

AgScience Poultry Science Course
Poultry Physiology: Adaptation to the Environment and Health
Section 4
Problem Set

1. Explain different methods that birds use to adapt to their environment as environmental temperature changes from Intolerably Cold to Intolerably Hot. Include in your explanation both active and inactive thermoregulatory mechanisms.
2. Describe how vasodilation involves all three types of sensible heat loss (radiation, conduction, convection) and even insensible heat loss.
3. Fill in the table and answer the questions that follow (note: this house contains 25,000 birds).

	2-lb bird
Heat production (loss)	
Total production (BTU/hr)	25
Sensible heat (BTU/hr)	16
Insensible heat (BTU/hr)	9
% Sensible heat	64%
% Insensible heat	36%
Moisture production	
Total production (lb/bird/day)	0.26
Fecal moisture (lb/bird/day)	0.19
Respiratory moisture (lb/bird/day)	0.07
% Fecal moisture	73%
% Respiratory moisture	27%

- A. Characterize the total heat lost per hour.
- B. How much heat is used each hour to vaporize water in the respiratory tract?
- C. Calculate the amount of moisture added to the air every hour.
- D. Calculate the amount of moisture added to the litter every hour.

4. Explain the goal of biosecurity, and why it is critical for any farm. Also, list and discuss common biosecurity practices.
5. Discuss direct and predisposing causes of disease. Include in your answer how predisposing causes can affect disease in animals.
6. Describe passive and active immunity: how are they obtained by the animal and which is most effective at preventing disease?