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 "PREVALENCE OF ECTOPARASITES INFESTATION ON LIVESTOCK ANIMALS IN AURANGABAD REGION OF  
 MAHARASHTRA STATE, INDIA".

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Abstract

A study on ectoparasites of livestock was carried out in the Aurangabad district in year 2015. Livestock being useful animals which implies commercial purpose or being reared for financial gain. Ectoparasites ticks, mites, lice and fleas were collected from 22 sheep (11%), 45 goats (18%), 55 cattle (13.75%) and 33 buffaloes (9.42%). The overall prevalence showed that livestock were infested by single or mixed ectoparasites. Thus, the present investigation helps to creating awareness in farmers about to reduce high prevalence of ectoparasites and their impacts on productivity in livestock.

Keywords: Prevalence, livestock, ectoparasites, Aurangabad etc.

Introduction:

Livestock production represents 40% of the world agricultural production and contributes to the livelihoods and the food security of nearly one billion people around the world. At the global level, livestock contribute with 15% of total food energy and 25% of dietary protein (FAO, 2009a).

Indian farming mostly depends on income from agriculture by keeping animals for milk, meat, wool and high production and also for various farm operations. Livestock production plays a very significant role for the upliftment of the rural masses and thus in national economy through generating income with their livestock. It provides livelihood security through provision of employment and sustainable household nutrition to poor and pro-poor rural masses of the country. The populations of goats and sheep in Asia are  $390.4 \times 10^6$  and  $250.3 \times 10^6$ , respectively, of which about 57% and 23% of the total world population of goats and sheep are found in Asia, including 55% of all goats and 39% of sheep breeds in

China, India and Pakistan. There exist about 146 breeds of goats and 233 breeds of sheep in Asia out of a world total of 570 and 1314 breeds, respectively (Devendra, 2005). India accounts for a significant share of world's livestock resources with nearly 57% buffaloes, 16.5% cattle, 16.3% of goats and 5.7% of sheep (FAO, 2004).

The state is dominated by small farmers more than 2 hectares comprising over 79% of the total farm household. The average land holding in the state is 1.44 hectares and is likely to be decline with increasing population pressure. During 2012-2013 the livestock sector alone contributed 24.7% of value of output agriculture and alive at current price and the overall contribution of livestock sector in total GSDP is nearly 2.2% at current price (19<sup>th</sup> livestock census 2012 AHD department Government of Maharashtra).

Livestock are important contributors to food production in India. Owing to their high fertility, short generation interval and adaptation even in harsh environments, the livestock are considered as investments and insurance to provide income to purchase food during seasons of crop failure and to meet seasonal purchases such as improved seed, fertilizer and medicine for rural households. Products from livestock provide essential micronutrients that are not easily obtained from plant based foods.

Even though livestock are important components for their contribution to food production, rural income and export income are far below than the expected potential. This is because livestock production is constrained by the compound effects of disease, poor feeding and poor management (Getachew, 1995).

Ruminants as cattle, sheep and goats are worldwide important (Eckert et al., 2009; Schnieder, 2008). Parasitic infestations have significant impact on husbandry, productivity and welfare of livestock around the globe (Kakar and Kakarsulemankhel, 2008). Some parasitic infestations even cause death when the control measures are neglected

(Hayat et al., 1987). Reduction in weight gain, lowered productivity and damage of hide quality are the major activities performed by the ectoparasites in livestock. Self-wounding due to rubbing and transmission of various pathogens are also the biggest source of losses in animals (Berriatua et al., 2001; Rehbein et al., 2003; Petney et al., 2007). It has been observed that ectoparasites do not have any direct effects on their host, they are responsible for transmitting pathogens, thereby acting as vectors of diseases (Parola et al., 2001) and also transmit various protozoal and bacterial diseases in man and animals (Jongejan and Uilenberg, 2004; Hussain et al., 2006; Rizwan et al., 1995; Dryden et al., 1993). Ectoparasites generally affect the health of animals and the quality of hides and skin. The leather industries have suffered great losses over the years because of infestation of animal skin. Blood sucking lice and tick infestation have been incriminated in causing anaemia, abortion, lower milk production, stunted growth, general unthriftiness, respiratory disease and death of livestock (Hungeford, 1984).

Many of these ectoparasites species such as ticks, mites, lice and fleas etc. have their breeding sites very close to their hosts, so that they are practically always present. These parasites feed on body tissue of host such as blood, skin and hair. The wounds and skin irritant produced by these parasites result in discomfort and irritation to the animal. All ectoparasites causes intense irritation to the skin and skin damage, blood loss and severe anemia, moreover they are important vectors of protozoan, bacterial, viral and rickettsial diseases (Parola and Raoul, 2011; Okamoto and Mawabba, 2010). External parasites are problems in both extensive and intensive livestock production systems (Phillips, 2005).

The problem created by the ectoparasites are believed that to be high. Hence, it would be essential to have up to date information on the importance of the prevalence of ectoparasites in various areas to provide an option to develop and implement a cost effective and ecologically important control strategies of the country.

The economic impact from changes in animal husbandry and the need for increased the parasite surveillance and control has increased the need for a better understanding about the ectoparasites of livestock. While the present investigation is to estimate the prevalence of ectoparasites infestation on livestock animals in Aurangabad region. This study therefore provides preliminary information on the prevalence of common species of ectoparasites of livestock in Aurangabad region.

Material and methods:

A study was conducted in an Aurangabad region, the local area such as Nageshwarwadi, Vanjaarwadi, chhavani area, bhangshimata gad and the visited villages are Dualatabad, khultabad, phulambri, Bilda etc. The study was conducted from November 2015 to March 2016. The co ordinates for Aurangabad are N 19° 53' 47" 75° 28' 54". A total of (1200) animal of different species of these 155 animals

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were heavily infested by various ectoparasites. (22 sheep, 45 goats, 55 cattle and 33 buffaloes) selected randomly. Then adults tick, mite, lice and fleas were collected from different body sites (ears, around eyes, anal, perineal and croup region). Required information like data of collections, place of collection, body site of collection, species and breed of host were recorded.

Samples were individually anaesthetized in a jar containing bottles a cotton pad moistened with chloroform. Collected ectoparasites were preserved in plastic tubes containing 70% ethyl alcohol and labeled with necessary information for identification. The selected animals were screened fortnightly through ante mortem examination for the presence of ectoparasites by using magnifying glass. Infested animals were segregated for collection of samples/specimens. Collection of specimen was made by using forceps (Soulsby, 2006).

Ticks collection was usually done in the early morning and in the evening from the body of animals. The attachment site of the tick should be washed thoroughly with warm soapy water and rubbing alcohol to remove any possible pathogens (Bowman, 1999).

The most practical mean of detecting the lice was generally inspection of the cattle. Multiple body sites and collecting the lice from the body

region head, neck, flank, front and rear leg, and belly (Kettle and Lukies et al., 1984). Identification of the different ectoparasite species was undertaken according to Wall and Shearer (2001).

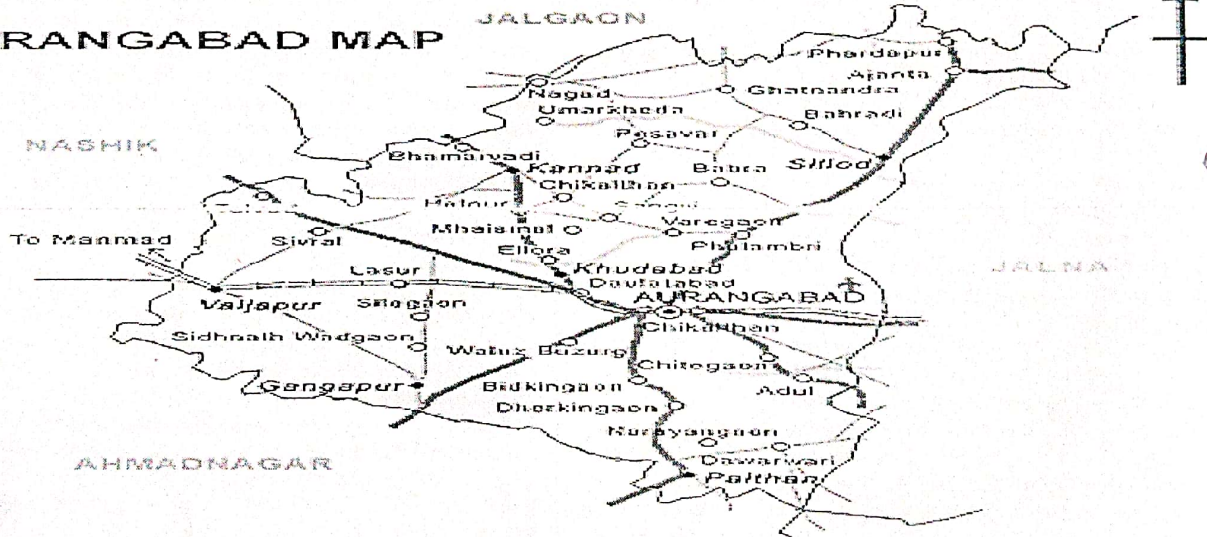
**Result:**  
The overall prevalence of ectoparasites from the total of 1200 examined livestock, 155 (12.91%) animals were found to be infested with one or more ectoparasites. The major identified ectoparasites in sheep were ticks (5%), lice (3%), mites (1%) and fleas (2%) and respectively. In goats were ticks (7.6%), lice (4.8%), mites (2%) and fleas (3.6%) respectively while in cattle were ticks (6%), lice (3.25%), mites (2%) and fleas (2.5%) respectively. The buffaloes were infested by ticks (3.42%), lice (2.28%), mites (1.42%) and fleas (2.28%) respectively (Table no. 1).

The overall prevalence of ectoparasites revealed that highest rate of infestation was observed in goats (18%) followed in order by cattle (13.75%), sheep (11%) and the lowest infestation in buffaloes (9.42%), Figure-1. Indicates that several kinds of ectoparasites such as ticks, lice, mites and fleas existed on the body of the livestock and that ticks were the most frequent.

Table no-1: The prevalence of ectoparasites in sheep, goats, cattle and buffaloes in the study area, Aurangabad region.

Ecto-parasites	Sheep (n=200)		Goats (n=250)		Cattle (n=400)		Buffaloes (n=350)		Total (n=1200)	
	No. infested	Prevalence %	No. infested	Prevalence %	No. infested	Prevalence %	No. infested	Prevalence %	No. infested	Prevalence %
Tick	10	5	19	7.6	24	6	12	3.42	65	5.41
Lice	6	3	12	4.8	13	3.25	8	2.28	39	3.25
Mite	2	1	5	2	8	2	5	1.42	20	1.66
Fleas	4	2	9	3.6	10	2.5	8	2.28	31	2.58
Total	22	11	45	18	55	13.75	33	9.42	155	12.91

**AURANGABAD MAP**





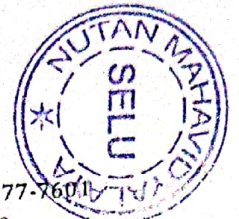
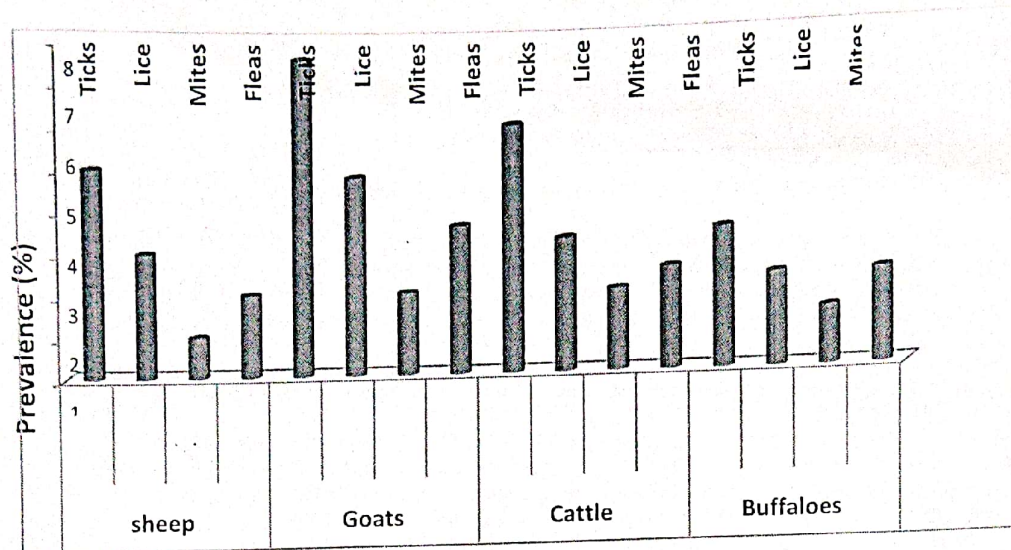


Figure-1: The overall prevalence of ectoparasites in sheep, goats, cattle and buffaloes in the study area, Aurangabad region.



**Discussion:**

The livestock in Aurangabad region investigated in the present study, a total ectoparasites prevalence of 12.91% was recorded. Out of 200 sheep, 250 goats, 400 cattle and 350 buffaloes examined for ectoparasites, 11%, 18%, 13.75% and 9.42% were infested with one or more ectoparasites

Ectoparasites like ticks, mites, lice and fleas identified during present survey have also been reported by previous other workers (Kakar and Kakarsulemankhel, 2008; Rizwan et al., 1995; Afzal et al., 1995; Azam et al., 2002) in various parts of the world.

Avoidance behavior, skin hypersensitivity and increased grooming may also contribute to increased resistance of the local breed to ectoparasites. Sheep biting lice are host specific ectoparasites that spread mainly by direct contact (Heath et al., 1995), if left uncontrolled; these lice could reduce wool quantity and quality and caused defects in sheep leather (Wilkinson et al., 1982; Kettle and Hopkins, 1982; Heath et al., 1995).

Ikwuala and Okpala, (1978) reported higher tick infestation on cattle followed by sheep and goats. According to Tongjira et al., (2012) the prevalence of tick, fleas and lice on Cattle was highest 73.3%, 55.5%, 47.5%; followed by sheep 49.5%, 46.8%, 37.3% and in goats 39.3%, 35.3%, 21.8% respectively.

Ohaeri and Ugwu, (2013) reported out of the total 194 animals examined 97 (50%) were infested with higher infestation in goats 37 (19%). According to reports from tanneries, hide and skin problem due to external parasites causes 35% of sheep, 56% of goat skins to be rejected in Ethiopia (Bayou, 1998). However, the present study agree with the study of Sertse and Wessone, (2007); Makelesh, (2010) showed significantly higher ectoparasite prevalence in goat than sheep. But, a study in Wolaita Soddo by Yacob et al., (2008a) showed sheep were reported to be more infested (68.7%) than goats (28.4%). Pegram et al., (2004); Tasfaye et al., (2012) also reported higher ectoparasite prevalence in sheep than in goats.

According to Yacob et al., (2008b) lice infestation was found both in sheep and goats around Adama. Lice infestation was reported to be higher in debilitated animals that suffer from malnutrition and intestinal parasitism (Pugh, 2002). Yacob et al., (2008a) in Wolaita reported that there was no significant difference in flea prevalence between sheep and goats.

**Conclusion:**

The present investigation concluded these ectoparasites cause several

constraints on the livestock production resulting heavy economic loss due to emaciation, morbidity and death and disease transmission. Lack of awareness about the significance of the problem among people inaccessibility for control schemes. Thus, the present investigation helps to creating awareness in farmers about to reduce high prevalence of ectoparasites and their impacts on productivity in livestock.

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