

Red Meat Recovery System By Physical Separation

James L. Marsden*

During the past several years, various meat recovery systems have been developed. These systems include automatic knives, meat presses, sieves, low-temperature defatting and others. Traditionally, USDA has approved these processes on a case-by-case basis. A principal concern for USDA is whether the product derived from such processes is eligible to be labeled meat or poultry. A determination that a product is meat or poultry allows its use in processed products (including ground meat and ground poultry) without ingredient labeling being required.

Meat is currently defined in 9CFR 301.2 as, "The part of the muscle of any cattle, sheep, swine, or goats, which is skeletal or which is found in the tongue, and the diaphragm, heart, or in the esophagus, with or without the accompanying and overlying fat, and the portions of bone, skin, sinew, nerve, and blood vessels which normally accompany the muscle tissue and which are not separated from it in the process of dressing." Poultry has a somewhat less restrictive definition but embodies the same concepts. The definition does not restrict the type of intermediate processing steps that may take place, nor does it limit the definition of meat or poultry to an analytical standard.

A basic fallacy contained in the definition of meat is that carcass parts, such as fat, when separated from muscle become separate ingredients. Consequently, the ingredients must be labeled when used in a processed product or, in some cases, may not be permitted for use in certain products.

For example, a boneless pork shoulder can be processed into ground pork. No ingredient labeling is required. But, once the boneless shoulder is separated into muscle and fat portions, these products become separate ingredients. Consequently, if the fat ingredient is subsequently recombined with the lean ingredient to produce ground pork, an ingredient statement (pork, pork fat) is required even though both ground pork products have identical compositions. This regulatory rationale is obviously illogical.

Alternatively, the raw ingredients should be viewed in their totality as carcass derivatives and, therefore, meat. A process of separation should not automatically trigger ingredient labeling if the ingredients are recombined in natural proportions. Precedence for this standard has been established by allowing 15% ham trimmings in ham products and 20% skin in boneless chicken.

*J. L. Marsden, Vice President, Scientific and Technical Affairs, American Meat Institute, P.O. Box 3556, Washington, DC 20007.

Reciprocal Meat Conference Proceedings, Volume 46, 1993.

A logical interpretation of the definition of meat and poultry is that all carcass parts are capable of use as human food except those parts that are naturally considered inedible by humans. e.g. bone. The criteria for labeling carcass parts as meat or poultry should be based on a composite determination that products derived from carcasses must be predominantly muscle tissue and contain only incidental manufacturing defects that may result from the meat recovery process. The regulations for boneless poultry, commonly referred to as mechanically-deboned poultry, recognizes the concept of allowing incidental manufacturing defects in poultry products. One percent bone solids are allowed in boneless poultry product. No special labeling is required and the product can be used in unrestricted quantities. Stated differently, the definition of meat and poultry should be primarily based on the presence of muscle and the absence of carcass parts that are not normally consumed, i.e. bone.

The presence of muscle tissue can be readily determined by visual observation of the raw materials. For example, the presence of visible lean on bone or fat entering a processing system indicates muscle is available in enough quantities to be recovered. The process, whether it be physical separation, fat extraction or other manufacturing methods, should be of minimal concern to the regulator other than to assure that the product is safe and not misbranded. Mandatory nutritional labeling adds further validity to the argument that the method of muscle protein recovery is not as important to the consumer if the nutritional profile of the finished product is clearly labeled.

Additionally, since protein quality may vary depending on the particular carcass part, a threshold of at least 33% essential amino acid content or a protein efficiency ration of 2.5 could be established to assure that the product is predominantly muscle proteins.

The absence of carcass parts that are generally not considered to be consumed as meat or poultry, e.g. bone, can be measured by laboratory analysis. For instance, the calcium content of an ingredient could be used as a measurement of "unwanted" bone and a regulatory defect limit of 1% of bone content could be established. Such limitation would assure the consumer that the meat and poultry ingredient characteristics are within a normal range of expectations.

In summary, the following should be considered when defining meat and poultry.

The meat recovery process should be regulated primarily for health and safety reasons.

The meat or poultry ingredient should be regulated for the presence of muscle and the absence of carcass parts that are not normally consumed.

The meat or poultry ingredient should be considered as a total carcass derivative. Recombination of components in natural proportions should be permitted.

Analytical parameters should be established for the meat or poultry ingredients to assure muscle protein quality and limit bone content.

Using these principles as guidelines, AMI has for the past two years been actively cooperating with equipment manufacturers to develop commercial applications of new machines and processes. These applications would more efficiently trim meat and result in finished products which are clearly distinct

from the products generated through traditional separating equipment. Currently, a number of pork bones can be automatically trimmed using a Baader Separator and the resulting meat labeled as "pork." In addition, USDA recently approved labels for automatically trimmed beef neckbones, using a Protocon Automatic Deboner in conjunction with a Baader Separator. The trimmings produced through this equipment are labeled as "beef." AMI will continue to pursue regulatory changes to permit comparable labeling treatment of mechanically-separated meat and poultry and federal approval of new equipment and technologies that will permit more efficient and safer trimming of beef and pork carcasses.