

**RESEARCH ARTICLE :**

Economic analysis of free ranging desi poultry as a component in integrated farming system in rural areas

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SUMMARY : A survey was conducted in 10 villages of Namakkal district to find out the economic potentials of free range desi poultry as component in cropping system in rural areas. The farms were post stratified into small (20 farms), medium (15 farms) and large (10 farms). The flock size were 5, 10 and 25 and egg production in respect to them were 40, 52 and 60. The average annual farm income from sale of eggs and birds were Rs. 5955, Rs. 14225 and Rs. 28, 600 for small, medium and large farms, respectively. For brooding birds were used. The sale of eggs and birds on free range rearing were much higher than the sale of commercial eggs and boilers. No periodic vaccination and no proper shelter were provided to the birds.

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KEY WORDS :

Free-range rearing,
Desi birds, Cropping
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Poultry economics

BACKGROUND AND OBJECTIVES

Rearing of birds which finds its own food and requires only little care is called Free Range Poultry Rearing. This type of chicken rearing (Desi birds of scavenging poultry) offers potentially one of the easiest and most rapid ways of improving the nutritional and financial status of the resource - poor farmers, whose social and economic standards are generally lower than the urban areas. It is an important source of cash income for the poor rural families, particularly for women (Saleque and Mustafa, 1996). Scavenging (desi) birds, primarily managed by rural women, contribute

as much as 80 per cent of the annual income to households (Anonymous, 2001).

Apart from the financial benefits associated with these 'walking banks' the desi birds perform an important function in what is frequently an integrated production system by consuming the ecto - parasites present on other livestock such as cattle, goats and sheep. Thus it helps to reduce or eliminate the incidence of parasitic diseases in farm ruminants (Anonymous, 2001).

In addition to this, the rural desi chickens are part of an integrated farming system where the litter void by the birds is used mainly as manure in gardens. This is an input into the

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soils as organic manure, which encourages the development of earthworms on which birds feed. The soils also get aeration through worm burrowing. In many countries, especially in India, scavenging (desi) poultry are ubiquitous, flocks of 6 - 10 birds (or up to 20 where housing is provided) being part of every resource - poor household (Anonymous, 2001). Forty per cent of poultry population in India consists of different types of indigenous chicken, which thrives only on scavenging. The birds are usually considered to be low producers with high degree of disease resistance (Richard Churchil and Narayanan Kutty, 2002). Even then, there exists a continuous increasing demand for meat of these birds due to the introduction of recent concept of organic food.

Small holder poultry production (*i.e.* family poultry) is an appropriate system that makes the best use of locally available resources. Family flocks are important providers of eggs and meat as well as being valued in religious and cultural life. Poultry is one of the fastest growing segments of the agricultural sector in and around Namakkal district of Tamil Nadu. There are three production systems for family poultry - free range, backyard and small-scale intensive with productivity of 40 - 60, 50 - 100 and 80 - 150 eggs / hen / year, respectively. Under free ranging system, desi poultry hens start egg laying from six month onwards. Poultry, particularly in the free range, provide meat, eggs, feathers, manure (convertible to fertiliser and natural gas), pest control, weed clearance, seed cleaning of grasses for mulch, scratching and foraging (Sonaiya *et al.*, 2013).

Under free-range systems, desi poultry can easily pick up its food in the backyards once it learns to scavenge in the household surrounding. Under free-range conditions the necessity of supplementary feed/ feed ingredients mostly depends on the free area available in the field, intensity of vegetation and availability of waste grains, insects, grass seeds etc. (Pathak and Nath, 2013).

The unorganized desi birds rearing sector, which is with the people below poverty line, wants serious attention to come out from the poverty spiral. Sheldon (1998) stressed the need to readdress village poultry production with new ideas and technologies for people below poverty line to make it commercially attractive in future.

RESOURCES AND METHODS

A study on the desi poultry production in Namakkal

District, with the objectives of to study the economic potentials of rearing free range birds; and to study the constraints in rearing free range birds in backyard as well as in cropping field was undertaken in 10 villages from 50 farmers randomly selected and data on population of scavenging birds that allowed to field, production and consumption of eggs and birds, hatching, selling of eggs and birds etc were collected with the help of pre-tested questionnaire for the period 2016-2017. Simple percentage analysis was applied on the collected data to draw inferences.

OBSERVATIONS AND ANALYSIS

The chosen farms were stratified into three farm size categories, namely, small (less than 5 birds), medium (8- 10 birds) and large (more than 20 birds) using mean and standard deviation. Among the selected farms, there were 20 small, 15 medium and 10 large farms. The total population of birds were 100, 150 and 300 in the above farm groups, respectively. The average flock size of small, medium and large farm was 5, 10 and 25, respectively. The average egg production per bird per year was 40, 48 and 55, respectively (Table 1). Out of total eggs laid, nearly 35 per cent of eggs in small farms, 21 per cent in medium size farms and 18 per cent in large farms were consumed as table eggs. The consumption of eggs were more in small farms followed by medium and further less in large farms. Out of the home hatched chicks, the farm families consumed 37 per cent in small farms, 50 per cent in medium farms and 64 per cent in large farms.

The rural farm women got an additional income by selling eggs and birds. It was observed that 32 per cent of eggs were produced in small sized farms, 48 per cent of eggs in medium sized farms and 51 per cent in large farms and 62, 50 and 36 per cent of birds of small, medium and large sized farms, respectively, were sold by the rural farm women to the traders or in local shandies. The selling price for eggs were Rs. 7.00, Rs. 7.50 and Rs. 8.00 and for birds it was Rs. 220, Rs. 250 and Rs. 230 for small, medium and large farms, respectively.

The annual income from a bird through sale of eggs and birds before household consumption were Rs. 1851, Rs. 2672 and Rs. 2754 for small, Rs. 1422 for medium and Rs. 1144 for large farms, respectively, and after household consumption it was reduced to Rs. 660 for small, Rs. 2527 for medium and Rs. 1610 for large sized

farms, respectively. The average annual farm income from sale of eggs and birds were Rs. 5955 for small, Rs. 14225 for medium and Rs. 28,600 for large farms, respectively. The sale price of eggs and birds on free range rearing were much higher than the sale price of commercial eggs and broilers. Birds were normally used for hatching eggs. It could be observed that about 32 per cent of eggs from all type of farms were kept for hatching. The hatchability rate was 85 per cent in small farms, 80 per cent in medium farms and 88 per cent in large farms. Out of the chicks hatched the survival rates of chick were 73 per cent for small sized farms, 83 per cent in medium sized farms and 73 per cent in large sized farms.

Neither periodic vaccination and nor proper shelter were provided to the birds. Only 3 per cent vaccinated their flock in small farms and in medium sized farms 30 per cent vaccinated their flock in large farms 35 per cent vaccinated their flock. Because of irregular vaccination Newcastle disease eradicated the flock and caused loss. The birds were housed in bamboo baskets in small farms and in a basket 4-5 birds were housed, in medium farms 32 per cent constructed ordinary sheds to house their birds and rest used bamboo baskets for housing and in large farms 70 per cent used ordinary sheds and rest bamboo baskets. The use of bamboo baskets for housing

had many disadvantages; as it exposed the flock to predators, made them more susceptible to diseases.

The birds were allowed to free range in sorghum, maize and groundnut fields. Nearly 82 per cent of flocks in small farm, 75 per cent of flocks in medium farm and 70 per cent of flocks in large farms allowed for free ranging in 20 days after sowing for sorghum, 25 days after sowing for maize and only 20-55 days in groundnut field.

In addition to this, the rural desi chickens are part of the cropping system where the litter void by the birds is used mainly as manure for crops. This is an input into the soils as organic manure, which encourages the development of earthworms on which birds feed. The soils also get aeration through worm burrowing. The desi birds consume or disturb the weeds of 2-3 leaf stages very easily and controls the weed growth effectively.

From this, it could be inferred that only non-descript birds were reared in free-range as a source of supplementary income for the rural farm household. Rural family women folks managed most of the birds. The extra income carved was used in many occasions for entertaining guests and relatives, and during celebration of festivals etc. The birds normally survived by scavenging the supplementary grains and feed resources in/around the house and also on household kitchen waste.

Table 1 : Flock size, egg production, egg hatched, consumption, sold and income

Particulars	Small	Medium	Large
Number of farmers in each category	5	10	25
Total number of birds	100	150	300
Average flock size	5	10	25
Average egg production/bird/year	40	48	55
Eggs consumed from a bird	14 (35.0)	10 (20.8)	10 (18.2)
Eggs sold from a bird	13 (32.5)	23 (47.9)	28 (50.9)
Eggs set for hatching from a bird	13 (32.5)	15 (31.2)	17 (30.9)
Eggs hatched from a bird	11 (84.6)	12 (80.0)	15 (88.2)
Birds survived after hatching	8 (72.7)	10 (83.3)	11 (73.33)
Birds consumed	3 (37.5)	5 (50.0)	7 (63.6)
Birds sold	5 (62.5)	5 (50.0)	4 (36.4)
Sale price of desi egg (Rs.)	7.0	7.5	8.0
Sale price of commercial egg (Rs.)*	3.80	3.80	3.80
Sale price per desi bird (Rs.)	220	250	230
Sale price of broiler bird (Rs./kg)**	150	150	150
Total income from a bird through sale of eggs and birds before consumption (Rs.)	1851	2672	2754
Total income from a bird through sale of eggs and birds after consumption (Rs.)	1191	1422	1144
Average Annual income from a poultry farm (Rs.)	5955	14225	28,600

*National egg co-ordination committee, Namakkal

** Broiler co-ordination committee, Palladam.

They usually scavenged in defined areas, in most cases, around the house or in the nearby farm plots. The major constraints for improving desi bird production were poor health status of these fowl in general and chick mortality (13-25 %) in particular. They were still traditionally managed without any scientific knowledge. Other constraints include poor nutrition, particularly during the rearing phase, loss of eggs due to laying of eggs in improper place and losses due to predators (crow, eagle, dogs, foxes, etc.).

The major impediment reported by rural farm women for rearing these birds is New castle disease, which reduced the flock size to a considerable extent. Vaccination against new castle disease is the long-term solution and with education it can be expected that more and more farmers would protect their birds.

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