Rural livelihoods and smallholder poultry production systems

A re-look

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Summary

Consumers across the globe are concerned about their food source and showing an inclination to move away from intensive and controlled commercial production systems to food grown under alternate production systems. Smallholder poultry is one such alternative. This alternate or traditional system allows birds to express their natural behaviour and experience exposure to elements that make for a healthy, low-stress environment. However, there are several constraints to improve profitability and efficiency of such smallholder systems. Experiments by organizations in the development sector and researchers to improve these systems have begun yielding results. The genotype of the birds, the feeding and management practices, and the disease management regimes have been improved.

What we require now are robust institutions and coordinating mechanisms that transfer the best practices and link these producers to remunerative markets. Such initiatives call for public investments. This can be a leap forward in enabling access to cheaper animal proteins, enhancing nutritional status and reducing vulnerability of many rural households. Thus, the present trends have the potential to pave the way for one more pink revolution, this time through smallholder poultry. This also means the possibility to enhance millions of rural livelihoods.

Tags: Poultry industry; rural livelihoods; smallholder poultry; small poultry; poultry and nutrition; pink revolution; backyard rearing; free range chicken; Pradan poultry farming model

Rating: 3 - India Ahead in Poultry Production

Poultry in India has undergone phenomenal change (often referred to as the pink revolution) over the past three decades, both in structure and operation. Poultry is one of the fastest growing segments of the agriculture and allied sectors in India today. It is acclaimed as a success story. From the backyard, the poultry sector has made a quantum leap to emerge as a dynamic industry within a short span of time. Let us ponder over some of the interesting indicators: livestock is considered as one of the fastest growing sub-sectors within agriculture, currently accounting for about 25% of the agricultural GDP. Production of eggs (34 billions) and broilers (0.6 million MT) have been increasing at a whopping rate of 12-15% per annum against 1.5 to 2% in agricultural crops.

This translates into an average consumption of 35-40 eggs and 1.5 Kg poultry meat, which is half the per capita consumption of animal proteins (Government of India 2006b). As a result, India is now the world's fifth largest egg producer and the 18th largest producer of broilers.

Several factors have contributed to this phenomenal growth. The 'push factors' like the adoption of industrial type commercial farming under contract growing system has provided the major impetus for the broiler industry. This model has been replicated to revive the poultry industry, which was under severe threat due to production and price risks. The system has garnered general acceptance among the farmers and now the rearers have several choices. The 'pull factors' like the growth in per capita income, growing urban population and falling poultry prices making it affordable across different consumer segments, large proportion of young population and thus increasing demand for poultry meat. Per capita consumption of poultry meat during 2006 stood at 1.9 kgs (GAIN report, USDA, 14/9/2006).

Potential Employment Generator

Mehta (2003) has pointed out that the significant shift in non-crop sectors like poultry and dairy was a sequel to diminishing employment and income from crop sector. The poultry sector now employs over two million people. At least 80% of employment in the poultry sector is generated directly by farmers, while 20% is engaged in allied activities like feed production, pharmaceuticals and equipment among others. Additionally, there may be a similar number of people engaged in marketing and other channels servicing the poultry sector. It may also be noted that as backyard poultry is not a full time occupation and is taken care of mostly by family members, it is difficult to account for the number of people engaged in this venture. This may run into hundreds of thousands.

It is also estimated that for an increase in per capita availability of one egg or 50 gms. of poultry meat, an additional 20,000-25,000 job opportunities have to be created. (Draft National Poultry Policy 2005 Government of India, Ministry of Agriculture Department of Animal Husbandry, Dairying & Fisheries).

Apart from the above mentioned factors, the pace of growth was also hastened by opening up of markets with liberal market reforms. Contract farming, which was virtually unknown in the agricultural sector three decades ago, has been hailed as the primary driver for up-scaling in poultry sector (Seedling, Feb. 2006). It is seen as a win-win situation in which the big companies get large quantities of poultry with desired quality and farmers get access to the market economy.

Through this instrument of contractual obligation, many players in the industry are able to align their own production technologies to the situation at the farmers' level and get the production of the desired commodity in scale. (Carlos A. da Silva, July 2005).

Thus, from the industry point of view, it is the concept and the practice of contract farming under vertical integration that has boosted the growth and has pushed poultry meat prices downward and stimulated consumption patterns (Poultry International, Feb. 2006). Integrators like Suguna have established price leadership in the market by reducing the number of middlemen and forcing the wholesalers and retailers to reduce their margins.

An underlying part of this success story is that it has been achieved with minimal government intervention and investment.

However, the industry faces some major constraints. One of them is lack of basic infrastructure such as storage and transportation, including cold chain. As a result, there are wild price fluctuations in the prices of poultry products, i.e., eggs and broilers. Another constraint for growth is the inefficient marketing system. The presence of so many market intermediaries harms both the producer and the consumer. The third problem is related to the price and availability of feed resources.

Maize or corn plays a major role in broiler production, as it constitutes 50 to 55 per cent of the broiler feed. As the broiler industry is growing at the rate of 15 per cent per annum, the demand for maize is thus likely to increase. Presently, India grows only 11 million tonnes of maize, of which only five million tonnes are available for poultry. This is not sufficient, if the current growth rate of the industry is to be maintained.

Industry at a Glance

The sector now offers employment to two million people and accounts for 3%of the Gross National Product. It contributes to 10%of the gross domestic product or roughly a little over Rs. 26,000 crores to the national income.

The average number of poultry in the backyards, per 100 families, has declined from 166 in 1991 to 124 in 2003 (NSSO 2006).

The organized industry, which is dominated by the private sector, is highly integrated in operation and there is tendency towards process automation. The number of farms is on the increase, especially around major cities that are witnessing such automation.

The industry enjoys strong support from sectors like the feed, pharmaceuticals and equipment. The breeding sector, which recently achieved self-sufficiency, is now venturing into the export world with parent hatching eggs/chicks.

52% of the Indian poultry population falls under the unorganized sector. This sector accounts for 23% of the eggs produced (FAO Poultry Sector Review-India 2008).

This is the sector with backyard and scavenging type flocks ranging from eight to 200 birds.

The demand for free-roaming indigenous chicken is substantial in many parts of the country. However, the number of such birds is decreasing day-by-day in major producing belts. In recent years, efforts were made to develop birds that resemble the local ones with respect to disease resistance, consumer- preferred meat quality and rearing requirements.

Frozen chicken is not a preferred buying option amongst Indian consumers. In addition to mistaken perceptions, this can be attributed to the easy consumer access to freshly dressed birds at the doorstep.

The bygone ad and the quantum leap

"Sunday or Monday, have an egg everyday" was the advertisement adage of the National Egg Coordination Committee. That was the time when the growing population in India needed these awareness campaigns to boost the sales of poultry products. That was the beginning when the industry had begun taking a "U" turn from the traditional methods of backyard poultry rearing to the intensive commercial farming system. A few of the integrators took the initiative to promote contract farming under vertical integration.

The underlining part of this success story is that this exceptional growth has been with minimal government intervention and investment (Indian Livestock Sector Review, edited by World Bank staff). Today, the industry is dominated and governed by a handful of integrators who enter into contract production with farmers, the majority of whom produce poultry products like eggs and meat. The farmers use the technology and the inputs provided by integrators and maintain the required minimum operating scale.

Vertically Integrated Supply Chains

Vertical integration refers to the organizational design of a firm in which it owns two or more stages in the value chain and controls decision making on product attributes and logistics. This is a form of polarised chain governance strategy in order to reap economies of scale and control the emerging markets.

A contract farming arrangement in broiler production is also referred as 'chick growing agreement'. This is an intermediary form of supply chain governance adopted by firms to outsource growing broilers on a large scale, meeting desired quality, quantity, location and timing as demanded by the markets.

It is also a form of wage contract between the integrating firm and a grower. The integrating firm provides the day-old chicks, feed, veterinary supplies and services, and undertakes the final marketing of the grown-up birds. The contract rearer typically provides the space and facilities (land and housing), equipment, utilities, labor (family and/or hired), and day-to-day farm management.

The rearer receives a guaranteed wage for each live bird based on its live weight as per specifications required by him in the markets. Thus, the major component of working capital is borne by the integrator who is the absolute owner of movable stocks in the farm. Hence, the integrators need to monitor production fairly closely, to prevent slacking off by the rearer, and diversion of the integrator's inputs such as feed to other uses.

To motivate the rearers, wage contracts have built-in incentive and penalty clauses tied to the minimum performance standards. These standards typically refer to Feed Conversion Ratios (FCR).

Additional incentives are given to the grower for surpassing the performance standards. For growers who fall below the set standards, a proportionate amount per bird is subtracted from the wage bill.

Why Farmers Choose Wage Contracts

(From recent studies in AP & Orissa)

The wage contract looks lucrative for the farmers; the small farmers often have some cost advantages in opting for poultry farming when compared to large-scale producers elsewhere in the country. Farmers have lower opportunity cost of labor. The family labor used by the farmers is more motivated and requires less monitoring than hired labor used by large-scale farms. So, small farms are better able to maintain quality specifications of the contracts.

The other factors that influence and compel producers to opt for the wage contracts include:

Farmers usually lack the technical skills needed to produce poultry on commercial lines using improved techniques.

Lack of credit or liquidity makes it difficult to purchase specialized inputs or to make investments needed to venture into production on their own.

Farmers are less able to bear the risk associated with producing perishable commodities like poultry. Not only do these commodities experience greater price fluctuations and risk of spoilage, but also once the commodity is ready for sale, perishability puts the farmer in a weak bargaining position relative to the buyer.

Farmers frequently do not have access to the information about market demand that is needed to make production decisions.

Buyers may not have access to information about the quality of output from specific smallholder farms, which makes them less willing to purchase from any smallholders at any given price level, compared to buying from a well - identified large - scale provider.

Core Concerns

The wage contracts also have a couple of disadvantages that limit their widespread use of smallholders. Firstly, the onus on integrators to closely monitor production makes this aviable option mostly for locally-based integrators. Secondly, to participate in these contracts, a contract rearer must typically provide security with the integrator, in the form of a cash deposit or signed blank cheque, prior to engaging in the contract. If the grower defaults on the contract, the integrator invokes the security instrument for recovery of the amount due. Thus, the system can reach only farmers with credit-worthy resources at his disposal.

There are also other shortcomings from the producer's perspectives. The rearers are shielded against limited production risks both in terms of bird mortality to the tune of 5‰and Feed Conversion Ratio (FCR) (Body mass gained to Feed Ratio) reaching a minimum of 2. The costs over and above are deducted from the wage bills. It is to be noted here that the rearer is made accountable for productivity parameters without knowing whether the inputs supplied to him are of right quality!

The core issue here is the way the industry focused on developing the supply chain from the perspectives of marketing and establishing production linkages with farmers in the villages located around the cities. These commercial systems for poultry production overlooked the traditional production systems which were the livelihood support

mechanisms for millions of marginal farmers and rural landless labourers. The process of development failed to bring these people to the mainstream markets so that the root cause of rural poverty is addressed. One may argue that the market forces have taken their obvious course. However, this was the case even with the government supported green revolution that concentrated mainly in irrigated belts where only the farmers with resources could afford irrigation. This is typical of the process of dichotomous development. The possible reasons are the incompatible goals of production with local livelihood options, markets and cultural practices, access to infrastructure, the knowledge base of the communities and risk mitigation strategies designed for the minimum investment by poor people. Lack of collective power, among the majority, to influence the public policies also causes such production systems to be dominant.

Pro-poor Production Systems

Traditional systems of poultry production are typically referred to as 'backyard rearing', and, as pointed out, these are the most common type of poultry production in rural India. Practised mostly by low income group farmers, it is acclaimed as one of the powerful livelihood options that empowers women, plays an important role in meeting nutritional requirements and offers cash liquidity for the vulnerable families.

It can be observed here that the poor landless families tend to start their livelihood activities by keeping birds in their backyards to supplement the income from labor.

The type of livestock also changes as their asset ownership changes over a period of time.

Thus, it can be observed that within livestock, backyard poultry reaches the poorest of the rural households, mainly the landless laborers. In comparison, dairying is affordable mainly among the marginal and small farmers with cultivable land at their disposal.

There are obvious reasons for this trend, among which the minimum required skills for investment, risk and uncertainty for the producers play a pivotal role in deciding in favour of poultry. In backyard poultry, the birds are usually indigenous and, in some cases, improved varieties released by research stations are also being employed. They are left to scavenge for food in the villages and farms.

Kitchen waste and broken grains are also provided as supplements. In such rearing, there is no differentiation between birds used for eggs and those raised for meat.

Usually the production of these birds is focused on the festivals and other seasonal demand for sale. Some homes also produce these birds for their own consumption.

Though the birds have an innate resistance to diseases compared to the commercial hybrids, their mortality rate is still higher due to a high incidence of disease and increased vulnerability to predators during scavenging. Productivity of these birds is generally far below that of the commercial ones. for reasons of genetic makeup and unmonitored feed intake.

The average returns from backyard poultry, by selling surplus eggs and birds in the markets of the region, ranges from Rs. 18 to Rs. 26 per bird per month, amounting to Rs. 180 to Rs. 260 from a flock of 8-10 birds. The contribution to family income is still substantial, given their resource base and nutrient requirements within the family.

This is the basis of the argument favoring poultry farming as a tool to increase food security, accelerate poverty reduction and offer a firm foothold on the ladder to climb out of poverty.

Key Challenges

The major challenges in organized interventions to improve the system are:

Accessing remunerative markets: As pointed out earlier, there is demand for local variety chicken products due to the increasing awareness about use of growth promoters in commercial broiler meat production and their deleterious effect on human health. The challenge is to meet this demand by planning logistics so that the right-aged birds are aggregated over time and space. The local chicken meat fetches nearly double the amount than that of the broilers. Thus, the economics works out better, compensating for the lower FCR.

Protection from predators: It is estimated that 25 to 40‰of the produce like eggs and birds are eaten away by stray predators like dogs and cats. This incidence is more in improved bird breeds like Giriraja and Vanaraja, due to their heavy body weight.

Improving genetic makeup to improve FCR and disease resistance: This can be done using the selection process and exchange of cocks with better performing traits.

Improving nutrition for the flock: In addition to the worms and insects from scavenging, the birds must be fed with coarse grains and broken pulses to hasten weight gain.

Protection from infectious diseases: Vaccinating the birds and training the farmers in traditional herbal remedies, apart from ensuring availability of local veterinarian, are vital.

Preventing spoilage of eggs and enhancing quality for better marketability: One way of ensuring this is by providing low cost brooder pens.

All these issues can be addressed effectively if the sub-sector is organized in a given locality. Producers' collectives organized around this activity can be a viable option to ensure improved productivity and better prices to producers.

The key to access markets in scaling up operations is to organise producers' collectives around commodities. The structure once established needs hand-holding support from a parent organization until it becomes a self-propelling entity.

Semi-commercial Farms

The third type of poultry farming falls in between the two extremes of traditional and commercial poultry production. These are semi-commercial systems of medium-size family farms. In this system, farmers grow improved local breeds or cross-bred stocks. Semi-commercial farmers provide rudimentary housing structures, may purchase at least part of their feed, and use vaccines and veterinary services when available and accessible.

Semi-commercial growers sell most of their production to the nearby urban centers, although no formalized system of marketing exists (excepting, in a few cases, verbal contracts).

Where verbal contracts do exist, they are typically made with hotels or restaurants and they have little or no effect on choice of technology, supply of inputs, or quality of the product.

Moreover, independent semi-commercial poultry farming often seems to represent a transitional stage, with many of these farmers eventually being 'integrated' into large companies in order to ensure regular supplies of inputs and to secure a market for their products at a guaranteed price.

Pradan Model:

Miniaturised and Institutionalized Commercial Farming Systems

Professional Assistance for Development Action (Pradan), a popular NGO working in the North and East Indian states, has evolved a revolutionary poultry farming model to help eradicate poverty in a more meaningful manner. The technology of poultry production is the same as that of the large commercial integrators.

The key difference is that the size of the farms is scaled down, in order to ensure reach and affordability of this livelihood option for the poorer sections in the rural areas.

In this model, the commercial broilers are reared in flock size ranging from 200-500 birds in a well-designed low cost shed in the backyards of target families.

Generally, women from these families, organized into clusters of villages, are encouraged to form poultry cooperatives. Subsequently, these cooperatives are federated at the district level, assuming the responsibilities of an integrator.

Cooperatives train the target families in modern poultry production for about a month. Each of these families avails bank credit to the tune of Rs. 25,000 for constructing sheds under a tripartite agreement with the cooperatives.

The cooperative supplies all required inputs once the sheds are constructed in their vicinities. The supervision and marketing are done by the producer-owned organization. The families are paid for their produce at the end of every production cycle, after deducting cost of inputs like chicks, feed and medicines.

The profit is distributed at the end of each financial year as member bonus. The intervention has achieved economies of scale, and has grown to have its own hatcheries and feed plants. In Ranchi city alone, the cooperatives have more than 40% share in the broiler market.

The experiment has been replicated successfully in several other states too. Inspired by this model, several other organizations in the development sector have started working on similar models for scavenging/backyard systems, using local variety colored birds, to serve the increasing market demand and to ensure better productivity at the farmers' level.

Thus, the key to ensure access to markets for scaling-up the operations is to organise producers' collectives around such commodities. The structure once established needs hand-holding support from parent organizations till it becomes a self-propelling entity.

Redefining Poultry Sector:

Required Policy Measures

The policy measures that are required to improve the poultry industry must be aimed at improving affordability and accessibility of desired poultry products across India. They involve:

1. Encouraging producers' collectives in managing the supply chain
2. Creating an efficient marketing channel that will help provide remunerative prices to producers
3. Improving infrastructure facilities like cold chain, processing facilities and transport
4. Increasing maize production to stabilize prices of poultry feed