

# Poultry Production and the Environmental Issues in India - A Review

V. G. Choudhary\*<sup>1</sup>, R. R. Jadhav<sup>2</sup>

<sup>1,2</sup>Department of Chemistry, K. M. J. College, Washi, Maharashtra, India

## ABSTRACT

Over the past two decades, Indian poultry sector has grown many folds. And it has raised number of environmental concerns. The direct consequences of this industry are that it produces large amount of waste. It causes serious environmental issues. This paper analyses the environmental impacts arising from intensive poultry production in India. The paper also presents technical options to mitigate the environmental issues raised by poultry industry.

**Keywords :** Poultry Production, GDP, Diseases, Pathogens

## I. INTRODUCTION

Over last recent decades the poultry industry has made tremendous growth in India. By the survey made by experts it is revealed that the poultry industry in India grows two folds in every four years. Telangana, Andhra Pradesh, Karnataka, Tamilnadu, Maharashtra, Gujarat and Punjab states are the major producers of poultry products. The poultry industry contributes about 2% growth in GDP. In earlier days poultry was not considered as an industry but now a days it is come out as not only a small scale industry but a large scale industry. Indian poultry provides jobs to the thousands of peoples. The poultry industry also supports farming in India by many aspects. Though the poultry industry in India contributing Indian economy, it has raised some serious environmental issues.

Chicken manure is the major byproduct of poultry which is mainly used as the organic fertilizer in India. It is rich in nitrogen and phosphorous. Of all the animal manure, poultry manure has highest amount of nitrogen, phosphorus and potassium. chicken manure can be pelletized and this product may have additional phosphorus, potassium and nitrogen.

Fresh chicken manure contains 0.8% potassium, 0.4% phosphorus and about 1% nitrogen. Though this manure is come out as a good fertilizer it has raised major environmental issues. Excessive levels of nitrogen in the environment leads to a cascade to a effects including (Erisman et. al. 2001)

- ✓ Decreased species diversity, due to nitrogen deposition related to ammonia and nitrous oxide emission.
- ✓ Pollution of ground water due to nitrate leaching from agricultural soils and nonagricultural soils.

## II. POLLUTION

Chicken manure creates an unpleasant odour. You can smell it from Miles away. So the peoples residing nearby poultry houses may have to face some health problems. It gets washed into waterways and pollutes our rivers and streams. Some environmentalists has claimed that poultry industry is polluting our streams and rivers.

## III. ISSUES AT PRODUCTION UNIT

The peoples near the vicinity of poultry farms are facing major problems caused by poultry. Though manure is the main source of pollution, there are also other effective things which causes pollution. These are dead birds, fly's, dust, rodents, pests and feathers. The manure odor attracts flies, rodents and pests that creates local nuisances and carry disease. The odor emissions from poultry farms adversely affects the life of people living in the vicinity. The farm odor is mainly emitted from the manure and storage facilities. The odor is mainly composed of ammonia (NH<sub>3</sub>), volatile organic compounds, and hydrogen sulphide (H<sub>2</sub>S). Of the several compounds causing odor, ammonia is the major contributor. Ammonia gas has pungent smell and can

cause irritation. Exposure to ammonia for long period may cause serious health problems.

Odor is a local issue, which depends on populations neighboring the farm. Odor problems are generally concentrated within 500-600 meters. The emission of odor mostly depends on the manure storage, temperature, humidity and frequency of cleaning.

Flies are the second major issue caused by poultry manure. It has been found that flies population at farm level is about 85 times more than average flies population. Not only they cause nuisance, flies and mosquitoes can transmit diseases like typhoid, malaria, cholera, dysentery, dengue and fever.

Rats and pests are the third major issue at poultry farm. They can also transmit disease. Pesticides used to control pests can also cause pollution of ground water and surface water.

#### **IV. ARSENIC**

Arsenic is added to the chicken feed to make chicken fatter. Arsenic is one of the harmful ingredients in chicken litter. Chicken litter contains arsenic, which may lead heart diseases, diabetes and decline in mental functioning.

#### **V. COPPER AND ZINC**

In excess copper and zinc become toxic.

#### **VI. DRUG RESIDUES**

Antimicrobials are administered in poultry as growth promoters, to increase the feed efficiency or to kill the bacteria. But research has shown that at about 75 % of antimicrobial agents are excreted back into the environment. The recent evidences revealed that interactions between bacteria and antimicrobial in environment may cause antimicrobial-resistant strains.

#### **VII. PATHOGENS**

Food and water diseases are another major issues associated with manure management. Pathogens are mostly transmitted through untreated animal waste.

Poultry manure also contains some pathogens which may affect soil and water sources. Parasites such as cryptosporidium and Giardia spp. can spread from manure to water supplies and can remain viable in the environment for long periods of time (Bowman et al., 2000).

#### **VIII. OPTIONS TO MITIGATE THE ENVIRONMENTAL ISSUES**

Following are some important options by which environmental issues can be minimized.

- 1) Disposal of poultry litter far from the production unit.
- 2) Recycling of poultry litter.
- 3) Synthesis of organic fertilizers from manure.
- 4) Construction of environmentally controlled poultry houses.
- 5) Use of less antimicrobials.

#### **IX. CONCLUSION**

**The paper** has focused on Indian poultry industry and its impacts on environment. The paper captures most of the issues associated with poultry industry and pollution caused by poultry. The paper has also indicates the options to mitigate the problems.

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