



ISSN (E): 2277-7695
ISSN (P): 2349-8242
NAAS Rating: 5.23
TPI 2023; 12(2): 298-301
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www.thepharmajournal.com
Received: 01-12-2022
Accepted: 04-01-2023

Rashmi L

Assistant professor, Department of Veterinary Microbiology Veterinary College Gadag, Karnataka, India

Rudraswamy MS

Associate professor, Department of Animal Nutrition Veterinary College Gadag, Karnataka, India

Suresh Patel

Assistant professor, Department of Veterinary medicine, Veterinary College Gadag, Karnataka, India

Jagannatha Rao B

Associate professor, Department of Livestock Products and Technology Veterinary College Gadag, Karnataka, India

Roopa Devi YS

Assistant professor, Department of Veterinary pathology Veterinary College Bangalore, Karnataka, India

Girish BC

Assistant professor, Department of Veterinary pathology, Veterinary College Hassan, Karnataka, India

Corresponding Author:

Rashmi L

Assistant professor, Department of Veterinary Microbiology Veterinary College Gadag, Karnataka, India

Impact of training programmes as part of farmers field school on the adoption of swarnadhara (Backyard poultry variety) poultry farming in Dakshina Kannada district of Karnataka state

Rashmi L, Rudraswamy MS, Suresh Patel, Jagannatha Rao B, Roopa Devi YS and Girish BC

DOI: <https://doi.org/10.22271/tpi.2023.v12.i2d.19152>

Abstract

The present study was conducted in the Dakshina Kannada (DK) district, Konkan Zone of Karnataka to know the present status of present poultry farming practices along with the effects of implication of scientific methods through Farmers Field School (FFS) and periodical necessary trainings. In a survey regarding the poultry population, Out of 28586 birds, 92.7 percent were commercial broiler variety and remaining were backyard variety. Regarding system of rearing birds, 56 percent respondents followed semi intensive feeding, providing concentrate feed. The respondents knowledge was found enriched in the management practices like deworming (68.0%), use of butox/methanol spray to control ectoparasite (60.0%), brooding of chicks (56.0 %) and use of vaccine like RKT, IBD, Lasota, IB, etc. (56.7 %). Highest increase in adoption was found in use of fumigation or lime for disinfection of house (68%), proper brooding of chicks (64%), and keeping developed breed swarnadhara under integrated farming (62%). Non availability of improved breed swarnadhara on demand at seasons was the major problem reported by most (82%) of the respondents followed by lack of timely veterinary facility at village (70%) and noncooperation by neighborhoods / theft (68). Farmers were reluctant to prepare own formulated poultry feed with available ingredients feed and relied upon commercial feed.

Keywords: Swarnadhara, backyard poultry farming, front line demonstration, scientific poultry farming

Introduction

Backyard poultry farming in India has tremendous impact on the socioeconomic and nutritional status of rural people, scientific skill development, women's empowerment and it needs improved chicken varieties accompanied with scientific managerial practices (Manoj Kumar *et al.*, 2021) [7]. The agriculture and allied sector contribution in National GDP is about 17.32 percent with annual growth of 4.1 percent (Economic Survey, 2016-17). Dakshina Kannada coastal part of Karnataka has rich cultural heritage, flora, and fauna and receives heavy rainfall compare to other parts of Karnataka. Backyard poultry farming and commercial broiler farming are practiced by majority farmers under integrated farming and less than 2% do practice commercial layer farming. Swarnadhara is a backyard variety poultry, released by Department of Poultry Science, Karnataka Veterinary Animal and Fisheries Science University, Hebbal Bangalore during 2005. The birds were introduced to farmers of Krishi Vigyan Kendra- Dakshina Kannada (KVK-DK) since 2012. The scientific knowledge of poultry rearing was also dissipated through on campus, off campus trainings, front line demonstrations and farmer field school programmes along with farm visits. Off campus training programmes were conducted in association with various agencies like state agriculture, animal husbandry department, Agriculture Technology Management Agency, Sri Kshetra Dharmastala Rural and Development Project (SKDRDP), self-help groups (SHG) and through various local poultry associations groups to disseminate the knowledge of Swarnadhara poultry rearing. Farmers readily accepted Swarnadhara poultry mainly because Swarnadhara has plumage patterns in close resemblance to native poultry breeds along with high yield of meat (1.1 Kg) and eggs (180 to 200). This is much profitable as compared to native poultry birds with egg production of egg production is only 40 to 50 eggs/bird/year and meat production is also very less (Islam *et al.*, 2015; Singh *et al.*, 2017) [4, 9]. Also eggs and meat act as protective foods, body building foods with consumption of eggs (3 eggs/week) is recommended in view of several nutritional advantages ICMR Centenary year celebration

Manual, 2011). Despite the fact that the Indian Council of Medical research has recommended consumption of 180 eggs per year for each individual, the per capita consumption of eggs in Maharashtra is just 38 in an entire year (DNA newsletter, 2013).

To evaluate the impact of scientific trainings and technical knowledge periodical assessments were done on regular basis, the outcome of which will help in great deal in changing the objectives of programme being carried. One most commonly conducted need-based trainings at KVK-DK by applying principles of "Teaching by doing" and "Learning by doing" is scientific rearing of Swarnadhara, a backyard poultry variety. Keeping in view the different varieties of poultry being reared by the farmers efforts were made to study the status of Swarnadhara and other variety farming practices, the knowledge and adoption status of technologies learned during training and the problems and opinion of trainees with respect to socio-economic indicators.

Materials and Methods

The study was conducted in DK district, Konkan /Coastal Zone of Karnataka. A list of 200 participants who attended vocational training and Farmer field school on Swarnadhara, developed backyard poultry rearing organized by Krishi Vigyan Kendra, DK and technological interventions provided for farmers during the year 2016 to 2018 was prepared. Out of that, 50 participants who started poultry farming after acquiring training were personally interviewed by using a pre-designed interview questionnaire developed for the purpose.

The data regarding poultry management practices were recorded under two heads i.e., knowledge before training and after training. Similarly, the findings of the knowledge and adoption status of technologies learned during and after interventions in relation to poultry management practices were classified into housing, nutrition and health care practices and general practices. The data were interpreted statistically using frequency and percentage in order to draw the inference according to the standard protocols of Snecdecor and Cochran (1989) [8]

The enrichment or gain in knowledge by the respondents about improved management practices was measured in terms of percentage. It was observed that initial average adoption rate 44.0 percent declined to 27.9 percent and unemployed rural youths (56.2%) showed keen interest in poultry farming. The knowledge level of the respondent before and after training for feeding, health care and management was 46.4, 30.6, 57.5 and 86.3, 68.7 and 89.9 percent, respectively.

Results and Discussion

i) Status of swarnadhara farm managemental practices

The status of poultry farming practices included type of poultry shed, breeds, farming type, feeding system, use of concentrate feed, vaccination (Table 1).

Most of the respondents (46.7 percent) had constructed a separate temporary shed for poultry with locally available materials like coconut leaves roof, arecanut, thatch, finishing with wet mud, flooring with dried leaves and sawdust etc. whereas, 33.3 percent respondents made permanent shed with tiles, mud walls or mesh and 20.0 percent sheds were under construction. Data on poultry breeds revealed that, out of 28586 birds, 92.7 percent were commercial broiler variety, local, 4.04 percent were Swarnadhara, 2.30 percent were Aseel crossed breeds and 0.94 percent were Giriraj case of

Swarnadhara breed variety developed by the University, only 4.04 percent were observed in the study area.

Out of three practices of farming type, 56.0 percent respondents were medium type farmers followed by 30 percent small scale and 18 percent rearing more than 1000 birds in all in all out system, large scale farmers. Majority of respondents 56 percent followed intensive feeding, 32 percent semi intensive providing concentrate feed and allowing for scavenging and 12 percent fed food waste or vegetable wastage and scavenging etc. Majority of farmers were interested to purchase balanced feed rather than preparing at home.

Table 1: Status of poultry farming practices. B. Breed (poultry number)

Sl. no	Particulars	Number of Respondents (N=50)	
		%	%
A. Poultry shed			
1	Permanent	11	22.0
2	Temporary	27	54.0
3	Free ranging	12	24.0
4	Local poultry breeds	456	73.9
B. Improved poultry breeds			
1	Giriraja	270	0.94
2	Asseel cross	660	2.30
3	Swarnadhara	1156	4.04
4	Commercial variety from industry	26500	92.7
C. Farming type			
1	Small scale (20-100 birds)	15	30
2	Medium (100-1000 birds)	26	56
3	Large scale (more than 1000 birds)	09	18
D. Feeding system			
1	Intensive feeding	28	56.0
2	Semi-intensive	16	32.0
3	Grazing in open field/forest	12	24.0
E. use of concentrate feed			
1	Available feed	13	26.0
2	Homemade feed formulation	15	30.0
3	Commercial feed	22	44.0
F. Vaccination			
1	Followed regularly	22	44.0
2	Irregular	23	46.0
3	Not followed	04	08.0

Vaccination in poultry was an important intervention as the tremendous mortality rate was observed due to fatal diseases. The vaccination schedule was strictly followed regularly by 44.0 percent and irregularly/vague manner by 46.0 percent respondents, respectively. It was noticed that in vaccination, still there was a gap of more than 50 percent as per the recommended schedule, people outreach, number of fatal diseases covered, trained vaccinators etc. Hence, more follow up of these trainees was required. Farmers rearing less than 20 birds expressed that hiring vaccinators, following vaccination schedule, purchase of lump some doses of vaccination was uneconomical procuring vaccine, since vaccine dose available for minimum of 100 birds and once if they are reconstituted must be immediately used.

Knowledge and adoption status of technologies Status of Poultry Farming Practices

It is assumed that the knowledge of a farmer to a large degree depends upon the extent of exposure given to him about the technology and the data were presented in Table 2.

The respondents gained highest knowledge in brooding and hatching (60.0% each) and use of vaccine like RKT, IBD, Lasota, (56.7%) followed by use of calcium and concentrate feed and spraying of butox/malathion to control ecto parasites (36.7 percent of the farmers).

In case of general practices gain in knowledge was found highest for use of fumigation/lime for sanitation (70%), Proper housing with bedding (68%) and keeping of appropriate proportion between male and female was reported by 43.3 percent.

The adoption of balanced nutrition, feeding and health care practices by the respondents before training was only 6.7 to 36.7 percent, whereas after acquiring the trainings, the adoption of the technique deworming and use of mineral mixture and use of vaccine was enhanced to an notable extent. The farmers expressed lower cost for the medicines and other feed supplements spent for the backyard poultry over the commercial poultry farming mainly due to the higher immunity to disease and higher adaptability in local poultry and improved varieties. This observation is in accordance with Mahak Singh *et al*, 2019 [19].

Problems and opinion of trainees

During the survey, it was observed that there were some problems being faced in rearing of birds and the views of the respondents were presented in Table 3.

The discussions made with the respondents revealed that lack of co-operation by neighbor or was the major problem reported by most (60%) of the respondents followed by non-availability of improved breed like Swarnadhara on demand, lack of timely veterinary care at village level (50%). Non availability of faithful and skilled manpower and lack of finance were the problems reported by 40.0 percent. The other problems like high cost of concentrate feed and wild animals menace were reported by 36.7 and 33.3 percent, respectively. Further, it was observed that increased profit through improved breeds like swarnadhara, increased awareness about commercial farming and its advantages were the opinion reported by 33.3 and 20.0 percent respondents, respectively which in accordance with the findings of Kabir *et al.*, (2015) [5] who observed improvement in farmers socio-economic conditions of Bangladesh farmers.

Table 2: Gain in knowledge and adoption of respondents trainees level regarding poultry management practices

	Gain in Knowledge			Change in adoption					
	Before training (a)	After training (b)	Undecided (c)	Knowledge enrichment (b-a)	Before training (a)	After training (b)	No adoption (c)	Increase in adoption (b-a)	
A	Nutrition and health care								
1	Preparation for Brooding	16(32.0)	34(68.0)	0(0.0)	18(36.0)	09(18.0)	41(82.0)	-	32(64.0)
2	Feed formulation to chicks, grower, layer	4(08.0)	18(36.0)	28(56.0)	14(28.0)	4(08.0)	15(30.0)	31(62.0)	11(22.0)
3	Use of vaccines	13(26.0)	32(64.0)	5(10.0)	19(38.0)	13(26.0)	22(44.0)	15(30.0)	09(18.0)
4	Deworming	6(12.0)	40(80.0)	4(8.0)	34(68.0)	6(12.0)	23(46.0)	21(42.0)	17(34.0)
5	Spraying butox /malathion to control ectoparasite	10(20.0)	40(80.0)	-	30(60.0)	8(16.0)	27(54.0)	15(30.0)	19(38.0)
B	General Practices								
1	Use of fumigation / lime	15(30.0)	35(70.0)	-	20(40.0)	6(12.0)	40(80.0)	4(8.0)	34(68.0)
2	Proper housing with bedding	12(24.0)	34(68.0)	4(8.0)	22(44.0)	15(30.0)	23(46.0)	12(24.0)	8(16.0)
3	Keeping developed breed swarnadhara/necked neck under integrated farming	15(30.0)	32(64.0)	3(6.0)	17(34.0)	8(16.0)	39(78.0)	3(6.0)	31(62.0)
4	Use of automatic feeders and waverers	11(24.0)	33(66.0)	5(10.0)	22(42.0)	11(22.0)	33(66.0)	6(12.0)	22(44.0)

Management practice

Table 3: Problems experienced by the respondents in poultry farmers. (N=50)

SL No	Problems	Respondents	
		Numbers	Percentage
1	Non-cooperation by neighborhoods/theft	34	68
2	Lack of timely veterinary facility at village	35	70
3	Non availability of faithful and skilled manpower	22	44
4	Non availability of improved breed Swarnadhara/ naked neck on demand at seasons	41	82
5	Preparing balanced feed ration	26	52

Conclusion

After development of poultry farming as an industry, reformations like integrated poultry farming, organized and scientific poultry sector has subdued unorganized and backyard poultry farming. Though besides broilers and layers, local varieties and improved varieties also find a place in market, lack of brooding character in developed variety, no veterinary facilities at village level and high cost of concentrate feed has always been a constraint. The overall improvement in status of backyard poultry practices with

respect to enrichment or gain in knowledge and increase in adoption of improved technologies, increase in employment and increase in total income is possible by organizing trainings and technological interventions through diagnostic visits, farmer field schools, farm and home visits by the subject matter experts in the rural area at the doorstep of the poor farmers.

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