

## **MEMORANDUM**

**DATE:** June 15, 2009

**TO:** Small Flock Owners

**FROM:** Mickey Hall, Associate Professor  
Animal & Veterinary Sciences Department  
Clemson University  
136 Poole Agricultural Center  
Box 340311  
(864) 656-4022  
[mahall@clemson.edu](mailto:mahall@clemson.edu)

**SUBJECT:** NPIP and Small Flock Workshop  
CU Livestock-Poultry Health  
500 Clemson Road, Columbia, SC  
Saturday, August 22, 2009

Enclosed please find the information about the NPIP Blood Testing/Small Flock Certification Workshop. There is a \$50 charge for the workshop which includes NPIP certification and is restricted to 25 seats. **If you plan to attend the workshop, please contact Dr. Mickey Hall, [mahall@clemson.edu](mailto:mahall@clemson.edu), (864) 656-4022 so the study packet can be sent to you prior to your attendance at the workshop.**

**The educational Workshop is open to everyone; however, those participants who also want to become an Authorized NPIP Testing Agent:**

- (1) Must be at least 18 years of age and a resident of South Carolina.**
- (2) Must have photo ID (to prove that you are the person taking exam!)**
- (3) Must bring reading glasses if you have difficulty reading close up or at a distance.**

The workshop will be held in the conference room at the Clemson University Livestock Poultry Health building, located at 500 Clemson Road in Columbia, SC.

Go to Columbia and take I-20 toward Florence, SC. Stay on I-20 and take the Clemson Road exit (exit 80). If coming from Columbia, turn left at the light and go approximately 1 1/2 miles and the Livestock Poultry Health building will be on the right. If coming from Florence on I-20 toward Columbia, take the Clemson Road exit (Exit 80) and turn to the right. The lab is a one story, brick building on the right: **Clemson University Livestock-Poultry Health Division.**

If you need hotel reservations, the Holiday Inn Express (803) 419-3558 and the Hampton Inn (803-788-4901), are located at I-20 and Clemson Road.

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You must be **pre-registered**. No walk-ins on the day of the workshop. **Registration is due by MONDAY, August 17, 2009.** Please make checks payable to **Clemson University** and send to: **Dr. Mickey Hall, Animal & Veterinary Sciences, Clemson University, 136 Poole Agricultural Center, Clemson, SC 29634-0311. NO REFUNDS – REGISTRATION FEE WILL APPLY TO THE NEXT WORKSHOP.**

If you have any additional questions, please feel free to contact Mickey Hall. Thanks and I hope to see you there.

Enclosures: Registration Form  
Copy of Program

# SMALL FLOCK CERTIFICATION PROGRAM

## REGISTRATION FORM

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The charge for the Small Flock Workshop to cover expenses for lunch, breaks and materials is \$50. Advance registration is necessary. **Registration must be received by Monday, August 17, 2009.** Registration and payment must be received before attending the workshop. Make checks payable to **Clemson University**.

**The educational Workshop is open to everyone; however, those participants who also want to become an Authorized NPIP Testing Agent:**

- (1) Must be at least 18 years of age and a resident of South Carolina.**
- (2) Must have photo ID (to prove that you are the person taking exam!)**
- (3) Must bring reading glasses if you have difficulty reading close up or at a distance.**
- (4) No refunds. Registration fee will apply to the Spring 2009 workshop.**

**IMPORTANT: We must have advance registration for the NPIP workshop because you will need study materials before the workshop.** For questions concerning the workshops, please contact one of the following:

Dr. Mickey Hall  
[mahall@clemson.edu](mailto:mahall@clemson.edu)  
864-656-4022

Dr. Julie Helm  
[jhelm@clemson.edu](mailto:jhelm@clemson.edu)  
803-260-6442

NPIP & Small Flock Workshop (\$50 charge) \_\_\_\_\_

FIRST NAME \_\_\_\_\_

LAST NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE \_\_\_\_\_ E-MAIL \_\_\_\_\_

**PLEASE RETURN THE COMPLETED FORM BY MONDAY, AUGUST 17, 2009. MAKE CHECKS PAYABLE TO CLEMSON UNIVERSITY. MAIL REGISTRATION FORM AND CHECK TO:**

**DR. MICKEY HALL  
ANIMAL & VETERINARY SCIENCES  
CLEMSON UNIVERSITY  
136 POOLE AGRICULTURAL CENTER  
CLEMSON, SC 29634-0311**

# **NPIP and Small Flock Certification Program Agenda**

**SATURDAY, AUGUST 22, 2009**

**7:30 am:** Registration Check-in

Purpose of Small Flock Certification Program: *Dr. Mickey Hall*  
Premise ID (NAIS) & SC Ag-Watch Program: *Dr. Julie Helm*

National Poultry Improvement Plan &  
Testing Certification: *Dr. Julie Helm*

## **BREAK**

Anatomy & Physiology of the Chicken: *Dr. Mickey Hall*

Necropsy & NPIP Blood Testing: *Dr. Julie Helm*

## **LUNCH**

Diseases of Poultry: *Dr. Julie Helm*

Parasites of Poultry: *Dr. Mickey Hall*

Biosecurity/What to do when there is a disease outbreak: *Dr. Mickey Hall,*  
*Dr. Julie Helm*

## **BREAK**

Nutrition Basics: *Dr. Mickey Hall*

Wrap-up/Questions/Evaluation: *Dr. Julie Helm, Dr. Mickey Hall*

**Before 6:00 pm:** Have a Safe Trip Home

# Study Material for South Carolina Authorized NPIP Testing Agents

## THE NATIONAL POULTRY IMPROVEMENT PLAN – NPIP

**Becoming a Authorized NPIP Testing Agent (SC NPIP Tester) is an optional part of the SC NPIP & Small Flock Workshop. For those interested, read this study material in order to take the test during the workshop.**

The Nation Poultry Improvement Plan (NPIP) is a voluntary program administered by the USDA, the various states, and the poultry industry. Begun as a national program in 1935, it was designed to improve the poultry industry by controlling and eradicating Pullorum disease and fowl typhoid from poultry flocks, improving the selection of breeders and sanitation practices. Participation was, and still is, voluntary; the incentive to participate being the use of official NPIP logos on advertising and containers and the ability to ship product across state lines or internationally easier. Although still a voluntary program, state and federal regulations make it difficult for a poultry business of any size to operate without participation.

The program has been so successful that Pullorum and fowl typhoid infections are rare, and many states, such as South Carolina, are proud to claim the status of a Pullorum Clean State. To retain clean status, laws are necessary that require all poultry entering or located within the state to be “U.S. Pullorum Clean” or equivalent or enter the state with a veterinary health certificate (CVI) showing a negative Pullorum-Typhoid test within 30 days. All poultry going to exhibit must be “U.S. Pullorum Clean” or tested negative within 90 days. There is no NPIP or state requirement for poultry moving to immediate slaughter.

Because of the success of the NPIP, only primary breeder flocks need to be tested every year. Commercial multiplier flocks supplying eggs to “U.S. Pullorum Clean” hatcheries have been allowed to reduce annual testing to a zero level. All hatching eggs and day-old poultry moving in commerce must be “U.S. Pullorum Clean”. Started poultry (birds that have been fed and watered) may retain their NPIP status up to 6 months of age if they are retained on a NPIP participating farm.

An Authorized NPIP Testing Agent is a person licensed by the state plan to perform Pullorum-Typhoid tests that can be performed in the field or to obtain samples for laboratory testing only within the state of South Carolina. Other diseases (mycoplasmas, other salmonellas, and avian influenza) have been included in the program and the Authorized NPIP Testing Agents may obtain samples for these tests as well.

## SALMONELLA

*Salmonella* are a very large group of intestinal bacteria – there are over 2,300 different types. A few of the *Salmonella* can cause specific diseases in certain animals or humans, for example, 20-40 specific types of *Salmonella* can cause disease in poultry.

Clinical signs in poultry with *Salmonella* infections can vary, including no signs of disease, diarrhea in young poultry, high death rate in young poultry, decreased egg production and hatchability, and decreased feed and water consumption. The birds can be infection by *Salmonella* through bird to bird contact, fecal contamination, hatchery contamination, and through the egg from the breeder flock to the chicks.

Pullorum-Typhoid infections have essentially been eradicated from the commercial poultry industry through intense testing of breeder flocks and depopulation of any positive flocks. However, reservoir birds (backyard flocks) still keep the disease alive and a threat to all of South Carolina's diverse poultry industries.

Other types of *Salmonella* that have similar antigens to Pullorum-Typhoid will stimulate the production of antibodies in chickens that will cause a positive test. This is why further laboratory is necessary to determine if the poultry are truly infected with Pullorum-Typhoid.

## **MYCOPLASMA – MG, MS, MM**

Mycoplasma is an organism that is similar to bacteria. It is also similar to *Salmonella* in that it can be spread through the egg from the infected breeder flock to the chicks, bird to bird contact, fecal contamination, and hatchery contamination. Clinical signs in infected birds can include respiratory illness, decreased egg production and hatchability. There are several types of mycoplasmas. The following types are included in the NPIP program: *M. gallisepticum* (MG), *M. synoviae* (MS), and *M. meleagridis* (MM).

## **AVIAN INFLUENZA**

Avian influenza is a virus that can infect all types of poultry. There are many different strains or types of avian influenza, some are very mild and show no signs of illness, while other types can be very severe with respiratory and nervous system signs and a high death rate in the birds.

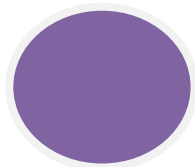
This disease has become so important to identify early in order to control outbreaks, that it was also included in the NPIP program. All of South Carolina's commercial breeders, broilers, turkeys, egg layers are involved in testing their flocks for avian influenza. Other states may also require avian influenza testing of poultry prior to entry into their state.

## **PULLORUM-TYPHOID TESTING BY AUTHORIZED NPIP TESTING AGENTS**

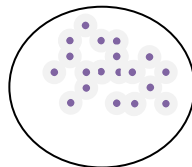
Pullorum (caused by *Salmonella Pullorum*) and fowl typhoid (caused by *Salmonella gallinarium*) are specific bacterial diseases of chicken and other fowl.

The test examines blood from the individual birds for the presence of antibody (part of the body's immune defense system) against the Pullorum-Typhoid bacteria. Blood collected by the Authorized NPIP Testing Agent may be submitted to an approved NPIP laboratory along with a completed Pullorum-Typhoid Testing Report. In the case of chicken breeders, game bird breeders, waterfowl breeders and exhibition poultry (but not turkey breeders), the Authorized NPIP Testing Agent may perform the rapid whole blood plate test in the field using Pullorum-Typhoid antigen. In this type of blood test, the antigen (a suspension of killed bacteria that are the cause of the disease in question) is mixed with blood and the reaction is observed. If there is antibody in the blood, it will stick to the antigen (clump or agglutinate) and the reaction can be made visible to the eye. The only official test for turkey breeders is the Pullorum-Typhoid test performed at a laboratory and not the field plate test.

In the whole blood test performed in the field, a loop full of blood taken from the wing vein is mixed with a drop of antigen on a glass plate at room temperature. The antigen is dyed purple in order to see the reaction better. The plate is tipped back and forth to continue to mix the blood and antigen. If no antibody is present in the blood, the stained antigen will remain smooth looking for at least 2 minutes (like purple Kool-Aid). If there is antibody present in the serum, it will stick to the antigen and clump into little islands large enough to be visible within 2 minutes. A bird with a positive test is considered a reactor, but not considered a positive bird until further laboratory testing. Pullorum and Typhoid have similar antigens and either one can be detected with this test. All birds that are tested must be identified with a SC NPIP tamper-proof numbered leg or wing band and recorded on the official Pullorum-Typhoid Testing Report.



**Negative Test**



**Positive Test (Reactor bird)**

## **HANDLING PULLORUM-TYPHOID REACTORS**

Because birds may have been exposed to other similar antigens, all reactors may not be infected with Pullorum or Typhoid and will need further testing. The Authorized NPIP Testing Agent should first redo the rapid whole blood plate test, making sure the testing plate is clean and the antigen has not expired. If the birds still reacts to the plate test, the Agent must assure that all reactors are retained at the farm for additional testing. All reactors will be retested by a SC NPIP State Inspector. If the secondary blood tests still come back positive then all reactors (maximum 25) must be submitted to the diagnostic laboratory for cultures. If cultures fail to yield Pullorum or Typhoid, the remainder of the flock will be considered negative.

All flocks found to be infected with Pullorum or Typhoid will be quarantined until the infected birds are slaughtered or destroyed.

## **NPIP PULLORUM-TYPHOID CLEAN BREEDER FLOCK / HATCHERY REQUIREMENTS**

1. If the flock is testing for Pullorum Clean status for the very first time:
  - a. A state tester must also be present with the licensed NPIP tester to authorize that the first testing (qualifying test) is negative. The State Tester is there to observe the testing, assist with the process, but not do the testing for the NPIP tester.
  - b. 100% of the birds on the farm (over 4 weeks of age) must all be tested for Pullorum to prove none of the poultry on the premises are infected with Pullorum.
  - c. A State Tester must do a NPIP inspection on the flock and bird housing/hatchery.
  - d. Farm is registered to get a Premises ID number with SC National Animal ID System (SC-NAIS)

2. If the flock is testing for its annual Pullorum Clean status follow-up:
  - a. A licensed NPIP tester can do the testing, buying their own testing supplies to do it (antigen, bands). It is preferred that a State Tester is also present to observe the testing and to assist the NPIP tester. This also helps to recertify you as a NPIP tester, to be sure you are doing the test properly.
  - b. The breeders and any birds used as "setters" must be tested. 300 is the max number you need to test if you have over 300 breeders/setters.
  - c. Any new birds added to the farm (future breeders or fun birds) must be tested before bringing to farm and mixing with flock -- the licensed NPIP tester can do this on their own.
  - d. A State Tester must do a NPIP inspection on the flock and bird housing/hatchery annually. Since the State Tester has to come out to the farm to do this inspection every year, this would also be a good time to test your flock to get an extra pair of hands to help you.
  - e. Farm is registered to get a Premises ID number with SC National Animal ID System (SC-NAIS)
  
3. General Requirements
  - a. Poultry houses, pens, hatchery, equipment and surrounding vicinity kept in sanitary condition.
  - b. Breeder flock kept separate from other poultry on premise.
  - c. All flocks consist of healthy individuals, characteristic of breed, variety, etc. which they are stated to represent
  - d. Hatcheries kept in sanitary condition
    1. Room clean of debris
    2. Hatchers/trays cleaned & disinfected after each hatch
    3. No birds kept in incubator/hatcher rooms
  - e. Maintain records up to 3 years: Date, name & address, purchases & sales of birds or eggs

## **POULTRY GOING TO EXHIBITIONS / SHOWS / FAIRS**

SC state law requires that all SC fowl going to SC exhibits be U.S. Pullorum-Typhoid Clean or each bird has tested negative within the last 90 days. The exhibit or show rules must require evidence of such status or a negative Pullorum test for each bird with the official testing report and corresponding SC NPIP leg or wing bands. If an Authorized NPIP Testing Agent is present at the exhibition, birds can be tested on arrival at the show. However, if any reactors are found, all the birds from that premise must return to their farm and wait retesting by the SC NPIP State Inspector.

## **RESPONSIBILITIES OF AN AUTHORIZED NPIP TESTING AGENT**

The Authorized NPIP Testing Agent must administer the test properly and document the results. These activities can only be within the state of South Carolina. If reactors are detected, the Authorized NPIP Testing Agent must be certain that the reactors are retained for re-examination and notify the SC NPIP State Inspector as soon as possible. Notify: SC NPIP State Inspector, PO Box 102406, Columbia, SC 29224, Phone: 803-788-2260.

## BLOOD TESTING FACTS

The following statements should be carefully studied before taking the test to become an Authorized Agent:

1. Pullorum is a disease of poultry that causes high mortality (death) in young birds. It is caused by the bacterium *Salmonella pullorum*, one of thousands of different *Salmonella* bacteria. This disease affects only certain species of birds. Like other *Salmonella*, it is transferred from bird to bird by direct contact, contaminated feed or water, dirty pens, or unsanitary hatchery equipment. In addition, *S. pullorum* and *S. gallinarium* (fowl typhoid) may be transmitted from the breeder flock to the offspring through the egg.
2. Antibacterial medication may keep Pullorum or Typhoid infected poultry alive, but the disease has been eradicated only by testing and destroying the infected fowl.
3. Blood testing detects birds that have been exposed to the disease. When the disease organism invades a bird, the bird produces antibodies as part of the immune defense against the disease. Blood testing detects birds which have these antibodies.
4. In the rapid whole blood plate test, blood from each bird is mixed with a stained antigen on a glass plate. This antigen is a suspension of killed, stained Pullorum organisms. If antibodies are present in the blood, the antigen will stick to them (agglutinate) and little clumps of stained bacteria will be seen within 2 minutes. Turkey breeders must be bled and the serum sent to the laboratory for an official test.
5. A bird which shows a positive reaction is called a “reactor”. Reactors should be retained and tested at the laboratory to determine if indeed Pullorum is present.
6. If a reactor is found, notify the SC NPIP State Inspector at Clemson Livestock-Poultry Health, PO Box 102406, Columbia, SC 29224; phone (803) 788-2260; fax (803) 736-0885. An investigation will be made according to state law.
7. Fowl typhoid, caused by *S. gallinarium*, is detected by the same antigen. The laboratory can determine whether the organism is Pullorum or Typhoid by culturing the bird’s organs.
8. In order for a breeder flock to become “U.S. Pullorum Clean”, initially all poultry on the premise must test Pullorum negative. To keep this classification, the breeding stock, setters and new birds added to the farm must be tested every year.
9. SC birds going to a SC show or exhibit must be “U.S. Pullorum Clean” or tested negative within 90 days prior to arrival at the exhibit. Birds must be banded with a tamper proof leg or wing band and the band numbers recorded on the official Pullorum-Typhoid Testing Report. Birds from outside the state must have an interstate veterinary health certificate (CVI) or an official Pullorum-Typhoid Testing Report showing Pullorum Clean status or negative test within 30 days. Each bird must be identified by an official NPIP tamper-proof, numbered leg band.

## AUTHORIZED NPIP TESTING AGENT SELF TEST

1. Pullorum disease has been eradicated in most poultry flocks through:  
(a) medication, (b) vaccination, (c) blood testing.
2. The organism that causes Pullorum disease is a:  
(a) virus, (b) bacterium, (c) protozoa.
3. Pullorum is a *Salmonella*: (a) True, (b) False
4. The official Pullorum test for turkey breeders is the rapid whole blood plate test:  
(a) True, (b) False
5. Fowl typhoid reacts to the same test as Pullorum: (a) True, (b) False
6. A positive rapid whole blood plate test should react within:  
(a) 2 seconds, (b) 2 minutes, (c) 2 hours.
7. A positive reaction on the plate test indicates that:  
(a) the bird is infected with Pullorum or Typhoid,  
(b) the bird may have been exposed to Pullorum or Typhoid,  
(c) the bird should be treated with antibiotics.
8. On detecting a reactor you should:  
(a) kill the bird, bury it and not tell anyone,  
(b) retain the bird and notify the SC NPIP State Inspector,  
(c) kill the entire flock and sanitize the premises.
9. The Pullorum-Typhoid antigen is a suspension of:  
(a) stained live Pullorum cells,  
(b) stained killed Pullorum cells,  
(c) Pullorum positive chicken serum.
10. Poultry going to exhibition must be Pullorum tested: (a) True, (b) False
11. Poultry moving into SC for immediate slaughter must be U.S. Pullorum Clean or tested within 90 days: (a) True, (b) False
12. Baby chicks or hatching eggs have nothing to do with the National Poultry Improvement Plan (NPIP): (a) True, (b) False
13. South Carolina is a Pullorum \_\_\_\_\_ State: (a) Controlled, (b) Modified Clean, (c) Clean
14. Authorized NPIP Testing Agents may also collect samples from poultry flocks for Mycoplasma and avian influenza NPIP disease programs? (a) True, (b) False

## CORRECT ANSWERS TO SELF TEST

1. (c) Blood testing and elimination of reactors over the years has eradicated Pullorum from most poultry flocks.
2. (b) *Salmonella pullorum* is a bacterium.
3. (a) Pullorum is *Salmonella pullorum*.
4. (a) Turkey breeders must be tested in the laboratory, and not using the field plate test. Authorized Agents take the blood from the turkeys and submit it to the laboratory with appropriate forms.
5. (a) Pullorum and Typhoid have some identical antigens and can be tested with the same bottle of antigen.
6. (b) Agglutination or clumping after 2 minutes is considered a negative test.
7. (b) A reaction indicates antibodies are present, not necessarily infection.
8. (b) The NPIP State Inspector enforces the Pullorum regulations.
9. (b) The antigen is stained purple, but the bacteria is killed and is of no danger to poultry.
10. (a) Poultry going to exhibition must be tested negative or classified under the plan as U.S. Pullorum Clean.
11. (b) Poultry moving into the state for immediate slaughter require no interstate health certificate or Pullorum test.
12. (b) All baby chicks or hatching eggs produced in the state for sale or moved into the state must be U.S. Pullorum Clean or equivalent.
13. (c) South Carolina has laws that allow it to qualify as a U.S. Pullorum Clean State.
14. (a) Authorized NPIP Testing Agents are allowed to obtain samples from poultry for any of the NPIP disease control programs once they are properly trained to do so.