

International Journal of Agriculture Extension and Social Development

Volume 9; Issue 9; September 2026; Page No. 582-586

Received: 24-06-2026

Accepted: 28-07-2026

Indexed Journal

Peer Reviewed Journal

Field evaluation and dissemination of Swarnadhara poultry for backyard farming in Dakshina Kannada, Karnataka

¹Shivakumar R, ²Naveen Kumar BT, ³Mallikarjuna L, ⁴TJ Ramesha, ⁵Kedarnath, ⁶Harish Shenoy and ⁷Rashmi R

¹Associate Professor, Department of Veterinary Microbiology, Veterinary College, KVAFSU, Hassan, India

²Assistant Professor, Agronomy, Livestock research and Information Centre, KVAFSU, Konehalli, Tiptur, Karnataka, India

³Scientist, Soil Science, ICAR- Krishi Vigyan Kendra, Dakshina Kannada, KVAFSU, Mangalore, Karnataka, India

⁴Senior Scientist and Head, ICAR- Krishi Vigyan Kendra, Dakshina Kannada, KVAFSU, Mangalore, Karnataka, India

⁵Scientist, Plant Pathology, ICAR- Krishi Vigyan Kendra, Dakshina Kannada, KVAFSU, Mangalore, Karnataka, India

⁶Assistant Professor, Agronomy, ICAR- Krishi Vigyan Kendra, Dakshina Kannada, KVAFSU, Mangalore, Karnataka, India

⁷Scientist, Horticulture, ICAR- Krishi Vigyan Kendra, Dakshina Kannada, KVAFSU, Mangalore, Karnataka, India

DOI: <https://www.doi.org/10.33545/26180723.2026.v9.i9h.4239>

Corresponding Author: Shivakumar R

Abstract

Backyard poultry is an important component of smallholder livestock production and provides rural households with eggs, meat and supplementary income. However, low productivity of indigenous birds, inadequate scientific management, disease related losses and limited availability of improved poultry germplasm can restrict the economic potential of backyard poultry farming. The present field study was undertaken to document the dissemination and field performance of Swarnadhara poultry through extension interventions of ICAR-Krishi Vigyan Kendra, Dakshina Kannada. Swarnadhara birds were introduced through On-Farm Testing, Front Line Demonstrations, Farmer Field Schools and farmer training programmes, with emphasis on scientific feeding, vaccination, disease prevention, biosecurity and marketing. Year wise records of chick distribution from 2011–12 to 2024–25 were compiled. Production and economic observations were recorded from 30 farmers participating in a Farmer Field School, of whom 20 farmers evaluated birds for meat production and 10 farmers retained birds for egg production. During the 14 year period, 33, 636 Swarnadhara chicks were distributed to 1, 907 farmers. At six months, Swarnadhara birds recorded an average live weight of 2.60 kg compared with 0.65 kg in local birds. Gross return and net return per bird were ₹780 and ₹600, respectively, for Swarnadhara compared with ₹325 and ₹205 for local birds. The corresponding benefit-cost ratios were 4.33 and 2.70. Up to 54 weeks of age, Swarnadhara birds produced 142 eggs per bird compared with 77 eggs in local birds. Net returns were ₹1, 586 and ₹876 per bird, respectively, with benefit-cost ratios of 4.52 and 3.58. The findings demonstrate the practical production and economic advantages observed with Swarnadhara under the field conditions of Dakshina Kannada. The study also indicates that dissemination of improved backyard poultry germplasm is more meaningful when combined with farmer training, participatory demonstrations and continuous technical guidance.

Keywords: Backyard poultry, Swarnadhara, farmer field school, front line demonstration, poultry extension, livelihood

1. Introduction

Backyard poultry represents an important low input livestock activity in rural India. Small numbers of chickens are commonly maintained around the household, providing eggs and meat for domestic consumption and generating supplementary cash income. The system is particularly relevant to small and resource-constrained households because poultry can be maintained with limited infrastructure and can utilize locally available feed resources. Improved poultry varieties resembling native birds have further increased the production potential of backyard systems (Rajkumar *et al.* 2021)^[1].

The productivity of traditional village poultry, however, is often constrained by inadequate feeding, insufficient disease prevention, poor housing and limited access to improved germplasm. A field investigation of village poultry production in northeastern India reported deficiencies in

balanced feeding and vaccination practices and demonstrated the potential of improved dual purpose birds to enhance production under backyard conditions (Kumaresan A *et al.* 2008)^[2]. Improved backyard poultry varieties have consequently become an important component of livestock extension programmes. Their usefulness depends not only on their genetic production potential but also on adaptability to local environmental conditions, farmer preference, availability of chicks and access to technical support (Rajkumar U *et al.* 2021; Kumaresan A *et al.* 2008)^[1, 2].

Swarnadhara is an improved poultry variety developed in Karnataka for backyard and mixed farming systems. Technical descriptions of the variety indicate that hens can attain approximately 3 kg body weight and cocks approximately 4 kg, with hens capable of producing about 180–190 eggs annually under suitable management (Avian Production and Management, Department of Poultry Science,

Karnataka Veterinary, Animal and Fisheries Sciences University, Bengaluru) [3] The bird's production characteristics and suitability for backyard rearing make it relevant to smallholder poultry systems.

Dakshina Kannada has a long tradition of backyard poultry keeping. Local chickens are valued for meat, eggs and their association with traditional consumption practices. Demand for native type birds is also associated with cultural and religious activities in the district. However, traditional birds generally have lower productive performance than improved poultry varieties. Consequently, introducing an improved bird that retains desirable characteristics of native poultry while providing higher production may offer an opportunity for strengthening backyard poultry based livelihoods.

The introduction of improved germplasm must be accompanied by appropriate extension education. Farmers need practical knowledge regarding feeding, housing, vaccination, disease prevention, biosecurity and marketing if the productive potential of improved birds is to be realized (Kumaresan A *et al.* 2008) [2]. Farmer Field Schools and Front Line Demonstrations provide opportunities for farmers to observe technologies under practical field conditions and to make management decisions based on their own experience. Against this background, ICAR-Krishi Vigyan Kendra, Dakshina Kannada, promoted Swarnadhara poultry through On-Farm Testing, Front Line Demonstrations, Farmer Field Schools and training programmes. The present study was undertaken to document the dissemination of Swarnadhara chicks and to evaluate its field level productive and economic performance in comparison with local backyard poultry.

2. Materials and Methods

2.1 Study location

The field programme was implemented through ICAR-Krishi Vigyan Kendra, Dakshina Kannada, KVAFSU, Mangaluru, Karnataka. The district represents a coastal agro-ecological region where backyard poultry forms part of mixed farming and household livelihood systems.

2.2 Introduction and dissemination of Swarnadhara

Swarnadhara poultry was introduced to farmers through the extension activities of ICAR-KVK Dakshina Kannada. The major approaches used were On-Farm Testing, Front Line Demonstrations, Farmer Field Schools and farmer training programmes.

The intervention was designed to demonstrate the suitability of Swarnadhara under local backyard conditions and to improve farmer knowledge regarding: Scientific backyard poultry management; Supplementary feeding; Vaccination; Disease prevention and control; Basic biosecurity; Chick management; Marketing of birds and eggs; and Calculation of production costs and returns.

2.3 Farmer Field School intervention

A Farmer Field School was conducted using a participatory learning approach. A total of 30 farmers participated, and each farmer received 30 Swarnadhara birds. Training and practical demonstrations were conducted on routine management practices, including feeding, disease prevention,

vaccination and general flock management. Farmers were encouraged to observe bird growth and production and compare the performance of improved birds with locally maintained poultry.

Of the 30 participating farmers, 20 retained birds primarily for meat production, while 10 farmers retained birds for egg production.

2.4 Recording of dissemination

Annual records maintained by the KVK were used to document the number of Swarnadhara chicks distributed and the number of farmers reached from 2011–12 to 2024–25. The cumulative dissemination was calculated by summing the annual number of chicks distributed and the annual number of farmer beneficiaries recorded during the programme period.

2.5 Evaluation of meat production

The meat-production evaluation was conducted at six months of age. The average live weight of local birds and Swarnadhara birds was recorded under the field conditions of participating farmers.

Economic parameters recorded were: gross expenditure per bird; gross return per bird; net return per bird; and benefit-cost ratio. The live birds were valued according to the prevailing sale price used in the field evaluation.

Net return was calculated as: $\text{Net return} = \text{Gross return} - \text{Gross expenditure}$

Benefit-cost ratio was calculated as: $\text{Benefit-cost ratio} = \frac{\text{Gross return}}{\text{Gross expenditure}}$

2.6 Evaluation of egg production

Ten farmers retained birds for egg production. Egg production was recorded up to 54 weeks of age. The following parameters were documented: number of eggs produced per bird; gross expenditure per bird; gross return per bird; net return per bird; and benefit-cost ratio.

2.7 Data analysis

The study was primarily an extension based field evaluation. Therefore, the results were summarized using descriptive statistics and economic comparisons. No inferential statistical test was applied because the intervention was conducted under farmer managed field conditions with variation in management and production environments.

3. Results

3.1 Dissemination of Swarnadhara poultry

The KVK programme resulted in sustained dissemination of Swarnadhara poultry in Dakshina Kannada over the 14-year period from 2011–12 to 2024–25.

A total of 33, 636 Swarnadhara chicks were distributed during the study period, with 1, 907 farmer beneficiary records. The annual distribution varied considerably. The largest number of chicks was distributed during 2019–20 (5, 000), followed by 2017–18 (4, 997) and 2013–14 (4, 278). The highest number of farmers was recorded during 2014–15, when 435 farmers received Swarnadhara chicks.

Table 1: Year wise distribution of Swarnadhara chicks and farmer beneficiaries

Year	Chicks distributed	Farmers
2011–12	280	8
2012–13	396	35
2013–14	4, 278	62
2014–15	3, 309	435
2015–16	3, 209	260
2016–17	3, 668	255
2017–18	4, 997	190
2018–19	2, 475	80
2019–20	5, 000	190
2020–21	1, 800	90
2021–22	1, 047	114
2022–23	1, 726	117
2023–24	555	39
2024–25	896	32
Total	33, 636	1, 907

3.2 Performance for meat production

The field evaluation of 20 farmers who retained birds for meat production showed a substantial difference between local birds and Swarnadhara birds.

Table 2: Comparative production and economics of local and Swarnadhara birds for meat production at six months

Parameter	Local birds	Swarnadhara
Average live weight (kg/bird)	0.65	2.60
Gross expenditure (₹/bird)	120	180
Gross return (₹/bird)	325	780
Net return (₹/bird)	205	600
Benefit-cost ratio	2.70	4.33

The average live weight of Swarnadhara birds was 2.60 kg compared with 0.65 kg in local birds. Thus, the observed live weight of Swarnadhara birds was four times that of local birds. Gross expenditure was ₹180 per Swarnadhara bird compared with ₹120 for the local bird. Despite the higher expenditure, Swarnadhara generated a gross return of ₹780 per bird compared with ₹325 for the local bird. The resulting net return was ₹600 per Swarnadhara bird compared with ₹205 per local bird. The benefit-cost ratio was 4.33 for Swarnadhara and 2.70 for local birds.

3.3 Performance for egg production

The egg-production evaluation was conducted among 10 farmers who retained birds for this purpose.

Table 3: Comparative production and economics of local and Swarnadhara birds for egg production up to 54 weeks

Parameter	Local birds	Swarnadhara
Eggs/bird up to 54 weeks	77	142
Gross expenditure (₹/bird)	340	450
Gross return (₹/bird)	1, 216	2, 036
Net return (₹/bird)	876	1, 586
Benefit-cost ratio	3.58	4.52

Swarnadhara birds produced 142 eggs per bird up to 54 weeks, whereas local birds produced 77 eggs. Thus, the observed egg production of Swarnadhara was 84.4% higher than that of local birds. Gross expenditure was ₹450 per Swarnadhara bird compared with ₹340 for local birds. The higher production resulted in gross returns of ₹2, 036 and ₹1,

216 per bird, respectively. The net return from Swarnadhara was ₹1, 586 per bird compared with ₹876 for local birds. The corresponding benefit-cost ratios were 4.52 and 3.58.

4. Discussion

Backyard poultry production is an important component of smallholder livestock farming because it requires comparatively low capital investment and can provide both animal source food and supplementary household income. However, productivity of conventional indigenous chickens is generally limited by slow growth, low egg production, inadequate nutrition, disease constraints and poor access to improved germplasm. Rajkumar *et al.* 2021^[1] reviewed the Indian backyard poultry production system and reported that the introduction of improved chicken varieties possessing characteristics similar to native birds had transformed backyard poultry from a largely subsistence activity into a more remunerative enterprise. The present field experience with Swarnadhara in Dakshina Kannada is in agreement with this broader observation.

The present study recorded a marked difference in growth performance between Swarnadhara and local birds. At six months of age, Swarnadhara birds attained an average live weight of 2.60 kg, whereas local birds averaged only 0.65 kg. Thus, the Swarnadhara birds recorded approximately four times the live weight of the local birds under the farmer-managed conditions of the present study. Comparable differences between improved and indigenous chickens have been reported by Haunshi *et al.* (2011)^[4] who evaluated indigenous Miri chickens alongside improved Vanaraja and Gramapriya varieties. Their study demonstrated that improved varieties generally had higher body weights at different ages, while the indigenous birds possessed advantages for certain other production traits. Roy *et al.* (2018)^[5] also evaluated improved poultry under backyard farming conditions in West Bengal and reported substantially higher body weights for Vanaraja than for indigenous birds at different ages. The higher body weight observed for Swarnadhara in the present study therefore follows the general pattern reported for improved backyard poultry germplasm under farmer managed conditions.

The higher live weight of Swarnadhara was reflected in the economic results. Gross expenditure was ₹180 per Swarnadhara bird compared with ₹120 for the local bird, but gross return increased from ₹325 to ₹780 per bird. Consequently, net return increased from ₹205 in local birds to ₹600 in Swarnadhara, while the benefit-cost ratio increased from 2.70 to 4.33. Similar economic benefits from improved backyard poultry have been documented in other parts of India. Rajkumar *et al.* 2010^[6] reported that Vanaraja and Gramapriya birds contributed to supplementary household income and generated positive returns when reared under backyard conditions. More specifically, Singh *et al.* (2024)^[7] reported that backyard farming with Vanaraja and Srinidhi could substantially increase the income of tribal farmers in Nagaland. They also highlighted the importance of backyard poultry for meat, eggs, traditional functions and petty cash income. These findings provide supporting evidence for the economic advantage observed with Swarnadhara in Dakshina Kannada.

Swarnadhara birds produced 142 eggs per bird up to 54 weeks of age compared with 77 eggs from local birds. This

represents an increase of approximately 84.4% under the field conditions of the present study. The higher egg production was accompanied by an increase in gross return from ₹1, 216 to ₹2, 036 per bird and an increase in net return from ₹876 to ₹1, 586 per bird. The benefit-cost ratio also increased from 3.58 in local birds to 4.52 in Swarnadhara. The present observation is consistent with earlier studies demonstrating that improved backyard poultry varieties can provide higher egg production than conventional indigenous birds. Haunshi *et al.* (2011) ^[4] observed that improved varieties differed substantially from indigenous chickens in reproductive and production traits, with Gramapriya showing a particularly favourable egg production performance. Similarly, studies involving improved backyard germplasm have demonstrated that the production advantages of improved varieties can be expressed under relatively low input production systems when suitable management is provided. Pankaj *et al.* (2019) ^[8] reported improved production performance of Srinidhi compared with indigenous poultry under a Farmer FIRST Programme in Telangana and concluded that improved backyard poultry could contribute to livelihood and nutritional security.

The differences observed in the present study cannot be attributed solely to breed characteristics because Swarnadhara birds were introduced together with management oriented extension interventions. The Farmer Field School included training in feeding, vaccination, disease prevention, biosecurity and general flock management. Thus, the results represent the combined effect of improved germplasm and improved farmer knowledge rather than a strictly controlled breed comparison. Kumaresan A *et al.* (2008) ^[2] documented important management deficiencies in village poultry systems, particularly with regard to balanced feeding and vaccination. Their study demonstrated that village poultry production is strongly influenced by management practices and that improved dual purpose birds can perform satisfactorily when appropriately managed. Therefore, the KVK intervention should be viewed as a technology package rather than simple chick distribution. The package consisted of improved germplasm, farmer training, demonstrations and technical guidance. Such an integrated approach is particularly important in backyard poultry because deficiencies in vaccination, nutrition and disease management can otherwise reduce the expression of the genetic potential of improved birds.

A total of 33, 636 Swarnadhara chicks were distributed through the KVK intervention during 2011–12 to 2024–25, with 1, 907 cumulative farmer beneficiary records. The sustained dissemination over 14 years indicates continuing demand for the technology, although the number of chicks and farmers varied substantially between years. This long-term dissemination is important because successful livestock technology transfer is rarely achieved through a single intervention. Continued access to quality chicks, technical support and demonstrations is required for sustained adoption. Rajkumar *et al.* 2021^[1] emphasized that improved backyard poultry varieties have substantial potential for livelihood enhancement when supported by appropriate breeding, nutrition, housing and healthcare interventions. One of the distinctive features of backyard poultry in Dakshina Kannada is the continued preference for native type

birds. The demand associated with traditional and cultural activities provides an additional market opportunity for birds that resemble local chickens. This aspect is important when selecting improved germplasm for a particular region. An improved variety may have excellent biological performance but limited adoption if its appearance, meat characteristics or market value are poorly accepted by consumers. Rajkumar *et al.* 2021^[1] observed that improved varieties resembling native birds had contributed to the transformation of backyard poultry into a remunerative activity in India. Singh *et al.* (2024) ^[7] similarly noted that backyard poultry provides birds and eggs for traditional ceremonies and special occasions in addition to contributing to household income. This observation has particular relevance to Dakshina Kannada, where poultry is associated with local cultural practices. Therefore, the acceptance of Swarnadhara may be related not only to its higher production but also to its compatibility with existing farmer and consumer preferences.

5. Conclusion

The Swarnadhara poultry intervention implemented through ICAR-Krishi Vigyan Kendra, Dakshina Kannada demonstrated the potential of improved backyard poultry germplasm when combined with participatory extension education. During 2011–12 to 2024–25, 33, 636 Swarnadhara chicks were distributed to 1, 907 farmer beneficiary records. Under the field conditions evaluated, Swarnadhara birds showed higher live weight, egg production, net returns and benefit-cost ratios than local birds. The results indicate that improved backyard poultry can provide greater economic opportunities for rural households when supported by appropriate feeding, vaccination, disease prevention, biosecurity and marketing guidance. The experience also demonstrates that Farmer Field Schools, On-Farm Testing and Front Line Demonstrations can be useful mechanisms for facilitating farmer exposure and adoption of improved poultry technologies. Further studies involving larger farmer populations, standardized management conditions and statistical analysis are recommended to validate the productivity and economic advantages observed in the present field programme.

6. Acknowledgement

The authors sincerely acknowledge the farmers of Dakshina Kannada who participated in the On-Farm Testing, Front Line Demonstrations, Farmer Field Schools and training programmes associated with Swarnadhara poultry dissemination. The authors also acknowledge the support of ICAR-Krishi Vigyan Kendra, Dakshina Kannada, and all technical personnel involved in implementation and monitoring of the programme.

References

1. Rajkumar U, Rama Rao SV, Raju MVLN, Chatterjee RN. Backyard poultry farming for sustained production and enhanced nutritional and livelihood security with special reference to India: a review. *Tropical Animal Health and Production*. 2021;53(1):176.
2. Kumaresan A, Bujarbaruah KM, Pathak KA, Chhetri B, Ahmed SK, Haunshi S. Analysis of a village chicken production system and performance of improved dual purpose chickens under a subtropical hill agro-

- ecosystem in India. *Tropical Animal Health and Production*. 2008;40(6):395-402.
3. Department of Poultry Science, Karnataka Veterinary, Animal and Fisheries Sciences University. Technical information on Swarnadhara poultry variety. Bengaluru: Karnataka Veterinary, Animal and Fisheries Sciences University.
 4. Haunshi S, Doley S, Shakuntala I. Production performance of indigenous chicken of northeastern region and improved varieties developed for backyard farming. *Indian Journal of Animal Sciences*. 2011;79(9).
 5. Roy R, Monda T, Moktan MW. Production performance of improved poultry under backyard farming system in hill agro-climatic condition in West Bengal. *Indian Journal of Hill Farming*. 2018.
 6. Rajkumar U, Rama Rao SV, Sharma RP. Backyard poultry farming changing the face of rural and tribal livelihoods. *Indian Farming*. 2010;60(2).
 7. Singh M, Kalita H, Mishra VK. Vanaraja and Srinidhi poultry: bridging the gap of chicken meat and egg in North East Hill Region of India. *Indian Farming*. 2024;74(1):35-37.
 8. Pankaj PK, Nirmala G, Shankar KR, Reddy BS, Chary GR. Improved poultry variety for income and nutritional security in semi-arid areas of Telangana. *Indian Farming*. 2019;69(6).