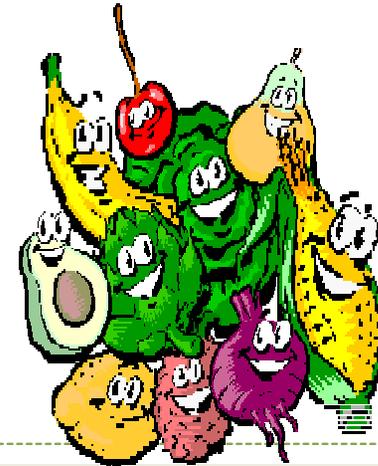


FRESH 
PRODUCE
SAFETY SYMPOSIUM



**NORTH CAROLINA
FRESH PRODUCE SAFETY
TASK FORCE**

www.ncfreshproducesafety.org



1

FRESH PRODUCE SAFETY SYMPOSIUM

**NORTH CAROLINA'S FRESH PRODUCE
SAFETY TASK FORCE
AND INITIATIVES**

SEPTEMBER 9 2010



**NORTH CAROLINA
FRESH PRODUCE SAFETY
TASK FORCE**

www.ncfreshproducesafety.org

Chris Gunter, PhD

4

NC State University
Vegetable Production Specialist
Dept. of Horticultural Science



Historical Vegetable Production in NC

5

Many farms included vegetables

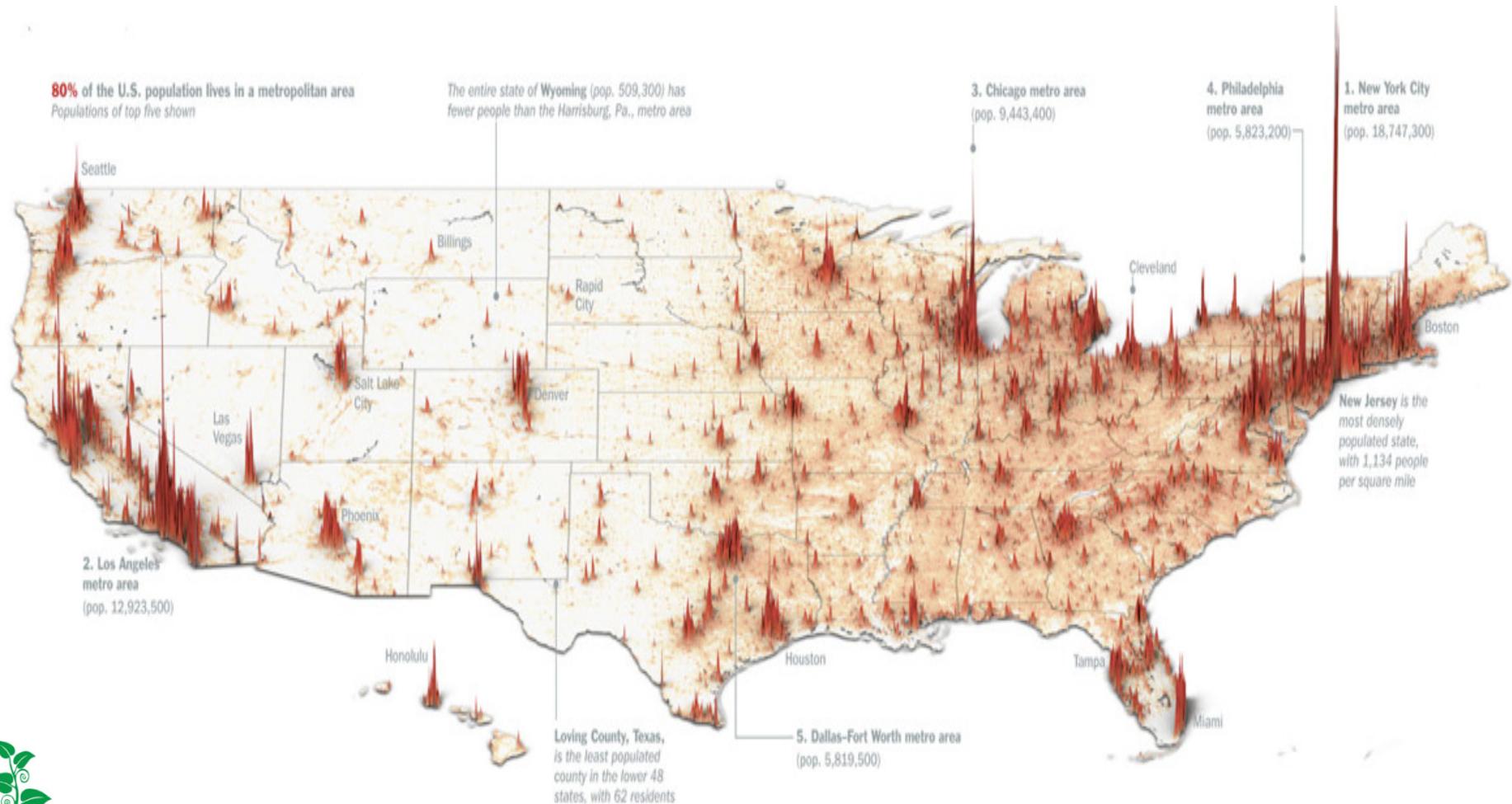
Farms produced smaller acreage of many commodities

Marketed primarily through auction system

Smaller producers needed brokers to combine for volume

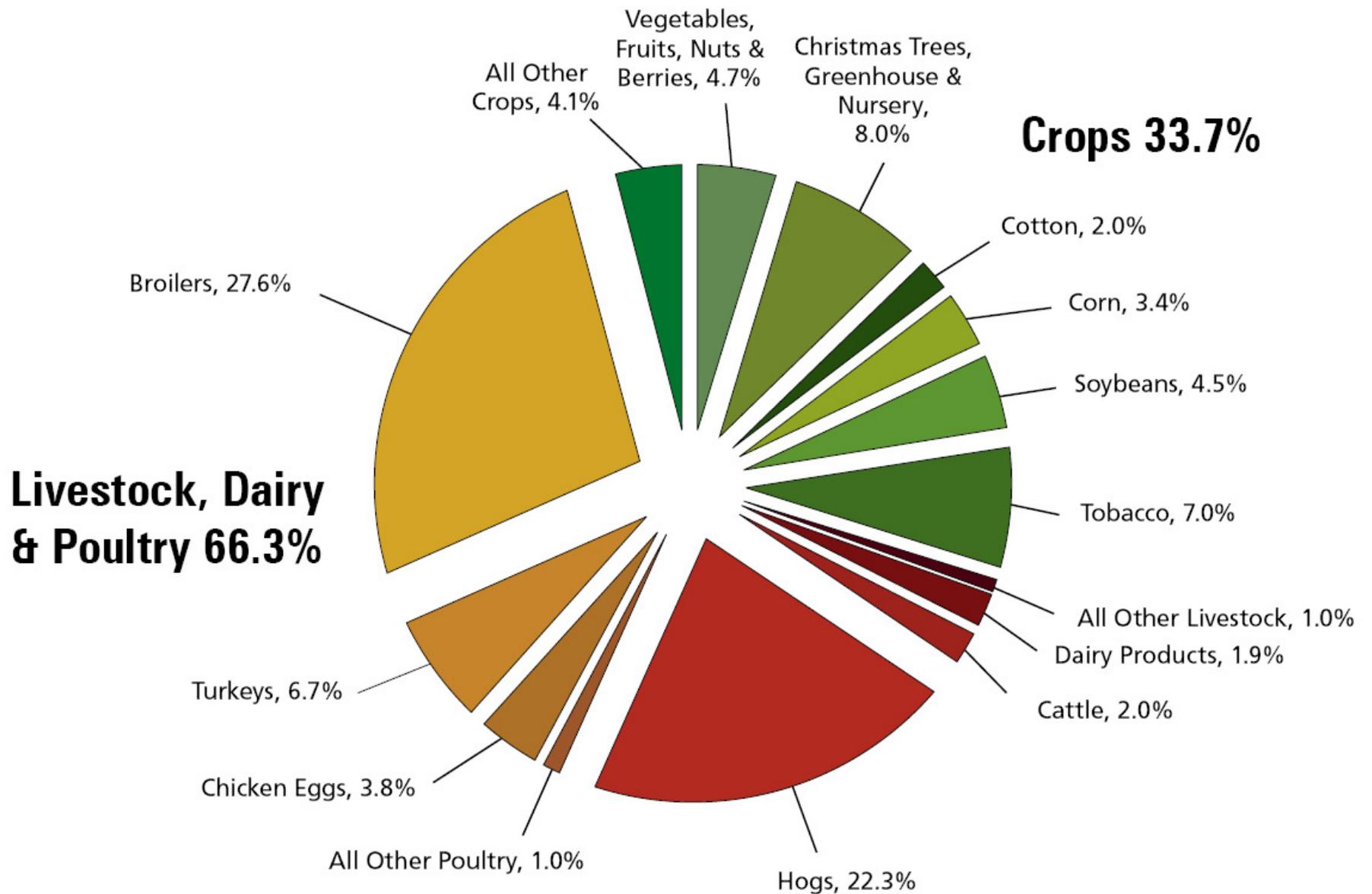
North Carolina

6



SOURCE OF FARM CASH RECEIPTS, NORTH CAROLINA, 2008

\$9,752,845,000



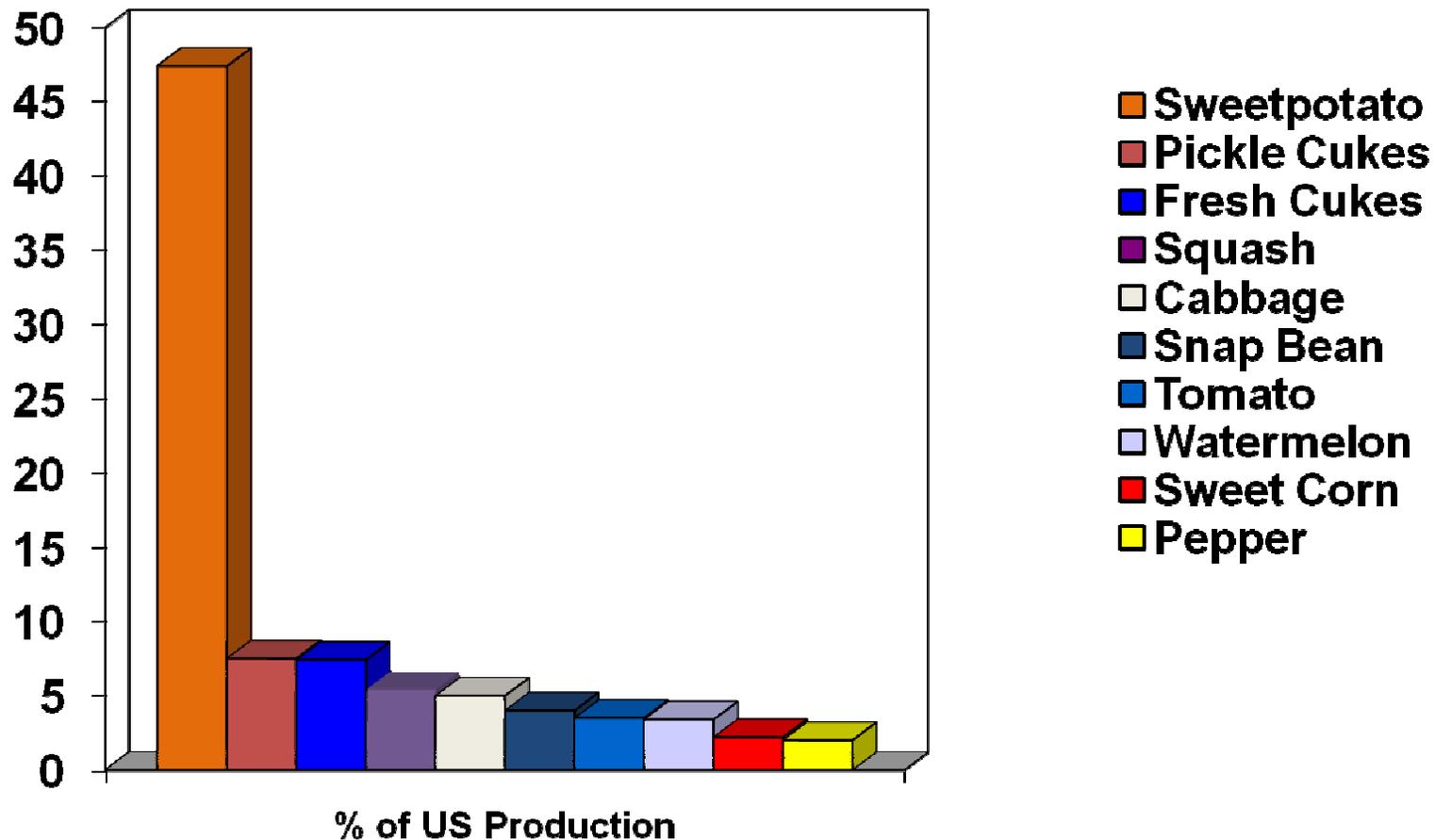
Production Ranking

8

- #1 Sweet Potatoes and Tobacco
- #2 Christmas Trees
- #3 Cucumbers (Processing)
- #4 Cucumbers (Fresh Market), Strawberries
- #5 Peanuts
- #6 Cabbage, Blueberries, Snap Beans, Tomatoes
- #7 Bell Peppers, Squash, Apples
- #8 Watermelons
- #9 Grapes
- #11 Sweet Corn, #15 Peaches/Pecans, #16 Potatoes

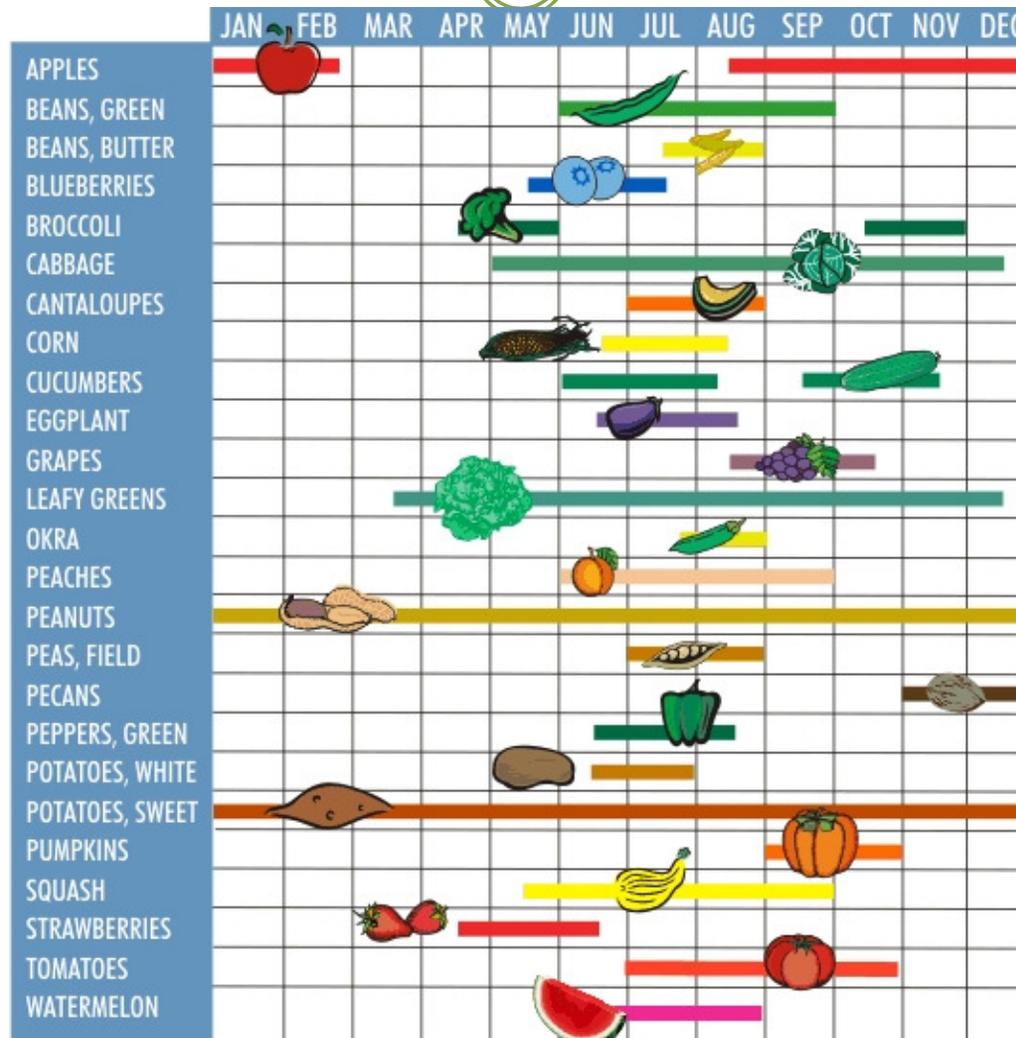
Portion of Total US Production

9



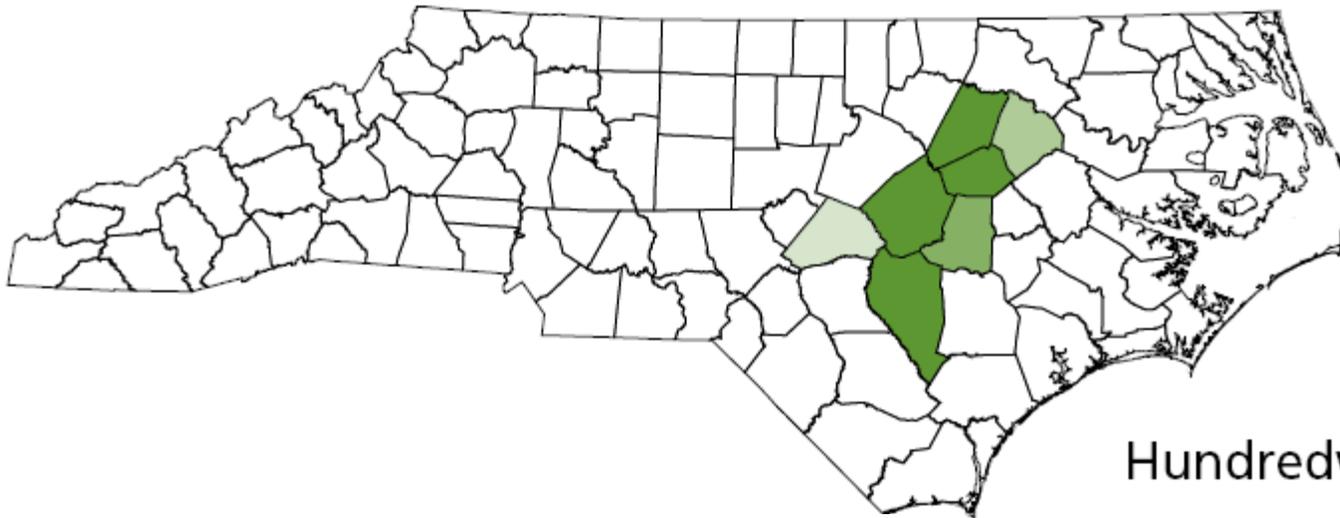
Produce Availability

10

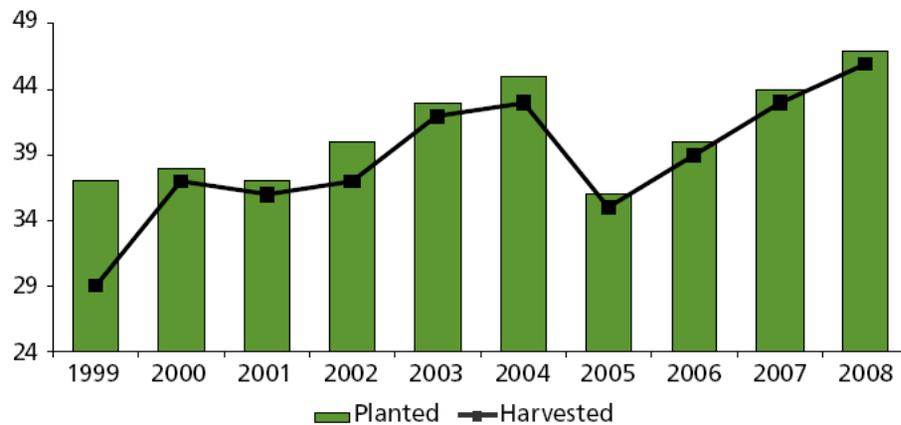
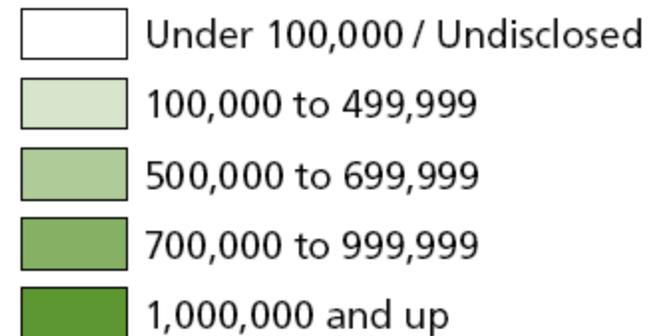


Sweet Potatoes

11

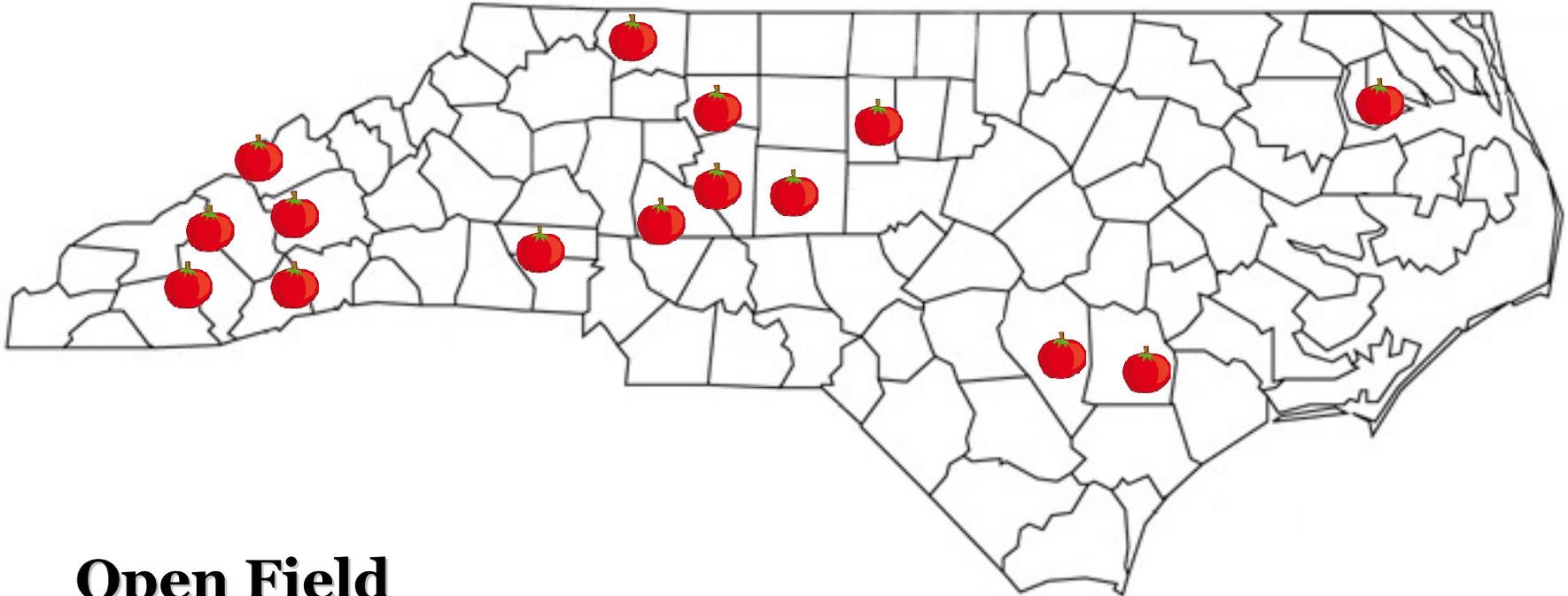


Hundredweight



Tomato Production

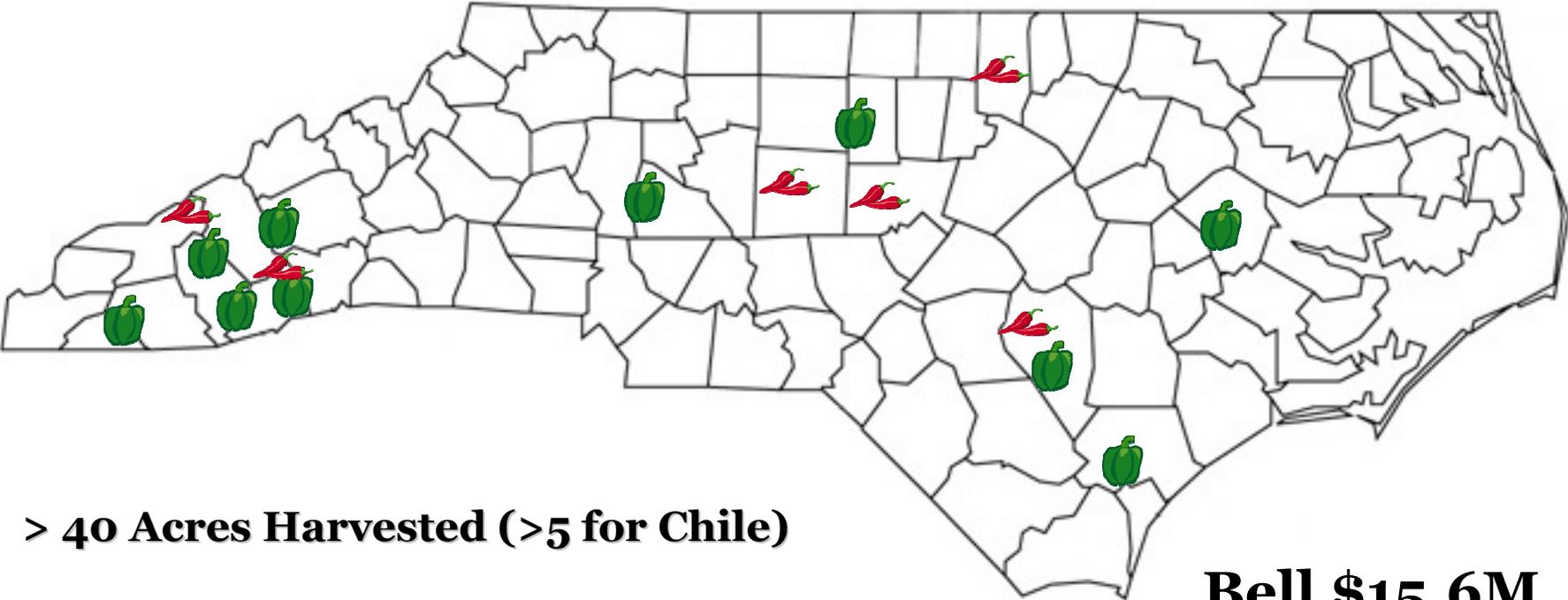
12



Open Field
> 40 Acres Harvested

NC Crop Value
\$28.5M

Pepper Production

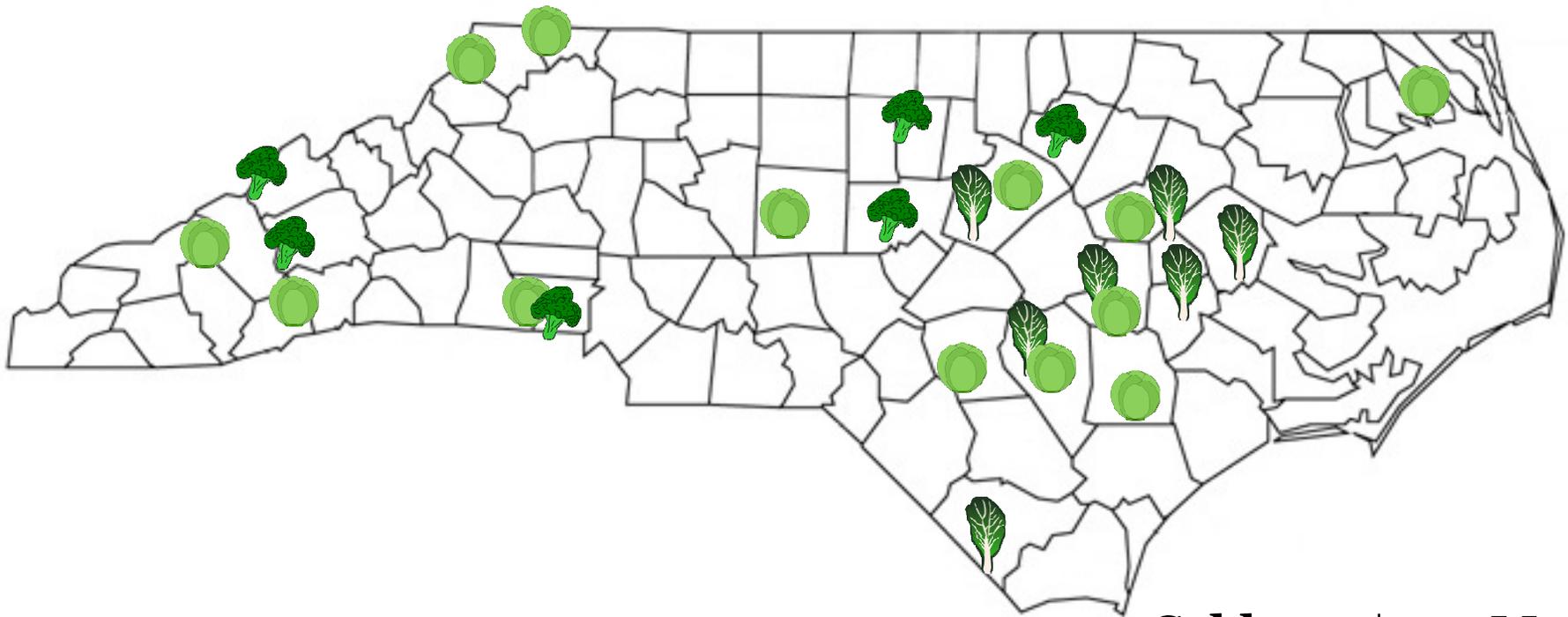


> 40 Acres Harvested (>5 for Chile)

Bell \$15.6M
Chile \$1.8M

Cabbage, Collards, Broccoli

14



> 35 Acres Harvested (>3 for Broccoli)

Cabbage \$19.5M
Collards \$6.3M

Current Environment

15

Reduced number of producers

Reduced acreage

Looking for niche markets

Looking for value added opportunities

Just handling commodities not enough

Current Environment

16

Growers forced to become packer/shippers

Must be able to put it on a truck

Specialty packs increasing

Develop market relationships



Challenges/Frustrations

17

Labor

Availability

Dependability

Cost

Markets

Windows

Ease of movement

Cost of commitment



More Challenges/Frustrations

18

Cost of Production

Direct inputs (seed, fertilizer, etc.)

Indirect inputs (fuel, insurance, etc.)

Price

Overall stagnant

Some bright spots



Diane Ducharme

19

NC State University
GAPs Program Coordinator
Extension Assoc. Horticulture and
Food Safety with the
NC MarketReady Program



NC Fresh Produce Safety



Task Force Co-Chairs

From Left to Right

- Dr. Trevor Phister
- Dr. Benjamin Chapman
- Diane Ducharme
- Dr. Chris Gunter



Sept. 2010

5 working groups with co-chairs

21

- **Education**
 - Rod Gurganus & Billy Little
- **Research**
 - Garry Grabow & Chip Simmons
- **Industry and Policy Relationships**
 - Debbie Hamrick & Ben Chapman
- **Networking and Communication**
 - Matt Agle
- **Small Farms**
 - Keith Baldwin, Roland McReynolds, & Mark Seitz

Education- Working Group 1

22

- ✦ NC MarketReady Fresh Produce Safety – Field To Family Curriculum and the Tiered Educational Program
- ✦ Portable Handwashing Unit
- ✦ Mock Audits
- ✦ Outbreak Scenario
- ✦ Website- www.ncmarketready.org
- ✦ Blog – www.ncfreshproducesafety.wordpress.org

N.C. MarketReady Fresh Produce Safety Field to Family Curriculum

23

- Developed for and targeted to the needs of educators as a train-the-trainer resource
- Emphasis on GAPs and increasing understanding of the microbial risks associated with
 - producing, harvesting, washing, sorting, packing and distributing fresh fruits and vegetables.



9 Module Curriculum

24

- Module 1: Fresh Produce Safety Introduction
- Module 2: GAPs Field Practices
- Module 3: Packing Facility Sanitation
- Module 4: Health and Hygiene
- Module 5: Animals, Animal Byproducts, Biosolids and Site Selection
- Module 6: Water Quality
- Module 7: The 3 Ts: Transportation, Traceback and Traceforward
- Module 8: Managing Liability and Risk
- Module 9: Dealing with Controversies and Crises: Working with the News Media



Curriculum as part of Tiered Educational Program

25

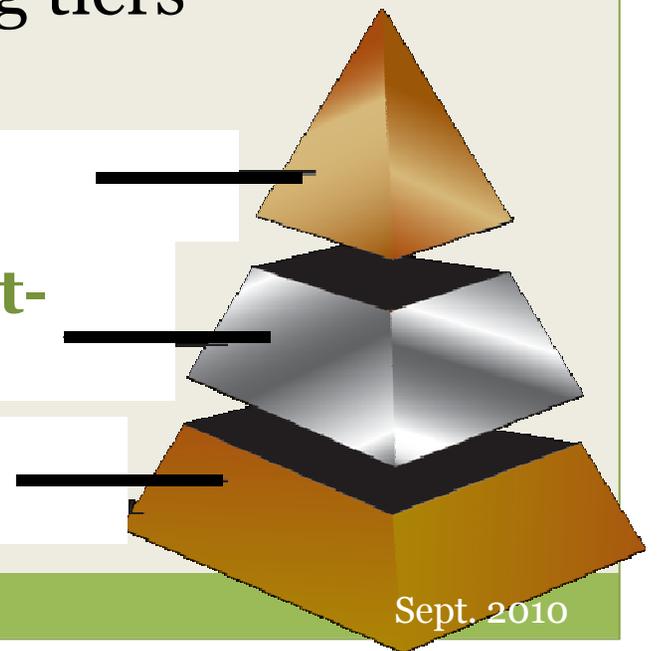
Give producers a proactive, educational and incentive-based program for their individual needs

Modules within this curriculum serve as the basis for a progression of training tiers

Tier 3- Continuing Education

**Tier 2 - Traceability and Risk Mgmt-
Sept 2010 – February 2011**

Tier 1- Basic Level- 500 farmers



**FRESH PRODUCE SAFETY
TASK FORCE**

www.ncfreshproducesafety.org

Sept. 2010

Tiered Approach is: Proactive & Incentive-based

26

Allows growers to move up the pyramid based on individual farm and market requirements

Certificate of Attendance will be issued to participants to show customers

Linked on website for markets to search farms based on product need





Fresh Produce Safety Portal



[Home](#) | [Featured Resource](#) | [GAPs Grower Directory](#) | [Legislative Updates](#) | [Program Updates](#) | [Recalls](#) | [Trainings & Events](#)

[About](#) | [GAPs](#) | [Consumers](#) | [Growers](#) | [Processors](#) | [Trainers](#) | [Spanish](#) | [Glossary & FAQ](#) | [Diane's Blog](#)



The N.C. MarketReady team has compiled valuable resources and materials on this Fresh Produce Safety Web portal, including information on traceability, postharvest quality, cost share opportunities, Good Agricultural Practices (GAPs) and more.

Search for Growers Trained in Fresh Produce Safety

N.C. Cooperative Extension agents have been conducting Tier 1 trainings throughout the state using the N.C. MarketReady Fresh Produce Safety GAPs Training curriculum.

[Search the GAPs Grower Directory >>>](#)

N.C. Growers with Tier 1 and/or Tier 2 instruction using the Good Agricultural Practices (GAPs) Training Curriculum

N.C. Cooperative Extension agents have conducted training sessions for fruit and vegetable growers using the Good Agricultural Practices (GAPs) Training Curriculum developed by faculty from N.C. State and N.C. A&T State universities. This intensive training requires seven hours of instruction for both Tier 1 and Tier 2. Growers listed here have completed Tier 1 and/or Tier 2 instruction as indicated in each listing.

Search the GAPs Grower Directory

Type in the crop you wish to search for, such as strawberries. The search results will list all the growers who listed strawberries as a crop they produce. Additional information about each grower, including location, contact information and additional crops grown, will also be displayed.

category search



CERTIFICATE OF ATTENDANCE



This certificate recognizes that

has attended the educational activity titled

NC MarketReady Fresh Produce Safety – Field to Family Tier 1 Training

A 7-Hour Course on Fresh Produce Safety Training in Fresh Produce Safety Basics, Pathogen Introduction, GAPs for Field Practices, GHPs for Packing Facilities, Proper Health & Hygiene, Water Quality, Site Selection and Manure Management

Name _____

Title _____

County _____



Portable Handwashing Unit

29

- design a portable, scalable and efficient hand-washing facility to facilitate more frequent, thorough hand washing.
- field demonstration unit and downloadable plans

Funded by the N.C. Rural
Economic Development
Center



Portable, hands-free and capturing water

30

Design Plans will be made available on website:
www.ncmarketready.org, click on left-hand column under “Fresh Produce Safety”



www.ncmarketready.org, click on Fresh Produce Safety



Fresh Produce Safety – Field to Family

A Program of NC Cooperative Extension

Fresh Produce Safety Portal



[Home](#) | [Featured Resource](#) | [GAPs Grower Directory](#) | [Legislative Updates](#) | [Program Updates](#) | [Recalls](#) | [Trainings & Events](#)

[About](#) | [GAPs](#) | [Consumers](#) | [Growers](#) | [Processors](#) | [Trainers](#) | [Spanish](#) | [Glossary & FAQ](#) | [Diane's Blog](#)



The N.C. MarketReady team has compiled valuable resources and materials on this Fresh Produce Safety Web portal, including information on traceability, postharvest quality, cost share opportunities, Good Agricultural Practices (GAPs) and more.

For more information about Fresh Produce Safety in North Carolina, contact:

Diane Ducharme
Extension associate & GAPs
program coordinator
 704-250-5402 

Rod Gurganus
Director, N.C. MarketReady
 252-793-4428 

James Oblinger
Professor, Dept. of Food,
Bioprocessing and Nutrition
Sciences
 704-250-5447 

Search for Growers Trained in Fresh Produce Safety

N.C. Cooperative Extension agents have been conducting Tier 1 trainings throughout the state using the N.C. MarketReady Fresh Produce Safety GAPs Training curriculum.

[Search the GAPs Grower Directory >>>](#)

Program Updates

Good Agricultural Practices Training Curriculum Now Available

N.C. MarketReady published the Fresh Produce Safety – Field to Family Good Agricultural Practices training curriculum to help fruit and vegetable growers across the state minimize fresh produce safety risks.

[See Previous Program Updates >>>](#)

Trainings & Events

Trainings and events will be posted as soon as they are scheduled.

Legislative Updates

Research – Working Group 2 - Traceability

32

- Evaluate the effectiveness of select grower/packer/shipper traceability programs and their ability to respond to an outbreak investigation
- Pilot Traceability Study with FoodLogiQ to develop templates/checklists for different size operations; cost-effective ways
 - Part 1: Farm to Retail Fresh Produce Traceability Pilot – provides a guide to the Produce Traceability Initiative (PTI),
<http://www.youtube.com/watch?v=UA1MaCMJmpc>
 - Part 2: Pilot 2: provides a look at three (3) scale-diverse organization studied for different perspectives on the PTI implementation, key internal and external challenges encountered, and important economic costs associated with the PTI.
<http://www.youtube.com/watch?v=PS6UcZIk-6A>

Trevor Phister, PhD

33

NC State University
Assistant Professor
Dept of Food Science

- Research
- Policy
- Crisis communications



Research (working group 2): cont...

34

- Traceability
- Research on water quality issues
- Human pathogen and plant interactions and microbiological mitigation.
- Farmers market food safety practices
- Transfer of pathogens through reusable bags

Research (working group 2): cont...

35

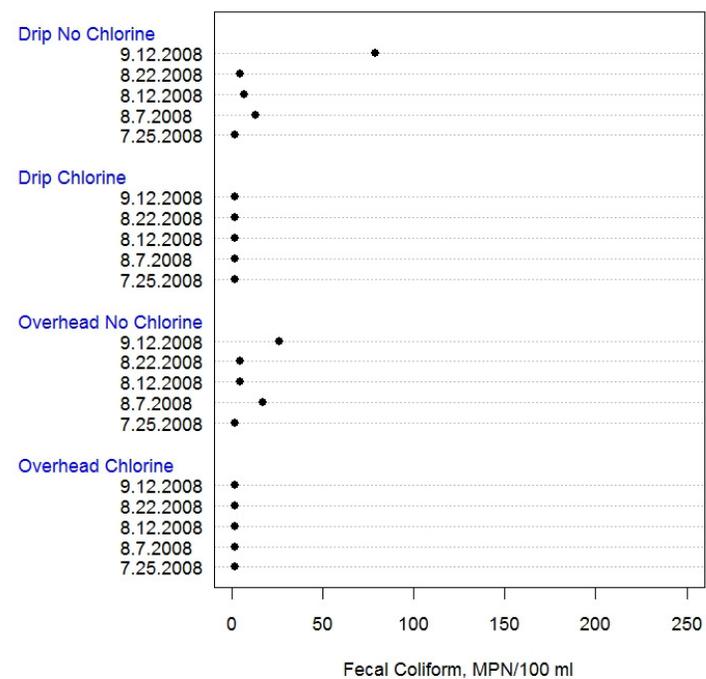
- Traceability
- Research on water quality issues
- Human pathogen and plant interactions and microbiological mitigation.
- Farmers market food safety practices
- Transfer of pathogens by reusable bags

Water quality

36



Fecal Coliform in Irrigation Water- Tomato Study

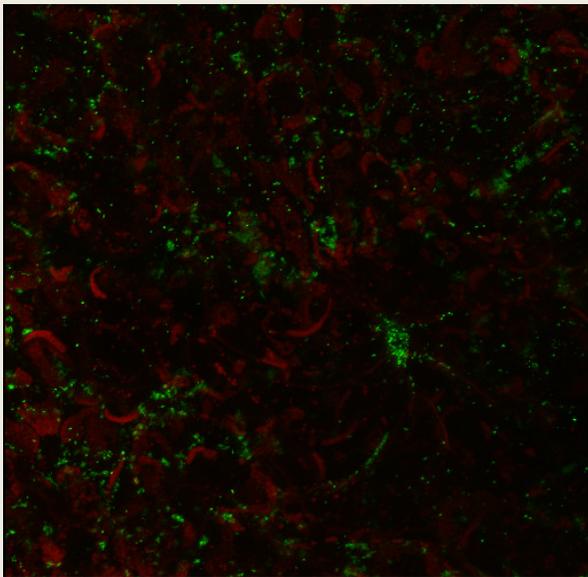


Funded by PPG Inc.

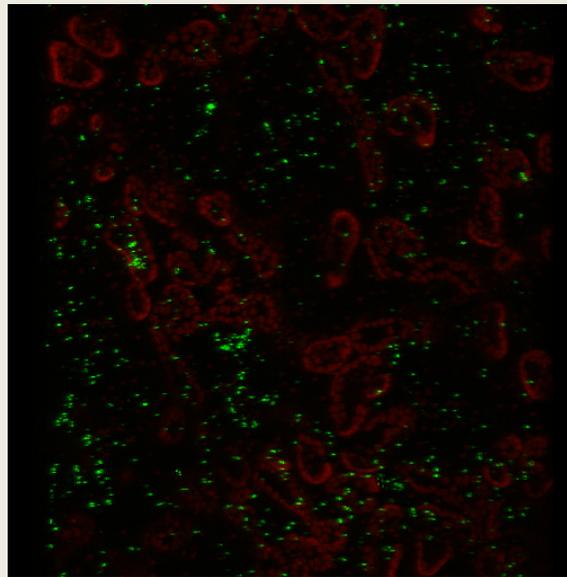
Plant-Microbe Interactions

37

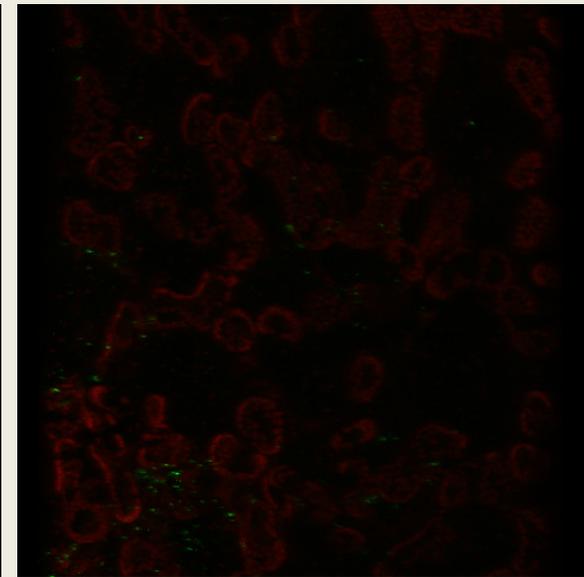
Effect of compound A on *Salmonella* Typhimurium attachment to Spinach



PBS only



250μM A



10μM A

Policy (working group 3)

38

- FDA public hearings & listening sessions for the new food safety bill
 - NLGMA Public Hearing - Charlotte, NC- October 22
 - FDA Small Farms Listening Session - Raleigh, NC – September 28
 - FDA Product Tracing Systems for Food Public Meeting- December 9 & 10
- Work to keep our legislators informed on produce safety issues
- Keeps North Carolina growers informed on legislative issues

Policy/Legislative Update

39

- **HR 2749 & S510**
 - HR 2749 passed in late July
 - S510 progress – HELP Committee approve bill
- **Policy Talking Points**
 - Scale Appropriate
 - Risk & Science-based
 - Tiered Compliance
 - Proactive
 - Focus on education and incentive not punitive

Communications (working group 4)

40

- Provide fact sheets for agents and growers about outbreaks
- Conduct training for growers to develop communication skills- i.e. media relations in a crisis
- It can happen here table top exercises for growers

Fact sheets

41

- Collaboration between NC Dept of Ag-Food and Drug Protection Division and Taskforce
- Completed with pertinent details once a produce safety incident might affect NC

Fact Sheets

42



Salmonella and Leafy Greens

Dear Extension Colleagues:

Several of you have already received calls from the news media regarding the outbreak of Salmonella food poisoning linked to Leafy Greens. Faculty on both the NC State University campus and the North Carolina Research Campus at Kannapolis has been handling media inquiries. Below is information to help you as you talk with the news media, the public or your local growers.

Tips for Talking with News Media on this Issue

In answering media questions, remember the following:

- Write down the reporters' names, their media outlet and their phone number. This will help you know who to contact if you need to update the information you've given.
- Stick to what you know. Do not venture into information where you have no expertise, but refer media to other agents or specialists who may have the information (an experts list on this topic is listed below).
- Cooperative Extension is an educational organization, not a regulatory one. Discuss ways that Extension helps growers to safely grow and harvest produce. Discuss ways that Extension teaches consumers to store and prepare produce safely.
- Direct reporters to the FDA Web site for updates and regulatory information, and remember that regulatory information is not our area of expertise. <http://www.fda.gov/oc/opacom/hottopics/tomatoes.html>
- For assistance in working with the news media, contact Leah Chester-Davis Leah.Chester-Davis@ncsu.edu or 704-250-5406, Natalie Hampton Natalie.Hampton@ncsu.edu or 919-513-3128, Dee Shore Dee.Shore@ncsu.edu or 919-513-3108, all in the department of Communication Services.

Talking Points for Extension Agents on Salmonella Outbreak

- U.S. Food and Drug Administration information on production, distribution patterns and traceback review DETAILS FROM FDA such as:
- UPDATE ON LEAFY GREENS HARVEST IN NORTH CAROLINA:
- WHICH PRODUCTS ARE AFFECTED:
- WHICH PRODUCTS ARE UNAFFECTED:
- WHAT PATHOGEN CAUSES THE ILLNESS:
- LINK TO FDA WEBSITE: (Check the FDA website for updates on illnesses and other information associated with the *Salmonella* outbreak. <http://www.fda.gov>)
- WHAT ACTIONS SHOULD NC CONSUMERS TAKE: (When at a local farmers market or the supermarket, consumers should ask farmers or store owners where the Leafy Greens were grown.

- The lettuce/leafy greens industry recognizes that once lettuce/leafy greens are contaminated, removing or killing pathogens is difficult. Therefore, prevention of microbial contamination at all steps from production to distribution is strongly favored over treatments to eliminate contamination after it has occurred.

- The lettuce/leafy greens industry supports implementation and documentation of food safety programs that utilize risk assessment techniques that identify significant risks and use a preventive approach to ensure safe food products.

- The lettuce/leafy greens industry also supports and encourages routine and regularly scheduled food safety awareness training for all persons who grow, handle, distribute, process, prepare and/or serve lettuce/leafy greens products.

The following are not talking points for the news media but rather information (with helpful links) so that you can provide useful information to growers.

- The use of Good Agricultural Practices (GAPs) in the field, at harvest and in the packing house can help growers identify and prevent most microbial pathogens of concern. As Cooperative Extension agents, you can provide growers and produce handlers with information about GAP practices. If you need more information, please contact Diane Ducharme, Extension Associate, horticulture and food safety, Program for Value-Added & Alternative Agriculture, at diane_ducharme@ncsu.edu or 704-250-5402.
- The most effective strategy to protect against contamination is to keep the produce free from these harmful pathogens in the first place. Cooperative Extension is looking at the best pre- and post-harvest practices for growers and consumers to enable North Carolina to have fresh and safe quality fruits and vegetables.

Economic Implications

Documents Specific to Lettuce/Leafy Greens

- Good Agricultural Practices for the Production and Handling of Cabbage and Leafy Greens from NCSCU. <http://www.ces.ncsu.edu/depts/foodsci/ext/programs/producesafety/cabbage.pdf>
- Commodity-Specific Food Safety Guidelines for the Lettuce and Leafy Greens Supply Chain. <http://www.fda.gov/downloads/Food/FoodSafety/Product-SpecificInformation/FruitsVegetables/Juices/GuidanceComplianceRegulatoryInformation/UCM169008.pdf>
- Leafy Greens Current (PDF) (Commodity Specific Food Safety Guidelines for the Production and Harvest of Lettuce and Leafy Greens) <http://www.wga.com/linkclick.aspx?link=documentlibrary%2f10+16+07-L+eafy-Greens+Guidance-C+lea+pdf&ta>
- Leafy Greens Marketing Agreement. <http://www.nlama.org/>
- Centers for Disease Control and Prevention (CDC). Frequently Asked Questions on *Salmonella*. http://www.cdc.gov/nczved/dhmd/diseases_listing/salmonellosis_ga.html

References on Salmonella on Lettuce/Leafy Greens

N.C. State University Experts Who Can Address This Issue

For more information:

Diane Ducharme, Extension Associate, horticulture and food safety, Program for Value-Added & Alternative Agriculture, NC Research Campus at Kannapolis, diane_ducharme@ncsu.edu or 704.250.5402.



TASK FORCE
www.ncfreshproducesafety.org

Sept. 2010

Crisis Communication Workshops

43

- Provided key growers instruction and practice in media relations
- Lecture and on camera work

It can happen here tabletops

44

- Growers divided into
 - Farms (3-4)
 - Commodity Associations
 - News media
- Follows outbreak from first report until implicated farm identified
 - Growers asked questions along the way
 - NCDA-FPD assists by playing regulatory role
 - News media ask questions
 - Presenters: facilitate and provide some information about how outbreaks investigated and travel through media

Benjamin Chapman, PhD

45

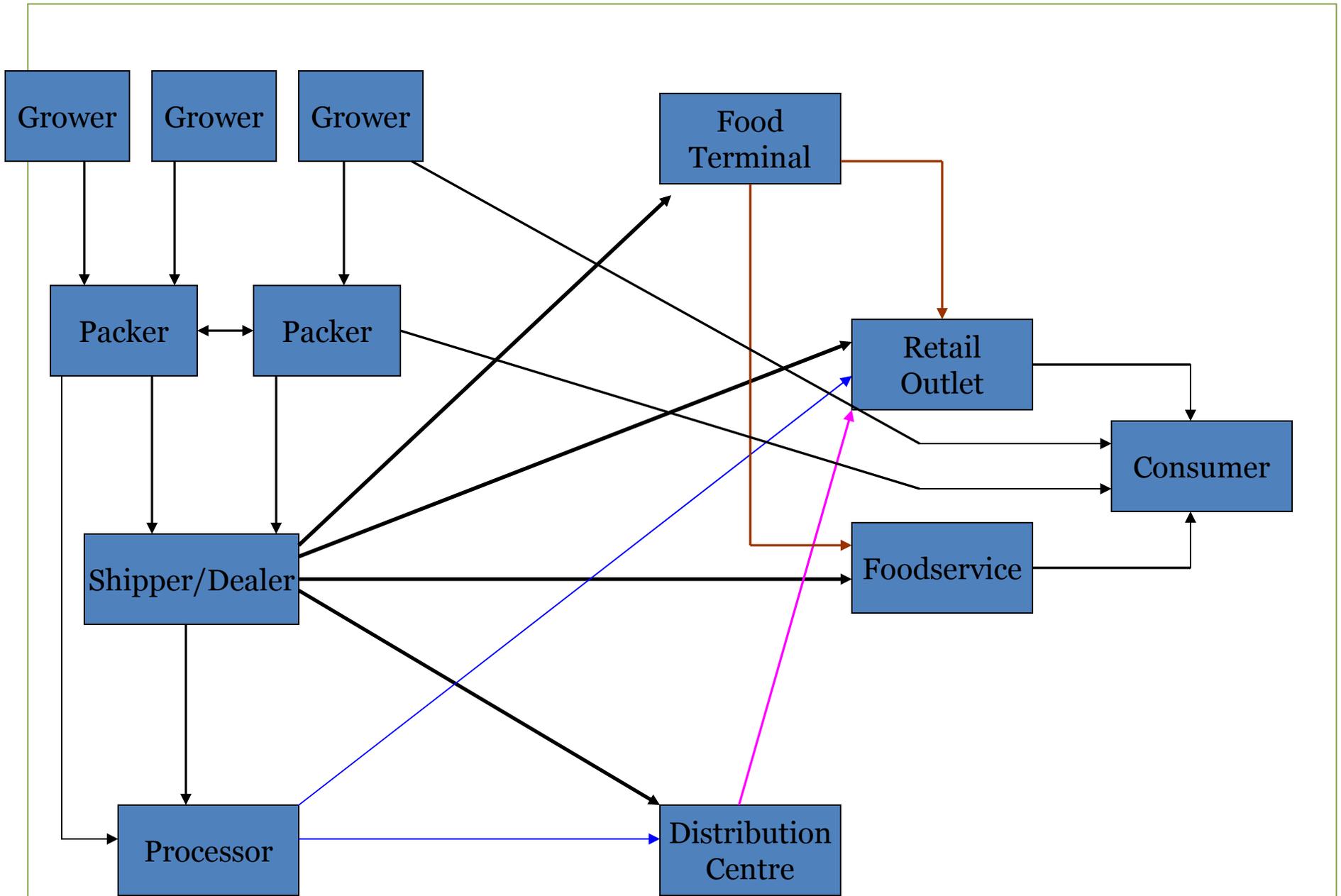
NC State University
Assistant Professor
Food Safety Specialist
Dept. 4-H Youth Development
and Family & Consumer Sciences



The Task Force's Public Policy Working Group

46

- Parameters were developed by a broad group of North Carolina produce farmers including include large and small farms, conventional and organic producers and geographically diverse production areas.
 - Field/Farmer driven
 - Scale appropriate
 - Risk based
 - Science-based
 - Proactively mitigate risk
 - Market recovery



Water
Handling
Fertilizer
Pesticides

Inputs

Sites

Transport

Harvest

Packing

Storage

Transport

Customers

Transport

Other crops/rotations
Number of plantings
Environmental hazards
Animals/sources of pathogens

Crew
Date/time
Equipment (and sanitation)

Crew
Date/time
Washing (water/chlorine management)
Cleaning/sanitation
Other products

Other packers' growers' products
Other commodities
Cleaning/sanitation

Recall info flow

Product flow

Survey results

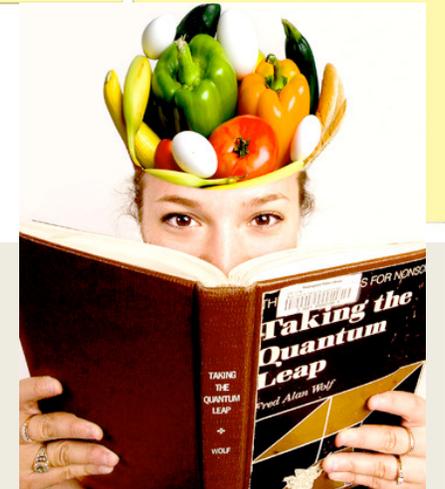


- 68 % of the respondents had some sort of a traceability program in place
- What does a traceability system mean?
 - 59 % use lot codes to label their product
 - ✦ 35 % label the shipment
 - ✦ 30 % percent label pallets/bins
 - ✦ 59% label cases
 - Date of receipt, date of sale, date of shipment,

Data collection systems



- 46 % paper based system
- 41 % both on paper and electronically
- <3 % storing information only electronically
- 11 % relying on their memory for information storage



Most complicated system

- Three commodities
- One farm site (two pack buildings and a retail stand)
- 9 different locations for data on one item



Where it breaks down



- Co-mingling
- Cash sales?
- If/how information is stored up-stream
 - Food service
- Electronic data collection
 - Capacity
- Different systems employed by growers shipping through same dealer/wholesaler





shopsafe.ncsu.edu



**NORTH CAROLINA
FRESH PRODUCE SAFETY
TASK FORCE**

www.ncfreshproducesafety.org



Food Safety Info Sheets

 [Subscribe to feed](#)

[Home](#) [About Food Safety Infosheets](#)

SEARCH

RECENT SHEETS

[Romaine lettuce linked to E. coli O145 outbreak](#)

[Tragic story of a child's death linked to E. coli O157:H7 outbreak at Washington daycare](#)

[Oops... It happened again: messy diaper changing can lead to illnesses](#)

[Raw and steamed oysters linked to recent norovirus outbreaks](#)

[Illinois Subway linked to Shigella sonnei outbreak](#)

RISKY PRACTICES

Romaine lettuce linked to E. coli O145 outbreak

May 6, 2010 in [E. coli](#), [Farm](#), [Food Handling](#) | by [Ben Chapman](#) | [Leave a comment](#)

**MAY 6, 2010
FOOD SAFETY INFOSHEET**

Romaine lettuce linked to E. coli O145 outbreak



CLUSTERS OF ILLNESSES IN THE NORTH EAST AND MIDWEST 68 ILL IN MICHIGAN, NEW YORK AND OHIO

LEAFY GREENS HAVE A HISTORY

LETTUCE'S SPINACH GREENS LINKED TO AT LEAST 30 OUTBREAKS OF PATHOGENIC E. COLI SINCE 1982



www.freshwayfoods.com

Freshway Foods of Sydney, Ohio is voluntarily recalling products containing romaine lettuce with a use by date of May 13 or earlier because they may be contaminated with E. coli O145. The products were sold under the Freshway brand and Imperial Sycon brand.

E. coli O145 causes a diarrheal illness often with bloody stools. Illnesses associated with this outbreak have been reported in the North East and Midwest U.S. To date 68 individuals have been confirmed ill.

This recall includes romaine lettuce products sold by Freshway Foods for food service outlets, wholesale, and in-store retail salad bars and delis. These products are sold under the **Freshway** and **Imperial Sycon** brands.



A full list of the 73 recalled products lines can be found at: www.freshwayfoods.com/recall/

Fresh produce is not cooked, so any germs that were in contact with it from farm-to-fork can be passed to diners.

This recalled romaine lettuce was used for distribution to restaurants from the Mid to Midwest (West Coast, Great Midwest, and Midwest States). States where the products were distributed include: AL, DC, DE, FL, GA, HI, IL, IN, MI, MN.



FRESH PRODUCE SAFETY TASK FORCE

www.ncfreshproducesafety.org