



CHAPTER 4



Monitoring and Surveillance for Diseases That Affect Production and Marketing

The fourth goal of the NAHSS strategic plan is monitoring and surveillance for diseases with a major impact on animal production and marketing. Objectives within this goal include monitoring animal health and production trends; contributing to animal disease awareness education for producers and veterinarians; facilitating the use of new technologies for early and rapid disease detection and data analysis; and, capturing, analyzing, interpreting, and disseminating data using standardized methods.

This chapter describes the national studies coordinated by the National Animal Health Monitoring System (NAHMS) program unit, focusing on dairy, beef, small-enterprise swine, and small-enterprise chicken operations. In addition, Chapter 4 explains the disease status, monitoring, and surveillance activities underway for White Spot Syndrome Virus in Louisiana crawfish, ISA virus, and VHS. The chapter also outlines the National Animal Health Reporting System (NAHRS) and summarizes its current status.

NAHMS Studies

The Animal Industry Act of 1884 directed USDA–APHIS predecessor, the Bureau of Animal Industry, to “collect such information as shall be valuable to the agricultural and commercial interests of the country.” In the mid 1970s, the National Academy of Sciences prompted APHIS to reassess its responsibility to fulfill agricultural information needs. Producers, veterinarians, academics, educators, and government policymakers needed

scientifically sound and statistically valid information that is national in scope. NAHMS was formed to test the theories and methods of data collection necessary for a national animal health monitoring program. State pilot projects in the 1980s were successful and, by 1990, NAHMS began its first efforts to describe health and production related to a national animal population.

Study designers recognized that, to obtain high-quality data, producer participation must be voluntary and that the data from individual operations must be kept confidential. Because reliance on a convenience sample of voluntary producers would not ensure statistically valid results, the designers sought the help of the USDA’s National Agricultural Statistics Service (NASS). NASS conducts hundreds of surveys each year and prepares reports and lists covering virtually every aspect of U.S. agriculture from which NAHMS can select a probability-based, random sample of producers as potential study participants.

NAHMS studies generally focus on food animals and on equids. Livestock and poultry commodities are studied about every 5 years or longer depending on information needs of commodity stakeholders.

Approximately 2 years prior to designing a study, NAHMS involves the targeted industry, government, and related groups in identifying critical information gaps. Then a study is designed to optimize collection of data through questionnaires and biologic samples. The States selected for a NAHMS study typically represent at least 70 percent of the targeted animal population and a similar percentage of operations at the national level.

NAHMS studies typically proceed in two data collection phases. In the first phase, about 300 to 500 NASS data collectors conduct personal interviews with producers. Questions typically focus on herd or flock management, operation and production issues, and animal health. At the conclusion of the interview, producers can sign consent forms to continue participating in the study.

In the second phase, a study coordinator in each State trains data collectors and oversees data collection, which is completed by roughly 100 to 200 veterinary professionals. Usually the data collectors conduct two more interviews with each producer and collect biological samples (i.e., blood, feces, feed, and water) at the operation. Biologic samples are evaluated in cooperation with NVSL, other laboratories, and USDA's Agricultural Research Service (ARS). Producers generally receive the results from the biological sampling.

After data collection, NAHMS veterinarians and statisticians analyze and summarize the data, taking into account sampling design and nonresponse. The NAHMS analysts interpret results and develop population inferences in the context of the study design and other available information, with input from study collaborators. All published information is subject to outside review by subject matter specialists prior to release.

Primary products from the studies include descriptive reports and information sheets. Descriptive reports contain tables, graphs, and minimal interpretation of study results and average about 100 pages. Information sheets address very specific topics such as vaccination or biosecurity practices.

NAHMS has conducted 23 national studies to date:

- 4 Dairy
- 3 Beef cow-calf
- 2 Beef feedlot
- 5 Swine (including Swine 2007 Small-Enterprise Study)
- 3 Poultry (including Chicken 2007 Small-Enterprise Study)

- 2 Catfish
- 2 Sheep
- 2 Equine

Highlights of recent and current studies follow.

Dairy 2007

The NAHMS Dairy 2007 study was the fourth study of the Nation's dairy herd. In 1991, NAHMS conducted the National Dairy Heifer Evaluation Project (NDHEP). The NDHEP provided baseline information on heifer health and management practices, as well as prevalence estimates for *Cryptosporidium*, *Escherichia coli* O157:H7, and *Salmonella*. Objectives of the Dairy '96 study included acquiring national prevalence estimates of *Mycobacterium paratuberculosis* (Johne's disease) and bovine leukosis virus and fecal shedding of *E. coli* O157 and *Salmonella* in adult dairy cows. Major goals of the Dairy 2002 study were to describe management strategies that prevent and reduce Johne's disease and to determine management factors associated with *Mycoplasma* and *Listeria* in bulk tank milk. Dairy 2007 objectives focused on cow comfort, unweaned calf health, bovine viral diarrhea (BVD), contagious mastitis pathogens, and herd-level prevalence of *Mycobacterium paratuberculosis*.

A total of 17 States (California, Idaho, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, New Hampshire, New Mexico, New York, Ohio, Pennsylvania, Texas, Virginia, Washington, and Wisconsin) participated in Dairy 2007 and accounted for 82.5 percent of U.S. milk cows and 79.5 percent of U.S. operations.

The following results provide a small example of data collected.

The three most prevalent diseases that producers reported in their dairy cows for the previous year (2006) were clinical mastitis, lameness, and infertility problems (16.5, 14.0, and 12.9 percent of cows, respectively).

During 2006, approximately one in four cows (23.6 percent) (excluding cows that died) was permanently removed from operations. Of permanently removed cows, 26.3 percent were removed for reproductive problems and 23 percent for udder or mastitis problems. Other factors that led to the removal of cows were poor production not related to reproductive problems, mastitis, or lameness (16.1 percent), and lameness or injury (16 percent) (fig. 4.1).

The highest percentage of deaths occurred in unweaned heifers (7.8 percent), while 5.7 percent of cows and 1.8 percent of weaned heifers died. More than half of unweaned heifer calf deaths (56.5 percent) were due to scours/diarrhea or other digestive problems, while 22.5 percent of deaths resulted from respiratory problems. Respiratory problems accounted for 46.5 percent of deaths in weaned heifers. The single largest cause of cow deaths was lameness or injury (20.0 percent), followed by mastitis (16.5 percent), calving problems (15.2 percent), and unknown reasons (15.0 percent) (fig. 4.2).

FIGURE 4.1: Percent cow removals by reason

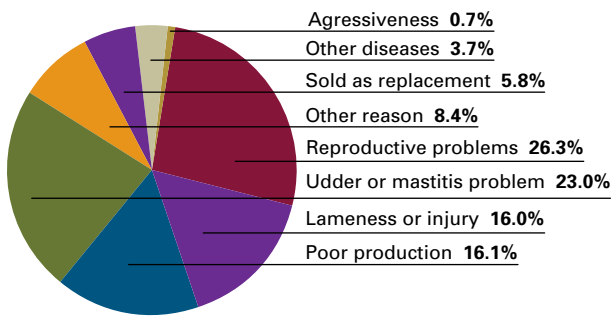
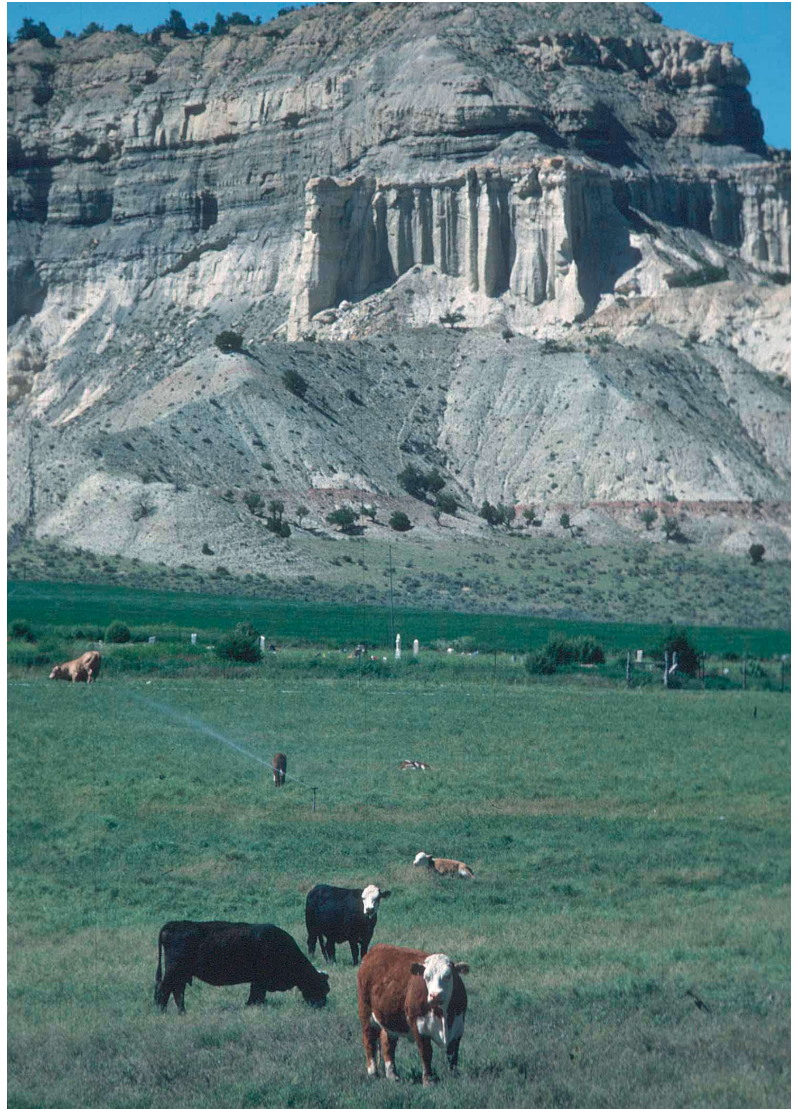
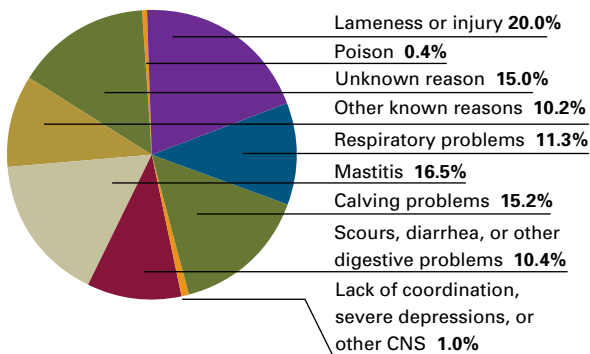


FIGURE 4.2: Cow mortality by reason



Beef 2007-2008

In 1993, NAHMS conducted the Cow/Calf Health and Productivity Audit (CHAPA). CHAPA provided baseline information on U.S. beef cattle inventories, health and management practices, forage nutrient content, and the animal selenium status. Beef '97 study objectives included describing health issue trends that affect the U.S. beef herd and acquiring national prevalence estimates of exposure to *Mycobacterium paratuberculosis* (Johne's disease) and bovine leukosis virus infections.

The NAHMS Beef 2007-08 study (currently underway) is the third study addressing the cow-calf segment of the beef industry.

The study will address the priority issues of the U.S. beef cattle industry and other stakeholders. Information needs were solicited from industry organizations and those that provide services to producers. Themes with broadest support among stakeholders and that best fit the mission of VS were used to define the objectives of the study. Twenty-four States participated in Beef 2007-08 (fig. 4.3). These States represent 79.4 percent of U.S. beef herds and 87.8 percent of U.S. beef cows.

The Beef 2007-08 study will:

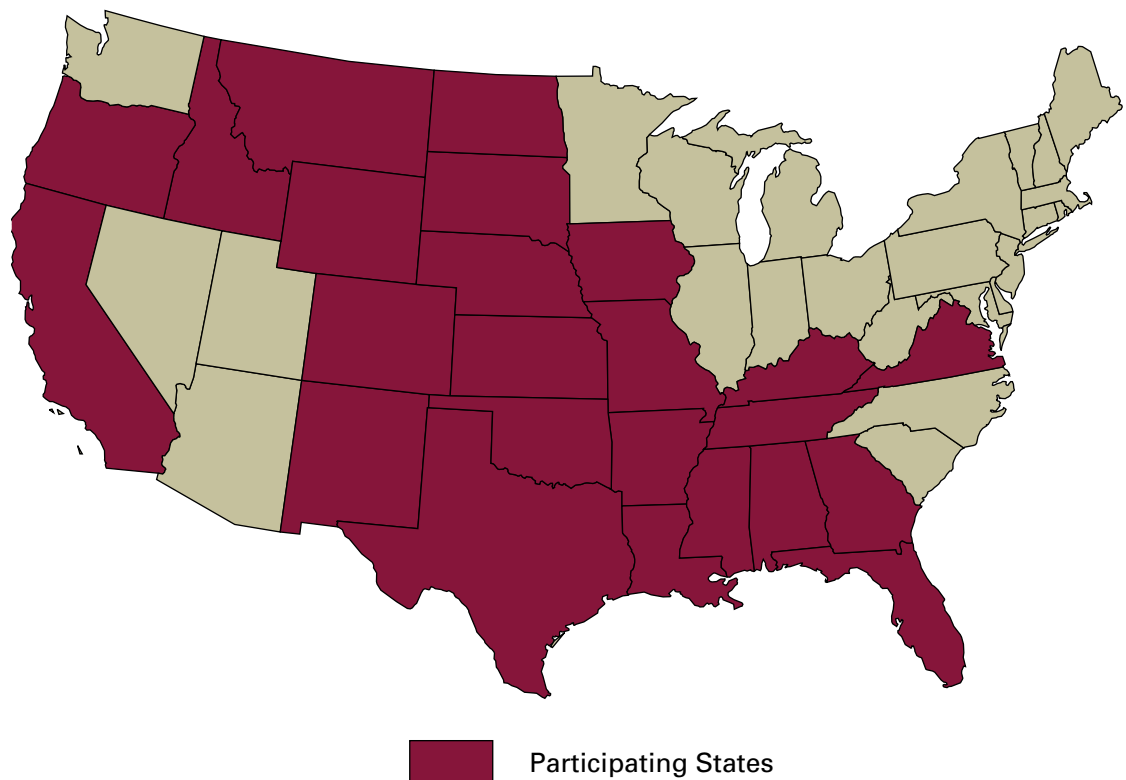
- Describe trends in beef cow-calf health and management practices;
- Evaluate management factors related to beef quality assurance;
- Describe record-keeping practices of cow-calf operations;
- Determine producer awareness of BVD virus (BVDV) and management practices used for BVD control;

- Describe current biosecurity practices, as well as producer motivation for implementing or not implementing biosecurity practices; and,
- Determine the prevalence and antimicrobial resistance patterns of potential food-safety pathogens.

The Beef 2007-08 study has three primary biological sampling components:

- Testing ear notch samples to estimate the percentage of calves persistently infected with BVDV. The study will also help to identify factors associated with herds that have persistently infected calves;
- Estimating the prevalence of specific food-safety pathogens such as *Salmonella* and *E. coli* O157 via testing of fecal samples; and,
- Evaluating the internal parasite burden of weaned calves (6 to 18 months old) and the efficacy of deworming programs.

FIGURE 4.3: NAHMS Beef 2007-08 participating States



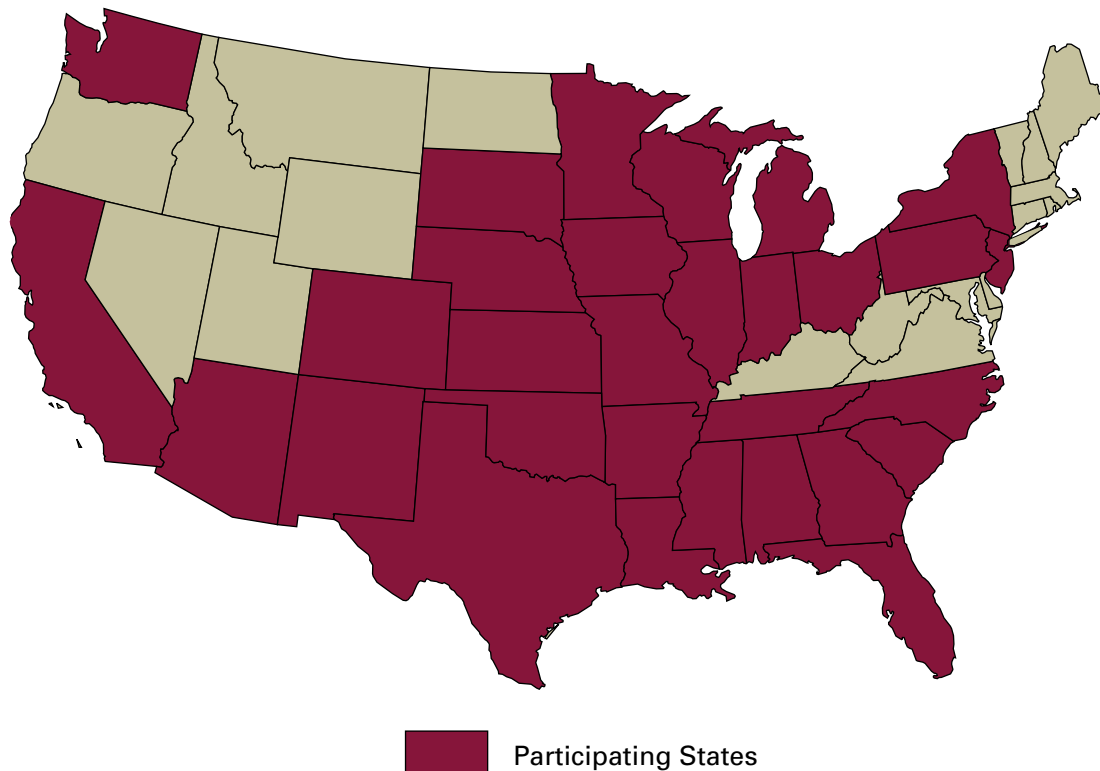
Swine 2007 Small-Enterprise Study

The Swine 2007 Small-Enterprise study was conducted jointly by NASS, NAHMS, and the National Surveillance Unit (NSU). Both NAHMS and NSU are part of the Centers for Epidemiology and Animal Health in Fort Collins, Colorado. Previous NAHMS swine studies conducted in 1995, 2000, and 2006 examined a wide variety of husbandry practices and biosecurity measures used on swine operations throughout the country. These studies focused on swine operations with 100 or more pigs, resulting in an information void with regard to health and management practices of smaller-operation swine producers. In addition, to satisfy its mission, NSU needed information to evaluate the potential for pseudorabies and classical swine fever (CSF or hog cholera) to be transmitted to or reintroduced into the national herd. The study focused on those States considered at risk for exposure to feral swine and for transmission of CSF and pseudorabies. Although the United States was declared free of CSF in 1978, the disease remains a threat to the U.S. pork indus-



try and is currently present in neighboring countries, such as Cuba, Haiti, the Dominican Republic, and Mexico. The study included 31 States (fig. 4.4). These States accounted for 84.4 percent of swine operations nationally with fewer than 100 pigs.

FIGURE 4.4: Small-Enterprise Swine participating States



During 2007, NASS collected data for the Swine 2007 Small-Enterprise study in two phases. The following results are based on the data obtained. Overall, 79.9 percent of the sample provided usable responses.

The study found that during the period from July 1, 2006, through June 20, 2007, 8.8 piglets per litter were born; of these, 8 were born alive and 7.3 were weaned. In contrast, the Swine 2006 study of large operations (operations with 100 or more pigs) found that, from June through November 2006, 11.9 piglets were born per litter; of these, 10.9 were born alive, and 9.5 were weaned.

Nearly 7 of 10 operations (69.5 percent) brought at least 1 pig onto the operation (temporarily or permanently) during the previous 12 months. Nearly 9 of 10 pigs (89.1 percent) brought onto the operation were weaner pigs or feeder pigs (table 4.1).

On operations that had sows and gilts and housed them separately from weaned market hogs, 18.4 percent of operations housed them in total confinement or in an open-sided building with no outside access. In contrast, the NAHMS Swine 2006 study of large operations found that 67.7 percent of sites with a farrowing phase housed sows and gilts in total confinement, and 34.6 percent of sites with a gestation phase housed sows and gilts in total confinement.

Nearly one in four operations (23.9 percent) were located in counties where producers indicated feral pigs (including wild boars on hunting clubs or captive on farms) were present. This percentage is over two times higher than the estimate found in the NAHMS Swine 2006 study (10 percent of sites). Among small-enterprise producers, where feral swine were present in the county, nearly one out of two operations (49 percent) reported no concern that feral pigs would transmit disease to the operation's pigs. More than 6 of 10 operations (60.9 percent) indicated no concern that feral pigs would transmit zoonotic disease to the operator or the operator's family.

TABLE 4.1: Description of pigs brought onto the operation in the last year

Pig Type	Percent Pigs	
	Percent	Std. error
Gilts for breeding	4.4	(0.6)
Sows for breeding	2.6	(1.1)
Boars for breeding	1.9	(0.3)
Weaner pigs or feeder pigs	89.1	(1.7)
Other	2.0	(0.8)
Total	100.0	

Small-Enterprise Chicken Study 2007

The Small-Enterprise Chicken Study 2007 is NAHMS' third study of the poultry industry. This study focused on biosecurity practices and bird movement from October 2006 through September 2007 on operations with 1,000 to 19,999 chickens. NASS selected 2,511 producers from a list primarily based on the 2002 Census of Agriculture. A total of 1,789 operations responded to the survey, of which 1,191 had chickens present during the previous year.

Nearly all operations with 10,000 to 19,999 chickens and more than one-half of operations with fewer than 10,000 chickens operated under contract with a poultry company (95.8 and 54.1 percent, respectively). More than one-half of operations were contract farms with breeding chickens (55.2 percent), and 27.4 percent of operations were contract farms without breeding chickens. Independent (noncontract) operations accounted for 17.4 percent of operations.

More than two-thirds (68.6 percent) of independent (noncontract) operations held chickens for table-egg production, compared with less than 10 percent of contract operations (fig. 4.5). Two-thirds of contract operations held breeding chickens (66.9 percent), compared with only 18.3 percent of independent operations.

Nearly one-half (46.5 percent) of independent (noncontract) operations had multiple types of birds on the premises, while nearly all contract operations (97 percent) were limited to a single bird type.

Roughly one-half of independent (noncontract) operations allowed birds to have outside access, while very few contract operations did so.

Only 1 percent of operations took poultry to a location where birds were present and then returned the poultry to the operation.

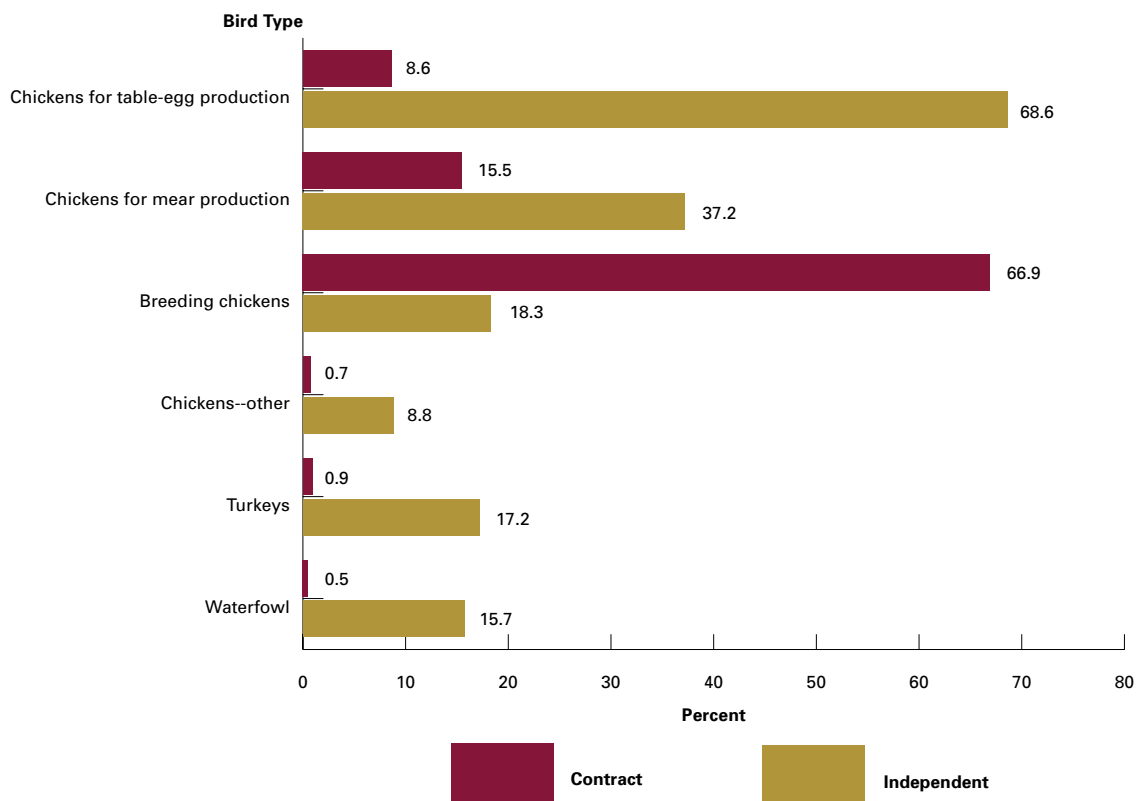
Fewer than 4 percent of operations had personnel who worked on another operation that handled birds, and fewer than 2 percent of operations had employees with pet birds or poultry at home.

The most common types of visitors were feed delivery personnel (83.7 percent), service persons employed by the poultry company (79.8 percent), and catch crew (77.3 percent). These types of visitors were more common on large operations than on small operations.



For more information on the dairy, beef, swine, poultry, and other NAHMS studies, see <http://nahms.aphis.usda.gov>.

FIGURE 4.5: Percentage of operations with the following types of birds on the premises on the day the questionnaire was completed, by contract status



White Spot Syndrome Virus in Louisiana Crawfish

White spot syndrome virus (WSSV) is a member of the *Nimaviridae* family and the *Whispovirus* genus of known viruses. The virus affects only certain crustaceans, particularly decapods—shrimp, crabs, lobsters, and crawfish (also known as crayfish) and poses no risk to human health. The virus invades many tissues and organ systems in the body of the infected host. As the infection progresses, multiple organ systems shut down, resulting in mortality. One of the clinical signs is shell spotting from abnormal deposits of calcium salts (hence the name “white spot”). Other clinical signs observed in shrimp are decreased food consumption, erratic swimming behavior, lethargy, weak and moribund shrimp aggregating on the pond surface and along the edge of the pond, and, ultimately, a high mortality rate.

WSSV has caused significant losses on shrimp farms in the Far East. The disease was first reported on shrimp farms in Taiwan and China in 1992-93, and it spread rapidly to surrounding countries in Asia and to Japan. In 1995, WSSV was detected on shrimp farms located in south Texas. Since then, the disease has been reported on shrimp farms in northern South America, Central America, and Mexico; along the U.S. Gulf Coast; and most recently, Hawaii.

Until 2007, the disease had never been reported in North American crawfish. The initial suspicious case occurred in an 11-acre crawfish pond in St. Martin Parish, Louisiana. During the 2006 harvesting season, the producer had experienced poor crawfish production, which worsened in 2007. In February 2007, the producer called a Louisiana State University aquaculture extension specialist for assistance.

To investigate the cause of the poor production, the producer’s pond was tested for dissolved oxygen and for pesticides and other pathogens. Crawfish specimens were collected and delivered to the Louisiana Animal Disease Diagnostic Laboratory (LADDL) in Baton Rouge for a comprehensive histologic and electron microscopic diagnostic assessment. On histology and electron microscopy,

the aquaculture disease diagnostician observed viral inclusion bodies characteristic of WSSV in the epithelial cells of the crawfish. Specimens were then sent to the Texas Veterinary Medical Diagnostic Laboratory (TVMDL) in College Station for WSSV polymerase chain reaction (PCR) testing. The preliminary results were positive for WSSV. Additional specimens were collected from the affected pond and forwarded to NVSL, where tests confirmed WSSV.

Louisiana has more than 1,100 crawfish farms comprising approximately 110,000 acres of shallow-water ponds. Many of these ponds are integrated with rice production. Depending on the year, approximately 95 percent of the crawfish production in the United States occurs in Louisiana, yielding 40 to 60 million pounds of crawfish per year, so the occurrence of WSSV in this population loomed as a potentially devastating prospect for the industry.

Common cultured species in Louisiana include the red swamp (*Procambarus clarkii*) and the white river (*Procambarus zonangulus*) crawfish. Both species appear to be equally affected by WSSV.

To define the extent of the infection among crawfish farms in Louisiana, a surveillance testing protocol was developed. NVSL certified a real-time PCR procedure at LADDL to accelerate diagnosis for the surveillance testing program. Specimens were collected from ponds and farms adjacent to those that reported increased crawfish mortality. Crawfish processing plants, randomly selected ponds on volunteer operations located in southern Louisiana, and the wild swampland habitat (the Atchafalaya Basin) also were selected for testing. The sampling strategy for laboratory purposes was 60 crawfish per commercial pond and 120 crawfish from each Atchafalaya Basin site.

Samples were collected from 111 crawfish ponds in 18 parishes and from 69 other locations (processors, research facilities, and the Atchafalaya Basin). Two-thirds of all ponds tested (66.7 percent) were positive for WSSV, while slightly over one-half (53.6 percent) of the other sites were positive. Overall, 61.7 percent of sites were positive for WSSV. Out of 18 parishes contributing samples, 13 parishes had at least some positive samples (fig. 4.6).

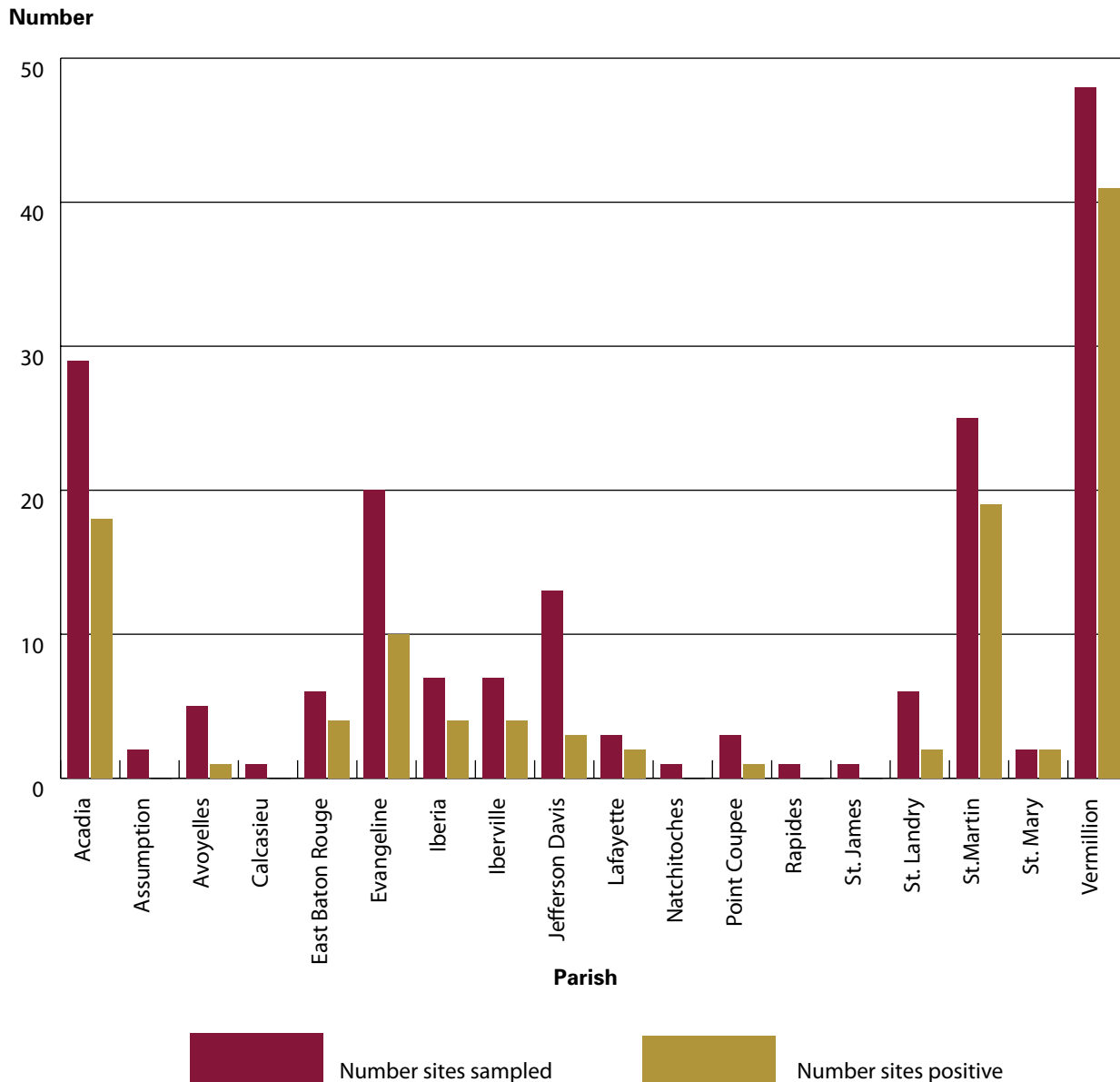
The initial source of the infection has not been determined. Two prominent hypotheses are being considered:

- Storm (hurricane) surges transported wild infected decapods, probably shrimp, ashore into freshwater habitats. Many crawfish producers trap their broodstock in the Atchafayala Basin.
- WSSV-contaminated shrimp products were used as bait in crawfish traps.

Shore birds may have contributed to the spread of the infection by carrying contaminated crawfish parts from one locale to another.

Of those ponds testing positive, only 10 reported any clinical signs in crawfish, and only 5 displayed significant mortality, which may indicate that the host has had time to adapt to the parasite. However, in archived tissue samples stored at LADDL, viral inclusion bodies similar to those left by WSSV were not observed in samples collected prior to 2005. Surveillance studies have indicated a high prevalence of WSSV in Louisiana crawfish over

FIGURE 4.6: White spot syndrome virus infection rate in crawfish



a broad geographic area. Therefore, for the Louisiana crawfish industry, the disease is now a management problem rather than a regulatory challenge. The Louisiana State Veterinarian has declared the disease to be endemic in Louisiana, and the OIE has ratified that claim.

Infectious Salmon Anemia Virus

In 2001, ISA virus infection was detected at salmon sites in Cobscook Bay, Maine. In December 2001, the Secretary of Agriculture declared an ISA disease emergency, which permitted allocation of funds to APHIS to provide indemnity as well as epidemiological and surveillance assistance to Maine's salmon industry.

The ISA program, initiated in early January 2002 in partnership with the Maine Department of Marine Resources (DMR), continued through 2007. Surveillance is mandatory at all Maine aquaculture sites where salmon are raised and is performed by the site veterinarian at a frequency dictated by the site's ISA status, at least monthly. These inspections include a visual overview of the site, a review of mortality records, the collection and submission of at least 10 moribund or freshly expired salmon, and a completed submission form that is sent with the salmon to an APHIS-approved laboratory.

Biosecurity audits are performed semiannually on high-risk sites and yearly on low-risk sites. Audit reports identify observed strengths and weaknesses, recommend improvements, and prioritize response times by apparent relative risk.

In 2007, over 2 million smolts were stocked on 4 sites in the Machias Bay, Maine, area. Harvest of over 3 million record-sized market fish in the Eastport area was initiated in October 2007. During 2007, 900 surveillance samples were collected during 95 veterinary inspections at 11 cage sites in Maine (table 4.2). These samples bring the total number collected to 12,243 during 1,313 veterinary inspections throughout the program. In 2007, 16 site audits were



conducted, for a total of 95 audits conducted during the program.

In 2007, no ISA was detected in Maine waters. A new bay management strategy, initially implemented in 2006 and based on geographic boundaries determined by hydrographic exchange during a single complete tidal cycle, continued in 2007 with stocking in the Machias Bay area.

New scientific work performed during the year, supported by USDA-APHIS and its ISA program partner, the Maine DMR, included two measures to increase the effectiveness of surveillance activities. Viral tissue culture cell lines were collected from seven participating ISA-diagnostic laboratories in eastern North America and in the United Kingdom

TABLE 4.2: ISA inspections

	2002	2003	2004	2005	2006	2007	Total
Samples	1,963	3,187	3,933	1,453	807	900	12,243
Inspections	189	369	387	178	95	95	1,313
Site audits	22	21	13	11	12	16	95
Vessel audits	8	11	0	2	0	0	21
Cages confirmed positive	0	5	17	19	1	0	42
Confirmed cages removed	0	5	17	19	1	0	42
Newly confirmed sites	1	2	6	0	1	0	11
Previously confirmed sites	0	0	1	5	0	0	NA
Sites in water	20	23	21	12	13	12	NA

and assessed for maximum ISA virus sensitivity and optimal culture conditions. Best-performing cell lines and optimal culture protocols were then distributed to participating labs. In addition, diagnosticians found a technique to optimize viral cell culture testing that greatly enhances surveillance efforts, shortens virus detection intervals, and reduces costs.

Viral Hemorrhagic Septicemia

VHS is an OIE-reportable disease that affects fish worldwide. VHS has long been considered a serious disease of rainbow trout and a few other cultured freshwater fish species in Europe, where it is known as Egtved virus. VHS virus (VHSV) causes high mortality and can have severe economic consequences, but poses no human health risks.

Four genogroups of VHSV have been identified. Genogroups I, II, and III are found mainly in Europe and Japan, while isolates of genogroup IV have been recovered only from fish in North America, Japan, and Korea. VHSV, genogroup IV, was first reported in the United States in 1988 in spawning salmon in the Pacific Northwest. Further classified as VHSV IVa, this subgroup is now considered endemic among Pacific herring and Pacific cod populations off the coast of Alaska, Canada, and Washington. In the Atlantic Ocean, this same subgroup (IVa) has been isolated from Atlantic herring and Greenland halibut.

However, VHSV has expanded in geographic range and species susceptibility in North America in recent years. Since 2005, a number of large die-offs have occurred in wild fish in the Great Lakes and associated watersheds, and many have been associated with a new, presumably mutated VHSV type IV strain, referred to as VHSV IVb. VHSV IVb has now been detected in samples collected from a variety of fish species in lakes St. Clair, Erie, Michigan, Ontario, and Huron; in the St. Lawrence River; and, inland waters in New York, Wisconsin, and Michigan. A similar, but distinct, genotype has also been isolated from fish collected as early as 2001 from tidal rivers in New Brunswick, Canada.

VHSV IVb affects multiple genera of fish. As of November 2007, 28 freshwater species, including a number of ecologically and recreationally important species, are known to be susceptible to the virus. It is not known how VHSV was transferred to the Great Lakes or how long it has been in the ecosystem. One possible scenario suggests the virus may have mutated from a marine form and become pathogenic to naïve freshwater fish species. Factors affecting its spread within and between freshwater systems may include natural and anthropogenic movements of fish, fomites, and/or water between affected and susceptible watersheds.

On October 24, 2006, the APHIS Administrator issued a Federal Order prohibiting movement of 37 species of live fish into the United States from Ontario and Quebec, Canada, the Provinces that reported VHS outbreaks. This order also prohibits

the interstate movement of the same fish species from eight States (New York, Pennsylvania, Ohio, Michigan, Indiana, Illinois, Minnesota, and Wisconsin) that have reported occurrences of VHS or are at immediate risk of acquiring the disease. Following stakeholder feedback, the Federal Order was amended on November 14, 2006, to allow for restricted movements, under certain conditions, out of the States affected by the original Federal Order. The basis for limiting the Federal Order to these States is that no cases of VHS IVb have been diagnosed or reported outside of the Great Lakes watershed or in any cultured populations of known susceptible species. More details on the Federal Order are available online at www.aphis.usda.gov/vs/aqua/pdf/vhs-fed-order_ogc-changes.pdf

However, questions about current disease distribution prompted APHIS, the Canadian Food Inspection Agency (CFIA), and DOI's FWS to develop a VHSV IVb surveillance plan for bilateral use in freshwater systems in Canada and the United States. The bilateral VHS surveillance plan was completed in May 2007. VHS surveillance methods combine standard diagnostic test data with alternative knowledge sources (e.g., expert opinion and historical data) to more efficiently predict the distribution of VHS occurrence in U.S. and Canadian freshwater fish populations. An international panel of 30 fish health experts identified 9 factors that can be used to estimate the likelihood of VHSV IVb in any particular freshwater watershed. Among these identified risk factors are hydrologic connectivity, geographic proximity, and/or a history of untested fish transfers from the affected Great Lakes and associated watersheds. The results of the panel effort will help prioritize regions with the greatest need for surveillance and provide baseline assurance of disease absence in regions without substantive risk.

At the end of FY 2007, APHIS Administrator contingency funds (\$616,000 over eight States) were provided to begin implementation of VHS IVb surveillance in the Great Lakes States and States immediately adjacent. In FY 2008, Congress appropriated \$5.6 million for VHS activities. APHIS will use \$1.5 million of the appropriated funds to offer cooperative agreements with State agencies and Tribal groups to conduct surveillance of those farmed

and wild populations at greatest risk of acquiring the disease. In addition, APHIS will continue an outreach campaign to educate the public about potential pathogen vectors, such as activities related to recreational fishing, not easily controlled through regulatory actions.

NAHRS Summary and Update

The National Animal Health Reporting System (NAHRS) is a joint effort of the United States Animal Health Association (USAHA), the American Association of Veterinary Laboratory Diagnosticians (AAVLD), and USDA-APHIS. NAHRS, which is coordinated by NSU, was designed to gather data from State animal health officials on the presence in the United States of confirmed OIE-reportable diseases in specific commercial livestock, poultry, and aquaculture species. NAHRS functions as one part of a comprehensive and integrated animal health surveillance system.

The United States meets its OIE reporting obligations using a variety of sources, including the NAHRS, FAD reports, and national program disease surveillance reports. The U.S. status of the occurrence of OIE-reportable diseases is listed in table A2.3 in appendix 2.

NAHRS is a voluntary, cooperative system for reporting animal diseases. States that do not participate in NAHRS are still required to report to the FAD surveillance and APHIS-VS national program disease surveillance data systems.

2007 Developments—In 2007, 46 States reported disease information to NAHRS (fig. 4.7). All four of the nonparticipating States are exploring participation in NAHRS.

Enhanced aquaculture reporting—During 2007, NAHRS staff began efforts to enhance the NAHRS reporting of OIE-reportable aquaculture diseases.

Online NAHRS reporting—A new version of the NAHRS online reporting application was released in 2007. The NAHRS online reporting tool enables State animal health officials to complete their monthly NAHRS reports via the Internet, with assurance of secure data transfer and information confidentiality. State animal health officials may also use the NAHRS online tool to view summary reports as well as past monthly reports.

More information is available at the NAHRS Web site, <http://www.aphis.usda.gov/vs/ceah/ncahs/nahrs/>.

FIGURE 4.7 : States participating in NAHRS in 2007

