

*turning knowledge into practice*

# **The Need for a New Approach to On-Farm Assessments, Tools for Environmental Education and Protection**

Presented at

**USDA-CSREES National Water Quality Conference**

by

Mark Rice, NCSU

*February 6, 2008*



*RTI International is a trade name of Research Triangle Institute*

**NC STATE UNIVERSITY**

# EPA Funded Comprehensive Environmental Assessments and Nutrient Management Plans for Livestock Operations

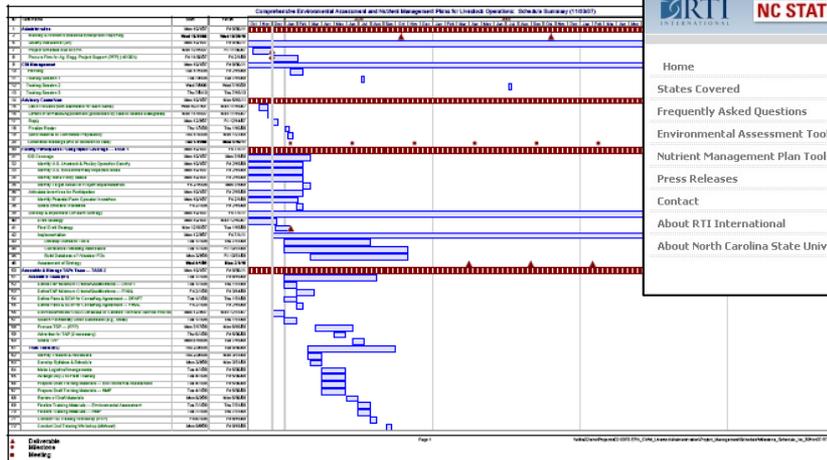
## Project Overview

January 15, 2008

### Comprehensive Environmental Assessments and Nutrient Management Plans for Livestock and Poultry Operations

Draft Outreach Plan

Prepared by  
North Carolina State University  
RTI International



The screenshot shows the website's homepage with a header featuring images of livestock and the date 'Wednesday, January 16, 2008'. The main title is 'Comprehensive Environmental Assessments and Nutrient Management Plans for Livestock Operations'. Below the title are logos for RTI International and NC State University. A navigation menu includes 'Home', 'States Covered', 'Frequently Asked Questions', 'Environmental Assessment Tools', 'Nutrient Management Plan Tools', 'Press Releases', 'Contact', 'About RTI International', and 'About North Carolina State University'. A search bar is located in the top right. A welcome message states: 'Welcome to the Comprehensive Environmental Assessments and Nutrient Management Plan Project website. RTI International is pleased to lead this project with support from North Carolina State University's Animal and Poultry Waste Management Center. This site will be expanded and refined in the coming months to give farm operators the opportunity to volunteer for...'. An 'Information for:' sidebar lists 'Farmers and Ranchers', 'Technical Assistance Professionals', and 'Other Interested Parties'.

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# EPA RFP Goals

The goal of this project is to-

- Provide confidential no-cost technical assistance to livestock operations nationwide that will help the operators of these facilities prevent water discharges and reduce air emissions by identifying environmental challenges and learning ways of addressing these challenges
- The principal parameters for evaluation at these sites will be nitrogen and phosphorous and their component species (e.g., NH<sub>3</sub>, NO<sub>x</sub>, PO<sub>4</sub>, etc.)

# NPDES Permit Not Required

- Livestock operators do not need to possess or apply for a National Pollutant Discharge Elimination System (NPDES) permit in order to receive technical assistance through the grant.
- The results of these assessments will not be used as the basis for imposing NPDES permit requirements

# RTI/NCSU Project Goals Proposed to EPA

- Provide environmental assistance to livestock (beef, dairy, and swine) and poultry operations by –
  - Identifying/developing tools for environmental assessments and nutrient management plan evaluation or development
  - Reach out to farm operators to volunteer for confidential assessments
  - Manage a team of livestock and poultry technical assistance professionals to conduct confidential farm assessments

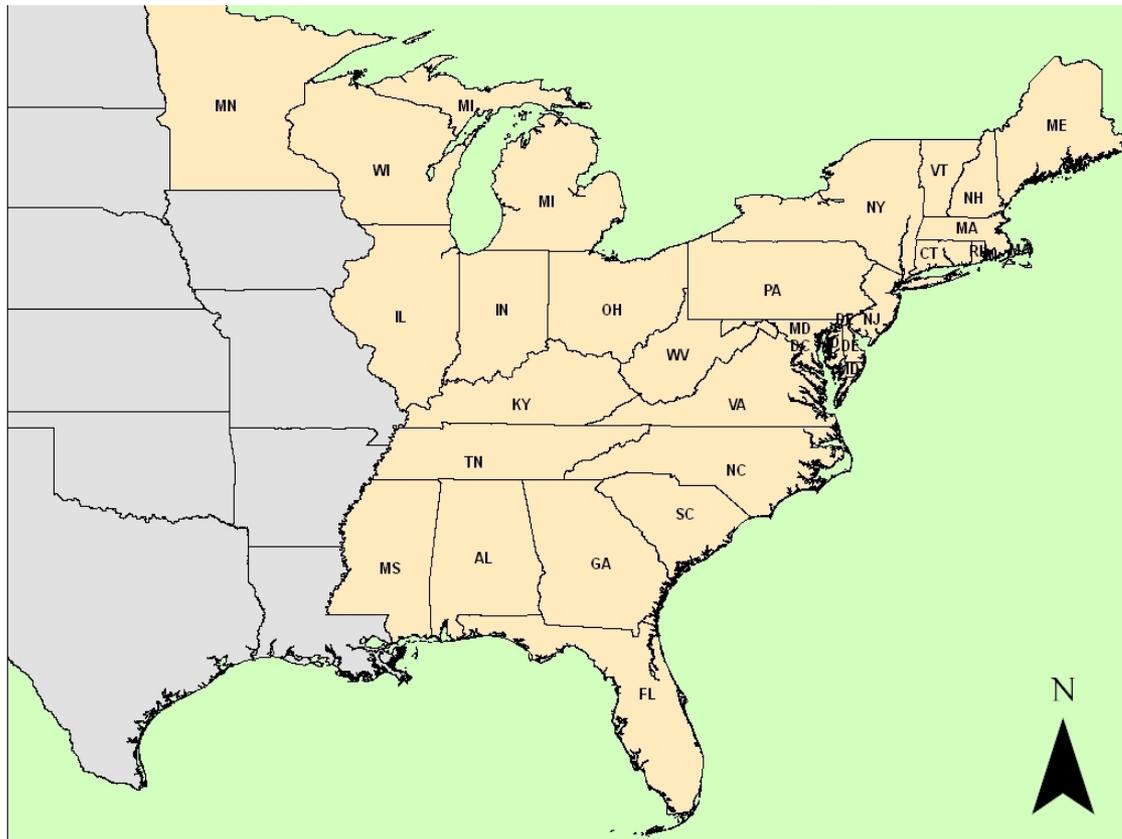
# Outputs

- Facility-specific, confidential, comprehensive environmental assessments (EAs)
- Facility-specific NMPs
- An assessment tool for identifying environmental management challenges at livestock operations
- Expanded community of professional capable of delivering technical assistance

# Outcomes

- An increased number of nutrient-impaired water bodies that have been partially or fully restored to meet water quality standards or other established water quality-based goals;
- Mitigation of adverse impacts on the environment as a result of assessments and NMPs; and
- Increased knowledge of environmental challenges from livestock operations and methods for mitigating these challenges.

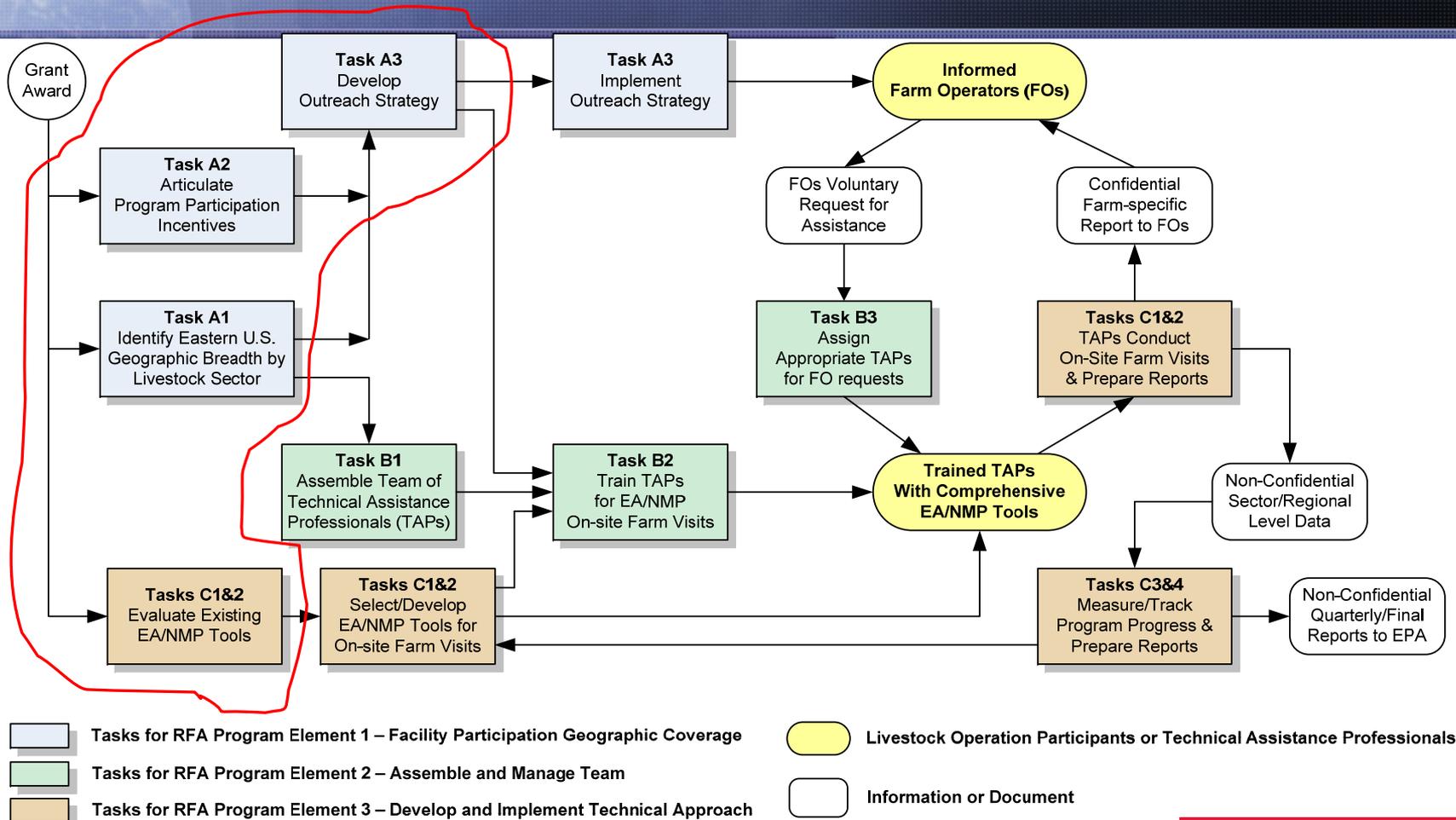
# States Covered in Project



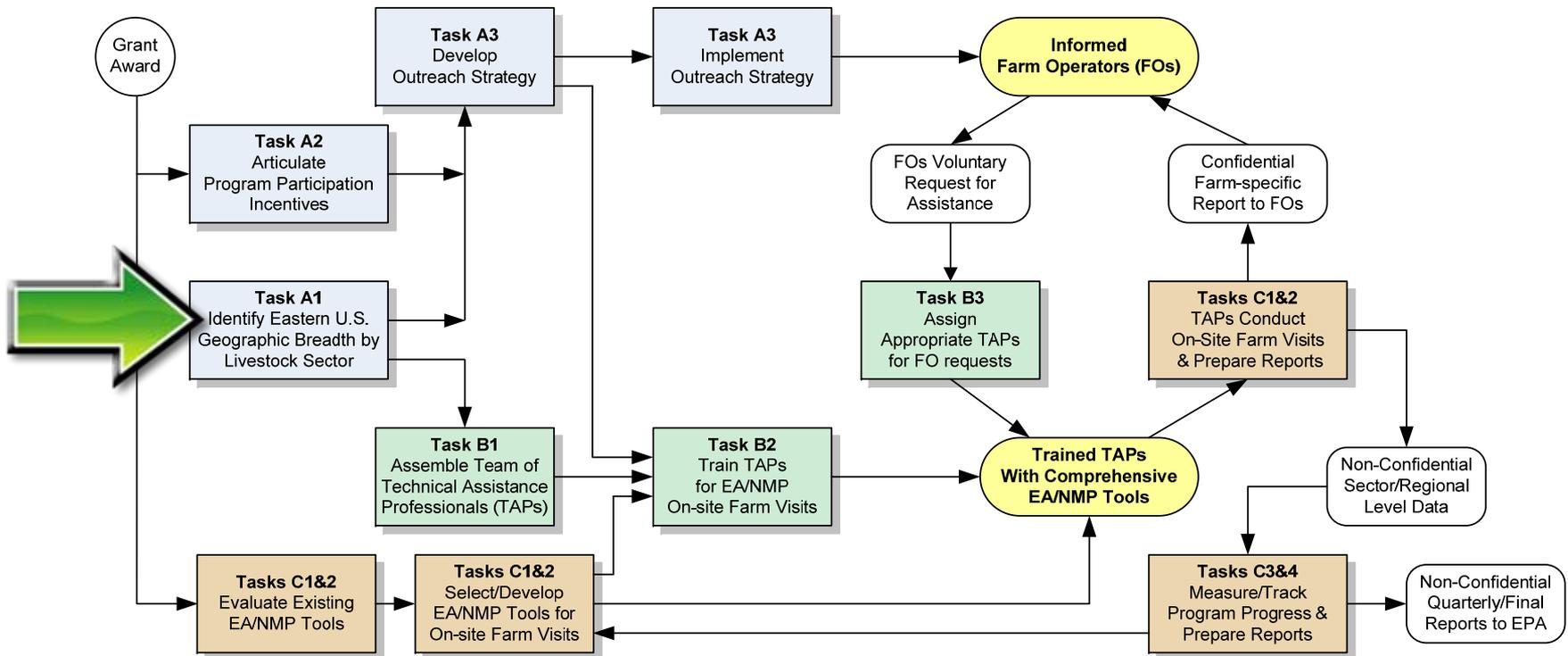
Remaining states are cover by ERC – Environmental Resources Coalition based in Jefferson City, MO

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# Technical Approach



# Identify Priority Areas



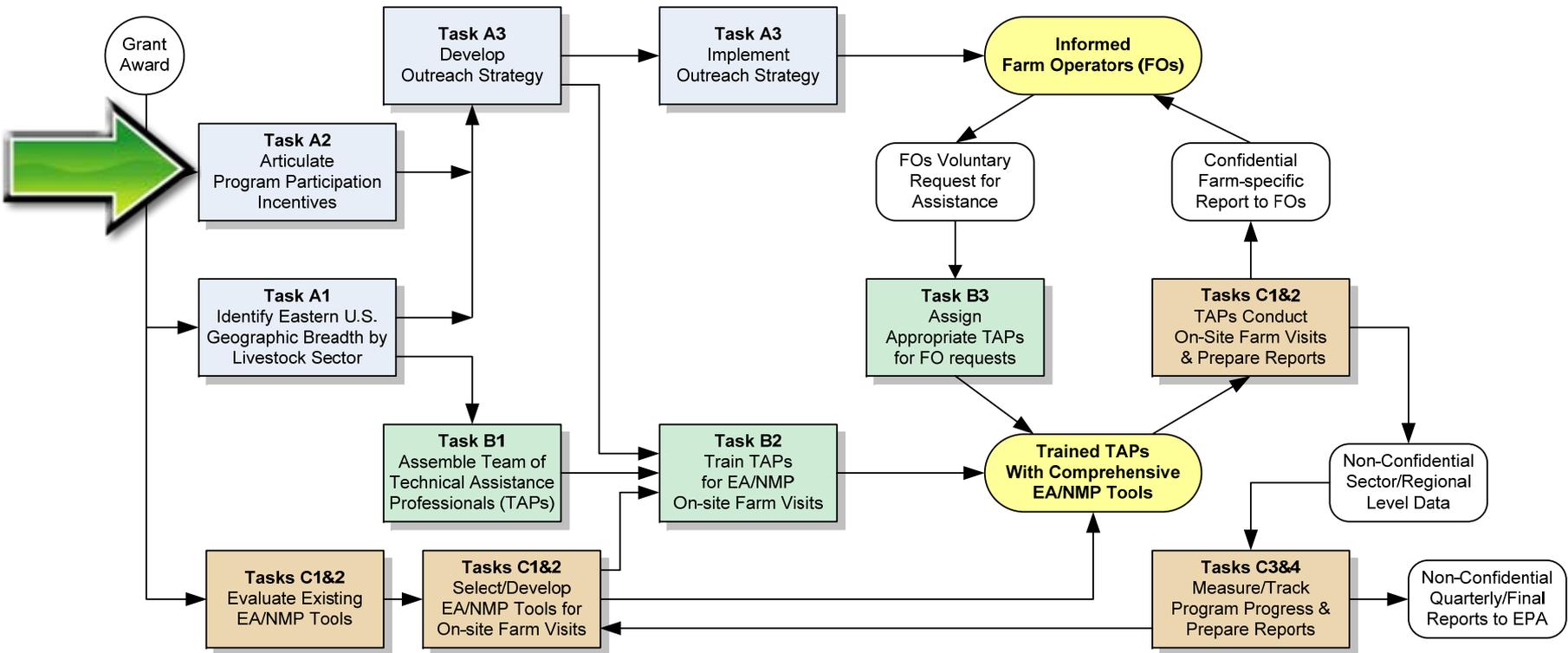
- Tasks for RFA Program Element 1 – Facility Participation Geographic Coverage
- Tasks for RFA Program Element 2 – Assemble and Manage Team
- Tasks for RFA Program Element 3 – Develop and Implement Technical Approach

- Livestock Operation Participants or Technical Assistance Professionals
- Information or Document

# GEOGRAPHIC COVERAGE ANALYSIS

- **Step 1 – Identify Eastern U.S. Livestock Operation Density.** GIS-based depictions of beef, dairy, swine, and poultry operations' and animal density in the eastern U.S. using National Agricultural Statistics Service Census of Agriculture.
- **Step 2 – Identify Eastern U.S. Environmentally Impacted Areas.** GIS-based depictions of nitrogen- and/or phosphorus-impaired watersheds in the eastern U.S. using EPA's TMDL and Integrated Reporting databases/mapping systems.
- **Step 3 – Identify State Policy Status.** Review of nitrogen and/or phosphorus policies for livestock operations in each state located in the eastern U.S. and available NMP writers.
- **Step 4 – Prioritize Areas for Program Implementation.** Overlay the GIS data layers to generate a composite map that will allow us to identify the eastern U.S. locations in with common water quality impairments and high animal or farm operation density.
- **Step 5 – Develop Prioritized List of States for Project Implementation.**

# Task 2 Identify Incentives




 Tasks for RFA Program Element 1 – Facility Participation Geographic Coverage  
 Tasks for RFA Program Element 2 – Assemble and Manage Team  
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# Identify Program Participation Incentives

- Identify factors affecting farm operator participation in voluntary environmental programs
- Identify barriers to participation in voluntary programs
- Articulate benefits to producers associated with environmental assessments and NMPs

# Factors Influencing Adoption of Voluntary Environmental/Conservation Activities

- Awareness of environmental impacts
- Awareness of government programs
- Expected impacts on profitability
- Credit Constraints
- Management intensity
- Liability/future regulations
- Policy incentives
- Farm structure and ownership



# Specific objectives of the outreach effort

- Create awareness of the program and promote buy-in from stakeholders in the agricultural community
- Recruit farm operator participants
- Increase awareness of environmental issues among livestock and poultry producers
- Identify sources of additional information to assist producers in protecting their operation and the environment

# Identification of Target Audience

- Economic incentive analysis
- GIS analysis
- Feedback from key stakeholders
- Advisory Committee on Science and Strategy

# Key Stakeholders

- Animal producers/farm operators
- Animal production companies
- Animal/agribusiness/service organizations and companies
- Extension and research faculty
- Natural Resources Conservation Service
- EPA
  - Ag Center
  - Regional offices
  - Agriculture Liaisons
- State agencies
- Soil and Water Conservation Districts

# Advisory Committee on Science and Strategy

- Robert Foster, Dairyman from VT, President, Vermont Natural Ag Products
- Jean-Mari Peltier, National Council of Farmer Cooperatives
- Jon Casper, Hog Producer, former President, National Pork Council, President Elect, National Institute for Animal Agriculture
- Richard Hegg, National Program Leader, USDA-CSREES
- Dennis Keeny, Soil Scientist, Former Director Leopold Center
- John Adams, Former Administration, National Milk Producers Federation
- Bill Boyd, NRCS, Leader, Animal Waste Utilization Team
- Joe Rudek, Environmental Defense
- Roger Natzke, Former Department Head, Dairy, Animal and Poultry Science, University of Florida
- John Queen, Beef Producer, President of National Cattleman's Beef Association
- Ted Tyson, Extension Biosystems Engineer, Auburn University

# Development and Implementation of Outreach Tools

- Program Website: <http://livestock.rti.org>



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Comprehensive Environmental Assessments and Nutrient Management Plans for Livestock Operations

RTI INTERNATIONAL NC STATE UNIVERSITY

Home

States Covered

Frequently Asked Questions

Environmental Assessment Tools

Nutrient Management Plan Tools

Press Releases

Contact

About RTI International

About North Carolina State University

Home

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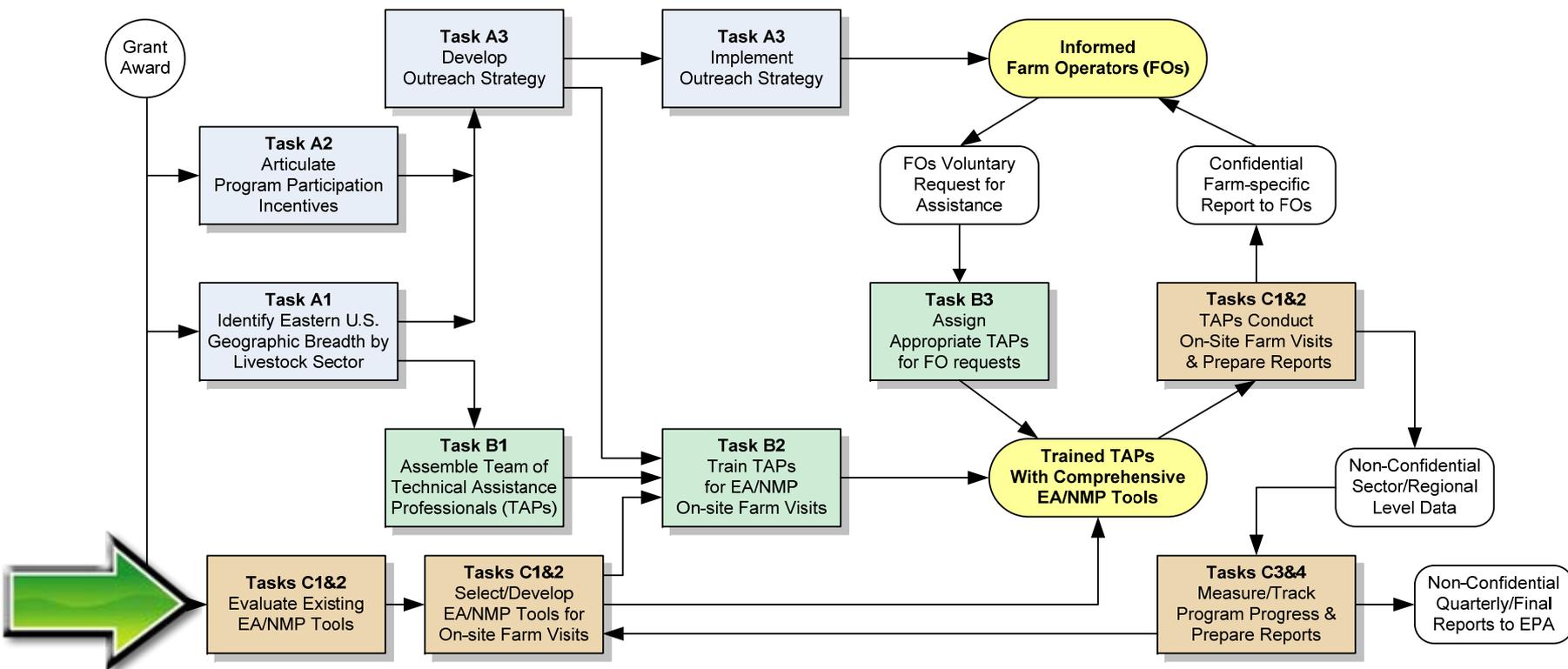
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Information for:

- Farmers and Ranchers
- Technical Assistance Professionals
- Other Interested Parties

- Subscribe to listserv-based announcement of updates

# Task C1&2 Evaluate Existing Tools




 Tasks for RFA Program Element 1 – Facility Participation Geographic Coverage  
 Tasks for RFA Program Element 2 – Assemble and Manage Team  
 Tasks for RFA Program Element 3 – Develop and Implement Technical Approach

 Livestock Operation Participants or Technical Assistance Professionals  
 Information or Document

# Objectives

- Identify/develop tools for conducting environmental assessments (EAs) of livestock and poultry operations
- Identify existing tool(s) for evaluating existing nutrient management plans (NMPs) and/or developing new NMPs
- Use the EA and NMP tools to:
  - Conduct comprehensive EAs of participating operations
  - Evaluate existing NMPs or develop new NMPs for participating operations

# Environmental Assessments

## What are the overall objectives?

- Help operators ensure that all pathways affecting water quality are considered
- Ensure that nutrient management practices to protect water quality do not adversely affect air quality and vice versa

# Environmental Assessments

What are the primary features?

- Comprehensive assessment of nutrient-driven environmental challenges facing livestock and poultry operations
- Practical recommendations for mitigating those environmental challenges
- Principal focus on reducing nutrient in runoff, but
- Also provide overview of air-related impacts

# Environmental Assessments

Information included in Facility Profile

- **General facility information**
- **Overall appearance**
- **Animal types and numbers**
- **Confinement buildings**
- **Shed, lots, pastures**
- **Manure storage and treatment methods**
- **Land area available and used for land application**
- **Types of crops planted**
- **Proximity to waterbodies**
- **Manmade and natural conduits to waterbodies**

# Environmental Assessments

## Environmental Management Topics

- **Building/lot layout and management, including:**
  - Ventilation
  - Animal contact with waterbodies
- **Construction, operation, maintenance of handling and storage facilities for manure, litter, and wastewater**
- **Nutrient management, including:**
  - Existing management plans
  - Land application practices
- **Conservation practices**
- **Land management and tillage practices**
- **Mortality management**
- **Water quality and quantity management**
- **Chemical storage and handling**
- **Facility emergency management plans**
- **Records and sampling**

# Nutrient Management Plans

- Should be consistent with:
  - CAFO NPDES regulations
    - NRCS 590 Standard
  - Applicable State regulations

# Goal: Integrate/Compliment

- Work with existing tools and programs to maximize program effectiveness
- Utilize existing NRCS network of TSP as appropriate for conducting EAs and NMP review/development
- Utilize existing educational programs and information dissemination programs as appropriate

# Issues

- Coordination with NRCS, State, local agencies and programs
- Striking balance between tools that are comprehensive, quantitative yet simple enough to complete using readily available information
- Use of “new” tools in State/Regions where existing tools are seen as adequate

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Questions  
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Comments  
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Contact: [mark\\_rice@ncsu.edu](mailto:mark_rice@ncsu.edu), (919) 515-6794