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OBJECTIVES

HYPOTHESES

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

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IDENTIFICATION OF TECHNOLOGICAL NEEDS AND PROBLEMS OF POULTRY FARMERS FOR FORMULATION OF RESEARCH AND EXTENSION PROGRAMMES IN ANIMAL HUSBANDRY

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ABSTRACT

A study was conducted to identify the various technological needs and problems of poultry farmers so as to formulate suitable research and extension programmes. The sample for the study was drawn from three categories viz., poultry farmers (42), extension personnel (30) and technology developers (30) in Namakkal district. The data were collected through a well-structured, pre-tested interview schedule in combination with PRA methods. The results revealed that poultry farmers, extension personnel and technology developers had agreement with purchase of feed, feed mixing, feeding and watering. In contrast, formulation of feed, laboratory analysis of ingredients, processing of ingredients and adding growth promoters were the areas in which technology developers and extension personnel agreed while the farmers did not agree. The block magnitude values of different problems in feeds and feeding management of poultry farming showed that farmers gave top priority to technological need so as to overcome poor quality of feed (9607.45) followed by high cost of company feed (4035.07) and feed toxin (2684.38). From the average block magnitude values, discarding poor quality feed, poor quality raw materials, costly (quality) raw materials and costly company feed, heavy investment for own feed and feed toxin were identified as the most important research-technological needs. Poor reach of feed processing technology and lack of awareness of the significance of water analysis were the extension problems.

KEYWORDS

Problems, poultry farmers, poultry farming, Technological needs.

INTRODUCTION

Livestock and poultry farming are considered to be the best tools available for facilitating Integrated Rural Development. In order to eliminate protein hunger; to increase employment opportunities, and to ensure socio - economic transformation, we need to develop, introduce and assimilate cost effective technologies for improving animal husbandry production and productivity, as well as processing, preservation and marketing of the livestock produce to achieve realistic rural development.

NEED AND IMPORTANCE OF STUDY

Technologies emerging out of research should try to mitigate the problems of farmers. Likewise extension programmes should also be relevant to the needs of the farmers. In contrast there are also studies which indicate about poor quality technologies and unsuitable research findings both in developing and developed countries (Cerenea et al., 1985 and Ruttan, 1987). Therefore identifying research / extension priorities are important to draw a strategic research and extension plan (Ministry of agriculture, 2004). To reorient research and development in agriculture and bridge critical gaps community focused participatory methodology is a right approach for need identification (Ellis, 2000). Moreover identifying the technological needs of poultry farmers would provide the necessary insight for the scientists to undertake appropriate research studies. Hence, this study was conducted in Tamil Nadu, India, to identify and assess the technological needs and problems of livestock farmers with special reference to poultry.

STATEMENT OF PROBLEM

Identification of available technologies in poultry farming with special reference to feeds and feeding, finding out the extent of participation of the different members of the family of the poultry farming and estimating the magnitude values of different technological needs and problems of poultry farmers would pave way for formulating viable research projects and need based extension programs in poultry farming.

OBJECTIVES

1. To Prepare an inventory of available technologies to meet the activities of feeds and feeding in poultry farming
2. To find out the extent of participation of different family members in feeds and feeding activities of poultry farming
3. To estimate the magnitude value of technological needs of poultry farmer in feeds and feeding
4. To identify and classify the various technological needs and problems in poultry farming, with regards to feeds and feeding.

HYPOTHESIS

1. H₀: An inventory and technology for different activities and feeding in poultry farming is impossible to prepare.
H₁: An inventory and technology for different activities and feeding in poultry farming can be prepared.
2. H₀: Extent of participation of poultry farmers and their family members in different activities of feeds and feeding cannot be assessed
H₂: : Extent of participation of poultry farmers and their family members in different activities of feeds and feeding can be assessed
3. H₀: The technological need and problems of poultry farmers in feeds and feeding are same for various activities
H₃: The technological need and problems of poultry farmers in feeds and feeding are different for various activities
4. H₀: there is no difference in magnitude value and different technology needs in feeds and feeding of poultry farming.
H₄: There is difference in magnitude value and different technology needs in feeds and feeding of poultry farming.

RESEARCH METHODOLOGY

Based on the existence of number of poultry farmers in each village panchayat of the Namakkal block, Namakkal district, Tamil Nadu, India, the poultry farmers were grouped into three categories, depending on the size of their poultry farms, from which ten per cent of the poultry farmers were chosen for the sample by applying the principle of sample proportion to size from each category and thus 42 poultry farmers were selected. A total of 30 each from extension personnels and scientists belonging to various disciplines of poultry science under technology developer category were selected for the study. One key informant from each panchayat was also identified. They were asked to list the poultry farm operations they undertook regarding poultry layer. Later, the activities were classified under various headings of farm management. Then, the list of activities was systematized by getting the opinion of the extension personnel and technology developers.

The available technologies were identified by going through relevant literature and contacting the technology developers, extension personnel and farmers personally. Then, the poultry farm activities were matched with the available technologies. In that way, fourteen technologies were identified and poultry feeds and feed technology inventory was developed. Most of the feeding technologies were identified by asking the technology developers directly, and a few well from published documents.

The respondents were asked to indicate whether the technology available would suffice the particular activity. A score of '1' was assigned for 'Yes' and '0' for 'No'. This is how the technology availability was quantified.

Actual problems can be explored only by asking the person who is involved in the particular activity. To assess the extent of participation, the farmers were asked to indicate the degree to which they were actually involved in each and every activity on a three-point continuum. The three-point continuum is regularly, occasionally and never and assigned a score of 2, 1 and 0 respectively. This formed the index of the extent of participation in each of the activity for a particular respondent.

The selected farmers, extension personnel and technology developers were asked to indicate the difficulties faced by the farmers (otherwise called technological needs / problems). The farmers were then asked to rank these problems based on importance, urgency and magnitude, by requesting them to place dried dropping of goats / sheep / against each problems marked on the ground by mud sketching as done in PRA technique. PRA tools were extensively used for ranking the needs (Ramasubramanian, et.al., 2010) Kare Kirsopp-Reed (1994) suggested that seeds of neem, castor or tamarind, even small stones can also be used to rank the problems. The extension personnel and technology developers were asked to rank the problems on the paper.

The respondents were asked to indicate the extent of the damage which they experienced and the percentage loss assessed by comparing the egg yield from affected and healthy flocks. From this, the Average Production Loss Percentage (APLP) was estimated. The number of birds (NB) in the study area (23.68 lakhs), APLP were multiplied by the appropriate RBQ Magnitude Value ($MV = NB \times APLP \times RBQ$) to get the block magnitude value (B.M.V.), (Sabarathnam, 1988). Finally, Average Block Magnitude Value (ABMV) was calculated from which a priority ranking could be determined.

FINDINGS AND DISCUSSION

I. TECHNOLOGY INVENTORY AND AVAILABILITY

The technology inventory of poultry farming regarding feeds and feeding and the degree to which it suffices the need of the farmer as perceived by the different categories of respondents is given in the table 1. It could be observed from the table 1 which revealed that farmers, technology developers and extension personnel had agreement with purchase of feed, feed mixing, feeding and watering. In contrast, formulation of feed, laboratory analysis of ingredients, processing of ingredients, adding growth promoters were the areas in which technology developers and extension personnel agreed while the farmers did not agree. The reason for disagreement in majority area might be due to the weak extension linkage.

II. PARTICIPATION OF POULTRY FARMER AND THEIR FAMILY IN POULTRY FARMING ACTIVITIES

The extent of participation of farmers in feeds and feeding of poultry is given in the table 2. The results indicate that decision regarding nature of feed (80), feeder and waterer arrangement (77), feed storage (74), feed analysis, feed formulation, purchase of ingredients were the activities in which the dominant participation of head of the family whereas wife, play role feeding and watering (43). The labourers played a major role in feeding and watering in addition to the participation of family members. The Kruskal-Wallis test also indicated that there is significant difference with regard to feeds and feeding activities.

Though women play major role in all other livestock farming activities, here the participation is confined to few activities because the poultry farm activity starts very early in the morning and it will go upto night. Since women cannot leave their home during that time which is considered prime time for them to look after their household activities. Moreover purchase of feed and feed ingredients and laboratory analysis were outside activities where head played major role.

III. IDENTIFICATION OF TECHNOLOGICAL NEEDS AND PROBLEMS

A. ESTIMATION OF RANK BASED QUOTIENT (RBQ) OF THE IDENTIFIED TECHNOLOGICAL NEEDS AND POULTRY FARMERS

The total scores (number of farmers x importance of problems) and Rank Based Quotient (RBQ) values obtained from different categories of respondents for the selected problems are given in the table 3. It could be understood that under feeds and feeding domain the extension personnel and technology developers perceived the need, feed toxin (64.81 and 68.79) more or less at the same level while costly company feed was perceived as the need by farmers (71.00). Needs like poor quality feed ingredients and improper hand mixing of ingredients caused an average of 8 per cent loss to the farmers.

The respondents identified 15 problems, which were quantified for the purpose of analysis on the basis of the number of respondents who had given the particular rank to each problem. A Rank Based Quotient (Sabarathnam, 1988) was then calculated which had been used widely by extension researchers like Ramasubramanian (2003) and Israel (2011)

The reason for this result is in poultry farm management 70 per cent of the cost goes to feed cost. If there is a slight raise in the cost also affect the farmer heavily. Further, poor quality feed ingredients and improper storage leads to toxin which in turn leads to sudden drop in egg production result in heavy loss.

The total scores and Rank Based Quotient (RBQ) values obtained from ranks of the respondents showed that feed toxin was the major problem, followed by costly company feed. Sundershan et al., (1996) also reported similar findings. All other problems had low RBQ values (Table 3).

B. ESTIMATION OF MAGNITUDE VALUE OF THE IDENTIFIED TECHNOLOGY NEEDS OF POULTRY FARMERS

The BMV of different problems of Namakkal block poultry farmers in feeds and feeding management of layer poultry farming are shown in Table 4. The results reveal that farmers gave top priority to technological need so as to overcome poor quality of feed (9607.45) followed by high cost of company feed (4035.07) and feed toxin (2684.38).

The reason for the poor quality of feed is due to non-availability of quality raw materials and improper storage and lack of storage facilities were the reasons for the feed toxin which in turn leads to loss to the farmer. The reason for high cost of company feed is due to purchase of ingredients from other states which involves high transport cost and taxes which leads to the production cost. Hence it receives high magnitude value. This could be solved by proper planning to augment the production of raw material in Tamilnadu to meet the poultry industries demand and to find out unconventional feed materials as a substitute.

The data were subjected to Kendall's co-efficient of concordance test. The result showed that there was no significant agreement among the three types of respondents. This shows that there is lack of linkage among these three important systems.

C. TECHNOLOGY NEEDS TO BE DEVELOPED

The problems considered were divided into priority needs for research and extension. The priority needs for research are those for which no solution or technology is already evolved or requires modification and or improvement in the existing technologies by scientists and the extension needs are those for which the solution or technology those are already there, but not yet percolated to the farmer's level. Fifteen of the 17 problems considered were categorized as research-technological needs and two as extension problems. The identified research needs were again classified under various disciplines.

From the average block magnitude values, discarding poor quality feed, difficulty in discarding poor quality raw materials in own feed preparation, costly (quality) raw materials, costly company feed, heavy investment for own feed and feed toxin were identified as the most important research-technological needs. Poor reach of Feed processing technology and lack of awareness of the significance of water analysis were the extension problems.

RECOMMENDATION AND SUGGESTION

This study would result in developing viable research and extension programs in feeds and feeding of poultry and poultry farming, which would ultimately end up in increase in poultry production.

CONCLUSION

The problems of poultry farmers have been identified through participatory approach. These identified areas can be of considerable value in formulating need based programmes both in research and extension systems and would aid in the development of viable technologies for formulation of effective extension

programmes thereby educate the poultry farmers to minimize the loss in poultry farming. This methodology can also be applied to study the technological needs and problems of other livestock farmers for formulation of research programmes at different disciplinary level in the Veterinary Universities.

SCOPE FOR FUTURE RESEARCH

The methodology could be used for conducting similar studies in other aspects of poultry farming.

ACKNOWLEDGEMENT

The expertise of Dr. V. E. Sabarathnam, Ret. Principal Scientist, National Academy of Agriculture Research Management, Rajendranagar, Hyderabad- 500 030, India, in conducting this study is gratefully acknowledged.

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TABLES

TABLE - 1: TECHNOLOGY INVENTORY FOR POULTRY FARMING REGARDING FEEDS AND FEEDING

S. No.	Farm activity	Technology	Meets the requirements as perceived by					
			Poultry farmers n=42		Extension personnel n=30		Technology developers n=30	
			No	%	No	%	No.	%
1	Decision to purchase company feed or reparation of own feed	The technique to purchase of good quality feed from reputed companies	38	90.48	24	80.00	30	100.00
2	If own -formulation of feed	Own feed formulation with prescribed available standards	12	28.60	30	100.00	29	96.67
3.	Purchase of feed ingredients and analysis	Analyzing and purchasing feed ingredients with prescribed available standards	17	40.48	29	96.67	28	93.33
4.	Processing of ingredients	Sun drying of ingredients to make them have 10 per cent moisture and grind them- should be fine (0.22 mm) for chicks.	17	40.50	25	83.33	27	89.99
5.	Feed mixing	Feed should be mixed thoroughly	34	80.90	30	100.00	30	100.00
6.	Adding growth promoters	Use of growth promoters like probiotics, antibiotics and enzymes.	16	38.10	30	100.00	30	100.00
7.	Feed storage	Storage of feed in gunny bags in well ventilated rooms	21	50.00	29	96.67	29	96.67
8	Fungus affected mouldy feed analysis	Procedure of analysing in case of disease affected feed.	27	64.20	30	100.00	30	100.00
9.	Feeding	Feeding is to be done 3-4 times a day at the rate of 40 gms per chick, 50-80 gms per grower, 100-130 gms per layer.	30	71.40	30	100.00	30	100.00
10.	Random weighment of body weight and feeding	weighment of body weight, during growing period - separation of weak birds and giving special feed till getting optimum body weight	7	16.60	25	83.33	29	96.67
11	Watering	Watering to be done 3-4 times a day at the rate of 25-100 ml per chick, 100 - 200 ml per grower, and 200-300ml per layer.	36	85.70	29	96.67	30	100.00
12	Periodical water analysis	Water analysis for salt and microbial content - once in summer and twice in winter.	17	40.50	30	100.00	30	100.00

TABLE - 2: EXTENT OF PARTICIPATION OF POULTRY FARMERS AND THEIR FAMILIES IN FEEDS AND FEEDING ACTIVITIES OF POULTRY FARMING

S.No	Activity	Head	Wife	Others					H-value
				Children	Brother	Mother	Labour	Total	
1	Decision to purchase company feed or preparation of own feed	80	12	8	1	--	--	9	
2	If company feed - purchase of feed	72	5	8	3	--	--	11	
3	If own feed - formulation of feed	29	1	4	4	--	--	11	
4	Purchase of feed ingredients	26	--	4	--	--	--	4	
5	Lab analysis of ingredients	25	--	7	--	--	--	7	
6	Processing of ingredients	21	2	7	--	--	--	7	
7	Feed mixing	20	1	7	1	--	--	8	
8	Adding growth promoters	11	2	2	--	--	--	2	154.88**
9.	Feed Storage	74	21	6	2	--	4	12	
10	Fungus affected mouldy feed analysis	37	--	2	3	--	6	11	
11	Feeder arrangement and feeder space	77	15	6	6	--	3	15	
12	Waterer arrangement and their spacing	77	15	6	6	--	3	15	
13	Feeding	44	43	4	2	2	32	40	
14	Random weighment of body weight and feeding	5	6	--	--	--	10	10	
15	Watering	44	43	6	2	2	32	42	
16	Periodical water analysis	22	--	4	4	--	--	8	

** Significant at 1-% level (Table value at 1-% level: 9.1)

TABLE - 3: RBQ AND AVERAGE LOSS FOR DIFFERENT TECHNOLOGICAL NEEDS AND PROBLEMS AS PER DIFFERENT CATEGORIES OF RESPONDENTS REGARDING FEEDS AND FEEDING

S.No	Technological Needs	Average loss (%)	No. of layer chicken (Lakhs)	Poultry farmers		Extension personnel		Technology developers	
				Total Score	RBQ n=42	Total Score	RBQ n=30	Total Score	RBQ n=30
	Research Needs								
1.	Feed Toxin	2.48	23.68	96	45.71	175	64.81	227	68.79
2	Feed wastage by rat	2.97	23.68	18	8.57	--	--	49	14.85
3	Wind blow – feed wastage	2.00	23.68	--	--	41	15.18	--	--
4	Probiotics in feed technology not available	3.00	23.68	--	--	--	--	30	9.10
5	Three tier cage-more feed wastage while feeding, difficult to feed	1.78	23.68	--	--	--	--	--	1.78
6	Poor Feed quality	6.00	23.68	--	--	87	32.22	150	45.46
7	Own Feed - difficulty in discarding poor quality material	2.48	23.68	--	--	87	32.22	182	55.15
8	Quality raw material costly	4.00	23.68	--	--	102	37.78	20	60.60
9	Own feed needs heavy investment	4.00	23.68	2	20.00	129	47.78	86	26.06
10	Company feed costly	2.40	23.68	151	71.00	169	62.59	225	68.18
11	Poor quality feed ingredients	8.00	3.68	18	8.57	--	--	--	--
12	Raw material scarcity and costly	1.42	23.68	48	22.86	--	--	--	--
13	Careless feeding, wastage of feed	1.78	2368	11	5.24	73	27.04	66	20.00
14	Storage – weevil attack	3.00	23.68	--	--	--	--	42	12.72
15	Hand mixing-thorough mixing difficult	8.00	23.68	3	1.43	32	11.85	33	10.00
	Extension Needs (Problems)								
1	Feed processing technology not reached	3.07	23.68	--	--	--	--	47	14.24
2	Not aware of the importance of water analysis	0.5	23.68	--	--	52	19.26	--	--

TABLE-4: TECHNOLOGICAL NEEDS AND PROBLEMS OF POULTRY FARMERS REGARDING FEEDS AND FEEDING

S.No	Technological Needs	Estimated Block magnitude value for the Technological Needs as erceived by			Average (lakhs)
		Poultry farmers (lakhs) n=42	Extension personnel (lakhs) n=30	Technology developers (lakhs) n=30	
I	Research Needs				
1.	Poor Feed quality	9607.45	5262.64	6458.96	7109.68
2	Own Feed - difficulty in discarding poor quality material	--	1892.16	7835.71	4863.94
3	Quality raw material costly	--	3578.52	5740.71	4659.28
4	Costly company feed	4035.07	3557.11	3874.81	3822.33
5	heavy investment for own feed	1894.40	6788.58	2468.40	371.13
6	Toxin	2684.38	3330.30	4039.79	3351.49
7	Poor quality feed ingredients	1623.50	--	--	1623.50
8	Hand mixing -thorough mixing difficult	270.90	2244.86	1994.40	1503.39
9	Feed wastage by rat	602.73	--	1044.40	823.56
10	Raw material scarcity	768.68	--	--	768.68
11	Careless feeding, wastage of feed	220.87	1139.75	843.01	734.54
12	Wind blow - feed wastage	--	718.92	--	718.92
13	Probiotics in feed technology not available	--	--	646.46	646.46
14	Three tier cage - more feed wastage while feeding, difficult to feed	--	--	217.08	217.08
15	Storage – weevil attack	--	--	100.40	100.40
II	Extension Needs (Problems)				
1	Feed processing technology not reached	--	--	1035.21	1035.21
2	Not aware of the importance of water analysis	--	228.04	--	228.04

Co-efficient of Concordance: W = 0.4518, X 2 Value = 31.17NS. Table value with n-1 degrees of freedom is equal to 35.17 at 5% level.

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