APHIS Info Sheet

Veterinary Services
Centers for Epidemiology and Animal Health

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# Trends in Vaccination Practices for Respiratory Diseases on U.S. Swine Operations - 2000

Vaccinating swine to prevent disease is a common management practice among U.S. swine producers. The choice of vaccines administered depends on the risk of disease, stage of production, and age of the animal. Vaccination effectiveness often depends on vaccine quality and the timing of administration.

The USDA's National Animal Health Monitoring System (NAHMS) collected data on swine health and management practices from a stratified 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 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. For estimates involving breeding females, small, medium, and large sites refer to sites with less than 250, 250 to 499, and 500 or more breeding females, respectively.

## Vaccination Against PRRS

In 2000, the percentage of total sites vaccinating pigs against Porcine Reproductive and Respiratory Syndrome (PRRS) remained similar to that of 5 years previously (28.3 percent and 27.7 percent, respectively). The PRRS vaccine was used more frequently on sites with breeding females (37.1 percent of sites) than on sites with weaned market pigs (5.2 percent of sites). This accounted for 53.5 percent of all breeding females and 6.4 percent of all weaned market pigs. Based on the number of breeding females, many more large and medium sites (69.4 percent and 60.8 percent, respectively) vaccinated against PRRS than small sites (30.6 percent) (Table 1). For sites with breeding females, modified live PRRS vaccine was the predominant type of vaccine used (29.9 percent of sites) while only 7.1 percent of these sites used killed PRRS vaccine, and 1.0 percent used autogenous vaccine. However, autogenous vaccine was used on 7.4 percent of large sites. The majority (80.6 percent) of sites that vaccinated breeding females against PRRS vaccinated at the time of entry into the breeding herd.

For sites with weaned market pigs, none of the large sites vaccinated these pigs against PRRS, compared to 8.2 percent and 4.6 percent of medium and small sites, respectively (Table 2).

**Table 1. Percent of Sites that Vaccinated Breeding Females for PRRS, Mycoplasma, or Influenza in the Previous 6 Months, by Site Size.**

| | Site Size (June 1, 2000, Sow and Gilt Inventory) | | | |
|---|---|---|---|---|
| Vaccination Type | Small (Less than 250) | Medium (250-499) | Large (500 or More) | All Sites |
| PRRS | 30.6 | 60.8 | 69.4 | 37.1 |
| Mycoplasma | 15.3 | 43.6 | 46.2 | 20.9 |
| SIV (H1N1) | 4.4 | 39.4 | 42.4 | 11.2 |
| SIV (H3N2) | 5.0 | 29.4 | 41.5 | 10.6 |

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

## Vaccination Against Mycoplasma Pneumonia

While only 20.9 percent of sites with breeding females vaccinated these pigs against Mycoplasma pneumonia in the previous 6 months, 40.0 percent of sites with weaned market pigs vaccinated against Mycoplasma pneumonia. This accounted for 39.7 percent of all breeding females and 62.8 percent of all weaned market pigs. As was the case with PRRS vaccine, more large and medium sites with breeding animals vaccinated against Mycoplasma than small sites. The majority (74.6 percent) of sites that vaccinated breeding females against Mycoplasma vaccinated them as young gilts prior to entering the breeding herd. For sites with weaned market pigs, fewer small sites vaccinated against Mycoplasma than medium or large sites.

## Vaccination Against Swine Influenza Virus (SIV)

For the Swine 2000 study, the H1N1 influenza virus was referred to as *Traditional* swine flu and the H3N2 influenza virus was referred to as *New* swine flu. Overall, 11.2 percent of sites with breeding females administered the H1N1 vaccine to these pigs during the previous 6 months, while 10.6 percent administered the H3N2 vaccine. Among all sites with breeding females, 7.6 percent used both vaccines. Thirty-eight percent of all breeding females were on sites that administered the H1N1 vaccine, while 37.2 percent were on sites that administered the H3N2 vaccine. Among all breeding females, 31.0 percent were on sites that administered both vaccines. As with PRRS and Mycoplasma vaccines, more large and medium sites with breeding animals vaccinated against H1N1 or H3N2 than small sites. Almost 10 percent of large sites vaccinated breeding females with autogenous H3N2 vaccine. Of those sites with breeding herds that used SIV vaccine, the majority vaccinated breeding females against H1N1 (71.4 percent) or against H3N2 (75.5 percent) at the time of entry into the breeding herd.

**Table 2. Percent of Sites that Vaccinated Weaned Market Pigs for PRRS, Mycoplasma, or Influenza in the Previous 6 Months, by Site Size.**

| | Size of Site (June 1, 2000, Total Inventory) | | | |
|---|---|---|---|---|
| Vaccination Type | Small (Less than 2,000) | Medium (2,000-9,999) | Large (10,000 or more) | All Sites |
| PRRS | 4.6 | 8.2 | 0.0 | 5.2 |
| Mycoplasma | 33.9 | 65.5 | 55.2 | 40.0 |
| SIV (H1N1) | 2.7 | 12.8 | 22.5 | 4.8 |
| SIV (H3N2) | 3.1 | 12.7 | 17.1 | 5.0 |

Only 4.8 percent of sites with weaned market pigs vaccinated against H1N1, and 5.0 percent vaccinated against H3N2. Among all sites with weaned market pigs, 3.7 percent used both vaccines. This accounted for 12.5 percent of all weaned market pigs being on sites that administered H1N1 vaccine and 13.3 percent being on sites that administered H3N2 vaccine. Among all weaned market pigs, 10.5 percent were on sites that administered both vaccines. For sites with weaned market pigs, fewer small sites vaccinated against H1N1 or H3N2 than medium or large sites. The average age weaned market pigs were vaccinated against H1N1 was 8.6 weeks, and against H3N2 the average age was 9.0 weeks.

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