek's Disease (14) Infectious Bursal Disease (15) Salmonellosis (Poultry) (16) Rabies (17) Theileriosis (18) Anaplasmosis (19) Trypanosomiosis (20) Contagious Pastular Dermatitis (21) PPR in Goat & Sheep (22) Avian Influenza (23) LSD

DISTRICTS UNDER AGRO-CLIMATIC ZONE OF WEST BENGAL

SL No.	Name of the Zone	Districts Name
1.	Hilly	Darjeeling
		Kalimpong
2.	Tarai	Jalpaiguri
		Alipurduar
3.	Laterite	Bankura
		Birbhum
		Purulia
4.	Old Alluvial	Kolkata
		North24Parganas
		Hooghly
		Paschim Burdwan
		Purba Burdwan
		Midnapur(West)
		Jhargram
		Howrah
5.	New Alluvial	Nadia
		Murshidabad
		Malda
		Uttar Dinajpur
		Dakshin Dinajpur
		CoochBehar
6.	Coastal	Midnapur (East)
		South 24Parganas

LIVE STOCK POPULATION IN WEST BENGAL*

(As per 20th Livestock Census, 2019)

CATTLE	190.21 Lakh	16.64 %		BUFFALO	6.30 Lakh	0.55 %
GOAT	162.80 Lakh	14.24 %		SHEEP	9.52 Lakh	0.83 %
PIG	5.40 Lakh	0.47 %		FOWL	641.40 Lakh	56.13 %
DUCK	126.89 Lakh	11.10 %		OTHERS	0.21 Lakh	0.04 %

* Including Poultry

RINDER PEST

In West Bengal, no outbreak of Rinderpest has been reported in the year 2021 - 2022. The work of Rinderpest eradication started in the state of West Bengal from the year 1954. Since 1954 with the continuous endeavor of the Rinderpest Eradication Programme of the state neither incidence nor outbreak of Rinderpest has been reported since 1988, as such the country was awarded with the Provisional Freedom from Rinderpest as per O.I.E. standard since April 1994. Under the strict guideline of the Central Management unit (C.P.M.U.) and as per O.I.E. pathway, the state has been completed all the working procedure of Rinderpest Eradication Programme. Vaccination against Rinderpest has been completely suspended in West Bengal since April 1995. Even after keeping the vaccination work suspended for consecutive five years, not a single case of Rinderpest could be detected during the period. This is probably due to absence of the causative organism in West Bengal. Now India has been recognized as free from Rinderpest infection by the International Committee of OIE on 25.06.2006.

In this year, Village Search and Stock Route Search were conducted as was done in the previous years in the state of West Bengal under the programme designated as NATIONAL PROGRAMME OF RINDERPEST ERADICATION (N.P.R.E.) .

T A B L E – I

VILLAGE SEARCH REPORT FOR THE STATE WEST BENGAL

YEAR	VILLAGE SEARCH TARGET	VILLAGE SEARCH ACHIEVED	PERCENTAGE ACHIEVED	OUTCOME OF SEARCH
2018-19	37966	35946	94.68 %	NEGATIVE TO RP
2019-20	37966	28827	75.93 %	NEGATIVE TO RP
2020-21	37966	26510	69.82 %	NEGATIVE TO RP
2021-22	37969	24394	66.83 %	NEGATIVE TO RP
2022-23	**37969**	**24161**	**63.63 %**	NEGATIVE TO RP

T A B L E – II

DAY BOOK INSPECTION FOR THE STATE WEST BENGAL

STATE	DAY BOOK INSPECTION TARGET	DAY BOOK INSPECTION ACHIEVED	PERCENTAGE ACHIEVED	WHETHER ANY SYMPTOMS SUSPECTED FOR RP
2018-19	16375	15535	94.87 %	NIL
2019-20	16375	12987	79.31 %	NIL
2020-21	16375	11759	71.81%	NIL
2021-22	14375	10613	73.82%	NIL
2022-23	**16270**	**11895**	**73.11 %**	**NIL**

FOOT & MOUTH DISEASE

Foot & Mouth Disease is an acute febrile disease of cloven footed animals, common in cattle, buffalo, sheep, goat, pig, rarely in camels and other wild animals. It is highly contagious and caused by enterovirus of picorna viridae family. The different subtypes of such virus which caused the disease in India are 'O', 'A', 'C', 'ASIA -I'. Among these, types 'O' has been most common and widespread followed by 'A' and 'ASIA-I'.

The disease is primarily transmitted through aerosol route. It may be transmitted through infected water, manure, hay and pasture by direct or indirect way. Cattle attendant also play an important role in spreading of disease. It is known to spread the disease through recovered animals, field rats and birds.

The usual site of affection FMD virus is in the mucus membrane of the throat. After primary infection animals develop fever then vesicle appears in the buccal cavity. The animal shows dullness, in appetence, shivering followed by smacking of the lips and kicking the feet. After vesicle formation, there is profuse salivation and lameness. Pregnant animals may abort and young animals may die. In West Bengal, the disease is endemic and occurs in all districts round the year with high morbidity but with low mortality or without mortality.

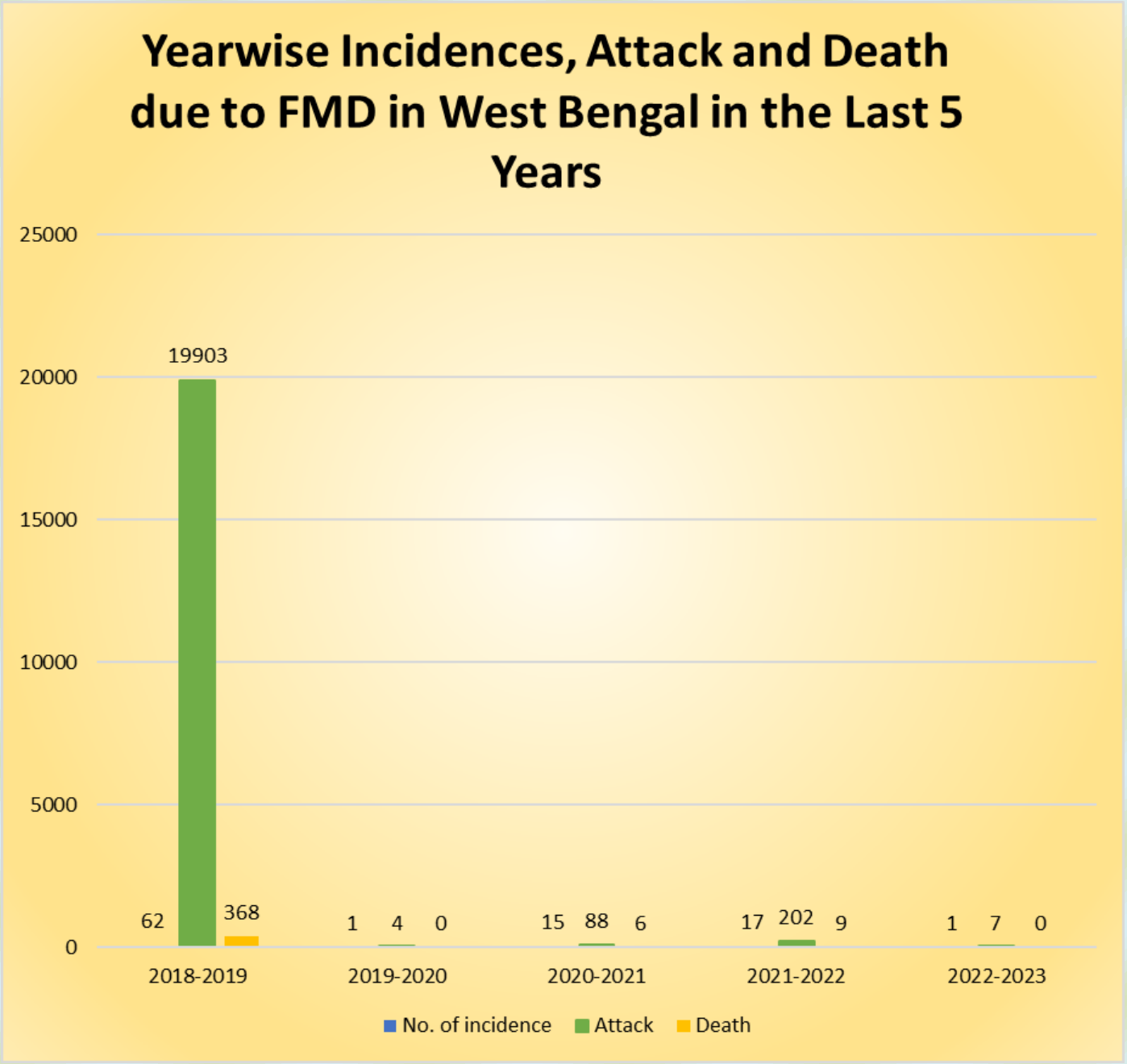
TABLE – I
EPIDEMIOLOGICAL OBSERVATION ON FOOT & MOUTH DISEASE

Year	No. of Incidence	Population At Risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2018-2019	62	54573	19903	368	1.85	36.47	0.67
2019-2020	1	200	4	0	0.00	2.00	0.00
2020-2021	15	1703	88	6	6.82	5.17	0.35
2021-2022	17	19180	202	9	4.46	1.05	0.05
2022-2023	**1**	**100**	**7**	**0**	**0**	**7.00**	**0.00**

There was only **1 (one)** incidence of FMD reported in the year 2022-2023 all over the state. In previous year 17 incidence was reported from all over the state. It is also observed that disease incidences of FMD is decreased drastically in West Bengal.

In general relatively low temperature; dry weather may help the FMD virus to propagate among the susceptible animals and the incidence of outbreaks reported during the late winter months and early summer. As the disease is an air-borne one and the rainfall prevents the propagation of the virus, the incidence of FMD generally happened in a very low intensity during the rainy season.

Regarding seasonal variation in our state the disease was occurred in the month of May.


Yearwise Incidences, Attack and Death due to FMD in West Bengal in the Last 5 Years
25000
20000
15000
10000
5000
0
19903
62
368
1
4
0
15
88
6
17
202
9
1
7
0
2018-2019
2019-2020
2020-2021
2021-2022
2022-2023
No. of incidence
Attack
Death

It is desired that for controlling of the disease effectively, the vaccination work should be continued strictly as per the guideline.

T A B L E – II

DISTRICT WISE FOOT & MOUTH DISEASE INCIDENCES REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

District	No. of outbreak	Population at risk	Attack	Death	C.F.R (%)	Morbidity (%)	Mortality (%)
Birbhum	1	100	7	0	0.00	7.00	0.00
TOTAL	1	100	7	0	0.00	7.00	0.00

T A B L E - III

MONTHWISE FOOT & MOUTH DISEASE INCIDENCE REPORTED IN WEST BENGAL FOR THE YEAR 2022 – 2023

Month	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
April	0	0	0	0	0	0	0
May	1	100	7	0	0.00	7.00	0.00
June	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0
September	0	0	0	0	0	0	0
October	0	0	0	0	0	0	0
November	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0
January	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0
TOTAL	**1**	**100**	**7**	**0**	**0.00**	**7.00**	**0.00**

DISTRIBUTION OF FMD INCIDENCES IN WEST BENGAL FOR THE YEAR 2022-23

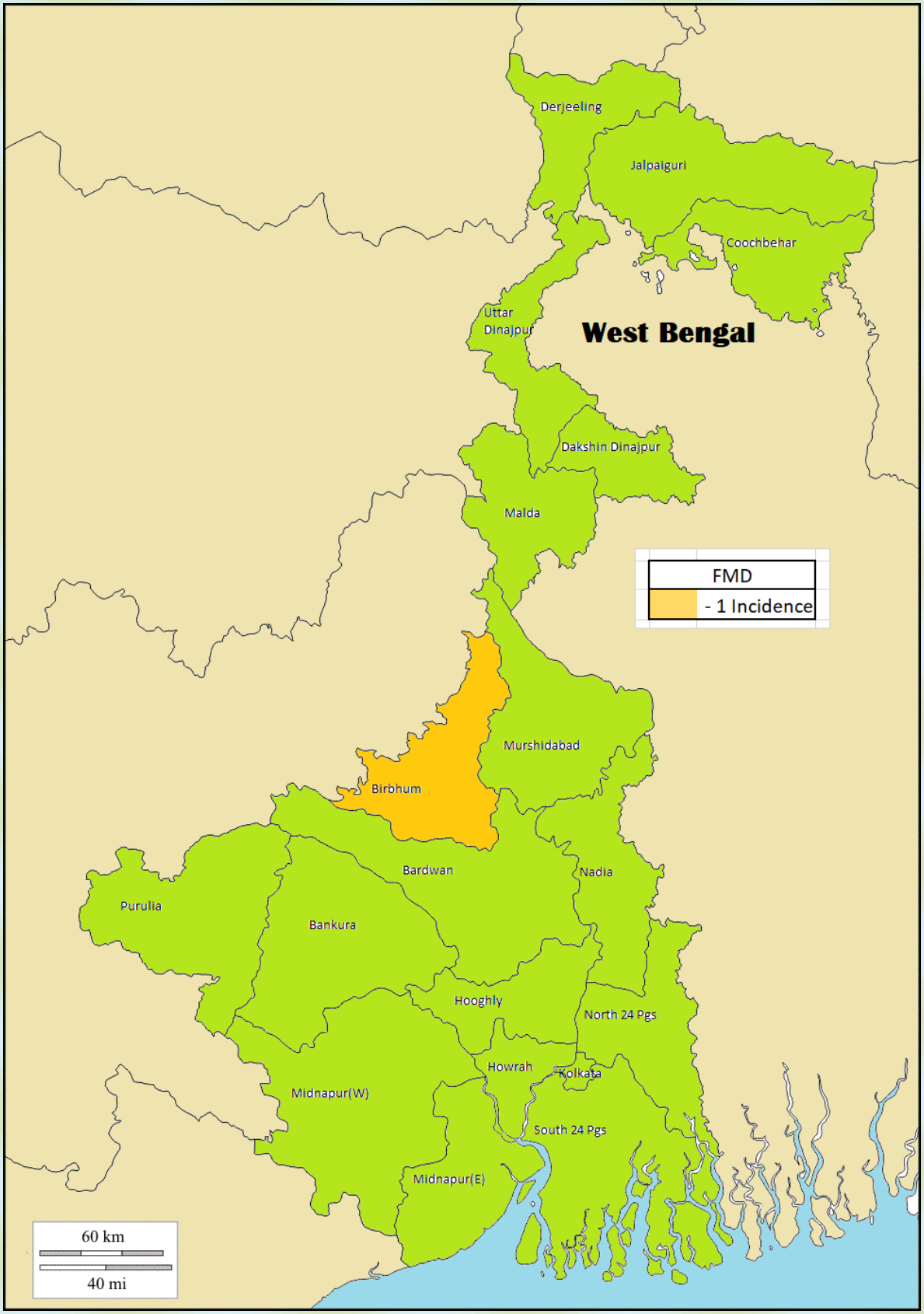


TABLE – IV

DISTRICT WISE FOOT & MOUTH DISEASE INCIDENCES REPORTED IN WEST BENGAL DURING LAST TEN YEARS

DISTRICT	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	**2022-23**
COOCHBEHAR	0	0	0	0	0	0	0	0	0	0
JALPAIGURI	3	3	0	0	0	2	0	0	0	0
DARJEELING	0	1	0	0	0	1	0	0	2	0
KALIMPONG	0	0	0	0	0	0	0	0	0	0
U. DINAJPUR	0	0	0	0	0	2	0	0	0	0
D. DINAJPUR	3	0	2	0	0	0	0	0	0	0
MALDA	0	0	0	0	0	0	0	0	1	0
MURSHIDABAD	1	0	1	0	0	0	0	1	0	0
NADIA	1	0	1	2	0	5	0	2	0	0
NORTH 24 PGS.	1	0	1	1	0	4	0	0	0	0
SOUTH 24 PGS.	3	1	1	0	0	4	0	1	2	0
KOLKATA	0	0	0	0	0	1	0	0	0	0
HOWRAH	2	1	0	0	0	9	0	0	6	0
HOOGHLY	3	0	1	1	0	6	0	2	0	0
BURDWAN (E)	3	0	1	0	0	5	0	4	0	0
BURDWAN (W)	-	-	-	-	-	-	-	0	0	0
BIRBHUM	7	0	4	0	0	0	0	0	1	1
BANKURA	8	3	0	0	0	2	0	0	0	0
MEDINIPUR (E)	0	0	1	0	0	2	0	5	0	0
MEDINIPUR (W)	5	0	8	1	1	12	1	1	5	0
PURULIA	3	0	10	0	0	0	0	0	0	0
TOTAL	**43**	**9**	**31**	**5**	**0**	**62**	**01**	**15**	**17**	**1**

RABIES

Rabies is an acute viral infection in man and other warm blooded animals caused by R.N.A. virus belonging to the family Rhabdoviridae. The disease is noted in most of the tropical countries in the world. Rabies is a zoonotic disease that can affect all mammals. Carnivores circulate different rabies virus (RABV) variants and act as a reservoir for rabies, with occasional transmission to humans. Classical rabies virus is found throughout the world. Rabies infection is maintained in two epidemiological cycles, one urban and one sylvatic. In the urban rabies cycle, dogs are the main reservoir host. This cycle predominates in areas of Africa, Asia, and Central and South America. The sylvatic (or wildlife) cycle is the predominant cycle in the northern hemisphere. It can also present simultaneously with the urban cycle in some parts of the world. Despite being 100% preventable, canine-mediated rabies is one of the most important zoonosis and is estimated to cause up to 70,000 human deaths per year mostly affecting people in rural areas. It has important social costs due to human mortality and high economic consequences due to the losses in livestock and the cost of the implementation of preventive and control measures in both animals and humans.

In the year 2022-2023, three (3)incidences of animal Rabies cases were reported in West Bengal.

T A B L E – I

EPIDEMIOLOGICAL OBSERVATION ON RABIES IN WEST BENGAL

Year	No. of incidence	Population at Risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2018-2019	2	115	2	2	100.00	1.74	1.74
2019-2020	3	300	3	3	100.00	1.00	1.00
2020-2021	3	350	3	3	100.00	0.86	0.86
2021-2022	0	0	0	0	0.00	0.00	0.00
2022-2023	**3**	**12**	**3**	**3**	**100.00**	**25.00**	**25.00**

ANTHRAX

Anthrax is an acute, infectious febrile disease of all warm-blooded animals including human caused by *Bacillus anthracis*. Fowls are resistant to Anthrax. It causes septicemia and is a fatal disease. It occurs worldwide, sporadic cases occur almost throughout the state, although it is more prevalent in certain hot and humid part of the state. Anthrax spores can remain viable in soil for a long time. Soil borne outbreaks occur in definite season and in definite area, known as Anthrax belt. Humidity and the pH of soil have got definite factors on spread of anthrax. Alkaline soil influences the occurrence of outbreak. The Stream Rivers and flood may carry the spore from one place to another and this may spread the disease to the virgin soil.

T A B L E – I

EPIDEMIOLOGICAL OBSERVATION ON ANTHRAX

Year	No. of incidence	Population at Risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2018-2019	05	4478	8	8	100.00	0.18	0.18
2019-2020	03	2599	7	7	100.00	0.27	0.27
2020-2021	01	300	02	02	100.00	0.67	0.67
2021-2022	02	507	03	03	100.00	0.59	0.59
2022-2023	**02**	**5**	**2**	**2**	**100.00**	**40.00**	**40.00**

In the reporting year, number of reported incidence (02) is same as previous year, case fatality rate (100.00) remain same, morbidity rate (40.00) and mortality rate (40.00) increased in comparison to last year. The incidences are generally reported mainly in monsoon and post-monsoon months, each year (April to October). In the current year, outbreaks were reported from New Alluvial zone (Murshidabad). In general, incidences are mainly sporadic in nature in West Bengal.

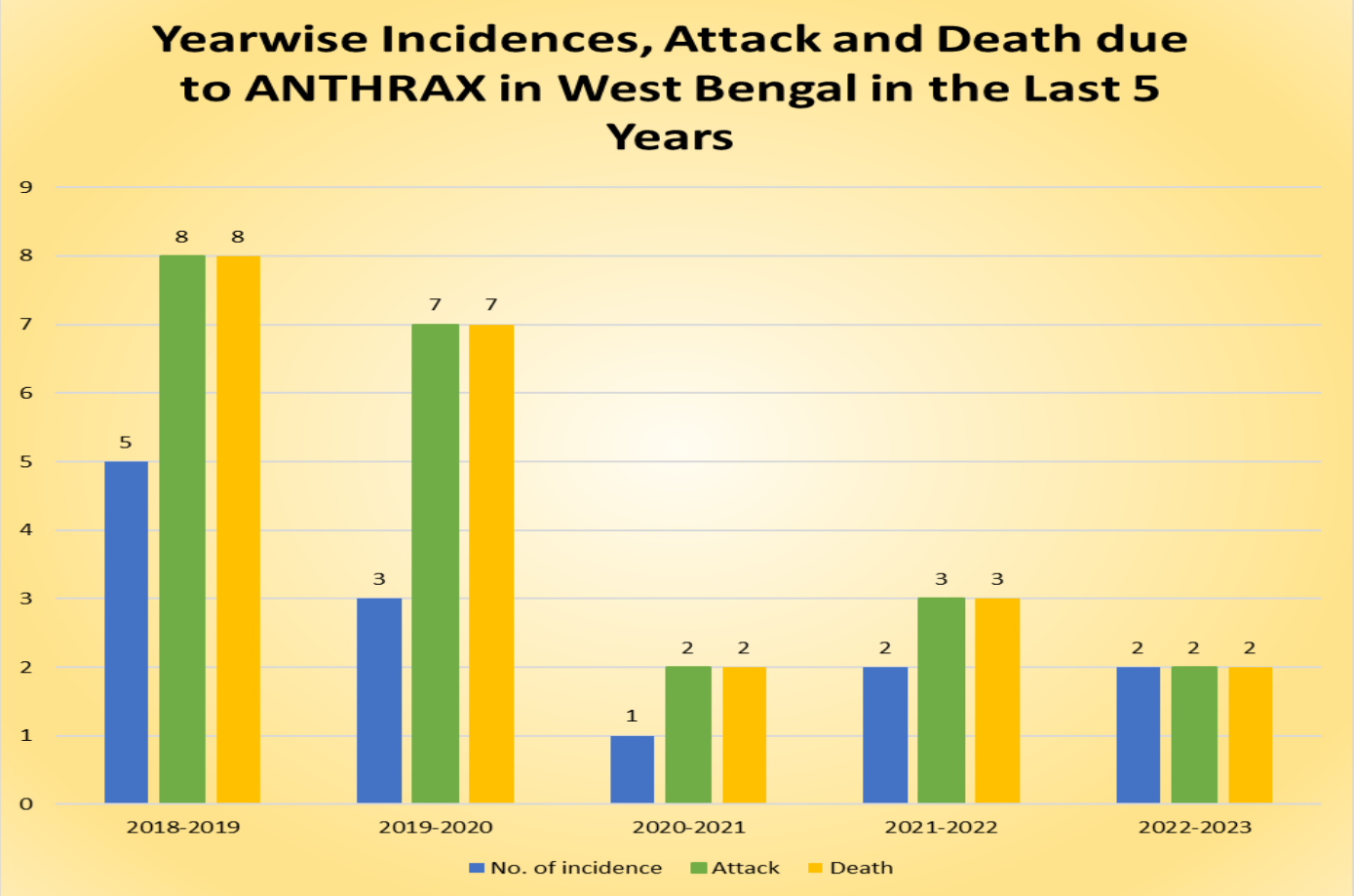
As per Species concern, mainly bovines were affected from Anthrax as per the records available in the last year.

As per epidemiological information, regarding control of this disease, biannual vaccination should be done in the endemic zone.

T A B L E – II

DISTRICTWISE ANTHRAX REPORTED IN WEST BENGAL FOR THE YEAR 2022- 2023

District	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
MURSHIDABAD	2	5	2	2	**100.00**	**40.00**	**40.00**
TOTAL	**2**	**5**	**2**	**2**	**100.00**	**40.00**	**40.00**



T A B L E - III

MONTHWISE ANTHRAX INCIDENCE REPORTED IN WEST BENGAL FOR THE YEAR 2022 – 2023

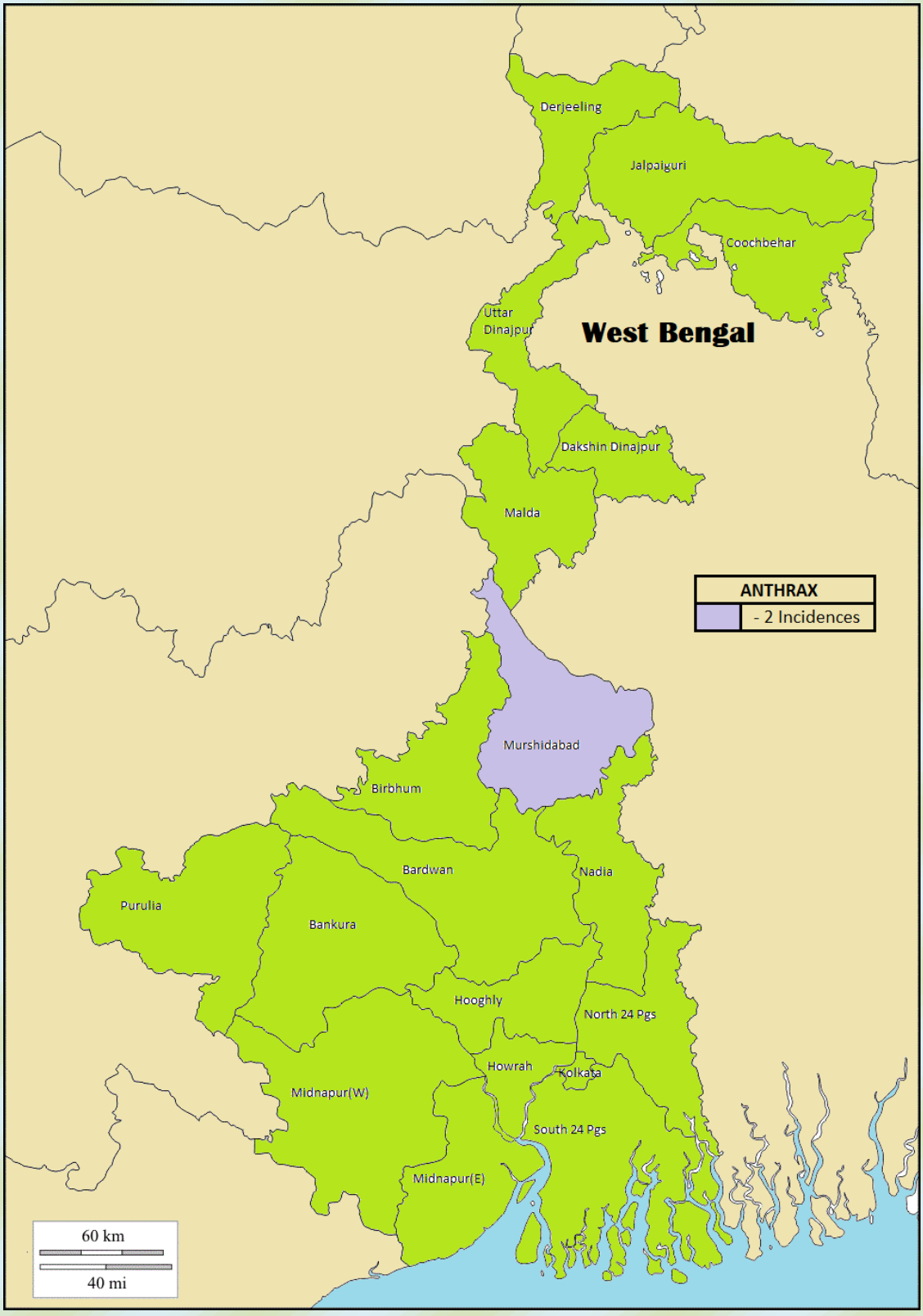
Month	**No. of incidence**	**Population at risk**	**Attack**	**Death**	C.F.R. (%)	Morbidity (%)	Mortality (%)
April	1	4	1	1	100.00	25.00	25.00
May	0	0	0	0	0.00	0.00	0.00
June	0	0	0	0	0.00	0.00	0.00
July	0	0	0	0	0.00	0.00	0.00
August	0	0	0	0	0.00	0.00	0.00
September	0	0	0	0	0.00	0.00	0.00
October	0	0	0	0	0.00	0.00	0.00
November	1	1	1	1	100.00	100.00	100.00
December	0	0	0	0	0.00	0.00	0.00
January	0	0	0	0	0.00	0.00	0.00
February	0	0	0	0	0.00	0.00	0.00
March	0	0	0	0	0.00	0.00	0.00
TOTAL	**02**	**05**	**02**	**02**	**100.00**	**40.00**	**40.00**

T A B L E – IV

DISTRICT WISE ANTHRAX INCIDENCE REPORTED IN WESTS BENGAL DURING LAST TEN YEARS

District	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	**2022-23**
Cooch Behar	0	0	0	0	0	0	0	0	1	**0**
Jalpaiguri	0	0	0	0	0	0	0	0	0	**0**
Darjeeling	0	0	0	0	0	0	0	0	0	**0**
Kalimpong	0	0	0	0	0	0	0	0	0	**0**
Uttar Dinajpur	0	0	0	0	0	0	0	0	0	**0**
Dakshin Dinajpur	0	0	0	0	0	0	0	0	0	**0**
Malda	0	0	0	0	0	0	0	0	0	**0**
Murshidabad	5	21	0	8	1	4	1	1	1	**2**
Nadia	4	0	1	6	1	0	0	0	0	**0**
North 24Parganas	0	0	0	0	0	0	0	0	0	**0**
South 24Parganas	0	0	0	0	0	0	0	0	0	**0**
Kolkata	0	0	0	0	0	0	0	0	0	**0**
Howrah	0	0	0	0	0	0	0	0	0	**0**
Hooghly	0	0	1	0	0	1	2	0	0	**0**
Burdwan	4	0	0	0	0	0	0	0	0	**0**
Birbhum	0	0	0	1	0	0	0	0	0	**0**
Bankura	2	2	0	0	0	0	0	0	0	**0**
Purba Medinipur	0	0	0	1	0	0	0	0	0	**0**
Paschim Medinipur	0	0	1	0	0	0	0	0	0	**0**
Purulia	0	0	0	0	0	0	0	0	0	**0**
TOTAL	**15**	**23**	**3**	**16**	**2**	**5**	**3**	**1**	**2**	**2**

DISTRIBUTION OF ANTHRAX INCIDENCES IN WEST BENGAL FOR THE YEAR 2022-23



During last ten years the outbreaks were reported mainly from Murshidabad district involving 5-6 no. of blocks and Nadia, Hooghly & Coochbehar districts. There are some endemic zones where outbreaks occurred in every year. It is desired that for controlling of the disease effectively, vaccination should be completed before monsoon in endemic zone.

T A B L E – V

MONTHWISE AND DISTRICTWISE ANTHRAX REPORTED IN WESTBENGAL FOR THE YEAR 2022-23

Month	District	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
April	Murshidabad	1	4	1	1	100.00	25.00	25.00
May		0	0	0	0	0	0	0
June	-	0	0	0	0	0	0	0
July	-	0	0	0	0	0	0	0
August	-	0	0	0	0	0	0	0
September	-	0	0	0	0	0	0	0
October	-	0	0	0	0	0	0	0
November	Murshidabad	1	1	1	1	100.00	100.00	100.00
December	-	0	0	0	0	0	0	0
January	-	0	0	0	0	0	0	0
February	-	0	0	0	0	0	0	0
March	-	0	0	0	0	0	0	0
TOTAL		**2**	**5**	**2**	**2**	**100.00**	**40.00**	**40.00**

HAEMORRHAGIC SEPTICAEMIA

Haemorrhagic Septicaemia generally occurs in low-lying areas periodically inundated by rainwater and in areas where irrigation facilities have developed. The organism may be picked up by adult cattle and buffalo and act as carriers and harbored the organism frequently in their upper respiratory tract and sometimes in the intestine without showing any clinical signs. Since the bacteria are relatively susceptible to chemical and physical agents, the carrier animal would seem to play an essential role in the life history of these bacteria and in their distribution from one host to another. The rapid multiplication of the bacteria in the respiratory tract, particularly in the groups of animals is very common, when they are subjected to certain stresses. Certain environments also plays important role, particularly among the working animals during the rainy season, resulting into outbreaks of the disease. The affected animals may also contaminate the environment by excreting large number of bacteria in the saliva and faeces.

The disease most commonly occurred during and following monsoon. The disease has got some correlation with relative humidity and most outbreaks are seen during the period of high humidity.

T A B L E – I

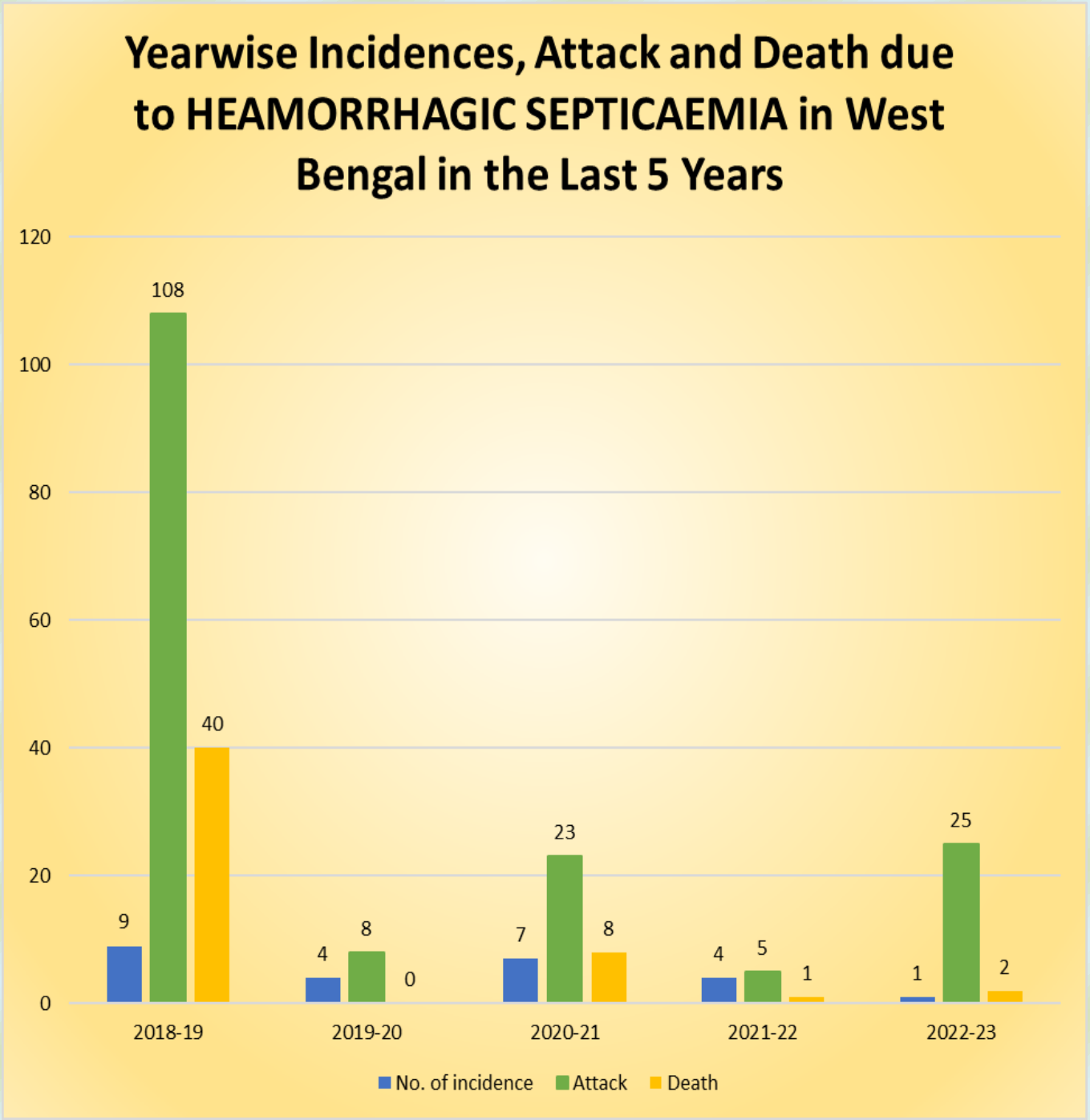
EPIDEMIOLOGICAL OBSERVATION ON HEAMORRHAGIC SEPTICAEMIA

Year	No. of incidence	Population at Risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2018-19	9	3189	108	40	37.04	3.39	1.25
2019-20	4	1000	08	00	0.00	0.80	0.00
2020-21	7	1812	23	08	34.78	1.27	0.44
2021-22	4	888	05	01	20.00	0.56	0.11
2022-23	**1**	**35**	**25**	**2**	**8.00**	**71.43**	**5.71**

In the year 2022-2023, reported incidence one (01) has been decreased in comparison with the previous year (04). Case fatality rate (8.00) was decreased but morbidity rate (71.43) and mortality rate (5,71) increased as compared to previous year.

Regarding seasonal variation the disease was occurred through the year especially pre-monsoon and monsoon months. But for this year incidence was recorded in the month of February.

So far geographic variation is concerned, Incidence reported only from one (1) district out of all 23 districts of West Bengal. It can be interpreted from last five years observation that there are some endemic zones in the districts like Bankura, Purulia, Burdwan, Birbhum, Nadia, N-24 Pgs and Howrah with incidences almost in every year. It is desired that for controlling of the disease effectively, the vaccination work should be completed before monsoon in every year in the endemic zones.


Yearwise Incidences, Attack and Death due to HEAMORRHAGIC SEPTICAEMIA in West Bengal in the Last 5 Years
120
100
80
60
40
20
0
9
108
40
4
8
0
7
23
8
4
5
1
1
25
2
2018-19
2019-20
2020-21
2021-22
2022-23
No. of incidence
Attack
Death

T A B L E – II

DISTRICTWISE HAEMORRHAGIC SEPTICAEMIA OUTBREAK REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

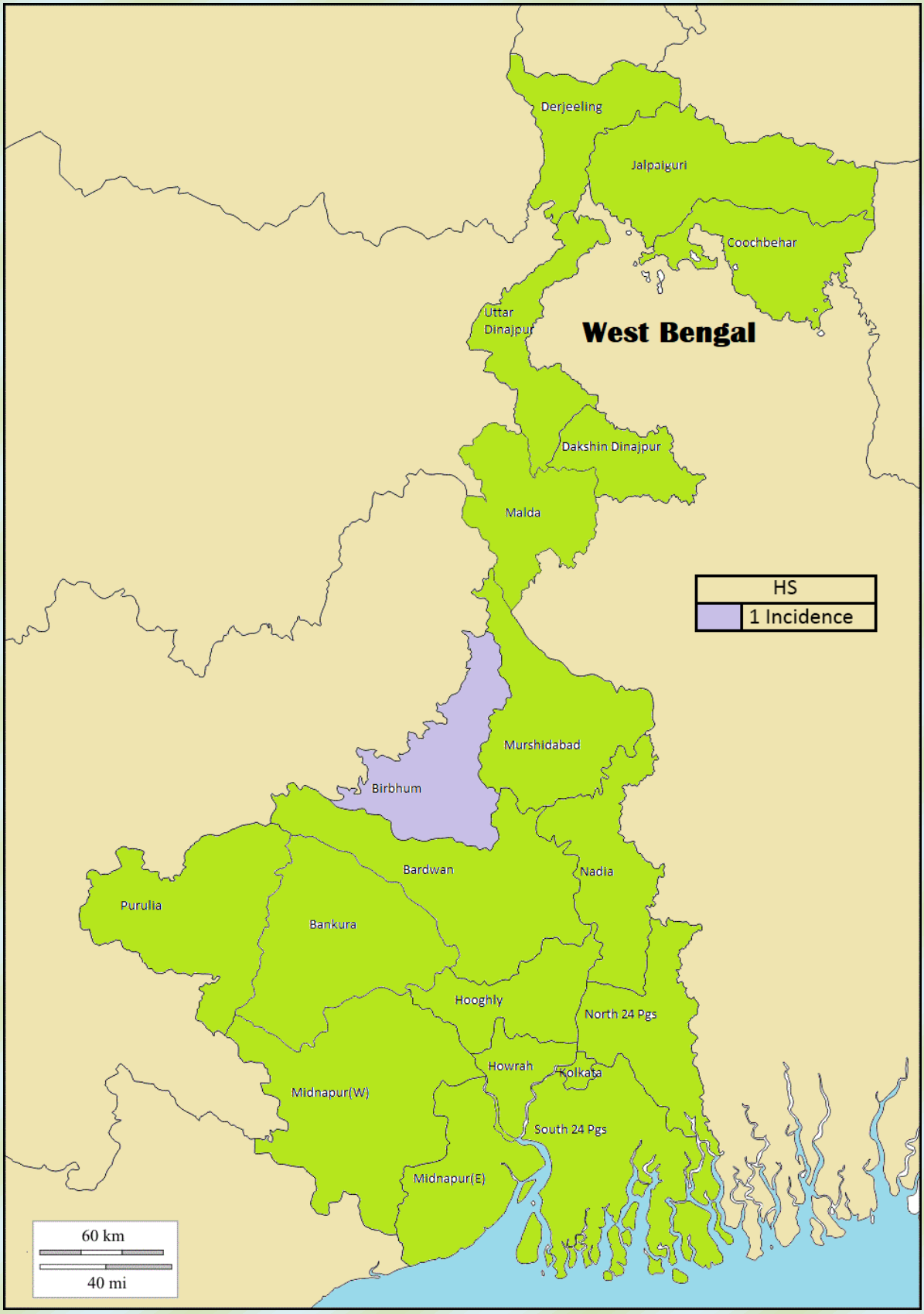
District	No. of outbreak	Population at risk	Attack	Death	C.F.R (%)	Morbidity (%)	Mortality (%)
Coochbehar	0	0	0	0	0	0	0
Jalpaiguri	0	0	0	0	0	0	0
Darjeeling	0	0	0	0	0	0	0
U.Dinajpur	0	0	0	0	0	0	0
D. Dinajpur	0	0	0	0	0	0	0
Malda	0	0	0	0	0	0	0
Murshidabad	0	0	0	0	0	0	0
Nadia	0	0	0	0	0	0	0
N.24 Pgs.	0	0	0	0	0	0	0
S. 24 Pgs.	0	0	0	0	0	0	0
Kolkata	0	0	0	0	0	0	0
Howrah	0	0	0	0	0	0	0
Hooghly	0	0	0	0	0	0	0
Pur Burdwan	0	0	0	0	0	0	0
Birbhum	1	35	25	2	8.00	71.43	5.71
Bankura	0	0	0	0	0	0	0
Midnapur(E)	0	0	0	0	0	0	0
Mindapur (W)	0	0	0	0	0	0	0
Purulia	0	0	0	0	0	0	0
TOTAL	**1**	**35**	**25**	**2**	**8.00**	**71.43**	**5.71**

T A B L E – III

MONTHWISE HAEMORRHAGIC SEPTICAEMIA OUTBREAK REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

Month	District	No. of Incidence	Population at risk	Attack	Death
February	Birbhum	1	35	25	2
TOTAL		**1**	**35**	**25**	**2**

DISTRIBUTION OF HAEMORRHAGIC SEPTECAEMIA INCIDENCES IN WEST BENGAL FOR THE YEAR 2022-23



DISTRICT WISE HAEMORRHAGIC SEPTICAEMIA OUTBREAKS REPORTED IN WEST BENGAL DURING LAST TEN YEARS

District	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	**2022-23**
Coochbehar	1	0	0	1	0	0	0	0	0	**0**
Jalpaiguri	0	0	0	0	0	0	0	0	0	**0**
Darjeeling	0	0	0	0	1	0	0	0	0	**0**
Uttar Dinajpur	0	1	0	0	0	0	0	1	0	**0**
Dakshin Dinajpur	0	0	0	0	0	0	0	0	0	**0**
Malda	0	0	0	0	1	0	0	0	0	**0**
Murshidabad	2	0	0	1	0	1	0	0	0	**0**
Nadia	0	0	1	0	1	3	0	0	0	**0**
North 24 Pgs.	0	0	0	4	1	2	0	0	0	**0**
South 24 Pgs.	0	0	0	0	0	0	0	2	0	**0**
Kolkata	0	0	0	0	0	0	0	0	1	**0**
Howrah	0	0	1	0	2	2	0	0	0	**0**
Hooghly	4	2	0	1	0	1	1	1	0	**0**
Pur Burdwan	2	1	1	5	1	0	3	1	0	**0**
Birbhum	1	1	0	1	0	0	0	0	0	**1**
Bankura	8	23	4	0	0	0	0	1	3	**0**
Midnapur(E)	0	0	0	0	0	0	0	1	0	**0**
Mindapur(W)	3	0	0	2	0	0	0	0	0	**0**
Purulia	13	4	0	1	0	0	0	0	0	**0**
TOTAL	**34**	**32**	**7**	**16**	**7**	**9**	**4**	**7**	4	**1**

BLACK QUARTER

Black quarter is a bacterial disease produces gas gangrene affecting cattle and sheep and very occasionally in other animals caused by bacterium, *Clostridium chauvoei*, and characterized by sudden onset of acute fever with a crepitating swelling in the limbs or loins.

Black quarter is a sporadic disease in India with a seasonal and regional distribution, recurrent losses seen in the field. Cattle probably acquire infection through ingestion of spores of the organism contained in feed or in soil. Infection may also occur through cuts and wounds. The spores may remain dormant in the animal body for a long period until predisposing factors arise which stimulate the development of vegetative forms by damaging tissue cells resulting into rapid multiplication of the organism in a particular area of the tissues and develop a typical black quarter lesion. Six months to three years old healthy animals are mainly affected. In pigs, disease is clinically characterized by inflammation of heavy muscles, severe toxaemia and high mortality.

The disease is common in areas with moderate rainfall and where dry crop cultivation is common. B.Q spreads rapidly after heavy rainfall by contamination of soil with spores of the organism. Areas where previous death occurs from Clostridium infection have a higher incidence or risk of disease because of increased environmental contamination. Infection with *Clostridium chauvoei* occurs most commonly during the warmer season, but the disease occurs sporadically throughout the year.

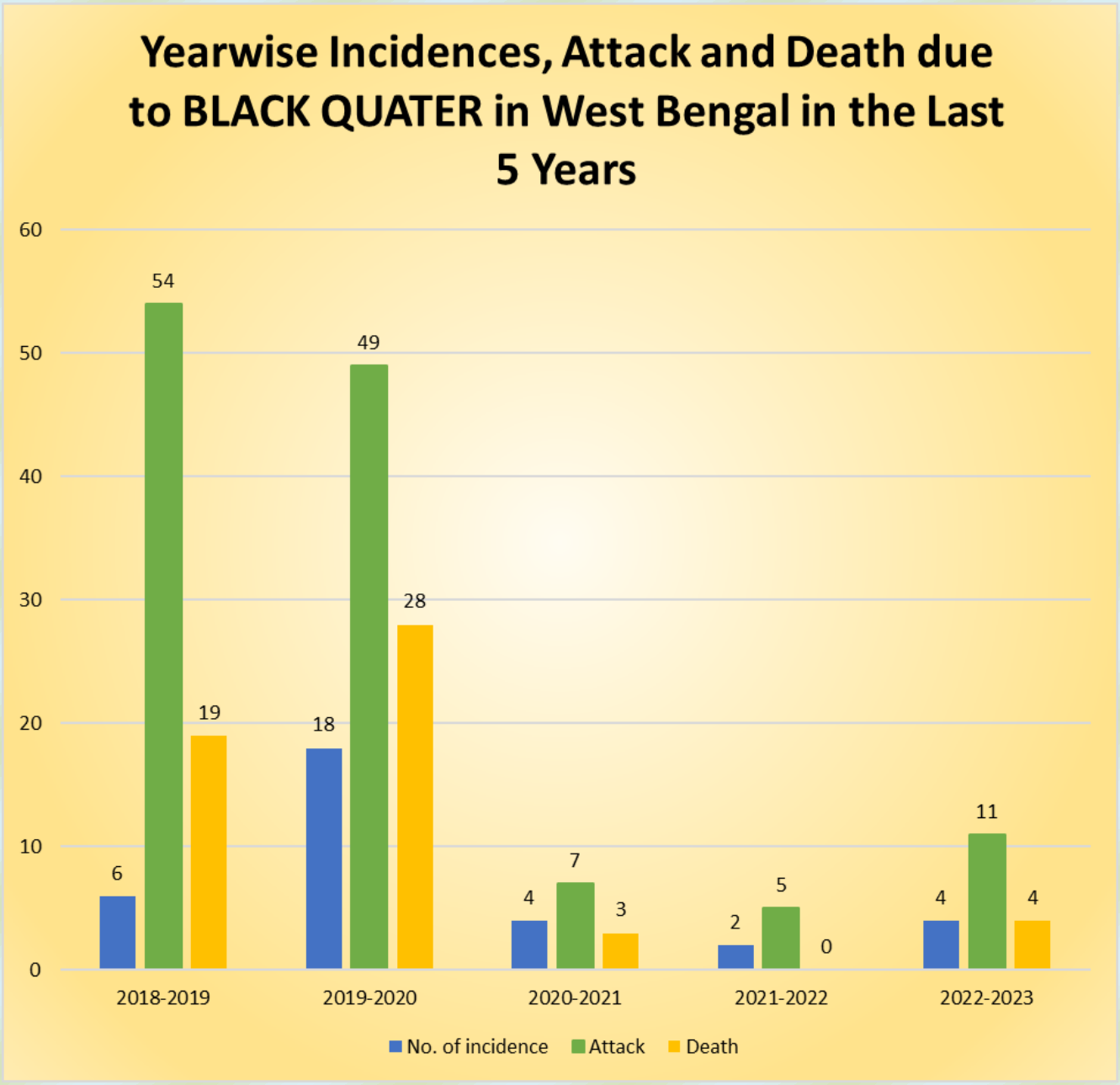
T A B L E – I
EPIDEMIOLOGICAL OBSERVATION ON BLACK QUARTER

Year	No. of incidence	Population at Risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2018-2019	6	3070	54	19	35.19	1.76	0.62
2019-2020	18	5686	49	28	57.14	0.86	0.49
2020-2021	04	1180	7	3	42.86	0.59	0.25
2021-2022	02	830	5	0	0.00	0.60	0.00
2022-2023	**04**	**705**	**11**	**4**	**36.36**	**1.56**	**0.57**

In this year total 4 (four) incidences of Black Quarter recorded in West Bengal which is slightly increased in number in comparison to the previous year. Case fatality rate (36.36 %) , mortality rate (0.57 %) and morbidity rate (1.56 %) slightly increased.

The incidence of Black quarter mostly occurred during pre-monsoon, monsoon and post-monsoon i.e. in April, May, June, July & August. In the reporting year two (2) incidences were recorded in the month of August and one in September, which is in post- monsoon season, involving four districts i.e., Birbhum, Bankura, Uttar Dinajpur, South 24 Pgs. So, pre-monsoon vaccination may be followed to minimize the risk of incidence all over in West Bengal.

So far geographical variation is concern, four (4) incidences were reported from four districts of different region. It can be interpreted from last five years observation that there are some endemic zones of this disease & Bankura is one of them.


Yearwise Incidences, Attack and Death due to BLACK QUATER in West Bengal in the Last 5 Years
60
50
40
30
20
10
0
6
54
19
18
49
28
4
7
3
2
5
0
4
11
4
2018-2019
2019-2020
2020-2021
2021-2022
2022-2023
No. of incidence
Attack
Death

T A B L E – II

DISTRICTWISE BLACK QUARTER OUTBREAK REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

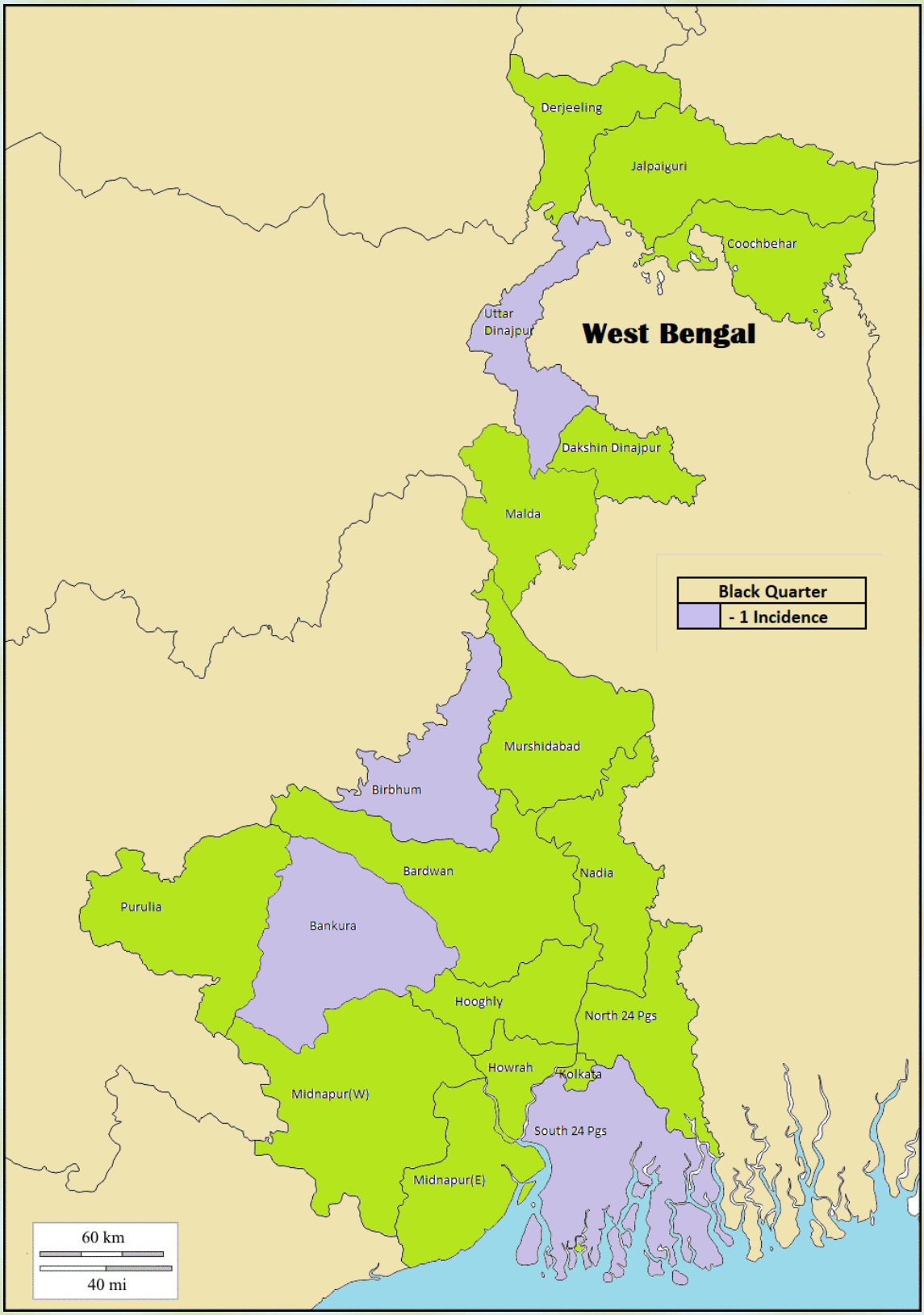
District	No. of outbreak	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
Coochbehar	0	0	0	0	0.00	0.00	0.00
Jalpaiguri	0	0	0	0	0.00	0.00	0.00
Darjeeling	0	0	0	0	0.00	0.00	0.00
U.Dinajpur	1	4	2	2	100.00	50.00	50.00
D. Dinajpur	0	0	0	0	0.00	0.00	0.00
Malda	0	0	0	0	0.00	0.00	0.00
Murshidabad	0	0	0	0	0.00	0.00	0.00
Nadia	0	0	0	0	0.00	0.00	0.00
N.24 Pgs.	0	0	0	0	0.00	0.00	0.00
S. 24 Pgs.	1	1	1	0	100.00	100.00	100.00
Kolkata	0	0	0	0	0.00	0.00	0.00
Howrah	0	0	0	0	0.00	0.00	0.00
Hooghly	0	0	0	0	0.00	0.00	0.00
Pur Burdwan	0	0	0	0	0.00	0.00	0.00
Pas Burdwan	0	0	0	0	0.00	0.00	0.00
Birbhum	1	250	7	2	28.57	2.80	0.80
Bankura	1	450	1	0	0.00	0.22	0.00
Midnapur (E)	0	0	0	0	0.00	0.00	0.00
Mindapur(W)	0	0	0	0	0.00	0.00	0.00
Purulia	0	0	0	0	0.00	0.00	0.00
TOTAL	**4**	**705**	**11**	**4**	**36.36**	**1.56**	**0.57**

T A B L E - III

MONTHWISE BLACK QUARTER OUTBREAK REPORTED IN WEST BENGAL FOR THE YEAR 2022 – 2023

Month	No. of outbreak	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
April	1	450	1	0	0.00	0.22	0.00
May	0	0	0	0	0.00	0.00	0.00
June	0	0	0	0	0.00	0.00	0.00
July	0	0	0	0	0.00	0.00	0.00
August	2	254	9	4	44.44	3.54	1.57
September	1	1	1	0	0.00	100.00	0.00
October	0	0	0	0	0.00	0.00	0.00
November	0	0	0	0	0.00	0.00	0.00
December	0	0	0	0	0.00	0.00	0.00
January	0	0	0	0	0.00	0.00	0.00
February	0	0	0	0	0.00	0.00	0.00
March	0	0	0	0	0.00	0.00	0.00
TOTAL	**4**	**705**	**11**	**4**	**36.36**	**1.56**	**0.57**

DISTRIBUTION OF BLACK QUARTER INCIDENCES IN WEST BENGAL FOR THE YEAR 2022-23



DISTRICT WISE BLACK QUARTER OUTBREAKS REPORTED IN WEST BENGAL DURING LAST TEN YEARS

District	2013 -14	2014-15	2015 -16	2016 -17	2017 -18	2018 -19	2019-20	2020-21	2020-21	**2022-23**
Coochbehar	2	1	0	0	0	0	0	0	0	**0**
Jalpaiguri	1	0	0	0	0	0	0	0	0	**0**
Darjeeling	0	0	0	0	0	0	0	0	0	**0**
Uttar Dinajpur	5	4	0	0	0	0	0	0	0	**1**
Dakshin Dinajpur	11	10	5	1	0	0	0	0	0	**0**
Malda	0	0	0	0	0	1	0	0	0	**0**
Murshidabad	1	0	0	0	0	0	0	0	0	**0**
Nadia	7	0	2	0	0	0	2	0	0	**0**
North 24 Parganas	1	0	0	0	0	1	0	0	0	**0**
South 24 Parganas	0	0	0	0	1	3	0	0	0	**1**
Kolkata	0	0	0	0	0	0	0	0	0	**0**
Howrah	7	6	0	0	1	1	1	0	0	**0**
Hooghly	4	0	0	0	0	0	1	1	0	**0**
Pur Burdwan	1	3	8	4	0	0	9	2	0	**0**
Pasc Burdwan	-	-	-	-	-	0	1	0	0	**0**
Birbhum	4	3	0	0	3	0	4	0	0	**1**
Bankura	7	1	2	1	0	0	0	0	0	**1**
Purba Medinipur	1	0	5	4	3	0	0	1	2	**0**
Paschim Medinipur	6	0	1	1	0	0	0	0	0	**0**
Purulia	4	1	0	0	0	0	0	0	0	**0**
TOTAL	**62**	**29**	**23**	**11**	**8**	**6**	**18**	**4**	**2**	**4**

BLOOD PROTOZOAN DISEASES

ANAPLASMOSIS

Bovine anaplasmosis is a rickettsial disease transmitted by one host cattle tick, *Rhipicephalus* (*Boophilus*) *microplus* and also by blood sucking flies e.g.Tabanid flies and Stomoxys. Outbreaks of bovine anaplasmosis are due to infection with *Anaplasma marginale. Anaplasma centrale* is capable of producing a moderate degree of anaemia, but clinical outbreaks in the field are extremely rare. Clinical signs of anaplasmosis are fever (early stage but subnormal temp. at later stage), severe anaemia, jaundice, reduced milk yield, emaciation, panting and exhaustion.

In the year 2022-2023, reported Two Hundred and sixty-six (266) incidences were recorded in West Bengal which is increased in comparison to previous year (223). These Two Hundred and sixty-six (266) incidences were recorded from Birbhum, Purba & Paschim Burdwan, Howrah, Hooghly, Nadia, N-24 Pgs, S-24 Pgs, Malda & Bankura districts.

TABLE – I

MONTHWISE INCIDENCE OF ANAPLASMOSIS
REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

Month	No of Incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
April	19	1445	41	0	0.00	2.83	0.00
May	31	777	63	0	0.00	8.10	0.00
June	41	736	43	0	0.00	5.84	0.00
July	37	610	46	0	0.00	7.54	0.00
August	36	230	36	0	0.00	15.65	0.00
September	27	56	30	0	0.00	53.57	0.00
October	11	129	11	0	0.00	8.52	0.00
November	20	60	20	0	0.00	33.33	0.00
December	8	16	9	0	0.00	56.25	0.00
January	9	51	12	0	0.00	23.52	0.00
February	12	26	12	0	0.00	46.15	0.00
March	15	62	19	0	0.00	30.64	0.00
TOTAL	**266**	**4198**	**342**	**0**	**0.00**	**8.14**	**0.00**

TABLE – II

DISTRICTWISE INCIDENCE OF ANAPLASMOSIS
REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

District	No. of Incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
Bankura	44	904	48	0	0	5.31	0.00
Birbhum	9	454	10	0	0	2.20	0.00
Hooghly	37	631	47	0	0	7.45	0.00
Howrah	7	157	8	0	0	5.10	0.00
Malda	1	4	1	0	0	25.00	0.00
Nadia	1	30	1	0	0	3.33	0.00
North 24 Pgs	3	52	6	0	0	11.54	0.00
Pasch Burdwan	3	8	3	0	0	37.50	0.00
Pur Burdwan	141	1575	179	0	0	11.37	0.00
South 24 Pgs	20	383	39	0	0	10.18	0.00
Total	**266**	**4198**	**342**	**0**	**0**	**8.15**	**0.00**

THEILERIOSIS

Bovine tropical Theileriosis is a blood protozoan disease of cattle and buffalo caused by *Theileria annulata* transmitted by *Hyalomma anatolicum anatolicum.* Exotic and cross-bred cattle, young indigenous calves are more susceptible and indigenous cattle remain as a carrier. The disease occurs particularly in summer and rainy season (May to October). The pleomorphic erythrocytic forms (0.5-1.5 µm)-80% round or annular/rest-oval, rod shaped, comma shaped. Recovery from infection leads to the development of premunity and the animals act as carrier. The disease is manifested by high fever (105º – 107 ºF), enlargement of superficial lymph nodes and face, increase respiratory and heart rates, nasal discharge and lachrymation, laboured breathing, coughing, haemoglobinuria (rare), nervous signs due to cerebral form of Theileriosis and urticarial type of skin lesions.

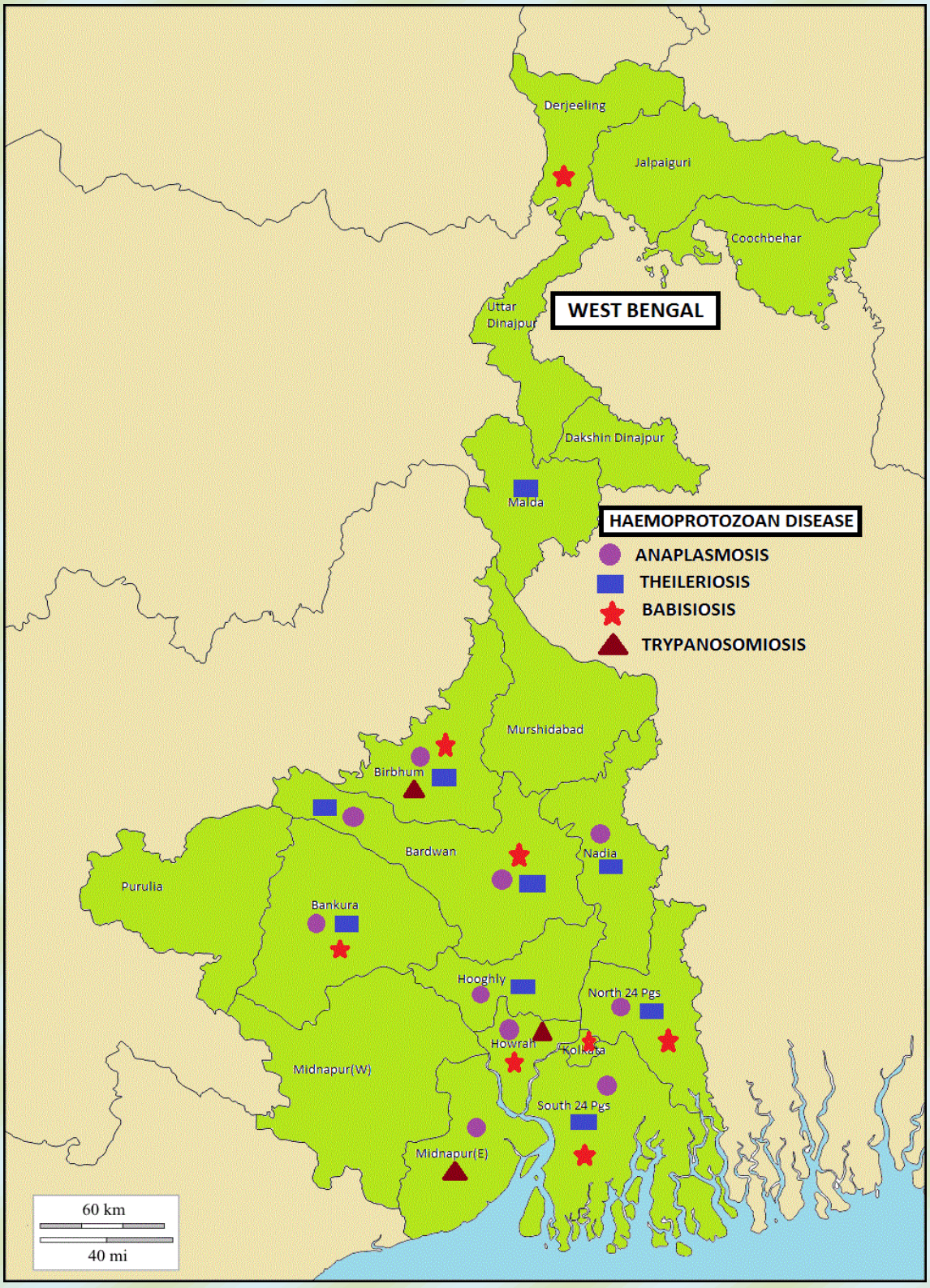
During the reporting year 2022-23, total Three hundred seventy-two (372) incidences of Theileriosis was observed in West Bengal. There is a little increase in incidence in comparison to the previous year (243). In this year highest One hundred thirty-nine (139) incidences recorded in Purba Burdwan district and fifty (50) incidences from Bankura followed by Forty-seven (47) incidences from Hooghly and forty (40) incidences from South 24-Pgs district.

Regarding seasonal variation the disease was occurred throughout the year. But for this year highest incidence were recorded in the month of August with fifty-eight (58) incidences, followed by fifty-six (56) incidences in July, fifty-three (53) in June and forty-eight (48) incidences in the month of September.

TABLE – III
MONTHWISE INCIDENCE OF THEILERIASIS REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

Month	No of Incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
April	22	1880	41	0	0.00	2.18	0.00
May	22	1207	35	0	0.00	2.90	0.00
June	53	2147	115	29	25.22	5.36	1.35
July	56	2995	68	2	2.94	2.27	0.07
August	58	571	80	0	0.00	14.01	0.00
September	48	489	64	0	0.00	13.09	0.00
October	21	744	22	0	0.00	2.96	0.00
November	25	205	31	0	0.00	15.12	0.00
December	22	103	28	0	0.00	27.18	0.00
January	7	74	10	0	0.00	13.51	0.00
February	15	89	17	0	0.00	19.10	0.00
March	23	376	31	0	0.00	8.24	0.00
Total	**372**	**10880**	**542**	**31**	**5.72**	**4.98**	**0.28**

DISTRIBUTION OF BLOOD PROTOZOAN DISEASES INCIDENCES IN WEST BENGAL FOR THE YEAR 2022-23



DISTRICTWISE INCIDENCE OF THEILERIASIS REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

District	No. of Incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
Bankura	50	3531	65	0	0.00	1.84	0.00
Birbhum	30	2440	30	0	0.00	1.23	0.00
Hooghly	47	654	63	0	0.00	9.63	0.00
Howrah	26	1116	102	29	28.43	9.14	2.60
Kolkata	3	10	4	0	0.00	40.00	0.00
Malda	13	94	21	0	0.00	22.34	0.00
Nadia	5	39	5	0	0.00	12.82	0.00
North 24 Pgs	13	650	16	0	0.00	2.46	0.00
Pasch Burdwan	1	5	1	0	0.00	20.00	0.00
Pasch Medinipur	1	110	1	0	0.00	0.91	0.00
Purb Burdwan	139	1754	177	0	0.00	10.09	0.00
Purb Medinipur	4	86	4	0	0.00	4.65	0.00
South 24 Pgs	40	391	53	2	3.77	13.55	0.51
Total	**372**	**10880**	**542**	**31**	**5.72**	**4.98**	**0.28**

BABESIOSIS

Bovine babesiosis is caused by protozoan parasites of the genus *Babesia*, order Piroplasmida, phylum Apicomplexa. Of the species affecting cattle, two – *Babesia bovis* and *B. bigemina* are widely distributed and of major importance in Africa, Asia, Australia, and Central and South America. Tick species are the vectors of *Babesia*. *Rhipicephalus* (*Boophilus*) *microplus* is the principal vector of *B. bigemina* and *B. bovis* and is widespread in the tropics and subtropics. *B. bovis* is generally more pathogenic than *B. bigemina.* The infections are characterised by high fever (105º-107º F), ataxia, anorexia, general circulatory shock, initially profuse diarrhoea followed by marked constipation and sometimes also nervous signs as a result of sequestration of infected erythrocytes in cerebral capillaries. Anaemia and haemoglobinuria (coffee coloured urine) may appear later in the course of the disease. An inverse age susceptibility occurs in Babesiosis. Infected animals develop a life-long immunity against re-infection with the same species.

In the year 2022 – 2023, One hundred ninety-seven (197) incidences of Babesiosis were reported from eight districts of West Bengal. The highest incidence was reported from Kolkata district with seventy-two (72) incidences followed by South 24 Pgs with fifty-three (53) incidences followed by Howrah with 39 incidences, Birbhum with 14, North 24 Pgs 13 & Hooghly with 3 incidences.

Regarding seasonal variation the disease was occurred throughout the year. But for this year highest incidence were recorded in the month of August with forty-four (44) incidences, followed by July with twenty-six (26) incidences, twenty incidences in September , eighteen incidences in June, fifteen in May and 11 in January, February and March each.

TABLE – V
MONTHWISE INCIDENCE OF BABESIOSIS
REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

Month	No of Incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
April	9	909	52	0	0.00	5.72	0.00
May	15	457	52	0	0.00	11.38	0.00
June	18	728	110	29	26.36	15.11	3.98
July	26	134	57	0	0.00	42.54	0.00
August	44	281	44	0	0.00	15.66	0.00
September	20	87	32	0	0.00	36.78	0.00
October	14	141	23	0	0.00	16.31	0.00
November	9	142	28	0	0.00	19.72	0.00
December	9	52	22	0	0.00	42.31	0.00
January	11	127	34	0	0.00	26.77	0.00
February	11	91	42	0	0.00	46.15	0.00
March	11	168	61	0	0.00	36.31	0.00
Total	**197**	**3317**	**557**	**29**	**5.21**	**16.79**	**0.87**

TABLE – VI
DISTRICTWISE INCIDENCE OF BABESIOSIS
REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

District	No. of Incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
Bankura	1	35	1	0	0.00	2.86	0.00
Birbhum	14	533	15	0	0.00	2.81	0.00
Hooghly	3	12	3	0	0.00	25.00	0.00
Howrah	39	875	127	29	22.83	14.51	3.31
Kolkata	72	757	312	0	0.00	41.22	0.00
North 24 Pgs	13	275	20	0	0.00	7.27	0.00
Purb Burdwan	2	5	2	0	0.00	40.00	0.00
South 24 Pgs	53	825	77	0	0.00	9.33	0.00
Total	**197**	**3317**	**557**	**29**	**5.21**	**16.79**	**0.87**

TRYPANOSOMIOSIS

Trypanosomosis, also known as "Surra" in India, is a haemoprotozoan disease caused by an extra-cellular parasite, *Trypanosoma evansi*. The disease is mechanically transmitted by biting flies. i.e. Tabanus, Stomoxys, Haematopota, Chrysops, Hippobosca. Trypanosomosis in susceptible animals, including camels (dromedary and bactrian), horses, dog, buffalo, cattle, goat and pigs is manifested by intermittent fever, directly associated with parasitaemia, together with a progressive anaemia, loss of condition, transient local or general urticarial eruptions cachectic, staggering gait, paraplegia, circling movements, nervous excitement, hitting of head against hard object, profuse salivation, coma, death (per-acute cases within 6-12 hrs). Abortions have been reported in buffalos and camels and there are indications that the disease causes immunodeficiency. Animals subjected to stress like malnutrition, pregnancy, work are more susceptible to disease.

In the year 2022-2023, total thirteen (13) incidences were reported, highest (3) three incidences from Bankura, Howrah, Purbo Medinipur district each followed by one (1) incidence from North 24 pgs, South 24 pgs, Purbo Burdwan and Uttar Dinajpur district each.

Regarding seasonal variation the disease was occurred throughout the year. In this year it is reported in month of May, June, July, November and March.

TABLE – VII
DISTRICTWISE INCIDENCE OF TRYPANOSOMIOSIS REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

District	No of Incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
Bankura	3	260	3	0	0.00	1.15	0.00
Howrah	3	120	3	1	33.33	2.50	0.83
North 24 Pgs	1	2	1	0	0.00	50.00	0.00
Purba Bardhaman	1	5	1	0	0.00	20.00	0.00
Purbo Medinipur	3	85	3	0	0.00	3.53	0.00
South 24 Pgs	1	15	1	0	0.00	6.67	0.00
Uttar Dinajpur	1	5	1	0	0.00	20.00	0.00
Total	**13**	**492**	**13**	**1**	**7.69**	**2.64**	**0.20**

TABLE – VIII

MONTH WISE INCIDENCE OF TRYPANOSOMIOSIS REPORTED IN WEST BENGAL FOR THE YEAR 2022-2023

District	No of Incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
May	2	32	2	0	0.00	6.25	0.00
June	3	130	3	1	33.33	2.31	0.77
July	4	285	4	0	0.00	1.40	0.00
November	3	30	3	0	0.00	10.00	0.00
March	1	15	1	0	0.00	6.67	0.00
Total	**13**	**492**	**13**	**1**	**7.69**	**2.64**	**0.20**

TABLE – IX

BLOOD PROTOZOAN DISEASES RECORDED DURING LAST TEN YEARS IN WEST BENGAL

Disease	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Trypanosomiosis	7	2	4	2	2	4	6	10	6	13
Anaplasmosis	22	50	8	7	3	13	115	189	223	266
Theileriaois	14	7	7	13	18	77	250	208	243	372
Babesiasis	15	4	3	4	5	19	45	26	66	197

EQUINE INFECTIOUS ANAEMIA (SWAMP FEVER)

Equine Infectious Anaemia (EIA) is a contagious disease of horses, caused by a virus and characterized by a long chronic illness after an initial acute attack. The causative virus of EIA is a non-oncogenic Retrovirus. It is a RNA virus and this virus has got resemblance with human AIDS virus.

The incubation period is 2 - 4 weeks. The cardinal symptoms are high rise of temperature (intermittent fever), prostration, jaundice, petechiation, depression, weakness, anorexia, wasting, sweating, ocular and nasal discharge, anaemia, oedema of the body and legs may develop in the disease. Pregnant mares may abort.

The disease has been diagnosed on all continents. The morbidity varies considerably and may approach 100% in small areas where the population of carrier horses and insect vectors are particularly dense. The Case fatality rate is usually about 50%. All breeds and age groups of equidae are susceptible. The virus is destroyed by direct sunlight. The virus persists for several months in room temperature, in urine, faeces, dried blood and serum.

There is marked seasonal incidence of the disease, most cases occurring in the summer and autumn. It has been associated with low lying and newly settled bush areas due to greater number of insect vector in such areas. Undernourished, parasitized and debilitated animals are most susceptible.

In West Bengal, **no** incidence of EIA was reported during last Ten (10) years. In the previous year (2021-22), 14 (fourteen) serum samples collected from different parts of West Bengal and send to National Research Centre on Equine (NRCE), Hissar. As per laboratory diagnosis all samples were found negative to EIA.

In the **reporting year (2022-23) total 16 (Sixteen) samples** were collected from equines under the jurisdiction of Kolkata Mountain Police & SVSPA, Barrackpore and send to National Research Centre on Equine (NRCE), Hissar. As per laboratory diagnosis **all samples were found negative to EIA.**

PESTE -des - PETITS RUMINANTS (PPR)

PPR is called Pseudo-Rinderpest of small ruminants. It is an acute or sub-acute viral disease of goats and sheep characterized by fever, necrotic stomatitis, gastro-enteritis and pneumonia. The disease is caused by *Moribillivirus* of Paramyxoviridae family that is closely related to the causative agent of measles, canine distemper.

This virus has a particular affinity for lymphoid tissue and epithelial tissue of gastro-intestinal tract in which it produces viraemia. Secretions and excretions of the sick animals are the main source of infection.

T A B L E – I

EPIDEMIOLOGICAL OBSERVATION ON PPR

Year	No. of incidence	Population at Risk	Attack	Death	C.F.R (%)	Morbidity (%)	Mortality (%)
2018-2019	11	1332	251	25	9.96	18.84	1.88
2019-2020	23	3067	339	32	9.96	18.84	1.88
2020-2021	12	1066	171	67	39.18	16.04	6.29
2021-2022	25	4921	439	68	15.49	8.92	1.38
2022-2023	**9**	**1780**	**345**	**43**	**12.46**	**19.38**	**2.42**

T A B L E – II

MONTHWISE PPR OUTBREAK REPORTED IN WEST BENGAL FOR THE YEAR 2022-23

Month	No. of incidence	Population at risk	Attack	Death	C.F.R (%)	Morbidity (%)	Mortality (%)
April	2	113	21	8	38.10	18.58	7.08
May	0	0	0	0	0	0	0
June	2	365	2	0	0.00	0.55	0.00
July	1	2	2	0	0.00	100.00	0.00
August	0	0	0	0	0	0	0
September	4	1300	320	35	10.94	24.62	2.69
October	0	0	0	0	0	0	0
November	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0
January	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0
TOTAL	**9**	**1780**	**345**	**43**	**12.46**	**19.38**	**2.42**

DISTRIBUTION OF PPR INCIDENCES IN WEST BENGAL FOR THE YEAR 2022-23

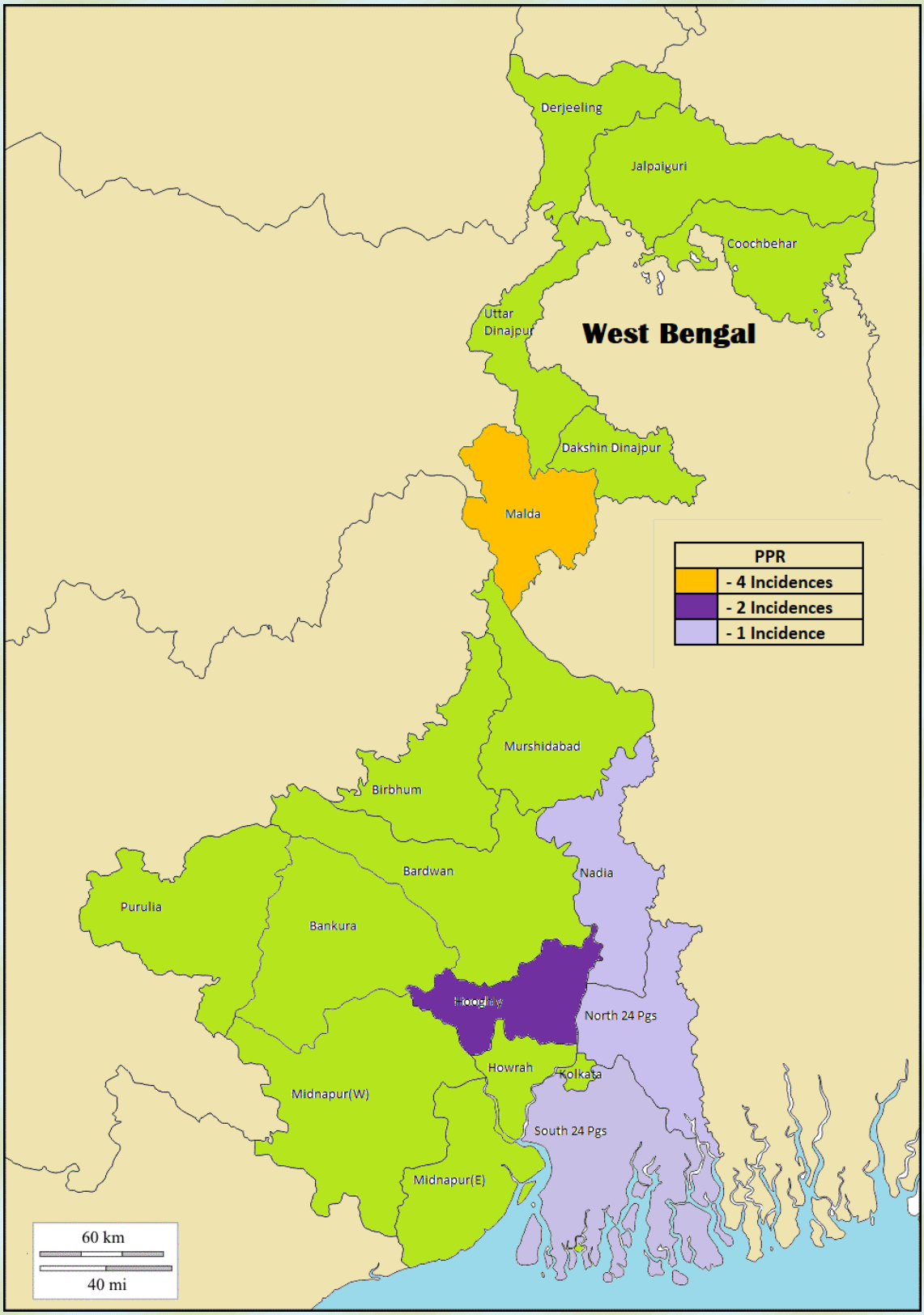


TABLE - III
DISTRICTWISE OUTBREAKS OF PPR REPORTED IN WEST BENGAL FOR THE YEAR 2022 – 2023

District	No. of incidence	Population at risk	Attack	Death	C.F.R (%)	Morbidity (%)	Mortality (%)
Hooghly	2	365	2	0	0.00	0.55	0.00
Malda	4	1300	320	35	10.94	24.62	2.69
Nadia	1	43	9	8	88.89	20.93	18.60
North 24 Pgs	1	70	12	0	0.00	17.14	0.00
South 24 Pgs	1	2	2	0	0.00	100.00	0.00
Total	**9**	**1780**	**345**	**43**	**12.46**	**19.38**	**2.42**

In the year 2022 – 2023, nine (09) outbreaks were reported in West Bengal which has decreased in comparison to last year ,twenty-five (25). The case fatality rate (12.46%) decreased remarkably but morbidity rate (19.38%) and mortality rate (2.42%) has increased slightly as compared to previous year. The highest, four (4) incidences of PPR were reported from Malda district followed by two (2) incidences from Hooghly district followed by one (1) incidences from each Nadia, North and South 24 Paragana district.

So far seasonal variation, it has been observed that PPR outbreaks occur throughout the year. Maximum four (4) incidences were reported in September, followed by two (2) incidences in the month April & June each, and one (1) incidences reported in July It reveals that maximum number of outbreaks occurred during monsoon period that is June to September in this year. So vaccination programme should be scheduled accordingly to control the disease.

In the year 2022–2023, out of all 23 districts in the state, the disease was reported from five (5) districts only. No PPR incidence reported from other eighteen (18) districts. So surveillance programme at the field level should be improved equally to all the districts of West Bengal.

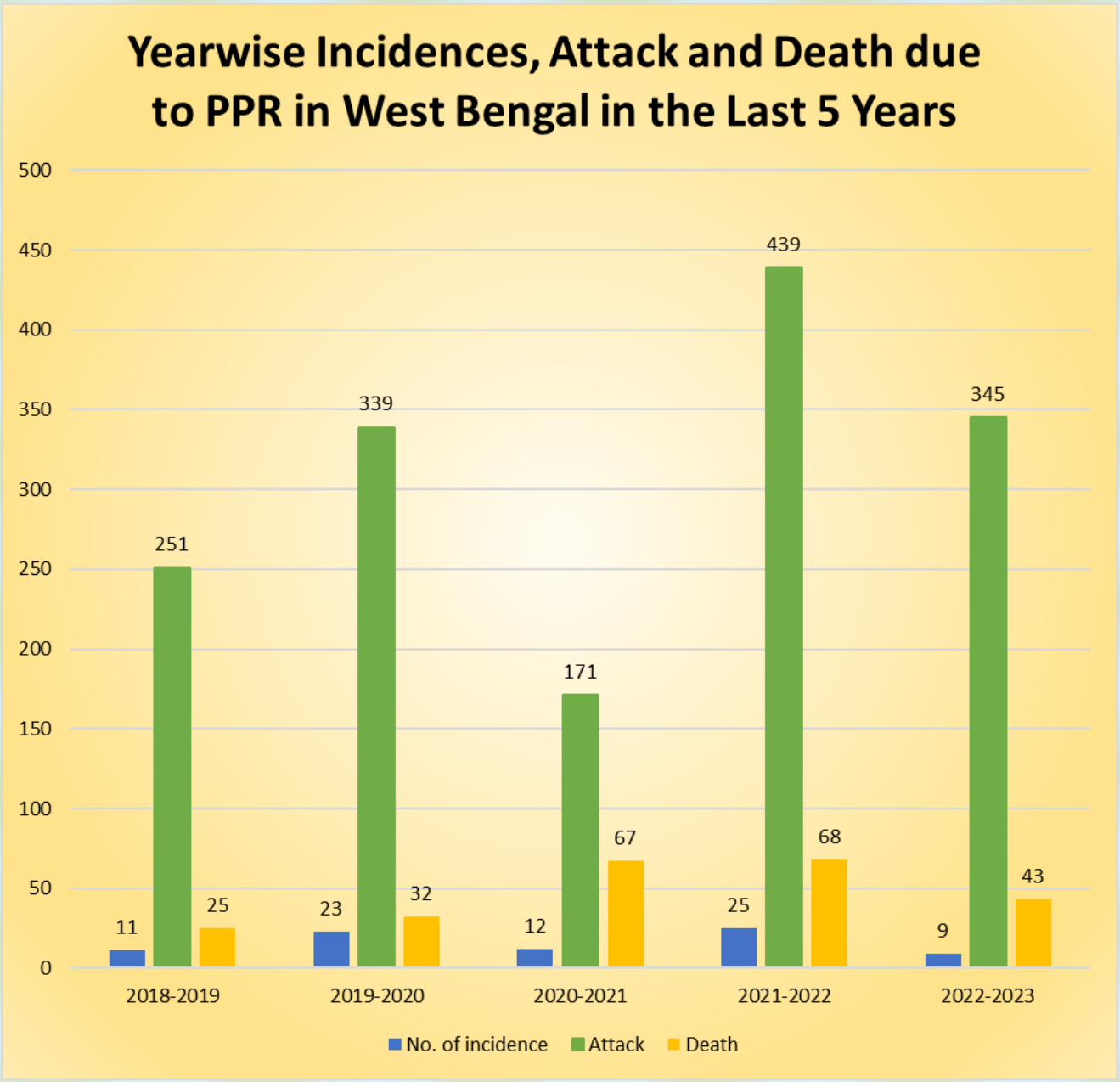

Yearwise Incidences, Attack and Death due to PPR in West Bengal in the Last 5 Years
500
450
400
350
300
250
200
150
100
50
0
11
251
25
23
339
32
12
171
67
25
439
68
9
345
43
2018-2019
2019-2020
2020-2021
2021-2022
2022-2023
No. of incidence
Attack
Death

TABLE – IV

DISTRICT WISE PPR OUTBREAK REPORTED IN WEST BENGAL DURING LAST TEN YEARS

District	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	**2022-23**
Cooch Behar	0	0	0	0	0	0	0	0	0	**0**
Jalpaiguri	6	4	5	0	1	1	0	0	0	**0**
Darjeeling	0	0	0	0	0	0	1	0	0	**0**
Uttar Dinajpur	1	0	6	3	0	0	0	0	0	**0**
Dakshin Dinajpur	1	1	3	4	0	1	0	0	0	**0**
Malda	14	7	4	2	0	0	0	1	7	**4**
Murshidabad	1	0	1	1	0	0	0	0	0	**0**
Nadia	1	4	11	3	0	1	8	1	0	**1**
North 24 Parganas	2	1	1	0	0	3	0	1	2	**1**
South 24 Parganas	1	0	2	0	2	0	2	0	6	**1**
Kolkata	2	2	1	0	0	0	0	1	1	**0**
Howrah	4	12	13	9	1	0	0	0	2	**0**
Hooghly	5	4	9	3	2	1	1	3	1	**2**
Pur Burdwan	6	9	4	4	2	0	1	1	1	**0**
Birbhum	14	4	22	3	1	0	1	1	1	**0**
Bankura	5	9	9	2	0	1	4	0	2	**0**
Purba Medinipur	0	0	0	0	0	1	0	0	0	**0**
Paschim Medinipur	5	1	7	6	6	0	3	0	1	**0**
Purulia	7	4	33	14	3	2	2	3	1	**0**
TOTAL	**75**	**62**	**131**	**54**	**18**	**11**	**23**	**12**	**25**	**09**

GOAT POX

Goat Pox is a highly contagious disease of goat and sheep caused by *Capri pox* virus and characterized by fever and vesicular eruption on body surface. Skin lesion and scabs are major sources of virus. The virus may survive in scabs for at least 3 months. Transmission is often through skin abrasions or by inhalation. Viraemia occurs and the virus is carried to other sites in the skin, regional nodes, spleen, kidney and lungs. Virus is excreted from skin lesions, nasal exudates and milk. Young animals are most severely affected. When the disease first enters in a susceptible flock, morbidity and mortality especially in kids is high.

T A B L E – I
EPIDEMIOLOGICAL OBSERVATION ON GOAT POX

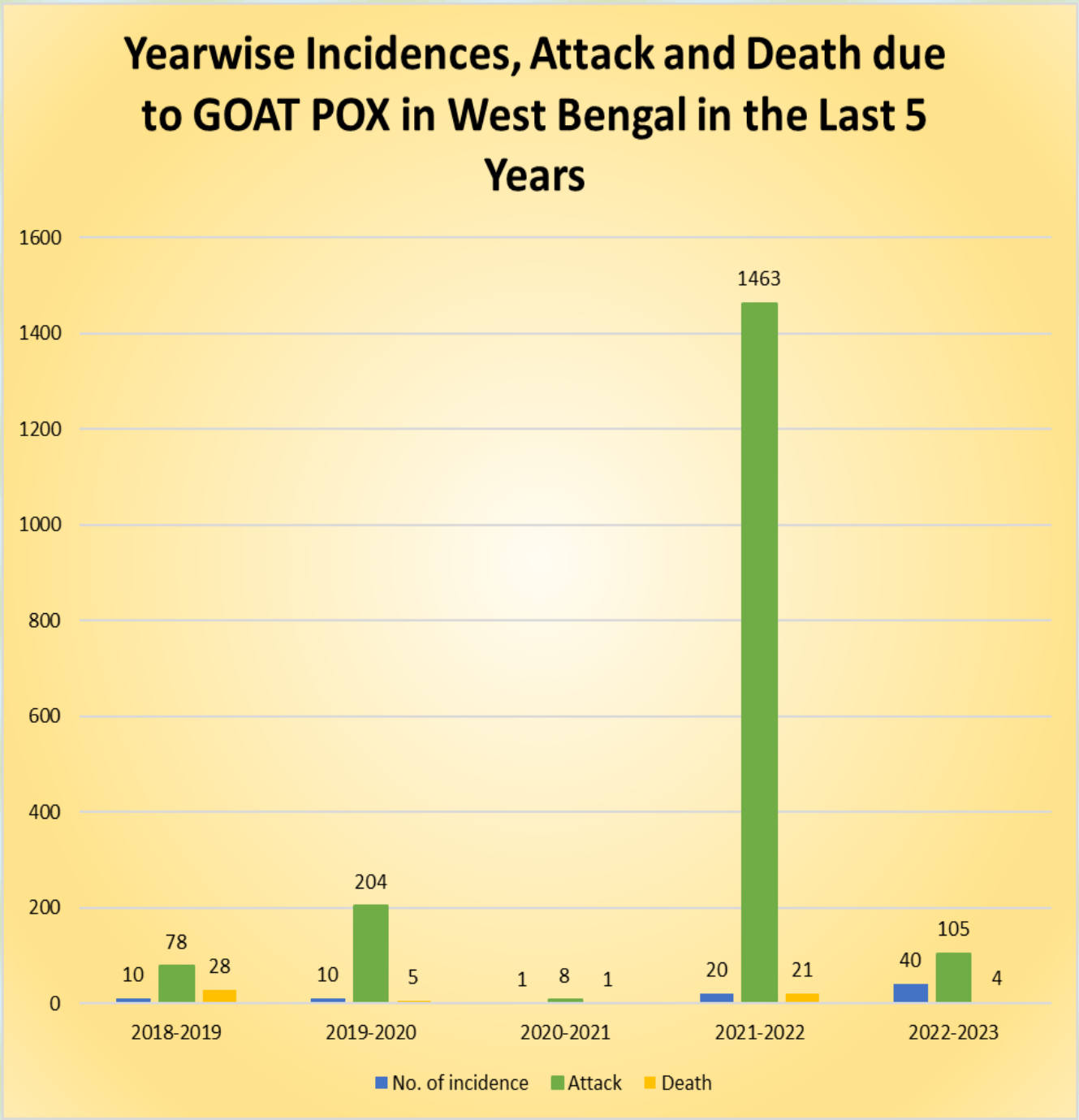
Year	No. of incidence	Population at Risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2018-2019	10	9930	78	28	35.90	0.79	0.28
2019-2020	10	1638	204	5	2.45	12.45	0.31
2020-2021	1	46	8	1	12.50	17.39	2.17
2021-2022	20	8592	1463	21	1.44	17.39	0.24
2022-2023	**40**	**2603**	**105**	**4**	**3.81**	**4.03**	**0.15**

During the reporting year (2022-23), forty (40) incidence was recorded which is higher in comparison to the previous years (20). Morbidity rate (4.03%) and mortality rate (0.15%) decreased but case fatality rate (3.81%) slightly increased in comparison with last year. In this year, highest incidence was reported from Howrah district twenty-six (26) followed by South 24 pgs eight (8), Purbo Medinipur two (2). So far seasonal variation, the highest incidence was reported in August eight (8) followed by September & October Seven (7)

It reveals from the report that most of the incidences reported only from 1 to 7 districts during last five years. So, it is necessary to improve the surveillance programme to justify the absence of disease in the districts and to take control measure to prevent spread of disease.

T A B L E – II
GOAT POX OUTBREAK IN WEST BENGAL FOR THE YEAR 2022-23

District	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
Birbhum	1	400	3	0	0.00	0.75	0.00
Darjeeling	1	170	2	0	0.00	1.18	0.00
Hooghly	1	250	1	0	0.00	0.40	0.00
Howrah	26	1445	57	2	3.51	3.94	0.14
Malda	1	5	1	0	0.00	20.00	0.00
Purbo Medinipur	2	302	31	2	6.45	10.26	0.66
South 24 Pgs	8	31	10	0	0.00	32.26	0.00
Total	**40**	**2603**	**105**	**4**	**3.81**	**4.03**	**0.15**


Yearwise Incidences, Attack and Death due to GOAT POX in West Bengal in the Last 5 Years
1600
1400
1200
1000
800
600
400
200
0
10
78
28
10
204
5
1
8
1
20
1463
21
40
105
4
2018-2019
2019-2020
2020-2021
2021-2022
2022-2023
No. of incidence
Attack
Death

T A B L E – III
MONTHWISE GOAT POX OUTBREAK REPORTED IN WEST BENGAL FOR THE YEAR 2022-23

Month	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
April	1	5	1	0	0.00	20.00	0.00
May	2	205	16	1	6.25	7.80	0.49
June	3	5	3	0	0.00	60.00	0.00
July	5	450	11	2	18.18	2.44	0.44
August	8	236	10	0	0.00	4.24	0.00
September	7	100	14	0	0.00	14.00	0.00
October	7	867	32	1	3.13	3.69	0.12
November	5	330	14	0	0.00	4.24	0.00
January	1	400	3	0	0.00	0.75	0.00
March	1	5	1	0	0.00	20.00	0.00
Total	**40**	**2603**	**105**	**4**	**3.81**	**4.03**	**0.15**

TABLE – IV
DISTRICT WISE REPORTED OUTBREAK OF GOAT POX DURING LAST TEN YEARS

District	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	**2022-23**
Cooch Behar	0	0	0	0	1	0	0	0	0	**0**
Jalpaiguri	0	0	0	0	0	0	0	0	0	**0**
Darjeeling	0	0	0	0	0	0	0	0	0	**1**
Uttar Dinajpur	0	0	0	0	0	0	0	0	0	**0**
Dakshin Dinajpur	0	0	0	0	0	0	0	0	0	**0**
Malda	0	0	0	0	0	0	0	0	0	**1**
Murshidabad	0	0	0	0	0	0	0	0	0	**0**
Nadia	1	1	0	0	2	0	1	0	0	**0**
North 24 Pgs	12	3	0	0	0	5	2	0	3	**0**
South 24 Pgs	4	0	0	0	0	0	0	0	0	**8**
Howrah	0	0	0	2	3	5	4	1	5	**26**
Kolkata	5	0	0	0	0	0	0	0	0	**0**
Hooghly	3	0	2	0	0	0	0	0	7	**1**
Burdwan	10	2	0	1	0	0	0	0	0	**0**
Birbhum	4	0	0	0	1	0	0	0	4	**1**
Bankura	0	0	0	0	0	0	0	0	0	**0**
Purba medinipur	0	0	0	0	0	0	3	0	0	**2**
Paschim Medinipur	0	0	0	0	0	0	0	0	0	**0**
Purulia	0	0	0	0	0	0	0	0	0	**0**
TOTAL	**39**	**6**	**2**	**3**	**7**	**10**	**10**	**1**	21	**40**

SWINE FEVER (HOG CHOLERA)

Swine fever is a highly infectious viral disease characterized by rapid spread and a high morbidity and mortality rate. This virus belongs to the genus Peste virus in the family of Togaviridae. The virus affects only in swine. Initially the disease is manifested by fever, loss of appetite, followed by diarrhea, weakness in the hindquarter and animals stagger. Mucopurulent discharge from the eyes is frequently seen. Nervous symptoms occur quite commonly followed by encephalomyelitis and death.

The source of virus is always an infected pig and its products. The infection is usually acquired by ingestion and inhalation. When the disease is introduced into a susceptible population an epidemic usually develops rapidly because of the low resistance against the virulent virus and the short incubation period.

T A B L E – I

EPIDEMIOLOGICAL OBSERVATION ON SWINE FEVER

Year	No. of incidence	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2015-2016	0	0	0	0	0	0
2016-2017	0	0	0	0	0	0
2017-2018	0	0	0	0	0	0
2018-2019	1	1	1	100.00	10.00	10.00
2019-2020	0	0	0	0	0	0
2020-2021	0	0	0	0	0	0
2021-2022	0	0	0	0	0	0
2022-2023	**0**	**0**	**0**	**0**	**0**	**0**

In the reporting year (2022-23) no incidence was reported from any district out of twenty three districts of our State. It reveals from the report that 0 to 1 incidence were reported during last eight years. Hence, surveillance of all districts where pig population is more, should have been improved to give any reason if there is any under-reporting.

AVIAN INFLUENZA

Avian Influenza is a highly infectious and extremely contagious multi organ involving disease of birds caused by Influenza type A virus belonging to Orthomixoviridae (RNA) family. Wild birds are thought to be the natural hosts of the virus. The virus circulates among birds worldwide.

The Avian influenza virus primarily infects birds and does not typically infect humans. In 1997, however, the first instance of direct bird-to-human transmission of H5N1 was documented during an outbreak of avian influenza among poultry in Hong Kong; the virus caused severe respiratory illness in 18 people, among them 6 were died. Since that time, there have been other instances of H5N1 infection among humans. However, so far, H5N1 viruses have not been capable of efficient human-to-human transmission. This is something that is being watched carefully and is being investigated during recent epizootics. Outbreaks of low-pathogenic avian influenza (LPAI) cause little mortality and are easily overlooked, but they may evolve to become HPAI by simple drifting of virus even by a single point mutation. Therefore, it may also be a potential source of origin of deadly human influenza virus.

Recently, Government of India has given importance for active surveillance of H9N2 Avian Influenza virus in the country with routine surveillance as usual in this regard.

EPIDEMIOLOGY

All influenza viruses are genetically labile, genetic composition of the viruses' changes from time to time. These constant changes in the antigenic composition or "point mutation" of influenza viruses are known as antigenic drift. Influenza viruses including subtype from different species can swap or "re-assort" genetic materials and merge during re assortment process. This phenomenon is known as antigenic shift.

Infected birds shed virus through faecal materials, saliva, nasal and ocular secretions. Avian influenza viruses spread among susceptible birds with contaminated excretions. It is believed that most of H5N1 infection in human has resulted from contact with infected poultry or contaminated surfaces. The HPAI can survive in contaminated manure for 3 months. A single gram of contaminated manure can contain enough viruses to infect 1 million birds. In water virus can survive from 4 days to 30 days.

EPIDEMIOLOGICAL OBSERVATION ON AVIAN INFLUENZA

Year	No. of incidence	No. of District involved	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2016-2017	0	0	0	0	0	0	0
2017-2018	0	0	0	0	0	0	0
2018-2019	0	0	0	0	0	0	0
2019-2020	0	0	0	0	0	0	0
2020-2021	0	0	0	0	0	0	0
2021-2022	0	0	0	0	0	0	0
2022-2023	0	0	0	0	0	0	0

In the year 2022-23, no outbreak was reported from West Bengal.

RANIKHET DISEASE (NEW CASTLE DISEASE)

Ranikhet disease is a highly contagious and destructive disease, which attacks mostly chickens and guinea fowl. Man is susceptible and there are numerous reports of self-limiting conjunctivitis in laboratory workers and in poultry farmers exposed to diseased birds and living virus vaccines.

The causative agent is a member of paramixogroup-I of virus, which can cause mortality upto 100% in susceptible chickens. It is characterised by respiratory distress, nervous signs leading to wing paralysis, in-coordination of movement and lameness, haemorrhagic ulcerative enteritis with viscerotropic and neurotropic strains. The lesions of the digestive tract are more prominent, haemorrhages often with ulceration of the lymphoid patches may be found in the mucosa of the gizzard and along the length of the intestinal tract. Petechial haemorrhages may be present in the mucosa of the pro-ventriculus, ilio-caecal region, on the mesentery, peritoneum, heart and other tissues.

The disease occurs worldwide in a variety of domestic and wild birds. Virus is present in exhaled air, in respiratory discharges, in faeces, in eggs laid during clinical stage and in all parts of the carcass during acute infection and at death. Chickens are readily infected by aerosols and by ingesting of water or food contaminated with the virus. Mortality depends on virulence of the virus strain, environmental and flock conditions.

T A B L E - I

EPIDEMIOLOGICAL OBSERVATION ON RANIKHET DISEASE

Year	No. of incidence	Population at Risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2018-2019	36	62238	26542	15268	57.52	42.65	24.53
2019-2020	36	23860	4897	3163	64.59	20.52	13.26
2020-2021	48	12185	3894	2372	60.91	31.96	19.47
2021-2022	36	17016	2437	502	20.60	14.32	2.95
2022-2023	**37**	**2809**	**616**	**508**	**82.47**	**21.93**	**18.08**

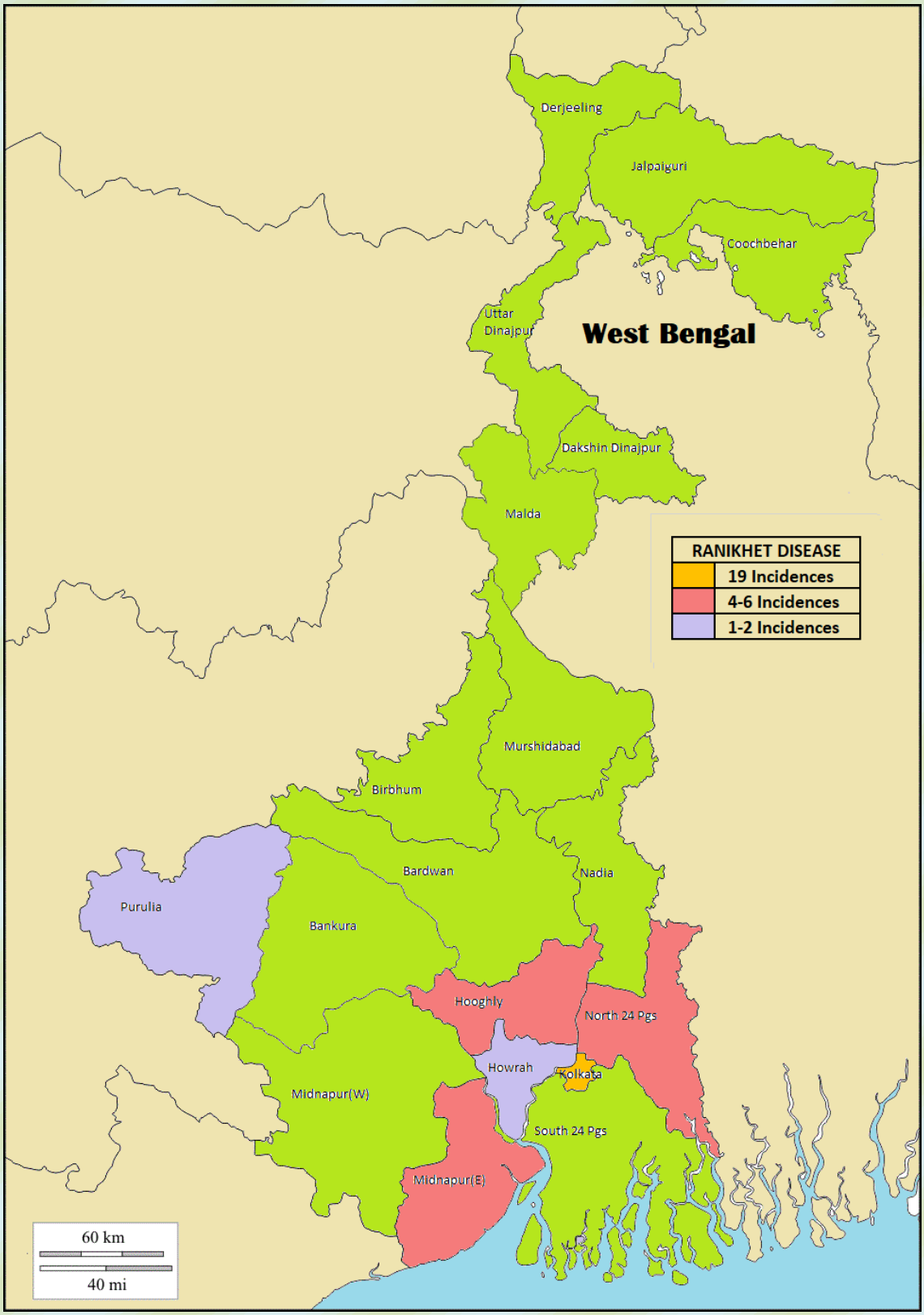
In the year 2022 - 2023, total thirty-seven (37) outbreaks were reported which is increased as compared to previous year. Case fatality rate (82.47%) increased remarkably; Morbidity rate (21.93%) and Mortality rate (18.08%) were also increased in comparison to previous year.

The disease occurs throughout the year. The highest eight (08) incidences recorded in December followed by five (05) incidences were recorded in the month June & September ,four (4) incidences were recorded in the month of July & October. Incidences were higher in the months of winter and pre & post-winter. So vaccination approach against the disease may be conducted intensively on the basis of seasonal variation and with this immune status in vaccinated bird should be assessed routinely .

So far geographic variation is concerned, the highest nineteen (19) incidences were reported from Kolkata followed by six (06) from Purba Medinipur, five (5) incidences were reported from Hooghly, four (4) from N24 Pgs and two (2) from Howrah district.

Out of twenty three districts in the state, the disease was reported only from six (06) districts. No outbreak was reported from Coochbehar, Jalpaiguri,Alipurduar,Darjeeling, Siliguri MP, Uttar Dinajpur, Dakshin Dinajpur, Murshidabad, Purbo Bardhaman,Paschim Burdwan, Paschim Medinipur, Jhargram, S24 Pgs and Malda districts. The Ranikhet disease is an important disease of poultry in our state. Veterinarinary Officers and Assistant Director; ARD (Disease Investigation) of each district should be alert about diagnosis, surveillance as well as about disease reporting system.

DISTRIBUTION OF RANIKHET DISEASE INCIDENCES IN WEST BENGAL FOR THE YEAR 2022-23



The disease still is a problem in the state, we are very much aware that meat type bird farming is mainly prevailing in our state than that of layer farming and farmers are maintaining the birds in the multi age system of rearing and they are very much habituated with more or less schedule vaccination programme. These high incidences of Ranikhet Disease may be due to poor management practice and some other infective and non-infective immuno suppresser. However, due to the calamity of Ranikhet Disease, farmers are facing a huge economic loss. So, vaccination schedule including molecular activity of field virus may be studied for taking effective control programme.

T A B L E – II

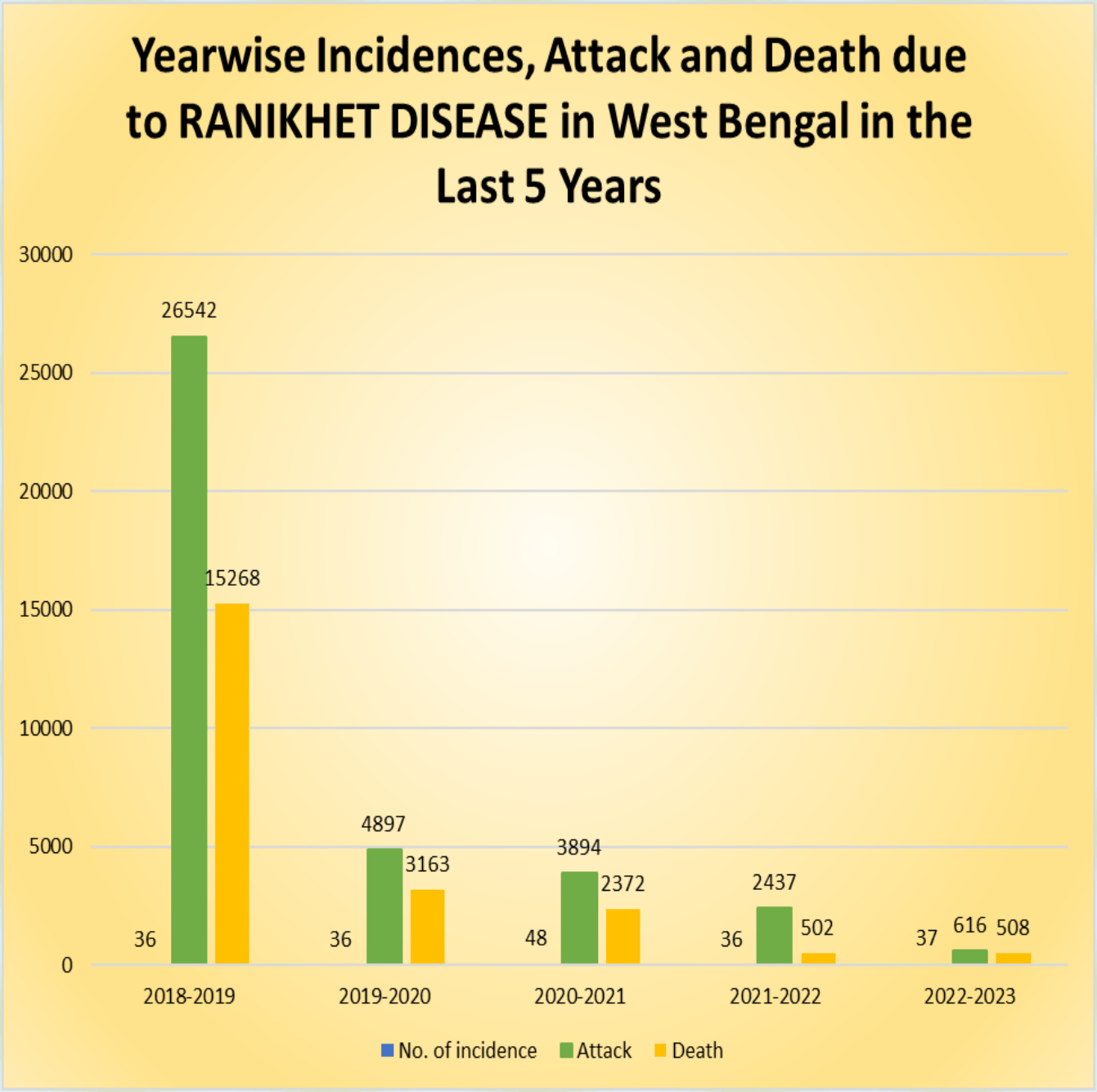
DISTRICTWISE OUTBREAKS OF RANIKHET DISEASE REPORTED IN WEST BENGAL FOR THE YEAR 2022 – 2023

District	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
Hooghly	5	1049	91	62	68.13	8.67	5.91
Howrah	2	204	51	9	17.65	25.00	4.41
Kolkata	19	343	83	68	81.93	24.20	19.83
North 24 Pgs	4	420	360	360	100.00	85.71	85.71
Purbo Medinipur	6	792	30	8	26.67	3.79	1.01
Purulia	1	1	1	1	100.00	100.00	100.00
Total	**37**	**2809**	**616**	**508**	**82.47**	**21.93**	**18.08**

T A B L E – III

MONTHWISE OUTBREAKS OF RANIKHET DISEASE REPORTED IN WEST BENGAL FOR THE YEAR 2022 –2023

Month	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
April	1	6	1	1	100.00	16.67	16.67
May	3	180	10	4	40.00	5.56	2.22
June	5	595	52	52	100.00	8.74	8.74
July	4	641	7	3	42.86	1.09	0.47
September	5	213	54	12	22.22	25.35	5.63
October	4	600	316	304	96.20	52.67	50.67
November	2	60	24	20	83.33	40.00	33.33
December	8	114	27	27	100.00	23.68	23.68
January	3	160	63	43	68.25	39.38	26.88
February	2	240	62	42	67.74	25.83	17.50
Total	**37**	**2809**	**616**	**508**	**82.47**	**21.93**	**18.08**


Yearwise Incidences, Attack and Death due to RANIKHET DISEASE in West Bengal in the Last 5 Years
30000
25000
20000
15000
10000
5000
0
26542
15268
4897
3163
3894
2372
2437
502
616
508
36
36
48
36
37
2018-2019
2019-2020
2020-2021
2021-2022
2022-2023
No. of incidence
Attack
Death

T A B L E – IV

DISTRICT WISE RANIKHET DISEASE OUTBREAKS REPORTED IN WEST BENGAL DURING LAST TEN YEARS

District	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2022-22	2022-23
Coochbehar	1	0	0	0	2	0	0	0	0	0
Jalpaiguri	13	4	3	0	1	0	0	1	2	0
Darjeeling	0	0	0	0	0	0	0	1	0	0
Uttar Dinajpur	14	10	1	7	0	0	0	0	0	0
Dakshin Dinajpur	8	14	6	2	0	0	0	0	0	0
Malda	1	0	0	1	0	1	0	0	1	0
Murshidabad	0	1	0	3	0	0	0	0	0	0
Nadia	11	1	0	3	0	2	0	0	1	0
N-24 Parganas	21	11	1	2	9	9	6	2	1	4
S-24 Parganas	26	4	0	3	8	7	3	15	3	0
Kolkata	0	3	0	0	0	0	6	5	18	19
Howrah	21	5	1	4	9	13	11	7	3	2
Hooghly	9	1	0	0	1	1	0	2	0	5
Burdwan	14	6	1	4	0	0	0	2	0	0
Birbhum	4	6	9	13	0	1	4	0	1	0
Bankura	2	0	0	2	0	1	1	0	2	0
Purba Medinipur	3	2	9	6	3	1	6	11	4	6
Paschim Medinipur	1	0	0	0	0	0	0	2	0	0
Purulia	14	12	9	0	0	0	0	0	0	1
TOTAL	**163**	**80**	**40**	**49**	**33**	**36**	**36**	**48**	**36**	**37**

INFECTIOUS BURSAL DISEASE (GUMBORO DISEASE)

Infectious Bursal Disease (IBD) is an infectious and highly contagious viral disease of young chickens usually up to six weeks of age, although the disease may be seen in birds upto 15 weeks of age. The disease onset suddenly after an incubation period of 3 - 4 days and characterised by short course and extensive destruction of lymphocytes particularly in the bursa of fabricius and also in other lymphoid tissue, haemorrhages in the leg and thigh muscles, watery diarrhoea, soiled vent feather, inflammation of the cloaca and anorexia. The causal agent is IBD virus. It is most readily isolated from the cloacal bursa and may be isolated from any organs. The virus is very stable and difficult to eradicate from premises.

Results of IBDV infection are dependent upon age, breed of chicks and virulence of the virus. 3 to 6 weeks of age is the most susceptible to clinical disease. The affected chicks excretes virus in its dropping for upto two weeks after infection which is an important factor in the transmission of infection.

Morbidity is often high but mortality is variable. The immuno-suppressive capabilities are now considered as greatest threat to poultry industry in this state.

T A B L E – I

EPIDEMIOLOGICAL OBSERVATION ON INFECTIOUS BURSAL DISEASE

Year	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2018-2019	5	23250	3909	1953	49.96	16.81	8.40
2019-2020	20	35180	6458	3030	46.92	18.36	8.61
2020-2021	18	16987	8524	5876	68.93	50.18	34.59
2021-2022	26	52861	12291	6520	53.05	23.25	12.33
2022-2023	**13**	**37200**	**2084**	**1893**	**90.83**	**5.60**	**5.09**

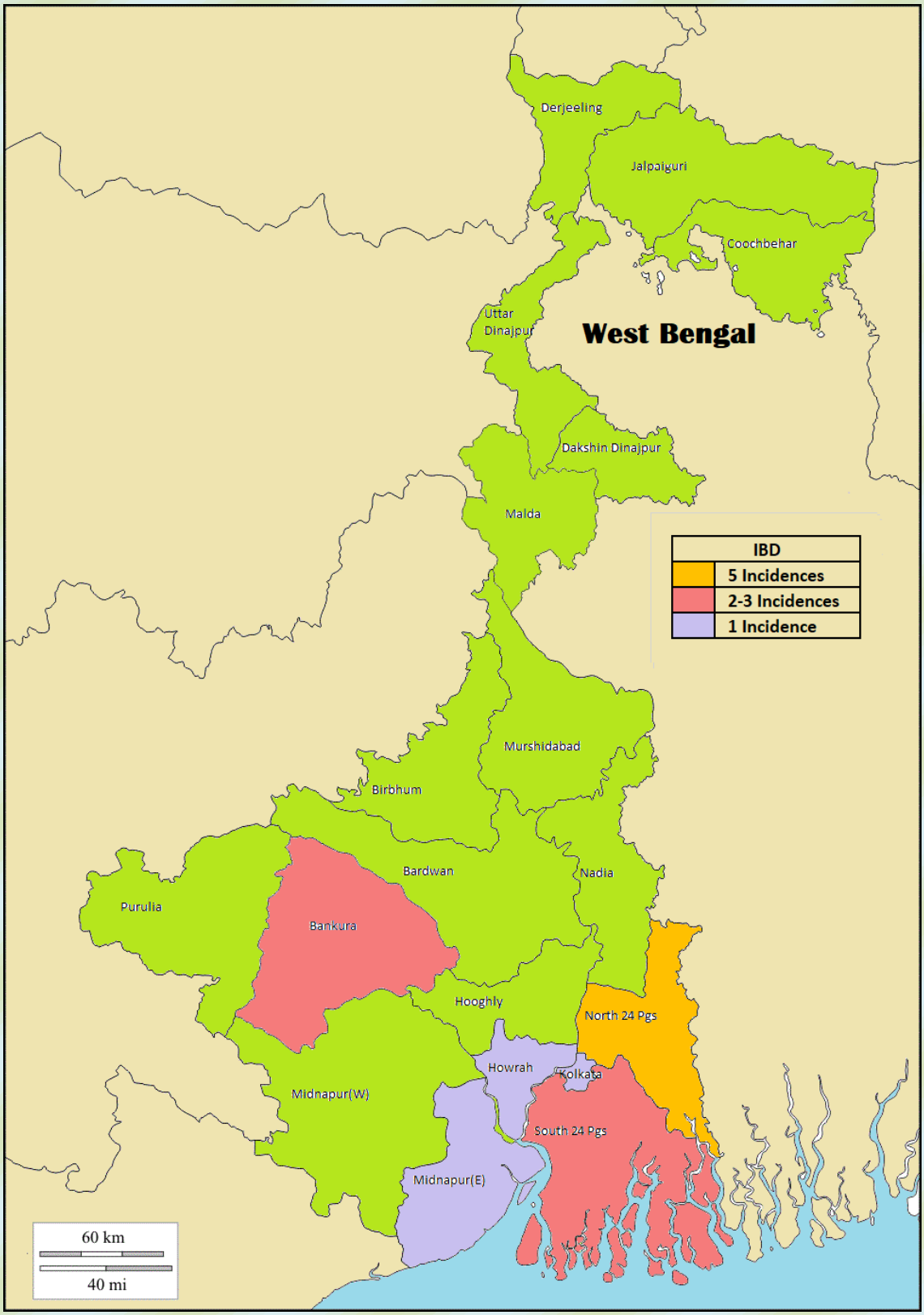
During the reporting year (2022-23), thirteen (13) incidences were reported. In West Bengal, the disease is in such a state where the clinical manifestation is now well marked but morbidity and mortality pattern is generally low. But in this year case fatality rate 90.83 % is very high but morbidity rate (5,60%) and mortality rate (5.09%) are also lower than previous year. The disease is very much prevalent in early age group of all type birds without clinical manifestation with high degree of immunosuppressive activity as per reports of different years.

Highest three (3) incidences were recorded in June and September followed by two (2)in April and November & in the month May, July & October one (1) each.

Out of twenty three districts in the state, the disease was reported only from six (6) districts, namely Howrah, North 24 Pgs, South 24 Pgs, Bankura, Kolkata & Purba Mednipur. Highest incidences were recorded from North-24 Pgs five (5), followed by three (3) incidences from Bankura & two (2) incidences in South 24 Pgs. Veterinary Officers and Assistant Director, ARD (Disease Investigation) of each district should be alert about diagnosis, surveillance as well as about disease reporting system as the disease is of immuno-suppressive in nature.

During this year total thirteen (13) incidences were reported from the entire state involving only six (6) districts. Surveillance of all districts should be improved to give any reason if there any under-reporting.

DISTRIBUTION OF IBD INCIDENCES IN WEST BENGAL FOR THE YEAR 2022-23



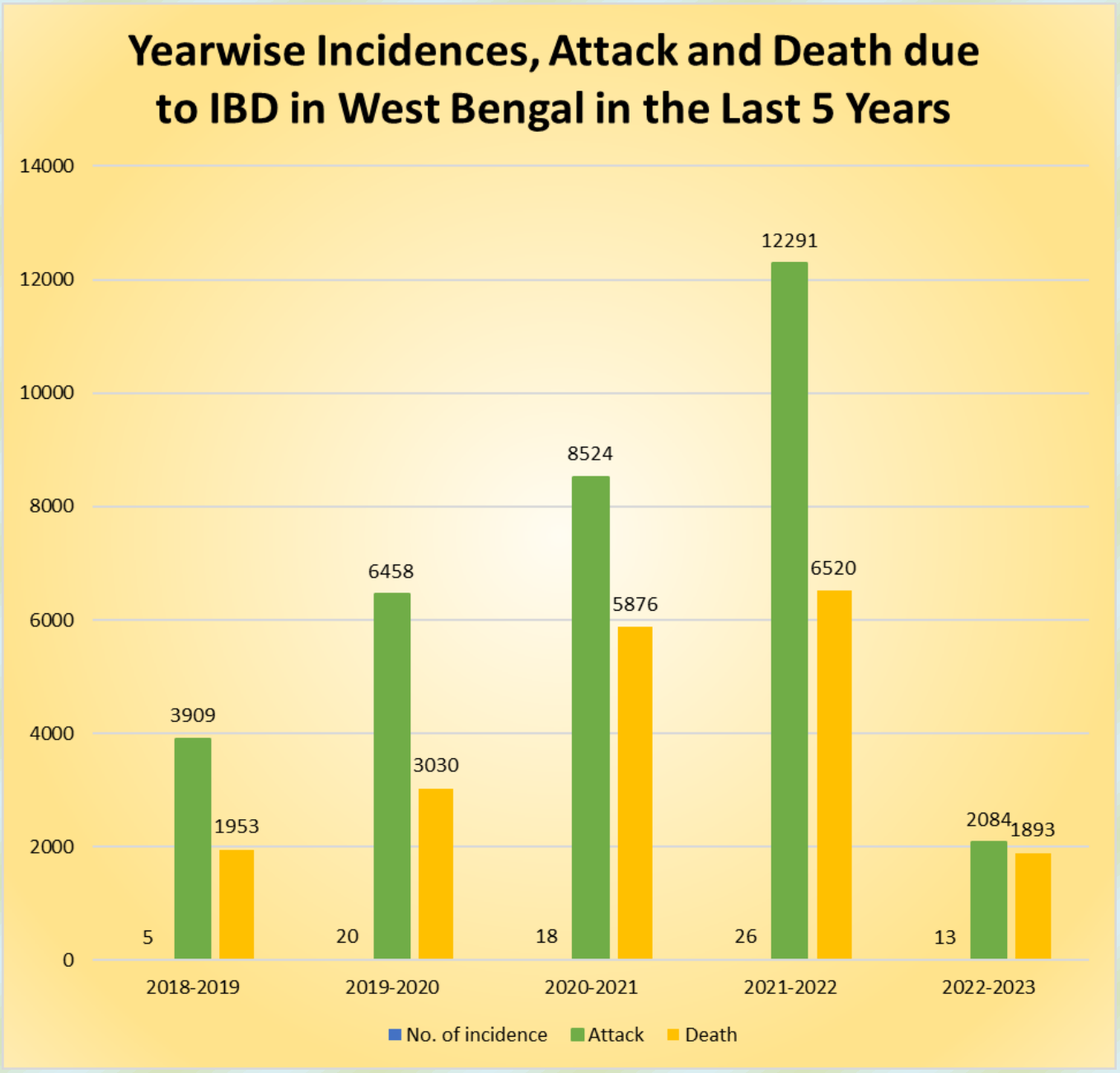
DISTRICTWISE REPORTED INCIDENCE OF IBD IN WEST BENGAL FOR THE YEAR 2022-2023

District	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
Bankura	3	18900	777	737	94.85	4.11	3.90
Howrah	1	1700	500	500	100.00	29.41	29.41
Kolkata	1	300	50	50	100.00	16.67	16.67
North 24 Pgs	5	7600	551	404	73.32	7.25	5.32
Purbo Medinipur	1	100	6	2	33.33	6.00	2.00
South 24 Pgs	2	8600	200	200	100.00	2.33	2.33
Total	**13**	**37200**	**2084**	**1893**	**90.83**	**5.60**	**5.09**

T A B L E – III

MONTHWISE REPORTED INCIDENCE OF IBD IN WEST BENGAL FOR THE YEAR 2022 – 2023

Month	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
April	2	2700	85	78	91.76	3.15	2.89
May	1	6000	18	18	100.00	0.30	0.30
June	3	14400	125	121	96.80	0.87	0.84
July	1	900	16	16	100.00	1.78	1.78
September	3	4600	550	410	74.55	11.96	8.91
October	1	6600	740	700	94.59	11.21	10.61
November	2	2000	550	550	100.00	27.50	27.50
Total	**13**	**37200**	**2084**	**1893**	**90.83**	**5.60**	**5.09**


Yearwise Incidences, Attack and Death due to IBD in West Bengal in the Last 5 Years
14000
12000
10000
8000
6000
4000
2000
0
5
3909
1953
20
6458
3030
18
8524
5876
26
12291
6520
13
2084
1893
2018-2019
2019-2020
2020-2021
2021-2022
2022-2023
No. of incidence
Attack
Death

T A B L E – IV
DISTRICT WISE IBD OUTBREAKS REPORTED IN WEST BENGAL DURING LAST TEN YEARS

District	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	**2022-23**
Coochbehar	0	0	0	0	0	0	0	0	0	**0**
Jalpaiguri	0	0	0	0	0	0	0	0	0	**0**
Darjeeling/ Kalimpong	0	0	0	0	0	0	0	1	0	**0**
Uttar Dinajpur	2	0	0	0	0	0	0	0	0	**0**
Dakshin Dinajpur	1	1	0	0	0	0	0	1	0	**0**
Malda	1	0	0	0	0	0	0	1	1	**0**
Murshidabad	0	0	0	0	0	0	0	0	0	**0**
Nadia	0	0	0	0	0	0	0	0	0	**0**
North 24 Parganas	0	1	0	3	2	2	7	3	5	**5**
South 24 Parganas	2	1	0	1	4	1	4	7	12	**2**
Howrah	0	1	0	0	0	0	0	3	0	**1**
Kolkata	3	0	0	0	0	0	0	0	0	**1**
Hooghly	0	0	0	0	0	0	2	0	0	**0**
Purba Burdwan	0	0	0	0	2	1	1	1	1	**0**
Birbhum	0	0	0	0	0	0	0	0	1	**0**
Bankura	0	0	0	0	0	0	0	0	1	**3**
Purba Medinipur	1	0	0	0	0	1	6	1	3	**1**
Paschim Medinipur	0	0	0	0	0	0	0	0	0	**0**
Purulia	0	0	0	0	0	0	0	0	1	**0**
TOTAL	**10**	**4**	**0**	**4**	**8**	**5**	**20**	**18**	**26**	**13**

DUCK PLAGUE (DUCK VIRAL ENTERITIS)

Duck Plague is an acute highly contagious disease of duck, geese and swans of all age caused by herpes virus. Adult birds are most susceptible. The disease has been reported from Europe, Asia, North America, and India resulting in serious economic losses in the duck industries.

Symptoms may not be observed before death. Multiple petechiae are seen throughout the body. Diphtheritic cloacitis and oesophagitis are seen. There is enteritis with an enlargement of the annular bands of the intestine. Dropping of wings and disinclination to walk are common sign of the disease.

The disease spread rapidly by direct or indirect contact between infected and healthy birds and by contaminated feed and water.

The disease may be controlled by vaccination. In face of epidemic a live chicken egg adopted vaccine can protect the infected birds due to interference mechanism.

T A B L E – I
EPIDEMIOLOGICAL OBSERVATION ON DUCK PLAGUE

Year	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2018-2019	0	0	0	0	0.00	0.00	0.00
2019-2020	0	0	0	0	0.00	0.00	0.00
2020-2021	3	1600	840	669	79.64	52.50	41.81
2021-2022	2	2950	406	224	55.17	13.76	7.59
2022-2023	**1**	**5**	**1**	**1**	**100**	**20**	**20**

During the reporting year, only one (1) no of incidence was reported in the state.

From only one district out of twenty three, the incidence was recorded. Veterinary Officers and Assistant Director, ARD (Disease Investigation) involved in disease diagnosis of the all districts should be alert about surveillance, diagnosis as well as about disease reporting system.

T A B L E – II

DISTRICTWISE INCIDENCE OF DUCK PLAGUE
REPORTED IN WEST BENGAL FOR THE YEAR 2022– 2023

Districts	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
Kolkata	1	5	1	1	100	20	20
Total	**1**	**5**	**1**	**1**	**100**	**20**	**20**

T A B L E – III

MONTHWISE INCIDENCE OF DUCK PLAGUE REPORTED IN WEST BENGAL FOR THE YEAR 2022– 2023

Month	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
September	1	5	1	1	100	20	20
Total	**1**	**5**	**1**	**1**	**100**	**20**	**20**

T A B L E – IV

DISTRICT WISE DUCK PLAGUE OUTBREAKS REPORTED IN WEST BENGAL DURING LAST TEN YEARS

District	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	**2022-23**
Coochbehar	0	0	0	0	0	0	0	0	0	**0**
Jalpaiguri	0	0	0	0	0	0	0	0	0	**0**
Darjeeling	0	0	0	0	0	0	0	0	0	**0**
Uttar Dinajpur	0	0	0	0	0	0	0	0	0	**0**
Dakshin Dinajpur	2	8	3	1	0	0	0	0	0	**0**
Malda	1	0	0	0	0	0	0	0	0	**0**
Murshidabad	0	0	0	0	0	0	0	0	0	**0**
Nadia	0	0	0	0	0	0	3	1	0	**0**
N- 24 Parganas	1	1	0	0	0	0	0	0	0	**0**
S-24 Parganas	4	0	0	0	0	0	0	0	2	**0**
Kolkata	0	0	0	0	0	0	0	0	0	**1**
Howrah	0	0	0	0	0	0	0	0	0	**0**
Hooghly	5	0	0	0	0	0	0	0	0	**0**
Burdwan	2	0	0	0	0	0	0	0	0	**0**
Birbhum	3	4	6	7	0	0	0	0	0	**0**
Bankura	0	0	0	0	0	0	0	0	0	**0**
Purba medinipur	0	0	0	0	0	0	0	1	0	**0**
Paschim Medinipur	0	0	0	0	0	0	0	0	0	**0**
Purulia	5	1	0	0	0	0	0	0	0	**0**
TOTAL	**23**	**14**	**9**	**8**	**0**	**0**	**3**	**2**	2	**1**

FOWL POX

Fowl Pox is a mild infectious disease of birds caused by epitheliotropic pox virus. The disease is most common during warm and humid climates. Losses due to Fowl pox are associated with a decrease in growth rate although the infection does not causes primary mortality. The virus is mosquito borne. Direct transmission by contact between infected and susceptible birds occurs. In fowl the disease is manifested in three forms.

1. Cutaneous or Comb form: In this form the lesions are found as wart like nodules on the comb, wattles and eyelids. Other parts of the body are affected less frequently.
2. Diphtheric form: Here a diphtheric membrane is found on the mucosa of mouth and nostrils.
3. Occulonasal form: In this form catarrhal inflammation in eyelid and nostrils are present and in sinuses found cheesy mucosa.

Mortality may occur in the 2nd and 3rd form. The causes of mortality are - (a) Asphyxia: - when the mouth, pharynx and nostrils are affected. (b) Starvation: - when the eyes are affected, the eyelids become glued with sticky inflammatory exudates rendering the parts blind and as a result they are not able to pick their feed and so starve to death. When eyes are affected the birds should be individually (artificially) fed. Preventive measures such as segregation of suffering birds, regular vaccination may curve down the incidence of fowl pox.

T A B L E – I
EPIDEMIOLOGICAL OBSERVATION ON FOWL POX

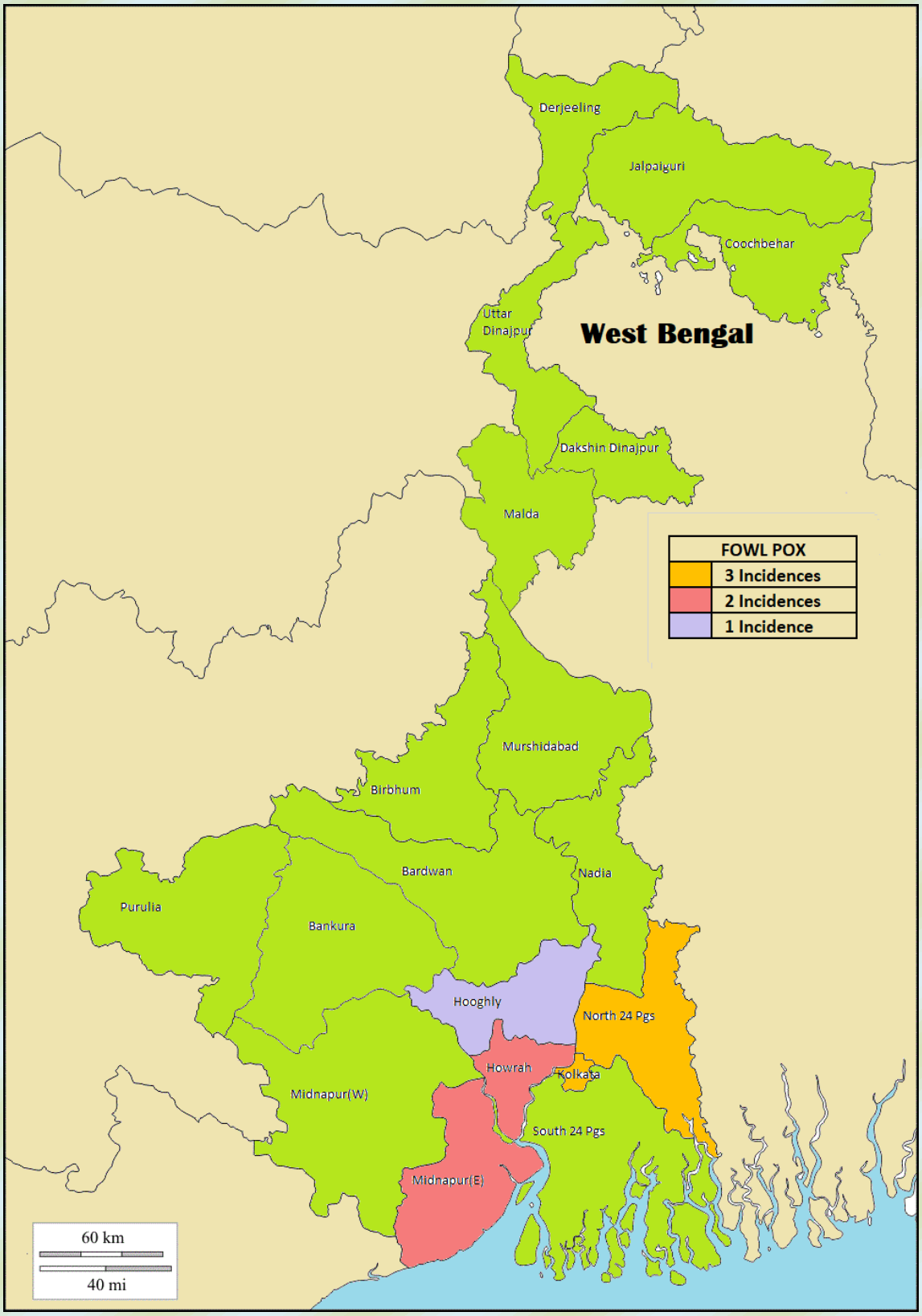
Year	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2018-2019	4	520	102	19	18.63	19.62	3.65
2019-2020	20	4302	704	149	18.63	19.62	3.65
2020-2021	7	985	185	37	20.00	18.78	3.76
2021-2022	6	2970	313	225	71.88	10.54	7.58
2022-2023	**11**	**1944**	**223**	**113**	**50.67**	**11.47**	**5.81**

In the reporting year (2022-23), numbers of reported incidences were eleven (11), increases in respect of previous year. Case fatality rate (50.67%) and mortality rate (5.81%) increased and morbidity rate (11.47 %) of the disease is slightly increased in comparison to previous year.

Incidence reported only from five (5) districts of West Bengal. Highest incidences three (3) were reported from Kolkata and North 24 Pgs district followed by two (2) incidence each from Purba Medinipur and Howrah district. Disease was reported almost every season of the year.

It has not been reported from some districts where outbreaks might have occurred in previous years. Veterinary Officers and Assistant Director, ARD (Disease Investigation) of each district should be alert about surveillance, diagnosis as well as about disease reporting system in favour of their vaccine requirement.

DISTRIBUTION OF FOWL POX INCIDENCES IN WEST BENGAL FOR THE YEAR 2022-23



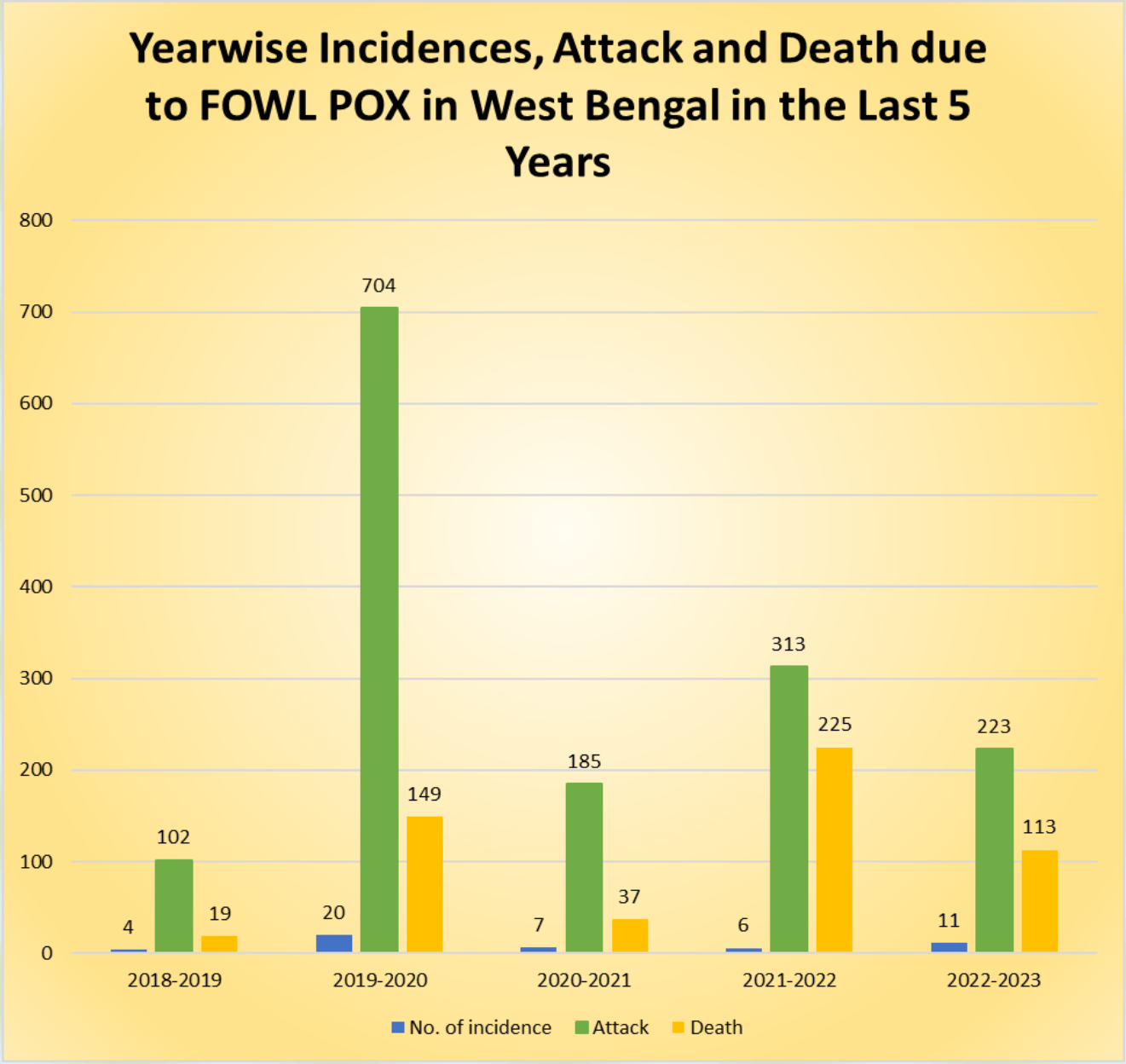
T A B L E – II
DISTRICTWISE REPORTED INCIDENCE OF FOWL POX IN WEST BENGAL FOR THE YEAR 2022-2023

District	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
Hooghly	1	400	6	0	0.00	1.50	0.00
Howrah	2	86	5	3	60.00	5.81	3.49
Kolkata	3	200	46	44	95.65	23.00	22.00
North 24 Pgs	3	248	61	61	100.00	24.60	24.60
Purbo Medinipur	2	1010	105	5	4.76	10.40	0.50
Total	**11**	**1944**	**223**	**113**	**50.67**	**11.47**	**5.81**

T A B L E – III

MONTHWISE REPORTED INCIDENCE OF FOWL POX IN WEST BENGAL FOR THE YEAR 2022 – 2023

Month	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
April	1	400	6	0	0.00	1.50	0.00
May	1	1000	100	5	5.00	10.00	0.50
July	1	85	4	2	50.00	4.71	2.35
October	1	10	5	0	0.00	50.00	0.00
November	2	100	24	22	91.67	24.00	22.00
December	2	101	23	23	100.00	22.77	22.77
January	1	94	30	30	100.00	31.91	31.91
February	1	94	30	30	100.00	31.91	31.91
March	1	60	1	1	100.00	1.67	1.67
Total	**11**	**1944**	**223**	**113**	**50.67**	**11.47**	**5.81**


Yearwise Incidences, Attack and Death due to FOWL POX in West Bengal in the Last 5 Years
800
700
600
500
400
300
200
100
0
4
102
19
20
704
149
7
185
37
6
313
225
11
223
113
2018-2019
2019-2020
2020-2021
2021-2022
2022-2023
No. of incidence
Attack
Death

FOWL CHOLERA (AVIAN PASTEURELLOSIS)

Fowl Cholera is a bacterial disease of poultry caused by *Pasteurella multocida*. In the peracute form of the disease caused by this organism is one of the most virulent and highly infectious diseases of poultry.

Among fowl, heavy breeds are more susceptible. Adult chickens of birds in the late growing stage are more frequently affected than younger stock. Sources of infection include carrier birds, clinically diseased poultry and their excretions and carcasses of birds that have died of the infection. Poultry may be infected by oral, nasal, and conjunctiva routes and through wounds.

Vaccination using a variety of strains of life and killed organisms is used, but better protection is often afforded with autogenous vaccine of inactivated organism.

T A B L E – I
EPIDEMIOLOGICAL OBSERVATION ON FOWL CHOLERA

Year	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2013-2014	3	890	87	48	55.17	9.77	5.39
2014-2015	1	350	9	6	66.67	2.57	1.71
2015-2016	0	0	0	0	0.00	0.00	0.00
2016-2017	0	0	0	0	0.00	0.00	0.00
2017-2018	0	0	0	0	0.00	0.00	0.00
2018-2019	0	0	0	0	0.00	0.00	0.00
2019-2020	0	0	0	0	0.00	0.00	0.00
2020-2021	1	150	50	30	60.00	33.33	20.00
2021-2022	1	700	200	22	11.00	28.57	3.14
2022-2023	**13**	**6021**	**173**	**140**	**80.92**	**2.87**	**2.33**

In the reporting year (2022-23) thirteen (13) incidences were reported in our State. Highest number of incidences (8) was reported from Purbo Medinipur , followed by one (1) incidence from Kolkata, Malda, North 24 Pgs, South 24 Pgs and Purbo Bardhaman districts. Surveillance of all districts should be improved. Veterinary Officers and Assistant Director, ARD (Disease Investigation) of each district should be alert about surveillance & diagnosis as well as about disease reporting system as well as in favour of their vaccine requirement.

T A B L E – II
DISTRICTWISE INCIDENCE OF FOWL CHOLERA
REPORTED IN WEST BENGAL FOR THE YEAR 2022- 2023

Month	No of incidence	Population at risk	Attack	Death	Morbidity (%)	Mortality (%)	C.F.R (%)
Kolkata	1	400	10	10	100.00	2.50	2.50
Malda	1	700	1	1	100.00	0.14	0.14
North 24 Pgs	1	1	1	0	0.00	100.00	0.00
Purba Bardhaman	1	2200	45	25	55.56	2.05	1.14
Purbo Medinipur	8	1120	48	36	75.00	4.29	3.21
South 24 Pgs	1	1600	68	68	100.00	4.25	4.25
Total	**13**	**6021**	**173**	**140**	**80.92**	**2.87**	**2.33**

T A B L E – II
MONTHWISE INCIDENCE OF FOWL CHOLERA
REPORTED IN WEST BENGAL FOR THE YEAR 2022- 2023

Month	No of incidence	Population at risk	Attack	Death	Morbidity (%)	Mortality (%)	C.F.R (%)
July	2	70	2	1	50.00	2.86	1.43
August	2	2000	78	78	100.00	3.90	3.90
September	1	700	1	1	100.00	0.14	0.14
October	6	201	11	2	18.18	5.47	1.00
February	1	2200	45	25	55.56	2.05	1.14
March	1	850	36	33	91.67	4.24	3.88
Total	**13**	**6021**	**173**	**140**	**80.92**	**2.87**	**2.33**

SALMONELLOSIS

Salmonellasis in poultry is also called as bacillary white diarrhea caused by *Salmonella pullorum* and *Salmonella gallinaurm*, which are gram negative non-motile bacteria and characterized by symptoms of chalky white diarrhea and retention of unabsorbed yolk leading to high mortality in young chicks. In adults, the ova are cystic, deformed and pedunculated causing decreased egg production. The disease is transmitted through egg, contaminated water or pasture, faeces of carrier of infected birds. The organisms may gain entry into chicks through adult birds, carrier rats on the farm and also through fishmeal etc. Control programme of the pullorum disease is based on the identification and culling of reactor birds from the breeding stock. After removing reactors, premises should be disinfected. Recovered birds are also the carrier of the disease, which required to be eliminated.

T A B L E – I
EPIDEMIOLOGICAL OBSERVATION ON SALMONELLOSIS

Year	No. of incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
2018-2019	0	0	0	0	0.00	0.00	0.00
2019-2020	1	75	4	2	50.00	5.33	2.67
2020-2021	6	677	31	10	32.26	4.58	1.48
2021-2022	2	208	10	2	20.00	4.81	0.96
2022-2023	**4**	**305**	**15**	**7**	**46.67**	**4.92**	**2.30**

During the year 2022-2023, total four (4) incidences were reported in West Bengal and three (3) incidences were from Howrah and one from Kolkata district, out of total twenty three districts of our State. Surveillance of all districts should be improved to give any reason for underreporting. Veterinary Officer and Assistant Director, ARD (Disease Investigation) of each district should be alert about surveillance, diagnosis as well as about disease reporting system.

T A B L E – II
DISTRICTWISE AND MONTHWISE INCIDENCE OF SALMONELLOSIS REPORTED IN WEST BENGAL FOR THE YEAR 2021- 2022

Month	District	No. of Incidence	Population at risk	Attack	Death	C.F.R. (%)	Morbidity (%)	Mortality (%)
August	Howrah	1	92	8	2	25.00	8.70	2.17
September	Howrah	1	105	3	2	66.67	2.86	1.90
October	Howrah	1	85	3	2	66.67	3.53	2.35
January	Kolkata	1	23	1	1	100.00	4.35	4.35
Total		**4**	**305**	**15**	**7**	**46.67**	**4.92**	**2.30**