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Study of Smart Management System in Poultry Farming

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Abstract: **Poultry farming is an important agricultural based business industry. Poultry farming is becoming increasingly organized, specialized and shaping in to an industry of national economic importance. In the current scenario productivity of the poultry farming has shown gradually increase in trends because of smart management practices among the poultry farming. Smart management practices by using various technological based methods for the automation in the farming play an important role in poultry production. The present study focuses on the smart management system in poultry farming through the recent techniques. The study was conducted to compare management practices in three different poultry farms. The work is carried out from the three different poultry farms situated in Aurangabad district according to the management practices that is manual management system, semi-automation management system and smart management system. During the study period it was revealed and analyze that the smart management system of poultry farming provides automated poultry production, reduced human efforts and increase the healthy poultry production followed by semi-automation management system and manual management system. It is concluded that the better health performance of poultry birds found in the smart management system of poultry farming as compare to the semi-automation management system and manual management system in the study area. This paper is highlighted the recent technology through personal computer or smart phone device using internet facilities for the monitoring of poultry farming. Other related aspects will discuss in the text.**

Index Terms**: Aurangabad, Poultry birds, Poultry farming, Management practices, Smart management.**

I. INTRODUCTION

According to the Indian history the first fowl was domesticated as early as 3200 before Christ. Egyptian and Chinese records shows that fowls were laying eggs for man in 1400 before Christ. The industry remains in backyard of houses for many years. Policy adapted for poultry development by India has comparatively helped to achieve sustained high poultry growth in last 2-3 decades, mainly under the semi intensive and intensive systems. However, problems like high feed costs, disease mortality, lack of development or rural markets and seasonal fluctuations in eggs and meat prices changes in Government policies time to time continue to hamper the livelihood of more than 1.6 million farmers.

In India, the first broiler production took place in Hyderabad during 1959, by importing 4500 white rock chicks from Israel, under United State of America. The programme, under the technical guidance of Dr. Earl Moore, during 1962, some more white rock chicks were received from Italy and United State of America. In 1966, about one million broiler were produced in India. During the eighties, the broiler farming in India has emerged as the fastest growing segment of animal husbandry and the production of poultry has been increased by hundred times. Between (1985-95), India recorded the fastest growth rate in poultry meat production, with a growth rate of about 18% per annum which perhaps no other country or agro industry in the world has recorded during that period. At present millions of broiler chicks are produced annually for broiler meat and egg production. The growth rate of poultry production in India is nearly higher than other sectors like crop husbandry, livestock production, gross domestic products etc. Broiler industry had started before three decades in India. Poultry farming provides employment to the educated unemployed people at the rural area and additional income source to the farmers. Poultry birds are provide protein rich food for deadly growing poor population.

II. LITERATURE SURVEY

The Cloud computing technique is employed and sensors has been developed and found to be an efficient and intelligent method of remote control for the farmers, which highly reduces cost, time and man power. This in turn provides improved productivity and profit for the farmers, (S. Arunkumaret. al. 2018). The development of an automatic chicken feeding machine can be very useful to the growth of the poultry industry, (Shubham Mitkari et. al.2019). Smart control system for poultry farm with their factors and the drawbacks of the previous techniques that are used in the smart control systems, (Mohammad R. Ahmadi, et. al.2018). Wireless sensors and general pocket radio service network system provides an efficient automated poultry farm monitoring system to monitor the healthy atmosphere for chickens in poultry farm without human interference, (Geetanjali A. Choukidaret. al.2017). Automation of poultry farm by using wireless sensor network and mobile communication provides automated poultry, reduces man power and increases production of healthy chicken, (Ayyappan. V et. al.2017). Automated system initiates the action automatically to control the environmental parameters such as humidity, temperature, ammonia gas and will decrease the environmental diseases affecting chicken and increase the productivity and eliminate a lot of manpower, (Eric Hitimana et. al.2018). Field programmable gate array system by using internet of thing will automatically initiate the action to verify the environmental parameters in case of sudden climatic changes. In addition, the control of the water level and the food control mechanism are controlled and controlled with the help of the sensor. This system provides an efficient automated system for monitoring poultry farms to monitor the healthy atmosphere of chickens in poultry farming without human interference, (Ramgirwar S.S. et. al.2018). Using the better system a farmer will management remotely his poultry farms through time period observation with a private laptop and cell phone, (Junho Bang et. al.2014). Wireless sensors and mobile system network to control and remotely monitor environmental parameters in a poultry farm, the system provides an efficient automated agriculture monitoring system, (K. Sravanth Goud et. al.2015). Internet of issue based mostly sensible poultry farm can provides a trouble free and higher observation expertise to the user of the poultry farm. This method can create use of the sensors and microcontroller unit to perform the same operations of feeding, water system and temperature- humidness observation that area unit the most causes for any reasonably epidemic or diseases for poultry birds, (Sakshi Mishra et. al.2019). Technology based solution for low cost, asset saving, quality oriented and productive management of chicken framing, by utilizing an intelligent system which used an embedded framework and smart phone for watching farm to regulate environmental parameters victimization good devices and technologies, (Rupali B. Mahale et. al.2016). Use of an intelligent system which used an embedded framework and a wise Phone for monitoring farm to manage environmental parameters using smart devices and technologies, (B. Balasaheb Phalke et. al.2020). Automation of poultry farm using internet of thing technology to perform various management related things. T The environmental factors that have an effect on the health of chicken like temperature, humidity, light and ammonia gas square measure monitored and also the manual jobs like food feeding, installation system, cleanliness square measure managed, (Shruthi B Gowda et. al.2020). The management and monitoring of the farm can also be done through a web based system. Which keeps track of the management of poultry farm from anywhere and at any time, (K. A. Sitaram et. al.2018). Automated environment controlled poultry management system performs many operations for the usage of the farm efficiently, it monitors the temperature and humidity continuously and also monitors the food level in the container and indicate the owner using a mobile application by the help of a wifi module,this system reduces the human effort and also increases the poultry production, (R. Sekar et. al.2019). Poultry birds are generally reared in the litter system so it requires adequate space and related equipment facilities for the proper management of the flock. Modern poultry houses are fully automated with fans linked to sensors to maintain the required environment (Glatz and Pym, 2006). Automation of poultry farms help to reduce the labour cost, increase farm efficiency, improve the productivity, and production rate of meat and egg (Cajethan Uche Ugwuoke et. al. 2017).

III. PROPOSED APPROACH

The traditional way of poultry farming being replaced with the smart and intelligent techniques using embedded system based innovative application. It helps the farmers in real time monitoring and control of environmental parameters. Therefore necessity of the present work to study and understand the application of smart management system of poultry farming for the overall performance of poultry productivity. Hence the present study was conducted to analyze and highlighted the recent technology use through personal computer or smart phone device using internet facilities for the monitoring of poultry farming. Also observed the advantages of the smart management poultry farming as compare to other management system from three different poultry farming in Aurangabad district of Marathwada region.

IV. MATERIALS AND METHODS

To study the advantages of smart management system of poultry farming the birds reared under three different selected management practices, namely smart management system, semi-automation management system and manual management system of poultry farming. The three poultry farms were every which way designated as sample for this study. The present

study was conducted during the rearing period of the poultry birds. The data of management system used in poultry farming and its advantages and disadvantages is observed and collected from all the selected poultry farms during the study period by personal visit and by observing the management system used at the farm sites during the study period at different intervals. Information and data was obtained about use of management practices, to evaluate the advantages and disadvantages among the selected poultry farming. The detailed studies were undertaken with a view to find out the management practices among the poultry farming and advantages and disadvantages of the using practices in these farms during the rearing period in the study area.

V. RESULTS AND DISCUSSION

For the study three different categories of poultry farms according to the management practices were selected in this study area. Those were smart management system, semi-automation management system and manual management system of poultry farming. The work is carried out from the three different poultry farms situated in Aurangabad district of Marathwada region. During the study period it was recorded that major advantages was found in smart management system of poultry farm followed by semi-automation management system and manual management system of poultry farming. It also showed that the major obstacles faced by the poultry birds in the manual management system of poultry farm because the birds are reared under manual management system. The major advantages regarding the health performance of poultry birds occurred in the smart management system of poultry farm because of the fully automation facilities as compare to the semi-automation management system and manual management system of poultry farming in the study area. The poultry birds and farmer of the manual management system of poultry farms shows major obstacles due to the limitations in use of automated management of poultry farming, while poultry birds and farmer of semi automation management system of poultry farms shows minimum obstacles as compare to manual management system of poultry farm. The poultry birds and farmer of smart management system of poultry farms shows more advantages regarding the healthy performance and production of the poultry birds, no disease occurrence due to cleanliness and also shows that reduced wastage of food material, water, reduced the labour cost etc. and increase the quality and quantity of poultry production particularly meat and eggs.

Due to the use of manual management system in the poultry farm the birds of these farms shows poor health performance, poor disease control and also shows the wastage of food material, water, maximum labour cost etc. and poor production of meat and eggs as compare to the semi-automated and smart management practices in the poultry farm, (Shubham Mitkari et. al.2019) reported that the event of associate automatic chicken feeding machine is mostly helpful to the expansion of the poultry faming. Advantages regarding the poultry birds and the farmers of poultry farming the management of the poultry farms requires necessity of automated and smart management practice within the poultry farms. It is beneficial for the health of the poultry birds and farmers of the poultry farming. During this study it was observed that the advantages of smart management practices in the poultry farming shows the beneficial effect regarding the health performance and production of the birds, no disease occurrence due to cleanliness and also shows that reduced the wastage of food material, water, reduced the labour cost etc. and ultimately increase the production of meat and eggs with quality, (Sakshi Mishra et. al. 2019) reported that smart poultry farm will give a better experience to the user of the poultry farm and perform the operations of feeding, water supply and temperature- humidity observation which are the main causes for any kind of epidemic or diseases for poultry birds. (Ayyappan. V et. al.2017) reported that automation of poultry farm by using wireless sensor network and mobile communication provides automated poultry, reduces man power and increases production of healthy chicken.

CONCLUSION

From the above study and observations, it can be concluded that the birds reared under manual management practices faced major obstacles as compare to the semi-automated and smart management practices in the poultry farming. While the advantages of smart and semi-automated management practices shows proper health performance and production of poultry birds as compare to the manual management system of poultry farms in the study area. For the beneficial of poultry farming it is necessary to implement the smart management system within the poultry farming to reduced obstacles related to the poultry farming. This smart management system helpful to improve the quality and quantity of the poultry production.

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