International Journal of Geography, Geology and Environment

P-ISSN: 2706-7483
E-ISSN: 2706-7491
IJGGE 2024; 6(1): 101-104
Received: 23-11-2023
Accepted: 24-12-2023

Kishor Arjun Pachavane
Mukesh R. Patel English Medium School, Shipur, Maharashtra, India

Dr. Nandini P Wagh
Associate Professor, HOD, Pankaj Arts College, Chopda, Maharashtra, India

Corresponding Author:
Kishor Arjun Pachavane
Mukesh R. Patel English Medium School, Shipur, Maharashtra, India

Impact of lumpy virus on bovine animals of Jalgaon district with the special reference to Chopda Tehsil

Kishor Arjun Pachavane and Dr. Nandini P Wagh

DOI: https://dx.doi.org/10.22271/27067483.2024.v6.i1b.207

Abstract
Always absolute relationship between humans and animals from a long time ago; even from ancient times can see that humans and animals complement each other, from the time of ancient humans to modern times. The evidence of humans domesticating animals as far back as the Neolithic period. Also find evidence of this in the ancient civilizations of Egyptian, Harappa and Ho Hang Ho. The evidence of this even in this very ancient culture. Humans started using natural resources to meet their basic needs; one of the important resources is animals. From animals we get food, clothes, science, and many more. In today's modern times, despite the progress of science, Human not been able to make simple milk, so the importance of animals in human life is very high. Over time, humans started animal husbandry and today animal husbandry is practiced on a large scale in modern ways. Will see what are animal husbandry and its types and importance.in this Research paper we Find the Impact of Lump LDS Virus on the Bovine Animals in the Jalgaon District with the Special Reference to Chopda tehsil.

Keywords: Animal husbandry, bovine animals, lumpy virus LDS, small castles mortality rate, major castles mortality rate

Introduction
Lumpy skin disease is a vector-borne pox disease of domestic cattle and Asian water buffalo and is characterized by the appearance of skin nodules. Endemic across Africa and the Middle East, the disease has, since 2015, spread into the Balkans, the Caucasus and the southern Russian Federation. Outbreaks of LSD cause substantial economic losses in affected countries, but while all stakeholders in the cattle industry suffer income losses, poor, small-scale, and backyard farmers are hit hardest. The disease impacts heavily on cattle production, milk yields, and animal body condition. It causes damage to hides, abortion, and infertility. Total or partial stamping-out costs add to direct losses. Indirect losses stem from restrictions on cattle movements and trade. In addition to vectors, transmission may occur through consumption of contaminated feed or water, direct contact, natural mating or artificial insemination. Large-scale vaccination is the most effective way of limiting the spread of the disease. Effective vaccines against LSD exist and the sooner they are used the less severe the economic impact of an outbreak is likely to be.

Objectives
In this Research Paper there are three main objectives
1. To getting knowledge about the lumpy vires and the origin of it.
2. It impact on bovine animals of Jalgaon District with the spatial reference To Chopda.
3. To calculate the Secondary date of Lumpy disease Of Chopda Tahesil And Find The Major Impact On it

Methodology
To analyze the impact of lumpy we are using simple analytical methodology to calculate the data ex the total number of the cows and the major one the data for the calculation the Mortality Rate we use a secondary data which are collect from the Panchayat samiti, Chopda and visit the veterinary hospitals in the Chopda tehsil itself.

Hypotheses: "There is the major impact of lumpy skin disease on the bovine animal"

Significant of Research

Lumpy skin disease (LSD) is an infectious disease in cattle caused by a virus of the family *Poxviridae*, also known as Nettling virus. The disease is characterized by large fever, enlarged superficial lymph nodes and multiple nodules (Measuring 2–5 centimetres (1-2 in) in diameter) on the skin and mucous membranes (including those of the respiratory and gastrointestinal tracts). Infected cattle also may develop oedematous swelling in their limbs and exhibit lameness. The virus has important economic implications since affected animals tend to have permanent damage to their skin, lowering the commercial value of their hide. Additionally, the disease often results in chronic debility, reduced milk production, poor growth, infertility, abortion, and sometimes death. Onset of fever occurs almost one week after infection by the virus. This initial fever may exceed 41 °C (106 °F) and persist for one week. At this time, all of the superficial lymph nodes become enlarged. The nodules, in which the disease is characterized by, appear seven to nineteen days after virus inoculation. Coinciding with the appearance of the nodules, discharge from the eyes and nose becomes Mucopurulent.

Research Area

Jalgaon District is located in the north-west region of the state of Maharashtra. It is bounded by Satpuda mountain ranges in the north, Ajanta mountain ranges in the south. Jalgaon is rich in volcanic soil which is well suited for cotton production. It is a major business center for tea, gold, pulses, cotton and bananas. Languages spoken are Marathi, Ahirani, Hindi, and English. Jalgaon District receives an average rainfall of about 690 mm and the temperature varies from 10 to 48 degree Celsius. Jalgaon has got pretty diverse climate. It is exceptionally hot and dry during summer with temperature reaching as high as 45 degrees Celsius. Jalgaon receives about 700 mm rainfall during monsoons, which is followed by pleasant temperature in winter. The principal natural feature is the Tapti River. Unlike the rest of the Deccan, whose rivers rise in the Western Ghats and flow eastward to the Bay of Bengal, the Tapti flows westward from headwaters in eastern Maharashtra to empty into the Arabian Sea. The Tapti receives thirteen principal tributaries in its course through Kandesh. None of the rivers is navigable, and the Tapti flows in a deep bed which historically made it difficult to use for irrigation. Most of Kandesh lies south of the Tapti, and is drained by its tributaries the Girna, Bori and Panjhra.

- Geographical location: Between 20° and 21° North latitudes and 74° 55′ to 76° 28′ East longitudes, in the northern part of the state. Jalgaon City located at Longitude 75.5626039 and Latitude 21.0076578.
- Adjoining districts: North: Satpuda Hills, South: Aurangabad and Nashik, East: Madhya Pradesh and Buldhana, West: Dhule
- Major urban centers: Jalgaon, Bhusawal, Kandari, Varangaon, Nimbore Bk., Fekari, Chopda, Pachora, Chalisgaon, Amalner, Yawal, Faizpur, Raver, Savada, Parola, Erandol, Dharangaon.
- Major crops: Banana, Wheat, millet, lime, groundnut, cotton, sugarcane
- Major rivers: Tapi, Girna, Waghur.
- Latitude of chopda Taluka 21° 15' N and Longitude 75° 20' E**.** Water Supply Resources: Girna Dam (Tal.: Nandgaon District Nashik), Hatnur Dam (Tal: Bhusawal), Manyad (Tal: Chalisgaon), Bori (Tal: Parola), Bhokarbari (Tal: Parola), Suki (Tal: Raver), Abhora (Tal: Raver), Hivra (Tal: Pachora), Agnavati (Tal: Pachora), Tondapur (Tal: Jamner), Mangrul (Tal: Raver), Bahula (Tal: Pachora)

Chopda is a town and one of the Tehsils constituting 119 villages in the Jalgaon district in Maharashtra, a state in the western region of India. It is located at 21.25°N 75.18°E and has an average elevation of 190 meters (623.36 feet). The town is situated on the banks of the Ratnavati River and is linked by roads to the rest of the Jalgaon district also borders with Districts like Dhule (Maharashtra), Khargone and Barwani in Madhya Pradesh. The Tapi, one of the major rivers in India, is approximately 10 km away from Chopda.

Fig 1: Map of Jolgaon district

Impact of lumpy virus on animal husbandry

The spread of the disease can lead to “substantial” and “severe” economic losses according to FAO and the World Organisation for Animal Health (WOAH). The disease leads to reduced milk production as the animal becomes weak and also loses appetite due to mouth ulceration. The income losses can also be due to poor growth, reduced draught power capacity and reproductive problems associated with abortions, infertility and lack of semen for artificial insemination. Movement and trade bans after infection also put an economic strain on the whole value chain. A risk assessment study conducted by the FAO based on information available from 2019 to October 2020 revealed that the economic impact of LSD for South, East and Southeast Asian countries “was estimated to be up to $1.45

billion in direct losses of livestock and production" The current outbreak in India has emerged as a challenge for the dairy sector. India is the world's largest milk producer at about 210 million tonnes annually. India also has the largest headcount of cattle and buffalo worldwide. In Rajasthan, which is witnessing the worst impact of the lumpy skin disease, it has led to reduced milk production, which lessened by about three to six lakh litres a day. Reports indicate that milk production has also gone down in Punjab owing to the spread of the disease. The current outbreak started in Gujarat and Rajasthan around July and had spread to Punjab, Himachal Pradesh, Andaman & Nicobar and Uttarakhand by early August. It then spread to Jammu and Kashmir, Uttar Pradesh and Haryana. In recent weeks, it was reported in Maharashtra, Madhya Pradesh, Delhi, and Jharkhand. The virus has infected over 16 lakh cattle in 197 districts as of September 11. Of the nearly 75,000 cattle that the disease has killed, more than 50,000 deaths, mostly cows, have been reported from Rajasthan. The FAO has suggested a set of spread-control measures for LSD, which involves vaccination of susceptible populations with more than 80% coverage, movement control of bovine animals and quarantining, implementing biosecurity through vector control by sanitising sheds and spraying insecticides, strengthening active and passive surveillance; spreading awareness on risk mitigation among all stakeholders involved, and creating large protection and surveillance zones and vaccination zones.

Table 1: The data of lumpy skin disease of Chopda Tehsil

Sr. No	Village	Small			Major		
		Male	Female	Total	Male	Female	Total
1	Adwad	37	48	85	92	72	164
2	Ajanti Seem	37	48	85	92	72	164
3	Akhatwade	22	72	94	199	114	313
4	Akulkhede	7	93	100	151	82	233
5	Amalwadi	28	55	83	184	89	273
6	Ambade	10	10	20	34	23	57
7	Anwarde BK.	2	12	14	32	23	55
8	Anwarde Kh.	6	9	15	120	29	149
9	Bhardu	48	42	90	205	113	318
10	Bhawale	6	41	47	92	23	115
11	Bhokari	19	155	174	180	3	183
12	Bidgaon	7	3	10	30	8	38
13	Bor Ajanti	11	69	80	94	64	158
14	Borkhede	16	30	46	92	49	147
15	Bormali	19	93	112	92	153	391
16	Budhagaon	6	140	146	199	218	362
17	Chahardi	2	21	23	151	2	2
18	Chandsani	4	30	34	184	60	142
19	Chaugaon	32	9	41	34	109	369
20	Chunchale	8	63	71	32	123	280
21	Dagadi Bk	16	30	46	120	49	147
22	Deogaon	9	17	26	205	28	109
23	Deozari	4	124	128	92	276	826
24	Devhari	9	110	119	180	124	342
25	Dhanore Pr. Adavad	55	95	150	30	109	300
26	Dhanore Pr. chopda	34	383	417	94	8	751
27	Dhanwadi	16	16	32	92	10	46
28	Dhupe BK.	5	14	19	92	21	101
29	Dhupe KH.	9	17	26	199	28	109
30	Dondwade	4	124	128	151	276	826
31	Galangi	334	27	361	184	0	1
32	Galwade	16	128	144	34	274	965
33	Ganpur	8	33	41	32	39	151
34	Garatad	502	60	562	120	16	27
35	Ghadwel	12	41	53	205	37	77
36	Ghodgaon	9	3	12	102	15	117
37	Ghumawal BK.	25	32	57	70	51	121
38	Ghumawal KH.	12	139	151	191	166	357
39	Gorgawale BK.	9	121	130	357	205	562
40	Gorgawale KH.	12	257	269	47	255	302
41	Hatede BK.	2	5	7	34	11	45
42	Hatede KH.	7	8	15	136	15	151
43	Kamalgaon	30	24	54	192	48	240
44	Karjane	88	103	191	354	58	412
45	Karjane	5	8	13	15	11	26
46	Kathore	148	503	528	78	74	152
48	Kazipura	275	253	528	78	74	152
49	Khachane	7	35	42	80	53	133

50	Khadgaons	4	82	86	192	156	348
	Total	1993	2835	5705	4936	3916	11809

$$\text{Major Castles Mortality} = \frac{\text{No Of Death}}{\text{Total Population}} * 1000$$

$$\text{Small Castles Mortality} = \frac{\text{No of Death}}{\text{Total Population}} * 1000$$

$$\text{Small Castles Mortality Rate} = \frac{8852 \text{ X} 1000}{11809} = 750$$

$$\text{Major Castles Mortality Rate} = \frac{4828 \text{ X } 1000}{570} = 846$$

Conclusion

In the above Research Work, find a lot of new information about the effect of Lumpy disease on animal husbandry. Lumpy skin disease is one of the most economically significant Trans boundaries, viral diseases of domestic cattle. It is economically significant in animals because of chronic debility, decreased milk production and weight, damaged skins, abortion, and mortality. LSD is currently present in the majority of Indian states. LSD is often diagnosed based on specific clinical signs and differential diagnoses. Milder and subclinical forms, on the other hand, require quick and accurate laboratory testing to prove the diagnosis.in the above Research we can see the major impact is on the major bovine Animals and some little impact on the small male & female Animals in the Above Chart the Maximum No is at Devzira and Some Other Villages. The small castel Mortality rate is 750 animal per 1000 and the Major Castles Mortality Rate 846 animal per 1000 means the mortality rate of small castel mortality is lower than the Major castle Mortality Rate so by This we Can Say That Are major Impact Of Lumpy LDS on The Bovine Animal In Chopda Tehsil. The disease's economic impact was mostly due to its high morbidity rate rather than its mortality rate. Lumpy diseased animals should be segregated and infected and healthy animals should not be fed together. Transport of animals from affected areas should be stopped, flies, mosquitoes and cockroaches should be eradicated for disease control. Spray the insecticidal medicine on the body of the animal and in the cowshed. Based on the above information, you can see that Lumpy disease is more common in young cows and the highest mortality rate is seen in young cows. In contrast we can see that in older cows and heifers we see less of these effects because farmers have focused on the breed of milking animals. Thus the above hypothesis is correct and we accept it based on the above information.

References

1. https://www.esakal.com/marathwada/what-lumpy-skin-disease-animal-33640
2. https://www.thehindu.com/news/national/explained-what-is-the-lumpy-skin-disease-affecting-cattle-in-india-what-are-its-economic-implications-and-does-it-affect-milk-for-consumption/article65911590.ece
3. Krushi bhugol by mazid husen pravalika publication
4. Krushi bhugol by R.C. Tiwari, B.N. Singh pravalika publication
5. The Secondary Date Which Take From The Animal Husbandry Department Panchayat Samiti, Shirpur Dist Dhule
6. Arora Dinesh. Edited biotech's dictionary of animal husbandry published by biotech books Delhi; c2014.
7. Banerjee GC. A Textbook of Animal Husbandry, published; c2013.
8. Chand N, Harkrat S, Singh ND, Dhaliwal PS. By Oxford and IBH publishing CO. Pvt. Ltd, New Delhi. 4. Indian Veterinary Journal, 2008, 85(9).
9. Dxiankar NP. Handbook of Animal Husbandry (Samagra Pashusavardhan) published by Ravi Offset works, Great Nagroad, Nagpur. 8. Garhard Flachowsky (1992): Animal Research and Development, pub. By Institute for Wissenchiffliche Zusammenabeit, Landhausstrafser 18, D-7400, Tubingen, Fedral Rublic of Germany. 2001, 35.