

# DEPARTMENT OF LIVESTOCK PRODUCTS TECHNOLOGY

## TOPIC:-PRESERVATION & MAINTENANCE OF EGGS



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- A freshly laid egg is assumed to have a higher quality.
  - Cleanliness & soundness of the shell approves the quality to the consumers.
  - Proper handling of egg can protect the quality of eggs.



### **Precautions while handling the eggs:-**

- Eggs should be collected 3-4 times a day.
- Now, eggs are shifted to holding room having a temp of 15°C & 70-80% RH for atleast 12hrs.
- Egg should be properly packed in filler flats with broad end up.
- Eggs should be rapidly moved to marketing channel to reduce the period between production & consumption.



## **Physico-chemical changes altering the quality of egg:-**

-As the surface of egg dries, keratin cuticle shrinks & size of shell Pores increases.

-After an egg is laid, during the first few hours the carbonic acid breakdown & CO<sub>2</sub> is lost from the albumin developing alkaline pH.

-As the egg ages, water migrates from albumin to yolk & this may overstretch, weaken/ even rupture the vitelline membrane.



## **PRESERVATION METHODS:-**

1. Egg cleaning
2. Cold storage
3. Cold storage
4. Thermo-stabilization
5. Immersion in liquids



## **EGG CLEANING:-**

- Previously the eggs with dirty shells are dry cleaned by abrasive mounting on mechanical wheel.
- Now-a-days, warm water with detergent sanitizer is used for cleaning the eggs with dirty shells.
- The temperature difference between wash water & egg should not be immersed for more than 3-4 min.
- Dry the eggs promptly after washing.
- Egg cleaning not only reduces the microbial load on the egg shell surface but also improves the consumer appeal.





## **OIL TREATMENT:-**

- Oil coating forms a thin film on the surface of the shell sealing the pores.
- Oil treatment should be done within the first few hours of laying the eggs.
- Oil coating can be done by dipping the eggs in ground nut oil.
- Oil spray is done by placing the eggs in filler flats with broad end up.



## Note:-

- Oil treatment Should be done after washing the eggs.
- The temperature of oil should be in the range of 15-30° C for ideal results.
- Drain the excess oil before packaging.





## **COLD STORAGE:-**

- The temperature of cold storage is  $0^{\circ}\text{C}$ ( $32^{\circ}\text{F}$ ) & Relative humidity is between 80-85%.
- Use of new packaging trays should be advised for cold storage.
- Oil coating prior to cold storage can further enhance their keeping quality.
- Such eggs could keep well at  $14^{\circ}\text{C}$  & 90% RH for a period of 8 months.
- An anteroom with intermediate temperature is generally provided to check condensation of water vapour on the eggs during removal.





## **THERMO-STABILIZATION:-**

- In this holding of eggs is done in oil bath at 55°C for 15min or 58°C for 10min.
- This causes coagulation of thin albumin just below the shell membranes & blocks the passage of air & moisture.
- We can also immerse eggs in hot water at 71°C for 2-3 Seconds.
- This method also coagulates the albumen & seals the egg from inside.



## IMMERSION IN LIQUIDS:-

**Lime water treatment:-** 5 litres of boiling water + 1kg of quick lime



Cool down



5 litres of water + 250g of table salt



Strain the solution



Dip the eggs for overnight



Dry the eggs



- In this process an additional thin film of calcium carbonate is deposited on the Shell & seals the pores.
- Such eggs can be stored for a month at ambient temperature.



## Water glass treatment:-

- In this method one Part of sodium silicate is mixed with 10 parts of water and eggs dipped in this solution for overnight.
- In this process a thin precipitate of silica is deposited on the egg shell & partially seals the pores.



**REF:-** Outlines of Meat science & Technology, B.D.sharma.

**Photos:**<https://images.app.goo.gl/5uKRT1TpWKNadrKe6>  
<https://www.google.com/imgres?>

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**THANK YOU**