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STUDY ON MARKETING OF POULTRY MEAT AND EGG

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ABSTRACT

An attempt was made to identify the present status of poultry meat and egg market to the various kinds of people in the rural based society, particularly tribal thickened population in India. Survey was conducted over 760 respondents with the help of pre-tested structured interview schedule where education was significantly ($P \leq 0.01$) correlated with their occupation and personnel cosmopolite. Most of them consumed broiler poultry meat and egg of the layer chicken due to its more availability and low cost, where taste was the main cause for liking of meat and egg. As a result, they preferred mostly the meat and egg of local chicken where scarcity was one of the major hindrances about its market. Seasonal variation was persisted there for consuming the poultry meat, but average daily meat consumption was 11 – 14 g which was more than the national average. Due to lack of availability, most of people were used to restrict the consumption of egg at least once in a week. They also preferred various form of meat products, though have lack of knowledge about poultry egg products. The study revealed that there was a high market potentiality of poultry meat and egg.

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INTRODUCTION

Poultry production is the fastest growing meat sector, increasing 4.7 percent in 2010. Worldwide, per capita meat consumption has reached 41.9 kilograms in 2010, where people in the developing world eat 32 kilograms of meat a year on average, compared to 80 kilograms per person in the industrial world (Worldwatch Institute, 2013). World poultry meat consumption is growing at a faster rate than other meats, expected to be increased 11% from 2012 to 2021; per capita poultry meat consumption is projected to grow 11% and total poultry meat consumption is expected to increase 22% (USDA, 2013). Consumption of poultry meat was increased throughout the world every day with the international shortages of grain and other agricultural products as well as more availability of value-added convenient poultry products (John and James, 1973). In America, it was about 68.3%, being 102% increased in last 3 decades (ERS, 2001; USDA-NASS, 2001). In India, broiler production growth was estimated at 10 per cent per year, with 2012 production reaching a record 3.2 million tons. Layer production growth is estimated at six per cent annually.

Indian poultry and egg consumption continues to grow and is expected to double by 2015 (USDA, 2011). Indian poultry meat production was estimated to increase from less than 1.0 million tons in 2000 to 3.4 million tons in 2012 with per capita consumption increasing from 0.8 kg to 2.8 kg p.a during same period. Table egg production was also estimated to increase from 30 billion eggs in 2000 to 66 billion eggs in 2012 with per capita egg consumption increasing from 28 to 55 eggs during that period (ICRA Limited, 2013). Now, people are aware about various nutritional information of raw meat and poultry products, this may encourage consumers to make healthier food choices (Crutchfield *et al.*, 2001). On the other hand, the overall meat consumption had been declined throughout the world due to prices, income, taste and preferences (Putnam and Gerrior, 1997) The purchasing patterns are depended upon the consumers' behaviour viz. range of economic, cultural, social, religious, marketing and personal factors (Dietz *et al.*, 1995). Hence, an attempt was made to identify the present status of poultry products market to the various kinds of people in the society at a rural based developing area. It was also attempted to know the acceptability of different forms of poultry products throughout the year at various locality particularly at the tribal and backward areas.

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MATERIALS AND METHODS

Selection of Sites and Respondents

Survey was conducted purposively in and around the district town Purulia (23°20' North latitude and 86°22'30" East longitude, msl 748 feet) of the state of West Bengal, India during the period 2010-11. Area covered almost all the developing township of the Purulia district, the second highest tribal population representative district in the state (BCW Department, 2013). Total study area covered approximately 50,000 sq. km centering Purulia town, to explore the potentiality of poultry meat market of surrounding accessible zone. The population characteristic of the survey area has been presented in Table 1. The maximum and minimum temperature of the study area was 45° C and 23° C respectively at summer and 20° C and 3° C at winter. The average rainfall was in between 1100 mm – 1500 mm. There were three categories of location viz. city, town and semi urban (Table 2) in the state of West Bengal and neighbouring state Jharkhand. The category was determined on the basis of population of the area. Average population density was around 4000 – 4500 / sq. km, 2000 – 2500/ sq.km and 1000 – 1500/ km in city, town and semi urban area respectively. Total number of 5 cities, 9 towns and 8 semi urban areas (total 22) were selected purposively where 5 spots were randomly selected in each city and 3 spots in each town and semi urban areas. Finally, 10 respondents were selected randomly in each spot which formed the total sample of the study (N = 760) (Table 2).

Collection of data

The randomly selected 530 respondents in West Bengal and 230 respondents in Jharkhand were interviewed by the technical personnel directly with the help of pre-tested structured interview schedule. The requisite variables measured in the study related to poultry meat and egg market were selected after threadbare discussion with the experts and took help from available secondary literature. The variables were measured with the help of available established scales and where scales were not available, schedule has been developed.

Statistical Analysis

Statistical analysis includes percent study from frequency distribution of data collected from different classes inherent to varying objectives under study was made along with the chi square test of independence of attributes to test the degree of association between two attributes. Analysis was done using SPSS 7.5.

RESULTS AND DISCUSSION

Personal Profiles of respondents

The respondents were found into 5 age groups viz. 20 – 30 years, 31 – 40 years, 41 – 50 years, 51 – 60 years and above 60 years having 25.7%, 44.2%, 24.3%, 5.4 and 0.4% respectively. Nearly 74.9% respondents were male and 77.5% were married. About 92.9% respondents were Hindu, 6.3% were Muslim, 0.4% Christian and 0.4% were of other religions.

Socio-economic status

Most of the respondents were engaged in independent profession (46.2%), followed by service (37.9%), cultivation (6.3%), labour (5%) and caste occupation (4.6%). The average family size of the respondents was 5.47. Nearly 53.4 % of them have less than 5 family members. About 18.6% have more than 5 family members but effective family members were less than 5. Rest 28% has more than 5 effective family members. Effective family members mean those children who were below 4 years of age (Ray, 1968).

Communication status

The relation with mass media and the respondents have been presented in Table 3. The personnel cosmopolite of the respondents has been presented in Table 4. The respondents got the information about the poultry products from neighbor (19.5%), friends (41.1%), relative (12.2%), other family members (15%) and village (12.2%).

Educational Score

The educational score (edu. Score) was highly significantly ($P \leq 0.007$) correlated with the categories of location. The edu. score was 4.07, 4.47 and 4.34 at semi urban, town and city respectively, where illiterate, can read only, can read and write, primary standard, 10 standard, 10+2 standard and graduate and above were considered as 0, 1, 2, 3, 4, 5 and 6 respectively. The educ. score was significantly ($P \leq 0.01$) correlated with television ($\rho = 0.13$), newspaper ($\rho = 0.30$), farm publication ($\rho = 0.13$) and overall mass media ($\rho = 0.19$). It was also significantly ($P \leq 0.05$) correlated with educational film ($\rho = 0.09$), and exhibition ($\rho = 0.08$). The educational score (edu. Score) was also significantly ($P \leq 0.01$) correlated with the occupation, personnel cosmopolite.

Meat and Meat Products

Liking of Meat

About 97 % of the respondents like poultry meat and about 84.5% of them stated the cause behind it was its overall acceptance, similar with the opinion of Resurrection (2003). Others stated specifically due to its taste (13.2%), texture (1.2%), flavor (1%) and colour (0.1%). Similar, trend of choice was also observed by Rimal and Fletcher (2003) who summarized in a study that appearance, tenderness, flavor and juiciness of the meat influenced the consumers' preference. Only 5.5% respondents stated that they dislike it due to high cholesterol (2.8%), unacceptable odour (2%) and religious trouble (0.7%); rest 94.5% did not explain any cause behind their disliking. Liking of meat is significantly ($P \leq 0.05$) correlated with location and edu. score. Percentage of poultry meat liking was higher than the people of America and less than neighbouring countries (Rimal and Fletcher, 2003). The relationship between poultry meat liking was similar with the earlier observation of De Silva *et al.* (2010), but not matched with relation of educational level.

Choice of Meat

The broiler, desi and duck meat was preferred by 75.4%, 23.7% and 0.7 % respectively. Most of the respondents preferred broiler meat due to easy availability (27%), low cost

(3.7%) and due to both of the causes (45.5%). Only 0.3% respondents stated that they dislike broiler meat. About 5.4% respondents expressed that they have the choice of both broiler and deshi poultry meat. The respondents who liked deshi poultry meat was due to its taste (15.4%); though no other specific causes for liking or disliking were stated by them. This choice was similar with the opinion of FAO (2009) that, household consumers prefer fresh, tastier and good flavoured domestic poultry products as domestic poultry was fed with natural feed and without chemical (concentrated) feeds. Further, present observation was also agree with the choice of Bangladesh people, where both rural and urban consumers prefer deshi chickens and eggs for curry, pilao rice or biriani rice because these taste better than broiler meat and commercial layer eggs (Rob, 2010). This finding indicated the market potentiality of backyard poultry for upholding the rural livelihood and women empowerment. Present findings also found the gap in awareness about duck meat consumption which contains as high as 5.57% of unsaturated fatty acid, much higher than those contained in chicken, pork, or beef and also contain more iron, vitamin – A, B₁ and B₂ (CST, 2013). Choice of meat is significantly ($P \leq 0.05$) correlated with location and edu. score.

Periodicity in Meat consumption

Nearly 60.2% of respondents preferred Sunday and 38% preferred any holiday for consuming the poultry meat. Rest has no specific day for consuming the meat. On the other hand, 81.8% respondents choose poultry meat in any festival. Nearly 62.8% respondents preferred meat throughout the year. Rest 37.2% has season preference. Among them, 24.7% preferred winter, 8.3% preferred rain and 4.1% choose summer for consuming more meat than other season. Nearly 47.2% respondents prefer to take meat at least once in a week irrespective of season. This observation was mostly similar with the findings of De Silva *et al.* (2010). 15.5% respondents did not prefer meat at least once in a week in any season. 37.2% respondents have season choice for consuming the meat once in a week. 11.4% of them choice one season and 25.8% choice two seasons to take meat at least once in a week. In summer, rain and winter it is 77.4%, 73.8% and 53.6% respectively.

Only 7.1% respondents desire to take meat twice in a week irrespective of season. About 58.8% dislike consuming meat twice in a week in any season. On the other hand, 26.7% choice only one season and 7.1% choice two seasons to take meat twice in a week. In winter it is highest (38.3%), followed by rain (16.2%) and summer (8.3%). People of similar climatic state viz. Andhra Pradesh also preferred more poultry meat to consume during winter but, the rate of consumption of them was lower than the present findings (Raju and Suryanarayana, 2005). On the contrary, only 4.3% of the meat consumers like to take meat once in a month irrespective of season. Where 9.7% choice to take meat once in a month in only one season and 2% choice two seasons in a year. Mostly in summer (13.9%) followed by rain (7.2%) and winter (5.5%) season the respondents prefer consuming meat once in a month.

Quantity of meat consumption

Most of the meat consumers (48.2%) prefer to take meat 150 – 200g meat at a time followed by 100 – 150g (30.3%), more

than 200g (17.4%) and 50 – 100g (4.1%). The meat consumption is significantly ($P \leq 0.01$) correlated with the edu. score. Now, considering at least twice in a week the amount of only poultry meat consumption per day (average basis) 48.2% people consumed 11 – 14 g per day, 30.3% people 7 – 11 and 17.4% people consumed 4 – 7 g per day, which far below than the global average and US (Speedy, 2003; Daniel *et al.*, 2011). The highest consumption level (11 – 14 g per day) is also below than the Asian average quantity, but mostly equivalent to the African continent (Global Poultry Trends, 2012). However, the most opportunist observation is that the majority population of the study area consumed more than the national average level (Arora, 2012).

Meat Products

About 99% of the meat consumers have seen the meat products. They know about 18 meat products with a choice (Table 5).

Most of the consumers preferred chicken biriyani due to shelf-stable products with ambient shelf –life (Singh, 2013). Preferences in chicken kasa and chicken roll ranked 2nd and 3rd respectively. On the contrary, chicken bacon, chicken ham and chicken nuggets are not so familiar to them. This finding indicated that meal solutions may increase the importance poultry meat as stated by Stouffer's (1999). About 92.2% consumers prefer a particular time of a day for taking such meat products. Rest has no specific time for consuming the meat products. Dinner is choice by 33% followed by lunch 28.2%, breakfast 26.8% and at afternoon tiffin 4.2%. Time of consuming meat products is significantly ($P \leq 0.05$) correlated with location. This observation was agreed with the comments of National Cattleman's Beef Association (2002), who stated that consumers do little planning of meals. Present observation was also matched with the opinion of Rimal and Fletcher (2003), who concluded that consumers wait until the last minute to plan their meals; most decisions are made the day of the dinner and at the end of the day.

Buying of meat and meat products

Around 90.1% respondents buy the meat items from the shop. The rest 9.9% were not buying from shop. Out of this 9.9% only 25.1% expressed the causes were mainly due to their lack of knowledge of meat products (19.7%), higher price (3.0%), lack of confidence of getting hygienic product (1.3%) and as they do not like Ready-to-eat meat products rather preferred to be made at home (1.1%). This finding may be compared with Zinkhan *et al.* (1999). Choice for purchasing of meat consumption from shop is significantly ($P \leq 0.01$) correlated with the edu. score and religion. Nearly 90.0%, 81.25% and 33.33% of the Hindu, Muslim and Christian meat consumers purchase meat and products from the shop. About 95.3% respondents expressed that nearest fast food centre is far away from their residence. It is also opined by all of them that the centre is within 10 Km from their residence. In most of the cases (62.8%) the centre is within 1 – 5 Km.

Storing of meat items

Mostly all the meat consumers (99.7%) prefer to purchase fresh meat as fresh is more tasty (78.8%), less chance of contamination (11.7%), it is easily available (5.4%) and more

nutritious than the stored meat (4.1%). Though, 67.2% of meat consumers eat refrigerated meat at home after purchasing the fresh meat. Most of them preferred to refrigeration upto 3 days (60.3%). Some of them (7%) prefer maximum refrigerated period upto 7 days. Fresh meat consumption is significantly ($P \leq 0.05$) correlated with location.

Opinion for consuming of meat products

Around 73.2% respondents opined that the meat products may be given to all age group. They have also opined that meat products may be given to all age group except baby (13.7%), except old (6.7%) and except adult (6.4%). Opinion for consuming meat products is significantly ($P \leq 0.05$) correlated with location. The results related to preference in meat products was much higher than the study report of De Silva *et al.* (2010) and also differed in relation to correlation with location.

Egg and Egg Products

Liking of egg

About 96.6% respondents were eating eggs regularly. It indicated that poultry and egg consumption are expected to grow in study area like India; where local dietary practices tend to prefer vegetarian protein sources, even among non-vegetarian consumers (USDA, 2011). Out of the total respondents only 5.8% have no choice of egg; where 70.7% consumers eat egg of layer birds may be due to more market availability; 17.4% eat egg of deshi hen and 6.1% eat duck egg. Liking of egg is significantly ($P \leq 0.05$) correlated with location. The result showed that shape of the livelihood strategies of poor households can be improved by rearing deshi or low-input providing backyard farming chicken (Rob, 2010).

Choice of egg form

93.3% respondents have specific choice of form of egg. Most of them choice omelets (44.7%), followed by boiled egg (28.4%), poach (10.4%), bhujia (5.9%) and half-boil egg (3.9%). Choice of egg is significantly ($P \leq 0.05$) correlated with location.

Quantity of egg consumption

About 5.9% of the respondents have no plan for taking egg in a day or week. Rest 94.1% has certain plan for taking egg within a specific period of time interval. Nearly 99.6% of them did not prefer to take more than one egg in a day. They preferred to take at least one egg in a day (16.3%), 2 – 3 eggs in a week (45.5%) and at least one egg in a week (32.3%). Nearly 95.5% of the egg consumers stated that they have taken $\frac{1}{2}$ eggs in their life time. About 2.2% of them are still continuing and 83.3% often take $\frac{1}{2}$ eggs as and when required. Rest 10% presently not consumed $\frac{1}{2}$ eggs. Present findings indicated that majority population (77.8 %) of the study area consumed one egg in a week which is at par with the national rate (Arora, 2012) and nearly one-seventh of some developed countries like USA (IEC, 2013).

Periodicity of egg consumption

About 79.8% respondents preferred to consume egg at a particular period of a day. They have choice for consuming

egg at breakfast (51.2%), lunch (18.4%), dinner (6.4%) and tiffin (3.8%). Periodicity of egg consumption is significantly ($P \leq 0.05$) correlated with location.

Egg products

Nearly 63.7% have no idea about egg products. 52.5% of the egg consumers preferred to buy egg products from shop. Rests was interested to make product at house. They avoid the shop due to afraid of adulteration (91.2%), higher price (5.3%) and loss of nutrients (3.5%). Knowledge level regarding egg products is significantly ($P \leq 0.05$) correlated with location.

Conclusion

There is a good scope of market potentiality of backyard poultry for upholding the rural livelihood. Though the average consumption of poultry meat and egg is below than that of world and Asian average, but more than the national average, which is a great opportunity to explore the potentiality of poultry market at the study area. The study will be helpful to the policy makers to recommend the potentiality of the poultry products as an alternate source of income for the underprivileged people. The findings of the study may also be utilized for integration with the available livestock based production system for their livelihood security. Further, it is obvious that the study will help to generate the database of the poultry products market along with the refinement system of the products in order to make a sustainable growth and nutritional nourishment of the people.

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