Introduction to the General Principles of Agro-Processing:
Faced with the current economic realities, farmers worldwide are searching for new options of surviving, as well as expanding their business. One of the many opportunities to grow markets, turnover and profits, is by adding value to farm produce through further processing. Most value-added food products available to consumers have been processed in some way or other, even if the processing is as simple as cleaning produce before it is packed in plastic or net bags. Two types of processing methods may be performed on raw materials:

- Primary Processing: this type of processing includes the simplest of processes such as washing, peeling, chopping, ageing, the milling of wheat for flour production, and the processing of sugarcane;
- Secondary Processing: this type of processing involves the conversion of primary processed products into more complex food products and includes procedures such as mixing, depositing, layering, extruding, drying, fortifying, fermentation, pasteurisation, clarification, heating etc.

Agro-Processing of Meat Products:
The deregulation of the meat industry has resulted in more stock farmers being interested in slaughtering and marketing their own animals. Abattoirs on farms are also becoming more common. To process meat one does not have to have an abattoir on the farm. Approved meat can be brought in for processing. Meat is a very versatile food substance with a wide variety of processed product possibilities. Processed meat products are classified into three broad groups, based on the size of the meat particle used:

- Whole meat products – muscle tissue is still clearly recognisable and defined in the end product (e.g. ham, bacon, pressed pork or beef):
  - Bone-in ham or Gammon is the pickled whole hind leg of pork. The skin and fat can both be removed, or both are retained or only the skin removed. Smoking of the ham is optional.
  - Canned corned meat products are cured beef or mutton cuts that are cooked and canned and may contain seasonings and added starchy ingredients.
  - Cooked ham is usually deboned and reshaped ham that is cooked to coagulate the meat proteins and retain the new shape, although bone-in-ham can also be marketed as cooked ham.
  - Corned meat products include beef and mutton cuts that have been adequately cured, and prepared as a cooked vacuum packed product.
  - Deboned ham is a pickled whole muscle meat product made from the hind leg of a pig. The skin and fat can both be removed or both retained or only the skin removed. The bones are carefully removed with the minimum damage to the meat. The meat is then reshaped into any desired shape.
  - Dry-cured ham is manufactured using the traditional curing method whereby the meat is covered with dry salt. The salt and other curing agents are solubilised in the natural moisture present and penetration is as a result of diffusion.
  - Kassler ham is a cured, whole muscle meat product that is made from the pork fillet.
  - Sweetcure bacon is the boned rib and loin chops of pork with no fat removed. It may be either dry salted or brined and then smoked. It is sold raw and sliced. The meat to fat ratio should be no less than 3:1.
  - Wiltshire bacon is the generic term given to traditional tank cured bacon.
  - Canned bacon is Wiltshire or sweetcure bacon that may be sliced or chopped into pieces and canned with or without added ingredients.

- Minced meat products – meat structure has undergone a degree of breaking up for example in a mincer and the meat is no longer in a fibre form, but particle form (e.g. salami, fresh sausage, frikkadels, hamburger patties):
  - Fresh sausage is prepared from minced meat that is uncured, seasoned with salt and spices, and stuffed into casings without smoking or cooking. Examples include “boerewors”, beef sausage, pork bangers and mutton sausages.
  - Frozen hamburger patties are shaped, minced meat products containing added ingredients and seasoning that may be crumbed and flash-fried prior to freezing.
Hamburger patties are minced meat products containing added ingredients and seasoning which is pressed into a round, flat shape. Variations include bacon burgers and lamb burgers made from pre-cured pork and lamb respectively. Other variations include cheese patties and microwave patties.

Salami is a fermented chopped meat product. Fermentation reduces the pH to below 5.3. The product is also dried to remove at least 20 % moisture.

Uncooked smoked sausages can be cured or uncured, seasoned, stuffed into casings and smoked but not cooked prior to sale.

Russians are smoked sausages made from minced pork, beef and fat, embedded in a meat emulsion. It is flavoured with paprika and stuffed in pork casings.

- **Emulsified meat products** – the muscle tissue has been so finely minced that it is not recognisable any more in a fibrous or particle form (e.g. Frankfurters, Viennas, polonies and meatloaves):
  - **Frankfurters** are cooked, smoked sausages prepared form emulsified meat. Frankfurters are also cured, seasoned and skinned. It can be sold as a convenience product or a canned product.
  - **French Polony** is a typical emulsified sausage product that is stuffed in plastic casings for slicing purposes. It is the most basic type of luncheon meat and the basic Polony mixture (with or without the colouring) and processing method can be used as the basis for the manufacture of most other types of luncheon meats and loaves. These include olive loaves, egg loaves, pepper loaves etc.

Further Processing Options:
The products discussed above are only a small sample of the many processing methods and products available to the meat processor. The processing of **Edible Meat By-Products** can also be considered by the prospective processor and include products such as:

- **Canned tongue** is tongue that has been pickled and then heat processed in cans.
- **Cooked tongue** is tongue that has been pickled, cooked, sliced (optional) and vacuum packaged for retail outlets. All types of tongue can be pickled, including beef, lamb sheep and pig.
- **Pickled tongue** is a neatly trimmed beef, lamb or pork tongue that is free of bone, epiglottis, external fat, glands and skin that has been cured.
- **Liver spread** is an emulsified product stuffed in a plastic or natural casing and has a texture similar to paté.

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