

RESEARCH ARTICLE

Adoption Dynamics of Scientific Poultry and Fisheries Technologies under Farmer FIRST Programme (FFP) in Manipur

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Abstract

The study was conducted in the Imphal East district of Manipur with 36 Poultry beneficiaries and 21 fishery Beneficiaries to measure the extent of adoption of recommended poultry and fish farming practices under the Farmer FIRST Programme (FFP) implemented by the Central Agricultural University, Imphal. The study concludes that the majority (55.55%) of poultry farmers and the majority (61.90%) of fish farmers had a medium level of adoption of various FFP-recommended practices. Personal variables such as education level, training received, extension contact, economic motivation and market orientation have shown a highly significant and positive relationship, whereas variable age shows a negative and significant relationship with the extent of adoption of recommended poultry and fish rearing practices. It is evident from the study that extension operations must be strengthened in order to expose more people to scientific farming practices.

Keywords: Adoption dynamics, Poultry, Fisheries, FFP, Manipur

Introduction

Poultry and fish farming are regarded as important tools for self-employment since they provide large opportunities for generating revenue in economically and socially deprived places. The advancement of scientific techniques in poultry and fish farming has boosted the expansion of the poultry and fish farming industry in many parts of the world, including India. So, in order for innovations and technologies developed by scientists and farmers to be effectively disseminated and adopted by a large number of farmers, they must be identified, tested, and integrated. Therefore, ICAR established the Farmer FIRST programme in 2016–17 across the nation using a bottom–up strategy to encourage greater farmer participation in research and development. The purpose of this programme is to improve farmer-scientist collaboration on technology development and application to increase production and income from agriculture and allied sector but the predicted improvement has yet to be realised due to a lack of resources in the farming sector. The availability of the most recent scientific knowledge and information has yet to contribute to the expected degree of adoption of recommended practices. Keeping this into consideration, the study was taken up to assess the extent of adoption of Farmer FIRST Programme beneficiaries on recommended poultry and fish rearing practices.

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Material and Methods

The study was conducted in the Imphal East district of Manipur, where the project has been implemented since 2016-17 under the Central Agricultural University, Imphal. From the district, two villages, namely Yairipok Yambem and Yairipok Top Chingtha, were selected purposively since the program is being implemented only in these two villages. 36 Poultry beneficiaries and 21 fishery beneficiaries, accounting for 23 percent of the total beneficiaries under

Table 1: Distribution of respondents based on their adoption level (n=36)

Sl.No.	Adoption level	Frequency	Percentage
1	Low (<19.85)	6	16.66
2	Medium (19.85–21.95)	20	55.55
3	High (>21.95)	10	27.77
	Total	36	100.00

Table 2: Practice wise adoption of poultry farming practices (n=36)

Sl. No.	Practices	Adoption index (%)	Rank
1	Stock of birds (recommended stocking density i.e. 1:10 male and female)	98.61	I
2	Housing management		
	i) Raise house to protect birds from predators	81.94	IX
	ii) Provide well ventilations	94.44	III
3	Feeding and Nutrition		
	i) Provide a balanced diet	84.72	VI
	ii) Always provide clean water.	91.66	V
4	Brooding and Rearing		
	i) choose a hen that is broody, does not leave her eggs during hatching and takes good care of her chicks.	93.05	IV
	ii) Select a healthy and strong recommended breeds (Srinidhi and Vanaraja)	97.22	II
	iii) Chick after hatching should be housed at a temperature between 30-33°C at a relative humidity between 40-46% for 28 days	81.50	X
5	Culling of birds (weeding out of uneconomical birds and less producers)	84.26	VII
6	Health care		
	i) Vaccination preferably at 3 weeks of age	75.00	XI
	ii) Dust the house's floors with an insect powder formulated for use with chicken.	83.88	VIII
	iii) De-worm once during the dry season and again at the start of the rainy season if the chicken appears feeble.	51.38	XII

Table 3: Distribution of respondents based on their adoption level (n=21)

Sl.No.	Adoption level	Frequency	Percentage
1	Low (<32.37)	3	14.28
2	Medium (32.37-37.39)	13	61.90
3	High (>37.39)	5	23.80
	Total	21	100.00

each enterprise, were selected as respondents by using a proportionate random sampling technique. The index developed by Sharma (2021), as given below, was used to measure the extent of adoption. Spearman's coefficient of correlation was applied at 5 and 1 percent levels of significance to determine the association between selected personal attributes and the level of adoption. A pre-tested structured interview schedule was used to collect the data through the personal interview method (Figures 1 and 2).

$$\text{Adoption index} = \frac{\text{Total adoption score obtained by a respondent}}{\text{Maximum obtainable score}} \times 100$$

Results and Discussion

Extent of adoption of recommended poultry farming practices

It is evident from Table-1 that the majority (55.55%) of the respondents had a medium level of adoption, followed by high (27.77%) and low (16.66%) levels of adoption. The medium level of adoption might be due to their increased knowledge throughout training and preference for scientific poultry rearing approaches in addition to traditional practices. Similar findings were reported by Kushwah, *et al.* (2016) and Ahmad *et al.* (2018).

Table 4: Practice wise adoption of fish farming practices n=21

Sl. No.	Practices	Adoption index (%)	Rank
1	Site selection (in accordance with soil type, topography, watershed, water table and safety)	63.33	XV
2	Pond requirements		
	i). depth of the grow out pond and the seed raising pond	62.19	XVII
	ii) Productive water conditions	61.31	XVIII
3	Reclamation of old ponds		
	i) Aquatic weed should be eradicated	95.23	II
	ii) Eradication of unwanted fishes	73.80	XII
	iii) Exposure of bottom to sunlight after dewatering	81.25	X
	iv) Removal of excess muck	80.09	XI
	v) Complete dewatering	82.85	IX
	vi) Repairing side slopes while removing muck	90.47	IV
4	Pond preparation		
	i) Bottom ranking	62.33	XVI
	ii) Lime application	83.47	VIII
	iii) Pond fertilization	85.71	VI
5	Stocking practices		
	iii) Stocking density (40:30:30)	97.61	I
	iv) Time for stocking	88.09	V
	v) Toxicity test	47.61	XX
6	Feeding practices		
	i) Choose high-quality feed that is high in nitrogen and phosphorus.	69.95	XIV
	ii) Store feed in well ventilated and dry bins	92.85	III
	iii) used mechanical feeder to apply feed uniformly	40.47	XXI
	iv) Don't apply excess feed that fish eat well	84.61	VII
	v) Ponds should have appropriate dissolved oxygen concentrations to prevent fish stress.	50.00	XIX
7	Health care practices		
	i) Hygienic condition	70.95	XIII
	ii) Test netting	11.90	XXII
	iii) Prophylactic & Curative measures	9.52	XXIII

Practice-wise extent of adoption of Poultry farming practices

Practice-wise adoption of poultry rearing practices is presented in Table 2. The results presented in the table show that the recommended stocking density, *i.e.*, 1:10 male and female (98.61%), was highly adopted, followed by selecting healthy and strong recommended breeds (Srinidhi and Vanaraja) (97.22%), Provide well ventilations (94.44%) were ranked II and III, respectively.

The table further indicates that choose a hen that is broody, does not leave her eggs during hatching and takes good care of her chicks (93.05%), always provide clean water (91.66%), provide a balanced diet (84.72%), weeding out of uneconomical birds and less producers (84.26%), dust the house's floors with an insect powder formulated for use

with chicken (83.88%), raise house to protect birds from predators (81.94%), chick after hatching should be housed at a temperature between 30 to 33°C at a relative humidity between 40-46% for 28 days (81.50%), vaccination preferably at 3 weeks of age (75.00%) and de-worm once during the dry season and again at the start of the rainy season if the chicken appears feeble (51.38%) were ranked IV, V, VI, VII, VIII, IX, X, XI and XII respectively. The results are in line with the findings of Singha *et al.* (2016).

Extent of adoption of recommended fish farming practices

Data presented in Table 3 reveals that majority (61.90%) of the respondents had medium level of adoption followed by high (23.80%) and low (14.28%) level of adoption. The reason for medium level of adoption may be due to increased

Table 5: Relationship between characteristics of beneficiary farmers and their extent of adoption

Sl. No.	Variables	Correlation coefficient	
		Poultry	Fishery
1	Age	-0.492**	-0.483*
2	Social category	0.187NS	0.048NS
3	Education level	0.658**	0.832**
4	Family type	0.194NS	-0.006NS
5	Family occupation	-0.131NS	0.215NS
6	Farm size	0.463*	0.325NS
7	Annual income	0.289NS	0.469*
8	Training received	0.738**	0.862**
9	Extension contact	0.642**	0.866**
10	Mass media exposure	0.599**	0.529*
11	Economic motivation	0.563**	0.837**
12	Risk orientation	0.332*	0.922**
13	Scientific orientation	0.741**	0.494*
14	Farming system	0.185NS	0.450*
15	Market orientation	0.648**	0.508**

** indicates 1% level of significance,

* indicates 5% level of significance and

NS indicates non-significance

understanding and interest in scientific fish farming as a means of income generation, as well as a steady rise in education levels with decent educational facilities. The results are in line with the findings of Goswami *et al.* (2012), Das *et al.* (2014) and Shasani *et al.* (2020).

Practice-wise extent of adoption of Fish farming practices

Practice wise adoption of fish farming practices of various species including Rohu (*Labeo rohita*), common carp (*Cyprinus carpio*), silver carp (*Hypophthalmichthys molitrix*), Tilapia (*Oreochromis niloticus*) and grass carp (*Ctenopharyngodon idella*) is presented in Table 4 shows that Stocking density (40:30:30) (97.61%) was highly adopted, followed by aquatic weed should be eradicated (95.23%), store feed in well ventilated and dry bins (92.85%), repairing side slopes while removing muck (90.47%), time for stocking (88.09%), pond fertilization (85.71%), don't apply excess feed that fish eat well (84.61%), lime application (83.47%), complete dewatering (82.85%) and exposure of bottom to sunlight after dewatering (81.25%) were ranked I, II, III, IV, V, VI, VII, VIII, IX and X respectively. The table further indicates that removal of excess muck (80.09%), eradication of unwanted fishes (73.80%), hygienic condition (70.95%), choose high-quality feed that is high in nitrogen and phosphorus (69.95%), site selection in accordance with soil type, topography, watershed, water table and safety (63.33%), bottom ranking (62.33%), depth of the grow out pond and the seed raising pond (62.19%), productive water conditions

(61.31%), ponds should have appropriate dissolved oxygen concentrations to prevent fish stress (50.00%), toxicity test (47.61%), used mechanical feeder to apply feed uniformly (40.47%), test netting (11.90%) and prophylactic & Curative measures (99.52%) were least adopted by the farmers. The results are in line with the findings of Borah *et al.* (2019).

Relationship between characteristics of beneficiary farmers and their extent of adoption

The adoption of recommended poultry and fish farming practices also depends on the respondent's socio-personal, economic and psychological condition. Correlations were studied between the extent of adoption and independent variables and the results are presented in Table 5.

Table 5 shows the relationship between the independent variables and the extent of adoption of recommended poultry rearing practices. It is obvious from the table variables such as Education level, training received, extension contact, mass media exposure, economic motivation, scientific orientation and market orientation had positive significant relationship at 1% level of significance whereas, variable age had negative significant relation. It also shows that variables such as farm size and risk orientation had positive significant relationship at 5% level of significance while, variable social category, family type, family occupation, annual income and farming system had no relationship between extent of adoption and recommended poultry rearing practices.

Further exploration of the data in Table 5 shows the relationship between the independent variables and the



Fig 1: Poultry farming practiced by the respondent of Yairipok Yambem



Fig 2: Fish farming practiced by the respondent of Yairipok Top Chingtha

extent of adoption of recommended fish rearing practices. It is obvious from the table that variables such as Education level, training received, extension contact, economic motivation, risk orientation and market orientation had a significant relationship at 1% level of significance. It also shows that variables such as annual income, mass media exposure, scientific orientation, and farming system had a positive and significant relationship at 5% level of significance, whereas the variable age had a negative and significant relation. Variables such as social category, family type, family occupation, and farm size had no relationship

with the extent of adoption and recommended poultry rearing practices.

Educated farmers used to receive knowledge from a variety of sources, attained more training, maintained contact with extension agencies, and had a high level of adoption due to their greater economic and market orientation.

Conclusion

The vast majority of respondents, *i.e.*, 55.55% of the poultry farmers and 61.90% of fish farmers, reported a medium level of adoption. As a result, it is necessary to increase extension activities in providing various exposures to scientific farming practises. To enhance the adoption of recommended practices, target-oriented, need-based training and demonstrations must be developed.

References

- Ahmad, M., Verma, H.C., Singh, R.K., Singh, P.K. and Verma, V. 2018. Adoption level of poultry farmers regarding the scientific broiler farming practices in Eastern Plan zone of Uttar Pradesh. *Multiligic in science*, 8: 24-25.
- Borah, k., Singh, Y.J., Sarkar, A., Singh, S.K., Khuman, O.N. and Pegu, C. 2019. Adoption of scientific fish farming practices in West Tripura district of Tripura, India. *Pantnagar Journal of Research*, 17(2): 147-151.
- Das, A., Kumara, N.R., Krishnan, M., Yadav, V.K. and Immanuel, S. 2014. Adoption of improved aquaculture technologies in Tripura, India. *Fishery Technology*, 5(1): 58-63.
- Goswami, B., Mukhopadhyay, S.B. and Dana. S.S. 2012. A study on factors influencing the adoption behaviour of fish farmers with special reference to scientific fish culture in west Bengal, India. *International Journal of Bio-resource and stress management*, 3(3): 362-367.
- Kushwah, S., Sohane, R.k., and Singh A.k. 2016. Adoption level and constraints faced by the backyard poultry farmers in Bihar. *TECHNOFAME- A journal of multidisciplinary advance research*, 5(1): 1-5.
- Sharma, S. 2021. Impact of Attracting and Retaining Youth in Agriculture (ARYA) project on goat and poultry farming in Banswara district of Rjasthan. PhD. Thesis, Submitted to Maharana Pratap University of Agriculture and Technology. Udaipur, Rajasthan, India.
- Shasani, S., De, H.K. and Das, M.K. 2020. Adoption of improved scientific practices of composite carp culture technology in south 24 parganas. *Indian Journal of Extension Education*, 56(1): 1-8.
- Singha, A.K., Jat, P.C. Bordoloi, R., Singha, J.k., Devi, M. and Bhuyan, P.C. 2016. Determinants of adoption of Poultry technology by the farmers of adopted and non-adopted villages in North Eastern states of India. *Economic affairs*, 61(4): 633-640.