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A Study On Use Of Antibiotics In Poultry Farming In Vriddhachalam

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Poultry farming is a key source of income in Vriddhachalam, and antibiotics are commonly used to manage diseases, improve flock health, and prevent losses. While these drugs offer immediate benefits, their misuse can lead to serious problems such as antibiotic resistance and drug residues in poultry products. The study shows that although many farmers depend heavily on antibiotics, awareness about safe practices remains limited. Improvements in farm hygiene, vaccination, and access to veterinary services can significantly reduce unnecessary antibiotic use. Encouraging responsible practices will support healthier birds, safer food, and more sustainable poultry farming in the region.

Keywords: Poultry farming, Prevention, Vriddhachalam, Antibiotics, Livelihoods.

Introduction

Antibiotics have long played an important role in poultry farming, especially in developing regions like Vriddhachalam, where poultry production supports many small and medium-scale farmers. They are commonly used to prevent and treat bacterial diseases that can spread quickly in flocks, particularly under conditions of close housing and changing weather. In some farms, antibiotics are also used to support growth and improve overall flock performance, although this practice is increasingly being regulated. As consumer awareness grows and demand for safer, residue-free poultry increases, farmers in Vriddhachalam are gradually shifting toward more responsible antibiotic use. This includes focusing on disease prevention through better hygiene, vaccination, and improved management practices, ensuring healthier birds and safer poultry products. Poultry farming is an important livelihood activity in Vriddhachalam, supporting both small backyard growers and larger commercial units. To maintain flock health and ensure steady production, antibiotics have traditionally been used in several ways. Farmers often rely on them to prevent common bacterial infections that can spread easily in closely housed birds, especially during seasonal changes and periods of stress. Antibiotics are also used for treating sick birds to reduce mortality and economic loss. In earlier years, some farms used low doses of antibiotics to promote growth and improve feed efficiency, though this practice is now being discouraged due to growing concerns about antibiotic resistance and food safety. In Vriddhachalam, awareness is steadily increasing and many farmers are beginning to adopt improved sanitation, vaccination and better management practices to reduce unnecessary antibiotic use. This study reflects a broader movement toward

safer and more sustainable poultry production, ensuring both healthy flocks and safer poultry products for consumers.

Objectives of the Study

To examine the common uses of antibiotics in poultry farms in Vriddhachalam.

To identify the types of antibiotics most frequently used by farmers.

To understand farmers' awareness of antibiotic resistance and residue-related issues.

To study current farm management practices that influence antibiotic usage.

To suggest practical measures to reduce unnecessary antibiotic use and promote healthier poultry production.

Sample Method

The study followed a descriptive research design, which is used to describe the characteristics of a population a structured interview schedule was prepared and administered to each respondent. It contained closed-ended questions. Simple percentage analysis was used to compute the frequencies and percentages that describe the socio-economic characteristics of the respondents. The table 2 is constructed based on primary data collected from 120 poultry farmers through a structured questionnaire. The responses regarding the purpose of antibiotic usage were classified into different functional categories and analyzed using simple percentage analysis to understand the pattern of antibiotic use in poultry farming. The table 3 was formulated using data collected through a structured questionnaire based on a 5-point Likert scale. Frequencies and percentages were calculated for each response category, and weighted mean scores were computed to assess the overall impact of antibiotic usage in poultry farming.

Sample Size

The study covered a total of 120 poultry farmers (N = 120) selected through simple random sampling from different locations within the Vriddhachalam region.

Table 1 Demographic Profile of Respondents

Demographics	Variables	Frequency (N=120)	Percentage (%)
Gender	Male	104	86.67
	Female	16	13.33
	Total	**120**	**100.00**
Education	No formal education	12	10.00
	Primary	28	23.33
	Secondary	59	49.17
	Higher/Technical	21	17.50
	Total	**120**	**100.00**
Professional farm training	No	80	66.67
	Yes	40	33.33
	Total	**120**	**100.00**
Farm Size	Small	58	48.33

	Medium	52	43.33
	Large	10	8.33
	Total	**120**	**100.00**

Source: Primary Data

The sample of gender is heavily male-dominated, with 104 respondents consist of 86.67 percent being male, while only 16 respondents consist of 13.33 percent are female. This indicates that poultry farming is largely managed by men, with comparatively limited participation from women.

The education represents, nearly half of the respondents 59 farmers of 49.17 percent have completed secondary education, making it the most common educational level among the farmers. About 28 respondents of 23.33 percent have only primary education, while 21 respondents of 17.50 percent possess higher or technical education. A smaller proportion,12 respondents of 10 percent, have no formal education. This distribution suggests that most poultry farmers possess at least basic literacy, which is favorable for adopting improved farming practices.

The Professional Farm Training reveals a majority of the respondents 80 farmers 66.67 percent have not received any formal training in poultry farming. Only 40 respondents 33.33 percent reported having undergone professional farm training. This indicates a significant gap in skill development and the need for organized training programs in the study area.

The farm size, most of the farmers operate on a small scale, with 58 respondents of 48.33 percent belonging to the small farm category. This is followed closely by medium-scale farms, represented by 52 respondents of 43.33 percent. Only a small fraction,10 respondents of 8.33 percent, manage large-scale farms. This shows that poultry farming in the region is predominantly small to medium in nature.

Purposes of Antibiotic Usage in Poultry Farming

Table 2 illustrates the purpose of antibiotic usage to understand the pattern of antibiotic use in poultry farming.

Table 2 Purpose of Antibiotic Usage in Poultry Farming

S. No.	Purpose of Antibiotic Use	No. of. Farmers	Percentage (%)
1	Disease Treatment (Curative use during illness)	35	29.17
2	Disease Prevention (Routine prophylactic use)	31	25.83
3	Growth Promotion	16	13.33
4	Improvement of Feed Conversion Efficiency	11	9.17
5	Control of Bacterial Infections in Chicks	8	6.67
6	Stress Control during Transportation and Climatic Stress	6	5.00
7	Post-vaccination Recovery Support	5	4.17
8	Prevention of Secondary Infections	4	3.33
9	Improvement of Overall Flock Performance	4	3.33

	Total	**120**	**100**

Source: Primary Data

Table 2 shows the disease Treatment is major purpose of antibiotic usage among poultry farmers is disease treatment, which accounts for 29.17 percent of the respondents. This shows that antibiotics are primarily administered after the occurrence of disease, reflecting the persistent problem of bacterial infections in poultry farms.

The disease prevention - the second major purpose is disease prevention, reported by 25.83 percent of the farmers. This suggests that a considerable number of farmers depend on routine antibiotic use to prevent possible disease outbreaks, particularly in intensive farming systems where the risk of infection is high.

The growth promotion and improvement of feed conversion efficiency - about 13.33 percent of the farmers use antibiotics for growth promotion, while 9.17 percent use them to improve feed conversion efficiency. This indicates that non-therapeutic use of antibiotics still exists, mainly to enhance productivity and profitability.

The control of bacterial infections and stress control - a smaller proportion of farmers use antibiotics for control of bacterial infections in chick's 6.67 percent, showing the vulnerability of young birds during the early stages of growth. Stress-related use during transportation and climatic fluctuations 5 percent further indicates that farmers rely on antibiotics to reduce stress-induced mortality.

The vaccination recovery, prevention and improvement - only a limited number of farmers use antibiotics for post-vaccination recovery 4.17 percent, prevention of secondary infections 3.33 percent and overall flock performance improvement 3.33 percent, suggesting that such supportive uses are relatively less common.

Table 3 Impact of Antibiotic Use in Poultry Farming

Impact Category	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total	Mean Score
Improves poultry growth rate	42 (35.00%)	48 (40.00%)	15 (12.50%)	10 (8.33%)	5 (4.17%)	120 (100.00)	3.93
Prevents disease outbreaks	38 (31.67%)	46 (38.33%)	18 (15.0%)	12 (10.00%)	6 (5.00%)	120 (100.00)	3.82
Increases farm profit	30 (25.00%)	50 (41.67%)	20 (16.67%)	14 (11.67%)	6 (5.00%)	120 (100.00)	3.70
Leads to antibiotic resistance	44 (36.67%)	40 (33.33%)	16 (13.33%)	12 (10.00%)	8 (6.67%)	120 (100.00)	3.83

Affects human health through residues	48 (40.00%)	42 (35.00%)	14 (11.67%)	10 (8.33%)	6 (5.00%)	120 (100.00)	3.97
Increases cost of production	35 (29.17%)	45 (37.50%)	20 (16.67%)	12 (10.00%)	8 (6.67%)	120 (100.00)	3.72

Source: Primary Data

Table 3 reveals the improves poultry growth rate a large proportion of respondents agreed that antibiotics improve the growth rate of poultry. About 75 percent (35% strongly agree + 40% agree) supported only a small fraction disagreed. This indicates that farmers largely perceive antibiotics as important for faster growth and better productivity with the mean score of 3.93.

The prevents disease outbreaks more than 70 percent of the respondents either agreed or strongly agreed that antibiotics help in preventing disease outbreaks with 3.82. This shows that disease control is one of the major reasons for antibiotic use in poultry farming.

The increases farm profit is around 66.67 percent of farmers expressed agreement that antibiotic use increases farm profit. This suggests that farmers associate antibiotic usage with reduced mortality, better feed efficiency, and higher economic returns with the mean score of 3.67.

The leads to antibiotic resistance is a significant 70 percent of respondents agreed that antibiotics lead to resistance having 3.83 mean score. This reflects a good level of awareness among farmers about the long-term risks of excessive antibiotic use, even though they continue to rely on it for production benefits.

The effects human health through residues recorded highest mean score, with 75 percent of respondents agreeing that antibiotic residues in poultry products affect human health. This indicates strong concern among farmers regarding public health risks with the highest mean score of 3.97.

The increases cost of production is about 66.67 percent of respondents felt that antibiotics increase the cost of production. Although antibiotics improve growth and disease control, farmers also recognize the financial burden associated with their regular use with 3.72.The consistently high mean scores above 3.67 indicate that all these impacts are considered significant by the respondents.

Chart 1 Structural Fit for Impact of Antibiotic Use in Poultry Farming

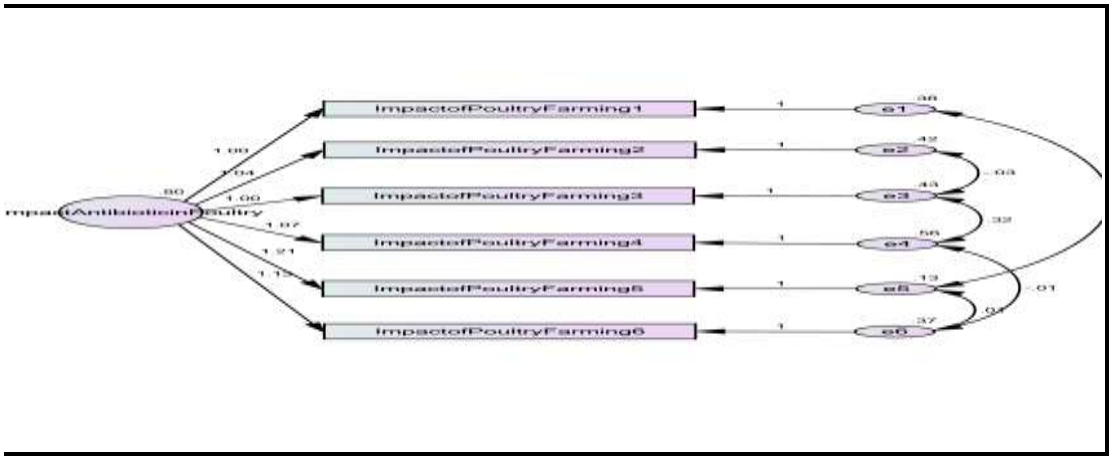

Table 4 Model Fit Summary - CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	17	9.071	4	0.059	2.268
Saturated model	21	0.001	0		
Independence model	6	660.192	15	0.001	44.013

Source: Computed from Primary Data

The CMIN indices in table 4 indicate that the default structural model fits the data adequately. It yields a Chi-square (CMIN) of 9.071 with 4 degrees of freedom and a marginally significant p-value of 0.059, suggesting a reasonable fit. The ratio CMIN/DF = 2.268 is below the cutoff of 3.0, reinforcing model adequacy. It contrast, the independent model show a very poor fit (Chi-square = 660.192, DF= 15, $p<0.001$, CMIN/DF = 44.013), confirming that the hypothesized model explains substantial variance in the data.

Table 5 Baseline Comparisons

Model Fit	Result	Cut Off Value
GFI	0.975	> 0.90
AGFI	0.870	> 0.80
NFI	0.986	> 0.90
RFI	0.948	> 0.90
IFI	0.992	> 0.90
TLI	0.971	> 0.90
CFI	0.992	> 0.90

Source: Computed from Primary Data

The baseline comparisons in table 5 show that the model fits the data very well. The GFI (0.975), NFI (0.986), RFI (0.948), IFI (0.992), TLI (0.971), and CFI (0.992) all exceed their respective cutoffs, indicating excellent fit. The AGFI (0.870) is above the 0.80 threshold,

reinforcing model adequacy. Collectively, these indices suggest that the hypothesized model fits the observed data structure very well.

Table 6 Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Prevents disease outbreaks	<---	Impact of Antibiotic in Poultry	1.039	0.100	10.363	***	
Increases farm profit	<---	Impact of Antibiotic in Poultry	1.002	0.099	10.079	***	
Improves poultry growth rate	<---	Impact of Antibiotic in Poultry	1.000				
Leads to antibiotic resistance	<---	Impact of Antibiotic in Poultry	1.067	0.109	9.793	***	
Affects human health through residues	<---	Impact of Antibiotic in Poultry	1.207	0.111	10.884	***	
Increases cost of production	<---	Impact of Antibiotic in Poultry	1.126	0.104	10.835	***	

Source: Computed from Primary Data

The regression weights in table 6 indicate that the latent construct “Impact of Antibiotic in Poultry” significantly influences all observed variables ($p<0.001$). the strongest effects are on “Affects human health through residues” (1.207) and “Increases farm profit” (1.002), “Improve poultry growth rate” (standardized reference), and “Leads to antibiotic resistance” (1.067). all indicators are strongly and significantly related to the underlying factor.

Discussion

The findings indicate that antibiotics remain an essential tool for many poultry farmers in Vriddhachalam, mainly due to disease pressure and limited access to professional veterinary care. Farmers commonly use antibiotics as preventive measures during seasonal changes or when mortality begins to rise. However, in several cases, antibiotics are administered without proper diagnosis, and withdrawal periods are not always followed. A major factor influencing this practice is the lack of awareness about long-term consequences such as antimicrobial resistance. On the positive side, some farms are now adopting better hygiene practices, maintaining cleaner housing, and following regular vaccination programs. These improvements show that antibiotic dependence can be reduced when good management systems are in place.

Conclusion

Through the study we came to know that the educating farmers and providing easier access to veterinary guidance would help promote safer and more responsible antibiotic use. Poultry farming in Vriddhachalam plays a significant role in local livelihoods, and antibiotics continue to be widely used to maintain flock health. While they provide short-term benefits in disease management and productivity, their misuse poses risks that must be addressed. Increasing farmer awareness, improving farm hygiene, and adopting preventive health measures can significantly reduce unnecessary antibiotic use. The study reveals that poultry farming in the study area is primarily carried out by middle-educated male farmers operating small and medium-sized farms, with limited exposure to professional training. This highlights the need for capacity-building programs, skill-based training, and inclusive policies to enhance productivity and encourage wider participation. Overall, the results reveals that although therapeutic and preventive uses dominate antibiotic application, a notable share of farmers still use antibiotics for productivity-related purposes, which raises concerns regarding antimicrobial resistance, residue in poultry products, and food safety. Encouraging responsible practices not only protects the health of consumers but also supports sustainable poultry production in the region. The study indicates that most poultry farmers perceive antibiotics as effective in improving growth rate and preventing disease outbreaks. However, a large proportion of respondents also strongly agree that excessive antibiotic use leads to antibiotic resistance and poses a threat to human health through residues in poultry products. It reveals both economic benefits and serious public health risks associated with antibiotic use in poultry farming.

Suggestions

- Conduct training programs to educate farmers about antibiotic resistance, withdrawal periods, and safe drug practices.
- Proper vaccination can prevent major poultry diseases, reducing the need for frequent antibiotic use.
- Farmers should maintain simple logs of treatments, dosages, and dates to avoid misuse and ensure compliance with withdrawal periods.
- Natural supplements can help improve bird immunity and reduce reliance on antibiotics.
- Provide subsidies or guidance for proper housing, feed, and hygiene systems that reduce disease outbreaks.

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