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THE ENVIRONMENT IN SWINE HOUSING

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The Environment in Swine Housing

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Trends to year-round farrowing and some confinement of the whole herd changed swine environments along with accommodations. The pigs have adapted fairly well, but new problems have come up. Environmental management is a critical element of time-intensive, space-intensive pork production systems.

Some argue that the modest improvement in swine performance in recent decades—despite marked enhancements in diet and genetic makeup—is due to unspecified adverse effects of the environments provided for the animals. All agree that housing is high on the list of pork industry problems.

The pig's environment is extremely complicated, and present knowledge of it and its effects on pig performance is relatively limited. There are, as yet, no pat remedies for environmental ills in swine houses. Thus, in environmental management we still must resort to knowing principles and how to integrate and apply them.

Further, each facility presents a unique set of surroundings. Each environmental problem must be considered in detail and in a way that accounts for all relations among its many parts.

Focus of environmental management: the pigs

The pig quickly responds to environmental stresses to survive and reproduce in adverse surroundings. These adaptations take the form of changes in body functions, structures and behavior.

Unfortunately, the pig's adaptive responses are often counter-productive in terms of swine performance. Some depress processes associated with growth, reproduction or lactation. Others impair disease resistance. All waste nutrients and lead to stragglers.

The pig must counteract specifically the particular stresses present, but its initial reaction to any stress includes a nonspecific component—increased secretion of glucocorticoids by the adrenal glands. These hormones in high concentrations support the animal's short-term survival, but they also mobilize amino acids from precious muscle proteins and interfere with some mechanisms of immunity against infectious diseases.

Minimizing environmental stresses is a key to profitable pig performance.

Assessing swine environments

While the swine-house environment is complex, most of its elements can be measured. Interpreting results of such measurements in terms of what they mean to pig well-being, facility operation and pork production economics remains a dilemma. This is largely because environmental factors interact with one another; the effect of one stressful factor on the pig depends very much on the nature of the rest of the environment. For example, a draft is more harmful in a cold, wet place than in a warm, dry one.

Advances have been made as experience has been gained in recent years. But often the troubleshooter still must engage in trial and error to identify the problem. Following are some points to be considered when assessing swine environments.

Consider all environmental factors. Environment results from all external conditions the pig experiences. Elements that cannot be readily measured or controlled influence the pig's health and performance, too, so even these should be considered so far as possible.

Remember interactions. The environmental complex acts as a whole on the pig. Combined effects of two or more environmental components are often difficult to evaluate and control, but nonetheless they should be considered.

Environmental factors vary over space at a given time. Values obtained at one place in a pen or house may not hold for other locations. It is important to measure environmental variables where the pig experiences them—in its microenvironment.

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