

Study of seasonal variations of coccidiosis in backyard poultry chicken

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Abstract

Shifting of weather patterns from previous few years, from drought condition to heavy rains, strongly affects animals performance (growth, production and reproduction) as well as fostering disease occurs that threaten animal health and welfare.

Phylum Apicomplexa (Coccidia) causes great threat to chicken of various ages and cause major economic loss of every poultry owner. Various species of *Eimeria* causes coccidiosis in chicken. This investigation undertaken to know seasonal Variation (Mansoon, winter and summer seasons) of coccidiosis, from June 2019 to May 2020. Total 597 samples of dropping were collected of different indigenous chicken from different species reared in farm as well as in backyard. From different villages of Vaijapur tehsil samples were collected for examination. Out of 597 samples 117 were positive for coccidial infection, the percentage prevalence being 19.59%.

Keywords: backyard poultry, *Coccidia*, coccidiosis *Eimeria* etc

Introduction

Alarming action of climate change and global warming is now recognise worldwide and showing negative impact on performance of livestock, increased incidence of parasitic diseases. Majority of respondent perceive an increased in environmental temperature, decreased precipitation, increased frequency of extreme weather conditions and summer season length. Due to the size and diversity, Asian continent may be affected significantly by consequences of climatic change and its new status on livestock health.

Backyard poultry plays a key role in supplementary income generation and family nutrition to the poorest of the poor. It is estimated that with a poultry population of 729 million [30% layers at around 215 million and 40% broilers at around 480 million] small and medium farmers are mostly engaged in contract farming system under larger integrators and there are around 30 million farmers engaged in backyard poultry as per 19th Livestock Census^[5].

Reduction of poverty is the primary aim of the backyard poultry. The rural backyard poultry becomes a source of meat when the chickens are slaughtered during festivals, celebrations and sacrifices. It support in all kinds of development of the owners. Now a day, in all countries chickens are reared as a farm species.

It is an important source of animal protein, and can be raised in situations with limited feed and housing resources. They are therefore by far the most important species for generating income for rural families. In India, backyard poultry has found special favour with the poor (landless, marginal and small farmers) and tribal, scheduled castes and other backward caste communities as reported by various researchers to supplement and enhance their livelihoods to climb the poverty ladder as well as asset accumulation. According to Mandal *et al.*^[1] it is a low input or no input business.

Traditional/backyard poultry farming plays a major role in

the rural economy and women empowerment. Though, still it is contributing 30% to the national egg production, the rural backyard poultry is the most neglected one^[4].

Coccidiosis is one of the most important economically poultry diseases and coccidial infections are usually most common and important in chickens younger than 1 year^[14]. Coccidiosis is known to be the most prevalent and most expensive disease of poultry in the worldwide^[15]. It is one of the most alarming problems in poultry rearing industry and is responsible for morbidity and mortality^[16].

Material and methods

The survey for seasonal variation has been conducted in June 2019 to May 2020, from Vaijapur tehsil from farm as well as in backyard. The data were collected from Different Villages i.e Sawandgaon, Aghur, Hingono, Goyegaon, Chor Waghgaon Purangaon, Ghygaon, Nagina Pimpalgaon, Mahalgaon, Bhagur, Janephal, Shivrai, Karnjgaon, Narayanpur, Kanak Sagaj, Ballali Sagaj, Hanumant Gaon, Ladgaon, Koradgaon, Jategaon tembhi, Mali Sagaj, Dawala, Chnchadgaon, and Tidi. The material for the study of coccidia of backyard chicken was obtained from various backyard poultry houses as well as from different fields in Vaijapur tehsil of Aurangabad district (M.S.). The samples were examined for the presence of oocyst. Oocysts are separated from fecal material by sieving and centrifugation at 3000 rpm for 10 min. The oocysts collected were spread out in shallow Petri dish in 2.5% potassium dichromate solution for sporulation^[17].

Results

The survey for seasonal variation has been conducted in June 2019 to May 2020. During Mansoon season i.e. from June to September 2019, 222 samples (June 50, July 62, August 60 and September 50) were examined for coccidial infection out of which 77 were positive. Shown in table no.1

Table 1: Showing seasonal variation has been conducted in June 2019 to May 2020 (Mansoon season)

Sr. no.	Period	Examined	Positive	Percentage
1	June	50	20	40%
2	July	62	22	35.48%
3	August	60	20	33.33%
4	September	50	15	30%

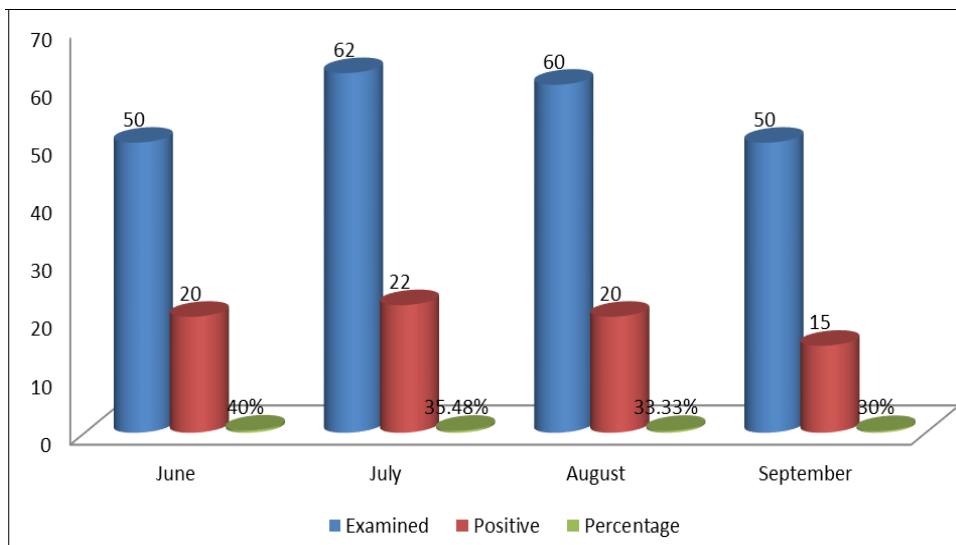


Fig 1: Showing seasonal variation has been conducted in June 2019 to May 2020 (Mansoon season)

During winter season i.e. from October 2019 to January 2020, 210 samples were examined for coccidial infection out of which 87 were positive. Shown in table no.2

Table 2: seasonal variation has been conducted in October 2019 to January 2020 (winter season)

Sr. no.	Period	Examined	Positive	Percentage
1	October	30	10	33.33%
2	November	70	12	17.14%
3	December	60	10	16.66%
4	January	50	5	10%

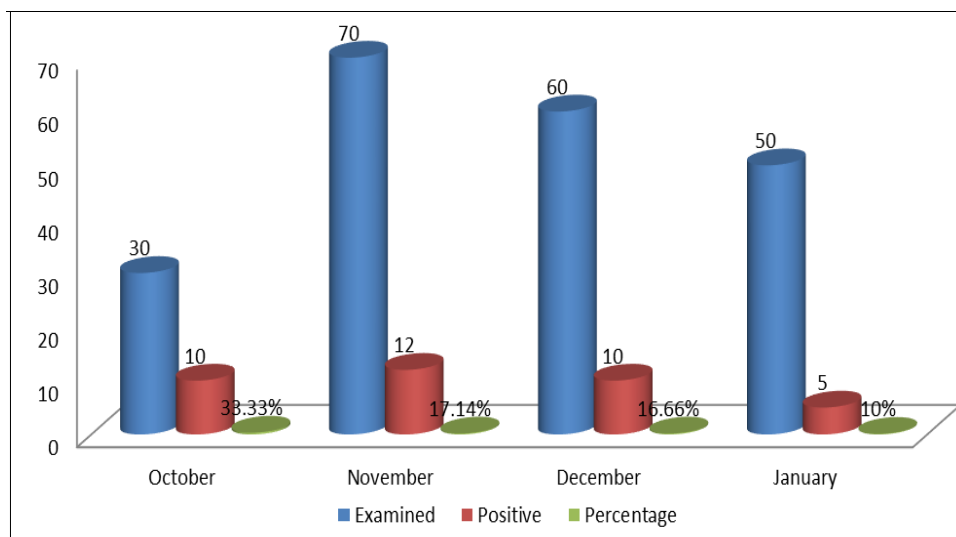
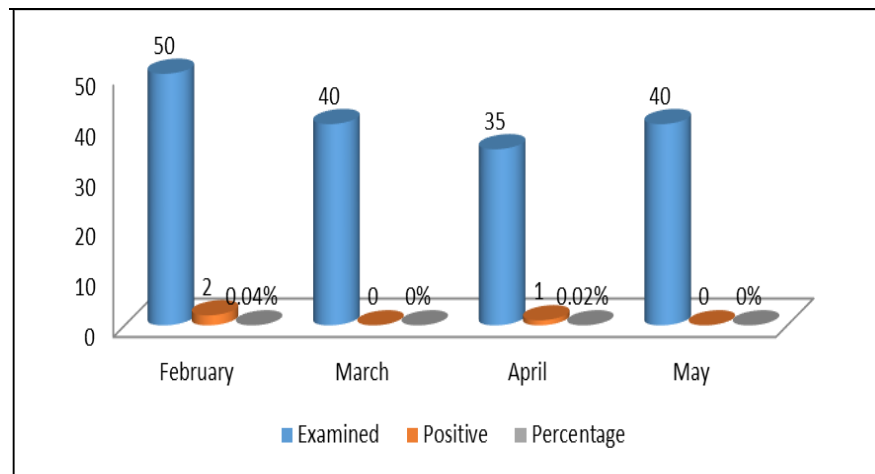


Fig 2: Showing seasonal variation has been conducted in October 2019 to January 2020 (winter season).

During summer season i.e from February 2020 to May 2020, 165 Samples were examined for coccidial infection out of which 32 were positive. Shown in table no.3

Table 3: Showing seasonal variation has been conducted in February 2020 to May 2020 (summer season)

Sr. no.	Period	Examined	Positive	Percentage
1	February	50	02	0.04%
2	March	40	00	00%
3	April	35	01	0.02%
4	May	40	00	00%

**Fig 3:** Showing seasonal variation has been conducted in February 2020 to May 2020 (summer season)

Month wise prevalence are as follows, June (40%), July (35.48%), August (33.33%), September (30%), October (33.33%), November (17.14%), December (16.66%), January (10%), February (0.04%), March (00%), April (0.02%), and May (00%). The highest percentage was recorded in Mansoon Seasons month of June (40%), whereas Lowest in Summer season i.e. in March (00%), and May (00%).

Discussions

The overall prevalence of coccidial infections in chickens in the present study was 19.59%. Which is comparable to the previously reported prevalence of 38.5% in Ethiopia Netsanet [7] and 41.43% in South Africa Mwale & Masika [8]. It is higher than infection recorded, in different sites of Ethiopia 22.58%, 25.8%, 22.3% and 25.24% by Gari *et al.* [9], Ashenafi *et al.* [10], Alemayehu [11] and Amare [12] respectively. Sourabh Sharma *et al.* (2016) show 53.61% infection with *Eimeria* sp. from backyard farms of Jammu region which is higher than this study. [13] Jallailudeen Rabana Lawal (2016) Maiduguri, Borno State, Nigeria recorded 31.8% coccidial infection in backyard poultry which is also very high record than our study. [18]

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