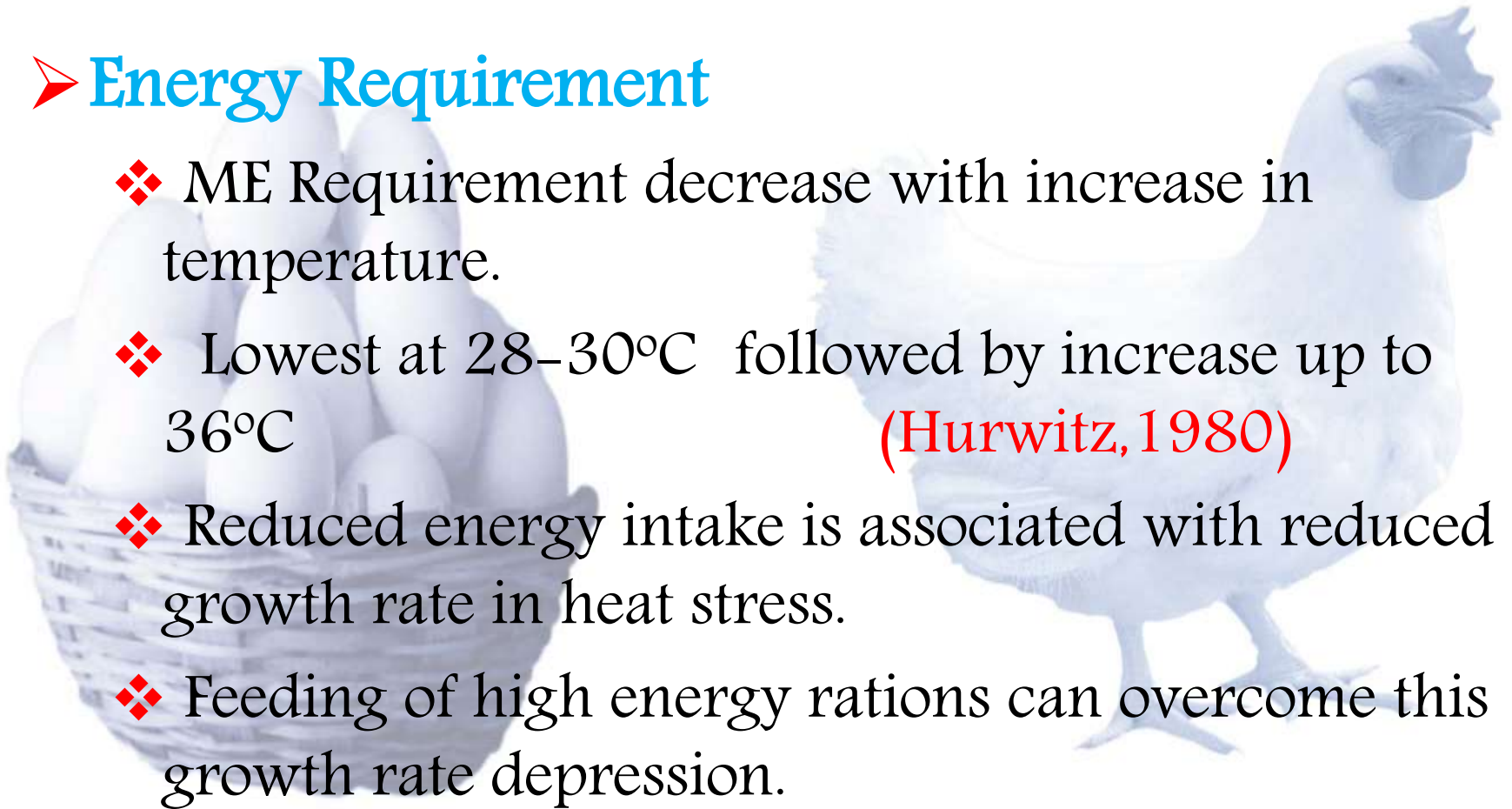


# Feeding Management

## ➤ Energy Requirement

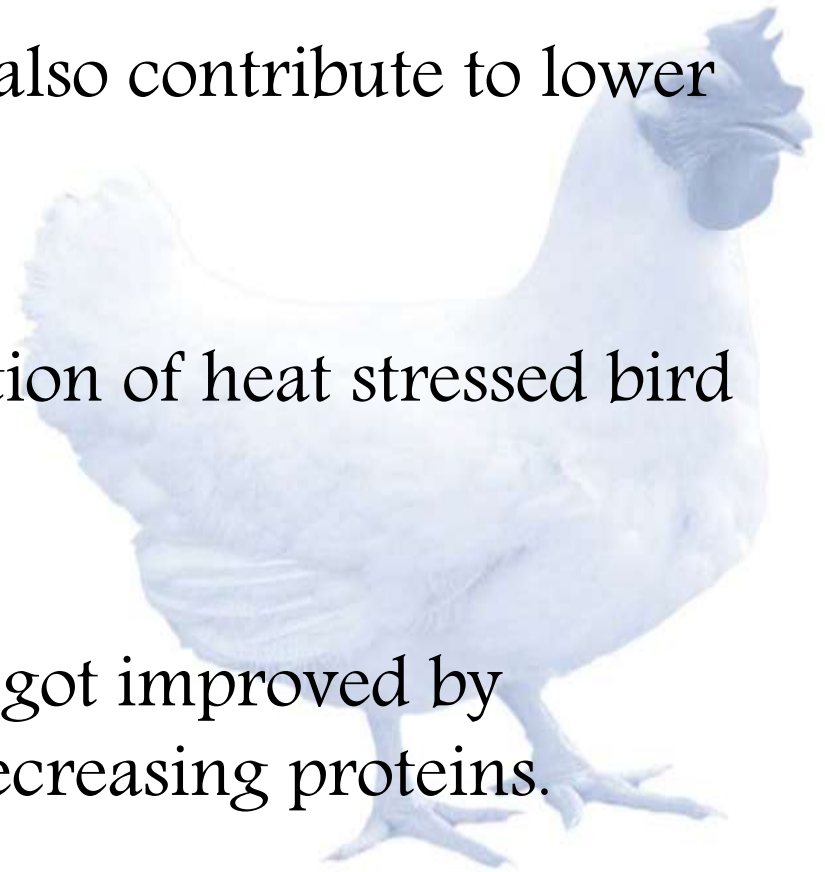
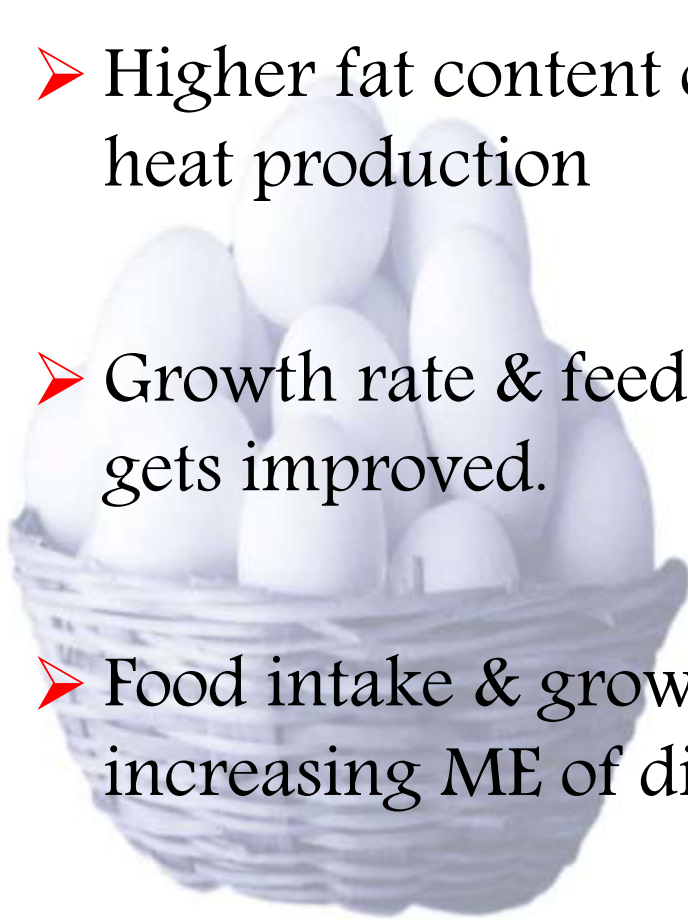
- ❖ ME Requirement decrease with increase in temperature.
- ❖ Lowest at 28–30°C followed by increase up to 36°C (Hurwitz, 1980)
- ❖ Reduced energy intake is associated with reduced growth rate in heat stress.
- ❖ Feeding of high energy rations can overcome this growth rate depression.



➤ Higher fat content of feed also contribute to lower heat production

➤ Growth rate & feed utilization of heat stressed bird gets improved.

➤ Food intake & growth rate got improved by increasing ME of diet & decreasing proteins.



## ➤ Protein & Amino acid Requirement

- Protein requirement is decreased bz of suppression in Production performance.
- High protein diet during heat stress decrease growth rate & meat yield.
- Protein has high heat increment.
- Diets containing lower protein levels & supplemented with limited amino acids , methionine, lysine gave better results.

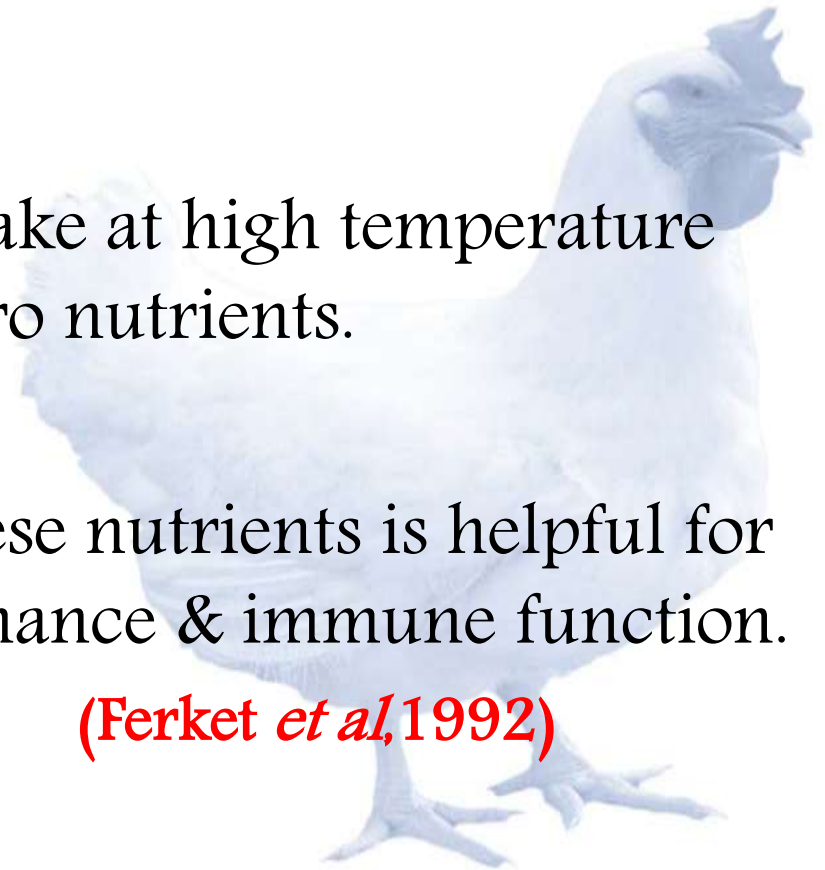
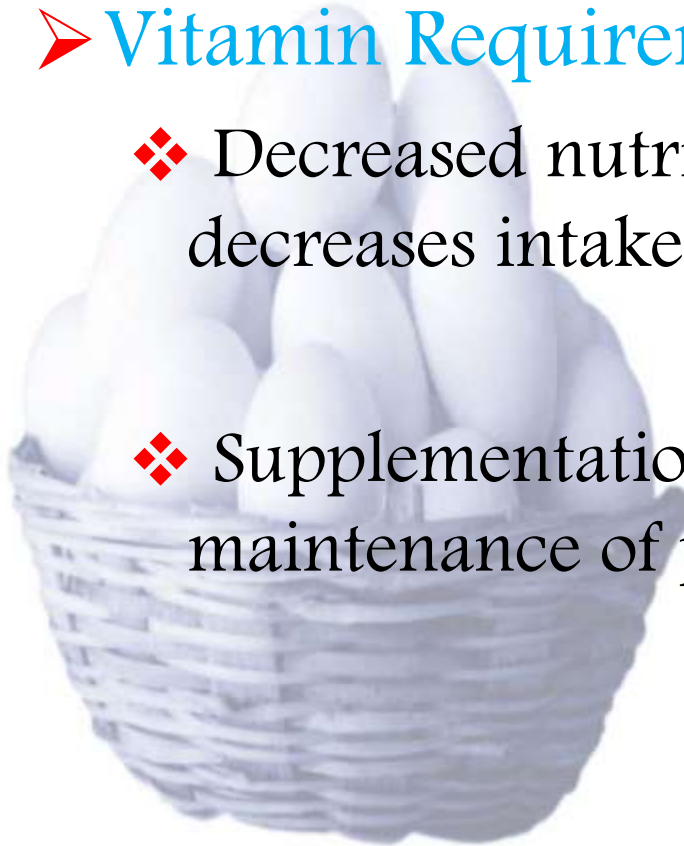
(Downing and Bryden, 2002)

## ➤ Vitamin Requirement

❖ Decreased nutrient intake at high temperature decreases intake of micro nutrients.

❖ Supplementation of these nutrients is helpful for maintenance of performance & immune function.

**(Ferket *et al*,1992)**



## ➤ Vitamin C

- ❖ Under heat stress, birds are not able to synthesize the sufficient amount of vitamin C.
- ❖ Vit C @ 1000mg/kg
- ❖ Supplementation of ascorbic acid.
  - ✓ Heat resistance
  - ✓ Carcass quality.
  - ✓ Carcass weight.
  - ✓ Carcass CP content.
  - ✓ Act as antioxidant reduce oxidative injuries.
  - ✓ Reduce mortality.

( Moudgal,2002)

## ➤ Vitamin A

❖ Detrimental effect on egg Production by heat stress can be alleviated by dietary suppl. of Vitamin A

@ (8000 IU/Kg diet)

(Sin and Xian ,2010)

- ❖ For optimal egg production.
- ❖ For immunity of heat stressed hen.
- ❖ Alleviate the oxidative injuries induced by heat Exposure.

## ➤ Vitamin E

❖ Dietary supplementation of Vit E is beneficial for egg production in hens.

✓ @ 250mg/kg – Acute stress

✓ @65 IU/kg- chronic heat stress.

❖ Supplementation is associated with

✓ Increase in feed intake

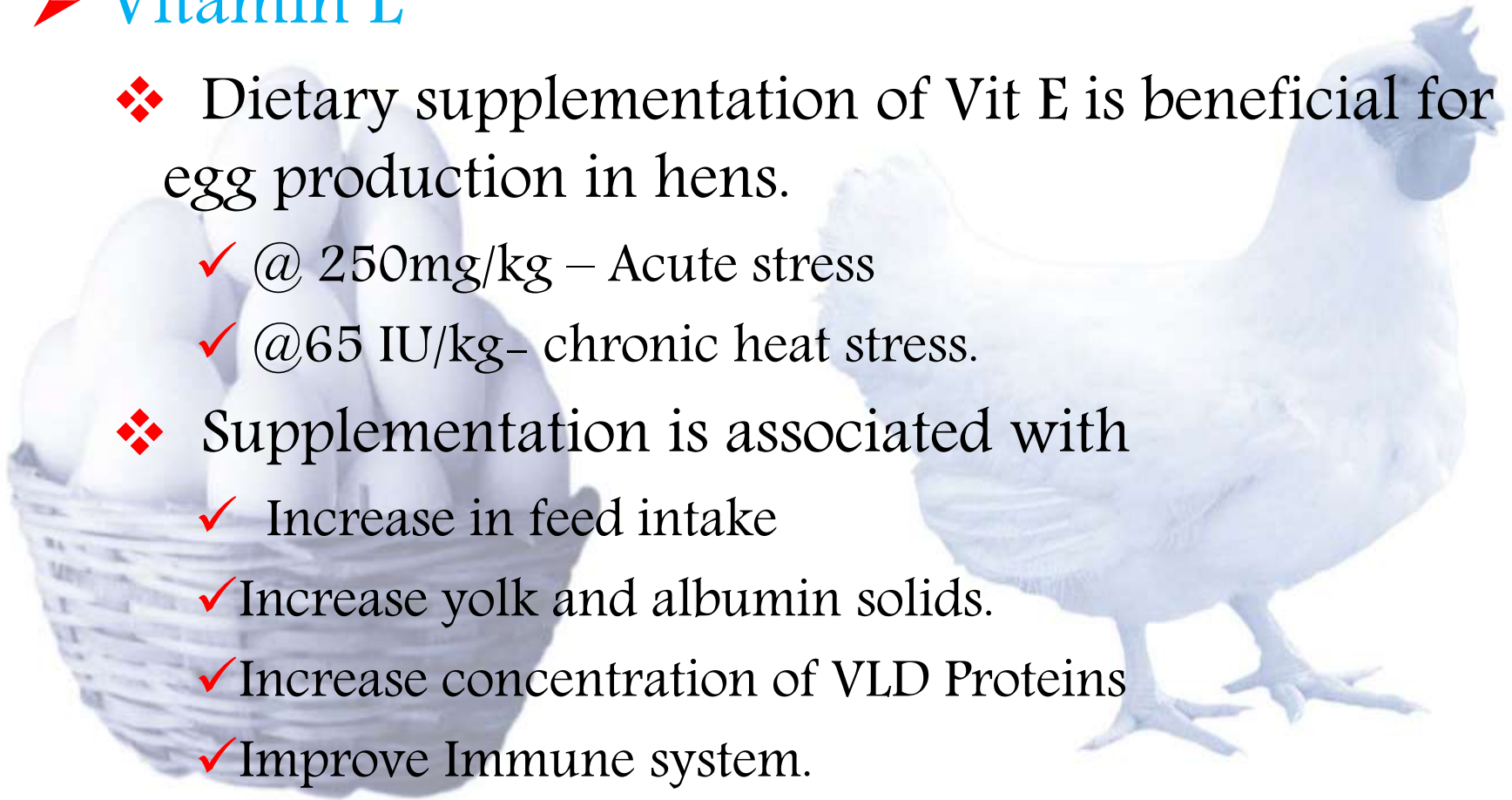
✓ Increase yolk and albumin solids.

✓ Increase concentration of VLD Proteins

✓ Improve Immune system.

✓ Act as antioxidant.

✓ Contribute to integrity of epithelial cells.



## ➤ Mineral Requirement

- ❖ Blood acid balance is disturbed by hyperventilation and results in respiratory alkalosis.
- ❖ Respiratory Alkalosis suppress growth rate & egg shell quality.
- ❖ Suppression of growth can be partially alleviated by supplementation of
  - ✓ 1%  $\text{NH}_4\text{Cl}$
  - ✓ 0.15% – 0.6%  $\text{KCl}$
  - ✓ 0.2%  $\text{NaHCO}_3$ .

*(Hayat et al, 1999)*



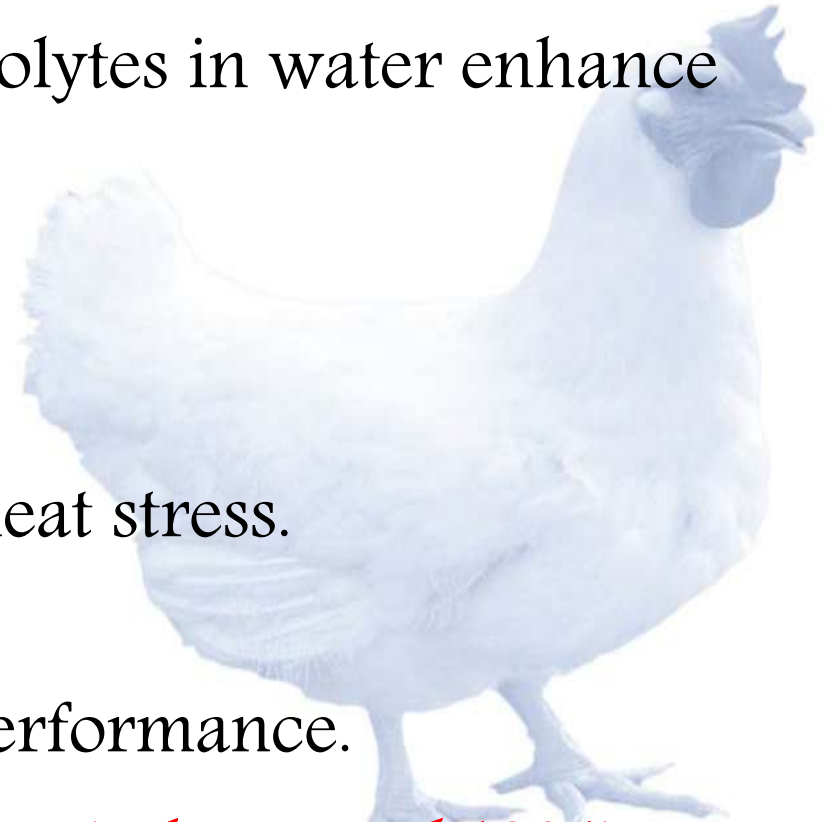
➤ Supplementation of electrolytes in water enhance

✓ Water consumption.

✓ Increase tolerance to heat stress.

✓ Improve production performance.

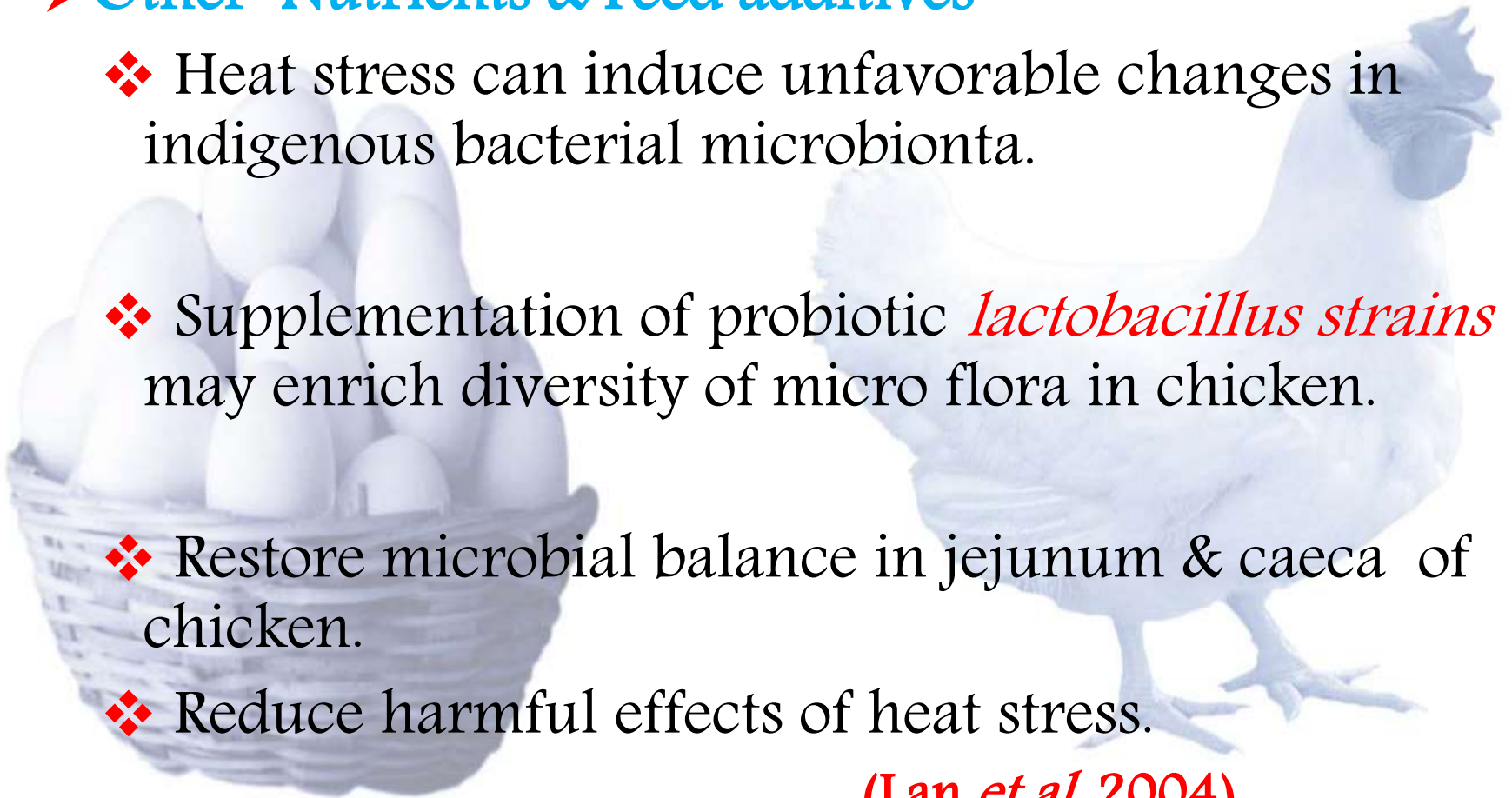
(Balnave *et al*, 1991)



## ➤ Other Nutrients & Feed additives

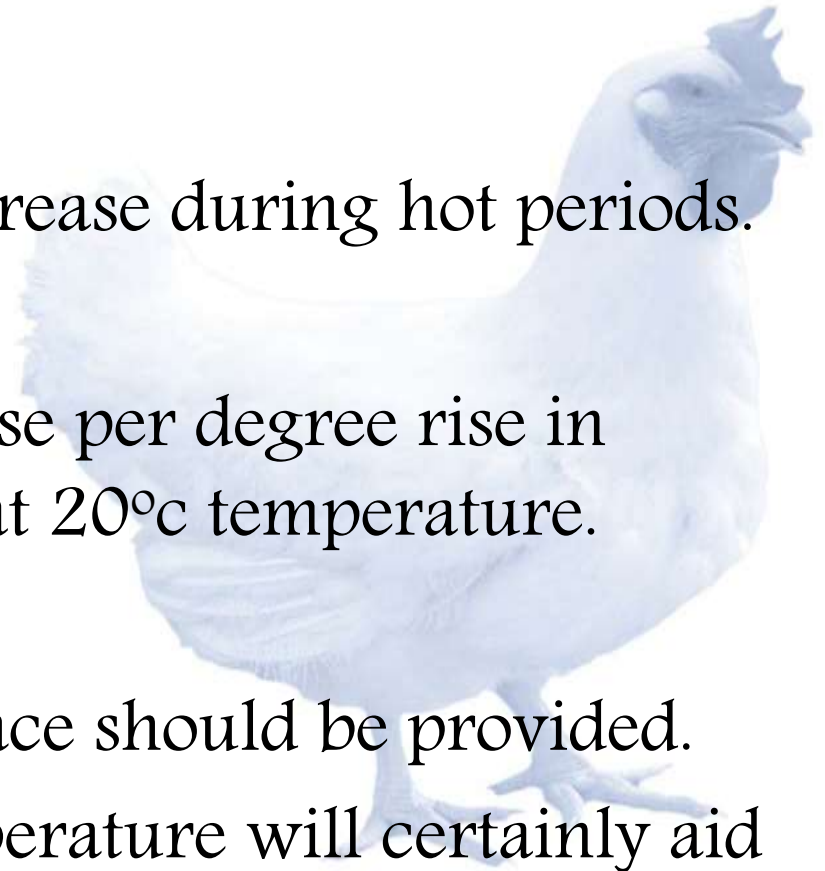
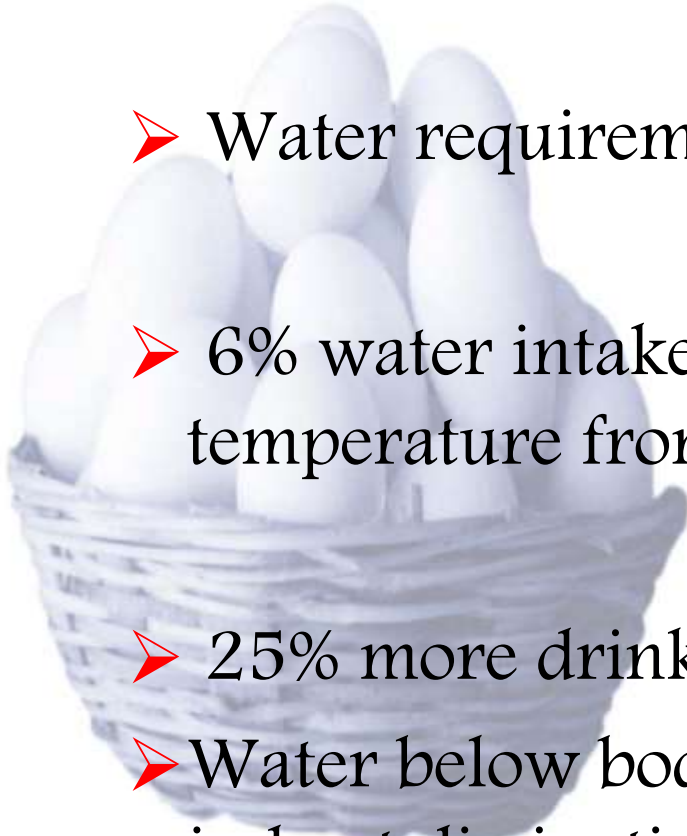
- ❖ Heat stress can induce unfavorable changes in indigenous bacterial microbionta.
- ❖ Supplementation of probiotic *lactobacillus strains* may enrich diversity of micro flora in chicken.
- ❖ Restore microbial balance in jejunum & caeca of chicken.
- ❖ Reduce harmful effects of heat stress.

(Lan et al, 2004)

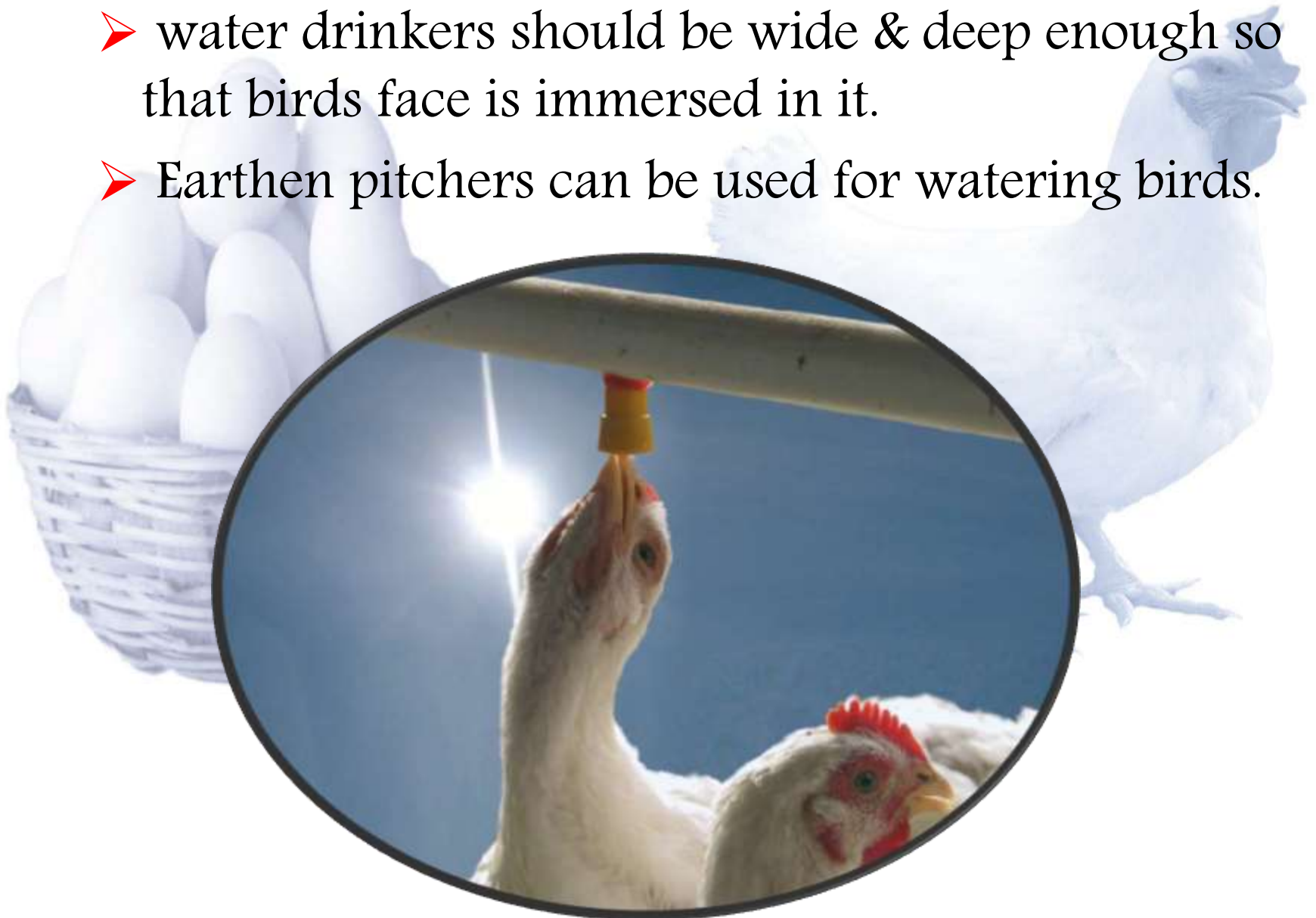


## ➤ Water

- Water requirement increase during hot periods.
- 6% water intake increase per degree rise in temperature from that at 20°C temperature.
- 25% more drinking space should be provided.
- Water below body temperature will certainly aid in heat dissipation.



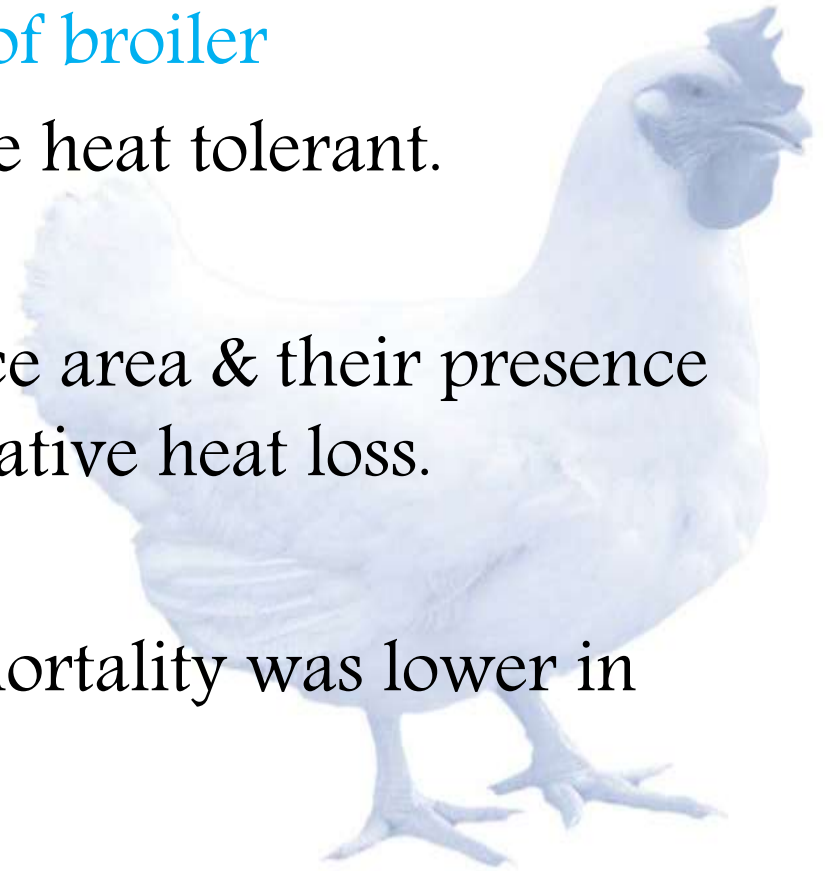
- water drinkers should be wide & deep enough so that birds face is immersed in it.
- Earthen pitchers can be used for watering birds.



# Miscellaneous Management

## ➤ Defeathering & Dewinging of broiler

- ❖ Done to make birds more heat tolerant.
- ❖ Wings cover wide surface area & their presence reduce efficacy of evaporative heat loss.
- ❖ Body temperature and mortality was lower in dewinged group.
- ❖ Mortality was found to be lower in dewinged groups.

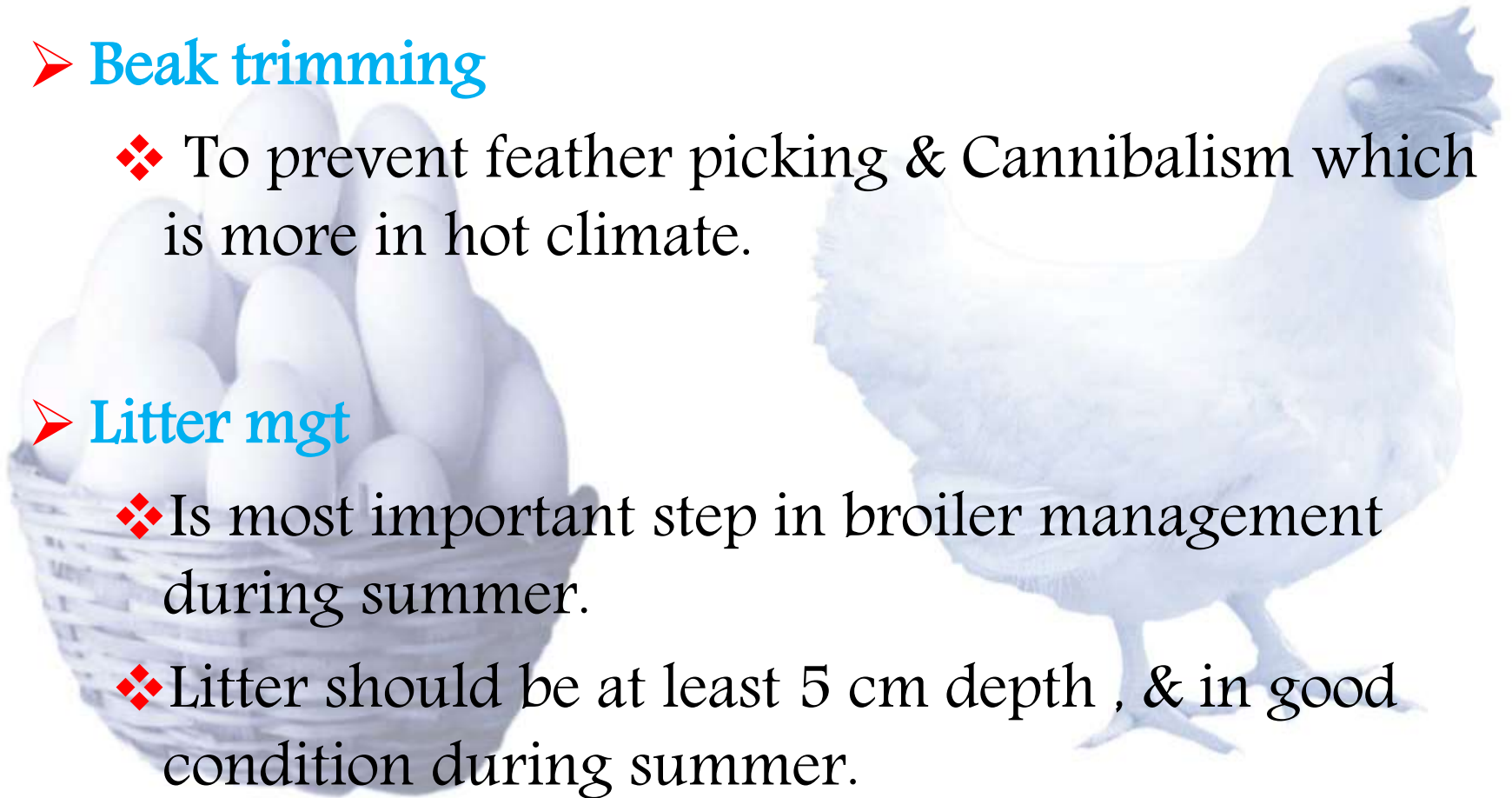


## ➤ Beak trimming

- ❖ To prevent feather picking & Cannibalism which is more in hot climate.

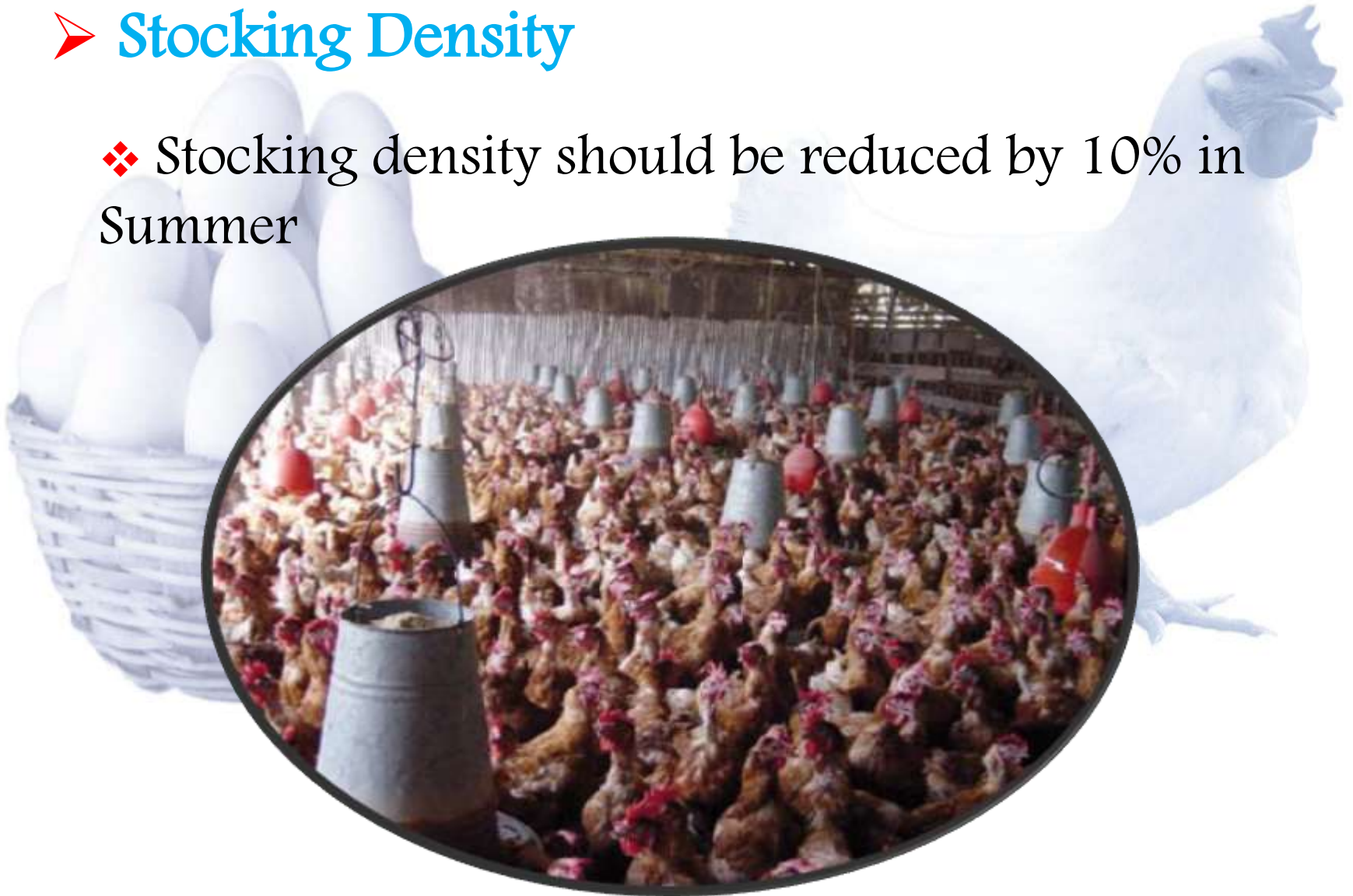
## ➤ Litter mgt

- ❖ Is most important step in broiler management during summer.
- ❖ Litter should be at least 5 cm depth , & in good condition during summer.



## ➤ Stocking Density

❖ Stocking density should be reduced by 10% in Summer



# Disease Management

➤ Heat stress makes birds more susceptible to various disease conditions.

❖ Coccidiosis

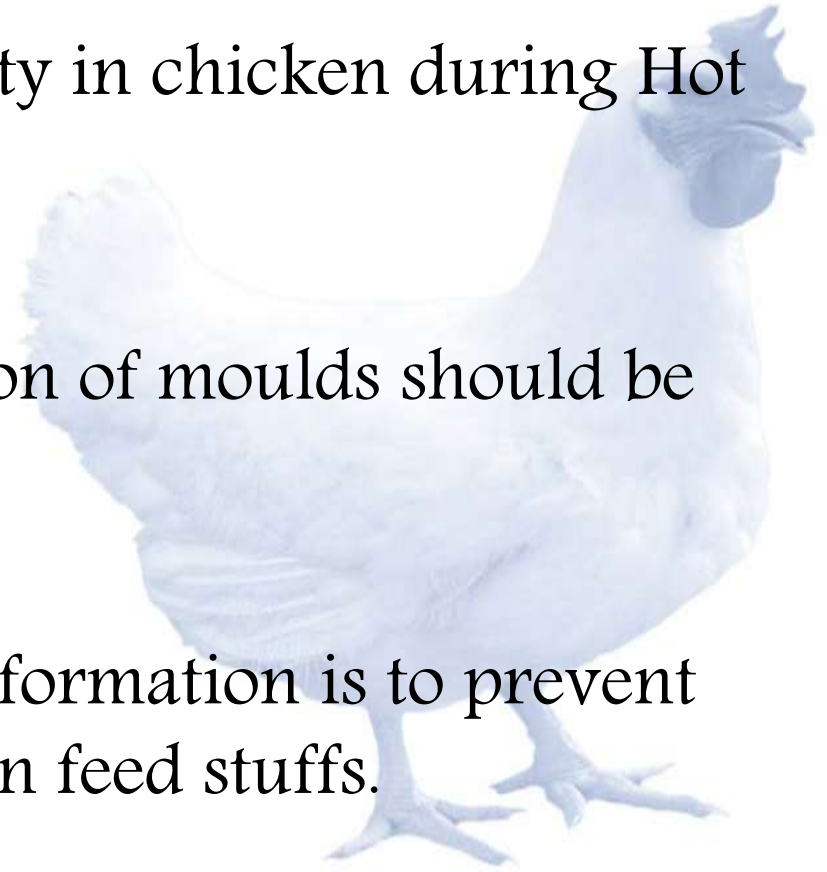
❖ Mycotoxicosis





## Mycotoxicosis

- ❖ Most imp cause of Mortality in chicken during Hot Humid season.
- ❖ Rapid screening & detection of moulds should be taken in feed stuffs.
- ❖ Best control of Mycotoxin formation is to prevent the development of fungi in feed stuffs.





## ❖ Control of Mycotoxicosis

- ✓ Regular inspection of stores
- ✓ Minimizing storage time
- ✓ Emptying & cleaning feed silos at monthly interval.

## ❖ Detoxification of toxins by different non nutrient agents should be taken up

- ✓ Detoxification of Aflatoxin – Activated charcoal.
- Good conditions during harvesting, transportation, and storage of feed stuffs are important in preventing of growth of moulds.

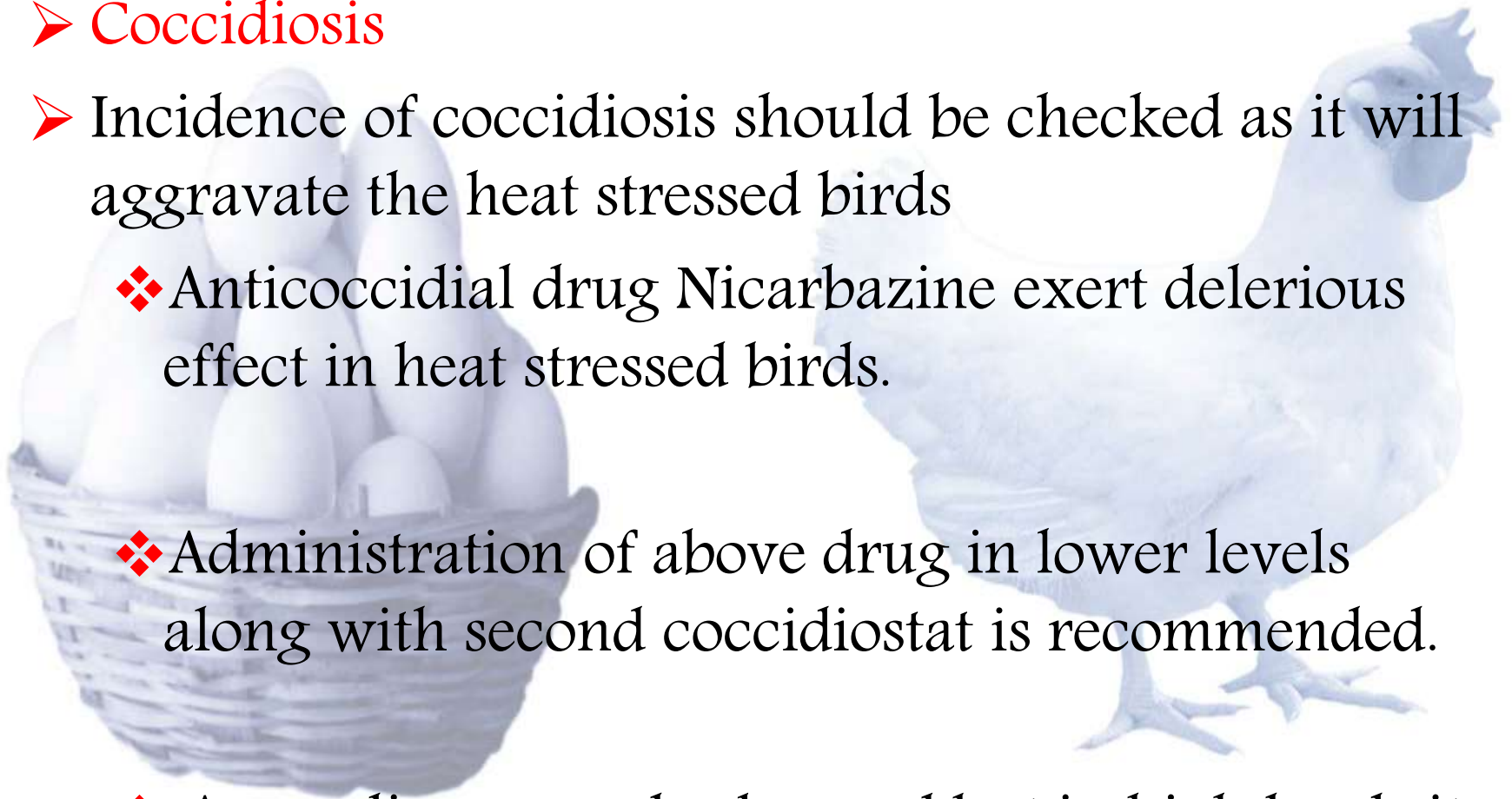
## ➤ Coccidiosis

➤ Incidence of coccidiosis should be checked as it will aggravate the heat stressed birds

❖ Anticoccidial drug Nicarbazine exert deleterious effect in heat stressed birds.

❖ Administration of above drug in lower levels along with second coccidiostat is recommended.

❖ Amprolium can also be used but in high levels it may cause deficiency of thiamine.



## ➤ Drug administration

❖ During heat stress need proper Care and Management.

❖ Medicines should be administered at the early morning when temperature is low.

❖ Drugs should be administered with cool, fresh & quality feed.



## ➤ Disinfection & hygiene

❖ All-in & All-out system of poultry management in hot climates is most preferred.

❖ Appropriate disinfection programme is followed between the batches.

❖ In high temperature there may be rapid evaporation of disinfectant solution resulting in less contact time.

