

*Salahaddin University
College of Agriculture
Animal Resource Dpt.*



PRACTICAL OF POULTRY Product Technology

POULTRY PROCESSING

Fourth Class

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Poultry Processing

Poultry meat is consumed all around the world and over the last few decades, has increased in popularity in many countries. Among the reasons for this increased consumption are the relatively low costs of production, the rapid growth rate of poultry, the high nutritional value of the meat and the introduction of many new further processed products.

Processing Steps

1. Bleeding

- ❖ After stunning, the birds are passed through an automated knife that makes an incision on the neck to cut the major blood vessels.
- ❖ With the carcass hanging upside down and the major blood vessels cut, the majority of the blood is drained from the carcass.
- ❖ The bleed-out phase takes anywhere between 2–5 min, depending on factors such as bird size and type. During the process, about 35–50% of the total blood is lost.
- ❖ Incomplete carcasses or hemorrhages can be clearly and easily noticed after the feather picking because they are reddish-skinned. Usually, such carcasses are not suitable for human consumption and must be discarded.

2-Scalding

- ❖ Scalding loosens the feathers to facilitate their removal.

Methods of Scalding are:-

1- Soft scalding/semi scalding entails scalding for 60 to 180 s in water at 50 to 53°C. This method leaves the epidermal layer intact, which is why it is commonly used for young broilers and turkeys but still allows for relatively easy feather removal. Water that is too hot will cause the outer layer of skin to loosen or be lost. Such loss also results in the loss of some yellow pigment from the skin.

2- Sub scalding/medium scalding is used for mature birds, and involves using water at 54 to 58°C for 60 to 120 s. The epidermal layer is broken down by this time–temperature combination, and the feathers are usually much easier to remove.

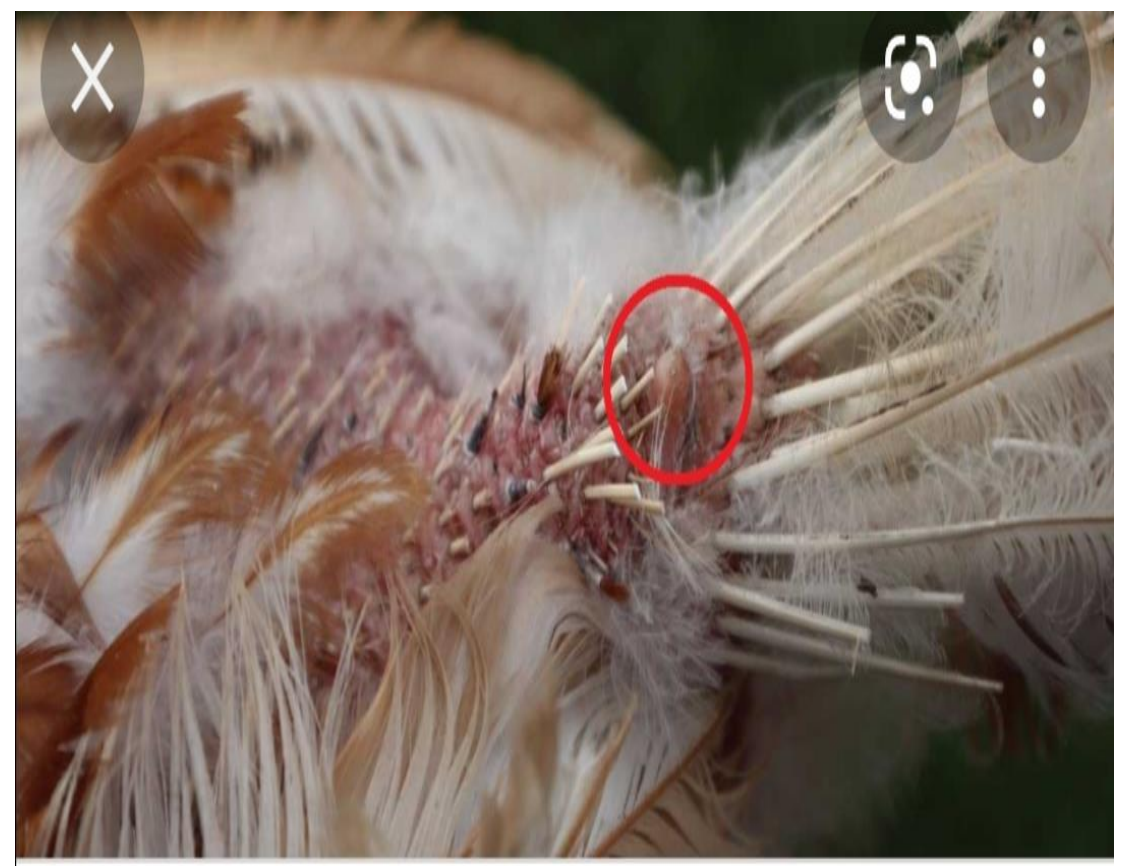
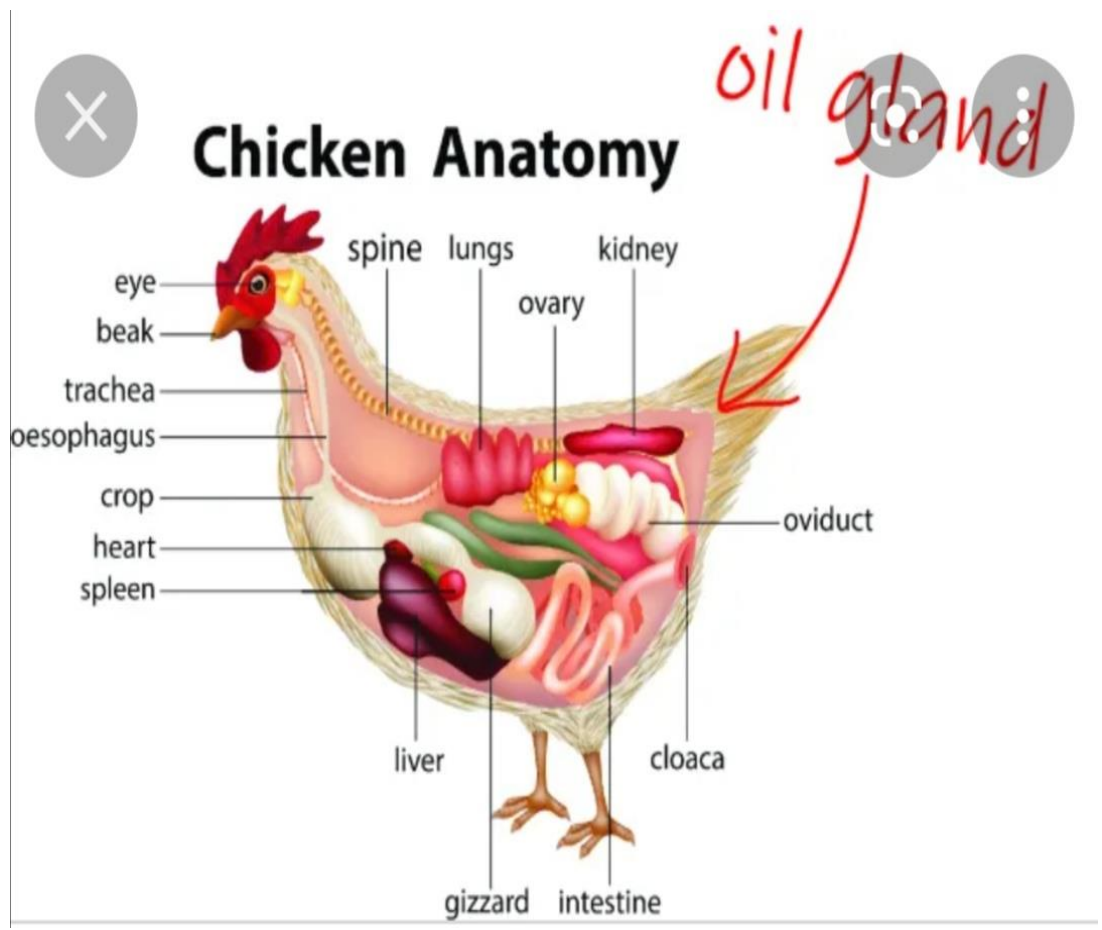
3- Hard scalding/full scalding requires a water temperature above 60°C for 45 to 90 s. This method is faster and eliminates pinfeathers, but the birds tend to dry out and have a less desirable appearance. It is easier to remove the feathers from carcasses scalded at this temperature than from those scalded at lower temperature, skin becomes discolored soon after processing. As a result, the carcass must be kept covered with a packaging material or moist with ice or water.

3- Picking

- ❖ Picking is a term that refers to feather removal.
- ❖ The picker removes the feathers on the carcass.
- ❖ The picker is an automated machine that contains rubber finger-like projections that rotate in a circular motion to remove feathers without damaging the carcass.

4- Removal of feet, head, neck and oil glands

- ❖ Feet are removed at the ankle joints.
- ❖ The head is cut and removed.
- ❖ The neck is cut by machine and esophagus is exposed.



5- Evisceration

- ❖ Evisceration refers to the removal of internal organs.
- ❖ The inedible viscera consists of the spleen, esophagus, lungs, intestines and reproductive organs.
- ❖ The intestines (viscera) are federally inspected for signs of disease or other problems.
- ❖ Identified disease or other problems results in the removal, or condemnation, of the carcass from the processing line.
- ❖ The edible viscera, or giblets, consists of the heart, liver, and gizzard.
- ❖ The giblets are packaged in the carcass or sold separately.



6- Washing the carcass

- ❖ The carcasses are cleaned for microbial and visible concerns.
- ❖ When processing chicken, microbial bacteria such as E. Coli and Salmonella are analyzed.

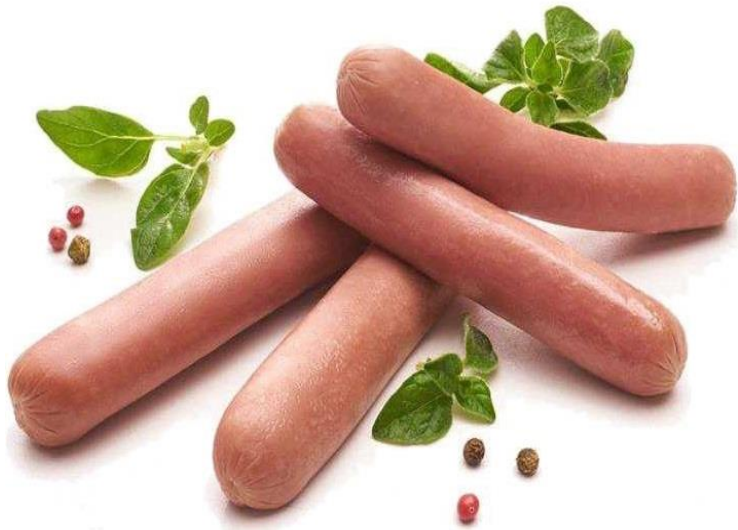
7- Chilling

- ❖ The carcass temperature must be reduced to prevent microbial growth.
- ❖ The USDA specifies the amount of chilling for specific bird sizes.
- ❖ 4 lb broiler: 40 °F within 4 hours
- ❖ 4-8 lb broiler: 40 °F within 6 hours
- ❖ >8 lb broiler: 40 °F within 8 hours

- ❖ Submerging the carcass in an ice (chilled water) bath is the most common method of carcass chilling.
- ❖ Carcass can also be chilled by air chilling.
- ❖ Air chilling occurs by passing cold air over the carcass.

8- Further processing

- ❖ The whole carcass or cut-up and deboned pieces may be further processed for added value.
- ❖ Further processing may include forming, curing, smoking, and cooking of products.
- ❖ Forming product requires a change in particle size and often includes the addition of nutrients to add flavor.
- ❖ Forming product also requires the use of a mold to obtain desired shape.
- ❖ Formed products include hot dogs, chicken nuggets, or sausage.
- ❖ Curing involves the addition of preservatives, often nitrates, to the meat to improve flavor and product shelf-life.
- ❖ Smoking also acts as a preservative while providing additional flavor to the product.
- ❖ Some product may prepared in a form that is edible without additional preparation and is known as “ready-to-eat”.



9-Storage

- ❖ Poultry meat should be refrigerated around 30°F. Keeping the poultry below 40°F reduces the risk of microbial growth.
- ❖ Refrigeration and freezing does not kill all microbes.