Original Research

Development of Scale to Measure the Extent of Adoption of Improved Poultry Rearing Practices by Poultry Entrepreneurs

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Rec. Date:	Nov 14, 2019 05:54
Accept Date:	Dec 13, 2019 14:34
DOI	10.5455/ijlr.20191114055422

Abstract

India is one of the leading countries in poultry production. Poultry production not only offers quality protein but also provides employment opportunities in basic and allied sectors related to poultry. The rapid growth of the poultry industry in India was possible as a result of many factors working together with wide spread adoption of modern methods of poultry farming by the poultry entrepreneurs. The present study was carried out to develop a scale to measure the adoption of improved poultry rearing practices by poultry entrepreneur. Since there is no suitable scale available to measure the adoption of improved poultry rearing practices, the present study was carried out to develop a scale to measure the adoption of improved poultry rearing practices by poultry entrepreneur. The process started with selection of 70 statements on the basis of literature review and finally 20 statements were retained for scale development through editing and item analysis. Validity and reliability of the developed scale indicated high level precision and internal consistency of the scale.

Key words: Adoption Scale, Poultry Entrepreneurs

How to cite: Chandraker, K., Pandey, A., Oraon, J., & Bera, K. (2019). Development of Scale to Measure the Extent of Adoption of Improved Poultry Rearing Practices by Poultry Entrepreneurs. International Journal of Livestock Research, 9(12), 182-186. doi: 10.5455/ijlr.20191114055422

Introduction

India is one of the leading countries in poultry production ranking 3rd position in egg production with 88 billion eggs annually and 5th in meat production with 3.8 million tons. Commercial poultry occupies major share with 80 percent production and rest is by rural/backyard poultry. Poultry production not only offers quality protein but also provides employment opportunities in basic and allied sectors related poultry. The rapid growth of poultry industry in India was possible as a result of many factors working together with wide spread adoption of modern methods of poultry farming by the poultry entrepreneurs.

Adoption is a decision to make full use of an innovation as the best course of action available (Ray, 2012). The adoption of specific practices is not of a single decision to act but series of actions and thought decisions. The ultimate adoption of the technologies or practices is based on profitability, relative advantage over an existing practice and less complexity etc. (Kumar *et al.,* 2004) Therefore, poultry farmers adopt technologies or package of practices which are more suitable for their existing situation. But, there is a lack of proper measuring instruments to measure extent of adoption of improved poultry rearing practices by poultry entrepreneur. Hence, the present study was designed to develop and standardize a scale for measuring adoption.

Materials and Methods

Five steps were used for the construction of adoption scales namely- 1) defining the trait 2) collection and editing of statements 3) statement analysis 4) scale reliability and validity and 5) final adoption scale.

Definition of the Trait

Adoption is a decision to make full use of an innovation as the best course of action available (Ray, G.L., 2012). In this study it is parameter for poultry farmers to know and adopt the improved poultry rearing practices which are useful, practicable, compatible and profitable.

Collection and Editing of Statements

Referring the available literature on improved poultry rearing practices a total of 70 statements covering breeding, feeding, management, health care and marketing aspects of improved poultry rearing practices were collected for the development of scale. On discussion with 20 experts, the statements were edited based on criteria laid down by Edward (1969) and 30 non relevant statements were deleted. Total of 40 statements were discussed with experts of veterinary extension, field veterinarians, poultry farm experts. All the statements were arranged in logical sequence for coherent flow from one to another.

Statement Analysis

It was essential to delineate the statements based on the extent to which they can differentiate the respondents with high level of adoption by low level of adoption. For this purpose, statement analysis was done on the 40 statements selected after editing. The statements were mailed and asked through questionnaire from 70 expert judges and requested to record their opinion about the relevancy of each statement in measuring extent of adoption of poultry rearing practices by poultry entrepreneurs. The responses were recorded on four-point continuum namely most relevant (MR), relevant (R), least relevant (LR) and not relevant (NR). They were also asked to add/delete or modify statements where needed. In all only 54 responses were received back accounting for 77.14% responses. Formula given by Edwards (1969)

 DOI 10.5455/ijlr.20191114055422

was used to analyze judge's responses based on relevancy weightage (RW) and mean relevancy score (MRS) as follows-

Relevancy Weight

$$RW = \frac{(MR \times 3) + (R \times 2) + (LR \times 1) + (NR \times 0)}{162 \text{ (i.e. Max possible score (3) x No. of judges (54))}}$$

Where,

RW = Relevancy Weightage
MR = Most Relevant (Total MR score for each statement)
R = Relevant (Total R score for each statement)
LR = Least Relevant (Total LR score for each statement)
NR = Not Relevant (Total NR score for each statement)

Mean Relevancy Score

$$MRS = \frac{(MRR \times 3) + (RR \times 2) + (LRR \times 1) + (NRR \times 0)}{\text{Number of judges (i.e. 54)}}$$

Where,
MRR = Most relevant response
RR = Relevant response
LRR = Least relevant response
NRR = Not relevant response

The statements having relevancy weight higher than 0.75 and mean relevancy score higher than 2.25 were selected for final scale preparation.

Reliability and Validity of the Scale

Test-retest method was used to test the reliability. Response was recorded after administered to 20 identical non sample. After 30 days later they were re-administered and two independent sets of results were obtained, which were correlated and correlation coefficient value was calculated. The "r" value of 0.877 was found to be significant, at 0.01 p indicating high level reliability of developed scale (Kothari and Gaurav, 2014). The content validity was done to ascertain the representativeness of sampling adequacy of the statements. Finally, it was advocated to the experts in poultry science, field veterinarians and the poultry entrepreneurs, they extended their opinion on suitability of each statement. All the statements were found valid in the view of the experts and poultry entrepreneurs.

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Final Adoption Scale

The final scale was thus developed consisting of 20 statements.

Result and Discussion

The relevancy weight and mean relevancy score of selected statements is presented in Table 1. The relevancy weight of selected statements was found to be lowest (0.81) for selling egg and meat bird directly to market without involvement of middlemen and highest (0.96) for Vaccination against Infectious bursal disease (IBD) and Ranikhet disease (RD). The highest and lowest mean relevancy score was 2.90 and 2.44 respectively. The response had to be recorded on three point continuum representing adopted, adopted but discontinued and not adopted with scores of 3, 2 and 1 respectively. The adoption score of each respondent can be obtained by adding up scores obtained by him/her on each statement. The maximum obtainable score is 60 and minimum obtainable score is 20. The high scores indicate that respondent had high adoption of improved poultry rearing practices and vice versa.

Table 1: The relevancy weight and mean relevancy score of selected statements

S. No.	Statement	RW	MRS
1	Use of improved variety of chicken for egg/meat production	0.87	2.62
2	Use of extra source of calcium for layer birds	0.84	2.53
3	Vaccination against Infectious bursal disease (IBD) and Ranikhet disease (RD)	0.96	2.9
4	Spraying of flocks with any disinfectant	0.83	2.51
5	White washing of walls of sheds with good thick coat of lime for prevention of flock from infection	0.85	2.55
6	Proper ventilation in shed	0.92	2.77
7	Application of fumigation on hatchery and poultry shed	0.827	2.48
8	Disposal of birds during severe infection like bird flu	0.932	2.79
9	Provision of vitamin and mineral mixture to birds to avoid deficiency disease and to boost their immunity	0.839	2.51
10	Practice of Biosecurity measures	0.845	2.53
11	Cleanliness around Poultry farm	0.82	2.46
12	Cleaning of walls, floor, litter and ventilation while entry of new birds into farm	0.839	2.51
13	Eggs set for hatching within seven days of collection	0.845	2.53
14	Provision of chick guards during brooding	0.814	2.44
15	Control of ectoparasite	0.83	2.5
16	Advise of veterinary doctor for treatment of birds	0.86	2.59
17	Selling egg and meat bird directly to market without involvement of middlemen	0.81	2.44
18	Postmortem of dead birds by veterinary doctor	0.901	2.7
19	Segregation of diseased birds	0.882	2.64
20	Provision of feed according to age	0.858	2.57

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Conclusion

The scale for measuring adoption of improved poultry rearing practices by poultry entrepreneur consists of 20 statements. The highest and lowest mean relevancy score was 2.90 and 2.44 respectively. This scale makes it possible to measure extent of adoption of improved poultry rearing practices by poultry entrepreneur. To develop scale for adoption, researcher could follow the procedure outlined in this study.

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DOI 10.5455/ijlr.20191114055422