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## **Adoption of Coccidiosis Vaccines by Poultry Farmers in Ijebu Area of Ogun State, Nigeria**

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**Abstract:** The paper focused on adoption of coccidiosis vaccines by poultry farmers in Ijebu-Area of Ogun State, Nigeria. Specifically, the poultry farmers selected personal characteristics such as age, sex, religion, marital status, educational attainment, farm income and sources of credit were identified. Their level of awareness and adoption of the coccidiosis vaccines were also determined. The relationship between adoption and the selected personal characteristics was established. The relationship between adoption and constraints to adoption was also established. Eighty eight (88) poultry farmers were selected through a stratified sampling method from six (06) local government councils using a pre-tested Questionnaire. Examination of the poultry farmer's personal characteristics revealed that 80.7 percent were male and is between age-range of thirty-one and fifty years. Sixty seven (67) percent were Christians while 98.9 percent had formal education. Almost forty one percent (40.9%) reared between 500 and 1000 birds while 29.5 percent reared above 1000 birds with farm income ranging from 25,000 to above N50, 000 per month. 88.6% are aware of coccidiosis vaccines, 83 percent had adopted and immuncox<sup>®</sup> is the most commonly used (66.2%). The study revealed that age and sex were significantly related to adoption amongst other personal characteristics tested. The study also revealed that there is no significant relationship between adoption and constraints to adoption. Coccidiosis vaccines were found to have gained widespread acceptance among poultry farmers in Ijebu area of Ogun State, Nigeria. It was recommended that Unified Extension Agents in the area should facilitate the transfer of the technology and dissemination of information on coccidiosis vaccines to both small and medium poultry farmers in the study areas. There should also be effective extension services to small-scale commercial poultry farmers will enhance their productivity and eventually elevate them to large-scale level of production.

**Key words:** Poultry farmers, adoption, coccidiosis vaccines awareness, constraint

### **Introduction**

The usage of extension services and other poultry farming technologies remains important for any livestock farmers, as disease, high mortality and low capacity are major constraints on live stocks production. This lead to the major problem that livestock farmers produce below capacity.

This happens while various organization like Universities, Research Stations and Extension Agencies were established in order to generate and transfer technologies. So adoption of recommended technologies in poultry farming sector/industry has not been as widespread as it was anticipated.

Sources of economic losses in poultry business, which include lack of technical know-how, poor quality feed, poor housing, mismanagement, diseases outbreak etc had received and continue to receive tremendous attention (Adekunmisi *et al.*, 1966). In a study of constraints of poultry, Alabi and Isah (2002) identified coccidiosis, Newcastle and Gumboro as the most prevalent diseases of poultry respectively while Ojo (2002) equally reported diseases and parasites as a major risk factor in poultry production.

Coccidiosis has been identified as one of the major diseases affecting poultry production. Coccidiosis is an infectious protozoa disease, which reduces or erodes poultry farmer's profit through reduced production and mortalities within the flock. Farmers in the past had been preventing and controlling it by the use of chemotherapeutic agents.

Despite the use of highly efficacious anticoccidial drugs (chemotherapy) such as amprolium pyrimidine and sulphanomides. Severed coccidiosis outbreaks are still observed from time to time and resistance to drugs introduced to prevent coccidiosis in poultry often occurs (Agbato, 2000). Thus, with the introduction of coccidiosis vaccines which would just be used once throughout the rearing period and the fact that litter materials need not be changed but only ensured to be dry and well aerated, poultry farmers are expected to overwhelmingly embrace the use of coccidiosis vaccines in preventing occurrence of the disease instead of the chemotherapeutic agents that were formerly in use.

However, the introduction of vaccines preventing this dreaded disease has been reported to yield positive results. Vaccines are preparation of killed, attenuated or

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Table 1: Distribution of Personal Characteristics of Respondents n = 88

Variable	Operationalisation	Frequency	Percentage
Age	30 Years	12	13.60
	31-50 Years	65	73.90
	Above 50 years	11	12.50
Sex	Male	71	80.70
	Female	17	19.30
Religion	Christianity	59	67.00
	Islam	29	33.00
Marital Status	Single	11	12.50
	Married	77	87.50
Educational Attainment	No formal Education	1	1.14
	Primary Education	16	18.18
	Secondary Education	44	50.00
	Tertiary Education	27	30.68
Farm Income	<N25,000.00	15	15.00
	N25,001-N50,000	46	52.30
	Above N50,000.00	27	30.7
Source of Credits*	Personal Savings	88	100
	Cooperatives Societies	64	72.7
	Banks	35	39.8

\*Multiple Responses, Source: Field Survey, 2004

fully virulent organism to produce or artificially increase immunity of a host to a particular infective organism disease (Olaleye, 1999). This study therefore is intended to highlight the acceptance and continued use (adoption) of coccidiosis vaccines.

The general objective of this study is to determine the adoption of vaccines by poultry farmers in Ijebu areas of Ogun State, Nigeria.

The following specific objectives are set to help realize the major objective.

- To investigate the personal characteristics of poultry farmers.
- To determine the awareness of poultry farmers about coccidiosis vaccines
- To examine the types of coccidiosis vaccines available to the poultry farmers.
- To identify constraints faced by poultry farmers in adopting coccidiosis vaccines

In this study, it was hypothesized that

- There is no significant relationship between adoption and the selected personal characteristics
- There is no significant relationship between adoption and constraints to adoption.

### Materials and Methods

The stratified sampling technique was employed to identify poultry farmers for the study. The area was first delineated into six (06) using the local government delineation that divided Ijebu Area into six local government areas, namely Ijebu-Ode, Ijebu-North, Ijebu North East, Ijebu East, Odogbolu and Ogun water side Local government areas. In each local government areas, poultry farms were identified through a snow-

balling sampling exercise. A total of one hundred and thirty five (135) poultry farms were identified in all, thirty two (32) from Ijebu Ode, thirty five (35) from Ijebu North, nineteen (19) from Ijebu North-East, Seventeen (17) from Ijebu East, twenty (20) from Odogbolu and twelve (12) from Ogun water side. Sixty five (65) percent of the identified farms in each area were then randomly selected for the study and their resulted in eighty-eight (88) farms that were used for the study.

Data was collected using the Questionnaire which were subjected to content validation by experts were administered to each poultry farm manager/owner on their farms. Respondents provided answers to test questions on poultry activities and were scored 1 or 0 correct and wrong responses, respectively. The scores for all items was summed for each respondent

Descriptive statistics were used to describe the data collected from the administration of the questionnaire while chi-square was used to measure relationships.

### Results and Discussion

**Personal characteristics of respondents:** Table 1 shows that majority of the poultry farmers (73.9%) are within the age range of 31-50 yrs indicate that majority of the respondents are young. It can therefore be implied that the majority of the poultry farmers were middle aged and might still have energy to cope with the rigorous of poultry activities. This corroborate the earlier results of Adeyemi *et al.* (2002) that the ages of poultry farmers are mostly between age range 24 and 62 years.

Table 1 also shows that majority of the sampled respondents are males (80.7% while only 19.3% are females. This implies that majority of the listed respondents were males. Although the percentage difference between males and females could have also arisen from the random sampling procedure adopted by

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Table 2: Distribution of Respondents according to Coccidiosis Outbreak Experience and Awareness of Coccidiosis Vaccines. n = 88

Variable	Operationalisation	Frequency	Percentage
Coccidiosis outbreak Experience	Yes	76	86.4
	No	12	13.60
Awareness of Coccidiosis Vaccines	Yes	78	88.60
	No	10	11.40
Sources of Awareness	Fellow Poultry Farmers	8	9.50
	Extension Agents	18	20.0
	Veterinarians	9	10.40
	Combination of Extension Agents and Veterinarians	53	60.10

Source: field Survey, 2004

Table 3: Distribution of Respondents According to Adoption of Coccidiosis Vaccines N = 88

Adoption	Frequency	Percentage
Yes	73	83
No	15	17
Total	88	100

Source: Field Survey, 2004

Table 4: Distribution of Respondents According to types of Coccidiosis Vaccines Used

Variable	Operationisation	Frequency	Percentage
Types of Coccidiosis Vaccines	Immucox	53	60.20
	Livacox	20	22.80
	Coccivac	-	-
	Paracox	-	-

Source: Field Survey, 2004

this study, which gave every respondent equal chance, irrespective of gender. The implication of this is that poultry business is still dominated by men. This is in consonance with the findings of Adeyemi *et al.* (2002) that reported a 62% male participation in poultry business. This was due to the fact that high drudgery is involved in poultry business which many women cannot afford and that women require much time to take adequate care of the home which poultry business may deprive them from doing well. The table further reveals that 67 percent of the respondents are Christian while 33 percent are Muslims. Religion often plays an important role in the way of life and occupation of people and so it is important that the religion of the respondents is considered on the basis of how it affects their calling.

Table 1 also indicates that 87.5 percent of the respondents are married. Marriage is an important factor in the livelihood of individuals as it is perceived to confer responsibility on individual. While those that are single consider their well-being only, the married individuals are responsible for the well-being of not only themselves but also of other members of the household. This supports the position of Oladoja (2000) that the fact that old people are mostly not expected in the job makes the job to be for the majority who are married and the few single. Marital status thus has the tendency of affecting the production of poultry among the respondents.

Table 1 further shows that only 1.14% of the respondents have no formal education while the remaining has one form of formal education or the other. It shows that 50% have secondary education, while 30.68% acquired tertiary education. This is good for the respondents as only a few of them had no formal education. The relationship between level of education and access to information established by previous studies (Akinbile, 2005; Adekoya and Ajayi, 2000) makes the level of education achieved by the respondents good enough to aid their propensity to improve their production.

Table 1 also indicates that majority (52.30) of the respondents earned between N25, 000 and N50, 000 per month. This will help to improve the living standard of the family as a whole and empower their purchasing ability. The implication of this is that most of the poultry farmers can afford coccidiosis vaccines for the use on their farms, thus enhancing its adoption. Also Table 1 reveals that the major source of credits to the respondents is personal savings. It implies that majority of the respondents did not depend on loan for their poultry activities.

**Experience coccidiosis outbreak and awareness of coccidiosis vaccines by respondents:** Table 2 reveals that 86.45 of the poultry farmers' samples had experienced coccidiosis outbreak at one time or the other. This indicated that a larger proportion of the poultry farmers in the study area considered this outbreak as a serious adverse effect on poultry activities of the respondents and their well-being as a whole. This confirms the report of Alabi and Isah (2002) that coccidiosis is one of the most prevalent diseases in the poultry industry. The implication of this is that farmers would want to prevent its occurrence hence, adopt coccidiosis vaccines. Also, the table reveals that about 89 percent of the poultry farmers sampled were aware of the existence of coccidiosis vaccines. This implies that the information about coccidiosis vaccines as a preventive measure against coccidiosis was fast spreading among poultry farmers thereby enhancing its adoption. The implication of this is that high mortality will be reduced among the farms as respondents were aware of preventive measures for the disease.

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Table 5: Relationship between Respondents Personal Characteristics and Adoption

Variable	X <sup>2</sup> cal.	df	LS	X <sup>2</sup> tab.	Decision
Age	17.14	2	0.05	5.99	Significant
Sex	4.50	1	0.05	3.84	Significant
Religion	0.36	2	0.05	5.99	Not Significant
Marital Status	0.70	1	0.05	3.84	Not Significant
Educational Attainment	4.667	3	0.05	7.82	Not Significant
Farm Income	4.41	3	0.05	7.82	Not Significant

Table 6: Relationship between Respondents Constraints and Adoption

Variable	X <sup>2</sup> cal.	df	LS	X <sup>2</sup> tab.	Decision
Scare	1.370	3	0.05	7.82	Not Significant
Too complex to use	1.850	3	0.05	7.82	Not Significant
Difficult Requirement	1.090	3	0.05	7.82	Not Significant
Not Effective	1.723	3	0.05	7.82	Not Significant
Create Risk	1.142	3	0.05	7.82	Not Significant
Cannot be used by Farmers with Less than 200 birds	9.167	3	0.05	7.82	Significant
Not Better than Chemical Drugs	1.466	3	0.05	7.82	Not Significant

Table 2 further reveals that poultry farmers got their information through diverse ways. For most of the respondents (60.1%) coccidiosis vaccines information was acquired from combination of extension agents and veterinarian. This indicates the importance of multi-media system of information dissemination.

Information from unified extension agents and veterinarians has positive effect in enhancing safety during poultry activities and ensuring high productivity. This implies that, in spite of not being livestock specialists, respondents could still utilize information acquired in poultry to generate production. This corroborate the Aina (1990) assertion that those who possess appropriate and timely information will make a more rational decision than those without it. Less than 10% obtained information about vaccines from fellow poultry farmers. The implication of this is that the content of information received from friends/fellow poultry farmers are likely to be indigenous in nature and void of updated information from research.

**Adoption of coccidiosis vaccines by respondent:** Table 3 shows that 83 percent of the respondents had used coccidiosis vaccines. The high level of adopters for these vaccines is an indication that poultry farmers are willing to adopt this relatively cheap and perhaps as last resort to prevent poultry deaths. This implies that coccidiosis vaccines has gained widespread acceptance amongst poultry farmers in the study area. In related study conducted by Adebayo (2003) about 78 percent poultry farmers sampled indicated that they have used coccidiosis vaccines. Also in line with the operationalised framework for this study, it means that over two-thirds of the farmers sampled had adopted, therefore a high level of adoption is established.

**Types of coccidiosis vaccines used by respondents:** For each coccidiosis vaccines listed in the Table 4, majority of the respondents (60.2%) indicated that

Immucox<sup>®</sup> is the most commonly used coccidiosis vaccines in the study area. Less than 23% of the respondents indicated that they have either used or are still using Livacox. Others such as coccivac and paracox had not been used by the poultry farmers in the study area. This position is corroborated by Adebayo (2003) who reported the use of only Immucox and Livacox.

**Relationship between respondents selected personal characteristics and adoption:** Table 5 shows that there is no significant relationship between respondents' adoption and selected personal characteristics in the study area. It was revealed that age and sex ( $X^2 = 17.14$ ,  $p < 0.05$ ; and  $X^2 = 4.50$ ,  $p < 0.05$  respectively) had significant relationships with adoption while religion, marital status, educational attainment and farm income had no significant relationship with the dependent variables. ( $X^2 = 0.36$ ,  $p > 0.05$ ,  $X^2 = 0.70$ ,  $p > 0.05$ ;  $X^2 = 4.667$ ,  $p > 0.05$  and  $X^2 = 4.41$ ,  $p > 0.05$  respectively). This signifies the fact that the sex of the poultry farmers may have impact on the adoption of the coccidiosis vaccines while the younger the poultry farmers, the more they will use or adopt coccidiosis vaccines. This finding is in consonance with that of Igodan *et al.* (1987) that reported that age is negatively related to adoption of new technologies.

**Relationship between respondents constraints and adoption:** Table 6 shows that a significant relationship exists between the owners of less than 200 birds and the adoption of coccidiosis vaccines. This implies that a vacuum is being created and efforts must be geared towards filling it through extension policy makers who should make representation on behalf of the poultry farmers to the manufacturers of vaccines that packages for owners of less than two hundred birds be produced. Efforts to remove the effect of the constrain will thus lead to improved production.

**Conclusion:** The results of this study indicate that poultry

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farmers in Ijebu-Area of Ogun State, Nigeria have more exposure to coccidiosis vaccines diffusion programmes. A vast majority of the poultry farmers fully adopted the vaccines. Economic losses due to coccidiosis outbreak on farms are evidently shown to be prevented by use of coccidiosis vaccines which have been overwhelmingly accepted by poultry farmers in the study area. This is evidence that coccidiosis vaccines have come to stay with poultry farmers for their use. From the present investigation, it can be comprehended that the poultry farmers perceived that of the benefit attained through the vaccines and these benefits can be optimized amongst poultry farmers by giving them adequate support. The awareness and place of access of information has shown influence on the perception of poultry farmers.

Majority of the poultry farmers in the study area engage in poultry activities to generate income. It is, therefore recommended that government should give serious consideration to the promotion of the poultry activities through the provision of credits in order to increase productivity. Apart from this, efforts should be made by government at all levels to intensify extension contacts with poultry farmers to make optimum utilization of the coccidiosis vaccines and to further reap the benefits of it. This will ensure that the production level of the poultry farmers can be improved to enhance poverty reduction.

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