Teacher Answer Key

Case Study

1. Rotational Grazing Benefits: Rotational grazing allows turkeys to forage naturally, reducing the need for grain feed and minimizing waste buildup. This practice also promotes healthier soil by allowing pastures to recover, benefiting the environment and the well-being of the turkeys.

2. Challenges for Large-Scale Farms: Large-scale farms may face difficulties implementing practices like rotational grazing or composting due to the cost and space required, as well as the labor involved in managing these processes sustainably.

3. 50,000,000 turkeys × 8.5 kg of CO_2 per turkey = 425,000,000 kg of CO_2 (425 million kilograms).

4. Feed production is the single largest item in the table (3.2 kg per turkey) because growing and transporting corn and soybeans takes land, water, fertilizer, and fuel. Waste management (1.8 kg) is another major source because turkey waste releases methane and, if mishandled, nitrogen and phosphorus that pollute water. Together the two account for more than half of the 8.5 kg total.

Multiple Choice

1. A
2. B
3. D

Matching

1-D, 2-A, 3-E, 4-B, 5-C

Fill-in-the-Blank

1) Rotational grazing, 2) Nitrogen, 3) Sustainable

Short Answer (Sample Responses)

Q1: Rotational Grazing: Rotational grazing allows turkeys to forage on grass, reducing the environmental impact by lessening the need for grain-based feed. This practice also promotes soil health and reduces waste buildup, lowering the farm's carbon footprint.

Q2: Challenges in Sustainable Practices: Adopting sustainable practices like composting and rotational grazing can be challenging due to the extra labor, space,

and costs involved. Large-scale farms may struggle to implement these methods without significant investment and changes to current practices.

Q3: Carbon Emissions in Feed and Waste Management: Feed production and waste management contribute the most to emissions due to the extensive resources required to grow feed crops and the methane produced by decomposing waste. These factors have high environmental costs, which add up quickly in large-scale farming operations.