



MODULE NO. 18: Primary processing of poultry

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Poultry

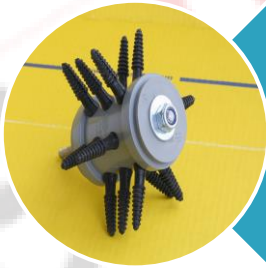
- ✓ Poultry is a category of domesticated birds kept by humans for the purpose of collecting of their eggs, or killing for their meat or feathers.
- ✓ Poultry is the second most widely eaten meat in the world
- ✓ Poultry comes from the French word *poule*, itself derived from the Latin word *pullus*, which means small animal.



Primary processing of poultry



1. Scalding



2. Picking



3. Evisceration



1. Scalding

Scalding is the process of submerging the birds/carcass in hot water to loosen the feather so that they can be easily separated further.





Scalding process

- After bleeding, the birds go through scalding tanks.
- Soft-scald is used (about 50°C or 122°F) if retention of the yellow skin colour is desired, but if a white bird is desired, a higher scald temperature is used, resulting in the removal of the yellow pellicle.
- A hard scald of 58°C for 2.5 minutes will remove the epidermis of poultry and this is commonly used for carcasses that will be frozen so that their appearance is white and attractive.



Scalding method

- ✓ For birds that are difficult to scald (waterfowl) a wetting agent or detergent may be added to the water.
- ✓ For waterfowl and mature birds a higher temperature and longer submersion time should be used.
- ✓ For younger birds a lower temperature and shorter time is recommended.



Semi-scald or slack scald:

- Scalding for 30-60 s in 125-130 °F water.
- Appearance of the carcass is improved.



Sub-scald :

- Sub-scald is the use of water at 138-140 °F for 30-75 seconds
- For home processing this method of scalding is recommended



Hard-scald or full scald:

- Hard-scald or full scald requires a water temperature of 140-150 °F.
- Waterfowl may be scalded at this temperature.



Types of scalding

➤ **Automated Scalding:**

Hard Scalding

Medium Scalding

Soft Scalding

➤ **Manual Scalding**





Automated Scalding

Hard Scalding:

Very high temperature ranging from 140 to 160°F for 10 to 90s is applied to loosen the skin which is removed during the defeathering process.

Automated hard scalding is performed by immersing the birds in a tank while they are hanging from an overhead conveyor.



Medium Scalding

The only difference from hard scalding is the temperature and cycle time.

Values for medium scalding range from 129 -136°F for 60-120 seconds. Faster processing can be achieved by scalding at 140-145°F for 15-30 seconds.



Soft Scalding

Soft (semi) scalding is used for most broilers and roasters (chickens) and for young turkeys.

Soft scalding immerses the birds in 124 - 130°F for 45 seconds.



Manual Scalding

The dead bird is immersed in 140-150°F water for about 1 minute.

In most cases, an open tank is used that can accommodate one to ten birds, and the water is kept hot by a burner located in the bottom of the tank.

The major advantage of manual scalding processes is low capital cost.



Large plant scalding process

- Large plants may use a bird scrubber (large rotating brushes on either side of the bird) and also spray the birds with chlorinated water before putting them in the scalding tank.
- The tanks also have a counter-current flow of water, which produces a dirty-to-clean gradient



2. Picking

- Picking is the process of removal of feathers from the poultry.
- It is the second step in processing of poultry after killing





Advantages of dry picking are;

- Birds keep better appearance.
- Most sanitary method.



Disadvantage of dry picking;

- It is slightly more expensive method than scald picking.
- Birds to be plucked are subjected to machine and should be plucked immediately after scalding.



Picking process

- Quality of picking is related to scalding process
- If scalding water to be used is too cool then the feathers won't loose but if it is too hot then skin will tear in picker
- Thus pinning process is done which involves removal of **pinfeathers** by hand while **singeing** is another process that involves passing the bird through flame to burn small hair-like feathers.



Picking machinery

✓ The poultry is subjected to the feather-picking machines, which are equipped with rubber “fingers” specifically designed to beat off the feathers



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- ✓ There is an extra step in the process called as wax dipping which is used for waterfowl as their feathers are more difficult to remove.



Types of pickers

1. Drum picker

2. Tub or batch picker:

1. Drum picker

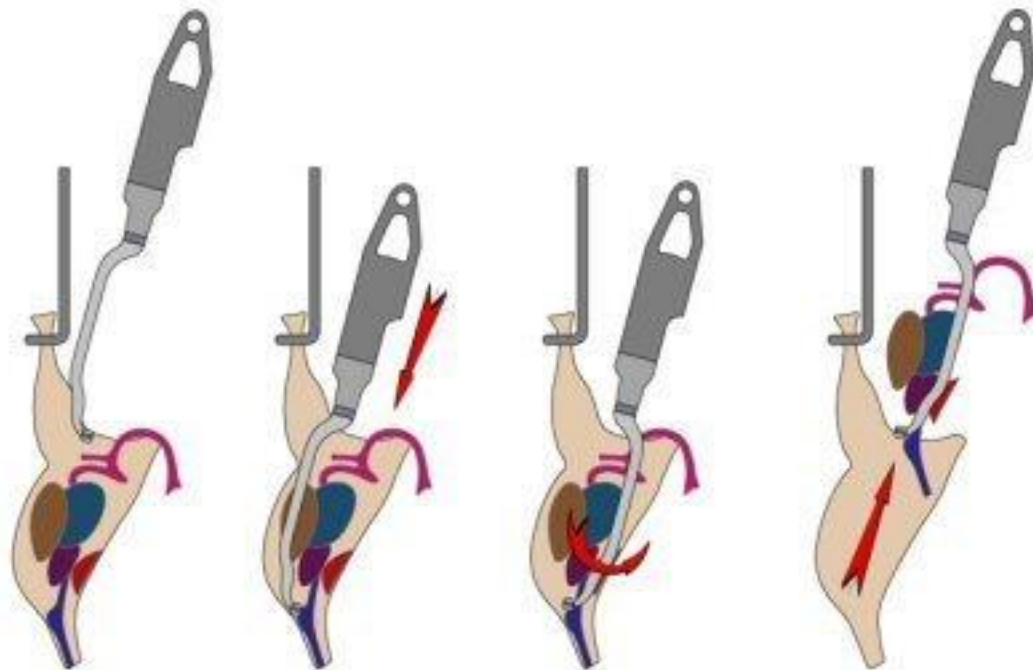
A drum picker consists of a cylinder with rubber fingers around the exterior. The operator holds the bird above the cylinder, rotating it as the cylinder spins and picks off feathers.

2. Tub or batch picker:

- ✓ A tub or batch picker is a rotating tub with rubber fingers mounted on the inside walls.
- ✓ It can handle 2 birds at a time.
- ✓ Elasticity and length of the fingers varies, depending on the task required, machine speed, etc.

3. Evisceration

Evisceration is the process for removal of edible and inedible viscera from the carcass.



Evisceration process in poultry involves three basic objectives:

1. The body cavity of the poultry is opened
2. The viscera is drawn out
3. The edible viscera or “giblets” are separated from the extracted viscera and washed with water

Evisceration process

- ✓ The process is done either manually or automatically.
- ✓ The manual process is performed using a knife and a pair of scissors or semi-automatically or fully automatically using a circular cutting blade and a scoop-like arm to withdraw the viscera.
- ✓ The latter is done on high-speed lines (i.e., 2,000–8,000 birds per hour). In all cases, special care should be taken not to pierce the viscera and contaminate the carcass.

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- ✓ To eviscerate manually, body cavity can be opened by making a small cut near the vent, extending the cut around the vent, care should be taken not to cut the intestine or contaminate the carcass with faecal material, and draw out the organs.
- ✓ After all the contents of the cavity are removed the bird should be thoroughly washed inside and out.

Suggested Readings

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