

## Introduction

Animals dying because of disease, injury, or other causes routinely happens in the day-to-day operation of any confined livestock operation. The magnitude of this mortality can be significant. The mortality rate is generally highest for newborn animals because of their vulnerability. For example, a typical rate for newborn pigs is 10%, but for older finishing hogs, it is only 2% (Table 51-1). For poultry, the mortality rate varies by type (Table 51-2).

How animals are managed has a major affect on the mortality rate. For example, the mortality rate in dairy animals is reduced by providing proper nutrition to help prevent metabolic problems, such as milk fever; by gentle handling; and by culling cows before they become infirm. The mortality rate for dairy calves is highly influenced by colostrum management. A University of California–Davis study found that calves not receiving colostrum had an increased risk of dying 74 times greater than calves receiving colostrum by the recommended method. These findings suggest that an excellent beginning to managing mortality is to care for livestock in ways that minimize it. However, regardless of how well livestock are cared for, there will be mortality and it must be managed.

Catastrophic mortality can occur when an epidemic infects and destroys the majority of a herd or flock in a short time or when a natural disaster, such as a flood, strikes. There may also be incidences when an entire herd or flock must be destroyed to protect human health. For example, the slaughter of chickens in Hong Kong in late 1997 was deemed necessary to prevent transmission of H5N1 flu virus to humans. A prudent manager of a livestock facility will have a contingency plan for dealing with a catastrophic mortality event.

The focus of this lesson will be on managing what is considered normal, day-to-day mortality. However, several of the methods discussed may also be used for managing catastrophic mortality if scaled to accommodate it. Planning for a catastrophic mortality event should include the study of regulations because they often specify what methods may be used. Planning and preparation for catastrophic mortality may also include locating and reserving a site for disposal and having insurance to cover the cost involved.

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**Table 51-1. Mortality rate for swine.**

Animal Type	Mortality, %
Newborn pigs	10
Nursery pigs	2–3
Sows	6
Boars	1
Finishing hogs	2

**Table 51-2. Mortality rate for poultry.**

Poultry Type	Average Mortality Rate During Flock Cycle, %
Layer	
hen	14
pullet	5
Broiler	
breeder pullet	5
breeder hen	11
breeder male	22
roaster	8
Turkey	
hen	6
light tom	9
heavy tom	12

## Mortality must be managed for at least three reasons:

- (1) Hygienic
- (2) Environmental protection
- (3) Aesthetics

Mortality must be managed for at least three reasons:

- (1) Hygienic. Timely removal and appropriate handling of dead animals can prevent other animals in the operation from becoming ill and may prevent spread of the disease to other operations. This is especially true for the removal of those animals that have succumbed to contagious disease.
- (2) Environmental protection. Nutrients and other contaminants that are released as the dead animal decomposes can be carried away in runoff or leached to groundwater resources.
- (3) Aesthetics. Perhaps those who work on the farm or ranch may become accustomed to the sight of dead animals. However, visitors and others may find it very offensive and use it as a basis for judging the level of management being given the operation even though this may be unfair.

In the past, dead animals were frequently taken to a remote area, allowing carcasses to decompose and be eaten by scavengers. This practice is now illegal in virtually all of the United States. In addition, it is a highly irresponsible method and may encourage the spread of disease from one operation to another. It may also contribute to both surface and groundwater contamination.

Acceptable ways for managing mortality include

- Rendering.
- Composting.
- Incineration.
- Sanitary landfills.
- Burial.
- Disposal pits.

Of these methods, only the rendering and composting methods recycle the nutrients, a concept that this curriculum promotes.

Although incineration, sanitary landfills, burial, and disposal pits may be acceptable methods from an environmental protection viewpoint, they are disposal methods, and in essence, waste the nutrients. In the following paragraphs, each of the acceptable methods will be discussed, beginning with rendering.