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Health considerations for the year 2000

Abstract

As the swine industry matures, profit margins will decrease. Control of the major factors affecting feed cost will drive the system. Upgrading or maintaining health will be a major emphasis, because disease agents and complexes affect growing-finishing performance. Many diseases, such as pneumonia caused by *Actinobacillus* (*Haemophilus*) pleuropneumonia and swine dysentery, dramatically affect growing-finishing performance. Diseases decrease average daily feed intake (ADFI) and increase feed per gain ratio (FIG) in many instances. At the same time, they increase input costs via treatments, vaccines, and feed additives. Historically, our control methods may have been successful on individual farms, but not across large populations. Because of the dynamics of disease complexes, it has been difficult to understand the disease agents and/or their interactions, let alone define a cost-effective method of control or elimination. However, several new techniques offer hope of optimizing the genetic capability of growing-finishing pigs with respect to average daily gain (ADG) and F/G. These control measures become more important as restrictions increase on therapeutic feed additives, injectables, and the producer's goal of providing a pork product untainted by residues of any kind. Likewise, in the future, available carcass-enhancing products, such as Ractopamine, may not allow simultaneous use of therapeutics, requiring production systems with pigs of high health status.; Swine Day, Manhattan, KS, November 21. 1991

Keywords

Swine day, 1991; Kansas Agricultural Experiment Station contribution; no. 92-193-S; Report of progress (Kansas State University. Agricultural Experiment Station and Cooperative Extension Service); 641; Swine; Health considerations; Modified early weaning

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HEALTH CONSIDERATIONS FOR THE YEAR 2000

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As the swine industry matures, profit margins will decrease. Control of the major factors affecting feed cost will drive the system. Upgrading or maintaining health will be a major emphasis, because disease agents and complexes affect growing-finishing performance.

Many diseases, such as pneumonia caused by *Actinobacillus (Haemophilus) pleuropneumonia* and swine dysentery, dramatically affect growing-finishing performance. Diseases decrease average daily feed intake (ADFI) and increase feed per gain ratio (F/G) in many instances. At the same time, they increase input costs via treatments, vaccines, and feed additives. Historically, our control methods may have been successful on individual farms, but not across large populations. Because of the dynamics of disease complexes, it has been difficult to understand the disease agents and/or their interactions, let alone define a cost-effective method of control or elimination. However, several new techniques offer hope of optimizing the genetic capability of growing-finishing pigs with respect to average daily gain (ADG) and F/G. These control measures become more important as restrictions increase on therapeutic feed additives, injectables, and the producer's goal of providing a pork product untainted by residues of any kind. Likewise, in the future, available carcass-enhancing products, such as Ractopamine, may not allow simultaneous use of therapeutics, requiring production systems with pigs of high health status.

The ultimate goal of the production system for the year 2000 has the following components:

1. All in/all out pig flow;
2. All in/all out pig flow by sex;
3. Single stage production;
4. Close-outs on ADFI, F/G, mortality, and profitability by group;
5. Control or avoidance of respiratory and enteric disease complexes without massive individual or group animal treatment;
6. Less use of therapeutic antibiotics;
7. Residue avoidance;
8. More pounds of pork produced with less labor.

The tools developing to meet these goals by the year 2000 involve:

1. Biogenetics;
2. Vaccines;
3. Therapeutics;
4. Depopulation/repopulation;
5. Multiple-site production;
6. Modified, medicated, early weaning.

Biogenetics may produce a pig that is genetically resistant to various disease agents. However, the likelihood of this technology keeping up with the disease agents seems impossible and/or costly.

New, slow-release vaccines or therapeutics may be developed. Delivery systems may include implants or aerosol chambers. The

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time and cost of development may be an overriding factor.

Depopulation/repopulation continues to offer an excellent method of improving health of growing-finishing pigs. However, the length of the effect and the commitment to repeated depopulations need to be established. Practicality of repeated depopulations/repopulations must be evaluated on cost effectiveness, especially in a herd with good maternal production. Start-up effects, such as low farrowing rates, must be amortized over the whole repopulation effect.

Multiple-site production and modified, medicated, early weaning may allow us to fulfill the components for health by the year 2000. Multiple site establishes production phases with the hope that the break in people and pig contact will reduce disease transmission and provide the flexibility of eliminating or minimizing diseases that are in the nursery-through-finisher population. This type of production is used routinely in the poultry industry and has been used by some breeding companies in establishing new units to reduce health risks. In the near future, multiple sites will mean growing-finishing buildings with only one week's production of one sex of animals. Disease control, then, is designed around a separate facility system.

A progression of multiple-site production as diseases are established in the sow herd is modified, medicated, early weaning (MMEW), or Isowean™, which is a method to upgrade health status in nursery through finisher.

Modified, medicated, early weaning is a nonsurgical method for procuring minimal disease pigs. MMEW pigs can be free of numerous infectious agents such as *Mycoplasma hyopneumoniae*, *Actinobacillus pleuropneumoniae*, *Haemophilus parasuis*, *Streptococcus suis*, *Treponema hyodysenteriae*, *Pasteurella multocida*, *Bordetella bronchiseptica*, *Leptospira* species and diseases such as trans-

missible gastroenteritis and pseudorabies. These herds can also be free of external and internal parasites such as *Sarcoptes*, *Haematopinus suis*, *Ascaris suis*, *Trichuris*, and *Oesophagostomum*. As a result, these herds usually have greatly improved ADG and F/G in the growing-finishing phase.

The methods for deriving MMEW pigs are well described in literature and also have been detailed in past presentations made by Dr. Tom Alexander and Dr. Hank Harris. This procedure has been further developed by the Pig Improvement Company, Inc. in its Isowean Technology™ concept. The concept was developed as an extension of research initiated by Cambridge University in England in 1979 on Medicated Early Weaning. Research indicated that MMEW pigs are free of the variety of agents outlined above which could be present in the source herds. In the original MMEW procedures, pregnant sows were removed from the source herd in late gestation, placed in isolated farrowing accommodations, and medicated. Piglets were weaned at 5 days of age, removed from the farrowing environment, and placed in an isolated nursery separate from the source herd. At 20 to 35 kg, piglets were removed from the MMEW nursery to another isolated grow-out unit.

Recently, the procedures have been modified so that farrowing is done in the original herd, but pigs are weaned into a second site. This allows a break in the production system to minimize the effect of disease.

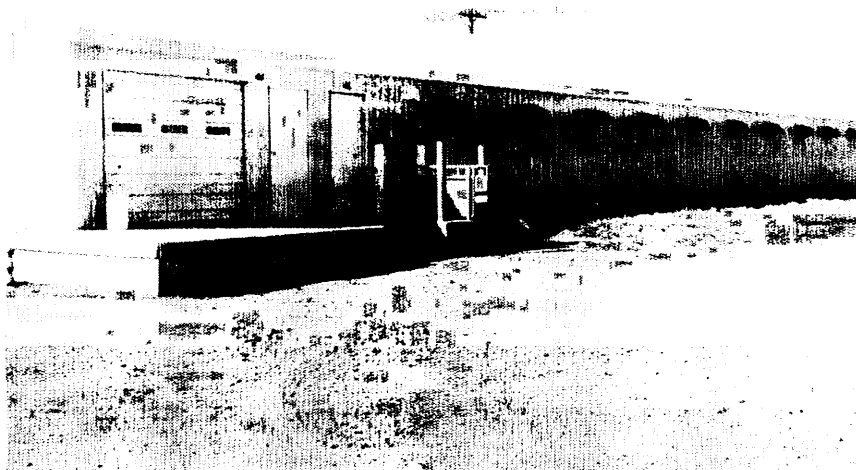
The best application of this technology will be in commercial production herds with excellent maternal production but low health status, which reduces the performance of the animals in the growing-finishing phase and, thus, makes the herd economically noncompetitive. Many swine units, because of obtaining or adding additional facilities over the last 3 years, already have multiple sites, of which one or more can be utilized as an isolated nursery/growing-finishing unit. The medication and

vaccination protocol should be designed to eliminate the diseases that are inherent to a particular herd and are increasing production costs significantly in the grower-finisher.

We have been involved with several herds utilizing MMEW successfully for weaning ages of between 10 and 21 days of age. Over 10,000 pigs have been weaned in this manner

with less than .5% mortality. This technique has been used to repopulate one producer's own herd.

This is an exciting time in the swine industry. Health effects on growing-finishing performance have come to the forefront. Control measures will allow a maturing industry to optimize costs.



The New KSU Swine Finishing Facility