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Popular Article

## Value Addition of Meat: A Push to Entrepreneurship

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While India has an abundant supply of meat, the meat processing industry is still emerging. Meat processing covers a spectrum of products from sub-sectors comprising animal husbandry and poultry farms, to bulk frozen meat, chilled and deli meat, packaged meat, and ready-to-eat processed meat products. In the present scenario, there is a large scope for meat processing in poultry as well as in red meat. In fact, the poultry industry has made considerable progress by developing and marketing value-added products.

Meat is an excellent source of high-quality protein and is considered as a vital part of human diet. Constituting around 20–24% protein, most of which is of high biological value, supplying essential amino acids, meat is gaining position in India food basket. Meat is also an important source of the vitamins, particularly B1 (thiamine), niacin (nicotinic acid), B2 (riboflavin), B6 and B12 (cyanocobalamin), and vitamin A (retinol). It is a major source of valuable minerals like iron, copper, zinc and selenium. Fresh meat provides key avenues for the producers and manufacturers, however, for boosting their income and profitability, value addition has been looked upon as a promising solution.



## Export potential

- The meat industry is slowly yet steadily catching pace on the global front also as India exports both frozen and fresh chilled meat to more than 60 countries of the world.
- Meat exported from India is risk-free, lean, nutritious and competitively priced meat.
- It has resulted in a consistent, high compound growth rate in export volumes.
- The major item of export includes de-boned and de-glanded frozen buffalo meat, which accounts for 97 per cent of the total meat export.
- The major market for Indian buffalo meat is Malaysia and Egypt and for sheep and goat meat are UAE, Iran and Jordan.
- India also exports a small quantity of processed meat to Thailand, Yemen, and Japan and poultry products to Saudi Arabia, Oman, Kuwait and Qatar.
- Uttar Pradesh state has emerged as the major exporter of buffalo meat followed by Punjab and Maharashtra.
- The value addition to the slaughterhouse by-products generates additional income as well as the costs of disposing of by-products can be minimized.
- There is huge potential in this sector for economic development of country through increasing exports so the policy makers should adopt critical measures at every stage to encourage and support this vital segment of the Indian agriculture.

The term "value addition of meat" refers to the process of enhancing the nutritional value, economic benefits, and health advantages of meat through the processing into a variety of designer and health-oriented meat products by incorporating a variety of functional ingredients and with the use of other techniques like tenderising the tough meat, preparing cut of parts, and utilising abattoir byproducts to develop valuable products. By replacing the current location, time, and form features of a product with ones that are more valued by consumers, its economic worth is boosted. The demand for value-added goods has been rising as a result of increased urbanisation, industrialization, income growth, nuclear families, education, and awareness. Due to these market factors, there are more options for product differentiation and value addition to raw materials, resulting in enhanced



industry profitability and viability as well as the potential to meet rising customer demands for convenience, convenience, and health.

#### **Advantages of value addition to meat:**

- Reduced preparation time and fewer processing stages, increasing consumer convenience.
- Sustainable product demand, enhancements to product safety and characteristics like flavour and appearance. reduction of costs, use of by-products, and competitive pricing.
- To the meat industry's sustainability.
- A rise in the product's worth overall.

#### **Various common procedures adopted for value addition to meat and meat products:**

**1. Combining Meats:** Combining meats is desirable to make goods with added value since it complements and supplements the quality and availability of various meats and their by-products.

**2. Using non-meat ingredients:** When processing meat, various non-meat components are used for various purposes. While some nutrients help retain moisture and offer qualities of texture, flavour, and colour, others improve the performance of muscle proteins. These ingredients are selected based on economic, raw materials availability, consumer preferences, food safety concerns etc. The most common non-meat ingredients utilized in meat products preparation are salt, phosphate, nitrite, ascorbate, sugar, soya, whole egg liquid, refined wheat flour, skimmed milk powder etc. to impart different properties in developed products.

**3. Incorporating Vegetables in Meat Products:** Incorporation of seasonal vegetables such as cabbage, cauliflower, carrot, bottle guard, pumpkin, etc. in meat products would be advantageous to reduce cost of meat products, to provide fiber and flavonoids in meat products, to facilitate consumption of vegetables and to provide balanced and healthful diet meat products.

**4. Emulsion technology for meat products:** Emulsion type meat products are the most popular processed meat products. When lean muscle tissue, fat, water and salt are mixed together and subjected to high-speed cutting and shearing action, a batter is formed. This batter is called emulsion. Meat emulsions are prepared using lean meat, water, other curing ingredients and fat. Different popular emulsion-based meat products include value added products such as meat balls/koftas, meat burger patties and meat nuggets etc.



**5. Restructuring of meat:** Restructured meat products are generally prepared from less expensive cuts, tough cuts, meat trimmings or combination of these. Restructured meat products are becoming an important component of the meat industry due to benefits like convenience in preparation, less demanded meat trimmings, different shapes product with improved tenderness, juiciness and flavour characteristics at economic cost.

**6. Curing and Smoking of Meat:** Curing process involves addition of curing agents to the meat cuts for enhancement of colour, flavour and preservation. It is the treatment of meat with preservative chemicals that restrict or prevent the growth of spoilage bacteria and food poisoning bacteria. It is used together with processes that use heat, smoke or low temperatures to give the required shelf life of cured meats.

**7. Retorting:** Thermal processing of meat destroys microorganisms and enzymes responsible for food spoilage. Thermal processing of foods refers to application of heat to improve digestibility, texture, flavour and destruction of enzymes and microbial population there by increasing the storage life. Thermal processing in metal cans or retort pouches increases shelf life of products and decreases 50% processing time.

**8. Tenderness of meat:** Tenderness of spent animal's meat can be improved by electrical stimulation, proper hanging of carcass, use of chemicals and artificial tenderizers. A variety of products such as sausage, patties, nuggets, balls, slices can be developed utilizing meat and by-products from spent animals and birds. Electrical stimulation (ES) of carcass muscles soon after slaughter accelerates their normal decline in pH and may enhance tenderization during conditioning. A number of organic acids such as acetic, citric and lactic have been used to tenderize meat.

**9. Fermentation of meat:** Meat fermentation is a preservation method which results in unique and distinctive meat properties such as flavour and palatability, colour, microbiological safety, tenderness, and a host of other desirable attributes of this specialized meat item. It is influenced by many environmental pressures that need to be controlled to produce a consistent product. Fermented meat products rely on microbial fermentation and dehydration to develop their specified flavour and texture.

**10. Utilization of slaughterhouse by-products:** Non-utilization or underutilization of by- products not only lead to loss of potential revenues but also lead to the added and increasing cost of disposal



of these products. Besides pollution and hazardous aspects, in many cases, meat, poultry and fish processing wastes have a potential for recycling raw materials or for conversion into useful products of higher value. By-products such as blood, liver, lung, kidney, brain, spleen and tripe have good nutritive value. Other important products that can be prepared include leather, carcass meal, rendered fat, sausage casings, blood meal, horn and hoof meal etc.

### **Conclusions**

The meat processing industry in India is a burgeoning one with enormous potential. The total development of this industry requires enough support at all levels and in diverse forms. For the promotion of the meat processing industry, adequate financial and technical help from government and non-government organisations is crucial. Any of the aforementioned approaches can increase the value of meat. Making the business of producing and processing beef economically viable by making more money is urgently needed. Value addition to meat and animal products also encourages youngsters to have an entrepreneurial mindset so they can produce their own resources.

