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Influence of Temperature and Rainfall on the *Ascaridia Galli* Infection in Domestic Fowl

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Abstract: ***Infection level of any parasites depend not only on the changes in ecological stability of the host but also certain external factors such as temperature and rainfall. The temperature and rainfall usually affected the host and contained infection.Lapage,1956 state that hookworm larva develop to third stage in about a week, if there is sufficient moisture and sufficiently temperature. According to Anderson et.al.,1956 stated that the development rate of parasites increases in temperature. The author made an attempt to study the influence of temperature and rainfall of infection of common round worm i.e. Ascaridia galli of avian host Gallus gallus domesticus during the year 2018-2019 in Parbhani District.(Maharashtra State)***

Keywords: Ascardia galli, Gallus domesticus, Influence of temperature and rainfall

I. INTRODUCTION

Temperature brings about changes in the general metabolism of both host and parasites. According to Esch G.W.,1975 the temperature affects enzymatically controlled metabolic activities and osmotic processes in both hosts and parasites which play an import role in the development growth and breeding resulting in the alteration of recruitment transmission and mortality of the parasites.

The rainfall nd humidity have a relevant being on the growth of the intermediate hosts such as arthropod vectors and snails resulting in the appreciable changes in the infection levels.

Kisielwisska,1970 studied the helminth grouping in bank vole population and showed that in the homiotherms also seasonal fluctuations play a significant role.Reid,1960 observed that the development of Ascaridia galli continues at at a lower rate as temperature is reduced. The minimum temperature being 19˚cbelow this the development is arrested, but may continue upon raising the temperature.

II. MATERIAL AND METHOD

The nematodes were collected from intestine of *Gallus domesticus*. For the study of the influence of temperature and rainfall on the *Ascaridia galli* nematodes infection monthly mean temperature and rainfall were taken into account for 2018-2019 their effect on the incidence of infection was studded.

The annual cycle divided into summer, rainy and winter season. The metrological and seasonal incidence of infection was investigated.

The data of the daily practical work was recorded for the one year of annual cycles. The data include the number of fowl examined both infected and uninfected .The number of worms collected from the host month wise recording of temperature and rainfall etc. The various biological parameters studied include incidence, intensity ,density and index of infection.

III. RESULTS

With a few insignificant exceptions one may categorically arrive the following generalizations .There was a direct relationship between the rise of temperature and infection of nematode of fowl the infection levels are highest in low temperature and non-rainy seasons.

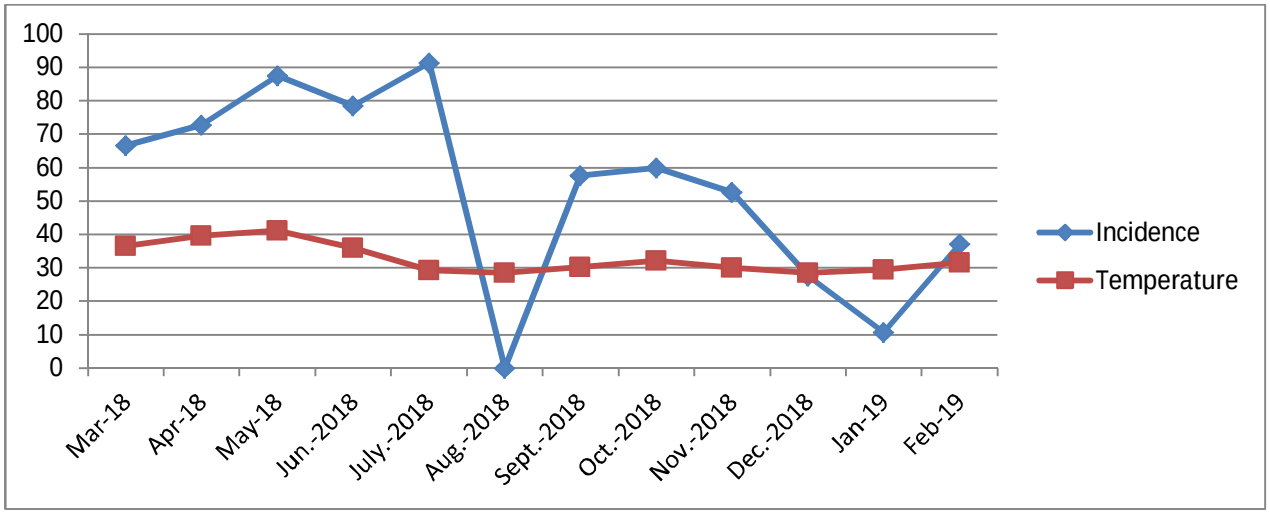
The nematode infection high temperature and low rainfall favors their infesting nature. The relationship between the total incidence of *Ascaridia galli* infection of the host and rainfall in mm. recorded for each month during the year 2018-2019 was worked out and analysis obtained revealed that there was no uniform and consistent effect of rainfall on the infection levels .It was observed that the incidence of infection was high when the rainfall was low and vice versa (Table-I).

TABLE- I

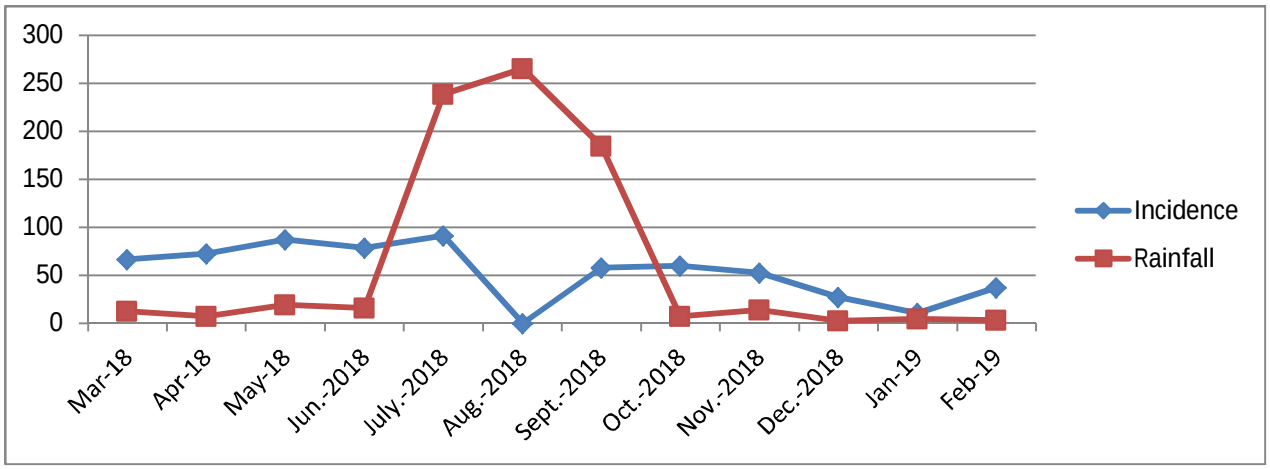
Influence of Temperature and rainfall on the Ascaridia galli infection in fowl during the Year 2019-2019

Year and month 2018-2019	Incidence of infection	Intensity of infection	Density of infection	Index of infection	Mean Temperature	Rainfall in mm.
Mar-2018	66.66	2.38	1.5	1.06	36.6	12.5
April-2018	72.72	3.87	2.8	2.00	39.6	7.00
May-2018	87.50	3.71	3.25	2.84	41.1	19.2
Jun.-2018	78.5	3.22	2.53	1.99	36.0	15.7
July.-2018	91.3	3.60	3.33	3.01	29.2	238.4
Aug.-2018	-	-	-	-	28.5	265.4
Sept.-2018	57.6	2.5	1.46	0.84	30.2	184.4
Oct.-2018	60.00	1.9	1.15	0.69	32.2	7.4
Nov.-2018	52.60	3.5	1.84	0.96	30.0	13.8
Dec.-2018	27.50	2.6	0.72	0.19	28.5	2.5
Jan-2019	10.71	3.6	0.39	0.042	29.5	4.4
Feb-2019	37.03	2.2	0.81	0.30	31.5	3.2

Table-II



Correlation of incidence of infection of *Ascaridia galli* in the population of Gallus domesticus and Temperature



Correlation of incidence of infection of *Ascaridia galli* in the population of Gallus domesticus and Rainfall

IV. DISSCUSSION

The Infection levels were maintained more or less same throughout the year due *to Ascaridia galli* In high temperature ,the infection levels was recorded more than that of lower temperature. In *Ascaridia galli* infection was higher in summer season (May) and followed by Rainy (July) and Winter (November).This is attributed to the fact high temperature and sufficient moisture would affect the development of nematode parasites as stated by Lapage ,1956,Andrson et.al.,1956 and are helpful for very high recruitment of the parasites to the definitive host. The influence of temperature was different in biohelminths and geohelminths .The biohelminths there was a vast difference between the nematode biohelminthus .Rainfall and humidity favors to the tapeworm in rainy reason and lower in summer season.

V. ACKNOWLEDGEMENT

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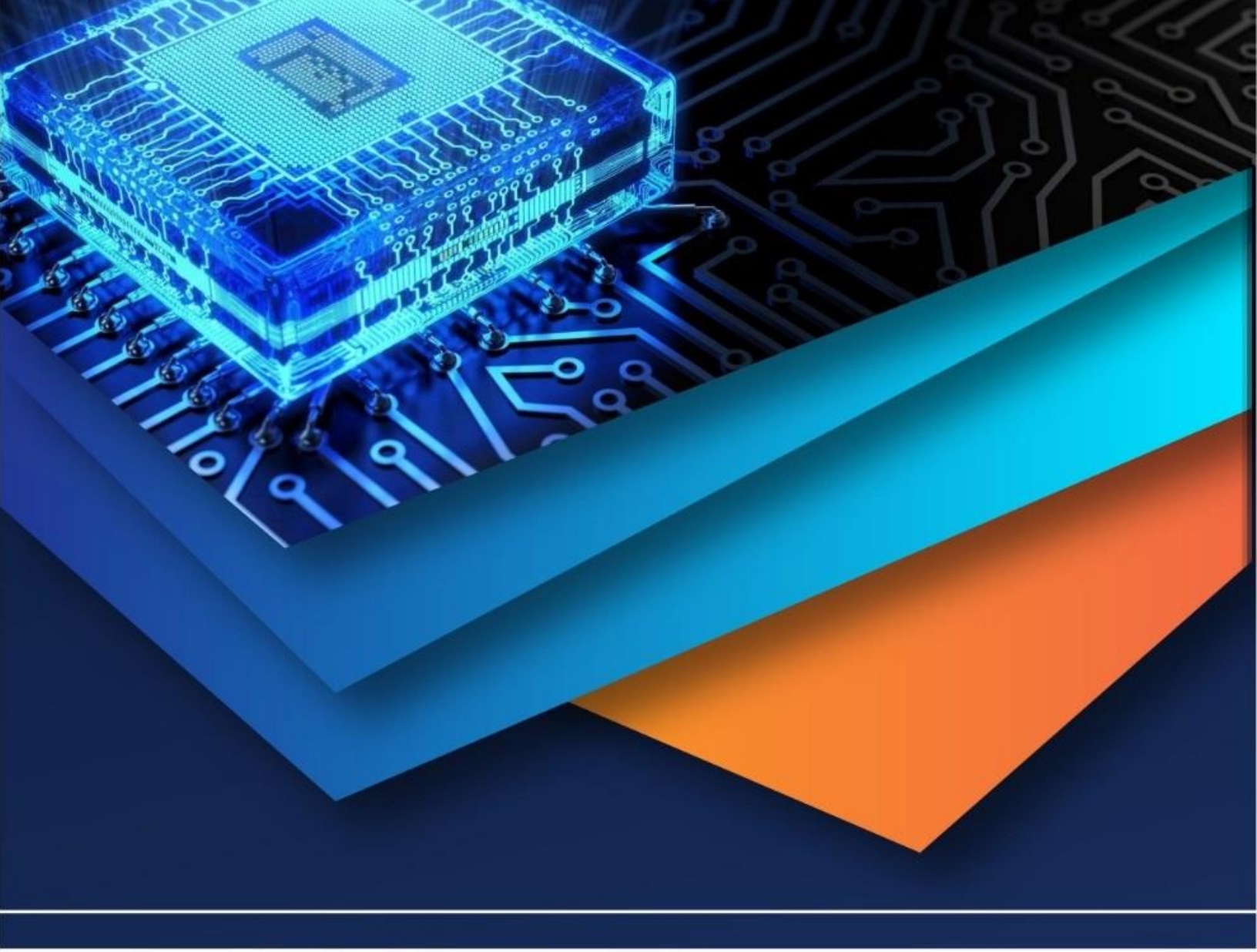

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