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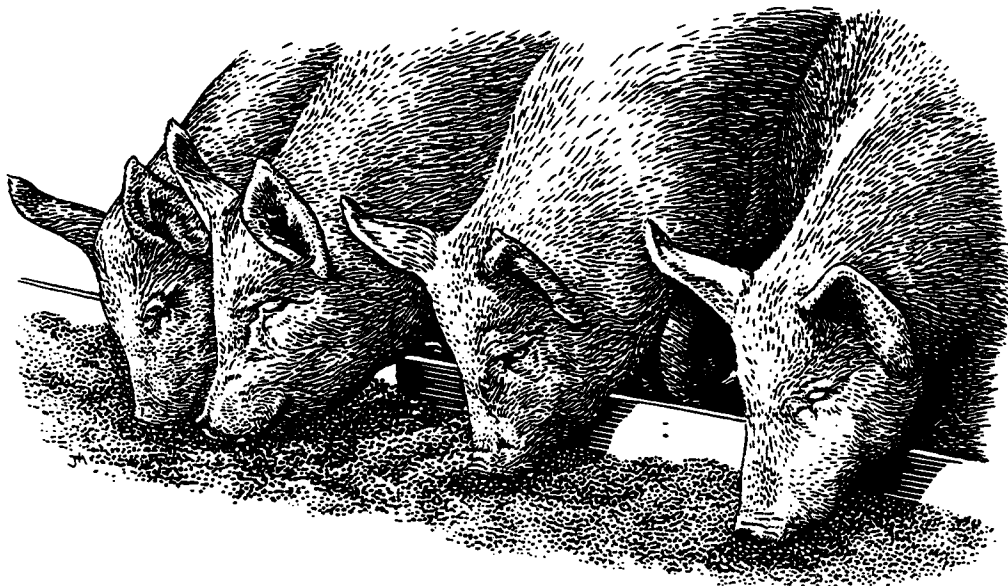
Animal and  
Plant Health  
Inspection  
Service

Veterinary  
Services

# SWINE '95



## Part I: Reference of 1995 Swine Management Practices



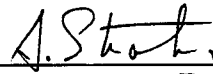
October 1995

## Acknowledgements

This report has been prepared from material received and analyzed by the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS).

The Swine '95: Grower/Finisher was a cooperative effort between State and Federal agricultural statisticians, animal health officials, university researchers, and extension personnel. We want to thank the National Agricultural Statistics Service (NASS) enumerators and State and Federal Veterinary Medical Officers (VMO's) who visited the farms and collected the data for their hard work and dedication to the National Animal Health Monitoring System (NAHMS).

The roles of the producer, Area Veterinarian in Charge (AVIC), NAHMS Coordinator, Veterinary Medical Officer (VMO), Animal Health Technician (AHT), and NASS enumerators were critical in providing quality data for Swine '95 reports. All participants are to be commended for their efforts, particularly the producers whose voluntary efforts made the study possible.



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Dr. Al Strating, Director  
Centers for Epidemiology & Animal Health

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## Introduction

As part of the National Animal Health Monitoring System (NAHMS), the USDA:APHIS:Veterinary Services (VS) conducted its first National study of the swine industry with the 1990 National Swine Survey. Study results provided an overview of swine health, productivity, and management for 95 percent of the U.S. swine herd, the population represented by the 1,661 participating producers. The National Swine Survey focused on farrowing sows and preweaning piglets.

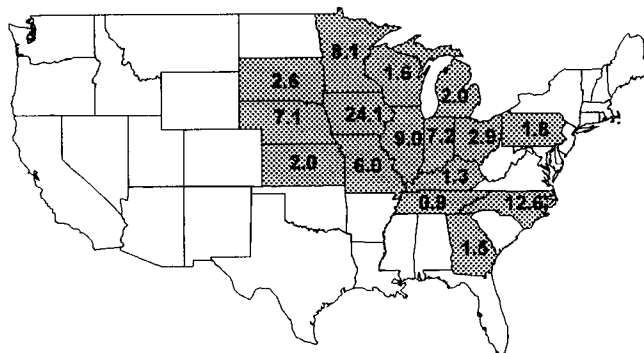
This report is the first of a three-part release of National information resulting from NAHMS' second National swine study, the Swine '95:Grower/Finisher. Swine '95 was designed to provide both participants and the industry with information on over 90 percent of the U.S. swine herd.

Data for *Part I: Reference of 1995 Swine Management Practices* were collected from 1,477 producers and contains information on all phases of swine production (farrowing, nursery, and grower/finisher). The USDA's National Agricultural Statistics Service (NASS) collaborated with VS to select a producer sample that was statistically designed to provide inferences to the nation's swine population. Included in the study were 16 major pork States (shown below) that accounted for nearly 91 percent of the U.S. hog inventory and nearly three-fourths of U.S. pork producers. NASS interviewers contacted producers from June 1 through June 23, 1995. Each producer reported for two quarters (seasons), unless otherwise specified within this report.

Subsequent reports will concentrate on the grower/finisher phase of pork production. State and Federal Veterinary Medical Officers (VMO's) and Animal Health Technicians (AHT's) collected data during July 17 through January 17, 1996.

Discussions of Swine '95 results within this report are available on the Internet through [go-phar.aphis.usda.gov](http://go-phar.aphis.usda.gov) (menu choices: APHIS Information; Animal Health Information; Animal Health Monitoring, Risk Assessments, and Emerging Issues.) Topics available on release of this report: preventive practices and biosecurity measures.

**Percent of U.S. Swine Inventory, June 1, 1995, for States Participating in the NAHMS Swine '95 Study**



Total = 90.7 percent of the U.S. swine inventory.

#2974<sup>1</sup>

For questions about either report or additional copies, please contact the address shown below.

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<sup>1</sup> Identification numbers are assigned to each graph in this report for public reference.

## Terms Used in This Report

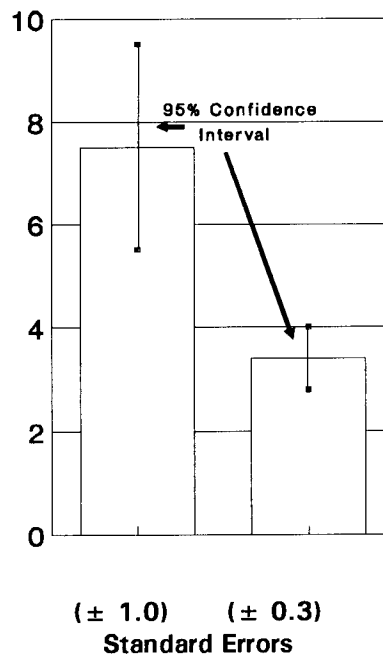
**Population estimates:** averages and proportions weighted to represent the population. Most of the estimates in this report are provided with a measure of variability called the standard error and denoted by ( $\pm$ ). Chances are 95 out of 100 that the interval created by the estimate plus or minus two standard errors will contain the true population value. In the example at right, an estimate of 7.5 with a standard error of  $\pm 1.0$  results in a range of 5.5 to 9.5 (two times the standard error above and below the estimate). The second estimate of 3.4 shows a standard error of  $\pm 0.3$  results with a range of 2.8 and 4.0.

**Operation average:** a single value for each swine operation is summed over all operations reporting divided by the number of operations reporting. For instance, operation average weaning age (shown on page 3) is calculated by summing reported average weaning age over all operations divided by the number of operations.

**Pig average:** a single value for each swine operation multiplied by the number of pigs on that operation is summed over all operations and divided by the number of pigs on all operations. This way, the result is adjusted for the number of pigs on each operation. For the above example from page 3, the average age is multiplied by the number weaned for each operation. This product is then summed over all operations and divided by the sum of pigs weaned over all operations. The result is the average weaning age of all pigs.

**Producer-identified cause:** Causes of pig illnesses or deaths derived from observations of clinical signs reported by participating producers and not substantiated by a veterinarian or laboratory.

**Examples of 95% Confidence Interval**



#999a

## Section I: Population Estimates

### 1. Farrowing and Weaning Productivity

#### a. Per litter productivity<sup>1</sup> by time period:

Measure	Dec. 1994-	Standard	Mar. 1995-	Standard	Dec. 1994-	Standard
	Feb. 1995	Error	May 1995	Error	May 1995	Error
Number born per litter	10.26	(± 0.06)	10.18	(± 0.07)	10.22	(± 0.06)
Number stillbirths and mummies per litter	0.76	(± 0.03)	0.75	(± 0.03)	0.75	(± 0.03)
Percent stillbirths and mummies	7.38	(± 0.31)	7.34	(± 0.30)	7.36	(± 0.30)
Number born alive per litter	9.50	(± 0.06)	9.43	(± 0.06)	9.47	(± 0.05)
Percent born alive	92.62	(± 0.31)	92.66	(± 0.30)	92.64	(± 0.30)
Number preweaning deaths per litter	0.89	(± 0.03)	0.87	(± 0.04)	0.88	(± 0.03)
Percent mortality of piglets born alive	9.43	(± 0.32)	9.26	(± 0.37)	9.34	(± 0.27)
Number weaned per litter	8.61	(± 0.06)	8.56	(± 0.05)	8.59	(± 0.05)
Percent weaned of piglets born alive	90.57	(± 0.32)	90.74	(± 0.37)	90.66	(± 0.27)

#### b. Percent of preweaning deaths by producer-identified cause:

Identified Cause	Dec. 1994 - Feb. 1995		Mar. 1995 - May 1995		Dec. 1994 - May 1995	
	Percent Deaths	Standard Error	Percent Deaths	Standard Error	Percent Deaths	Standard Error
Scours	13.3	(± 1.0)	18.6	(± 4.2)	16.1	(± 2.3)
Laid on	48.1	(± 1.9)	47.2	(± 2.9)	47.7	(± 2.0)
Starvation	15.3	(± 1.1)	15.5	(± 1.3)	15.4	(± 1.1)
Other known problem	12.1	(± 1.6)	8.4	(± 1.2)	10.1	(± 1.3)
Unknown problem	11.2	(± 1.2)	10.3	(± 1.1)	10.7	(± 1.1)
Total	100.0		100.0		100.0	

#### c. Average age (in days) of piglets at weaning:

Operation	Standard	Pig	Standard
Average	Error	Average	Error
34.7	(± 0.7)	25.7	(± 0.5)

<sup>1</sup> Per litter productivity was calculated as a ratio of a weighted sum of events (such as number born) across all operations (numerator) to the weighted sum of farrowings across all operations (denominator).

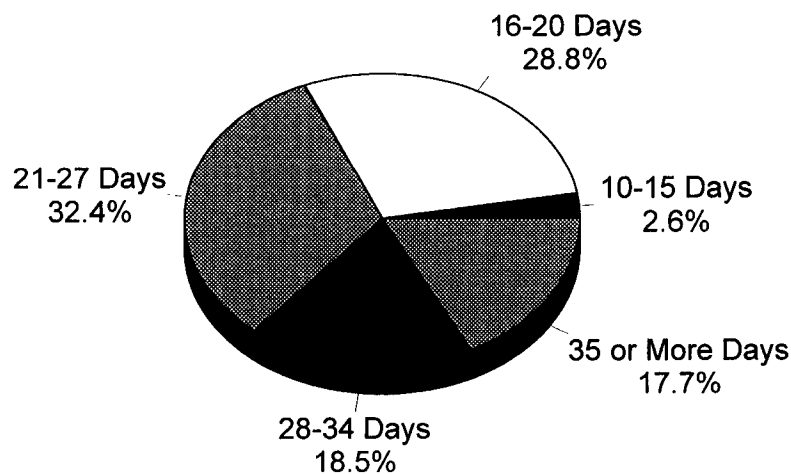
d. Percent of operations that weaned pigs by weaning age category and size of operation (total number of pigs present on June 1, 1995):

Weaning Age (Days)	Percent Operations							
	Percent Operations	Stand. Error	Less Than 2,000 Head	Stand. Error	2,000-9,999 Head	Stand. Error	10,000 Head or More	Stand. Error
10-15	0.9	(± 0.4)	0.7	(± 0.4)	7.1	(± 2.6)	1.5	(± 1.4)
16-20	3.9	(± 0.6)	2.5	(± 0.5)	37.4	(± 6.7)	70.5	(± 5.7)
21-27	17.3	(± 1.9)	16.2	(± 1.9)	46.9	(± 7.0)	25.3	(± 5.2)
28-34	29.5	(± 2.4)	30.4	(± 2.5)	5.5	(± 2.1)	0.0	(± 0.0)
35 or More	48.4	(± 2.6)	50.2	(± 2.7)	3.1	(± 1.5)	2.7	(± 0.9)
Total	100.0		100.0		100.0		100.0	

e. Percent of pigs on operations that weaned pigs by weaning age category:

Weaning Age (Days)	Percent Pigs	Standard Error
10-15	2.6	(± 0.7)
16-20	28.8	(± 2.8)
21-27	32.4	(± 2.5)
28-34	18.5	(± 1.7)
35 or More	17.7	(± 1.6)
Total	100.0	

Percent of Pigs\* by Weaning Age Category



\*On operations that weaned pigs.

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2. Nursery Productivity

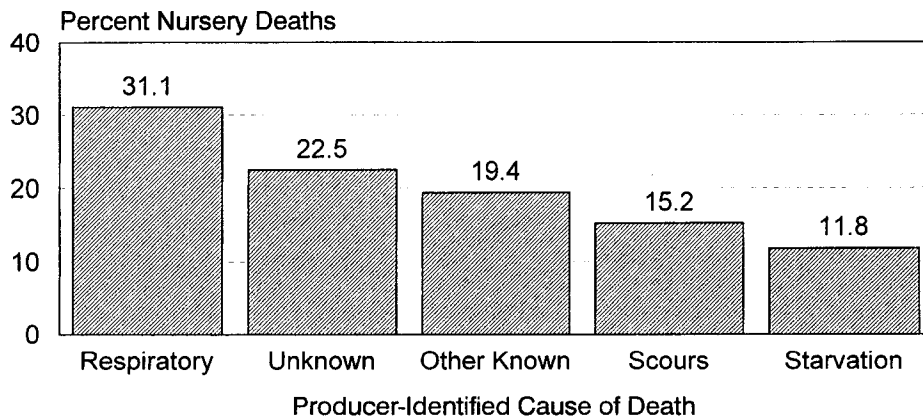
a. Percent of nursery pigs that died in the nursery phase or nursery unit:

<u>Time Period</u>	<u>Percent Pigs<sup>1</sup></u>	<u>Standard Error</u>
December 1994 - February 1995	2.4	(± 0.2)
March 1995 - May 1995	2.3	(± 0.1)
December 1994 - May 1995	2.3	(± 0.1)

b. Percent of nursery-phase deaths by producer-identified cause:

<u>Identified Cause</u>	<u>Dec. 1994 -Feb. 1995</u>		<u>Mar. 1995 - May 1995</u>		<u>Dec. 1994 -May 1995</u>	
	<u>Percent Deaths</u>	<u>Standard Error</u>	<u>Percent Deaths</u>	<u>Standard Error</u>	<u>Percent Deaths</u>	<u>Standard Error</u>
Scours	14.8	(± 1.6)	15.5	(± 1.6)	15.2	(± 1.5)
Starvation	10.8	(± 1.6)	12.8	(± 1.9)	11.8	(± 1.6)
Respiratory problem	31.4	(± 2.9)	30.7	(± 2.3)	31.1	(± 2.1)
Other known problem	20.3	(± 3.3)	18.6	(± 2.4)	19.4	(± 2.6)
Unknown problem	<u>22.7</u>	(± 2.9)	<u>22.4</u>	(± 2.6)	<u>22.5</u>	(± 2.3)
Total	100.0		100.0		100.0	

Percent of Nursery Deaths\*  
by Producer-Identified Cause



\*December 1, 1994, through May 31, 1995.

#2976

c. Average age (in days) of pigs leaving the nursery:

<u>Operation Average</u>	<u>Standard Error</u>	<u>Pig Average</u>	<u>Standard Error</u>
63.3	(± 0.9)	60.3	(± 0.8)

1 (Number of deaths divided by number that entered the nursery during the time period) times 100.

3. Grower/Finisher Productivity

a. Percent of grower/finisher pigs that died in the grower/finisher phase or in grower/finisher units from December 1, 1994, through May 31, 1995:

<u>Percent Pigs</u> <sup>1</sup>	<u>Standard Error</u>
2.1	(± 0.1)

b. Percent of grower/finisher deaths by producer-identified cause from December 1, 1994, through May 31, 1995:

<u>Identified Cause</u>	<u>Percent Deaths</u>	<u>Standard Error</u>
Scours	7.5	(± 1.2)
Lameness	8.0	(± 0.7)
Trauma	6.7	(± 0.6)
Respiratory problem	40.2	(± 2.1)
Other known problem	17.2	(± 1.9)
Unknown problem	<u>20.4</u>	(± 1.7)
Total	100.0	

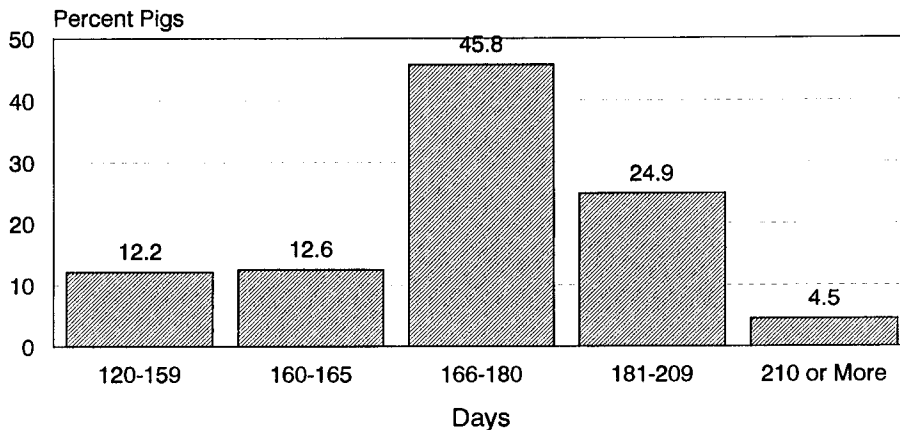
c. Average age (in days) of pigs leaving the grower/finisher unit:

<u>Operation Average</u>	<u>Standard Error</u>	<u>Pig Average</u>	<u>Standard Error</u>
175.8	(± 1.0)	176.4	(± 1.0)

d. Percent of operations and percent of pigs by age leaving the grower/finisher unit:

<u>Age on Leaving Grower/Finisher Unit (Days)</u>	<u>Percent Operations</u>	<u>Standard Error</u>	<u>Percent Pigs</u>	<u>Standard Error</u>
120-159	12.5	(± 1.6)	12.2	(± 1.9)
160-165	16.7	(± 1.8)	12.6	(± 1.3)
166-180	49.6	(± 2.5)	45.8	(± 2.2)
181-209	16.3	(± 2.0)	24.9	(± 2.1)
210 or More	<u>4.9</u>	(± 0.9)	<u>4.5</u>	(± 1.1)
Total	100.0		100.0	

Percent of Pigs Leaving the Grower/Finisher Unit by Age Category



#2978

1 (Number of deaths divided by number that entered the grower/finisher phase) times 100.

4. Sow Management

a. Percent of operations (and percent of sows and gilts) using various mating techniques:

<u>Technique</u>	<u>Percent Operations</u> <sup>1</sup>	<u>Standard Error</u>	<u>Percent Sow &amp; Gilt Inventory</u>	<u>Standard Error</u>
Hand-mated individually by artificial insemination	7.8	(± 1.1)	11.1	(± 1.2)
Hand-mated individually naturally	24.5	(± 2.3)	35.2	(± 2.1)
Pen-mated with multiple females and one or more boars	80.6	(± 2.2)	53.7	(± 2.5)
<b>Total</b>			<b>100.0</b>	

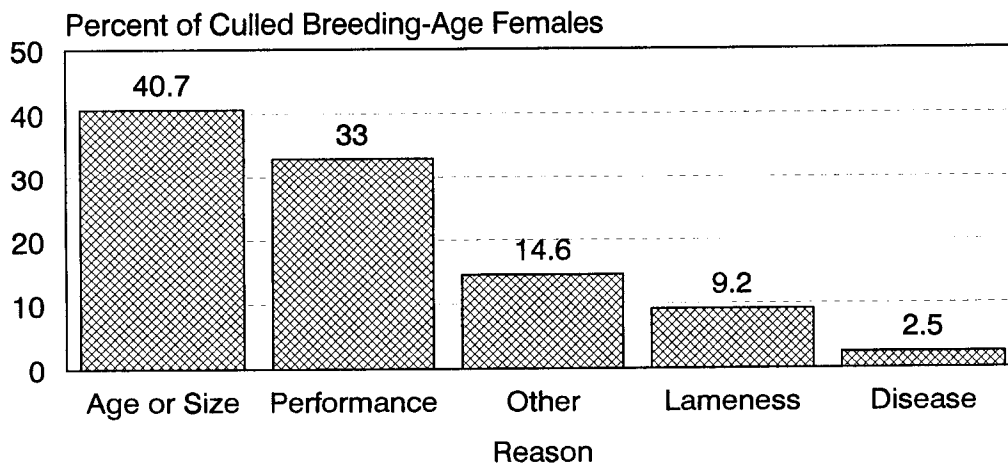
b. Breeding-age females culled from December 1, 1994, through May 31, 1995, as a percent of sows and gilts described:

	<u>June 1, 1995 Inventory</u>	<u>Standard Error</u>	<u>Farrowed Dec. 1, 1994 Through May 31, 1995</u>	<u>Standard Error</u>
	20.1	(± 0.9)	21.7	(± 0.9)

c. Percent of culled breeding-age females by reason culled from December 1, 1994, through May 31, 1995:

<u>Reason</u>	<u>Percent Females Culled</u>	<u>Standard Error</u>
Age or size	40.7	(± 2.1)
Lameness	9.2	(± 0.7)
Performance	33.0	(± 2.2)
Disease	2.5	(± 0.7)
Other reasons	14.6	(± 2.4)
<b>Total</b>	<b>100.0</b>	

**Percent of Culled Breeding-Age Females by Reasons for Culling\***



\*December 1, 1994, through May 31, 1995.

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1 Operations may have used more than one technique.

5. Facility Management - All Phases

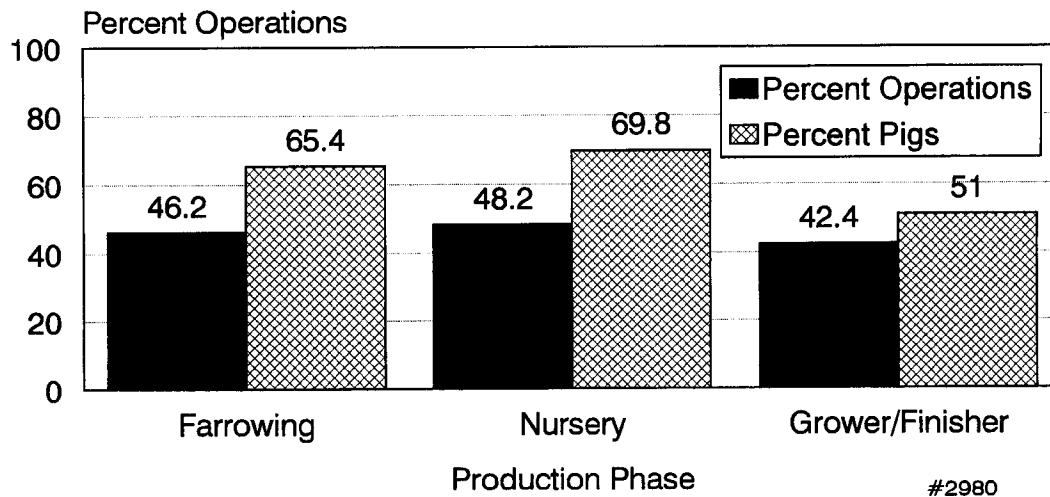
a. Percent of operations with the following production phases:

<u>Production Phase</u>	<u>Percent Operations</u>	<u>Standard Error</u>
Farrowing	70.7	(± 2.3)
Nursery	46.5	(± 2.1)
Grower/Finisher	85.6	(± 1.7)

b. For those operations that had the following production phases, percent of operations (and percent of pigs on those operations) that practiced all-in, all-out management:

<u>Production Phase</u>	<u>Percent Operations</u>	<u>Standard Error</u>	<u>Percent Pigs</u>	<u>Standard Error</u>
Farrowing	46.2	(± 2.5)	65.4 <sup>1</sup>	(± 2.4)
Nursery	48.2	(± 2.8)	69.8 <sup>2</sup>	(± 2.5)
Grower/Finisher	42.4	(± 2.5)	51.0 <sup>3</sup>	(± 2.2)

Percent of Operations (& Pigs on Those Operations)\* That Practiced All-In, All-Out Management by Production Phase



\*For those operations with production phase.

c. Percent of all pigs weaned December 1, 1994, through May 31, 1995, that were on operations that had designated nursery facilities:

<u>Percent Pigs</u>	<u>Standard Error</u>
89.4	(± 1.3)

- 1 Percentage of piglets born alive from December 1, 1994, through May 31, 1995.
- 2 Percentage of piglets that entered the nursery from December 1, 1994, through May 31, 1995.
- 3 Percentage of pigs that entered the grower/finisher phase from December 1, 1994, through May 31, 1995.

d. For operations that had specified production phases:

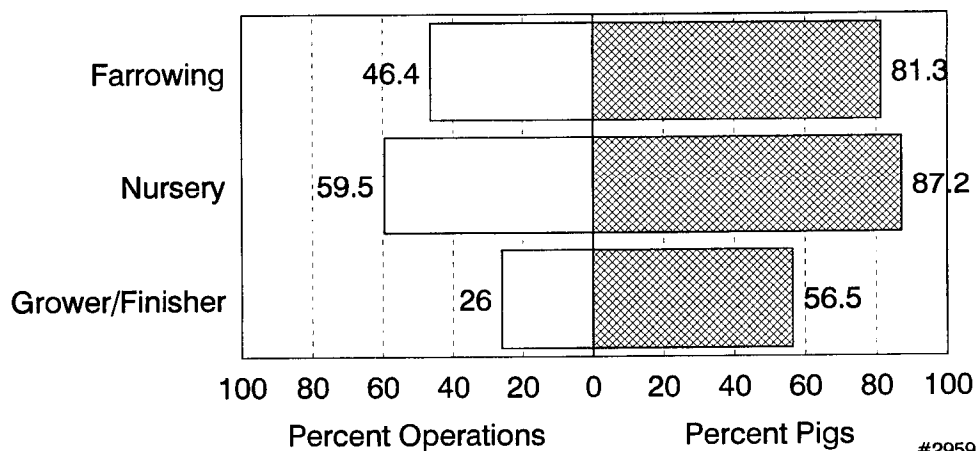
i. Percent of operations by type of facility used most in the following phases:

Facility Type	Percent Operations		Standard		Grower/ Finisher	Standard Error
	Farrowing	Error	Nursery	Error		
Total confinement	46.4	(± 2.5)	59.5	(± 2.9)	26.0	(± 1.9)
Open building with no outside access	9.8	(± 1.7)	9.9	(± 1.6)	11.9	(± 1.6)
Open building with outside access	30.5	(± 2.6)	26.1	(± 2.9)	45.5	(± 2.5)
Lot with hut or no building	5.7	(± 1.2)	3.0	(± 1.4)	9.9	(± 1.7)
Pasture with hut or no building	7.6	(± 1.6)	1.5	(± 0.6)	6.7	(± 1.3)
Total	100.0		100.0		100.0	

ii. Percent of pigs by type of facility used most in the following phases:

Facility Type	Percent Pigs		Standard		Grower/ Finisher <sup>3</sup>	Standard Error
	Farrowing <sup>1</sup>	Error	Nursery <sup>2</sup>	Error		
Total confinement	81.3	(± 1.8)	87.2	(± 1.6)	56.5	(± 2.1)
Open building with no outside access	5.9	(± 1.4)	5.8	(± 1.3)	11.3	(± 1.5)
Open building with outside access	9.7	(± 1.1)	5.6	(± 0.8)	27.8	(± 1.9)
Lot with hut or no building	1.6	(± 0.4)	1.1	(± 0.4)	2.9	(± 0.6)
Pasture with hut or no building	1.5	(± 0.4)	0.3	(± 0.2)	1.5	(± 0.4)
Total	100.0		100.0		100.0	

Percent of Operations (and Pigs on Those Operations) That Used Total Confinement Most by Production Phase



1 Percentage of sows and gilts farrowed from December 1, 1994, through May 31, 1995.

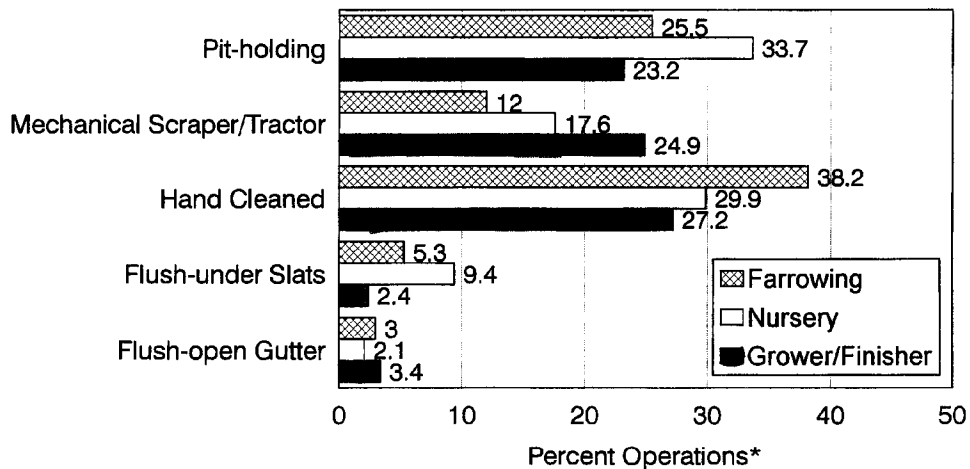
2 Percentage of piglets that entered the nursery from December 1, 1994, through May 31, 1995.

3 Percentage of pigs that entered the grower/finisher phase from December 1, 1994, through May 31, 1995.

e. Percent of operations by type of waste management system used most in the following production phases:

System	Percent Operations					
	Farrowing	Standard Error	Nursery	Standard Error	Grower/ Finisher	Standard Error
None	13.8	(± 2.0)	4.3	(± 1.0)	14.8	(± 1.9)
Pit-holding	25.5	(± 2.1)	33.7	(± 2.4)	23.2	(± 1.9)
Mechanical scraper/tractor	12.0	(± 1.6)	17.6	(± 2.2)	24.9	(± 2.0)
Hand cleaned	38.2	(± 2.6)	29.9	(± 2.9)	27.2	(± 2.4)
Flush-under slats	5.3	(± 0.8)	9.4	(± 1.3)	2.4	(± 0.5)
Flush-open gutter	3.0	(± 0.9)	2.1	(± 0.7)	3.4	(± 1.0)
Other	2.2	(± 0.5)	3.0	(± 0.8)	4.1	(± 0.8)
Total	100.0		100.0		100.0	

Percent of Operations\* by Type of Waste Management System Used Most by Production Phase



\*For those operations with specified production phase.

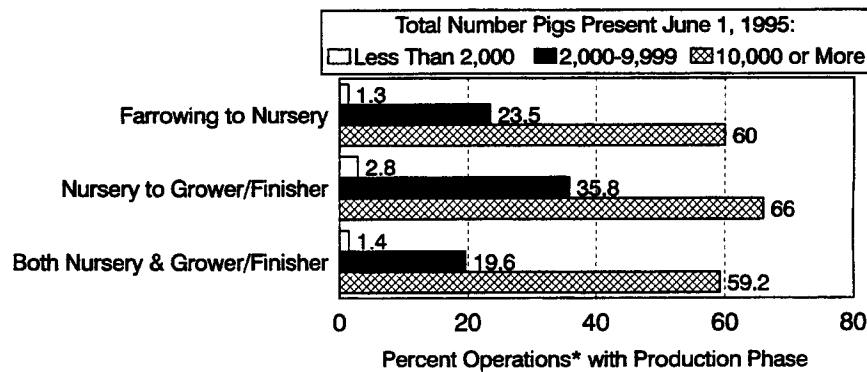
#2984

f. Multiple site production:

i. For operations that had the production phase, percent of operations that both weaned pigs at 20 days or sooner and removed pigs to a separate site by size of operation (total number of *pigs* present on June 1, 1995):

	<u>Percent Operations</u>							
	<u>Percent Operations</u>	<u>Stand. Error</u>	<u>Less Than 2,000 Head</u>	<u>Stand. Error</u>	<u>2,000-9,999 Head</u>	<u>Stand. Error</u>	<u>10,000 or More Head</u>	<u>Stand. Error</u>
Farrowing phase to separate site nursery	2.3	(± 0.4)	1.3	(± 0.4)	23.5	(± 4.5)	60.0	(± 6.0)
Nursery to separate site grower/finisher phase	4.8	(± 0.8)	2.8	(± 0.7)	35.8	(± 6.8)	66.0	(± 5.6)
Both separate site nursery and separate site grower/finisher phase	2.6	(± 0.5)	1.4	(± 0.5)	19.6	(± 4.3)	59.2	(± 6.3)

Percent of Operations\* That Weaned Pigs at 20 Days or Sooner and Removed Pigs to a Separate Site by Herd Size



\*Includes operations that had the specified production phase.

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ii. For operations that had the production phase, percent of operations that both weaned pigs at 20 days or sooner and removed pigs to a separate site by size of operation (number of *sows, gilts, and young gilts* present on June 1, 1995):

	<u>Percent Operations</u>							
	<u>Percent Operations</u>	<u>Stand. Error</u>	<u>Less Than 250 Head</u>	<u>Stand. Error</u>	<u>250-499 Head</u>	<u>Stand. Error</u>	<u>500 or More Head</u>	<u>Stand. Error</u>
Farrowing phase to separate site nursery	2.3	(± 0.4)	1.3	(± 0.4)	18.6	(± 4.9)	36.1	(± 8.3)
Nursery to separate site grower/finisher phase	4.8	(± 0.8)	2.8	(± 0.7)	24.7	(± 5.8)	61.1	(± 8.7)
Both separate site nursery and separate site grower/finisher phase	2.6	(± 0.5)	1.5	(± 0.5)	18.7	(± 5.2)	26.7	(± 7.4)

6. Preventive & Vaccination Practices - All Phases

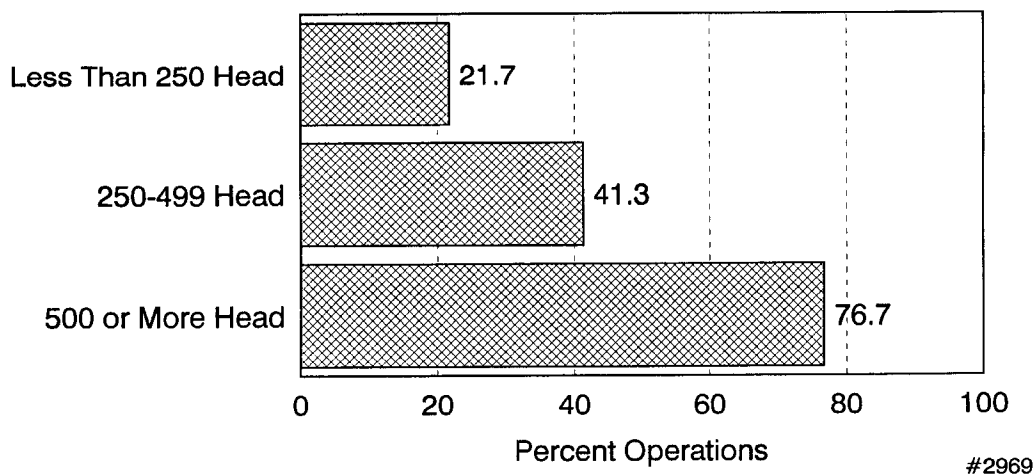
a. For those operations that had the production phase, percent of operations reporting regular use of preventive practices from December 1, 1994, through May 31, 1995:

Practice	Piglets Before or at Weaning		Market Hogs		Sows/Gilts		Boars	
	Percent	Standard	Percent	Standard	Percent	Standard	Percent	Standard
	Operations	Error	Operations	Error	Operations	Error	Operations	Error
Deworm	69.7	(± 2.2)	70.3	(± 2.2)	85.0	(± 1.9)	79.7	(± 2.1)
Mange/lice treatment	61.3	(± 2.5)	51.7	(± 2.4)	74.2	(± 2.3)	70.5	(± 2.4)
Antibiotics in feed	70.2	(± 2.5)	58.7	(± 2.4)	45.5	(± 2.6)	38.4	(± 2.6)
Antibiotics in water	16.0	(± 2.0)	12.3	(± 1.7)	6.6	(± 1.6)	4.7	(± 1.2)
Antibiotics -injection	39.5	(± 2.5)	24.8	(± 1.9)	30.3	(± 2.3)	22.3	(± 2.0)
Iron -oral or injection	71.7	(± 2.4)	N/A <sup>1</sup>		N/A <sup>1</sup>		N/A <sup>1</sup>	

b. Percent of operations regularly using vaccines against the following diseases regardless of age of pigs by size of operation (number of sows, gilts, and young gilts present on June 1, 1995):

	Percent Operations							
	Percent	Stand.	Less Than	Stand.	250-499	Stand.	500 or	Stand.
	Operations	Error	250 Head	Error	Head	Error	More Head	Error
Porcine reproductive and respiratory syndrome	22.6	(± 1.7)	21.7	(± 1.8)	41.3	(± 7.6)	76.7	(± 5.8)
Erysipelas	49.0	(± 2.2)	47.8	(± 2.3)	94.2	(± 1.7)	86.1	(± 3.9)
<i>Escherichia coli</i> scours	38.7	(± 2.1)	37.8	(± 2.1)	79.7	(± 5.0)	56.9	(± 10.8)
Parvovirus	44.0	(± 2.2)	42.7	(± 2.2)	92.0	(± 2.8)	90.4	(± 3.1)
Leptospirosis	47.0	(± 2.2)	45.8	(± 2.2)	84.6	(± 9.2)	91.2	(± 3.1)

Percent of Operations by Routine Use of Vaccines Against Porcine Reproductive and Respiratory Syndrome by Herd Size



<sup>1</sup> N/A = Not applicable.



c. Use of a veterinarian

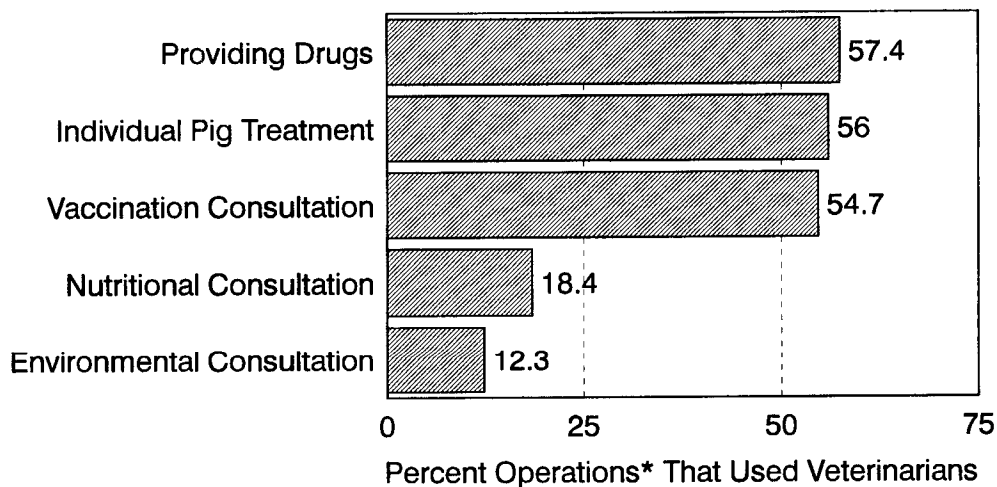
i. Percent of operations that used a veterinarian for any purpose from December 1, 1994, through May 31, 1995:

<u>Percent Operations</u>	<u>Standard Error</u>
42.1	(± 2.2)

ii. For those operations that used a veterinarian from December 1, 1994, through May 31, 1995, percent of operations that used the veterinarian for the following purposes:

<u>Purpose</u>	<u>Percent Operations</u>	<u>Standard Error</u>
Individual pig treatment	56.0	(± 3.3)
Nutritional consultation	18.4	(± 2.5)
Vaccination consultation	54.7	(± 3.1)
Environmental consultation	12.3	(± 1.9)
Providing drugs	57.4	(± 3.3)
Providing nutrient premixes	9.5	(± 2.0)
Slaughter checks	9.2	(± 1.6)
Artificial insemination	2.3	(± 0.7)
Other	18.0	(± 2.3)

Percent of Operations\* by Top Uses of Veterinarians



\*From December 1, 1994, through May 31, 1995.

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7. Biosecurity

a. Percent of operations where entry to the premises was restricted to employees only:

<u>Percent Operations</u>	<u>Standard Error</u>
40.5	(± 2.1)

i. Percent of all operations and percent of operations that did not restrict entry to employees only where *feed delivery personnel or livestock handlers* were required to:

<u>Preventive Measure</u>	<u>Percent of All Operations</u>		<u>Percent of Nonrestricted Operations</u>	
	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>
Shower before entering operation	0.2	(± 0.1)	0.4	(± 0.1)
Use a footbath before entering operation	1.9	(± 0.6)	3.3	(± 0.9)
Not have been on another pig operation that day	4.1	(± 0.9)	7.0	(± 1.5)

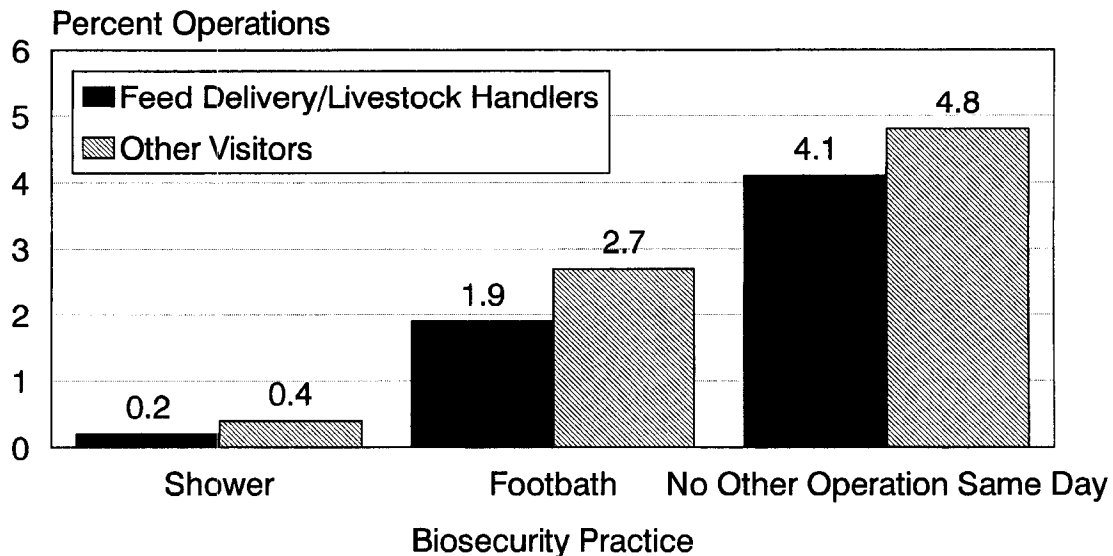
ii. Percent of all operations and percent of operations that did not restrict entry to employees only where *visitors other than feed deliverers and livestock haulers* were required to:

<u>Preventive Measure</u>	<u>Percent of All Operations</u>		<u>Percent of Nonrestricted Operations</u>	
	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>	<u>Standard Error</u>
Shower before entering operation	0.4	(± 0.1)	0.6	(± 0.1)
Use a footbath before entering operation	2.7	(± 0.6)	4.6	(± 1.0)
Not have been on another pig operation that day	4.8	(± 0.9)	8.0	(± 1.4)

b. Percent of operations where feral or wild hogs were considered a threat to herd health:

<u>Percent Operations</u>	<u>Standard Error</u>
4.2	(± 0.7)

Percent of All Operations by Biosecurity Practices Required of Visitors



#2963

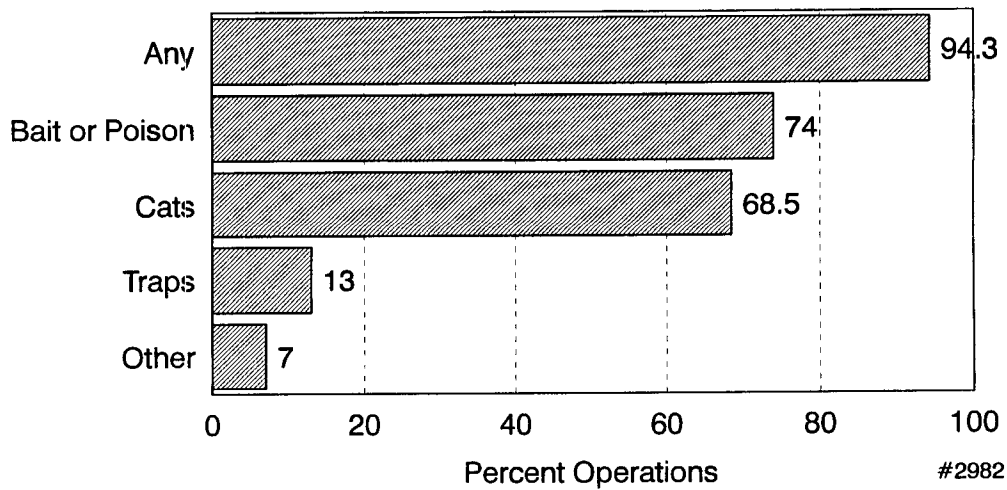
c. Percent of operations by distance in miles from this operation to nearest known operation with pigs (and swine market):

<u>Distance in Miles</u>	<u>Percent Operations</u>			
	<u>Nearest Operation</u>	<u>Standard Error</u>	<u>Nearest Market</u>	<u>Standard Error</u>
< .25 miles	5.1	(± 0.8)	0.4	(± 0.3)
.25-.49 miles	20.8	(± 1.7)	1.3	(± 0.4)
.50-.99 miles	21.3	(± 1.9)	1.1	(± 0.3)
1.0-2.99	29.1	(± 2.1)	6.3	(± 1.2)
3.0-4.99	11.9	(± 1.7)	8.2	(± 1.0)
5.0+	<u>11.8</u>	(± 1.6)	<u>82.7</u>	(± 1.6)
Total	100.0		100.0	

d. Percent of operations regularly using the following rodent control methods:

<u>Method</u>	<u>Percent Operations</u>	<u>Standard Error</u>
Cats	68.5	(± 2.1)
Traps	13.0	(± 1.3)
Bait or poison	74.0	(± 2.2)
Other	7.0	(± 1.1)
Any means of control	94.3	(± 1.2)

Percent of Operations by Regularly Used Rodent Control Measures



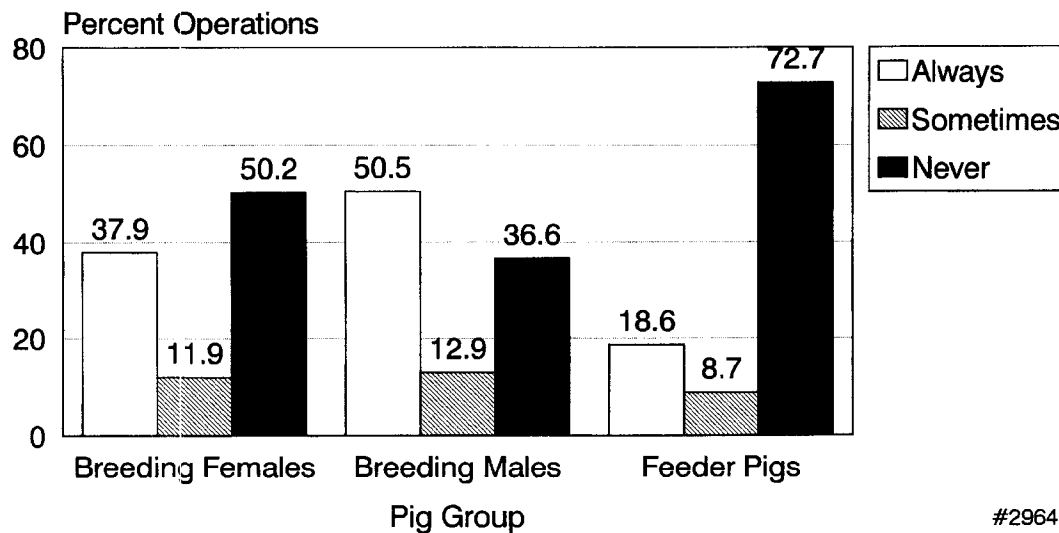
e. Percent of operations that receive new arrivals:

<u>Breeding Females</u>		<u>Breeding Males</u>		<u>Feeder Pigs</u>	
Percent	Standard	Percent	Standard	Percent	Standard
<u>Operations</u>	<u>Error</u>	<u>Operations</u>	<u>Error</u>	<u>Operations</u>	<u>Error</u>
53.5	(± 2.3)	64.5	(± 2.3)	54.8	(± 2.3)

i. Of operations that receive new arrivals, percent reporting frequency of placing new arrivals through a separation or quarantine process:

<u>Frequency</u>	<u>Breeding Females</u>		<u>Breeding Males</u>		<u>Feeder Pigs</u>	
	Percent	Standard	Percent	Standard	Percent	Standard
	<u>Operations</u>	<u>Error</u>	<u>Operations</u>	<u>Error</u>	<u>Operations</u>	<u>Error</u>
Always	37.9	(± 3.1)	50.5	(± 2.8)	18.6	(± 2.7)
Sometimes	11.9	(± 1.8)	12.9	(± 1.8)	8.7	(± 2.1)
Never	<u>50.2</u>	(± 3.2)	<u>36.6</u>	(± 2.8)	<u>72.7</u>	(± 3.1)
Total	100.0		100.0		100.0	

Percent of Operations Receiving New Arrivals That Separated or Quarantined New Arrivals by Pig Group



ii. Of operations that receive new arrivals, percent of operations reporting frequency of testing the health of new arrivals through collecting blood or fecal samples:

<u>Frequency</u>	<u>Breeding Females</u>		<u>Breeding Males</u>		<u>Feeder Pigs</u>	
	Percent	Standard	Percent	Standard	Percent	Standard
	<u>Operations</u>	<u>Error</u>	<u>Operations</u>	<u>Error</u>	<u>Operations</u>	<u>Error</u>
Always	22.9	(± 2.3)	30.6	(± 2.3)	8.9	(± 1.8)
Sometimes	23.2	(± 2.7)	18.2	(± 2.2)	9.6	(± 1.7)
Never	<u>53.9</u>	(± 3.1)	<u>51.2</u>	(± 2.7)	<u>81.5</u>	(± 2.4)
Total	100.0		100.0		100.0	

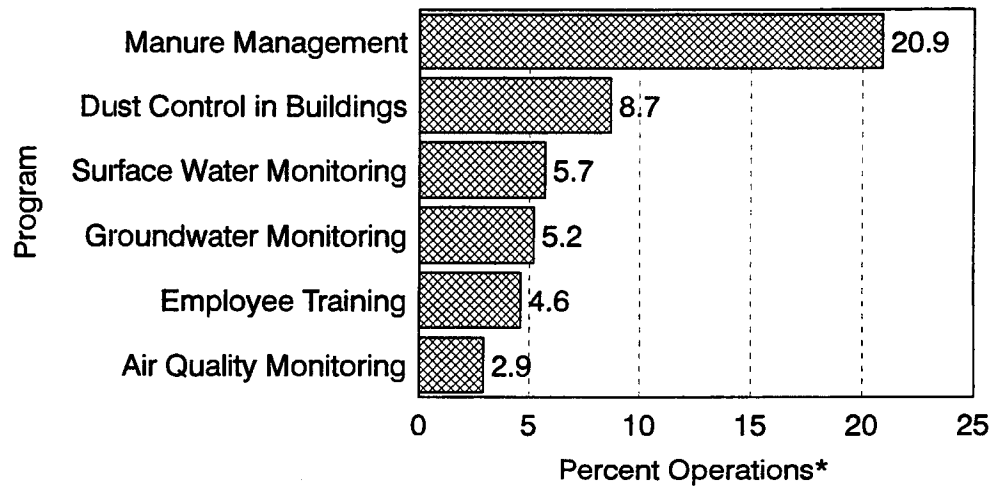
8. Environment

a. During the 5 years prior to the June 1995 interview, percent of operations where concerns or regulations about environmental quality led to changes in or development of programs:

i. By number of *swine marketed* from December 1, 1994, through May 31, 1994:

Program	Percent Operations					
	Total Operations	Standard Error	Less Than 2,500 Head Marketed	Standard Error	2,500 or More Head Marketed	Standard Error
Groundwater monitoring program	5.2	(± 0.9)	5.1	(± 0.9)	15.6	(± 3.2)
Surface water monitoring program	5.7	(± 0.9)	5.1	(± 0.9)	19.6	(± 4.0)
Air quality monitoring program	2.9	(± 0.6)	2.5	(± 0.6)	15.5	(± 3.4)
Manure management program	20.9	(± 1.6)	19.8	(± 1.7)	64.9	(± 4.2)
Dust control program in the buildings	8.7	(± 0.9)	8.0	(± 0.9)	36.0	(± 4.6)
Employee training program	4.6	(± 0.6)	3.9	(± 0.6)	33.4	(± 5.2)

Percent of Operations\* by Changes in or Development of Programs Due to Concerns or Regulations About Environmental Quality



\*During 5 years prior to June 1995 interview.

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ii. By number of *pigs present* on operation on June 1, 1995:

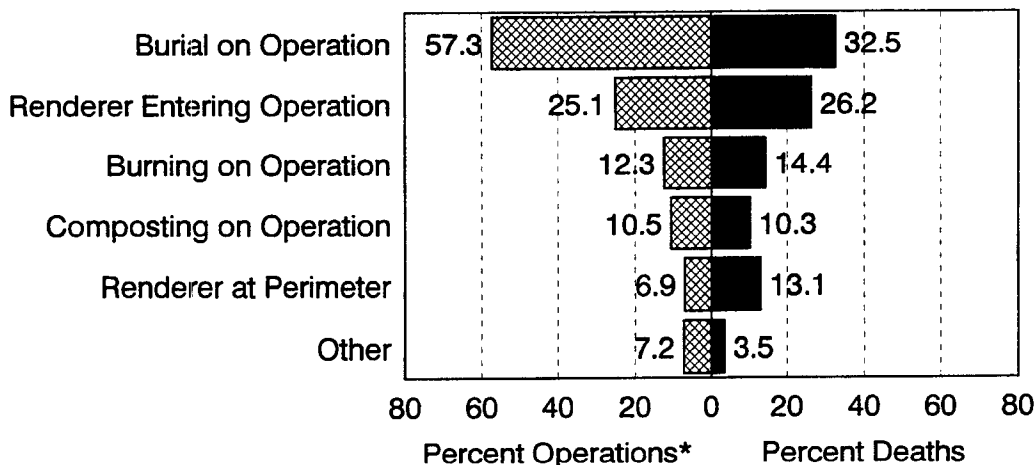
Program	Percent Operations					
	Less Than 2,000 Head	Standard Error	2,000-9,999 Head	Standard Error	10,000 or More Head	Standard Error
Groundwater monitoring program	4.9	(± 0.9)	13.1	(± 2.6)	39.8	(± 7.6)
Surface water monitoring program	5.3	(± 0.9)	15.8	(± 3.0)	31.4	(± 5.4)
Air quality monitoring program	2.6	(± 0.6)	10.6	(± 2.2)	23.7	(± 4.4)
Manure management program	19.3	(± 1.6)	63.0	(± 4.5)	74.2	(± 7.1)
Dust control program in the buildings	8.0	(± 0.9)	26.2	(± 3.8)	50.5	(± 7.7)
Employee training program	3.6	(± 0.6)	29.0	(± 4.8)	68.3	(± 7.0)

b. Carcass disposal

i. For operations that specified at least one pig had died from December 1, 1994, through May 31, 1995, percent of all deaths by method of disposal:

Method	Percent Operations	Standard Error	Percent All Deaths	Standard Error
Burial on operation	57.3	(± 2.3)	32.5	(± 2.3)
Burning on operation	12.3	(± 1.4)	14.4	(± 2.0)
Renderer entering operation	25.1	(± 1.8)	26.2	(± 2.7)
Renderer at perimeter of operation	6.9	(± 0.9)	13.1	(± 1.5)
Composting on operation	10.5	(± 1.3)	10.3	(± 1.3)
Other	7.2	(± 1.3)	3.5	(± 0.7)
Total			100.0	

Percent of Operations\* (and Percent of Deaths on Those Operations) by Method of Disposing of Dead Pigs



\*For operations that specified at least one pig had died.

#2966

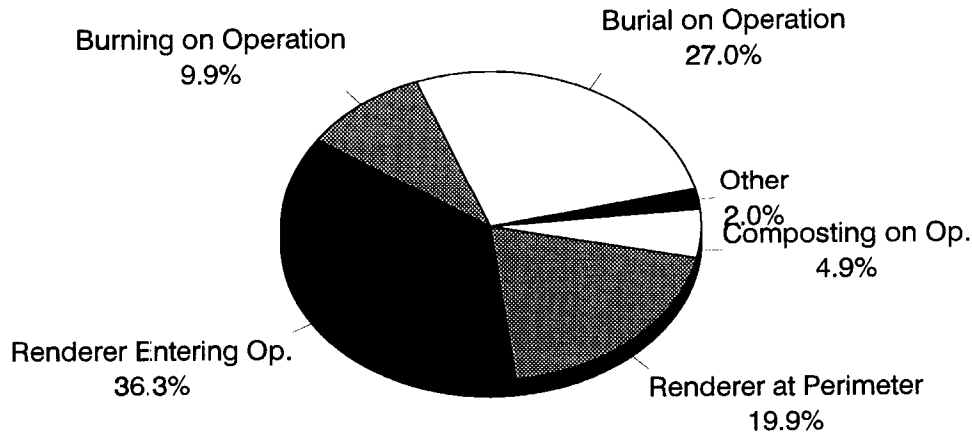
ii. For operations that specified at least one *preweaned* piglet had died from December 1, 1994, through May 31, 1995, percent of operations using each method of disposal (and percent of preweaned deaths on these operations):

<u>Method</u>	<u>Percent Operations</u> <sup>1</sup>	<u>Standard Error</u>	<u>Percent All Deaths</u>	<u>Standard Error</u>
Burial on operation	58.1	(± 2.6)	34.7	(± 2.8)
Burning on operation	13.9	(± 1.7)	16.1	(± 2.4)
Renderer entering operation	12.4	(± 1.4)	22.1	(± 3.3)
Renderer at perimeter of operation	1.9	(± 0.4)	10.5	(± 1.5)
Composting on operation	11.6	(± 1.5)	12.5	(± 1.7)
Other	7.1	(± 1.5)	<u>4.1</u>	(± 0.9)
<b>Total</b>			<b>100.0</b>	

iii. For operations that specified at least one pig *weaned or older* had died from December 1, 1994, through May 31, 1995, percent of operations using each method of disposal (and percent of weaned or older deaths on these operations):

<u>Method</u>	<u>Percent Operations</u> <sup>1</sup>	<u>Standard Error</u>	<u>Percent All Deaths</u>	<u>Standard Error</u>
Burial on operation	47.4	(± 2.5)	27.0	(± 2.2)
Burning on operation	10.0	(± 1.4)	9.9	(± 1.6)
Renderer entering operation	31.7	(± 2.2)	36.3	(± 2.5)
Renderer at perimeter of operation	9.2	(± 1.1)	19.9	(± 1.9)
Composting on operation	6.3	(± 1.1)	4.9	(± 0.8)
Other	4.0	(± 0.9)	<u>2.0</u>	(± 0.5)
<b>Total</b>			<b>100.0</b>	

Percent of Pig Deaths (Weaned & Older)  
by Method of Disposal



#2987

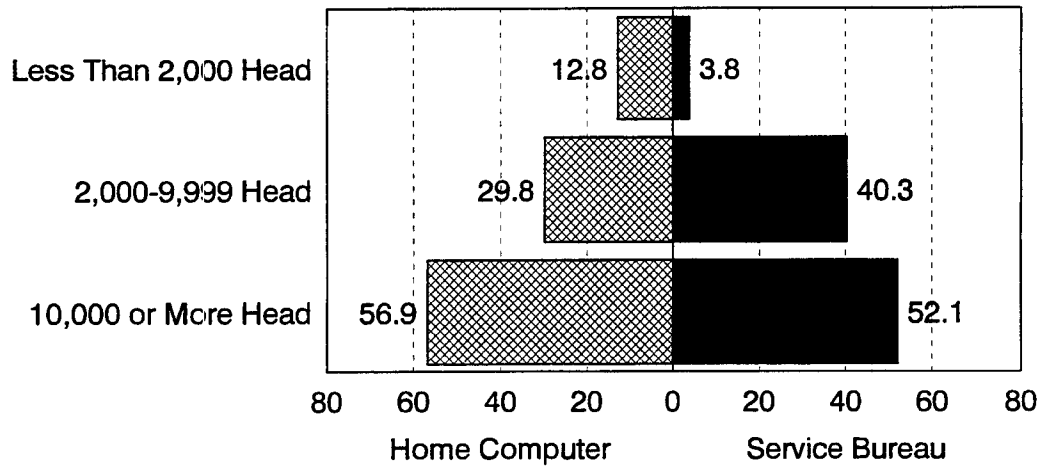
1 Operations may have used more than one technique.

9. General Management

a. Percent of operations by type of record keeping system and size (total inventory):

System	Percent Operations							
	Percent Operations	Stand. Error	Less Than 2,000 Head	Stand. Error	2,000-9,999 Head	Stand. Error	10,000 or More Head	Stand. Error
Pocket diary or calendar	66.2	(± 2.2)	66.7	(± 2.3)	53.0	(± 5.4)	41.3	(± 7.5)
Record cards for individual members of a breeding herd	13.6	(± 1.2)	12.4	(± 1.2)	44.4	(± 5.2)	58.9	(± 8.2)
Home computer-based record-keeping system	13.5	(± 1.4)	12.8	(± 1.4)	29.8	(± 4.9)	56.9	(± 8.3)
Service bureau-based record-keeping system	5.2	(± 0.6)	3.8	(± 0.6)	40.3	(± 4.6)	52.1	(± 7.6)
Other	15.5	(± 1.6)	15.2	(± 1.7)	24.2	(± 5.5)	15.5	(± 8.7)
Any	86.5	(± 1.8)	86.0	(± 1.9)	99.7	(± 0.3)	100.0	(± 0.0)

Percent of Operations Using Home Computer-based and Service Bureau-based Record-keeping Systems by Herd Size



#2988

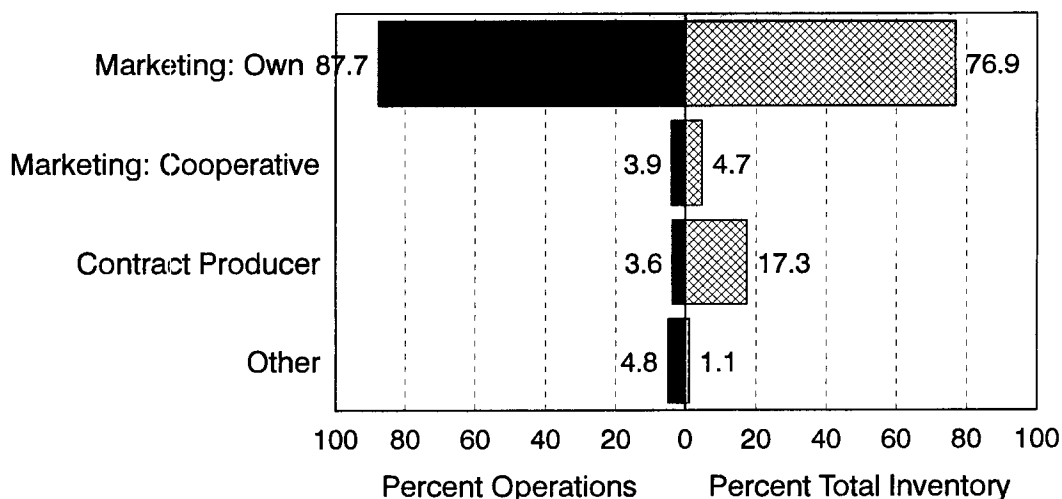


b. Business and Marketing

i. Percent of operations (and percent of total inventory on those operations) by business and marketing arrangements that best describe the pig operation:

<u>Arrangement</u>	<u>Percent Operations</u>	<u>Standard Error</u>	<u>Percent Total Inventory</u>	<u>Standard Error</u>
Independent producer - marketing their own	87.7	(± 1.5)	76.9	(± 1.5)
Independent producer - marketing through a cooperative	3.9	(± 0.7)	4.7	(± 0.9)
Contract producer - operation is contractor or contractee	3.6	(± 0.5)	17.3	(± 1.3)
Other	4.8	(± 1.4)	1.1	(± 0.3)
Total	100.0		100.0	

Percent of Operations and Percent Total Inventory by Business and Marketing Arrangement



#2967

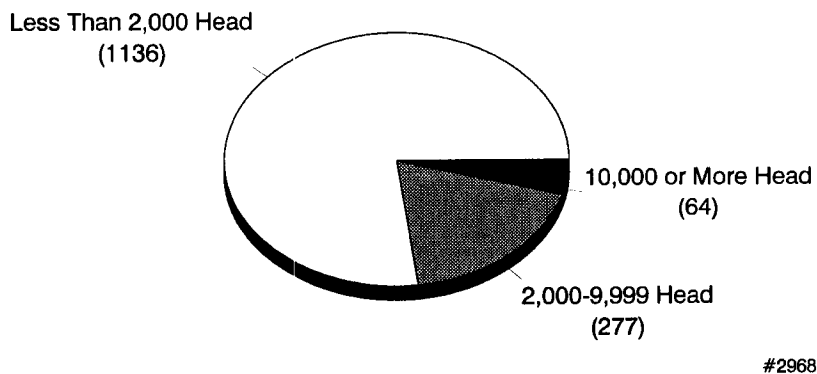
ii. Percent of pigs sold for the following purposes from December 1, 1994, through May 31, 1995:

<u>Description</u>	<u>Percent Pigs Sold</u>	<u>Standard Error</u>
Slaughter market hogs	71.0	(± 1.9)
Feeder pigs	23.6	(± 1.9)
Replacement stock	1.3	(± 0.2)
Culled breeding stock	2.4	(± 0.1)
Other	1.7	(± 0.7)
Total	100.0	

## Section II: Sample Profile

1. Total June 1, 1995, inventory:	<u>Number of Responding Operations</u>
Less than 2,000	1,136
2,000-9,999	277
10,000+	<u>64</u>
Total	1,477

Number of Responding Operations  
by Size of June 1, 1995, Inventory



2. Type of operation:	
Farrow-to-finish	915
Grower/finisher only	359
Producer of feeder pigs	170
Producer of weaned pigs	23
Producer of breeding stock	<u>10</u>
Total	1,477

3. Type of farrowing management:	
All-in/all-out	622
Continuous farrowing	470
No farrowing facility	377
Unspecified <sup>1</sup>	<u>8</u>
Total	1,477

4. Number of responding operations by number of pigs sold from December 1, 1994, through May 31, 1995:

<u>Number Hogs &amp; Pigs Sold</u>	<u>Number of Responding Operations</u>
Less than 2,000	1,085
2,000 -9,999	262
10,000 or more	81
Unspecified <sup>1</sup>	49
Total	1,477

<sup>1</sup> Unspecified operations were not included in analyses regarding these categories.