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Short Communication

Backyard Poultry Production and its Importance

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Backyard poultry production and its importance

In the last 2-3 decades, the poultry industry in India has seen quantum jump with respect to poultry production. During this period, egg production has increased up to 70 billion from few millions and the broiler production has increased to 3.8 million tonne from nowhere [1]. Growth in India's poultry sector stems mainly from growth of a limited number of large commercial producers, which have been expanding rapidly in Southern India, where climatic conditions are mild, and at a slower pace in the Western and Eastern States [2]. However, the recent trend in poultry population indicates that the number of backyard poultry birds in India has increased by a staggering 46 per cent between 2012 - 2019 [3]. Though, the contribution of backyard poultry in India's total poultry population is still less than 40 per cent of the total population and majority of the birds still come from commercial farms, the sharp growth in its population reflects an interesting development.

Backyard poultry production is an enterprise with low initial investment but higher economic returns and can easily be managed by women, children and elderly persons of the households. Villagers who cannot afford to maintain other livestock can presumably maintain few backyard chickens [4]. Rural poultry farming is often considered to serve as a starter capital to move out of poverty. These provide high value food and income [5]. Rural poultry production is being recognized as important component of socio economic improvement among the weaker sections of society; especially landless labour, small and marginal farm women's households. Rural poultry rearing generates self-employment, provides supplementary income with protein rich food at relatively low cost [6]. A large proportion of these households in the rural areas rear desi non-descript birds with low production potential and usually women and children are involved in taking care of these birds. The rural households do not have much knowledge on different aspects of poultry management.

India's poultry industry is one of the few examples of success in the country's rural sector. It contributes almost Rs. 1.30 lakh crore directly to the country's Gross Domestic Product (GDP) [7]. The industry supports over 25 million farmers and employs over five million directly and indirectly in allied fields - poultry production, trading, feed manufacturing, agriculture crops, logistics, poultry-based products vitamins, minerals and pharmaceuticals, exports, etc. In 2018-19, India ranked third in egg production (103.93 billion) after China (566 billion) and the United States (US) (109 billion) from a mere 1.83 billion eggs in 1950-51, 10.06 billion in 1980-81 to 36.63 billion in 2000-01, It represents a huge jump [8]. Rapid urbanization and economic growth has resulted in fast expansion of commercial poultry production units. Opportunities have also expanded for small scale poultry enterprises due to improved market access infrastructure and a preference structure that might still favour free range desi birds and eggs. As a result, market oriented backyard poultry enterprise is being recognized as a stepping stone for the poor households enabling them to take the first step towards breaking out of the vicious circle of poverty and deprivation.

Backyard poultry production system

Backyard poultry production system should have indigenous night shelter system, scavenging system with little supplementary feeding, natural hatching of chicks etc. The productivity of birds is poor, problems with local marketing and health care practices not followed [9]. It is a low input or no input business. It has been estimated that almost 80% of rural households are involved in poultry production through backyard rearing of poultry. This is a primary occupation in rural households linked with crop production system [10]. Under this system, naturally produced fertile eggs are hatched to provide replacements, birds feed by scavenging or are provided with household scraps and crop by-products [11]. Backyard poultry is advantageous as it provides supplementary income in shortest possible time with minimum capital investment, simple in operation and ensures availability of egg and meat even in remote rural areas. The indigenous birds used are better adapted to scavenging system characterized by continuous exposure to disease incidence, inadequate quantity and quality of feed, poor housing and health care [12]. Unemployed youth and women earn income through poultry farming [13]. Besides income generation, rural backyard poultry provides the demand of nutrition supplementation in the form of valuable animal protein through meat and eggs to the rural families.

In India backyard poultry production is characterized by small flock size consisting of 5-10 predominantly mostly non-descript birds maintained in extensive system under zero or low input venture [14]. Housing in these systems is rudimentary and mostly built with locally available materials such as wood, mud bricks, sugarcane stems, bamboo and cereal stovers. Non-descript or local birds are mainly reared, although there are improved indigenous breeds in some areas The production performance of these birds is relatively poor, with 35-40 eggs and about 1-1.5 kg meat at the end of the production cycle [15]. These breeds represent a rich source of disease resistant germplasm. The native chicken varieties adopted in free- range backyard conditions for centuries contributed about 30% of national egg production in India [16]. In most of the cases, eggs produced are for own consumption or for marketing within the village.

A few indigenous birds such as Naked Neck, Red jungle fowl, Nicobari fowl and frizzle fowl are found which maintain their genetic identity due to their natural habitat in the isolated Islands. The variety of birds found seem to be the crosses of the following breeds like Australorp, Sussex, Rhode Island Red, New Hampshire, Plymouth Rock, White Leghorn, Aseel, Naked Neck, Nicobari, Frizzle and many other non-descript desi birds [17].

Backyard poultry linked with inclusive rural development

Backyard poultry is a potent tool for upliftment of poor because it requires hardly any infrastructure set-up. Besides off- farm employment and income generation, rural backyard poultry can provide nutrition in the form of valuable animal protein as well as source for religious sacrifices. More than 90% of rural families keep one or more species of poultry birds [18]. In recent years there has been growing recognition among the developed community with respect to the role of backyard poultry production in accelerating the pace of poverty reduction and reaching out to the poor. There is also growing evidence to demonstrate the role of backyard poultry production in enhancing the food and nutrition security of the poor households and also in the promotion of gender equality.

The economic survey of India 2010-2011 shows that out of 1342.5 million population of the country, about 939.7 millions live in rural areas (almost 70%) [19]. Rural poultry farming is a means for securing livelihood for rural families. It has a strong potential for generating immediate income by the sale of eggs or chicken. Literature on backyard poultry farming indicates its positive impact on the economy of rural families. Rural poultry has a remarkable contribution in the development of the rural families and overall development of the poultry sector [20]. Rural families having different grades of income and occupation are involved in poultry rearing.

Estimates of the contribution of family to overall household income varies widely. Rauen *et al* [21] reported that in the Dominican Republic, family contributed approximately 13 percent of household income. A survey undertaken by Riise *et al.* [22] estimated monthly income level from poultry rearing among households to be around 200-250 taka in Bangladesh. These authors further noted that this average nominal figure has been constant for almost a decade, indicating that real income from poultry had decreased over time. They observed that with a relatively low profit margin and a downward propensity, smallholder poultry farming is mainly attractive to people with low opportunity costs, i.e. those who have limited opportunities for alternative income streams.

Das *et al.* [15] reported that rural poultry production particularly chickens (followed by ducks production) play significant role

in the socioeconomic development of Bangladesh. Almost 90% of all rural families keep a small number of native chickens and ducks under traditional free range semi scavenging systems. They reported that poultry are generally maintained by rural women and children that generates revenue and also supplies adequate eggs and meat to their family's diet. A study in the Niger delta revealed that poultry husbandry at family level contributes 35% of the income of household's women and it is estimated at about 25% and 50% of Nigerian minimum wage and per capita income, respectively [23]. Experiences in Africa and other countries have shown that backyard system contributes crucially to women livelihood and are of critical cultural importance in the lives of native communities.

Government support for development of backyard poultry

Backyard poultry production forms the basis for transforming the rural poultry sector from subsistence to a more economically productive base. Also, increased backyard poultry production would result in a positive impact on household food security both in terms of increased dietary intake as well as income generation. Hence, increasing meat and egg production from backyard poultry has been a major concern for Government of India for many years and thus government supports various programmes to improve backyard poultry production. Recognizing the importance of backyard poultry for rural economy and food security, Autonomous body like Indian Council of Agricultural Research (ICAR), State Agricultural Universities (SAUs) and some private firms developed genetically improved varieties of indigenous birds with low-input technology (LIT). Some of these breeds such as: Vanaraja, Giriraja, Srinidhi, Grampriya, Krishibro etc have gained enormous popularity among backyard poultry farmers in many parts of the country [6].

Rural backyard poultry development is an initiative by the Central Government of India. The beneficiaries are from below poverty line so as to enable them to gain subsidiary income and nutritional support for livelihood. According to the Indian government's National Action Plan for Egg and Poultry-2022 (NAPEP), a component under National Livestock Mission (NLM), namely, Rural Backyard Poultry Development (RBPD) covers beneficiaries from Below Poverty Line (BPL) families to enable them to gain supplementary income and nutritional support. Under RBPD, the chicks/ birds suitable for rearing in the backyard are reared in the mother units upto 4 weeks and are further distributed to the BPL beneficiaries in atleast two batches. It is proposed to move incrementally from this subsistence model of backyard poultry farming to a scaled-up entrepreneur model, upscaling incrementally upto 400-1,000 birds. In case of Low-input technology (LIT) birds, these would help in transition and upscaling later to 1,000-2,000 birds for larger commercial scale poultry farming. Similarly, it is also envisaged to introduce smaller scale broilers in rural households for later scaling up to commercial scale and have poultry as a mainstream source of income. The goal is to bring landless, small and marginal farmers into mainstream of economic activity.

The state and central governments provide financial support to certain extent, encourage women, self help groups, entrepreneurs, government and non government agencies, to set up mother units to take care of chicks in the first four weeks of life before they can be distributed for rearing [24]. After knowing the importance of backyard poultry rearing in the upliftment of economic conditions, governments are encouraging to take up this profession. Even trainings are being imparted by government agencies.

Constraints in development of backyard poultry farming

Traditional poultry farming plays a major role in the rural economy which accounts for about 80% of the world's poultry production. Despite the growing demand, backyard chicken faces several challenges.

First, low production because of problems like diseases, predators, theft, harsh environment, lack of and/or inadequate production skills, poor nutritive value, high feed costs, flock size and marketing [25,26]. Second, due to difficulty in adoption of various management interventions like providing adequate feed supplements, vaccination, brooding, housing and labour [26]. For example, under free range production system, which is commonly practiced in Kitui County, chicken are rarely vaccinated or treated against diseases and parasites [27]. Since, different poultry species are kept together there is failure to take into consideration the bird's specific nutrition requirement, resulting in low production performance. Under free range system, chicken are left to scavenge and hence may be easily prone to infection and also may spread the disease to the rest of the flock [28].

Third, limited institutional support to farmers like access to: extension services, veterinary services, credit facilities, trainings, access to markets and market information and group memberships [26]. Many minor services like vaccination of day-old chicks and timely protection against poultry diseases are inaccessible to

the poor groups (especially in marginal farmers). Fourth, lack of knowledge among chicken farmers on common poultry diseases especially potential zoonotic diseases [27]. Since chicken diseases are a constraint to production in terms of cost and time, it is important to understand how farmers respond to these problems.

Poultry farmers under free range production system respond differently during disease occurrence; they may choose to; do nothing, use ethno veterinary medicine, use modern (conventional) medicine and/or human medicine [29]. Failure by farmers to respond to disease incidences was attributed to inadequate cash for purchase of veterinary drugs and shortage of veterinary extension services. The traditional medicines are often used and preferred due to their low cost, ease of application and local availability. The type of medication used is important since conventional medicine have been tested and evaluated for efficacy and side effects while traditional medicine are centered on activating the body's own natural healing ability but have not been tested or evaluated [29]. This threatens the quality of chicken meat and eggs, thus a health hazard. A study conducted in Kenya by FAO [30], had recommended that public education and training on safe poultry production, good bio-security and management practices were critical for producers in rural areas.

Some of these issues have raised concerns about the sustainability of backyard poultry/small scale poultry production systems due to: (i) intensified competition from large-scale producers who can exercise significant control over the poultry value chain (including concentrated holding of genetic stock of industrial poultry by a few transnational corporations); and (ii) the public perception that small production units may be dangerous reservoirs of diseases, especially in the wake of recent outbreaks of HPAI. Governments are already beginning to emphasize the possible public-health risks associated with small scale (especially household) poultry production.

Measures for improving backyard poultry production

- **Scientific and technical intervention strategies**: Suitable technologies and innovations in backyard poultry farming should be used to improve the production and profitability of their backyard chicken enterprises. This includes proper housing, feed supplementation, vaccination; brooding and predator control [26]. These technologies influence the level of output, product quality, employment, trade and benefits [31], thereby increasing the income generating capacities of the farmers.
- **Institutional support**: Effective delivery of extension and veterinary services, credit facilities, training, access to market, market information and group membership should be ensured. Membership to farmer groups facilitate easier access to inputs like feed supplements, improved chicks, drugs and vaccines, technical advice, credit, training, transportation and marketing of chicken products [32].
- **Awareness on Common Chicken Diseases**: Farmers should be aware of normal chicken ehavior, daily rhythm, natural incubation and hatching, management of young chicks, housing, hygiene, feeding, watering and healthcare [27]. Farmers should also be aware of common chicken diseases as they cause death, unthriftness and lowered production. This allows production to be kept at optimum levels in line with proper management practices [33].
- **Capacity-building**: Organization with support services and input supply is a critical element of any model that attempts to link smallholders with output markets. This requires support from people with strong organizational skills. Thus, appropriate capacity-building measures must become an integral part of interventions that design and implement livelihood-support options such as backyard poultry.
- **Linking with microcredit**: Microfinance organizations and self-help groups may help with credit to finance important expenditures. Establishment of strong linkages with microcredit organizations must, therefore, be seen as an integral component of all livelihood support interventions, including household poultry. Besides facilitating access to credit, credible microcredit organizations and self-help groups can also help rationalize interest rates.
- **Need for a common platform**: There is a need to organize a series of meetings and workshops to sensitize decision-makers, politicians, bureaucrats, technocrats, policy-makers and planners to implement pro-poor farmers programmes. Data with respect to their requirement should be available. It is also necessary to involve people who write poverty reduction strategy papers, human development reports, policy documents, etc. International organizations such as Food and Agricultural Organization (FAO) with a mandate to promote global exchange of information, collection, analysis, interpretation and dissemination of data, and national and international technological, social and economic research, can play a significant role in this context.

- **Data and analytics**: Finally, the database pertaining to poultry production is scarce and seriously hampers the analytical work necessary to support decision-making. There are significant discrepancies even in the basic production and price data brought out by the government, private agencies, and international organizations. Generation of accurate data is critical for chalking out policy decisions.

Way forward

The major limiting factor in the way of increasing consumption of egg and poultry meat in the rural area is its poor availability. The rural people can take advantage of the problem and divert towards rural poultry farming for increasing the availability. With retail market undergoing rapid transformation in a large number of developing countries, especially in Asia, there is potential and opportunity for linking these small backyard producers to larger markets via more formal value chains. However, that would also bring small and commercial poultry producers into more overlapping competitive space, raising questions about cost competitiveness and sustainability. This would also perhaps raise costs of complying and competing in the increasing safety- and quality conscious market. Recent studies have shown encouraging results with regard to private companies developing newer models to integrate small producers into the value chain instead of ignoring them. The main challenge for small-scale/rural poultry is, therefore, organizational and not a technical factor. It is important to continue to promote rural/backyard poultry rearing to contribute to nutrition security and livelihood support, but concrete efforts must be made to find organizational solutions to minimize public-health risks and provide appropriate extension support on issues like disease prevention, predation and improving hatchability to the producers.

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