

In What Ways the Spent Hens of the Poultry Industry Contribute To the World

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Abstract--- Population expansion has become one of the major problems of India. Serious attention is needed to solve this issue. There is a prediction by the United Nations that the Population of India will become 1.64 billion by 2050, while the IHME projects it to be 1.61 billion by 2048.

To meet the demands of the increasing population, food production has to increase. Foods that are not of ideal taste by simple cooking means, needs to be processed and then consumed .Over the years, the idea of using spent hen meat in processing has proven to be up and running and its contribution has certainly increased the processed food production .The biggest benefit of processed food or processed meat in general is that it falls under ready to eat category , so preparing a meal from processed meat is time saving. Generally, Spent hens are considered to be a by-product of the poultry industry, they are more or less dumped by farmers of poultry farms or sold at low prices in wet markets in India or are used in food processing, so the investment of the investors are also less. This research review article gives an insight to how spent hens are contributing to the food industry.

Key Words--- Spent Hen, Nutrient Constituency, Processed Food, Hen-Day%, Modern Broiler Strains, Wet Markets

I. INTRODUCTION

So basically what are spent hens?

A spent laying hen is a commercial egg laying poultry hen which has surpassed its ideal egg laying potential. In terms of the commercial poultry industry, the layer chickens stop laying eggs when the batch of birds reaches a *hen-day%* of 79-81.

Spent hens are often killed and sold at low price on the open market by poultry farms, their meat offers much lower yields and is less tender than commercially grown broiler chickens and therefore fetches much lower prices.

Over the years, the poultry industry has contributed a lot in the supply of livestock for human consumption. Once the industry, which was just a mere backyard activity in India, for more than 65 years has been a major commercial livestock industry. India is now considered to be the world's third largest producer of eggs and fourth largest producer of broiler meat .The poultry products available in the market are meat and eggs and by-products of the poultry industry include feathers, manures and dead corpses of poultry birds that can be buried and decomposed for the purpose of fertilizing the soil. With the increasing population and people's preference for poultry meat over red meat, food business entrepreneurs and several other commercial food industry companies are trying to increase their production using poultry meat in which spent hens play an integral part as in every year, worldwide, the poultry industry ends up with nearly 2.7 billion spent hens and these spent hens are

used by different companies in processed meat preparations like Sausages, patty and other ready to eat products .

During the early years of the poultry industry, the spent hens were considered as mere by-products of the poultry industry and of zero commercial value because of their inability to lay eggs and not so tender meat due to old age. However, innovations in the food processing industry have led to the application of spent hen meat in different food items.

So lets explore how Spent laying hens are beneficial to the poultry industry from the following points:-

1. Spent hens are sold at very cheap price in the wet markets so it can be very convenient for any families earning low income to afford them and also for investors of the food processing industry to buy and use spent hen meat in their processed food products.
2. It was found that the nutrient composition of pooled weekly samples of a spent hen meal produced by a commercial renderer appeared reasonably consistent for over 27 weeks (J.H. KERSEY et al., 1997).Therefore the meal can be stored for nearly 27 weeks ,which is a long enough duration to store food, and the nutritional constituency will remain almost intact.
3. The fat content in spent hens are much less than in modern strains of broilers available in the wet markets. Evidence to my claim can be found by amalgamating the conclusions made by different researchers stated as following:-

It has been a long time since we have come to know that

chickens are genetically modified to increase their growth rate, feed efficiency, body weight and breast muscles, in order to meet the requirements of the consumers and expectations of commercial renderers. [Choct et al. \(2000\)](#) found that modern broiler strains contain about 15% to 20% fat, which is an immoderate amount and more than 85% of this fat is not required by the human body. Generally, Excessive accumulation of fat on the hen's body reduces the meat yield of the corpses, which is absolutely unnecessary for people who are looking for diet enriched with protein.

Upon conducting research on spent laying hens, it was experimentally found by **F. Semwogerere et al., (2018)** that the nutrient composition (moisture, protein, fat, and ash) of spent laying hen meat recorded in that study are in range with those of chicken in literature by Funaro et al., (2014) (breast: moisture 73.4%; protein 23.3%; fat 1.0%; ash 1.2%; and thigh [skin on]: moisture 67.9%; protein 18.6%; fat 10.8%; and ash 1.0%) and Keeton et al. (2014) (meat: moisture 75.5%; protein 21.4%; fat 3.1%; and ash 1.0%).

Therefore with evidence it can be concluded that spent hens have less fat content in them than modern broilers, so diet conscious people can eat spent hen meat, the only problem they will face is the lack of tenderness in the meat, which can be avoided by boiling the meat for a longer time. Consequently, sale of spent hens along with modern broiler strain meat will certainly boost the revenue of the poultry industry.

4. Using Spent hen meat in processing industry has certainly increased the production of processed meat, thereby increasing the poultry farmer's revenue and simultaneously benefiting the poultry industry.

Average working hours of employees in India are among the longest when compared globally. According to a report by the National Sample Survey Office (NSSO), it was found that in Indian cities workers worked for averagely 53-54 hours and in villages the workers worked for nearly 46-47 hours in a week during the July-June 2018 period. This report also stated that most Indian employees work for more than 48 hours a week, which is higher than the International Labour Organisation (ILO)'s prescribed time-limit, as employees are devoting themselves more and more towards office work, consequently their time to prepare meals for themselves is getting reduced. Human body cannot function properly without getting adequate amount of food. Here comes the need of processed meat. Processed food, as the name itself suggests is already cooked, so not much time will be required for any person to prepare a tasty meal enriched with protein and other nutrients it contains.

H. KERSEY et al., 1997 proclaimed that a meal sample obtained from spent hens in a plant for the amino acid digestibility study contained 70.91% Crude Protein, 3.79% Calcium, 2.11% Phosphorus, and 11.25% fat.

Hence, using spent hens in processing will not only increase the processed meat production, but will also help the office-goers of India, especially in the corporate sectors, in filling their appetite and supplying them with quality protein and other nutrients present there.

5. Using soft fats of spent hen in food processing is better than using hard fats of mutton and beef which have the problem of causing mouth coating effect.

II. CONCLUSION

Thus from this research review paper it can be concluded that:-

Since Population is increasing, the food production has to increase and spent hens can be very much contributive. The meat of spent hens as discussed earlier is sold at low price so investment on them and cost of buying them is also much low, the fat content in spent hen meat is much lower than that in modern broiler strains and the fats from spent hen meats can be used in place of hard fats from mutton and beef which have the disadvantage of a mouth coating effect. Countries like India, where population is so high, should focus on producing processed convenient products developed from spent hens to create more demand and obtain higher returns. Preparing extensive varieties of processed food from meat and non-meat ingredients will offer production of new products and help in feeding the rising population.

However, it should be kept in mind that eating too much processed food is not good for health. Processed and packaged food may contain artificial colors, flavors, or other chemical preservatives which can be very harmful to the human body. Processed foods can even cause obesity and chronic diseases like heart diseases and diabetes. It has been categorized by the WHO that processed meat products like bacon, salami, ham and frankfurts fall under Group 1 carcinogen (substances that can cause cancer). It is found in multiple reports that eating processed meat products may cause bowel and stomach cancer. Therefore people should keep this concern in mind, while buying processed meat products.

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