International Journal of Veterinary Sciences and Animal Husbandry

ISSN: 2456-2912
VET 2018; 3(5): 89-91

www.veterinarypaper.com
Received: 22-07-2018
Accepted: 25-08-2018

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Importance of biosecurity in broiler commercial farming

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Abstract
The word Biosecurity, which means safety of living things, is a programme designed to prevent the exposure of birds to disease causing organisms. Biosecurity is the cheapest and at the same time most effective means of disease control Programme. Biosecurity is considered as one of the integrated part of farm operations. Biosecurity helps in managing broiler health and minimising the disease risk and its impacts on broilers. More people are engaged with this industry and not all are aware of diseases which are economically very sensitive to farmers. Many viral and bacterial diseases can be prevented with proper disinfectant spray, adequate shed cleaning, proper shed rest, Vaccinations/medication and foot bath. Disinfectant spray in and around farm premises are very important for controlling disease transmission from one to another source.

Keywords: Biosecurity, Commercial broiler, Disinfectants, Farmers

Introduction
Based on the number of animals, poultry represents the largest domestic animal stock in the world [1]. It contributes significantly to incomes and home food consumption in rural areas of many developing countries [2, 3]. In some settings or conditions, major losses of poultry flocks can result in malnutrition [4]. Biosecurity, medication/ vaccination and good management of farm are three sides of disease control triangle. Biosecurity is one of the key elements in the triangle of disease control. To maximise the effect of Vaccination and medication, we must give an environment to broilers where microbial load is relatively low. It is very important to start from the beginning and give proper shed rest to reduce the microbial load in farm. Inside & outside of the poultry shed shall be made disease free by proper cleaning, washing, disinfections before housing of chicks. Complete fencing with well-maintained foot-bath at entry point is mandatory. Farmers or workers working in shed shall enter only after following biosecurity norms. The surroundings of shed should be kept neat and clean by cutting grasses and vegetation, and strictly avoid trees producing fruits as it may attract wild birds. Rodents are silent biosecurity breacher and also potent carrier of many diseases. An effective integrated pest management program to control pest and rodent through biological, chemical and mechanical means should be followed. A Proper decontamination and disinfection of farm equipment, Shed etc after lifting of ready birds is very important. It is mandatory to plan for an appropriate medication and vaccination schedule based on the field challenges. Sick birds act as potential source of infection for in-housed birds which are otherwise healthy and so regular culling of sick birds are very important to prevent spread of diseases. All-in all-out practice of chicks rearing are considered as very useful system, as it is not ideal to rear different age group chicks in single shed. Young chicks are more prone to diseases as compared to aged birds because of developing immune system. Chick delivery time should be minimal to avoid the dehydration and weakness in chicks, as weak chicks are more prone to infections because of lowered immunity.

Ideal shed cleaning and shed resting are very important steps in minimising the pathogenic load in broiler shed. A proper shed rest minimises the load of disease causing organisms. Shed cleaning with Formalin, Copper sulphate, Kerosene, Lime stone, Potassium Permanganate and

salt etc very effective in arresting the growth of microbes. Other components like Benzalkonium Chloride, Citric Acid, Didecyl dimethyl ammonium chloride, Didecyl Dimethyl Ammonium Chloride 80% Sol, Gluteraldehyde, Formaldehyde, Ethylenedioxy Dimethanol, Dedecy Dimethyl Ammoniun chloride, Sodium Chloride, Salt containing Potassium Monopersulphate, Formic acid, GAA, Ortho Phenyl Phenol, Sodium meta Silicate Penta hydrate etc are also very effective as disinfectant. Disinfectants and sanitizers should be used in appropriate dose to reduce existing load by regular spray of potent disinfectant in presence of birds both inside and outside the shed. Selection of good water sanitizer also helps in reducing the coliform bacteria load in drinking water.

Foot bath must be constructed outside the shed at entry level and strong chemicals at correct dose should be used. Farmers and workers should always dip their feet before entering the shed. Efforts should be made to construct concrete foot bath rather than using plastic or metal containers, as metal may react with chemicals. Regular changing of water and pouring fresh chemicals in foot bath ensure effective results.

Fig 1: Newly Constructed Foot Bath

Fig 2: Completed white washing inside view

Fig 3: During White washing of shed floor

Fig 4: White washing outside walls of the shed

The main principle involved in the prevention and control of current and emerging diseases is the scientific disposal of dead birds. Mortality is common in almost all farms, and when birds die their carcasses remain as a source of infection for rest of the flock. So dead birds should be immediately removed from the shed. It is always advisable to culls sick birds as they are potent source of infection for the entire lot. A very common practice of throwing dead birds to open field, house backyard and water bodies in rural areas is very common and dangerous because pungent smell attracts more wild animals, street dogs and cats and they consume the carcass and harbour the enteric organism long longer period. They roam freely after the consumption of infected carcasses and infect the nearing areas or localities, which is potent breaching of biosecurity. Wild birds hunting the dead carcass transmit the infection to nearby localities. Dead carcass lures flies and insects, which acts as carrier of various diseases. Disposal of mortality by burial or in death-pit with formalin inside the fenced area is mandatory. Farm Supervisor shall not visit any other farm after visiting infected farm. Litter from the previous batch should be discarded after lifting is completed and by no means is wise to use the litter material again. Litter material includes poultry dropping which is a potent source of various pathogenic organisms.

Most of the viral diseases like IB, IBD, ND, LPAI etc can be to some extent prevented by adopting serious biosecurity measures. Vaccination, preventive medication, disinfectant

spray and foot bath are integral part of viral disease prevention and control measures. Disease calendar is very essential for a particular region and locality to plan for the disease outbreak and its prevention to minimise the economic burden of farmers. A beforehand preventive measures should be taken to avoid losses. A control programme must be framed systematically based on periodic serum antibody assay reports and post mortem finding reports. Maternal Antibody level of the day old chicks should be asses. Good disinfectants shall be spread regularly inside the poultry shed in presence of birds to prevent horizontal spread of infection. Proven disinfectant shall be sprayed before 24 hours of chick housing to make the brooding house free of microbes.

Conclusion

Biosecurity is considered as an indispensable tool to mitigate the spread of infectious diseases. Implementation of comprehensive biosecurity practice needs a change in approach of conventional poultry farming. All commercial farms shall plan to upgrade his biosecurity practice to the standard of a breeding farm. Biosecurity needs to be implemented in all poultry premises in order to prevent mortality are; prevent entry of infections in poultry premises, minimize existing infection loads and do not spread infections. By investing little in biosecurity now, we can earn more in long run and will be economical for farmers also. Educating farmers about the importance of biosecurity in poultry farming, possibilities of zoonotic diseases from birds to human, role of various chemicals as disinfectants are need to be discussed in details with them and also organising interactive session with workers and exposure them to practical aspects of broiler industry.

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