# Broiler Litter

**Definition:** Bedding materials of poultry is called litter.

Poultry litter or broiler litter is a mixture of poultry excreta, spilled feed, feathers, and material used as bedding in poultry operations. Poultry litter is used in confinement buildings used for raising broilers, turkeys and other birds. Common bedding materials include wood shavings, sawdust, peanut hulls, rice husk, straw, chopped sugar cane bagasse, dry leaves, crushed maize cob and other dry absorbent, low-cost organic materials. Lime, Sand is also occasionally used as bedding. The bedding materials help absorb moisture, limiting the production of ammonia and harmful pathogens. The materials used for bedding can also have a significant impact on carcass quality and bird performance.

There are specific practices that must be followed to properly maintain the litter and maximize the health and productivity of the flocks raised on it. Many factors must be considered in successful litter management including time of the year, depth of the litter, floor space per bird, feeding practices, disease, the kind of floor, ventilation, watering devices, litter amendment, and even the potential fertilizer value of the litter after it is removed from the house. Most poultry are grown on dirt floors with some type of bedding material. In many areas of the country, rice husk and sawdust have historically been the bedding of choice for poultry production. Regionally, other materials have been the bedding material of choice due to regional cost and availability, such as rice straw can be used in dry season.

**History:** In the 2nd World War the poultry labors leaved the farm keeping the birds in the uncleaned room in confinement floor and farm owner facing huge shortage of manpower to clean the droppings. At that time farm owner started using of dry materials to absorb moisture from urine and faeces. It was thought that as a result of living on litter soiled with droppings, epidemic of infectious disease would break-out and the birds would die. But it simply did not happen and the health and production of birds were improved. Now use of litter in poultry house is a technology.

**Litter materials:** At first 2 days of brooding newspaper is used on litter. Organic materials like rice husk, sawdust, groundnut shell, chopping straw-rice straw and wheat straw, dry leaves, wood shavings, dried cane fiber and corncobs etc. Inorganic materials such as calcium oxide powder, ash, sand etc.

## Characteristics of litter materials

- Good absorbent having moisture absorbing capacity from droppings
- Inexpensive and available
- Light in weight, soft and comfortable
- Small in size
- Litter ridge not sharp
- Less heat conductor
- It should be nontoxic
- Calcium oxide inhabits the growth of parasite and microorganism.

**Classification of litter**

Litter is classified on the basis of following points:

**1. Type of material is used-**

a) Organic litter- Wood shavings; saw dust; rice husk; groundnut shell; straw chopping etc.

b) Inorganic litter- Calcium oxide powder, Ash, sand etc.

**2. Depth of litter-**

a) Shallow litter - Uses for chicks or broilers. Usually 5-7cm (2") in height.

b) Deep litter- Uses for layer. Usually 15-23cm (6-8") in height.

**3. Duration of litter-**

a) Fresh litter: For two month

b) Built up litter: Six months or so old

## Minimum Litter Requirement

| Litter Type | Minimum Depth Or Volume |
|---|---|
| Wood shavings | 2.5 cm (1 in.) |
| Dry sawdust | 2.5 cm (1 in.) |
| Chopped straw | 1 kg/m2 |
| Rice hulls | 5 cm (2 in.) |
| Sunflower Husks | 5 cm (2 in.) |
| Sawdust | 5 cm (2 in.) |

## Advantages of using litter in poultry house

- It absorbs the moisture from poultry droppings
- It dilutes excreta, thus minimizing bird to manure contact.
- It provides an insulation from cold floor temperature
- It helps to keep the floor dry.
- In organic litter material like calcium oxide inhabits the growth of parasite and microorganism.
- Birds feel comfort on house litter.
- It reduces warm in summer and cool in winter.
- Poultry show good health in litter
- It improves production
- It saves labors
- It limits the production of ammonia and harmful pathogens
- It helps to reduce respiratory stress
- Foot pad dermatitis incidence is reduced if the litter is of good quality
- Management of poultry becomes easy
- It improves carcass quality of birds
- Wastage litter also can be used in fish culture
- Litter can be used to produce bio-gas
- It has a potential fertilizer value after it is removed from the house.

**Disadvantage of wet litter**

- It's important to understand that where ammonia exists, moisture exists, excessive moisture can do disorder on bird performance and health.

- Excessive moisture in broiler litter can cause litter caking, which is most commonly seen around drinker lines, sidewalls and corners.

- Wet litter does not retain heat well, so it can lower bird's body temperature which can be detrimental to weight gain, feed conversion and immune function.

- Wet litter with high ammonia concentrations increases the incidents of paw lesions and makes the litter more susceptible to mold growth.

## Litter Management is necessary particularly for wet, dust and caked litters:

- Preheat houses 48-96 hours prior to bird placement to dry the bedding and warm the floor. Be sure to maintain a relative humidity of 50% to 70% by ventilating as needed otherwise caking will occur.

- Keep litter depth at about 5 inches. This will provide sufficient moisture absorbing capacity without being too deep. Litter less than five inches deep often has excessive caking which can lead to high bedding replacement costs.

- Add an extra inch or two of litter along sidewalls in houses with concrete footers for better insulation. The extra litter will absorb the excess moisture from wall.

- Keep litter level throughout the house so it doesn't interfere with proper drinker and feeder line height.

- Ventilate to maintain the ideal relative humidity of 50-70% during brooding to prevent moisture build-up and increased ammonia production, thereby preventing foot lesions and cake formation.

- Fully wet or caked litter must be changed by new litter

- All possible measures should be taken to reduce litter moisture

- To reduce dirt it is better to use water spray on litter
- Any portion of wet litter should be changed immediately by new litter
- litter racking gives good result to reduce moisture

## Use of wastage litter

It is a complete fertilizer. It contains 10 times higher nitrogen than cow dung. Cow dung Nitrogen is 0.25-0.30 % and litter is 2.5-3.0 %. Besides, it is used as fish feed. No supplementary feeds need for fish if use litter. Its response is good in shrimp cultivation. Litter helps to grow phyto-plankton and zoo-plankton in water. It can be used in crop field as organic manure and bio-gas can be produced from litter.

## Composition of litter:

| Elements | Amount % |
|---|---|
| Nitrogen | 2.5-3.0 |
| Phosphorus | 2.73 |
| Potassium | 2.30 |
| Magnesium | 0.65 |
| Sodium | 0.63 |
| Calcium | 2.70 |