

## Value Addition of Poultry and Egg Products

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### Introduction:

Poultry meat and egg products are highly nutritious, providing a rich source of vitamins, minerals, proteins, essential amino acids, and fatty acids. To support livelihoods and ensure food and nutritional security for a large population, it is crucial to efficiently utilize livestock products in long-term livestock production. By converting processed foods into value-added foods, we can contribute to sustainable growth and improve the utilization of meat, enhancing the health benefits for consumers and benefiting farmers as well. Currently, in India poultry processing is only at 6%, whereas in developed nations have achieved processing levels above 70%.

### Scope of Value Addition:

- Rapid urbanization, industrialization, and changes in food habits resulted in increased demand for the meat industry.
- Tough meat from spent animals will be successfully utilized for the development of palatable and qualitative products.

### The Purpose of Value Addition:

- To increase the value of the product.
- To utilize different carcasses and their byproducts efficiently
- Improve the product attributes like appearance, juiciness, flavor, etc.,
- To facilitate the export of meat products.
- To incorporate non-meat ingredients for quality and economy.
- To promote entrepreneurship and employment.
- Efficient utilization of spent hens (older ones).

### Types of Value Addition of Meat and Egg Products:

1. Preslaughter or pre-ovipositional value addition  
e.g. Designer eggs or functional eggs
2. Post-slaughter or post-ovipositional value addition.

e.g. Emulsion based meat products, Pickled eggs, Albumen rings, Egg crepes, etc.,

### Value-Added Egg Products

#### Designer Eggs:

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Designer eggs are those whose content has been modified from the standard egg. These are also called as functional eggs. Designer eggs contain omega-3 fatty acids (600mg), which is equivalent to a 100gm serving of a fish. These omega-3 fatty acids have the benefits of reducing blood pressure, improving hair growth, reducing plasma triglycerides helping in clot formation, and decreasing skin issues.

#### **Eggs enriched with minerals and vitamins:**

Dietary supplementation of organic selenium, chromium @ 0.4 mg/kg as selenium yeast to chicken can improve the accumulation of selenium in the eggs i.e., up to 30 mg of selenium in eggs. Functional eggs compared to normal eggs will have 26 times more vitamin E, 16 times higher vitamin A, and 7 times more selenium.

#### **Pickled eggs:**

A simple cost-effective and efficient technology for pickling of quail eggs which will improve its storage for up to 4 months at ambient temperature as a ready-to-eat form.

#### **Albumen Rings:**

Albumen rings are egg snack food, prepared by cooking blended egg albumen in ring molds, battering and breading the coagulated albumen prior to deep fat frying. It can be popularised as egg snacks at growing fast food outlets.

#### **Egg Roll:**

It is a nutritious, tasty, and convenient egg product suitable for meals or as a snack item. It offers a good market at fast food outlets. Egg roll filled with 80% scrambled egg and 20% egg chicken meat mixture. This product has refrigerated storage of 8 days in a vacuum and 6 days in aerobic packaging.

#### **Egg Crepe:**

It is a thin, flat, circular product that may be filled with meat or vegetables and rolled or folded. It is an egg-riched product and can be popularised as a convenient egg item at growing fast food outlets. Shelf-life of the crepe is 22 days in a vacuum and 20 days in aerobic packaging.

#### **Egg Waffles:**

It is a nutritious, light, crispy, and versatile snack food for breakfast. It offers a potential market for growing fast-food outlets. It is prepared from 65% liquid whole egg with 10% wheat flour and 5% granulated meat. It was most acceptable and had an ambient shelf-life of 4 days in a vacuum and 3 days in air packaging.

#### **Value-Added Meat Products**

##### **Emulsion-based meat products :**

The development of emulsion-based meat products facilitates better utilization of meat and byproducts from different spent animals including spent hens. Tough meat can be minced in a mincer and emulsion can be produced in a bowl chopper by adding meat, Fat, salt, phosphates, spices, condiments,

binders, and ice flakes in proper proportions to a desired consistency. Emulsion quality contributes to product yield and palatability to a large extent. A large number of palatable meat products like sausages, meat patties, meat nuggets, meatballs/koftas, and meat pakoda can be made with the same emulsion.

### **Enrobed Meat Products:**

Enrobing/edible coating is a process in which foods are traditionally coated with edible coating materials in the form of batter using flours, whole egg liquid, and other additives to provide the processors an opportunity to preserve value-added meat products while preserving and enhancing their quality. Enrobing plays an important role in the improvement of the physico-chemical and microbial quality of the product and thus enhances the shelf-life of the product.

### **Restructured Meat Product:**

The purpose of producing restructured products is to effectively market fewer valuable carcasses (spent or aged birds or of poor conformation) and carcass components. Basic methods like tumbling, massaging, and blade tenderisation facilitate the production of high-quality restructured products. the products include steaks, cutlets, chops, roasts, rolls and hams.

### **Meat Nuggets:**

A simple technology has been developed to produce meat nuggets from

different meats and their combination by forming a block using a mold and cutting the cooked meat blocks into nuggets of different sizes and shapes. This technology is very low-cost and can be used to make emulsions of any desired consistency.

### **Challenges of value addition:**

- In India most people prefer fresh meat rather than frozen and processed meat.
- Insufficient cold chain facilities.
- Lack of product development and innovation.
- Inadequate focus on quality and safety standards.
- Poor marketing conditions.
- Microbiological problems.
- Quality deterioration due to biochemical changes.

### **Conclusion:**

Indian poultry market is one of the fastest growing markets. Although there are some hurdles like an unstable market, high transportation charges lack of cold storage facilities, and non-compliance with food safety norms by overcoming all these challenges Indian poultry farmers could compete with the world market, and Govt. of India should provide some financial assistance to already existing poultry meat processing plants to upgrade their facilities and production practices to fill up the gap between demand and supply.