What Is **CHICKEN BY-PRODUCT** MEAL?

Chicken by-product meal is a produced through a process of cooking, drying and separation of animal fats and proteins. It contains a dehydrated combination of meat (or cuts or parts) including lungs, spleen, kidneys, livers, blood, bone, necks, undeveloped eggs and intestines. Materials that would be indigestible without further processing are not included. Such materials include: hair, horns, teeth, hooves and feathers. Chicken by-product meal is much more nutrient dense than the ingredient "chicken", which includes water (60% +).

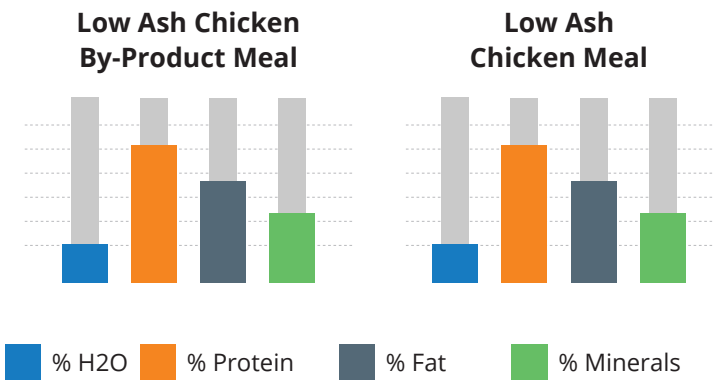
Loyall by-products are sourced from human food dedicated slaughterhouses and are composed of clean, fresh parts from animals that have been veterinarian-inspected and deemed heathy prior to slaughter. Loyall never uses 4-D meat, which include dead dying, disabled or diseased animals.

Chicken by-product meal is low in fat, as well, and is thoroughly cooked, minimizing the risk of contamination (salmonella).

THERE IS NO CHANGE IN THE NUTRITION PROVIDED

01. The formulas have the same nutritional profile;
02. Provide the same provide consistent digestibility;
03. Have maintained high palatability.

The use of these organs provided the highest nutritional precision on diet formulation.



NUTRITIONAL VALUE OF BY-PRODUCTS

Organ meats are a source of important and essential nutrients:

BY-PRODUCT	NUTRIENT	BENEFITS
BRAIN	DHA	Fatty acid with anti-inflammatory properties, important in neurological development and visual acuity.
BLOOD	Iron	Essential mineral for prevention and treatment of anemia.
	Protein	Contributes to daily requirement of protein.
BONES	Source of Minerals (calcium, magnesium, etc.)	Essential mineral. Support strong bones and teeth.
CONNECTIVE TISSUE	Chondroitin	Support joint health.
HEART	Taurine	Supports heart health (essential for cats).
	L-Carnitine, Protein, etc.	Supports heart health, in addition to supporting the use of fat as an energy source.
LIVER	Iron, B Vitamins (esp. B12), Vitamin A, etc.	Support multiple systems including; nervous system, skin, growth, red blood cell formation, vision, etc.

What Is
CHICKEN BY-PRODUCT MEAL?

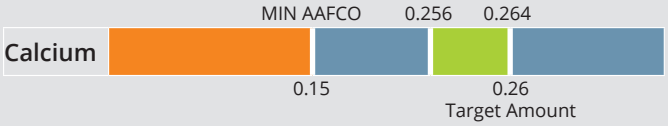
NUTRITIONAL PRECISION

Loyall uses a precise 2-step process to select the materials found in our by-products:

1	2
HAND SORTING	**TRIMMING**
Separation of different parts.	Removing undesired portions from the material itself.
HEARTS FROM LIVERS	REMOVING FATTY SKIN FROM CHICKEN NECK

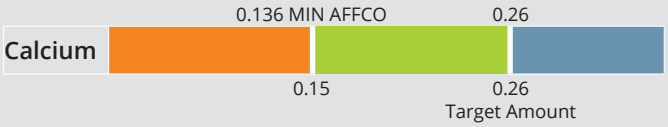
- Trimming allows specific materials to be selected based on their nutrient content.
- Trimming reduces the range of variability of specific nutrients and ensures the nutrient levels occupy a high range close to a predetermined target amount.

Whith 2 step trimming (Calcium/100kCal)



Without trimming there will be larger nutrient variability, the ranges of which can reach far above of below the predetermined target, hereby reducing nutritional precision.

WITHOUT trimming (Calcium/100kCal)



Below AAFCO minimum
Above AAFCO minimum
Range of nutrient variability in raw material

In this really where we want to place more pressure when sources of rich nutrients are currently available that do not increase pressures?

CONSIDER THIS . . .

- **The human population is growing at an exponential rate.**
- **Human consumption of chicken alone has doubled in the last 30 years.**
- **The increase human demand worldwide has decreased the amount of chicken meat available for other uses.**

HOW IS PRODUCTION MEETING THIS INCREASED DEMAND WORLDWIDE?

- Worldwide chicken meat and egg production has increased over the last 30 years. (Yegani 2008)
- However, in Canada production has not grown in the last three years. (Statistique Canada 2012)
- In the United States poultry production has experienced a decline. (USDA 2012)
- The proposed decline in the United States production is expected to be a result of increased grain cost. (USDA 2012)

Similar scenarios are a possibility of other countries in the future.

WHAT ABOUT ALTERNATIVE MEAT?

Increasing demand on these alternate sources will create similar pressures to those already being felt in the poultry industry.

In 2010, five populations of Atlantic salmon were declared endangered, one threatened, one extinct, and four others of special concern.

WHAT HAPPENS TO THE PARTS OF THE CHICKEN THAT AREN'T EATEN BY HUMANS?

This waste includes many highly digestible tissues that provide sources of valuable nutrients. Instead we could be using these by-products to produce nutritious, complete formulas for our pets without creating increased pressure on poultry production. (Agriculture et Agroalimentaire Canada, 2009).