POULTRY BY-PRODUCT MEAL LITERATURE

Description

Poultry by-product meal is one of the most important source of animal protein used to feed domestic animals, along with meat and bone meal, blood meal, feather meal and fish meal. It is made by combining the by-products coming from poultry slaughterhouses or poultry processing plants. The poultry by-product meal is defined as the ground, rendered, clean parts of the carcass of slaughtered poultry such as necks, heads, feet, undeveloped eggs, gizzards, and intestines (provided their content is removed), exclusive of feathers (except in such amounts as might occur unavoidably in good processing practices).

The nutrient content of poultry by-product meal can be quite variable and depends on the substrate that is being processed. It is generally a palatable and high-quality feed ingredient due to its content in essential amino acids, fatty acids, vitamins, and minerals. In addition to its use in livestock, it is in high demand from the pet food and aquaculture industries.

Poultry by-product meal is golden to medium brown in colour with a fresh poultry odour.

Distribution

Worldwide, more than 55.5 billion broilers were slaughtered in 2009 and yielded about 16.5% offal. Assuming an average weight at slaughter of 1.8 kg, it may be inferred that each broiler gives 0.3 kg offal. The total production of broiler offal can then be estimated at about 17 million tons/year. This estimation does not take spent laying hens into account.

Processes

Processing poultry offal into poultry by-product meal requires several steps. Poultry offal are primarily collected in containers where they can be stabilized through fermentation with molasses or brewer's grain. This operation reduces pH and stops bacterial and viral development. Stabilization may also be achieved with acid or basic treatments. Mineral acids such as sulfuric or phosphoric acids are effective in preserving poultry wastes. Organic acids are also potential preservative treatments. Among chemical bases, NaOH treatment is also a potential preservative.

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The traditional way of processing offal used to be wet-rendering (cooking under steam pressure) but it was replaced by dry-rendering, which resulted in meals of higher quality. The stabilized (or not) poultry offal is cooked/sterilized and dried down to 8% moisture. When the resulting meal appears to be too fat (above 16% fat), rancidity problems may occur during storage. Fat extraction is therefore recommended and yields a 10-12% fat content poultry by-product meal.

High-fat whole poultry meal can also be obtained by alkaline hydroxide treatment of whole poultry carcasses followed by freeze-drying (lyophilisation). Freeze-drying is an interesting way of stabilizing poultry carcasses before transformation into meal in places where odours are not tolerated by the neighbourhood. The resulting meal was found to be free of pathogens. It has a higher fat content and a lower crude protein than poultry by-product meal.

Environmental impact

Processing poultry by-products into feed is a good way to mitigate the environmental problems caused by poultry processing. If not effectively managed poultry offal released in the environment are vectors for insects, vermin, bacteria and viruses, which may result in water contamination (leaching of nutrients and pathogenic microorganisms) and air pollution (noxious gases and nuisance odorants)