



# The study of Questionnaire survey and awareness about Zoonotic diseases through Farm animals among Famer, Stock holder, Butcher and local peoples from some tahsil of Aurangabad District of Marathwada region, Maharashtra state India.

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## Abstract

Zoonotic disease is the contagious disease transmits between human and vertebrate animals vice versa. Recent study reveals human gets infected of 1,461 infectious diseases. In the veterinary and animal husbandry sector practices are highly connected zoonotic agents. *Escherichia coli*, Salmonellosis, campylobacteriosis, and listeriosis foodborne disease currently in developing countries. Along with TB, rabies, brucellosis, leptospirosis, cysticercosis bovine hydatidosis, taeniasis, and toxoplasmosis were zoonotic agents. The cross-sectional study was done from different villages of Tahsil Kannad and Sillod. Total 936 Respondents participate during study period. Out of the 849 male and 87 female Majority of the 36-50 years Farmer (Male 50.96%, Female 5.87%), Butchers (Male 47.5%) and other (Male 53.52%, Female 7.88%). Farmer are awareness about Rabies Brucellosis, TB, Anthrax Bird flu Swine fever as 84.8%, 46.0%, 32.8%, 4.61%, 92.4%, 92.4%. About eating habitat farmer's respondents recorded drinking raw milk 46.53% Eating raw meat 2.69%, Eating Fry meat 1.53%. Eating raw eggs 51.53%. Awareness about zoonotic diseases from Sheep's and Goats was less as Farmers 9.40%, Stockholders 7.05%, Local peoples 6%, Employee 5% and Butchers 3.60%. Ticks 69.23%, Lice 57.30% Keds 68.03% Anopheles mosquito 60.76%, Culex mosquito 30.38%, Aedes mosquito 37.69% and Biting flies 45.76% respectively. Over all awareness among all participants reveals Farmers, Stock holders, Local people, Employee and Butchers shows awareness about zoonotic disease are 45.38%, 49.05%, 57%, 90%, 41.8%. Farmer responded major known about Corona (Covid -19 Virus) 99.23% due its global pandemic outbreaks, Chikenguniya 98.46%, PPR 89.23% Nipah Virus 15%, RSV & Rhinovirus 21.53%, Zika Virus 18.07%, and Ebola Virus 22.30%.

Keywords- Awareness, Zoonotic disease, Virus, Bacteria, Protozoa, Parasites, Survey.

## Introduction

Rearing of animal is the ancient Occupation India. Maharashtra state is also most leading State in country. India is the most leading country among the worldwide in agriculture and rearing of animals. India is the first rank about live stock population, second rank of Goats population and third of sheep's population (vetextension, 2019). According to WHO and Graham et al., Zoonotic disease are contagious disease naturally transmitted from vertebrate animals to human .There are 75 % new emerging infectious disease is zoonotic. The over human population ultimately close contact with wild animal cause reemerging new zoonotic diseases. Tentatively total number of zoonotic contagious diseases done by The National Academy of Sciences, Institute of Medicine reported human gets infect Of the 1,461 infectious diseases. According to D. Grace, F. Mutua, P. and Ochungo et al., (2012). India shows Poor livestock Keepers Zoonoses burden GBD and Protein energy Malnutrition, while Monogastrics (TLU) rate In which third India after Myanmar and Burkina Faso.

The common word for contagious disease is Zoonoses i.e. in singular Zoonosis came from Greek word, Zoon means animal and nosos means disease . Rudolf Virchow was first used term Zoonoses in 1855 in his book "Handbook of communicable disease" and mentioned animal diseases secondarily transmissible to man. (<http://zoology.uok.edu.in>). Zoonotic disease are the contagious disease naturally transmit between human and vertebrate animals. ( Joint WHO/DFID-AHP,2005). Higher rate of zoonotic infection cause mortality and morbidity in people as well as livestock sector. This situation mostly in poor societies (WHO, 2005). The study reveals 2.2 million death /year of human worldwide due to contagious (Zoonotic) diseases. (Human death statistics-1and 2, 2012). As per Hindu-CNN-IBN national survey Meat is huge source of protein and commodity to resource poor communities so people in India returning to non vegetarian as meat in daily diet. The climatic factor favors the increase in disease.( Singh, Sharma, Gill, Aulakh, and Banga,(2011).

In the veterinary and animal husbandry sector practices are highly connected zoonotic agents. *Escherichia coli*, Salmonellosis, campylobacteriosis, and listeriosis foodborne disease currently in developing countries. Along with TB, rabies, brucellosis, leptospirosis, cysticercosis bovine hydatidosis, taeniasis, and toxoplasmosis were zoonotic agents (WHO, 2002). According to a Joint WHO/DFID-AHP Meeting with the Participation of FAO and OIE, 2006. Anthrax, cysticercosis, brucellosis, bovine TB, rabies, and hydatidosis have an important zoonotic infection rate.Such type of disease spread through unhygienic condition such as contamination of drinking water, fruit, without washing hand after handled animals and their products. Apart from this lack of awareness among stock holder and improper disposed animal infected waste causes zoonotic diseases (Asokan, Vanitha, and Prathap,2011) the living with animal and very close contact with them also increase the chance zoonotic diseases (Dubal, Barbuddh and Singh,2014) and (Babu AJ, 2015). Due to progressively changes in climatic condition increases annual mean surface temperature 2.5degree Celsius to 5 degree Celsius. Warming more

Northern sites of India whereas ultimately 20% rise in summer monsoon rainfall favours impact of zoonoses in future Singh, B.B., Sharma, (2011).

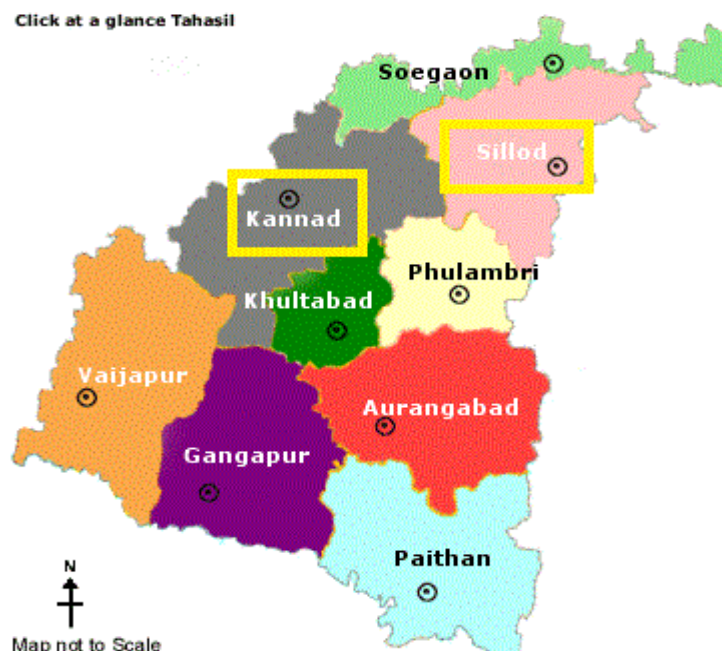
Tahsil Kannad and Sillod occupying valley and forest area and famous for tourist place. Both are situated northern site of Aurangabad district. Rearing of small ruminants is the most occupational to rural peoples and farmers from this area. Majority of people Lack of knowledge contagious diseases such as zoonoses and proper handling of animal. In such condition number of spontaneous diseases out breaks ultimately causes mortality and morbidity of animals. Variety of disease to stock holders seasonally. In such view keep in mind to carry out program must be helpful to understanding Awareness, public health and their behavior with animals as well as social health line care to implement disease awareness and health status of both domestic animals and stock owners including farmers, Butchers, local tribute people.

## MATERIALS AND METHODS

### Study Area and Subjects:

The cross-sectional study was done from different villages of Tahsil Kannad and Sillod as shown maps first and second. Both the tahsil located Northern side of Aurangabad districts. Kannad tahsil has more forest and mountain area than Sillod tahsil. Despite them both tahsil has large Agricultural sectors and Animal husbandry Live stock.

Most of the Butchers, farmers and livestock owner still follows tradition as son will be do same kind work as own parents. Among animal husbandry all kinds of business did here, Poultry, Rearing of Cattles such as Oxen, Buffaloes and Cows. Small ruminants Such as Sheep and goat rearing as more in both Tahsil. Dogs, Cats present at home. Dogs is the best close friend of Tribute people, always migrate with owners and Flocks. The occupational Job of sheep is doing Dhargar. They migrate along with flocks of animal throughout year. The Study period started from October 2019 To September 2020. The more duration required for this study due to pandemic situation of Covid-19 and lock down period.



## Study Design

Entire work during Study period is based on Questionnaire and Interviews as well as tradition knowledge among the tribute people. There was 12 Zone selected out of the 10 from Kannad tahsil and 10 from Sillod tahsil. Main purpose primary data collection regarding the awareness of Contagious Zoonotic diseases. The Questionnaire supplement constructed for Butchers from slaughter house and just some changing on same supplement for farmers, stock holders and native village people's literature or illiterate. House hold women also participate in survey.

## Method of Sampling

Most familiar Simple random sampling was carried out and recoded data. Selected respondents Categorized on the base Gender, Age, education level and Experience in their profession. Visit to sites is randomly, but most time done early morning for visits them and more time to discussion. Interview and Questionnaire also done with the organized camp with help of Veterinary professional during their Government Regular check up protocol for Domestic animal's health status and vaccination.

Farmers	260
Butchers	080
Teachers	056
Lecturer	052
Engineers	050
Employee of health Sector	036
Employee of livestock Sector	045
Bank employee	021
Agriculturist	016
Businessman	038
Farm labor and local people	182
Driver	028
Private employee	026
Grampanchayat Head and members	046
Toal	936

Table 1. Total number of Face-to-face Interview from respondents.

## Methodology

The methodology includes well organized pre tested open and closed ended questions and interview. As mentioned earlier, Questionnaire supplement constructed for Butchers for slaughter house and just some changing on same supplement for farmers, stock holders and native village people. Highlight of Questionnaire include Concept about zoonoses, Knowledge, Awareness, risk of animals, Stock yard cleaning, animal handling and hygiene to respondents. Fourteen items of mentioned Questionnaire and interview for awareness Zoonoses for Butcher. Naveen Prabhakar, M.Lokesh, M.Saiaiah, E.Sri Sai, (2016). While forty nine Questionnaire printed to evaluate. Awareness about Zoonotic diseases among farmers, stock holders and native village people's (K. Rajkumar, 2016). All the information was variable on the level of of Litrare, illiterate, age, sex, heard size. Two broad levels were indicated Questionnaire supplement constructed awareness and knowledge level as well as potential sources of infection (Jaspal Singh Hundal, 2016). Question and interview carried out in local vernacular language i.e. Marathi and national language i.e. Hindi. Respondent's

response carefully reoccurred such as Knowledge, Physical mental behavior, educational status, attitude, Experience with animals. All the feedback from respondents carefully on recorded on supplement.

## Data interpretation and Analysis

Scoring for Respondents answer a report card adapted where one (1) marks for correct answer while zero (0) for incorrect. Knowledge of respondents classified into three section (Chandrashekar, 1998 and Jaspal Singh, 2016). As per these pattern the mean and standard deviation analysed and calculate.(Table6.) All the data were collected and input in the Microsoft Excel to calculate percentage of respondents Feedback about zoonotic diseases analyzed.

## Results and Discussion

Entire work during Study period is based on Questionnaire and Interviews as well as tradition knowledge among the tribute people. There was 12 Zone selected out of the 10 from Kannad tahsil and 10 from Sillod tahsil. Study period started from October 2019To September 2020. The more duration required for this study due to pandemic situation of Covid-19 and lock down period. Total 936 Respondents participate during study period (Table1.). Out of the 849 male and 87 female Majority of the 36-50 years Farmer (Male 50.96%, Female 5.87%), Butchers (Male 47.5%) and other (Male 53.52%, Female 7.88%) respectively (table 5 and Graph 1).. The highest education among the farmer and butchers are Elementary and high school (1st-10th Class) 78.84 % and 76.25% literate while both shows 10% illiterate. (Table 2 and graph 2)).

73.07% Farmer disposed animal faces. While other remaining farmer use animal dung to coating it on hose wall and ground of stock yard as well as make it round shape called Gauri to use as fuel as fire purpose after dry it. Farmer are awareness about Rabies Brucellosis, TB, Anthrax Bird flu Swine fever as 84.8%,46.0 %,32.8 %,4.61 %,92.4 %,92.4 % respectively. About eating habitat farmer's respondents recorded drinking raw milk 46.53% Eating raw meat2.69%, Eating Fry meat1.53%. Eating raw eggs51.53% respectively (Graph.3), this might be serious and chances for contagious diseases. Simililar results wer mentined by Jaspal Singh Hundal, (2016).

Over all awareness among all participants reveals Farmers, Stock holders, Local people, Employee and Butchers shows awareness about zoonotic disease are 45.38% ,49.05%, 57% ,90%, 41.8%. (Graph6). The General awareness about Viral Zoonotic diseases among the farmer responded major known about Corona (Covid -19Virus) 99.23% due its global pandemic outbreaks, Chikenguniya98.46% ,PPR89.23% Nipah Virus 15% ,RSV&Rhinovirus21.53%, Zika Virus 18.07%, and Ebola Virus 22.30% respectively.(Table 4) Overall study help to understand Farmers45.38%, Stockholders 49.05%, Local people 57%, Employee90%and Butchers 41.08% awareness about zoonotic doseses(Graph6). During each survey most of the people was more curious about Corona (Covid -19) due to pandemic situation respondents trying understand about zoonoses. Awareness about Ectoparasites as vector



Zoonotic diseases among farmers Indicates Ticks69.23%,Lice57.30%Keds68.03% Anopheles mosquito60.76%,Culex mosquito30.38% ,Ades mosquito37.69% and Biting flies 45.76% respectively( Graph 4). About the skin lesion is the diseases is identified by 78.46% farmers (Table 4).

At stock yard daily routing activity and awareness from farmers are Without washing hand after animal handle 92.30%, Sleeping in animal shed 35.38%, Cleaning animal shed once within 2 days 88.46%, Use of remaining water for face and body wash after animals drink53.84%, Dealing with diarrheic animals 60.76%, Assisting cow during calving 92.30%, History of animal abortion at the farm History of animal abortion at the farm 59.61%,History of below 1month kids dies59.61%, Disposed off aborted fetus with naked hands69.23%, Incidence of retained placenta45.38%, Disposed off placenta without bearing gloves69.23%, Intrauterine medication after abortion25.38%, Apply milk cream (raw milk) on cracks of lips23.46%, Testing of animal for brucellosis and tuberculosis before purchasing9.61%, Wearing of mask during Wool removing from sheep's67.69%, Allow children to play with Diarrheic animal34.23%, Animal buried after death80.76% respectively(Table 3). Over all awareness about zoonotic diseases from Sheeps and Goats was less as Farmers 9.40% , Stackholders 7.05% , Local peoples 6% , Employee 5% and Butchers3.60% respectively.(Graph 7.)

Animals are strong linkage with human for transportation and their sources i.e., milk, meat and eggs .is infected animals then provide serious health effect (WHO, 2010).In current decadesresearch in zoonotic diseasesnew scice techniques, revolution in Biotechnology and genetic algorithms Optimize problems Rajappa, G.P,(2012).Those factors studied in Zoonotic diseases awareness such as pupation size, education and age not a significantly affect the respondents knowledge level. It is necessary to disease diagnosis and training (Munyeme. M.,2010). The Higher 52.99% percentage reported by respondents about dog followed 28.27% cat,28.25 poultry,16.85% cattle /buffalo and sheep and 9.9%goat. (Babu AJ,2015) and ( Syidul Islam and Md. Selim Ahmed 219).

### Conclusion

The study of zoonotic diseases is most essential in India in such way the population of human and livestock animals increasing in higher level. Still poor hygenicity in country and without any awareness about contagious disease Farmers, livestock owners and butchers handling infected animals, this might be cause serious effect on human population. In the present study all the feedback tries to record but due to improper lack of communication, understanding about questionery and education levels of respondents was some time missing. Educated family solves all the questions. There was a good hygenicity, proper handling of animal disposal, skills for infected animals handling, regular checkup, vaccination and training about disease is most essential both tahsil. Most of the respondents demanded for basic training at their village about zoonotic disease. Social advertisements from private and government agency should more necessary. Famers and stock holders not know about cysticercosis and echinococcosis as well as pathogen can transmit from eggs, meat, and milk as raw sources. There must

be proper disposed milk and milk product important for control zoonotic diseases. (Al-Majali 2009, Jaspal Singh 2016 and K. Rajkumar 2016). During study period one think is realizes that Dhangar religion tribute people has a well Acquired immunity rather than other farmers, Butchers and stock yard owner. This might be ancestral link to live with sheep and goat whole day and 7% life.

### Acknowledgement

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Table 2 Educational status from participated respondents

Categories of respondents	Total in number	Illiterate	Educational qualification (Literate)			
			Elementary and high school (1st-10th Class)	Intermediate (11th-12th Class)	Graduation (UG)	Post graduation (PG)
Farmers	260	26 (10%)	205 (78.84%)	28 (10.76%)	07 (2.69%)	-
Butchers	080	8(10%)	61 (76.25%)	09(11.25%)	07(8.75%)	-
Teachers	056	-	-	05 (8.92%)	33 (58.92%)	18 (32.14%)
Lecturer (PG,PhD/NET/S ET)	052	-	-	-	-	-
Engineers	050	-	-	-	40 (80%)	10 (20%)
Employee of health Sector	036	-	-	08 (22.22%)	15(41.66%)	13 (36.11%)
Employee of livestock Sector	045	-	08 (17.77%)	23 (51.11%)	09 (20%)	05 (20%)
Bank employee	021	-	-	09(42.85%)	12 (26.66%)	-
Agriculturist	016	-	-	-	06 (37.5%)	10 (62.5%)
Businessman	038	-	28 (80%)	06 (13.33%)	04 (6.67%)	-
Farm labor and local people	182	09 (4.95%)	160 (87.91%)	13(7.14%)	-	-
Driver	028	-	26 (92.85%)	02 (4.14%)	-	-
Private employee	026	-	-	12	14 (15%)	-
Grampanchayat Head and members	046	-	37 (80.43%)	06 (13.04%)	03 (6.52%)	-
<b>Total</b>	<b>936</b>	<b>50 (5.34%)</b>	<b>525 (56.08%)</b>	<b>109 (11.64 %)</b>	<b>143 (15.27%)</b>	<b>108 (11.53%)</b>

**Table-3:** Feedback of livestock farmers risk assessment of eating habits and farm activities with animal care

Sr.No	Risk factors for zoonotic diseases	Overview	
		Total in number Respondents (n=260)	%
I	Eating habits		
01	Drinking raw milk	121	46.53%
02	Eating raw meat	07	2.69%
03	Eating Fry meat	04	1.53%
04	Eating raw eggs	134	51.53%
II	At stock yard		
05	Milking	216	83.07%
06	Without washing hand after animal handle	240	92.30%
07	Sleeping in animal shed	092	35.38%
08	Cleaning animal shed once within 2 days	230	88.46%
09	Use of remaining water for face and body wash after animals drink	140	53.84%
10	Dealing with diarrheic animals	158	60.76%
11	Assisting cow during calving	240	92.30%
12	History of animal abortion at the farm	170	65.38%
13	History of below 1month kids dies	155	59.61%
14	Disposed off aborted fetus with naked hands	180	69.23%
15	Incidence of retained placenta	118	45.38%
16	Disposed off placenta without bearing gloves	180	69.23%
17	Intrauterine medication after abortion	066	25.38%
18	Apply milk cream (raw milk) on cracks of lips	061	23.46%
19	Testing of animal for brucellosis and tuberculosis before purchasing	025	9.61%
20	Wearing of mask during Wool removing from sheep's	176	67.69%
21	Allow children to play with Diarrheic animal	089	34.23%
22	Animal buried after death	210	80.76%

and handling .



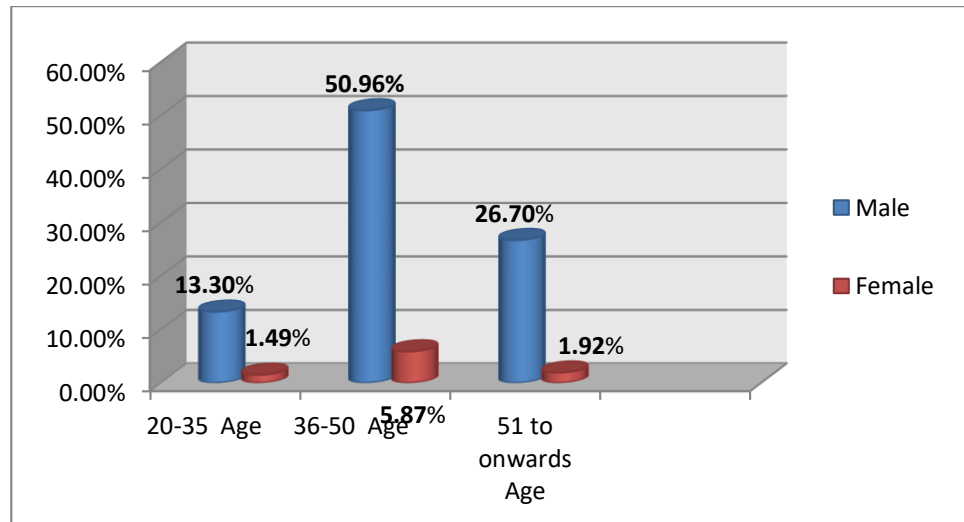
Parameter	Frequency(n=260)	Percentage
<b>Diseases transmit from animals to human being</b>		
Rabies	234	84.8 %
Brucellosis	125	46.0 %
Bovine tuberculosis	110	32.8 %
Anthrax	34	4.61 %
Bird flu	249	92.4 %
Cysticercosis	00	00 %
Echinococcosis	0	0 %
Swine fever	236	92.8%
<b>Possible means of transmission of diseases from animals to human being</b>		
Contaminating milk	121	55.6 %
Contaminating meat	196	67.2 %
Contaminating egg	26	29.6 %
Aerosol	149	52.0 %
Infected contaminating water or feed	186	64.0 %
Contact with infected animal	205	51.2 %
<b>Awareness about rabies and brucellosis Rabies may result from</b>		
Bite of rabid dog	259	98.4 %
Do we need vaccination after rabid dog bite	257	96.8 %
Brucellosis can cause abortion in dairy animals during which trimester of gestation period?	140	47.2 %
Is vaccination available against brucellosis?	172	67.6 %
Have got diseased by farm animals	35	6.0 %
<b>General awareness about Viral Zoonotic diseases</b>		
Chicken guniya (is it caused by biting mosquito?)	256	98.46%
PPR (did you know about PPR Vaccine?)	232	89.23%
Pneumonia (RSV&Rhinovirus) ( is it caused by biting Virus?)	056	21.53%
Nipah Virus (Do you know this viral disease?)	039	15%
Zika Virus (Do you know this viral disease?)	047	18.07%
Ebola Virus (Do you know this viral disease?)	058	22.30%
Corona ( Covid -19Virus) (Do you know this viral disease?)	258	99.23%
<b>Awareness about Ectoparasites as vector Zoonotic diseases</b>		
Ticks (Is that Zoonotic agent?)	180	69.23%
Lice (Is that Zoonotic agent?)	149	57.30%
Keds (Is that Zoonotic agent?)	177	68.07%
Anopheles Mosquito(Is that Zoonotic agent?)	158	60.76%
Culex Mosquito (Is that Zoonotic agent?)	79	30.38%
Ades Mosquito (Is that Zoonotic agent?)	98	37.69%
Biting Flies (Is that Zoonotic agent?)	119	45.76%
Can you Identify any disease skin lesions?	204	78.46%

Table 4. Feedback of livestock farmers risk assessment of toward zoonotic diseases and possibility of transmission.

Score (Total)	category ( Knowledge /feed back)
Less than (mean - ½ SD)	Low
Between (mean ± ½ SD)	Moderate
More than (mean + ½ SD)	High
SD=Standard deviation	

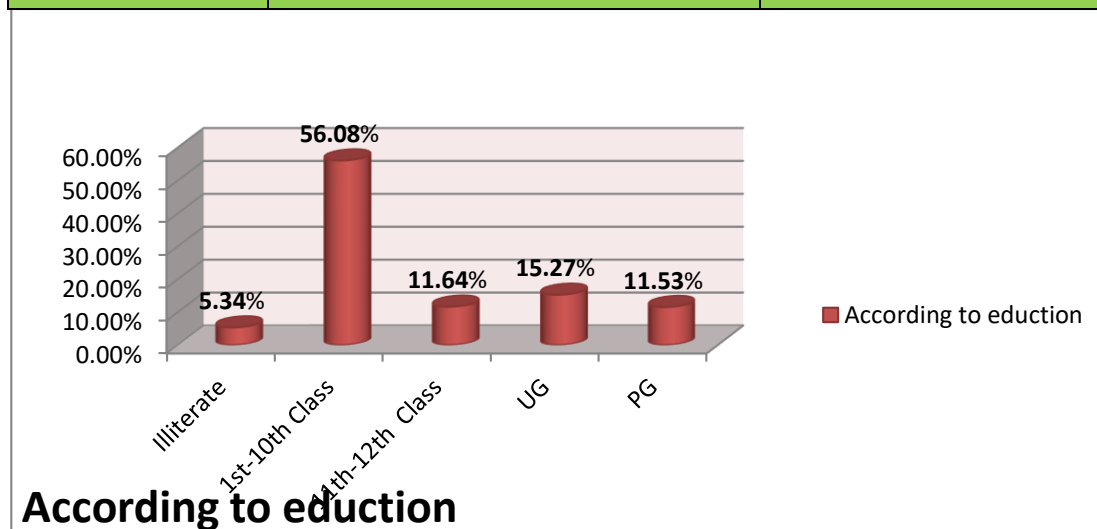
Table 6.Data interpretation and Analysis

Table5.Sex and Age wise Assessments.

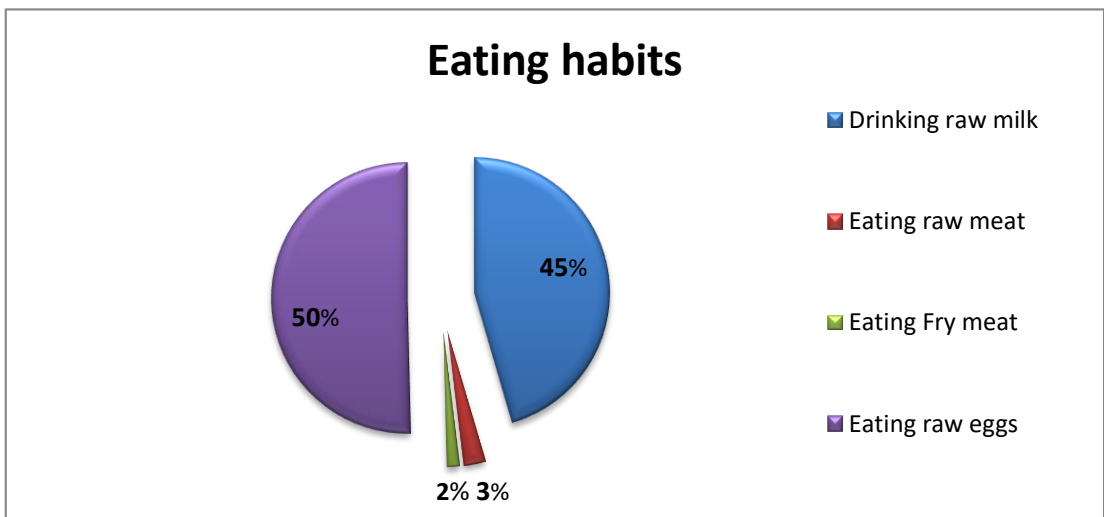


Graph 1. Age wise all respondents male and female

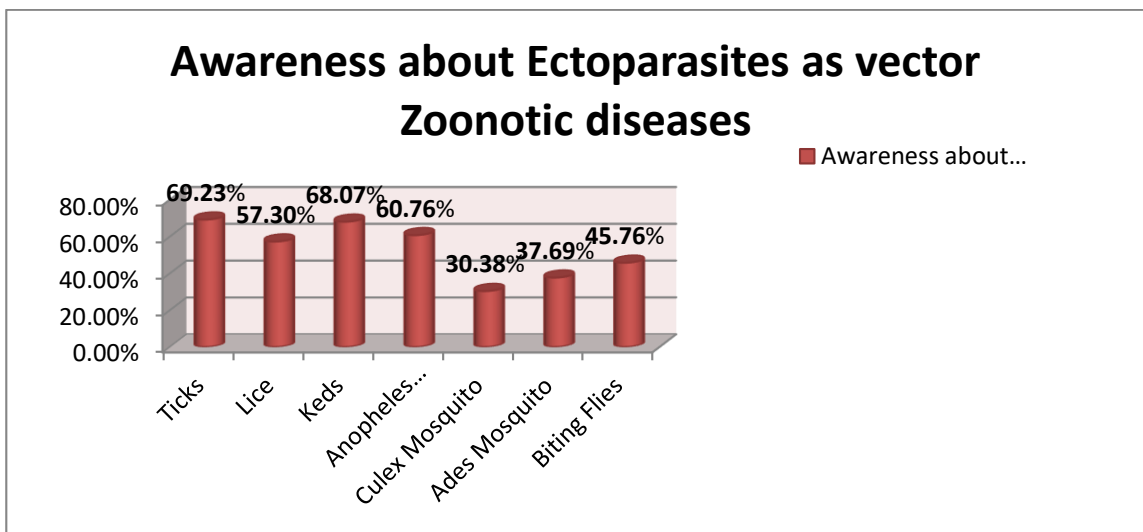
No	Description	Male (%)			Female (%)			Total (%)
		20-35	36-50	51 to onwards	20-35	36-50	51 to onwards	
1	Farmers	46 (17.69%)	120 (46.15%)	56 (17.69%)	06 (2.30%)	25 (9.61%)	07 (2.69%)	260
2	Butchers	24 (30%)	38 (47.5%)	18 (22.5%)	-	-	-	080
3	Other than Farmers	52 (6.12%)	319 (53.52%)	176 (29.53%)	08 (1.34%)	30 (7.88%)	11 (1.84%)	596
<b>Total</b>		<b>122</b>	<b>+ 477</b>	<b>+ 250 = 849</b>	<b>14</b>	<b>+ 55</b>	<b>+ 18 = 87</b>	<b>936</b>



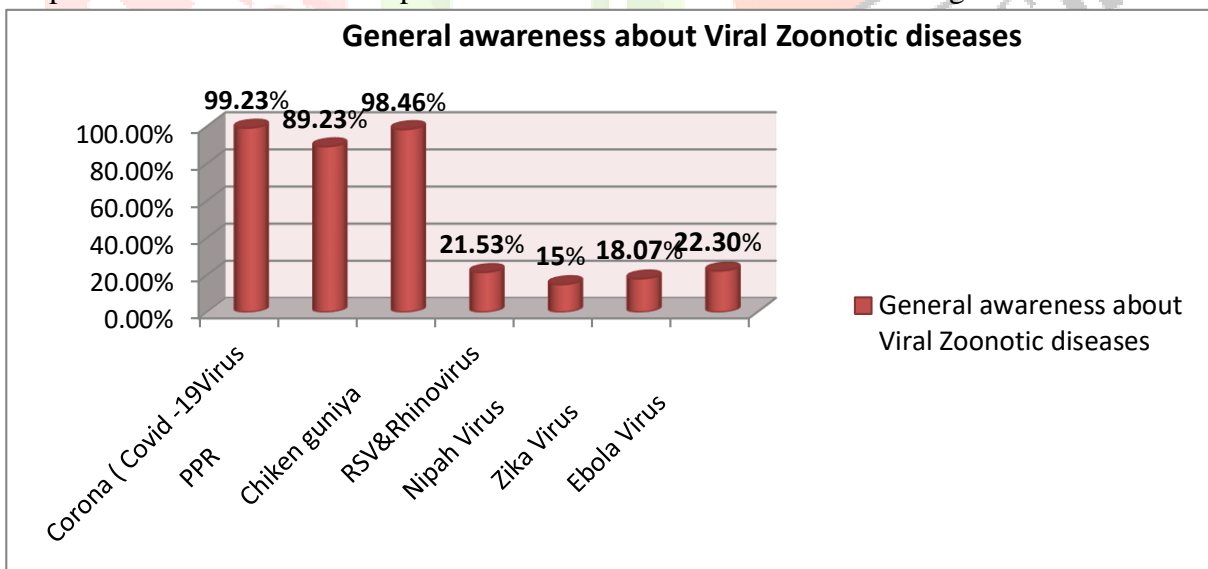
Graph 2. Education wise all respondents



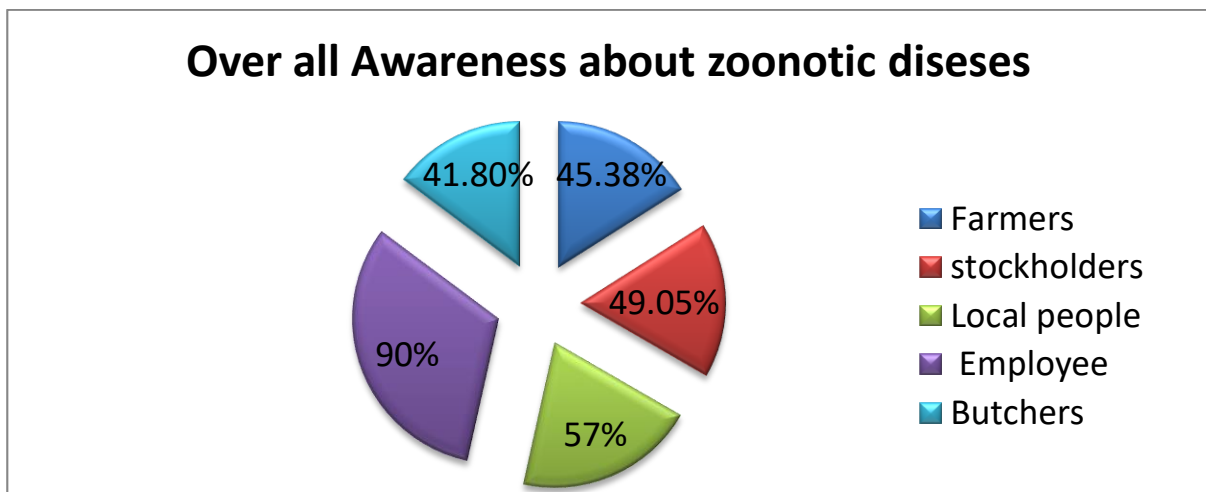
Graph 3. Chances of zoonotic diseases through improper eating habits in farmers.



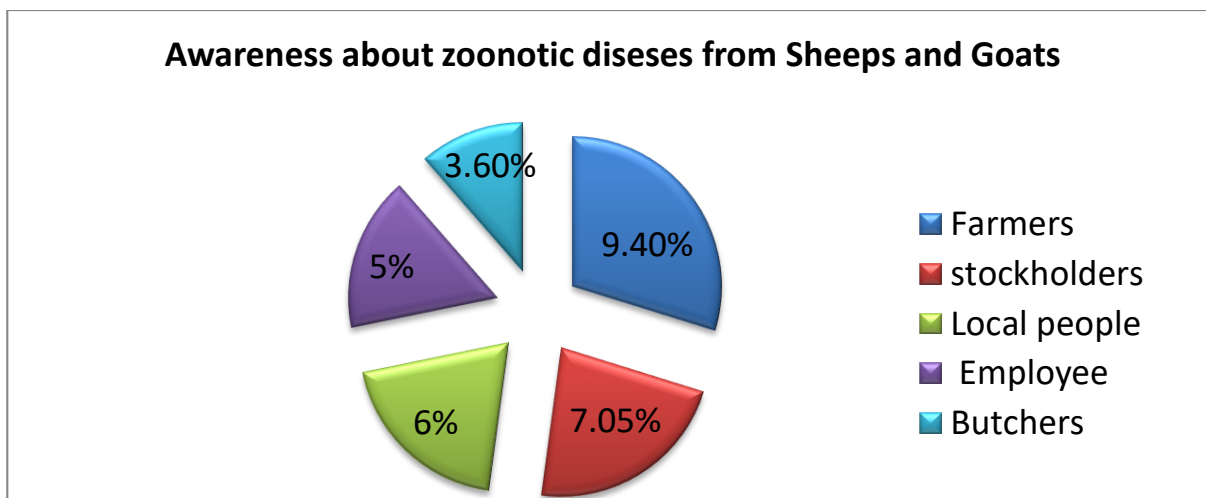
Graph 4. Awareness about Ectoparasites as vector Zoonotic diseases among farmers.



Graph 5. General awareness about Viral Zoonotic diseases among farmers.



Graph 6.Over all awareness among all participants



Graph 7.Over all Awareness about zoonotic diseases from Sheeps and Goats.

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