



POLICY BRIEF



Empowering Farm Women through Rural Poultry Production

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Poultry keeping for commercial production of egg and meat is one of India's most innovative industries. Chicken rearing on large scale has achieved spectacular growth and is serving as the dependable source of animal protein for ever increasing human population. Chicken has also the unique distinction of the best converter of agricultural by products and nutritionally poor feedstuffs into high quality meat and egg. India has achieved unprecedented growth in poultry sector and Poultry industry in India has transformed itself from the age-old backyard farming into a dynamic agri-based industry. Its development is not only been in size but also in productivity, sophistication and quality. Several breakthroughs in poultry science and technology have led to the development of genetically superior breeds capable of higher production (layer 320-330 eggs; broiler 2.2-2.4 kg at 6 wks). This together with standardized package of practices on nutrition, housing and management, and disease control have contributed to spectacular growth rates in egg (4-6% per annum) and broiler production (10-12% per annum) in India. Consistent with increase in productivity, the annual per capita availability also increased to 74 eggs and 3.6kg of poultry meat. However, it is far below the recommended consumption of 180 eggs and 10.8 Kg poultry meat per person per annum. Thus, to meet the nutritional requirement, the poultry industry has to grow several folds.

Poultry eggs and meat with high quality nutrients and micronutrients provide food for good human nutrition (Table 1). Egg is an excellent source of high quality protein, vitamins and trace minerals. Eggs are classified in the protein food group with meat, poultry, and fish. Egg contains 44 out of the 45 essential nutrients for the human body. Although, egg is a multifunctional food with superior nutritional quality, it is available at a

relatively lower price. Thus, egg is within the reach of poor people. Availability, lower cost, ease of preparation and good taste give eggs a deserved place in diets of humans. Lutein and zeaxanthin are two newly-recognized nutrients that have put eggs in the "functional foods" category. Recent studies have shown that consuming lutein and zeaxanthin can significantly lower risk of age-related macular degeneration (AMD), a leading cause of blindness affecting people over the age of 65. In addition, there is a less likelihood of cataracts. Poultry meat is well accepted, relatively cheaper natural food and a valuable source of nutrients for human being. Nutritionally poultry meat is a valuable source of protein, vitamins and minerals and has a relatively low fat content. It is also one of the main sources of vitamin B₁₂. The protein content of chicken meat is about 22% with a biological value of 79. Chicken meat does not contain the trans-fats that contribute to coronary heart disease. Poultry meat is rich in omega-3 fats and is an important provider of the essential polyunsaturated fatty acids (PUFAs), especially the omega (n)-3 fatty acids.

Table 1. Nutritive value of egg and poultry meat

Nutritive value		Egg	Poultry meat
Energy	Kcal	149	119
Protein	g	12.49	21.39
Total fat	g	10.02	3.08
Saturated fat	g	3.1	0.79
Cholesterol	mg	425	70
Energy from fat	Kcal	88	27
Biological value (BV)		93.7	79

BV: Isolated whey, 100; Cow milk, 91; Fish, 83; Casein, 80; Soy, 74; Wheat gluten, 54.

The Need of Rural Poultry Production in India

Chicken dominates the poultry production in India. Nearly 95% of the total eggs are produced by chickens. India ranks third in egg production and fifth in chicken meat production in the world. The Poultry Industry with the strength of 230 million layers and 3500 million broilers employs 5 million persons and contributes over Rs. 1, 20, 000 crores to GNP. The popularity of poultry meat is on the rise during the last three decades and is presently accounting for more than half of the total meat consumed in the country. However, the commercial poultry activity is concentrated to few pockets of the country and that to urban and peri-urban areas only. But the rural poultry sector remained unchanged. Availability of eggs is also highly non-uniform in different parts of the country primarily due to wide variation in the production levels. The present setup of marketing of the products (egg and meat) of intensive poultry production is predominantly catering the needs of urban areas. Just 25% population living in urban areas consumes about 75-80 % of eggs and poultry meat. Eggs and meat are to be transported to long distances and their cost rises by 20-30% in rural areas compared to the urban areas. Non-availability of poultry products and low purchasing power of the rural people devoid them of access to the highly nutritious products like egg and meat, resulting in malnutrition.

The incidence of protein deficiency among the susceptible groups like children, women, pregnant mothers and aged people can be alleviated by adopting small scale poultry farming in back yards of rural households. In order to meet the rural demand for poultry eggs and meat, it is imperative that production for the masses should catered by the mass scale adoption of poultry farming in rural areas using low input cost technologies. Adapting poultry farming in rural/tribal areas utilizing chicken varieties which demand low inputs in terms of nutrition and management and perform better is a potential tool to increase the availability of poultry products and economic status of the rural people. Small scale poultry farming has found special interest among rural people

because of its simplicity of operation, minimal initial investment and ability to provide supplementary income in the shortest possible time. The importance of small scale poultry farming in rural areas has been recognized globally to alleviate poverty, hunger and malnutrition in developing countries.

The rural people are practicing backyard poultry keeping since time immemorial in India and other Asian and African countries. Poultry farming is an essential activity of the typical rural/tribal household system in India, touching their social, cultural and economic lives. Small and landless farmers as well as those belonging to weaker sections, including tribal and scheduled castes people traditionally keep local breeds for their subsistence. These birds forage and scavenge for their food in the back yards of human dwellings and provide eggs and meat at insignificant cost. They provide rich nutritional food and regular source of income for the rural / tribal poor. Rural women traditionally play an important role in family poultry farming and are often in control of the whole process. Rural poultry production represents an appropriate system to contribute to feeding the fast growing human population and to provide income to poor small farmers, especially women. It offers advantages over other agricultural sectors and is an entry point for promoting gender balance in rural areas. Women often have an important role in the development of family poultry production as extension workers and in vaccination programmes.

Rural poultry farming with chicken varieties having better production potential than the native chickens is slowly developing in to a viable and sustainable activity among the rural and tribal people for enhancing the nutritional and economic conditions. Though generally considered secondary to other agricultural activities by smallholder farmers, poultry production makes an important contribution to supplying local populations with additional income and high quality protein. Generally desi birds are used for rearing in backyards in rural and tribal areas of the country. Though the native chicken reared in the backyard contribute about 20% of the total egg production in India, their productivity is far below (55-65 eggs/year) than those reared

under intensive farm conditions (330 eggs/year). The chicken varieties available are not suitable for this purpose as the production potential is very low. Therefore, the need arises to develop chicken varieties which can produce significantly better than native chickens and survive and sustain under adverse climatic conditions utilizing minimum inputs in terms of nutrition, health care and management. While going for rural poultry production, it is essential to understand the local production system, their limitations and opportunity, the circumstances under which such traditional system came into existence and how they can be improved further.

Rural Poultry Production: An entry point for promoting gender balance

Poultry is easy to manage, requires few external inputs, and enjoys good market demand and prices. Rural poultry keeping can be used to reduce poverty among women and children in rural areas. Rural women traditionally play an important role in poultry sector and are often in control of the whole process from feeding to marketing, which is not the case in production systems for other livestock species. In spite of considerable involvement and contribution, women's role in poultry production has often been underestimated, if not ignored. Access, control and management of resources empower women and lead to an overall positive impact on the welfare of the household. Involving women in poultry activity will not only increase their decision-making but also economic power within both the household and the community. The management, processing and marketing of poultry products generate more income than most of the activities women tend to be involved in, and bring benefits for the whole family. Owning, controlling and benefiting from poultry production increases women's self-esteem and strengthens their role as producers and income generators within the household and in the community.

Studies in neighbouring countries like China, Bangladesh and Sri Lanka have shown that rural poultry farming has a useful role and is worth studying to take up appropriate steps to improve

the productivity. Adoption of commercial exotic breeds in rural / backyard system of rearing is a difficult scenario because of the limited resources. The lack of basic infrastructure, compounded feed and proper health coverage still make, it a dream to go for organized poultry production in rural areas. A new avenue for poultry exports is also opening up as a result of the growing worldwide trend towards the consumption of eggs and meat from birds reared under free-range conditions. The demand for these products is largely from the developed countries and is rising steadily in response to the concern for animal welfare. Family poultry keeping can be done without leaving the homestead and does not usually conflict with the other duties of women. It promotes gender equity.

Prospects of Rural Poultry Farming

- ❖ It is easy to manage and handle.
- ❖ It needs minimal use of land, labor and capital.
- ❖ There is higher demand and higher price for eggs and meat
- ❖ It requires little intervention in rearing, the major intervention is in the areas of feed and water supplementation, over night housing and to a much lesser degree in health management.
- ❖ It can easily integrate with other agriculture, aquaculture and livestock farming.
- ❖ It can contribute to the village economy.
- ❖ Women in rural areas can operate family poultry with maximum involvement.
- ❖ Rural poultry plays a significant role in the cultural life of rural people as a gift to visitors and relatives, as starting capital to youths and newly married maidens, as sacrificial offerings in traditional worship, as a potential source of employment and easy source of income for small scale farmers.
- ❖ The poultry products such as egg and meat are highly nutritious and the biological value of egg is very high. Poultry meat is low in fat and cholesterol and hence choice of health conscious people.
- ❖ Poultry farming in rural area not only assures the availability of eggs and meat to cater the food need but also provides additional income. Thus has a potential to

fight poverty and malnutrition and provide scope for high employment generation and solving gender issues in employment

India has a great potential for poultry production in the free range conditions and capturing a great share of the international market due to its varied agro-climatic conditions and vast expanse of flora in most parts. Free range birds reared by the farmers have the advantage of small body size, coloured plumage, broodiness to hatch chicks, adaptation to harsh climatic conditions and lower disease incidence. The good experiences of other South East Asian and African countries where the commercial poultry farming and village poultry farming are working simultaneously for improving local poultry production will aid as guiding forces for the Indian poultry industry to march ahead in this direction. There is a need for coexistence of rural and commercial poultry farming for sustaining the growth in poultry production and bridging the gaps in the supply chain of poultry products between rural and urban areas in the country. Therefore, there is a need to promote free range and backyard poultry farming in rural, tribal and underdeveloped areas of the country.

Opportunities

Growing population and high demand for poultry products

With a population of about 1.34 billion with more than 80% non-vegetarian, population growing @ 1.6% per annum and rising per capita income over 7% annually in India, there is a potential market for poultry products. Indian poultry industry is chicken dominated and nearly 95% of the total eggs are produced by chickens. Alternate avian species such as ducks, turkey, quails, Guinea fowl etc. also provide an excellent opportunity for commercial exploitation.

Availability of improved genetic resources

Realizing the importance of rural poultry farming in India, research efforts were initiated in the past at ICAR Institutes and SAUs for developing suitable chicken varieties for rural farming. These chicken varieties developed

have multicoloured plumage and resemble the native chicken in their feather pattern, produce more meat and eggs than the natives. Due to these advantages the improved varieties of birds gained wider acceptability across the country. Some of the chicken varieties developed for rural poultry farming are Giriraja, Girirani, Vanaraja, Gramapriya, Srinidhi, CARI Debendra, CARIBRO Dhanraja, Krishna J, Narmadanidhi, etc.

Feed resources availability

The productivity of the birds under extensive system ultimately depends on the human population and its household waste and crop residues, and on the availability of other scavengable feed resources (household cooking waste; cereal and cereal by-products; roots and tubers; oilseeds and its byproducts, insects, worms etc.). In poultry, feed accounts for 65-70% of total cost of production. The feed for birds should be made at a cheaper cost utilizing the locally available feed resources like grain byproducts, oilseed byproducts and unconventional feedstuffs and may not necessarily be a balanced one. There is a vast feed resource available in rural India which is to be exploited for poultry feeding.

Health care facilities

For effective poultry health management, three components are very important such as bio-security, vaccination and medication. Prevention should be the approach as the cost of medication is relatively high and once disease occurs, the productivity is affected and profit margins are reduced despite effective treatment. The birds developed for developed for rural/backyard poultry farming are relatively more resistant to disease compared to the commercial varieties. However, the birds need protection against few diseases like Ranikhet disease (RD), infectious bursal disease (IBD), Marek's disease (MD) and fowl pox etc. The latest development taking place in the field of poultry disease management along with modern bio-security measures have resulted in substantial reduction of mortality/morbidity losses in poultry production system.

Organic poultry products

With the shift in focus to food safety, there is an increase demand for production of safe /organic food. Rural/backyard poultry offers an excellent opportunity for organic poultry production.

Marketing

Marketing of eggs and meat is not fully organized. Live and fresh dressed chicken meat account for the bulk of sales while sale of processed meat is limited (below 5%). The major channels through which farmers sell their egg and chicken in the markets are direct sold to the consumers. Unlike eggs and meat from commercial hybrid birds, local consumers generally prefer those from indigenous stocks. The availability of poultry eggs and meat is grossly inadequate in rural areas leading to higher prices as compared to urban areas forcing rural people to spend more on such items. With increase in income, growing middle class and transition from joint to nuclear families, there is growing demand for egg and meat, creating a vast marketing opportunity in the rural sector.

Available Government schemes

The financial assistance in shape of loan is available from commercial and co-operative banks for taking up the poultry farming. The technical officers of the Fisheries & Animal Resource Department, Krishi Sahayak Kendra and banks (NABARD) are providing guidance to the entrepreneurs for preparing the project to submit to bank for loan. Subsidy is provided to the farmers for setting up the new broiler unit or expansion of existing unit under Poultry venture Capital Fund through NABARD and State agriculture Policy-2013(40% of the fixed capital excluding the land cost & 50% for SC/ST/Women/Graduates of Agriculture and Allied Disciplines subjected to a limit of 50 lakhs). Under scheme for promoting backyard Backyard Poultry Farming, rearing of low-input technology dual purpose birds such as Vanaraja, Gramapriya, Giriraja, Girirani, Rainbow roosters, Kuroilers etc. which grow faster and produce more eggs than country chickens are being promoted. As per

Government of India Rural Backyard Poultry Scheme Guidelines, 20 chicks is given initially, followed by 15 and 10 chicks with interval of 16 weeks each. Each unit will get assistance for construction of night shelter for birds and for procurement of 45 numbers of four-week old chicks.

Challenges

Inadequate availability of quality chicks

The agencies (Government/Private/NGOs) involved in production of chicks suitable for rural poultry farming are not able to meet the demands. As a result, farmers are not getting the germplasm on time. Even if the agencies are supplying the germplasm, they are not maintaining quality as a result of which the farmers are not able to harness the maximum benefit out of it. At present only a limited organizations, mostly Govt. organizations are involved in developing chicken varieties suitable for rural poultry farming and with limited set up, are unable to meet the growing demands of chicks.

Lack of availability of quality feed at low price

Irrespective of the system of production, a regular supply of low cost feed over and above maintenance requirements is essential for sustaining performance in poultry. The nutrient requirement of improved varieties with higher production performance cannot be made from scavenging alone and this necessitates the use of supplementary feeding. The availability as well as price of good quality poultry feed is thus a major challenge for rural poultry farming.

Inefficient poultry health management

Heavy mortality due to outbreak of poultry diseases is one of the major causes for failure in rural poultry production. Ranikhet Disease (RD) is one of the single most important disease concerning to rural poultry production. In the recent past, poultry sector has faced major setback due to onslaught of newer diseases like Avian Influenza (Bird flu). Identification of pathogens and development of

innovative methods to control poultry diseases and better health management practices along with use of alternatives to antibiotics against microorganisms is a potential challenge for poultry farming.

Lack of proper marketing system

Most of the birds in rural areas are sold live or slaughtered at the place of sale. Similarly eggs are sold in open without consideration for preservation of their quality. Development of reliable and stable market chain round the year is a must for effectively absorbing the rural surplus production. Also facilities for hygienic slaughter and preservation of eggs should be made available at market places in rural areas.

Inadequate training and lack of extension services

Many times failure in backyard poultry rearing is observed due to lack of knowledge, experience and sufficient exposure to poultry rearing. Training programs at village level targeting the stakeholders, women and youth should be organized for effective implementation of the farming is the need of hour. Providing extension services including management, vaccination, disease diagnosis, market information and other inputs like supply of chicks, quality feed etc. is a major challenge for the system to be successful.

Lack of adequate policy support

There is a need for policy level support from government for promoting entrepreneurship development in rural poultry farming.

Way Forward

Increasing availability of chicken varieties suitable for rural poultry farming

The existing available set up is not able to meet the demand of day old chicks suitable for rural poultry farming. In the present scenario, most of the Govt. organisations with their limited set up are involved in developing and propagating chicken varieties for rural poultry farming and that to limited to few states only. Thus, there is a need to create more such multiplication and propagation unit across the country (at least

one in each state) involving both public and private sectors which can cater the need of entire country. Further development of germplasm and its improvement should be delinked from the task of multiplication and propagation. Research organisations like ICAR institutions and SAUs should work on development and improvement of new varieties whereas line departments like Central Poultry Development Organisations, Regional poultry farms, State Animal Husbandry departments should involve in multiplication and propagation. Since, maintaining the parent stock is a costly affair; hatcheries can be established at district level to cater the local need. Women should be trained and provide guidance with financial support for establishing small hatchery.

Development of location specific chicken varieties

Although many chicken varieties have already been developed for rural poultry farming, when reared in different agro-climatic conditions, the birds are not performing optimally in all the conditions. This is due to inability of the germplasm to adapt to local climatic conditions. The Planning Commission of India has categorised 15 agro-climatic zones in India, taking into account the physical attributes and socio-economic conditions prevailing in the regions. Research efforts should be initiated to develop more such chicken varieties which can adapt well to a particular climatic condition to elicit optimum production performance.

Establishment of mother units

Mother unit is a place where chicks for rural poultry farming are grown during initial four weeks of life before distributing to the farmers. Growing newly hatched chicks in mother unit reduces the neonatal mortality significantly. At present very few mother units are in work place and there is a need to develop more such unit. Establishing mother unit will offer a small scale enterprise development in rural poultry where progressive farm women/unemployed youth can establish a rearing facility for 1000 chicks by availing loan or self financing.

Development of efficient poultry feeding systems

With the ever rise in poultry feed cost, ways and means should be developed to ensure precise nutrient supply in tune with the nutrient requirements for different categories of poultry under different rearing conditions. There is a need to explore non competitive alternate feed resources and also suitable processing methods to optimise the use of such feedstuffs in poultry diet to make it cost competitive and profitable. A database should be developed on available feedstuffs in rural areas, nutritive value in that novel feedstuff, safe level of inclusion of that feed resources both at regional and national level. Preparing the feed with locally available ingredients and marketing the feed in nearby localities will not only reduce the dependency of procuring from urban areas but also transportation cost. Small scale start-ups with establishment of feed mill to cater the demand of low cost feed for local poultry farmer are a potential option for livelihood by rural women/unemployed youth.

Improving health management approach

Controlling of diseases is very important in rural poultry production. The single most important disease concerning to rural poultry production has been reported to be Ranikhet Disease (RD) which is accountable for 60-80 percent mortality. Hence vaccination against most common poultry disease (Marek's disease and Infectious bursal disease) in general and Ranikhet disease in particular is very essential for success of rural poultry. Availability of vaccine in smaller doses is a constraint for traditional poultry farmers as the number of birds is very less. Therefore, community level medication and vaccination keeping a village as unit should be promoted to reduce the incidence of disease. Training on proper management and bio-security should be imparted to prevent spread of diseases. Many a times, disease occurs in spite of vaccination, possibly due to vaccination failure, which can be attributed to failure in cold chain management of vaccines. In rural areas, it is very difficult to maintain cold chain for vaccines. Therefore, there is a need to develop thermo-tolerant vaccines.

Proper Marketing system

Marketing of eggs and meat mainly involves assembling, grading, packing, storing, transportation, financing and distribution through proper channels. Marketing is a chain of processes which includes number of institutes and middlemen. Several problems such as lack of proper transportation facilities, fluctuation in market prices, market distance, lack of storage facilities and lack of grading and packaging are major bottleneck for efficient marketing. Thus, development of reliable and stable market chain round the year is a must for effectively absorbing the rural surplus productions. Also facilities for hygienic slaughter and preservation of eggs should be made available at market places in rural areas. An improved marketing strategy may enable women to get better profits than a commercial large scale producer. Formation of producer co-operatives/ Associations and Rural market yards will help in proper marketing.

Credit Flow

Loans from the banks are usually not provided to farmers timely so they are forced to borrow money from local money lenders, who charge huge interest rates. In current situation, loan waiver schemes disrupts credit discipline, farmers become wilful defaulters which is bad for economy and didn't repay loans even if they are in profit as a result taxpayers are at loss. Financial institutes like NABARD, RRBs, co-operative societies, etc. promote agriculture and rural development. NABARD provides refinance for rural credit disbursed by State Co-operative banks, RRBs and other financial institutions approved by RBI. Commercial banks provide term loans in the form of direct loans to small, marginal farmers and various SHGs through Kisan Credit Cards as per RBI/NABARD guidelines to create assets facilitating poultry production. There should be minimum paper work and timely availability of loan and farm women should be given priority with minimum interest rate.

Training and Extension

Technical skills need to be considered at both farmer and extension levels. Training is

essential for both farmers and extension officers in the following areas such as feeding, housing and equipment, disease control, and marketing. A basic knowledge in specific features of poultry anatomy/physiology is also important to understand the basis of the above topics. Training programs at village level targeting the stakeholders, women and youth should be organized for effective implementation of the farming. Providing extension services including management, vaccination, disease diagnosis, market information and other inputs like supply of chicks, quality feed etc. should be linked up well for the system to be successful. Housing and management could be improved through appropriate farmer training, preferably conducted on-farm. Local craftsmen could be trained to manufacture small equipment, like feeders, drinkers, etc. "Learning-by-doing" training, exchange visits for backyard poultry producers, and follow-up sessions have all demonstrated to be successful ways for building capacity. KVK's should organize more programs to show the efficacy of new technologies and create awareness among small and marginal farmers. It should host capacity building exercises and workshops to discuss modern farming techniques on backyard poultry with groups of tribal farmers especially women.

Women entrepreneurship development

The role of agro-enterprise or small and medium enterprises in poverty alleviation has long been recognized as vital, and promotion of small and microenterprises for women has been realized as a key factor augmenting family welfare. There is need to build the capacity of women groups in entrepreneurship, and management skills, and institutional support through the creation of self help groups, micro-enterprise at village level, formation of women cooperatives, and designing training programmes to build on their capacity.

Promoting and developing entrepreneurship among rural women will require premise, encouragement and motivation from the development agencies.

Rural poultry production has been recognized globally to alleviate poverty, hunger and malnutrition in developing countries. It represents an appropriate system to contribute to feeding the fast growing human population and to provide income to poor small farmers, especially women. As women constitute half of the population, can be a great resource in the development process, if they are properly mobilized and organized. This need immediate attention of the government for planning and implementing women's development programs and formulating gender-specific policies for livelihood support to rural farm women and promoting gender balance in rural areas.

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