INFO SHEET
Veterinary Services

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Preventive Practices in Swine: Administration of Iron and Antibiotics

Almost all swine operations have some type of disease prevention program, which often includes administration of iron to baby pigs and/or the administration of antibiotics to swine during various stages of the production cycle.

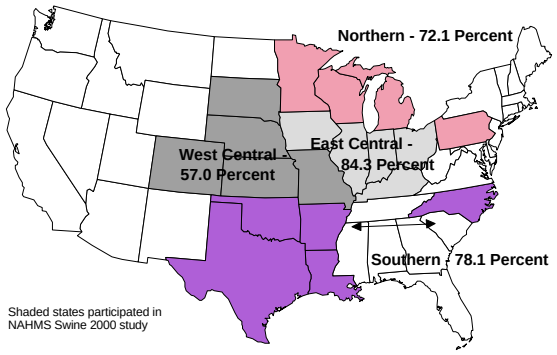
The USDA's National Animal Health Monitoring System (NAHMS) collected data on swine health and management practices from a random sample of swine production sites in 17 states[1] as part of the Swine 2000 study. These sites represented 94 percent of the U.S. pig inventory and 92 percent of U.S. pork producers with 100 or more pigs. Overall, 2,499 swine production sites participated in the study's first interview from June 1, 2000, through July 14, 2000. A second interview was completed by 895 of these sites between August 21, 2000, and November 3, 2000. For estimates in this report, small, medium, and large sites refer to sites with less than 2,000, 2,000 to 9,999, and 10,000 or more pigs in total inventory, respectively, unless otherwise specified. Animal-level estimates reported here are based on a June 1, 2000, inventory.

Iron

Swine 2000 results indicated that the administration of iron (to prevent anemia) was the most common preventive measure used for piglets. For swine raised in confinement facilities, the standard practice is to inject pigs with 100 to 200 mg of iron dextran within 3 days after birth. The study indicated that iron was given either orally or by injection on 75.4 percent of sites, which accounted for 90.6 percent of all piglets. For sites with indoor farrowing facilities, 83.7 percent administered iron to pigs, compared to only 36.7 percent of sites with pasture farrowing. On sites that used a pasture for farrowing young pigs may have obtained their required iron from the soil. The percentage of sites that administered iron to piglets was lower in the west central region than in other regions of the U.S. (Figure 1).

Figure 1.

Percent Sites Administering Iron to Piglets, by Region



The percentage of sites that administered iron to piglets was lower for sites with less than 250 breeding females (72.2 percent) than on sites with 250 to 499 (91.1 percent) or 500 or more breeding females (94.0 percent). Both the percentage of sites that administered iron to piglets and the percentage of piglets that received iron were similar to that found in the NAHMS Swine '95 study.

Antibiotics

Antibiotics are frequently given to swine in one or more stages of production for disease prevention and growth promotion. Most sites (92.0 percent) indicated that some swine were given antibiotics during the 6-month period of December 1, 1999, through May 31, 2000. Overall, more sites used feed rather than drinking water or injection as the method of antibiotic delivery.

Antibiotics were given to **grower/finisher pigs** in feed on 88.5 percent of sites. These sites accounted for 95.9 percent of all grower/finisher pigs. Sites in the southern region were more likely to administer antibiotics to pigs **from weaning through market age** in water, orally, or by injection than were sites in other regions. More large sites (10,000 or more pigs) gave antibiotics in feed, by injection, or in water to weaning through market age pigs than did sites with less than 10,000 pigs (Table 1).

[1]Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Carolina, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Wisconsin

Table 1.

Percent Sites that Gave Antibiotics to Weaned Pigs as a Preventive Practice from December 1, 1999, Through May 31, 2000, by Route of Administration and Size of Site

Percent Sites

Size of Site (Total Inventory)

Route	Small (Less than 2,000)	Medium (2,000-9,999)	Large (10,000 or more)	All Sites
Feed	78.4	87.6	94.1	80.1
Injection	38.7	69.8	82.9	44.3
Water	18.8	62.5	81.3	26.6
Orally	5.9	10.2	7.1	6.6

Participants were asked specifically about antibiotic use for growth promotion in nursery pigs. Responses indicated that 82.7 percent of sites with nursery pigs fed antibiotics for growth promotion, with chlortetracycline the most common antibiotic given on 30.1 percent of sites. The next most common antibiotics given in feed to nursery pigs for growth promotion were tylosin (23.2 percent of sites), carbadox (22.8 percent of sites), tiamulin (14.6 percent of sites), and a chlortetracylcine/sulfamethiazole/penicillin combination (11.5 percent sites).

Participants were asked what was the primary reason for giving antibiotics to **grower/finisher pigs** by various routes. Responses indicated that the most common reason for giving antibiotics to grower/finisher pigs in feed was growth promotion, followed by disease prevention. The most common reason for giving antibiotics to grower/ finisher pigs in water or by injection was to treat respiratory disease (Table 2).

Table 2.

Percent Sites That Gave Antibiotics or other Feed Additives to Grower/Finisher Pigs, by Primary Reason and Route of Administration

Percent Sites

Route of Administration

Primary Reason	Feed	Water	Injection	Any Route
Growth promotion	63.7	0.0	0.0	63.7
Treat respiratory disease	27.4	25.2	57.2	61.9
Disease prevention	37.9	4.0	6.4	42.8
Treat enteric disease	15.2	7.5	15.4	27.5
Treat other disease	0.2	1.0	14.1	14.7
Any reason	88.5	31.2	64.5	92.6

Table 3.

The Five Most Common Antibiotics Given to Grower/Finisher Pigs In Feed, by Injection, and in Water

Feed		Injection		Water	
Antibiotic	Percent Sites	Antibiotic	Percent Sites	Antibiotic	Percent Sites
Tylosin	56.3	Procaine Penicillin G	40.0	Oxy-tetracyclin e	8.8
Chlor-tetracycline	48.0	Tylosin	30.7	Chlor-tetracyclin e	6.7
Bacitracin	35.0	Ceftiofur	18.2	Sulfadime-thoxine	5.6
Lincomycin	8.6	Oxy-tetracylcine	18.1	Neomycin	4.3
Carbadox	6.3	Penicillin	15.5	Tylosin	4.1

The most common antibiotics given to **grower/finisher pigs** in feed, water, and by injection (for any reason) were tylosin, oxytetracycline, and procaine penicillin G, respectively (Table 3).

Maintaining good antibiotic-use records is important to help prevent drug residues and to produce quality pork. More large and medium sites maintained antibiotic treatment records than small sites. Seventy-eight percent of large sites recorded drug name and date of treatment for antibiotics given to **grower/finisher pigs**, compared to just over 40 percent of small sites.

About 15 percent of respondents reported that veterinarians were the primary decision-makers regarding which antibiotics to use in weaned market pigs. However, veterinarians were the primary decision-makers on a greater percentage of large herds (over two-thirds of sites with a total inventory of 10,000 or more)[1]. For sites with less than 2,000 swine, operation owners were the primary decision-makers when choosing which antibiotics were used for growth promotion or to treat sick weaned market pigs.

[1] See Swine 2000 Part II for more specific estimates regarding nonowner decision-makers.

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[1]Arkansas, Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Carolina, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Wisconsin