

Utilization of poultry industry byproducts

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Introduction

- By-product : something produced in a usual industrial or biological process in addition to the principal product.
- Poultry by-products: feathers, blood, offal, hatchery waste, egg processing unit waste, poultry manure, dead birds.
- It is beneficial to utilize the by-products of poultry industry which have been dumped as waste except for poultry manure.
- Dressing percentage = **weight of carcass/live weight** ×100
- By-product utilization will generate substantial revenue, minimize environment pollution & will help to reduce livestock feed cost.



By products of poultry industry are

A - Poultry dressing plant waste (on live weight)

- Feathers 6%
- Blood 3.5%
- Offal -
 - Heads 3%
 - Feet 5%
 - Inedible viscera 9%

B - Hatchery waste

- Infertile eggs, dead embryos, egg shells, unhatched chicks.

C- Egg processing unit waste

- Unsound eggs & egg shells.

D -Poultry manure – used up deep litter & wet droppings from cage houses

E -Dead birds



FEATHERS

1.As livestock feed- Poultry feathers are hydrolysed to yield feather meal in by-product processing plant at a steam pressure of 30psi for 2 hours with continuous stirring. Feather meal has poor amino acid profile, Feathers are generally processed with blood.



<https://www.google.com/search?q=feathers+by+product&tbm=isch&hl=en&chips=q:feathers>



2.As bedding- Soft and fluffy down feathers are used to make comfort pillows and mattresses, these bedding articles have good warmth besides being easy to handle.



https://www.google.com/search?q=feathers+by+product&tbm=isch&hl=en&chips=q:feathers+by+product,online_chips:broiler+chicken



3.As fertilizer- Feathers are crushed and cooked under pressure to yield a good quality fertilizer.

4.Ornamental and sport use- Feathers are used for making artificial flowers, toys, Stiff feathers are used for making shuttle cocks.



BLOOD

- 1. As livestock feed-** Blood collected in the poultry dressing plant can be processed in a simple cooker to yield dry blood meal with 9 percent moisture. Blood meal alone is not so palatable to the livestock, blood and feathers are usually cooked together in a by product processing plant. Blood and feather meal combinedly has a rich amino acid profile and very good digestibility.
- 2. As fertilizer-** Decomposed blood can be simply cooked for sometime to reduce moisture and use as fertilizer in the fields.
- 3. As fish bait-** Blood can also be used as a bait during fishing operations.



OFFAL

- Heads, feet and inedible viscera.
- Inedible viscera:- intestines, lungs, pancreas, spleen and the reproductive organs
- Offal are generally processed for the following purposes:-
 1. **As livestock feed:** Offal are cooked in the by-product processing plant at 15 psi pressure for half an hour and allowed to dry. After cooling, fat is extracted and material is ground to yield offal meal.
 2. **As pet food:** Poultry offal is utilized as a good quality pet food especially for dogs. For this purpose, offal is washed, cooked, ground and then mixed with other products to form pellets.



3. **As a feed for fur bearing animals:** In cold countries, poultry offal are used as a feed for fur bearing animals as a replacement for costly meals.
4. **As fish food:** In fish hatcheries, poultry offal is cooked, ground and utilized as delicious fish food.



MIXED POULTRY BYPRODUCTS MEAL

- Poultry offal, blood and feathers are mixed in their natural proportion and dry rendered at a pressure of 15 psi for 3 hours to ultimately yield a meal with only 8% moisture. Dead birds can also be included in the charge.



Hatchery waste

- Hatchery waste other than egg shells is utilized in the preparation of hatchery by-product meal which is comparable to fish meal (60-72%) with respect to protein content.
- The meal can be used in poultry ration at 3 percent level.
- The yield of hatchery by-product meal is about 25 percent, it contains 35% crude protein, 40% crude fat and 4.5 percent total ash.
- Calcium and phosphorous content are 0.05 % and 1% respectively.



Poultry manure

1 As fertilizer: poultry manure has been traditionally used as a fertilizer its nutrient value depends upon litter to manure ratio.

- Dried manure contain 15 to 18% moisture, 25 to 30 %ash, 6 to 8% uric acid(nonprotein nitrogen), 15 to 25% ash, 3to 6% calcium and 1.5 to 2% phosphorus.
- It has good fertilizing value for crops, lawns and gardens.
- It improves soil structure because of high organic content.

2 As livestock feed cage poultry manure is used as feed for pigs and poultry.

- Deep litter is used as feed for ruminants.
- Moisture content is 10% or less, it can also be autoclaved at 15psi pressure for 30 minutes and taken to hot air drier for drying.
- Dehydrated poultry manure has been successfully incorporated up to level of 15 % in layer poultry ration.
- It will economize the poultry production as such by yielding various by product meals for feeding poultry



REFERENCE

- Sharma, B.D. & Sharma, K. (2011). Outlines of meat science and technology. Jaypee brothers medical publisher.



THANK YOU



**FRESH
CHICKEN**



**CHICKEN
BY PRODUCT**

