

# Swine Health *and Epidemiology* Report

A NIAA Publication

Summer 2001

## Modernization of Ames animal health facilities closer to becoming a reality

The news coming out of Washington, D.C. is promising for those concerned with animal health issues. The appropriations bill recently passed by the U.S. House of Representatives includes \$40 million in funds to begin modernizing USDA's animal disease research and diagnostic center in Ames, Iowa. The \$40 million funding request has also passed through the Senate Appropriations Committee and is awaiting a vote by the full Senate.

The funds will be used to plan and design new facilities that will house the National Animal Disease Center, operated by USDA's Agricultural Research Service (ARS), and the National Veterinary Services Laboratories (NVSL) and Center for Veterinary Biologics (CVB), both

operated by USDA's Animal and Plant Health Inspection Service.

Agriculture Secretary Ann Veneman recently proposed several options for funding the facility improvements, but Congress seems to have its sights set on a plan that calls for \$430 million over a six-year period. The \$40 million currently awaiting senate approval is the first installment.

NADC was built in the early 1960's. NVSL was constructed in the late 1970's. While these programs enjoy a strong reputation, the facilities have reportedly reached the end of their design and structural lifespan. Investments have been made for repair



**Dr. Alfonso Torres, Secretary Veneman, and Dr. Keith Murray tour USDA Animal health Facilities in Ames, Iowa.**

and maintenance, but ventilation, electrical, sewage treatment, biocontainment, incineration and heating and cooling systems are said to be antiquated.

NVSL and CVB each operate out

*Continued on page 2*

### Inside this issue

**Page 2** Cool thinking needed during hot days of summer.

**Page 5** Veneman says vigilance keeping FMD out of U.S.

**Page 6** Iowa winning war on pseudorabies.

**Page 8** NIAA announces tour to Europe to study animal health and trade issues

## Animal Health Protection Act introduced in U.S. House of Representatives

Two members of the U.S. House of Representatives introduced a bill May 24th that would help prevent the introduction and spread of animal diseases and compensate owners of livestock, products and facilities should the disease ever reach the U.S.

The bill, introduced by House Livestock and Horticulture Subcommittee Chairman Richard Pombo (R-CA) and Ranking Member Collin Peterson (D-MN), is titled the Animal Health Protection Act.

The bill, H.R. 2002, would consolidate and revise the authority of the Secretary of Agriculture to prevent the introduction and spread of infectious animal diseases.

Should owners of livestock, products and facilities be required to destroy animals as a result of a seizure or quarantine to detect and/or eradicate such a disease, they would be compensated under this bill.

Source: American Meat Institute

# Cool thinking needed during hot days of summer

## NIAA issues recommendations for livestock hauling

As summer temperatures soar, the National Institute for Animal Agriculture is urging caution to those who handle or transport livestock.

"This is the critical time of the year for transporting livestock," says NIAA Chief Executive Officer Glenn Slack. "Common-sense procedures should be followed in reducing the risk factors relating to moving animals in extreme temperatures."

Each year, hogs numbering in the tens of thousands will leave the farm but never reach market, says Dr. Temple Grandin, an internationally renowned animal handling expert at Colorado State University. Livestock death losses often double on hot, humid days, she says.

Cattle and sheep losses are not as

great, but heat and humidity can increase shrinkage (weight loss) and stress, reducing an animal's ability to fight disease and even affecting reproductive performance.

That translates into dollar losses for livestock producers. But it doesn't have to, explains Grandin, who chairs NIAA's Animal Care Committee. She says some common-sense precautions can help livestock producers avoid the deadly consequences of heat and humidity affecting livestock.

- During hot weather, livestock should be hauled at night or early morning.
- Instead of straw, use wet shavings for bedding.
- Remove grain slats from farm trucks and open nose vents to provide

tion.

- Load and unload promptly. Heat will build up rapidly inside a stationary vehicle.

- Transport 10-20 percent fewer animals than normal during hot weather.

For hogs in particular, sprinkle the animals with water before loading.

But, cautions Grandin, don't pour cold water on an overheated hog. "That's one thing you have to be careful about," Grandin says. "If you throw cold water on an overheated hog, it can shock their system."

Grandin emphasizes that all these precautions are particularly important for hogs because they don't have functioning sweat glands. "Pigs don't sweat," she explains. "It's sort of like wearing a diver's wet suit all the time. You can imagine what that would be like."

## Modernization of Ames animal health facilities closer to becoming a reality

*Continued from page 1*

of several buildings spread across the city of Ames. Many find this deplorable considering their role in protecting a livestock industry valued at almost \$100 billion. The modernization plan will consolidate these operations at one location.

Concern about diseases such as bovine spongiform encephalopathy (BSE; a.k.a. Mad Cow disease) and foot and mouth disease is at an all-time high among members of Congress, who are said to be considering a number of issues that help justify the modernization plan and funding request.

- The emergence of new animal diseases around the world that threaten the U.S., such as

BSE in Europe.

- Threats to human welfare from infectious agents in food, such as Salmonella and E. coli.
- Changes in international trade practices requiring more scientific evidence of "freedom from disease" before livestock commodities can be exported.
- The development of new international standards for biocontainment, animal handling, health, safety and quality assurance.

If USDA and industry groups are successful in securing the \$40 million request in the 2002 budget, the celebration may be brief before work begins on subsequent funding for the following years.

## Swine Health Report

*and Epidemiology*

**Publisher, Glenn N. Slack**  
**Design & Layout, Mike Criswell**

*Advisory Board:*

*Tom Burkgren, American Association of Swine Veterinarians*  
*Eric Bush, APHIS, Centers for Epidemiology & Animal Health*  
*Howard Hill, NIAA Swine Health Committee*  
*Larry Miller, APHIS, VS Swine Futures Program*  
*Paul Sundberg, National Pork Board*

*Swine Health and Epidemiology Report* provides the latest information on issues pertinent to swine health initiatives, strategies, research and regulatory action. It is a communications initiative of the NIAA Swine Health Committee and is produced in cooperation with USDA's Animal and Plant Health Inspection Service and the National Pork Producers Council. Reprinting is encouraged. If you would like a free subscription, send your name and mailing address to NIAA at:

1910 Lyda Avenue  
Bowling Green, KY 42104-5809  
phone: 270-782-9798 fax: 270-782-0188  
e-mail: NIAA@animalagriculture.org

# NIAA unveils new swine handling and transportation video training kit

*English and Spanish available on one tape, plus facilitator guide*

The National Institute for Animal Agriculture (NIAA) has unveiled a new instructional video training kit on swine handling and transportation. The videotape contains both English and Spanish versions and is accompanied by a bilingual facilitator guide. The booklet and video are designed to show and explain proper pig handling techniques.

“Proper pig handling is an important part of producing quality pork products,” said Glenn Slack, NIAA Chief Executive Officer. “Producers and handlers who do their job correctly will help insure healthy animals and high quality meat and, in turn, help the pork industry maintain its high standard of animal well being.”

NIAA, successor to the Livestock Conservation Institute (LCI), originally released the video *Swine Handling and Transportation* in 1990. During

the period since, the video has been highly acclaimed throughout the U.S. and abroad. According to Slack, demand for a Spanish version of the video has been building for several years.

Slack said the booklet provides the facilitator all the information needed to prepare a personalized presentation. Sections of the booklet contain

pages that can be used to produce overhead transparencies. Another portion of the booklet contains information intended for photocopying and distribution to the audience as take-home information. In addition, the facilitator guide includes a quiz that can be photocopied and given at the conclusion of the training session. The Spanish version follows the English version on the tape and in the printed materials.

“Whether the audience is a small group of farm employees, a high school or university classroom or an employee training conference facilitated by the human resources department of a large production sys-

tem, the facilitator guide will allow the instructor to deliver a comprehensive presentation to either English or Spanish speaking employees, or both,”



said Slack.

The Spanish translation of the Swine Handling and Transportation video and the development of the facilitator guide were made possible through a grant from the Iowa Farm Bureau Federation. Dr. Temple Grandin, an internationally recognized expert on livestock handling and transportation, served as chief technical advisor during the filming of the video.

The cost of the Swine Handling and Transportation Video Training Kit is \$75.00. People who currently own a copy of the LCI Swine Handling and Transportation video may exchange it for the complete video training kit and receive a 33 percent discount off of the retail price. Bulk discounts are available as are discounts to NIAA members. More information is available on the Internet at [www.animalagriculture.org](http://www.animalagriculture.org) or by calling (270) 782-9798.



NIAA is also translating other LCI videos on beef cattle handling and dairy cattle behavior, and developing alike video training kits, due out this fall.

# Bush requests additional \$35 million to guard against foreign animal diseases



The President's FY2001 supplemental appropriations request to Congress included an additional \$35 million for the United States Department of Agriculture (USDA) to enhance activities to protect U.S. agriculture from serious animal disease threats such as foot and mouth disease (FMD) and bovine spongiform encephalopathy (BSE).

"Given the various foreign animal disease outbreaks in other parts of the world this year, USDA has been conducting a top-to-bottom review of its core programs to ensure we have the necessary resources to protect American agriculture from devastating animal diseases," said USDA Secretary Ann M. Veneman. "These additional funds will help strengthen

these important programs."

Components of the FY 2001 supplemental request include:

- \$4.5 million for inspections at U.S. border and ports of entry for passengers and cargo arriving from other countries, with a special emphasis on those countries affected by FMD and BSE;
- \$24.6 million for additional veterinarians and animal health assessments to ensure that foreign animal diseases would be detected quickly should they ever penetrate U.S. borders. This includes \$13.5 million to strengthen state surveillance and infrastructure programs.
- \$1.9 million for contingency planning for immediate control and eradication in the event of a foreign animal disease outbreak;
- \$1.7 million for technical assistance worldwide to monitor diseases

and help those trying to control and eradicate them; and

- \$2.3 million for continuous improvement of tools and technologies through research.

"While we have been vigilant for years and have successfully prevented many foreign animal diseases from entering our country, recent outbreaks of foot and mouth disease across the world and ongoing concerns about BSE underscore the need to strengthen our safeguarding system," Veneman said.

## FMD update

Nearly six months after the outbreak began, British officials are sifting through the aftermath in order to size up the effects of foot and mouth disease (FMD).

In all, FMD will have cost taxpayers \$3 billion before it is eradicated, officials say, in order to pay for the cost of killing and disposing of animals, disinfecting diseased premises and compensating farmers for slaughtered livestock. It does not include the economic impact on agriculture.

About three news cases are being identified each day, down from the 40 or so confirmed daily in March. U.S. reports as of July 20 indicate 1,868 cases of the highly contagious disease. Nearly 4 million sheep, cows and pigs have been slaughtered in Great Britain.

Argentina and Uruguay also are battling the disease, with 1,429 and 1,596 confirmed cases respectively, according to USDA reports. The FMD strain affecting Europe, Type O, differs from the Type A strain currently in South America.

## Senate passes bill to form animal disease task force

The Senate in early April approved a bill that would commission a team of high-ranking government officials to coordinate prevention efforts for bovine spongiform encephalopathy and foot-and-mouth disease.

The proposal would create an interagency task force including the heads of the agriculture, commerce, health and human services, treasury, state, and customs departments, as well as the Food and Drug Administration, National Institutes of Health, and Centers for Disease Control and Prevention, among others. No more than 60 days after the

act is enacted, the group would submit a report to Congress on the steps already being taken to prevent the diseases, as well as any recommendations for further actions.

The bill – sponsored by Sens Ben Nighthorse Campbell, R-Colo, Orrin Hatch, R-Utah, and Herb Kohl, D-Wis – is called the Animal Disease Risk Assessment, Prevention, and Control Act of 2001. It would also assign the Secretary of Agriculture to report on prevention methods and economic and public health implications of these diseases.

Source: JAVMA News

# Veneman says vigilance keeping FMD out of U.S.

## Congress assured that compensation would be available in case of emergency

In recent testimony before the House Agriculture Appropriations Subcommittee, U. S. Agriculture Secretary Ann Veneman said that USDA would be prepared to compensate farmers fair market value for livestock losses should there ever be a foot-and-mouth disease outbreak.

Veneman said that increased vigilance by federal and state agencies, particularly since recent outbreaks of FMD were discovered in Europe, has been successful in reducing the risk of entry and keeping it out of the country for more than seventy years.

"We are making every effort to reduce the risks so that FMD will not enter our country," said Veneman. "However, we must always be on guard. It is responsible to plan and prepare in case there ever were an emergency. That is why our agency has been increasing our vigilance in the areas of prevention and preparedness."

While Veneman said details of a compensation program are still being prepared, she stressed that this was part of ongoing efforts to review programs and ensure the U.S. has the adequate resources to respond if there ever were an emergency situation.

Stringent measures taken to reduce the risk of FMD entering the U.S. includes prohibiting shipments of products from high risk countries; increasing personnel at ports of entry; tightening regulatory enforcement; increasing surveillance of incoming passengers and cargo; enhancing monitoring and surveillance of domestic

livestock; strengthening federal, state and industry coordination; implementing public education campaigns; and dispatching experts to other countries to assist in containment efforts.

Earlier this year, in the wake of the FMD outbreaks in Europe and other countries, Secretary Veneman authorized \$32 million in spending for the hiring of 350 new inspection personnel and the doubling of USDA's canine inspection teams. This was in addition to nearly 400 inspectors already being hired during 2001 and another 200 being reassigned from other program areas.

USDA officials have authorized a top to bottom safeguarding review of the core animal and plant health programs to ensure that the agency has the necessary resources to prevent foreign animal diseases from entering the U.S. and the ability to eradicate such diseases should they ever enter the country. The National Association of State Departments of Agriculture is conducting the review.



## USDA removes im-port restrictions for certain EU countries

The U.S. Department of Agriculture (USDA) has removed the March 13, 2001, import restrictions placed on certain European Union countries, following the completion of a scientific risk assessment performed by the USDA's Animal and Plant Health Inspection Service (APHIS).

The restrictions were lifted for the following EU countries where no cases of foot-and-mouth disease (FMD) have been reported: Austria, Belgium, Denmark, Finland, Germany, Italy, Luxembourg, Portugal, Spain, and Sweden.

Import restrictions remain in effect for the following countries: United Kingdom, France, Ireland, and the Netherlands, where there have been confirmed cases of FMD in recent months. The agency continues to evaluate the status of these countries through site visits and analysis and evaluation of risks.

Although USDA has lifted import restrictions for certain EU Member States that are unaffected by the current FMD situation, stringent measures continue to be taken to reduce the risk of FMD entering the United States.

## Foreign animal disease advisory committee renewed

Saying it is necessary and in the public interest, the Secretary of Agriculture has reestablished the Secretary's Advisory Committee on Foreign Animal and Poultry Diseases.

The purpose of the advisory committee is to advise the Secretary of Agriculture regarding program operations and measures to suppress, con-

trol, or eradicate an outbreak of foot-and-mouth disease, or other destructive foreign animal or poultry diseases, in the event these diseases should enter the United States. The Committee also advises the Secretary of Agriculture of means to prevent these diseases.

Members of the committee have yet to be announced.

# Iowa winning war on pseudorabies U.S. down to 40 known infected herds

"A few years ago, we started out with over 4,000 infected herds in Iowa. I am elated to be able to report that we are now below 40 infected herds. Eradication is in the near future."

These are words spoken recently by Iowa Agriculture Secretary Patty Judge reflecting pseudorabies infection levels in the Hawkeye State as of the end of May. Since then, it's only gotten better. As of June 30, Iowa had only 22 infected herds, down from 86 a quarter earlier and 568 a year ago.

Pseudorabies eradication efforts in Iowa began in 1989 in the known infected counties, and grew into a statewide effort by 1993. In more recent years, the state was making steady progress in eliminating infection, dipping below 200 infected herds to close out 1999. However, an outbreak during the first quarter of 2000

sent the number soaring, eventually surpassing 500 infected herds.

Stricter laws carrying stiff penalties were passed by the Iowa legislature requiring testing and vaccination, and state and federal officials eventually were able to contain the outbreak. By the close of 2000, Iowa again had dropped below 200. Steady progress towards complete elimination has been made ever since.

"I applaud the vast majority of Iowa's livestock producers who have complied with our testing and vaccination requirements," said Judge. "We need compliance from all Iowa swine producers, their vigilance and cooperation will play a large part in finally eradicating the disease from Iowa."

**Nebraska has had less luck in recent months.** After successfully eradicating PRV from the

state last July and advancing to Stage IV in November, the Cornhusker State has experienced a major setback. A single case was detected in a large sow unit in January and by mid-March, another six herds had been quarantined after positive diagnosis of PRV. By June, the number climbed to 25 quarantined herds.

Expanded testing efforts, put in place by the Nebraska Department of Agriculture in May, appears to have identified most of the infection and has slowed the spread. The quarantined herd number on July 1 was 19, of which only three had not been depopulated.

Despite Nebraska's increase in PRV-quarantined herds, the U.S. had a total of only 45 known infected herds as of June 30.

## PRV Progress state by state

(Stage and number of infected herds)

STATE	STAGE*	09/30/00	12/31/00	03/31/01	06/30/01
Florida	III	3	5 <sup>^</sup>	5 <sup>^</sup>	5 <sup>^</sup>
Indiana	III/IV	0	1	0	0
<b>Illinois</b>	<b>IV</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
Iowa	II/III	417	171	86	22
<b>Louisiana</b>	<b>III</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Minnesota	III/IV	6	0	2	0
Nebraska	III/IV	0	0	12	17
New Jersey	III/IV	1	1	1	1
South Dakota	IV	0	0	1	0
Tennessee	IV	1	1	0	0
<b>Texas</b>	<b>III</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>TOTALS</b>		<b>431</b>	<b>179</b>	<b>107</b>	<b>45</b>

\*Stage V states are not listed. Bold states report no cases of PRV for at least nine months.

<sup>^</sup>Feral Swine

Source: USDA

## STATE RANKINGS BY STAGES

(as of June 30, 2001)

### STAGE V

ALABAMA, ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, CONNECTICUT, DELAWARE, GEORGIA, HAWAII, IDAHO, KANSAS, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, MICHIGAN, MISSISSIPPI, MISSOURI, MONTANA, NEVADA, NEW HAMPSHIRE, NEW MEXICO, NEW YORK, NORTH CAROLINA, NORTH DAKOTA, OHIO, OKLAHOMA, OREGON, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, UTAH, VERMONT, VIRGINIA, VIRGIN ISLANDS, WASHINGTON, WEST VIRGINIA, WISCONSIN, WYOMING

### STAGE IV

ILLINOIS, SOUTH DAKOTA, TENNESSEE

### STAGE III/IV

INDIANA, MINNESOTA, NEBRASKA, NEW JERSEY

### STAGE III

FLORIDA, LOUISIANA, TEXAS

### STAGE II/III

IOWA

# Preparing newborn pigs for faster weight gains

Newborn pigs may get off to a better start if given a one-time injection of an anti-inflammatory agent used in veterinary and human medicine. In repeated small-scale tests, pigs treated with dexamethasone grew about 12 percent faster in their first 18 days of life than did other pigs.

Dexamethasone is a synthetic version of a type of hormone called a corticoid that is naturally produced by animals under stress.

Jeffrey A. Carroll, an animal physiologist with USDA's Agricultural Research Service, along with colleagues at the University of Missouri—Columbia, now are beginning to test the one-time treatment's long-term effect on pigs. These tests include measures of body composition at market weight, rate of weight gain and the amount of feed consumed per pound of gain.

Reducing the average time from birth to market by just one day could translate into an annual income boost of tens of millions of dollars for the nation's swine producers, says ARS animal physiologist Robert L. Matteri, formerly at Columbia.

If treated pigs' faster growth persists, a pharmaceutical company might be interested in conducting additional tests. More tests would be needed in order for the company to apply for federal regulatory approval of dexamethasone injection as a treatment to enhance pigs' growth.

Injected at the wrong time, dexamethasone could slow a pig's growth, according to Carroll. The first hour after birth may be an opportune time to apply the synthetic stress hormone to program the pigs' endocrine systems for lifetime efficient weight gain. In the experiments, pigs injected with the drug experienced no obvious behavioral effects and they started to nurse quickly.

Carroll decided to research dexamethasone after earlier experiments had provided insights on lasting effects of stress at birth. In those studies, he measures natural hormone and chemical levels of young pigs, some of which had been delivered by caesarian section. He concluded that, by preventing the stress of natural birth, surgical birth inhibited the pigs' growth.

## AASV announces 2002 annual meeting plans

The American Association of Swine Veterinarians (AASV) has announced the dates of its 33rd annual meeting of continuing education for veterinarians. The meeting is scheduled for Mar. 2-5, 2002 at the Westin Crown Center in Kansas City, Missouri. The conference will center on the theme "Exceeding Expectations." Dr. Lisa Tokach, AASV president-elect from Abilene, Kan., is the program chairperson.

Pre-conference seminars on Mar. 2 and 3 will provide an in-depth look at a variety of topics.

The general session on Mar. 4 will feature Dr. Tim Blackwell from Ontario, Canada, as the Howard Dunne Memorial Lecturer. Concurrent sessions on Mar. 4 and 5 will focus on re-emerging diseases, current research topics, audits, human resources, production and finishing management, and PRRS.

More information is available on the Internet at [www.aasv.org](http://www.aasv.org), or by contacting the American Association of Swine Veterinarians, 902 1st Avenue, Perry, Iowa, USA, 50220, phone (515) 465-5255, fax (515) 465-3832, email: [aasv@netins.net](mailto:aasv@netins.net).



**I · P · V · S**  
**JUNE • 2-5 • 2002**  
**AMES • IOWA • USA**

## U.S. chosen to host 2002 IPVS Congress

The 17th Congress of the International Pig Veterinary Society will be held June 2-5, 2002 in Ames, Iowa. Hosting the event are the American Association of Swine Veterinarians, National Pork Producers Council and Iowa State University.

Participants from around the globe

will also be able to take advantage of World Pork Expo, scheduled for June 5-8, 2002 in nearby Des Moines, Iowa.

To receive up-to-date information regarding registration, abstract submission, scientific program, tours, etc., visit the IPVS 2002 website: [www.ipvs2002.vetmed.iastate.edu](http://www.ipvs2002.vetmed.iastate.edu).

# NIAA announces tour to Europe to study animal health and trade issues

The National Institute for Animal Agriculture announced today that it will coordinate a study tour to Europe in December. Foot and Mouth Disease (FMD), bovine spongiform encephalopathy (BSE) and other animal health and trade issues will be at the center of discussions during the weeklong trip that will begin in Paris and also take participants to the French countryside.

NIAA Chief Executive Officer Glenn Slack said that NIAA is working to fill a void in continuing education and professional development opportunities for animal agriculture professionals. The international study tour will seek to provide a global perspective to the educational and training process.

Participants will get a first-hand look at some of the animal health-related challenges confronting the European Community, including BSE, FMD and other non-disease issues like genetically-modified organisms (GMOs). In addition, they will receive

an introduction to the European Union (E.U.), explore the role of animal health in international trade, and receive an inside view of agriculture in a European country through farm visits.

Finally, the study tour, scheduled for the first week in December, will offer an incredible practical exposure to the French agricultural system, including animal identification, labeling and traceability.

Working with NIAA in the role of technical coordinator for the study tour is Dr. William Hueston, an international authority on transmissible spongiform encephalopathies. Hueston, currently the associate dean of the Virginia-Maryland Regional College of Veterinary Medicine, was recently named director of the new Center for Animal Health and Food Safety at the University of Minnesota.

Hueston said participants will meet in the conference center at the International Office of Epizootics (OIE), based in Paris. OIE is recog-

nized by the World Trade Organization as the international standard setting body for animal health. The Director General of the OIE and others from their staff will be active participants in the meetings.

Slack said the tour is limited to only 20 participants in order to provide optimum interaction with the speakers and instructors. Activities will also be planned for spouses who attend. Reservations will be accepted on a first-come-first-serve basis; however, members of the National Institute for Animal Agriculture will be given first consideration.

Slack recommends that individuals interested in reserving a spot on the study tour, or to be put on the mailing list to receive a detailed brochure (including associated costs, a tentative itinerary, list of speakers (faculty), deadlines and a reservation form), contact Peggy Logsdon at NIAA headquarters (Phone: 270-782-9798; Email: [plogsdon@animalagriculture.org](mailto:plogsdon@animalagriculture.org)).

Non-Profit Organization  
U.S. POSTAGE  
**PAID**  
Permit No. 82  
Bowling Green, KY  
42104

Swine Health  
*and Epidemiology*  
**Report**  
1910 Lyda Avenue  
Bowling Green, KY 42104