

Poultry Related Educational Opportunities



**North Carolina
Cooperative Extension Service**
North Carolina State University
College of Agriculture & Life Sciences

**developed by the
Poultry Coordinating Committee,
Cooperative Extension Service,
College of Agriculture and Life Sciences,
and North Carolina State University**

Poultry Coordinating Committee

The Poultry Coordinating Committee is composed of the North Carolina State University field faculty and area specialized agents whose extension educational program emphasis is on poultry. The committee is comprised of several College of Agriculture and Life Science Departments, which provides a broad range of expertise in the poultry field. The committee contains experts from the departments of Agricultural and Resource Economics, Biological and Agricultural Engineering, Entomology, Population Health and Pathobiology, Poultry Science, Soil Science and Area Specialized Agents. The Poultry Coordinating Committee works in a collective effort to develop educational resources for poultry extension programs all over the state.

This booklet presents some of the educational opportunities which are available from the Coordinating Committee. These programs are of varied length and formats, and do not represent the only educational opportunities available from the Committee. If you have a specialized request, we would welcome the opportunity to develop an educational program. We invite you to contact us to help with your educational needs. The most recent version of this document can be found at <http://www.ncsupoultry.com/> .

Distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Employment and program opportunities are offered to all people regardless of race, color, national origin, sex, age, or disability. North Carolina State University, U.S. Department of Agriculture, and local governments operating.

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4-H PROGRAMS

Title: 4-H Embryology

Format: Slides

Description: This presentation describes how to successfully hatch fertile bird eggs in small Hov-Obator incubators. Topics focus on temperature and humidity regulation; when to place eggs in the incubator; why and when fertile eggs should be turned and candled; and how to take care of chicks once they hatch.

Time: 45 minutes

Equipment: Slide projector

Audience: 4-H Extension agents and grammar school teachers.

Contact: Melissa Scherpereel (melissa_scherpereel@ncsu.edu), 919-515-5403

ANIMAL WELFARE

Title: Interpretation of Animal Welfare Issues

Format: Short Presentation

Description: This program looks at the problem we face today, which is not one of ethics in the use of animals for the production of food and fiber, but rather it is a problem of affluence within the general public and their lack of understanding of production agriculture. The terms used by animal rights groups are defined and interpreted within the context of this program. The development of this movement is discussed and who is involved in the issue now.

Time: 30 minutes

Equipment: Computer Projector

Contact: Dr. Kenneth E. Anderson (ken_anderson@ncsu.edu), 919-515-5527

Title: New Alternative Molting Programs for the Layer Industry

Format: Short Presentation

Description: This program looks at the molting process used for commercial egg production hens. The questions answered include: What is molting? How does one molt a hen? What does molting do for the laying hen? The alternative molting programs are described and positive and negative components are discussed.

Time: 30 minutes

Equipment: Computer Projector

Contact: Dr. Kenneth E. Anderson (ken_anderson@ncsu.edu), 919-515-5527

BREEDERS AND HATCHERY

Title: Hatchability As Influenced By Breeder House Management

Format: Slide presentations

Description: Discusses how management of feeding, gut health, and egg care can affect the viability of hatchlings

Time: 20-30 minutes

Audience: Breeder house growers

Contact: Dr. Mike Wineland (mike_wineland@ncsu.edu), 919-515-5529

Title: Lighting for Breeders

Format: Slide show

Description: Covers the development of the reproduction tract. Explains the importance and the mechanism of restricting light in the pullet house and how light maintains reproductive activity in the breeder house.

Time: 30-45 minutes

Audience: Breeder house growers, service personnel

Contact: Dr. Mike Wineland (mike_wineland@ncsu.edu), 919-515-5529

Title: Hatching Egg Care and Storage

Format: Slide show

Description: Cover the aspects of hatching egg quality and how to best maintain viable embryo for hatchery

Time: 20-30 minutes

Audience: Breeder house growers

Contact: Dr. Mike Wineland (mike_wineland@ncsu.edu), 919-515-5529

Title: NCSU Hatchery Management Workshop

Format: Two day short course held at NC State University. Has lectures and labs.

Description: A two-day workshop for hatchery QA personnel, and new and experienced hatchery managers who want to learn more about the developing embryo and how a hatchery can influence the embryo's development and subsequent chick quality.

The workshop includes both lecture and laboratory sessions. Instructors are Dr. Wineland and Dr. Vern Christensen. Enrollment is limited.

Audience: Hatchery and QA personnel

Contact: Dr. Mike Wineland (mike_wineland@ncsu.edu), 919-515-5529

DISEASE AND BIOSECURITY

Title: Sustainable Coccidia Control in Broiler Production

Format: Lecture and PowerPoint Presentation

Description: Coccidia are still one of the most endemic enteric parasites in the broiler industry worldwide. Its control and treatment cost to the poultry industry millions of dollars every year. More sustainable and less expensive control methods are available. This presentation will review the status of practical control programs for an integral control of coccidia infection. The audience will learn some tools of assessment to evaluate current practices and determine future strategies of control. Practical demonstrations could be done during the workshop.

Time: 50 minute presentation or a workshop for up to 2 hours.

Audience: Extension agents, live production managers, complex managers, poultry veterinarians and nutritionists.

Equipment: Digital projector and screen.

Contact: Dr. Edgar O. Oviedo (edgar_oviedo@ncsu.edu), 919-515-5391

Title: Avian Influenza (AI) in the Gamebird Industry

Format: Slides or PowerPoint

Description: This presentation is actually two presentations. One describes the effects of AI on the gamebird industry. It discusses the nature of the AI virus, how it is transmitted, and the outcome of AI in birds. The second part describes the history of AI, what the virus looks like, and how it can be transmitted.

Time: One hour

Equipment: Slide projector or Proxima

Audience: Upland wild gamebird producers, Agricultural Extension Agents

Contact: Dr. Jesse Grimes (jesse_grimes@ncsu.edu), 919-515-5406

Title: Biosecurity

Format: Lecture and PowerPoint Presentation

Description: The basic concepts of biosecurity as it relates to poultry production will be covered in this lecture-based presentation. Specific topics will include the identification and control of vectors that harbor and transmit infectious agents (viruses, bacteria, parasites, fungi), best management practices, insect and rodent controls, water quality, and practical biosecurity measures to reduce the risk of transmitting infectious agents.

Time: 30 to 60 minutes depending on the needs of the audience

Audience: County and area agents and poultry integrators

Contact: Dr. Brian W. Sheldon (brian_sheldon@ncsu.edu), 919-515-5407

Title: Cleaning and Sanitation

Format: Lecture and PowerPoint Presentation

Description: The lecture information will cover the principles of cleaning and sanitizing on the farm as well as in the processing plant. The learning objectives would include recognizing the difference between cleaning and sanitizing, identifying the processes that can be used to clean and sanitize equipment and utensils, understanding the basic steps involved in manual and mechanical cleaning and sanitizing of equipment and utensils, understanding the factors that affect cleaning efficiency, and understanding the applications of different cleaners and sanitizers.

Time: 60 or more minutes depending on the needs of the audience

Audience: County and area agents, poultry integrators and processors

Contact: Dr. Brian W. Sheldon (brian_sheldon@ncsu.edu), 919-515-5407

Title: Using Epidemiologic Principles to Get the Most from Diagnostic Tests

Format: Lecture and PowerPoint Presentation

Description: Interpretation of diagnostic tests requires knowledge of the limitations of the tests used. These limitations coupled with the objective of performing the test, determine which test should be used and when. This presentation addresses how and when to use diagnostic tests and how interpretation can aid in proper decision making.

Time: 40 minutes

Equipment: Digital projector and screen

Audience: Poultry growers, extension agents, poultry service specialists

Contact: Dr. Donna K. Carver (donna_carver@ncsu.edu), 919-515-5526

Title: Campylobacter Species – What We Know and What We Need to Know

Format: Lecture and PowerPoint Presentation

Description: Recent studies have shown where Campylobacter species can generally be found along the continuum of poultry production. We know which species of Campylobacter reside in which birds and we know which species are resistant to certain antimicrobials. This presentation addresses these issues as well as why Campylobacter is an issue for the poultry industry and what additional information is needed to scientifically address these issues.

Time: 40 minutes

Equipment: Digital projector and screen

Audience: Poultry growers, extension agents, poultry service specialists

Contact: Dr. Donna K. Carver (donna_carver@ncsu.edu), 919-515-5526

Title: Exotic Newcastle Disease

Format: Lecture and PowerPoint Presentation

Description: In light of a major outbreak of Exotic Newcastle Disease (END) in the US in recent years, this presentation addresses the recognition, diagnosis, treatment and prevention of END. Particular emphasis is given to prevention and the risk factors associated with introduction of END into North Carolina.

Time: 40 minutes

Equipment: Digital projector and screen

Audience: Poultry growers, extension agents, poultry service specialists

Contact: Dr. Donna K. Carver (donna_carver@ncsu.edu), 919-515-5526

Title: Avian Influenza

Format: Lecture and PowerPoint Presentation

Description: The significance of an Avian Influenza (AI) outbreak has never been greater for NC producers and potentially the world. What factors are affecting AI viruses to make them a greater threat will be addressed. Recognition, diagnosis, treatment and prevention of AI will be discussed.

Time: 40 minute presentation

Equipment: Digital projector and screen

Audience: Poultry growers, extension agents, poultry service specialists

Contact: Dr. Donna K. Carver (donna_carver@ncsu.edu), 919-515-5526

Title: Spongiform Encephalopathies

Format: Lecture and PowerPoint Presentation

Description: Though Spongiform Encephalopathies (SE) have never been identified in birds, these diseases affect the poultry industry indirectly. Understanding these diseases and the risk factors associated with them can facilitate better decision making related to poultry nutrition and world markets.

Time: 40 minute presentation

Equipment: Digital projector and screen

Audience: Poultry growers, extension agents, poultry service specialists

Contact: Dr. Donna K. Carver (donna_carver@ncsu.edu), 919-515-5526

ECONOMICS

Title: Practical Applications of Modeling and Decision-Making Analyses in Poultry Production

Format: Lecture and PowerPoint Presentation

Description: Poultry production requires, like any other industry, a constant decision-making process. Most decisions require information. In poultry production a lot of information is collected, but very little is really analyzed and actually used in real-time to make future decisions. This presentation/workshop will try to stimulate the learning of decision-making software and computerized mathematical models as tools to be utilized in management of poultry production. The presentation will include simple applications available to start the process of organizing, analyzing and using production data in real-time. The audience will learn basic techniques to estimate optimum values of production based on several production factors. Examples will be adapted to the needs of the audience. On average, and over time, good decisions made through these processes should provide the best outcomes for the poultry companies. They will also provide logical explanations for decisions when the outcomes are not favorable.

Time: 50 minute presentation or a workshop for up to 2 hours.

Audience: Extension agents, live production managers, complex managers, poultry veterinarians and nutritionists.

Equipment: Digital projector and screen, computer lab or laptops.

Contact: Dr. Edgar O. Oviedo (edgar_oviedo@ncsu.edu), 919-515-5391

FOOD AND FOOD SAFETY

Title: General HACCP Principles for Poultry Production and Processing

Format: Workshop and Lecture/PowerPoint Presentation

Description: This program will provide participants an overview of HACCP, allowing them to develop a HACCP plan for a segment of their responsibility area. Participants will come away from the workshop with a basic understanding of this proactive systematic approach for assuring the safety of their food products. Moreover, producers (hatchery, feed mill, broiler/breeder, transportation, growout) will understand how they might apply the HACCP principles to their areas of operation.

Time: Minimum of two hours although time can be expanded depending on the needs of the group.

Audience: Production and processing plant employees

Contact: Dr. Brian W. Sheldon (brian_sheldon@ncsu.edu), 919-515-5407

Title: General Food Laws and Regulations

Format: Lecture and PowerPoint Presentation

Description: A basic introduction to food laws and regulations will be presented including an overview of the U.S. legal system, an historical review of the U.S. Food and Drug Law and Food & Drug Administration, how the FDA and USDA is organized and functions, the regulation of foods and food additives, FDA and USDA inspection systems, and enforcement. Attendees will go away from this workshop with a better understanding on how our food is regulated in the U.S.

Time: 30 to 60 minutes depending on the needs of the audience

Audience: County and area agents, poultry integrators and processors

Contact: Dr. Brian W. Sheldon (brian_sheldon@ncsu.edu), 919-515-5407

Title: The Basics of Quality Control and Statistical Quality Control

Format: Lecture and PowerPoint Presentation

Description: Depending on the needs of the audience, this presentation can approach quality control and statistical quality control from a simple overview to an in-depth coverage of the topic. Specific topics that could be covered include a basic introduction to QC or Statistical Quality Control, samples and sampling, raw ingredient control, process control, finished product inspection, application of statistics, statistical sampling plans, control charts, and food standards.

Time: 60 or more minutes depending on the needs of the audience

Audience: County agents and poultry processors

Contact: Dr. Brian W. Sheldon (brian_sheldon@ncsu.edu), 919-515-5407

Title: Pathogen Control Strategies

Format: Lecture and PowerPoint Presentation

Description: This lecture-based presentation will cover both on-farm as well as in-plant bacterial pathogen control strategies available to poultry producers and processors. Specific topics will include a discussion of probiotics, prebiotics, bacteriophage, antibiotics, vaccination, best management practices, nutritional approaches to food safety, cleaning and sanitizing, and in-plant controls such as trisodium phosphate treatments, acidified sodium chlorite, organic acids, chlorine dioxide, chlorination, irradiation, high pressure processing, and other intervention strategies.

Time: 60 or minutes or more depending on the needs of the audience

Audience: County and area agents, poultry integrators and processors

Contact: Dr. Brian W. Sheldon (brian_sheldon@ncsu.edu), 919-515-5407

Title: General Microbiology and Foodborne Pathogens

Format: Lecture/PowerPoint Presentation and Demonstration

Description: This presentation will focus on the basics of food microbiology including a discussion of the role and significance of microorganisms in foods, the factors that affect microbial growth, specific microorganisms of importance to poultry production, processing, and products, methods for detecting and enumerating microorganisms, methods used for controlling food spoilage microorganisms and pathogens, and a discussion of foodborne pathogens and disease.

Time: 60 minutes or more depending on the needs of the audience

Audience: County and area agents, poultry integrators and processors

Contact: Dr. Brian W. Sheldon (brian_sheldon@ncsu.edu), 919-515-5407

Title: Impact of Production Environment on Shell Egg Temperatures

Format: Short Presentation

Description: This program looks at the information needed to improve the 1999 Egg Safety Action Plan, questions were raised concerning egg temperature patterns used in the risk assessment model. This also raised conjecture on the impact of egg temperature on microbiological quality of eggs. Currently most research on egg temperature concentrated on post-process prior to retail sale Anderson et al., 1992, Czarick and Savage, 1992, Dameron et al., 1994, have measured temperatures through wash, pack, and distribution. However, most of these temperatures concentrated on the ambient temperatures with egg temperatures taken late in the processing. Complete time/temp sequence from oviposition through processing has not been measured. This is important since Gast and Holt, 2000, showed that internal egg temperature can impact growth of harmful microorganisms and the safety of the egg.

Time: 30 minutes

Equipment: Computer Projector

Contact: Dr. Kenneth E. Anderson (ken_anderson@ncsu.edu), 919-515-5527

Title: Impact of Processing on Shell Egg Temperatures

Format: Short Presentation

Description: This program looks at the information needed to improve the 1999 Egg Safety Action Plan, questions were raised concerning egg temperature patterns used in the risk assessment model. This also raised conjecture on the impact of egg temperature on microbiological quality of eggs. Currently most research on egg temperature concentrated on post-process prior to retail sale Anderson et al., 1992, Czarick and Savage, 1992, Dameron et al., 1994, have measured temperatures through wash, pack, and distribution. However, most of these temperatures concentrated on the water and ambient temperatures with egg temperatures taken late in processing. Complete time/temp sequence from the start of processing through packaging has not been measured. This is important since Gast and Holt, 2000, showed that internal egg temperature can impact growth of harmful microorganisms and the safety of the egg.

Time: 30 minutes

Equipment: Computer Projector

Contact: Dr. Kenneth E. Anderson (ken_anderson@ncsu.edu), 919-515-5527

Title: Impact of Transport on Shell Egg Temperatures

Format: Short Presentation

Description: This program looks at the information needed to improve the 1999 Egg Safety Action Plan, questions were raised concerning egg temperature patterns used in the risk assessment model. This also raised conjecture on the impact of egg temperature on microbiological quality of eggs. Currently most research on egg temperature concentrated on post-process prior to retail sale Anderson et al., 1992, Czarick and Savage, 1992, Dameron et al., 1994, have measured temperatures through wash, pack, and distribution. However, most of these temperatures concentrated on the ambient temperatures with egg temperatures taken late in the processing. Complete time/temp sequence from processing through distribution has not been measured. This is important since Gast and Holt, 2000, showed that internal egg temperature can impact growth of harmful microorganisms and the safety of the egg.

Time: 30 minutes

Equipment: Computer Projector

Contact: Dr. Kenneth E. Anderson (ken_anderson@ncsu.edu), 919-515-5527

Title: What Is Egg Quality And How Do You Conserve It?

Format: Short Presentation

Description: This program looks at shell egg quality in the layer industry. This includes what the probable causes of poor quality eggs. The discussion includes egg quality preservation from the processing to the consumer. Consumers have an obligation for preserving the quality of the eggs they purchase for which they are typically unaware. The problem we face today is a problem of affluence within the general public and their lack of understanding of production agriculture and where their food comes from and how it should be handled.

Time: 30 minutes

Equipment: Computer Projector

Contact: Dr. Kenneth E. Anderson (ken_anderson@ncsu.edu), 919-515-5527

Title: Shell Egg Production through the Processing Plant

Format: Short Presentation

Description: This program looks at shell egg industry. This includes where eggs are produced and getting the eggs to the processing plant and ultimately the grocery store. The discussion includes egg quality preservation from the processing to the consumer.

Time: 15 minutes

Equipment: Computer Projector

Contact: Dr. Kenneth E. Anderson (ken_anderson@ncsu.edu), 919-515-5527

Title: The Wonderful Egg

Format: Short Presentation

Description: The egg is a unique product. It is a highly nutritious food, which comes in its own packaging, and has a tremendous versatility. Its uses range from baking, candy making, and salad dressings to pharmaceuticals. On an equivalent basis eggs have a higher biological value than cow's milk, liver, beef, potatoes, and corn. The only food source with a higher value is human milk, which we only get as infants. This program looks at shell eggs. This includes what the nutritional value and all of the vitamins and minerals they contain. The discussion includes egg components, which improves the memory in children, and increases the sex drive in adults.

Time: 15 minutes

Equipment: Computer Projector

Contact: Dr. Kenneth E. Anderson (ken_anderson@ncsu.edu), 919-515-5527

Title: Egg Products Basics: Functionality of Eggs

Format: Lecture and PowerPoint Presentation

Description: A basic introduction into the composition and diverse functionality of shell and liquid egg products including the diversity of egg products available commercially. Attendees will go away from the presentation with a greater understanding and appreciation for the diverse functions of the different egg components.

Time: 30 to 60 minutes depending on the needs of the program

Audience: County and area agents, egg producers and processors

Contact: Dr. Brian W. Sheldon (brian_sheldon@ncsu.edu), 919-515-5407

Title: Egg Products Basics: Microbiology of Eggs

Format: Lecture and PowerPoint Presentation

Description: This presentation will include a variety of topics including foodborne disease organisms (i.e., *Salmonella* Enteritidis, *Listeria monocytogenes*) associated with shell eggs and egg products, pending Federal egg safety regulations, risk factors contributing to contamination, cooling of eggs, in-shell pasteurization, and other egg treatments to ensure the final product safety.

Time: 30 to 60 minutes depending on the needs of the program

Audience: County and area agents, egg producers and processors

Contact: Dr. Brian W. Sheldon (brian_sheldon@ncsu.edu), 919-515-5407

Title: On-Farm Food Safety Best Management Practices Internet Course

Format: Fee-based internet course for university credit where the student will work independently to complete the course requirements. In addition to offering the complete course (all subject modules), the course content is available as individual stand alone course modules or as groups of modules to fit the specific needs of the audience.

Description: The course is composed of separate modules (i.e., subject areas) including the basic principles of HACCP, feed production, breeder and hatchery to farm, biosecurity, integrated pest management, preventive health, water quality, and loading and transport. Students are expected to adhere to a specific schedule to assure the completion of the course within the semester time limit. Mandatory on-line tests for each module will be used to assess the progress of each student.

Time: Semester long course (offered Fall and Spring semesters)

Audience: Poultry production and processing managers with responsibility for assuring the safety of their poultry flocks and finished products; HACCP team members; state and Federal regulators; Cooperative Extension agents; poultry, animal, and food science university majors (upper level undergraduates and graduate students)

Contact: Dr. Brian W. Sheldon (brian_sheldon@ncsu.edu), 919-515-5407

GAMEBIRDS

Title: General Management Guidelines in the Production of Bobwhite Quail and Ringed Necked Pheasants

Format: Slides

Description: This presentation provides a general overview in the management of growing quail and pheasants. Topics include brooding, space requirements, water management, litter management, nutrition, and diseases.

Time: 45 minutes

Equipment: Slide projector

Audience: Upland wild gamebird producers, Agricultural Extension Agents

Contact: Dr. Jesse Grimes (jesse_grimes@ncsu.edu), 919-515-5406

Title: Gamebird Diseases

Format: Slides

Description: This presentation describes the major diseases that occur in raising Bobwhite quail. Slides show the organisms that infect quail and the physiological and anatomical effects that occur. Medications and prevention of diseases are also discussed.

Time: 45 minutes

Equipment: Slide projector

Audience: Upland wild gamebird producers, Agricultural Extension Agents

Contact: Dr. Jesse Grimes (jesse_grimes@ncsu.edu), 919-515-5406

Title: The Brooding of Gamebirds

Format: Slides or PowerPoint

Description: This presentation describes the do's and don'ts of brooding gamebird chicks. Space, water, and feed requirements are discussed. Data are presented on increasing the livability in young chicks.

Time: 45 minutes

Equipment: Slide projector or Proxima

Audience: Upland wild gamebird producers, Agricultural Extension Agents

Contact: Dr. Jesse Grimes (jesse_grimes@ncsu.edu), 919-515-5406

Title: The Production of Ostriches and Emus in North Carolina

Format: Slides

Description: This presentation describes incubation, nutrition, and space requirement of ostriches and emus. The slides emphasize the do's and don'ts in raising ostriches and emus, and the value of meat and hides.

Time: 45 minutes

Equipment: Slide projector

Audience: Ostrich and Emu Producers, Agricultural Extension Agents

Contact: Dr. Jesse Grimes (jesse_grimes@ncsu.edu), 919-515-5406

GENERAL MANAGEMENT

Title: Basic Poultry Physiology

Format: PowerPoint, lab, and/or poster.

Description: For youth, backyard flock owners, or as a refresher course. Can include a "hands-on" necropsy lab. Classroom or in field. Can also provide CD of presentation for others to use.

Time: Short version (no lab): 30 minutes to one hour.
Full length presentation and demonstrations: 2 hours.
Hands-on participant lab: 3 hours.

Equipment: None for presentations. Assistance with lab setup.

Contact: James E. Cochran (james_cochran@ncsu.edu), 910-671-3276

Title: Lighting for Broilers

Format: Slide presentation

Description: Discuss how light management can enhance the growth and livability of broilers

Time: 20-30 minutes

Audience: Broiler growers

Contact: Dr. Mike Wineland (mike_wineland@ncsu.edu), 919-515-5529

Title: Brooder Stove Maintenance and Proper Line Sizing

Format: PowerPoint Presentation

Description: This presentation looks at brooder type and how brooder burning efficiency is directly affected by the amount of gas reaching the brooder which is controlled by the size of the pipe used in the system, the operating pressure setting and the fuel level in the tank. It also presents basic brooder maintenance techniques to increase brooder longevity.

Time: 30 minutes

Audience: Flock supervisors, growers

Equipment: LCD projector

Contact: Kathy Bunton (kathy_bunton@ncsu.edu), 704-878-3154

Title: Drinking Water Quality for Poultry

Format: PowerPoint

Description: Water is a vital dietary requirement for poultry and an easy one to take for granted. High quality drinking water is a critical component for successful poultry production. The purpose of this presentation is to educate growers and other industry representatives on some of the issues that affect the water being consumed by poultry on the farm.

Time: 30 minutes

Audience: Grower, flock supervisors, industry

Equipment: LCD Projector

Contact: Kathy Bunton (kathy_bunton@ncsu.edu, 704-878-3154) and James E. Cochran (james_cochran@ncsu.edu, 910-671-3276)

Title: Improving In-House Air Quality to Increase Productivity and Improve the Environment

Format: PowerPoint presentation

Description: This presentation describes the impacts of high ammonia levels on bird health and growth; it also discusses the environmental impacts as well as potential regulations on high ammonia emissions from poultry houses. The presentation also discusses measures to reduce ammonia production in and emissions from poultry houses.

Time: 60 minutes

Audience: Poultry producers and industry people

Contact: Dr. Sanjay Shah (sbshah3@unity.ncsu.edu), 919-515-6753

Title: Tips and Techniques in Managing Ventilation in Poultry Houses

Format: PowerPoint

Description: Managing the in-house poultry environment and understanding the science behind ventilating will lead to successful poultry production. This presentation will give you the practical information you need for minimum, transitional, and tunnel ventilation along with general house maintenance.

Time: 30-45 minutes

Audience: Flock supervisors, growers, integrators

Equipment: LCD projector

Contact: Jody Smith (jody_smith@ncsu.edu), 704-283-3801

HOME FLOCKS

Title: Home Flock Production and Product Marketing

Format: PowerPoint

Description: Although the major supplier of eggs and poultry meat in the US is produced by commercial growers, many people prefer to produce their own. This program deals with bird selection, housing, nutrition, health, end product marketing, and the importance of biosecurity.

Time: 30-45 minutes

Audience: General public interested in home production of poultry

Equipment: LCD Projector

Contact: Kathy Bunton (kathy_bunton@ncsu.edu), 704-878-3154

Title: Biosecurity and Poultry Management in Backyard Flocks

Format: PowerPoint

Description: As poultry production expands into backyard poultry flocks, proper biosecurity and health management is imperative. This program provides an opportunity for small backyard poultry caretakers to learn proper management techniques in caring and maintaining a successful and healthy flock.

Time: 30-45 minutes

Audience: General public

Equipment: LCD projector

Contact: Jody Smith (jody_smith@ncsu.edu), 704-283-3801

NUTRIENT MANAGEMENT

Title: Alternative Uses for Litter

Format: PowerPoint

Description: On-farm and centralized burning and electrical generation options: advantages/disadvantages, feasibility, cost, examples. Pelleting.

Time: 30 minutes to one hour

Equipment: None

Contact: James E. Cochran (james_cochran@ncsu.edu), 910-671-3276

Title: Poultry Farm Regulations

Format: PowerPoint

Description: Litter and/or Air Emissions. Federal and/or State. Can include background on PLAT (Phosphorous Loss Assessment Tool), and air emission measurements quantified, and literature review.

Time: 1 hour

Contact: James E. Cochran (james_cochran@ncsu.edu), 910-671-3276

Title: Litter Record Keeping

Format: PowerPoint, Excel Spreadsheets

Description: Review of records poultry growers and litter applicators should be keeping - demonstration and Q & A. Will also include the new litter applicator third party "broker" regulations in 2006.

Time: 1-2 hours

Contact: James E. Cochran (james_cochran@ncsu.edu), 910-671-3276

Title: Dry Litter Nutrient Management Planning

Format: PowerPoint, handouts

Description: What goes into and is required for developing a dry litter nutrient management plan including regulations, record keeping and permits for larger operations.

Time: 1-2 hours

Contact: James E. Cochran (james_cochran@ncsu.edu), 910-671-3276

Title: Methods to Minimize Environmental Impact Due to Nitrogen Excretion from Poultry

Format: Lecture and PowerPoint Presentation

Description: Nitrogen excretion and air emissions from poultry farms are becoming regulated by some governmental institutions. Poultry growers should be aware of the production concomitant benefits of complying with these environmental laws. In this presentation, some data related to those benefits will be presented, as well as several possible management practices to minimize current dry and air emissions of nitrogen from poultry houses.

Time: 35-50 minutes

Audience: Poultry growers, extension agents, poultry service specialists

Equipment: Digital projector and screen

Contact: Dr. Edgar O. Oviedo (edgar_oviedo@ncsu.edu), 919-515-5391

Title: Composting Mortality

Format: PowerPoint presentation

Description: As options for mortality disposal decrease, the handling of daily poultry mortality is becoming a concern for many poultry producers. Although composting has been around for a relatively long time, it has fallen out of favor with some because it requires some hands-on management. In addition, if not done properly, composting of mortality can become the source of nuisance complaints. This presentation will cover the advantages composting can provide the poultry producer. It will also discuss the proper facilities and methods for the composting of daily poultry mortality.

Time: 30-45 minutes

Audience: Poultry Producers, Flock Supervisors, Production Managers, Extension Agents

Equipment: Digital projector and screen

Contact: Dr. Jesse Grimes (jesse_grimes@ncsu.edu, 919-515-5406) and Dr. Mike Wineland (mike_wineland@ncsu.edu, 919-515-5529)

Title: Alternative Litter Materials for Poultry

Format: PowerPoint presentation

Description: Shavings from pine or other soft wood has historically been the bedding of choice for poultry production. Other materials also have been tested as a bedding material such as rice hulls, straw, corn cobs, corn stalks, sugar cane stalks, peat moss, peanut hulls, wood shavings, oat hulls and several others. Poultry producers are under pressure to find alternative litter materials as sawdust and pine shavings become less available. Litter type can significantly affect carcass quality and bird performance. Several factors help determine if a material is a good bedding source. This presentation will discuss alternative litter materials for broilers and turkeys.

Time: 30-45 minutes

Audience: Poultry Producers, Flock Supervisors, Production Managers, Extension Agents

Equipment: Digital projector and screen

Contact: Dr. Jesse Grimes (jesse_grimes@ncsu.edu), 919-515-5406

Title: Phosphorus Loss Assessment Tool for North Carolina: The Whys and Wherefores

Format: Meeting - PowerPoint slides and script

Description: Presentation describes the reasons that PLAT was developed, the details of each loss pathway and case studies.

Time: 2 hours

Audience: Growers, Service people

Contact: Dr. Deanna Osmond (deanna_osmond@ncsu.edu, 919-515-7303) and James E. Cochran (james_cochran@ncsu.edu, 910-671-3276)

Title: Poultry Litter Spreader Calibration

Format: Training with class and field components

Description: The need for, and the fundamentals of, poultry litter spreader calibration are discussed with emphasis on getting the correct overlap between passes. The field component consists of calibrating a poultry litter spreader for both correction swath width and application rate.

Time: 6 hours

Audience: Poultry producers, contract applicators, industry people, state agency personnel, Extension personnel.

Contact: Dr. Sanjay Shah (sbshah3@unity.ncsu.edu), 919-515-6753

Title: Nutrient Management in NC

Format: PowerPoint

Description: Poultry litter is an excellent source of fertilizer and soil amendment in fields across NC. This presentation focus's on litter applications, soil sampling and analyzing litter for nutrient content. This program also summarizes the regulations which regulate poultry farms in NC.

Time: 45 minutes

Audience: Flock supervisors, growers, integrators

Equipment: LCD projector

Contact: Jody Smith (jody_smith@ncsu.edu), 704-283-3801

Title: The Use of Trees Around Poultry Facilities

Format: PowerPoint

Description: As urbanization is on the rise in NC, planting trees around poultry facilities may be a best management practice that need not be overlooked. This program will focus on planting trees and shrubs around the poultry houses as a means of a windbreak, an aesthetic value, and to provide shade. Taking care of only a couple of these issues could be a valuable asset to your farm and your neighborhood.

Time: 30-45 minutes

Audience: Flock supervisors, growers, integrators

Equipment: LCD projector

Contact: Jody Smith (jody_smith@ncsu.edu), 704-283-3801

NUTRITION AND FEEDING

Title: Methods to Minimize Environmental Impact Due to Nitrogen Excretion from Poultry

Format: Lecture and PowerPoint Presentation

Description: Nitrogen excretion and air emissions from poultry farms are becoming regulated by some governmental institutions. Poultry growers should be aware of the production concomitant benefits of complying with these environmental laws. In this presentation, some data related to those benefits will be presented, as well as several possible management practices to minimize current dry and air emissions of nitrogen from poultry houses.

Time: 35-50 minutes

Audience: Poultry growers, extension agents, poultry service specialists

Equipment: Digital projector and screen

Contact: Dr. Edgar O. Oviedo (edgar_oviedo@ncsu.edu), 919-515-5391

Title: Alternative Feed Additives to Replace Antibiotics and Ionophores in Poultry Diets

Format: Lecture and PowerPoint Presentation

Description: Growth promoting antibiotics (GPA's) and ionophores have played an important role in the development of modern commercial poultry production in the last 40 years. These feed additives modulate some of the deleterious effects of gut microflora. The increasing resistance of some microorganisms to some of these products, and public concerns for drug residues have made that antibiotics and ionophores are being banned or withdrawn from poultry diets. This presentation will review the variety of alternative feed additives that can replace some of the properties of GPA's and ionophores. The audience will learn the comparative advantages and disadvantages of their use, and interactions among products.

Time: 35-50 minutes

Audience: Extension agents, poultry service specialists, poultry growers, poultry veterinarians and nutritionists.

Equipment: Digital projector and screen

Contact: Dr. Edgar O. Oviedo (edgar_oviedo@ncsu.edu), 919-515-5391

Title: Nutrition and Gut Health of Poultry

Format: Short oral presentation or Workshop session

Description: Nutrition and gut health are intricately related in commercial poultry production. Diet formulation and feed management can have a marked effect on gut health, and gut health greatly influences nutrient utilization of feed. When poultry growers observe their birds are not converting feed as they should or gut health problems arise, they must discern whether the problem is due to bad feed or enteric disease. This presentation discusses how feed and feeding practices influences gut health and how gut health problems can be alleviated by proper nutrition. The audience will learn how to recognize gut health problems caused by bad feed formulation or by bacterial or viral disease challenge.

Time: 30 to 45 minute presentation or a workshop for up to 2 hours.

Audience: Extension agents, poultry service specialists, poultry growers, poultry veterinarians

Equipment: Digital projector and screen

Contact: Dr. Peter R. Ferket (peter_ferket@ncsu.edu), 919-515-5409

Title: Potential of Nutrition to Reduce Nutrient Emissions from Poultry Operations

Format: Lecture presentation

Description: Nutrients are emitted from poultry operations via the air (i.e. ammonia nitrogen and odiferous compounds), land application of litter (i.e. phosphorus, zinc, copper, nitrogen), and disposal of mortality carcasses. Mineral emission is a function of the balance of input nutrients from the feed, and the nutrients retained and marketed as meat and other poultry products. Although there are biological limits of the amount of dietary nutrients that can be converted into valuable poultry products, nutrient emissions can be reduced significantly by feed formulation and feeding practices. Moreover, nutrients from poultry by-products, such as processing plant offal, mortality carcasses, and litter can be converted to value-added feed products for poultry, livestock, and aquaculture. This presentation will review how nutrient emissions into the environment can be minimized by nutritional strategies. The audience will learn the potential benefits and limitations for nutritional strategy to limit nutrient emissions from poultry operations.

Time: 30 to 45 minute presentation or a workshop for up to 2 hours.

Audience: Extension agents, poultry service specialists, poultry growers

Equipment: Digital projector and screen

Contact: Dr. Peter R. Ferket (peter_ferket@ncsu.edu), 919-515-5409

Title: Poultry Feed and the Quality and Safety of Poultry Meat and Eggs

Format: Lecture presentation

Description: The quality and safety of our food supply is a primary concern for everyone, and the poultry industry is often under close public scrutiny because poultry products consist of a major part of the human diet throughout the world. The public is especially concerned about the contamination of poultry products with food borne pathogens, (such as salmonella, campylobacter, and listeria) and chemical contaminants (such as drug and pesticide residues). Because of arising public demands, there are new market niches for the poultry industry to deliver products that have reduced risk of enteric pathogen contamination, poultry raised free of antibiotics and other drugs, poultry raised free of animal by-products and pesticides, or raised under “organic” or “all natural” husbandry practices. This presentation will discuss nutritional strategies to enhance the public perception of food safety. The audience will learn how feeds can be formulated to reduce the risk of food borne illness, produce “all natural” or “organic” products and still maintain competitive poultry production efficiency.

Time: 45 minutes

Audience: Extension agents, poultry service specialists, poultry growers, veterinarians

Equipment: Digital projector and screen.

Contact: Dr. Peter R. Ferket (peter_ferket@ncsu.edu), 919-515-5409

Title: Influence of Early Nutrition and Development on the Health and Growth Performance of Poultry

Format: Lecture presentation

Description: The development of poultry just before and immediately after hatch is critical for subsequent health and growth performance of commercial poultry. During this critical period, the nutritional status, which is the major constraining factor of early growth and development, can be influenced by broiler or turkey breeder nutrition, hatchery management, and husbandry practices of the hatchlings. This presentation will discuss the importance of early nutrition in poultry production, how in ovo feeding can enhance early development of poultry, and how early feeds and feeding practices can enhance health and productivity of poultry. The audience will learn that the adequate neonatal nutrition is essential for maximizing competitiveness and profitability in poultry production.

Time: 45 minutes

Audience: Extension agents, poultry service specialists, poultry growers, veterinarians

Equipment: Digital projector and screen

Contact: Dr. Peter R. Ferket (peter_ferket@ncsu.edu), 919-515-5409

Title: How Direct Fed Microbials Can Improve Poultry Production Criteria

Format: Slides

Description: This presentation provides information and data on how Direct Fed Microbials influence growth, body weight gain, livability, immune function, and nutrients in manure. Data are presented on field trials and controlled experimental trials with Bobwhite quail, Ring Necked pheasants, turkeys, and Pekin ducks.

Time: 45 minutes

Equipment: Slide projector

Audience: Upland wild gamebird, turkey, and Pekin duck producers, Agriculture Extension Agents

Contact: Dr. Jesse Grimes (jesse_grimes@ncsu.edu), 919-515-5406

POULTRY PESTS

Title: Poultry Pest Management

Format: Short presentation or field visit

Description: Will address the biology, control and other management practices for the following pests:

- Northern fowl mites
- Bed bugs
- Flies
- Rodents
- Red chicken mites
- Chicken lice
- Darkling beetle (and other beetles)
- Pests around mortality disposal sites

A non-technical presentation covering one or more of the above mentioned pests. Topics will be tailored for requested production system(s). On request, the focus of topics can be narrowed to specific aspects of management such as identification, biology, monitoring, cultural practices, biological control or chemical control. Presentation can be delivered in a fixed setting (conference room, lecture hall, etc.) or as part of a field day offering (on-site at poultry facility).

Time: 30 to 45 minutes for any single pest; one to two hours for multiple pests or topics.

Audience: Growers, service personnel, management personnel, extension agents.

Equipment: Projection screen. Where on-site instruction is provided, appropriate arrangements for site and biosecurity are the responsibility of the organizer. Assistance in this regard, however, will be provided if requested in advance.

Contact: Mike Stringham (mike_stringham@ncsu.edu, 919-515-8878) or Wes Watson (wes_watson@ncsu.edu, 919-513-2028)

Title: Responding To Poultry-Related Pest Complaints

Format: Short presentation

Description: Presentation will address aspects of investigation and resolution of pest complaints made against poultry facilities. A number of areas will be discussed, including:

- determining probable source(s)
- establishing communication channels
- assessment of severity
- determining a farm's pest management profile
- mediation
- follow-up

Time: 30 to 45 minutes for any single pest; one to two hours for multiple pests or topics.

Audience: Extension agents and directors, integrator personnel, County Health Department field personnel

Equipment: Projection screen.

Contact: Mike Stringham (mike_stringham@ncsu.edu, 919-515-8878) or Wes Watson (wes_watson@ncsu.edu, 919-513-2028)

Title: Pesticide Applicator's Certification

Format: Lecture

Description: Certification for pesticide applicator in the category of animals – poultry. Primary training for initial certification is offered at regularly scheduled Pesticide Certification Training Schools. Special arrangements may be made for large groups through county or state extension pesticide training coordinators. Secondary training for recertification credits is offered by request through county meetings offered by county extension pesticide training coordinators.

Time: 1 hour

Audience: Growers, integrator service and management personnel, county extension agents and state extension specialists

Equipment: Projection screen

Contact: Mike Stringham (mike_stringham@ncsu.edu, 919-515-8878) or Wayne Buhler (wayne_buhler@ncsu.edu, 919-515-5369); or contact pesticide training coordinator at County Extension Office

POULTRY COORDINATING COMMITTEE

Kenneth Anderson, Extension Poultry Specialist

NCSU, 237 Scott Hall
(919) 515-5527
ken_anderson@ncsu.edu

Nutritional and environmental effects on behavior and performance of commercial replacement pullets and laying hens, effects of eggwashing and cooling techniques on egg quality and product safety.

John Barnes, Professor

College of Veterinary Medicine
(919) 513-6273
john_barnes@ncsu.edu

Avian Pathology, Disease Control, Emerging Avian Diseases, Ovarian Cancer in Poultry, Interaction of Management and Disease, Pathogenesis of Enteric and Respiratory Diseases, Turkey Diseases, and Pathogenesis of Avian Diseases.

Kathy Bunton, Area Specialized Agent, Poultry

P.O. Box 311, Statesville, NC 28687
(704) 878-3154
kathy_bunton@ncsu.edu

Waste management and regulations, water quality, mortality disposal, and public education of poultry related issues.

Dan Campeau, Area Specialized Agent, Poultry

P.O. Box 279, Pittsboro, NC 27312
(919) 542-8202
dan_campeau@ncsu.edu

Integrated pest management, mortality waste, litter management, nutrient management, and environmental issues such as water and air quality.

Donna Carver, Extension Veterinarian

NCSU, 234-B Scott Hall
(919) 515-5526
donna_carver@ncsu.edu

Major interests are in the areas of Poultry Health, Biosecurity, and Epidemiology, which is the study of infectious agents and how they behave in large populations.

James Cochran, Area Specialized Agent, Poultry

P.O. Box 2280, Lumberton, NC 28359-2280
(910) 671-3276
james_cochran@ncsu.edu

Waste utilization practices of intensively raised poultry farms.

Peter Ferket, Extension Poultry Nutritionist

NCSU, 234-E Scott Hall
(919) 515-5409
peter_ferket@ncsu.edu

Nutritional influence on growth of turkeys/broilers, enteric/digestive abnormalities, immunities, early poult mortality, meat and carcass quality.

Jesse Grimes, Extension Turkey Specialist

NCSU, 235 Scott Hall
(919) 515-5406
jesse_grimes@ncsu.edu

Effect of management on commercial turkey production and turkey breeder reproduction, evaluation of management schemes for the handling of turkey litter and mortality.

Rory Maguire, Extension Specialist

Department of Soil Science
NCSU, 3208 Williams Hall
(919) 513-3033
rory_maguire@ncsu.edu

Main areas of research include modifying animal diets to reduce the concentration and solubility of phosphorus in manure, lime treatment of manure to stabilize nutrients and kill pathogens, alum treatment to reduce ammonia volatilization and stabilize phosphorus, and validation of the Phosphorus Loss Assessment Tool.

Michael Martin, Assistant Professor

College of Veterinary Medicine
(919) 513-6330
michael_martin@ncsu.edu

Avian Biosecurity/Disease Prevention, Diseases in Broiler Breeders, Vaccine and Biological Development, Avian Epidemiology, Avian Ethics and Welfare, Avian Influenza.

Edgar Oviedo, Extension Poultry Specialist

NCSU, 239 Scott Hall
(919) 515-5391
edgar_oviedo@ncsu.edu

Broiler nutrition and management, nutrient/waste management, nitrogen excretion, air emissions and air quality issues, feed/food safety, broiler intestinal health, water quality, and litter management.

James Parsons, Area Specialized Agent, Poultry

P.O. Box 949, Kenansville, NC 28349
(910) 296-2143
james_parsons@ncsu.edu

Waste management and utilization, mortality disposal.

Melissa Scherpereel, Extension Poultry Specialist

NCSU, 240 Scott Hall
(919) 515-5403
melissa_scherpereel@ncsu.edu

4-H poultry program coordinator.

Sanjay Shah, Extension Specialist

Department of Biological and Agricultural Engineering
NCSU, 176 Weaver Administration Building
(919) 515-6753
sbshah3@unity.ncsu.edu

Poultry litter management and air quality related to animal production.

Brian Sheldon, Department Extension Leader

NCSU, 234-D Scott Hall
(919) 515-5407
brian_sheldon@ncsu.edu

Pre- and Post-Harvest Food Safety, HACCP, Food Microbiology.

Jody Smith, Area Specialized Agent, Poultry

500 North Main Street, Room 506, Monroe, NC 28112
(704) 283-3801
jody_smith@ncsu.edu

Poultry/waste management, water quality, mortality management, and pest/odor control.

Michael Stringham, Extension Specialist

Department of Entomology
NCSU, 1118 Grinnells Labs
(919) 515-8878
mike_stringham@ncsu.edu

Integrated pest management (IPM) for poultry, including biological control, chemical control, and application of cultural practices and scouting. Training opportunities, on farm consultation, and applied research in the management of darkling beetles, fowl mites and other ectoparasites, filth flies, and rodents.

Tomislav Vukina, Extension Economist

Department of Agricultural and Resource Economics
NCSU, 3332 Nelson
(919) 515-5864
tom_vukina@ncsu.edu

Livestock/poultry production, marketing, management and contraction, environmental and natural resource economics.

Wesley Watson, Extension Specialist

Department of Entomology
NCSU, 1108 Grinnells Laboratory
(919) 513-2028
wes_watson@ncsu.edu

Veterinary Entomology is the study of arthropod pests associated with livestock and poultry. My research concentrates on establishing disease and disease transmission potential of targeted pests and to develop management practices under the IPM canopy, focusing on these pest issues. Such integrated strategies include cultural, biological, mechanical, and when needed, chemical control.

Mike Wineland, Extension Poultry Specialist

NCSU, 238 Scott Hall
(919) 515-5529
mike_wineland@ncsu.edu

Broiler breeder and hatchery management, utilization of good management practices to optimizing chick yield. Nutrient management and poultry mortality disposal.