

RESEARCH PAPER

Study of sanitary measures adopted by broiler farms in Marathwada region

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ABSTRACT

Fifteen broiler farms in Marathwada region of Maharashtra state were selected and the assessment of sanitary measures was done by on the spot observation and on the basis of questionnaire. There existed wide variation in planning and execution of sanitary programme in the broiler farms. All the farms were categorized under poor and optimum sanitation lacking in the adoption of fumigation practice of shed placing the chicks. Total four farms had no provision for sanitation of drinking water. Unscientific disposal of dead birds was marked feature of field observation. Majority of broiler farms lacked foot bath system in broiler farm and only four broiler farms had provision for this aspect. Raking of litter which is another important measure was neglected by the farms under poor sanitation.

Key words : Broiler farm, Marathwada, Survey, Sanitary measures

Now poultry production has transformed into an industry form backyard venture. Poultry industry in general and broiler production in particular are proved to be sustainable in last four decades. The desire to obtain maximum with gain in minimum time and attempts to increase the number of crops in a year force the farmers to compromise on sanitation of broiler farms.

A common concern of poultry industry is presence of bacterial and fungal pathogens. A high population of pathogenic bacteria in the poultry house contributes to a decline in wellness of flock and increased levels of pathogens recoverable carcass entering the consumer market. Large amount of faeces that are deposited in litter can lead to increase in pathogen populations in bird's environment (Payne *et al.*, 2005).

Reducing the load of pathogen in environment of flock, reduces the risk of disease (Jeffrey, 1997). Fortunately the sanitary measures come into vogue to overcome the problems like disease outbreaks and production losses to the farming community.

Primary objective of sanitation programme is to provide a biosecurity over to the flock to reduce disease incidence or prevent disease outbreak. This is done by eliminating or reducing the troublesome microorganisms from environment and various sources.

Preventing disease causing germs or microbes from entering poultry premises is the key to flock health and success of poultry business (Nathaniel, 2000). Good sanitation can be difference between a profitable and unprofitable operation. The lacunae in managerial procedures need to be identified by on the spot survey report. Keeping these facts in views, the present study

was planned in Marathwada region of Maharashtra state for assessment of sanitary measures adopted by broiler farms.

MATERIALS AND METHODS

Fifteen broiler farms in Marathwada region of Maharashtra state were selected for present study. Assessment of sanitary measures of broiler farms on the basis of spot observation by questionnaire was done as per score system. The questionnaire filled in by supervisors consisted of exhaustive list of sanitary measures expected to be adopted by the broiler farmers for effective sanitation. The observations in the questionnaire were authenticated by on spot observation. The information in questionnaire helped in identifying the lacunae in the different biosecurity measures practiced in field. The parameters considered in questionnaire and points allotted are presented in Table 1. The farms having total score more than 75 per cent in each of the parameters (1 to 15) were graded as 'Excellent sanitation', those score between 75-50 per cent in each parameter were rated as 'optimum sanitation' and those having score less than 50 per cent in each parameter were rated as 'poor sanitation'.

The broiler farm selected (designed by alphabets from A to O) for present study (Table 3) were categorized on the basis of score system into three categories, namely :

Poor sanitation: C, G, J, L, M.

Optimum sanitation: B, E, I, F, N, O.

Excellent sanitation: A, D, H, K.

These farms were selected for assessment of sanitary measures adopted by broiler farms. List of the

broiler farms selected for the present study and their alphabetic designation are presented in Table 2. The data collected on sanitary measures were tabulated and statistically analyzed by Completely Randomized Block Design (Panse and Sukhatme, 1967).

RESULTS AND DISCUSSION

The results obtained from the present investigation are summarized below :

Field observation for assessment of sanitation programme of broiler farms :

Assessment of sanitation programme was done by allocating scores, out of the maximum weightages to the identified parameters (Table 1). It was evident from the observations that there existed wide variation in planning and execution of sanitation programmes in the field.

Table 1 : The factors considered in questionnaire with points allotted of broiler farm

Sr. No.	Parameters	Maximum weightage
1.	Cleanliness in premises.	7
2.	Disinfection of shed.	7
3.	Dry cleaning and burning.	6
4.	Wet cleaning.	6
5.	White wash to shed.	7
6.	Disinfectants used in white wash.	6
7.	Fumigations of shed.	7
8.	Foot bath system.	6
9.	Sanitation of drinking water.	7
10.	Disinfection of water channels and waterer.	7
11.	Cleaning of water system.	6
12.	Disinfection of feeder during rest period.	7
13.	Disposal method of dead birds and its distance from broiler house.	7
14.	Raking of litter	7
15.	Ventilation	7
	Total weightage	100

Cleaning of premises :

The cleanliness in premises was fairly good as majority of the broiler scored more than 70 per cent in this parameter (Table 3 and 4). Dry cleaning and burning was followed by all the farms. It is the most important practices by all the farms. The farm grouped under excellent sanitation followed the practices of sprinkling water around the poultry shed.

Sanitary measures inside the poultry shed :

There existed wide variation in adoption of sanitary

Table 2 : Broiler farms selected for study

Alphabetical designation	Name of poultry farm	District
A	Sagar poultry farm	Jalna
B	Rahul poultry farm	Aurangabad
C	Sandeep poultry farm	Parbhani
D	Mansi poultry farm	Aurangabad
E	Thorat poultry farm	Beed
F	Kamal poultry farm	Latur
G	Usman poultry farm	Jalna
H	Unique poultry farm	Aurangabad
I	Jaihind poultry farm	Latur
J	Radhika poultry farm	Parbhani
K	Balaji poultry farm	Beed
L	Savan poultry farm	Aurangabad
M	Rajendra poultry farm	Aurangabad
N	Vatan poultry farm	Osmanabad
O	Sanjay poultry farm	Osmanabad

measures inside the poultry shed. The disinfection of shed before placing the chicks was not followed by all the farms in Marathwada region. The wet cleaning operation was done by majority on farms. The excellent sanitation used chemicals like phenyl and detergent powder. Other striking feature was lack of fumigation of shed in the farm before placing chicks, rated under poor and optimum sanitation. This important practice was neglected by majority of farmers in Marathwada region. The broiler farms used only lime powder for white wash of shed (Table 3 and 5).

Foot bath system :

The observation from Table 3 and 6 revealed that only 27 per cent farm had provision for foot bath system. The water change in foot bath system was done daily in excellent sanitation farms, alternate days in optimum sanitation and weekly once in poor sanitation broiler farms. The broiler farmers were lacking the knowledge of foot bath system and its importance in sanitation programme. A lot of extension work is required to be done regarding this aspect.

Sanitation of drinking water :

There was lack of sanitation of drinking water in four broiler farms out of the total fifteen broiler farms. (Table 3 and 7). The excellent sanitation farms followed sanitary measures for drinking water while the optimum and poor sanitation farms showed poor results in this aspect. Shelter or covering to the water system was provided by the farmers of optimum and excellent sanitation farms. Disinfection of waterer was done by all the farmers of excellent sanitation using sanitizers like

Table 3 : Field observation of three sanitation category broiler farms

Parameter/Field	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Poor																
C	7	0	6	0	0	0	0	0	3	0	3	0	3	2	3	27
G	7	0	6	6	7	0	0	0	4	0	3	7	2	0	0	42
J	4	7	6	0	5	0	0	2	2	6	2	5	2	0	0	41
L	5	2	4	4	0	0	0	0	5	3	4	3	2	2	3	37
M	4	5	6	0	1	0	0	0	0	0	3	0	2	2	3	26
Optimum																
B	5	7	6	6	6	0	0	5	0	6	5	7	2	4	3	62
E	6	4	6	6	7	0	0	0	5	0	4	7	4	4	7	60
I	7	0	6	6	7	0	0	0	7	0	5	0	5	3	7	53
F	4	7	6	6	7	0	0	0	0	0	5	7	7	4	7	60
N	7	7	6	6	0	0	0	0	7	7	5	7	3	0	2	57
O	4	7	6	6	7	0	0	0	0	0	5	7	7	5	7	61
Excellent																
A	7	7	6	6	7	0	7	0	7	7	6	7	7	7	7	88
B	7	7	6	6	7	0	7	6	7	1	6	7	7	7	7	88
H	7	7	6	6	7	0	7	0	7	7	6	0	7	7	7	81
K	7	7	6	6	7	0	7	6	7	7	6	7	7	7	7	94

The figures indicating weightages given to various parameter

Table 4 : Sanitary measures adopted for cleanliness of premises

Sr. No.	Farm	Sanitary measures adopted
1.	Excellent sanitary broiler farms	<ul style="list-style-type: none"> - Regular cleaning of premises. - Burning the waste, tree leaves, plastic bags and other waste materials in the premises. - Regular cleaning of weeds and unwanted grasses around the broiler farms. - Sprinkling of water around the broiler farm. - Disposal of waste materials from the surrounding into the FYM pit.
2.	Optimum sanitary broiler farms	<ul style="list-style-type: none"> - Regular cleaning of premises. - Regular cleaning of weeds and unwanted grass around the broiler farms. - Burning the waste materials.
3.	Poor sanitary broiler farms	<ul style="list-style-type: none"> - Regular cleaning of premises. - Regular cleaning of weeds and unwanted grasses around the broiler farms. - Disposal of waste materials from the surrounding into the FYM pit. - Burning of waste materials.

Table 5 : Sanitary measures adopted inside the poultry shed

Sr. No.	Farm	Sanitary measures adopted
1.	Excellent sanitary broiler farms	<ul style="list-style-type: none"> - Disinfection of shed with chemicals like formalin and potassium permagnate. - Wet cleaning of floor with water and phenyl. - Burning of cob webs inside the shed. - White wash of the shed with lime powder. - Fumigation of the shed before placing the checks.
2.	Optimum sanitary broiler farms	<ul style="list-style-type: none"> - Disinfection of shed with chemicals like formalin and potassium permagnate. - Wet cleaning of floor with water and detergent powder. - White wash of the shed with lime powder.
3.	Poor sanitary broiler farms	<ul style="list-style-type: none"> - Three farm out of five followed disinfection of shed before placing the chicks. - Disinfection of shed with chemicals like formalin and potassium permagnate. - Only two farms followed wet cleaning of floor with water only. - White wash of the shed with lime powder. - No other additional measures were followed.

Table 6 : Sanitary measures adopted for foot bath system

Sr. No.	Farm	Sanitary measures adopted
1.	Excellent sanitary broiler farms	- Foot bath system was present in only two farms. - Water change in foot bath was done daily by the broiler farmers.
2.	Optimum sanitary broiler farms	- Foot bath system was present only in one broiler farm. - Water change in foot bath was done on alternate days by the broiler farmers.
3.	Poor sanitary broiler farms	- Foot bath system was present only in one broiler farm. - Water change in foot bath was done weekly once by the broiler farms.

Table 7 : Sanitary measures adopted for drinking water

Sr. No.	Farm	Major source of drinking water	Sanitary measures adopted
1.	Excellent sanitary broiler farms	Tube well, well, Municipal corporation	- Clanging of water system once a week. - Use of sanitizers like household bleach and iodine for disinfection of waterer. - Covering of water system with tin sheet to protect from dust and other impurities. - Addition of chlorine to the drinking water of birds.
2.	Optimum sanitary broiler farms	Tube well and well	- Clanging of water system in alternate weeks. - Use of chlorine in drinking water for birds. - Covering of water system with tin sheets to protect from dust and other impurities.
3.	Poor sanitary broiler farms	Tube well and well	- Clanging of water system occasionally. - Use of chlorine in drinking water for birds. - No other additional measures were adopted.

house hold bleach and iodine, whereas only two farms of optimum and two farms of poor sanitation farms followed disinfection of waterer using phenyl.

Disinfection of feeders during rest period :

The feeders are potential source of harmful bacteria and other microbes. The observation revealed that the majority of farm under excellent and optimum sanitation scored maximum weightages regarding this parameter.

Disposal of dead birds :

It was observed that there was not any scientific method of disposal of dead birds on any poultry farm therefore, score were recorded on the basis of distance of the place of disposal from the poultry farm. The poor

and optimum sanitation farms were throwing the dead carcasses in the nearby fields inviting the dogs, cats, rodents and canaries. This can be very dangerous during the disease outbreaks of rapidly spreading diseases such as ND, IBD, influenza etc. This sanitary measure needs immediate improvement in Marathwada region.

Litter management :

The litter management was good in excellent sanitation farm, where the raking of litter was done daily to maintain the moisture per cent in the litter (Table 3 and 8). Also the farmers under this group sprayed formalin and other disinfectants on litter materials before placing the chicks which was not done by the optimum and poor sanitation farms. Daily raking of litter is not enough to

Table 8 : Sanitary measures adopted for litter management

Sr. No.	Farm	Litter material used	Sanitary measures adopted
1	Excellent sanitary broiler farms	Groundnut husk, wheat straw, soybean straw.	- Raking of litter was done daily. - Disposal of litter materials in FYM pit or direct use the litter materials as manure for crop farming. - Spraying formalin on litter material before placing the chicks.
2	Optimum sanitary broiler farms	Soybean straw, wheat straw, groundnut husk.	- Raking of litter was done weekly and in some farms twice weekly. - Disposal of litter material in FYM pit or direct use as manure for crop farming.
3	Poor sanitary broiler farms	Wheat straw, soybean straw, groundnut husk.	- Raking of litter was done occasionally or even some farms do not rake the litter. - Disposal of litter material on farm as manure for crop farming.

check the disease outbreak but the fresh litter materials must be added regularly to the old litter material in winter season to check the formation of wet cakes of litter which was not done by any farm in Marathwada region.

Ventilation :

The ventilation was satisfactory in excellent and optimum sanitation broiler farms as 80 per cent broiler farms secured the maximum weightage in this parameter. Proper ventilation helps to control the moisture per cent in litter and to maintain the temperature inside the poultry shed. Wet caked litter can be controlled by providing proper ventilation.

Conclusion :

The survey along with on spot observation conducted in the present study was highly useful in assessment of sanitation programme on selected broiler farms. Taking into consideration the observation, suitable sanitary programme should be planned. Certain sanitary measures may appear to be of minor importance to the poultry farmers but they play a major role in eliminating the microbial contamination. The broiler farm can be advised to be more specific, scientific and disciplined in maintaining sanitary conditions as per standard recommendation. Extension activities regarding the adoption of scientific knowledge must be carried out in Marathwada region.

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