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Original Research Article

Role of Krishi Vigyan Kendras in Conservation and Promotion of Kadaknath Poultry Breed through Backyard Rearing for Livelihood Security of Tribal Farmers in Chhattisgarh

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A B S T R A C T

One well known indigenous poultry breed named as Kadaknath or Kalamasi meaning the fowl having black flesh is being reared by Bhils & Bhilalas adivasies living in Jhabua District of Western Madhya Pradesh. The commonly available varieties of Kadaknath are Jet black, Pencilled and Golden which are found in M.P. For conservation of the breed KVK has started arising the foundation stock of Kadaknath birds at KVK Farm, Kanker and then at other KVK farms of Chhattisgarh to met the demand of farmers to supply more number of chicks to field areas. Then after extension activities started for the farmers which included community mobilization; capacity building; raising awareness about good poultry management practices; establishing local veterinary service systems for poultry; and facilitating linkages with other government and non-government poultry development programmes. At present KVK has distributed more than 44000 thousands of chicks of Kadaknath breed which not only saved it from extinction but brought Kadaknath breed into focus, leads to poultry as a significant income generating option and also improvement in nutritional status of households.

Introduction

There is a tremendous development in the poultry industry in last few decades, but little attention has been paid for indigenous chicken, due to its poor producing ability. Total poultry population of India was estimated to be 700 million, out of which about 10 to 15% were indigenous or native breeds. There are about 20 indigenous breeds/varieties of chicken found in India. Backyard poultry farming is a part and parcel of typical rural/tribal household, touching social, cultural and economic aspects in India.

Need of conservation and improvement of animal genetic resources has been globally accepted. Out of many indigenous poultry breeds, one well known breed named as Kadaknath or Kalamasi meaning the fowl having black flesh. The bird is being reared by Bhils & Bhilalas adivasies living in Jhabua District of Western Madhya Pradesh (Bendapudi, 2016). The commonly available varieties of Kadaknath are Jet black, Pencilled and Golden which are found in M.P (Parmar, 2003). The Jet black adult males and females are black in colour, the

Golden adult male and females were basically black in colour with Golden feathers on head and neck, whereas in Pencilled variety adult male and female plumage are black with white feathers on neck (Singh and Singh, 1998). In all the three varieties, skin, beak, shanks, toes and soles of males as well as females were dark gray coloured, whereas tongue was dark gray or light black colour. Comb, Wattles and earlobes were light gray to dark gray coloured. However, in comb, Wattles and earlobes purple hue coloured were also observed.

In all the three varieties of Kadaknath breed most of the internal organs exhibit intense black colouration which is due to the deposition of melanin pigment in the connective tissue of organs and in the dermis (Rao *et al.,* 1980). Although Kadaknath breed is poor in egg production potential, but their black flesh is very delicious and popular. The meat and eggs are also reckoned to be a rich source of protein (25.47 in flesh).

The bird is very popular due to its special capabilities such as adaptability to local environment, resistance to certain diseases, meat quality and many other criteria specific to breed type (Rao and Thomas, 1984). This breed has evolved through natural selection in indigenous agro-ecological conditions and are well adapted to local environment. The Kadaknath birds reveal appreciable degree of resistance to diseases than any other exotic breeds of fowl in its natural habitat in free range. Kadaknath birds were also resistant to extreme climatic conditions like summer heat and cold winter stress and can thrive very well under adverse environments like poor housing, poor management and poor feeding etc.

Kadaknath different from other breeds

Particulars	Other breeds of poultry	Kadaknath
Meat	`170-200 per kilogram	`500-600 per kilogram
Egg	`04-05 per egg	`08-10 per egg
Chicks	`30-40 per chick	`80 per chick
Backyard farming	Good	Very good
Protein	18-20%	24-25%
Fat	13-25%	0.73-1.03%
Cholesterol	218.12mg/100g of meat	184.75mg/100g of meat
Lenoleic acid	21%	24%

Intervention by KVK for conservation of Kadaknath breed of poultry

Krishi Vigyan Kendra (KVK), as an organization, has been engaged with the tribal communities in the area through various developmental activities pertaining to water resource management, sustainable agriculture and allied sectors. The approach of the KVK has been based on community mobilization around issues of agricultural need based problems and improvement in livelihoods. For the backyard poultry production too, the approach of community engagement was similar, which made wider acceptance of Kadaknath rearing feasible. In the targeted areas, poultry was primarily reared under a scavenging system with some supplementary feed given in the form of grain (wheat or maize). Mortality was found to be the highest among chicks on account of both disease and predation. In the majority of cases, no health care was provided to the flocks. In a few rare cases, medicines were procured from the local chemist, or traditional home remedies were used. Households were unaware of the possibility or availability of vaccines for

birds. Even though having so many medicinal properties in Kadaknath breed, it showed that the breed was reared by only one percent of all households, whereas 99% households reared the local/ non-descript breed (*desi* birds).

The population of Kadaknath birds declining rapidly and the breed was under threat of extinction. Therefore there was an urgent need of conservation and selective improvement not only at recognized farm but also at farmers door. For conservation of the breed KVK has started arising the foundation stock of Kadaknath birds at KVK Farm, Kanker and then at other KVK farms of Chhattisgarh to met the demand of farmers to supply more number of chicks to field areas. Then after extension activities started for the farmers which included community mobilization; capacity building; raising awareness about good poultry management practices; establishing local veterinary service systems for poultry; and facilitating linkages with other government and non-government poultry development programmes.

Community mobilization and engagement of women and rural youth were core principles, and a consultative approach was adopted throughout while taking key decisions. The KVK with the help of NRLM also planned and trained the women to work as Community Animal Health Workers, or *Murgi Sakhis*, for delivering preventive veterinary care services for poultry; these were local village women who were trained in providing essential preventive veterinary services, which included vaccination, deworming, and first aid, as well as motivating other poultry rearers to adopt improved management practices. The service delivery and outreach mechanism comprised a network of trained *Murgi Sakhis* and Poultry Extension Groups, of which 1-2 were formed in each village. The coordinated and collaborative work of KVK and the farmers with various stakeholders, including officials of the state Animal Husbandry department, helped in convergence of various efforts for poultry development in the area, and thereby ensured better services to the poultry rearers.

At beginning most of the farmers were given only minimum of 5 and maximum of 30 birds and raising the birds under backyard poultry system and now the total number of birds owned by the families in the adopted villages has more than doubled over a period of 18 months, in addition to a large number of sales. In monetary terms, the value of birds sold or consumed increased by 130% in the month of March 2016 as compared to October 2014.

The mortality rates declined in adult birds and chicks from 53% to 19%, as a result of the improved management practices adopted and availability of services from KVK and Veterinary department. Most of the poultry-keepers availing their services are now making prompt payments, which is an indication of increased awareness among the rearers about the importance of preventive care and health management in poultry. There was a gradual change in the community perception, from initial skepticism at the beginning of the Kadaknath rearing to acceptance of, and demand for *Murgi Sakhi* services as the time progressed.

Along with increased household income from poultry, estimated as ` 500 per kilogram of live weight which leads approximately ` 10000 per annum, differences are also observed in terms of improved nutrition, with an estimated four-fold increase in local consumption of eggs.

Training of participants

Various training programmes on poultry management were organized for the selected rearers after they completed construction of sheds. Thereafter, the Kadaknath chicks were procured and handed over to them. The entire distribution process happened in a phased manner over a period of 4 months, with recipient households being closely monitored by the *KVK or Veterinary department*. The aim was to start with the most actively participating villages and households, turn them into models. It is important to note that about 37% of the distributed chicks died of predation, which has implications on the housing, and rearing practices (more risks involved under the scavenging system).

Birds which were sold fetched about twice as much as the *desi* variety. However, considering the higher input costs, and the fact that marketing continues to be a challenge, the cost-benefit analysis of Kadaknath does not appear more attractive than that of the *desi* variety.

Kadaknath breed brought into focus

Kadaknath is an indigenous breed of poultry endemic to Jhabua district in western Madhya Pradesh. Birds of the breed do not fatten, and retain lean body conformation. The dark coloured meat is considered a delicacy. In the market, Kadaknath birds command a higher price as compared to other breeds. Although the breed has been reared by the locals for a long time, its prevalence and population has declined in recent times, and was usually not found in homesteads of Chhattisgarh before intervention of KVK. Now almost each KVK having a Kadaknath breeding unit in Chhattisgarh that supplies duly vaccinated 28-day old chicks at a unit rate of ` 80 per chick.

Distribution of Kadaknath chicks

Support was given to selected households that were interested in rearing Kadaknath birds. The purpose was to promote the native breed among the rearers, and also to avail the advantage of higher selling prices which are fetched by the bird. The support included provision of 50 chicks, and material costs involved in construction of a bird shelter. A large number of the farmers have been supported with Kadaknath units. After selection, the owner would be required to complete construction of the low cost poultry shed with locally available material (viz., bamboo and door) within 20 days after the birds are procured, they should be vaccinated and dewormed on time, for which the rearer should inform the *KVK or Veterinary department*, and the rearer should maintain 50 egg laying birds at all times.

Distribution of Kadaknath chicks year wise are as follows

S.N.	Year	No. of district covered	No. of block covered	No. of villages covered	No. of chicks supply by KVK	No. of farmers benefited
1	2014-15	7	12	25	7000	70
2	2015-16	17	25	75	12702	127
3	2016-17	19	32	156	24609	296

Reduced poultry mortality

The total number of birds owned by the families in the targeted area has more than doubled over a period of 18 months. This increase may be attributed to decreased mortality rates, as well as purchase and integration of new chicks and birds obtained through various schemes.

The mortality rate has been declining since the *KVK and* Veterinary department started providing services, particularly the administration of vaccines and dewormers. The Scientist from KVK and Veterinary officer regularly visited the field area and suggested giving vaccinations and dewormers to the birds. With appropriate planning and action, the situation was slowly brought under control. Corrective measures were put in place while procuring the next lot of chicks. Scientists from KVK monitored the hatcheries activities for sourcing 28 day old chicks as part of the Rural BYP scheme. With consent from the state AHD, KVK hatcheries were chosen for supply of chicks under the scheme. The farmers directly communicated their quality requirements to the hatcheries. It was indicated to them that chicks (28 day old chicks) of only coloured birds be supplied (and not to mix broiler chicks or less than 28 day old chicks as had happened previously), and that the appropriate vaccination regime should have been complied with. On arrival of chicks at destination, they were thoroughly screened and examined for any disease symptoms, before being allowed for distribution. Such rigorous monitoring helped in avoiding recurrence of infections in subsequent batches received under the Rural BYP scheme.

Increased awareness and demand for trainings

There was initial indifference and even resistance from the poultry rearers to availing vaccinations, but after a couple of months, they acknowledged the benefits after seeing the results in the flocks of selected members. The number of birds receiving deworming and vaccination has increased, as also reflected in reduced mortality rates and increased bird population in the cluster.

The fact that most of the community members are now paying for the services of the *trained poultry farmers* is an indication of increased awareness among the rearers about the importance of preventive care and health management in poultry.

Poultry as a significant income generating option

There has been a perceptible shift in the flock sizes owned by the households. It was indicated that majority of the households owned between 1-5 birds. Household monitoring showed that there had been a rapid increase in flock sizes soon after start of *community farming of Kadaknath.* The increased number of birds has also resulted in increased sales and higher household consumption of meat.

In terms of monetary value, the value of birds sold or consumed was very high as compared to earlier. The sales and consumption spiked in the month of May as birds are sacrificed or offered in prayer before starting of agricultural activities in the field, such as ploughing of land, as per local custom and tradition. It also coincides with the marriage season.

Considering all the bird sales over the project period and assuming an average selling price of ` 500 per kilogram of live weight of bird, *the average household*

income from poultry is estimated to be above ` 10,000 per annum, over and above any income and benefits from sale of eggs and/or poultry manure; this represents a five-fold increase over the baseline figure of income from poultry.

Improvement in nutritional status of households

Backyard poultry farming remains important for rural households, as it ensures a steady flow of high quality food (thereby mitigates malnutrition) and, through cash income, reduces vulnerability. This is corroborated by poultry-keepers in the targeted villages, who indicated that there has been an increase in the household consumption of eggs as well as birds. As indicated the number of birds in the area has increased; there are more number of households with bigger flock sizes; and the number of birds consumed has also increased.

As the number of hens increased there would have been a corresponding increase in the number of eggs produced. Assuming a *desi* hen laid about 45 eggs per year (@ 15 eggs per clutch, 3 times a year), the total eggs produced would have been 3,15,000 in October 2014; with 10% of the eggs being consumed, and the average household consumption of eggs would have been 4.5 per month. With 12,702 hens in March 2016, and a 30% increase in egg-laying capacity of birds, the total number of eggs produced is estimated to be 7,36,716. Assuming again that 10 percent of all eggs produced are locally consumed, the average egg consumption per household in March 2016 would be over 15 eggs per month, which is four times higher than the baseline.

Use of the candling technique, which enables separation of fertile eggs from infertile, has further reduced wastage and contributed to increased access to nutrition.

Rural backyard poultry development scheme

The Rural BYP scheme for BPL households, being implemented by the State AHD aims to promote poultry as a livelihood option among the BPL families. There was convergence of the NRLM, SRLM activities in the field with the afore-mentioned government scheme, whereby BPL families from the villages availed its benefits. Each family received a unit of 45 chicks (28 days old chicks) of Low Input Technology (LIT) coloured birds for rearing, along with an amount of ` 1,200 for construction of poultry shelters; the scheme comprised 80% subsidy and 20% contribution from the beneficiary. In order to operationalize the scheme, technical support was sought from the KVK and Veterinary department to assist the *farmers* from time to time.

Activities such as training and preventive veterinary services by *KVK* were ongoing activities throughout the project as well as the linkages established at different points of time, in order to meet emerging challenges, and capitalize on opportunities in furtherance of project objectives. As the project evolved, linkages were established to achieve convergence with various government agencies and programmes, and to maximize the benefits to the poultry rearers in the area.

Suggestions for future work

Kadaknath is an important indigenous breed of poultry famous for its delicious meat quality. It has an excellent power of heat tolerance and disease resistance. It can thrive well under free ranging conditions with little grain supplementation/kitchen waste and can be housed in cheap katcha houses. The breed has a natural instinct of

broodiness, which makes it a natural incubator and hatcher, a desirable trait for the villagers.

On account of poor egg production and growth potential, as compared to the modern day commercial breeds, this breed is threatened due to the Government schemes which supply commercial chicks to the farmers on subsidized rates. The breed in pure form is therefore found in remote villages away from roadsides. Despite the State Vety. Department initiatives, the proper vaccination and disease control measures for Kadaknath breed were also lacking. In view of the above mentioned factors and the threats to its existence, the following recommendations are proposed.

A more organized approach towards marketing of produce, including establishment of common selling points at strategic locations, by local entrepreneurs, would go a long way in creating a brand image for the birds (especially Kadaknath) from the area. Further capacity building of poultry rearers is required for functioning as formal groups, on topics such as preparation of business plans, procedures to be followed to avail loans, maintenance of records, repayment procedures, and so forth.

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