



Management of Poultry During Winter or Cold Weather

Digjay V. Kabariya*, Prashant B. Dabhi, Ritu J. Patel, Vedanshee R. Joshi and Akash Golaviya
Department of Veterinary Pathology, College of Veterinary Science and Animal Husbandry, Kamdhenu
University, Anand-388001, Gujarat, India.
<https://doi.org/10.5281/zenodo.7486126>

Poultry farming is both an art and a science, and management is key to determining this industry's viability. It has been observed over the years that high market rates of broiler meat and eggs are only observed when rearing is extremely difficult due to harsh weather, and thus demand exceeds supply. As a result, understanding and implementing the best management practices in such a harsh climate is critical.

India has an extraordinary range of climatic zones, from the tropics in the south to temperate and alpine in the Himalayan north. India's population is exposed to a variety of climates. But almost every part of India has three to five distinct seasons throughout the year. Winter is one of those climates that not only harms human health but also harms our animals and poultry population. Without additional precautions, maintaining livability and output becomes very challenging.

Winter management is highly challenging and frequently regarded as a double-edged sword because a very precise balance between climate control and ventilation control is needed. Like this, it takes highly careful decision-making to lower production costs while maintaining a healthy environment. Despite age-related increases in cold tolerance, young chickens struggle to maintain body temperature, and when the outside temperature falls below 20 degrees Celsius, they become stressed and less productive. High mortality, high disease incidence, and performance decline are frequently caused by failure to maintain optimal temperature.

When the temperature drops below 55°F in the winter, poultry faces a number of challenges, including decreased water consumption, decreased egg production, decreased fruitfulness and poor FCR in broilers, hatchability, decreased fertility, decreased weight gain, increased bird mortality, and so on. In the winter, when the mercury level drops and the climate changes from warm to cold, poultry ranchers may face difficulties due to the low ambient temperature, inadequate ventilation, and shortened photoperiod.



The production of eggs and meat may be impacted by these environmental changes either directly or indirectly.

In order to overcome financial losses, poultry farmers must be ready to embrace these problems and advocate for certain cold stress-relieving techniques. It is believed that poultry shed infrastructure, particularly in rural India, is subpar due to a lack of essential facilities like electricity. The handling of birds over the winter is therefore a crucial skill for poultry ranchers.



The fundamental concepts of management in difficult climates remain the same, even though methods may vary significantly from place to region. A few fundamental ideas are provided below that could help you make wise decisions.

- a) Proper ventilation to provide fresh air and removing gases inside house is always required
- b) Proper temperature and humidity suitable for the age is always required
- c) The drinking water should be maintained at suitable temperature to promote water intake
- d) The rearing surface and bedding material should be always warm and dry
- e) The feed & feeding practice should help bird to maintain their body temperature, metabolism, and osmo-regulation

Chicken farmers can take the following actions to increase poultry output over the winter as well:

1. Orientation of poultry house
2. Ventilation management
3. Poultry litter management
4. Poultry feeding management
5. Poultry water management
6. Brooding Management
7. Supplementary management

1. Orientation of poultry house

A poultry house should be built to give birds all the comfort they need throughout the winter. The orientation of a building in relation to the wind and sun influences temperature and light on various external surfaces. Because the arc of the sun's visible path is shortened in winter, an east west



Use of gunny bags for prevention of cold air entering in shed



alignment of a rectangular house provides the most solar energy gain in winter. The shed should be designed so that as much natural light as possible enters it during the day. Gunny bags should be hung at the locations where the cold air penetrates to protect birds from the chilly winds. As soon as the sun sets in the evening and until dawn the following morning, these gunny bags should be hung down.

2. Ventilation management

During the winter season it is necessary to keep the house draft free but with plenty of ventilation. Birds expel a lot of moisture in their breath and droppings, which is bad for their health. If there isn't enough ventilation, ammonia builds up in the air, causing respiratory problems. As a result, they require plenty of fresh air to circulate throughout the



house. Sliding windows are ideal for this purpose because they can be opened during the day and closed at night. Exhaust fans should also be installed to remove impure air.

3. Poultry litter management

Before chicks being settled in the shed, the floor surface needs to be stabled with a bedding material known as litter. It makes the birds feel at ease and comfortable. A plush quality of bedding material helps keep a consistent temperature by acting as insulation. In addition, it absorbs excess moisture, dampening, and promotes drying. It weakens faecal matter and lessens the likelihood of feathered creatures



coming into contact with fertilizer. Additionally, it protects the birds from the chilly ground and acts as a cushion between the birds and the ground. The recommended amount of bedding or litter for the winter is about 6 inches. The bird will stay warm enough in this litter during the winter. The moisture level in the litter should typically fall between 25 and 35 percent. But this waste must be managed carefully, or it would quickly become wet from water coming from other sources. As a result, cakes begin to form in the litter, which provide a great environment for bacterial development and ammonia generation. If the litter gets too



soggy and a cake has already formed, it's best to replenish it. In the winter, avoid emptying the shed since the built-up debris keeps the shed's interior warm. If litter removal is required, then a portion of the litter must be removed.

4. Poultry feeding management

In order to maintain a normal body temperature and support proper physiological functions, poultry uses nutrients from food for two major purposes: as an energy source and as a building block for the development of bones, feathers, flesh, eggs, etc. Therefore, a sufficient, well-balanced, and healthy ration should be provided to the chickens to meet these needs. A low ambient temperature increases the need for oxygen and the consumption of feed. Therefore, it is obvious to give birds an ample amount of food as they need extra energy for maintaining body temperature in the winter season. The number of calories that ME/bird/day consumes changes when the ambient temperature changes. When poultry consumes more feed, in addition to energy, other nutrients are consumed in excess and become a waste. Oil and fat-rich feed sources should be included in the diet to prevent such wastage throughout the winter. The number of feeders should be increased in the winter compared to the summer. Feeding should be provided to the bird throughout the day. When compared to feed given in the summer, poultry feed should have a higher calorie value since it keeps the bird warm. To prevent interaction with moisture, the feed needs to be kept in dry locations.

5. Poultry water management

In the winter, chickens require less water, therefore it's important to continuously feed them with fresh water that they may drink in order to maintain their body water levels. Water needs to be clean and fresh. If the water is too cold, boiling water should be added to it before giving it to the bird to bring the temperature up to normal. Areas prone to snowfall face the problem of pipe blockage caused by freezing water during the winter season when temperatures fall below 0°C. As a result, routine pipeline inspections should be performed to avoid water blockage. The bird should be given many immunizations, medications, and anti-stress vitamins with water. During the winter, poultry's consumption of water reduced. To ensure that each bird receives the benefits of the medicine, vaccination, or other supplements, care should be taken to remove waterers a few hours before administering the water medication and to administer the drug or vaccine in a smaller amount of water than usual.

6. Brooding Management



At least 24 hours before the arrival of the chicks, turn on and adjust the brooder burners. Make sure they are functioning properly. Set the temperature to 95°F (35°C) 2 inches (5 cm) above the litter at the brooder's edge. Until it hits 70°F, the temperature will be reduced by 5°F (2.8°C) per week.

Brooder Guard

1. Height of Guard should be approximately 16 inches to 18 inches
2. Make the guards from material, which can be properly sterilized
3. Helps in preventing chilling and piling
4. Guards will ensure chicks stay near the source of heat
5. See diagram to place other equipment



To make the poultry shed warm installation of traditional BUKHARIS or heaters is benignant. In small scale poultry farming, the use of 200W bulbs in numbers can also produce heat.

Gas Brooding

When compared to more traditional brooding methods such using electric lamps, coal, or wood, the use of LPG-operated Gas Brooders provides far more uniform heat. The chicks can choose the warmest location at any moment thanks to the radiant Gas Brooder's creation of a microclimate for them. This leads to more uniform weight gain and proper growth. Infrared radiant gas brooders that are individually controlled or a central control system can both be used for LPG gas brooding. It's important to keep in mind that any brooding system needs a temperature control device. The benefits of this temperature management include energy savings and the ability to precisely match the birds' changing needs for heat.



Traditional Bukhari for heat generation in poultry house

Depending on the need for heat, an infrared radiant brooder can be positioned 90 to 130 cm above the ground. According to the Gas Brooder's parameters, the kind and number of Gas Brooders can be chosen. It is crucial to note that the Gas Brooder you choose specifies the requirements for operating pressures, BTU/KW rating, and other factors. It is always a good idea to choose a brooder that has received an international quality mark for dependability and safety. Please check that the filled LPG Gas Cylinders are on site before the chicks arrive. On day one, keep the temperature between 32 and 34 °C. At 10 to 25



cm above the trash level, take the same measurement. To reach a temperature of 25° C, reduce the temperature by around 3° C every week. A sensor that is attached to either the individual Gas Brooders or the Central Control System can measure the temperature.

7. Supplementary management

Because pests and rodents prefer warmer environments, the poultry environment is ideal. As a result, their control must be ensured. Winter illnesses must be addressed by poultry farmers. If left unattended, it could pose a serious threat to the flock. Standard protocols for treating bird illness include quarantining the birds and using various broad-spectrum antibiotics, such as Terramycin, Enrofloxacin, and others, along with feed or water, depending on availability. Poultry growers must appropriately vaccinate their birds and monitor their vaccination status. Poultry farmers should contact the neighborhood vet right away if they discover sick birds.

