

# ARS PRIORITY SETTING FOR RESEARCH

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# ARS Mission

- ARS conducts research to develop and transfer **solutions to agricultural problems of high national priority** and provide information access and dissemination to:
  - **Ensure high-quality, safe food, and other agricultural products**
  - **Assess the nutritional needs of Americans**
  - Sustain a competitive agricultural economy
  - Enhance the natural resource base and the environment
  - Provide economic opportunities for rural citizens, communities, and society as a whole.

# 5-year Program Cycle

1. Stakeholder Input to ONP (Needs)

**Input**

2. National Program Strategic Action Plan developed

3. Program Priorities set (Relevance)

**Planning**

4. Research Project Plan describing research prepared

**5. OSQR Review and Certification. (Quality)**

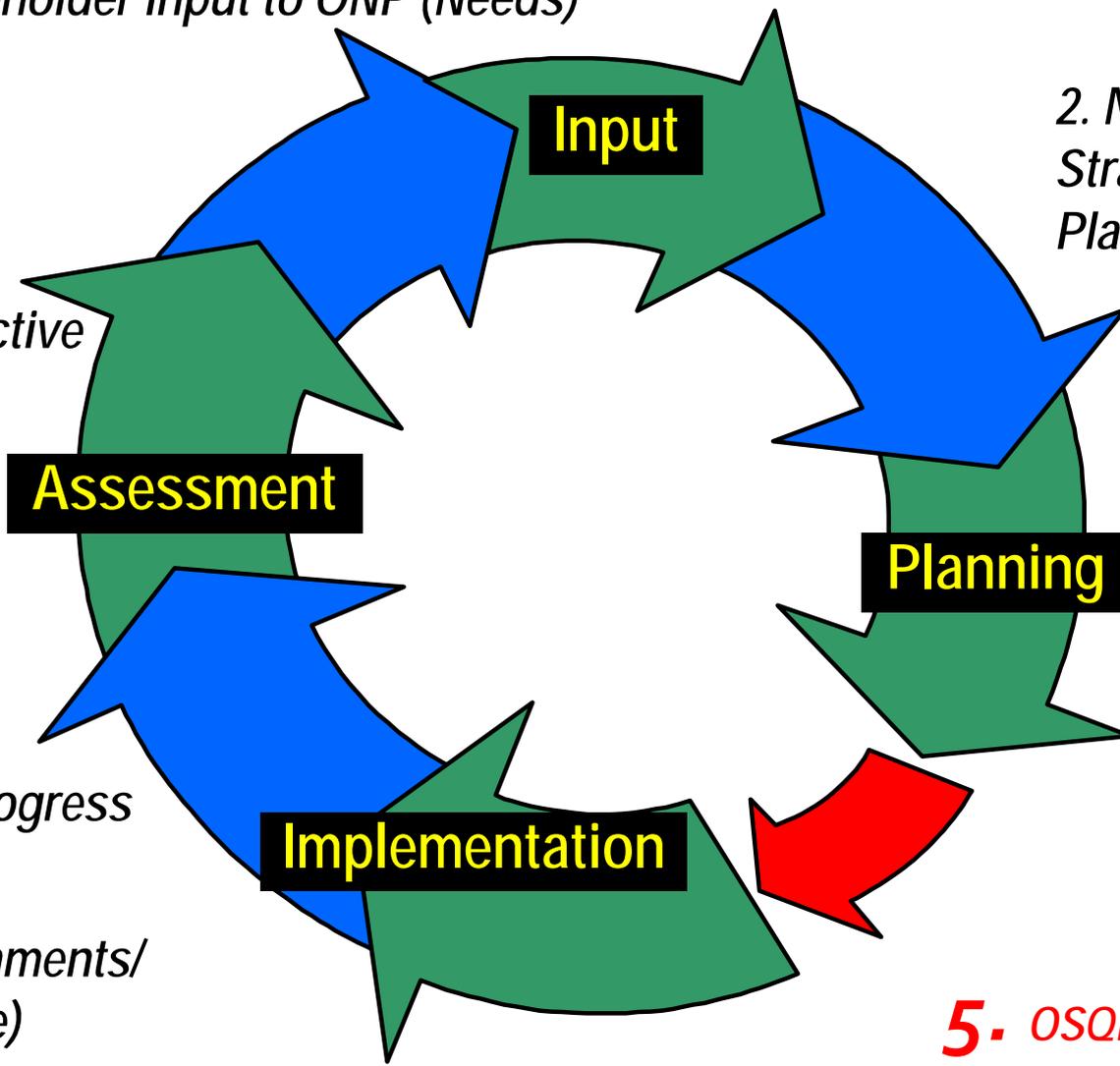
**Implementation**

6. Research initiated

**Assessment**

8. Retrospective evaluation (Impact)

7. Annual progress reviews (Accomplishments/ Performance)



# Input and Planning-Priority Setting Process for the NFSQ Programs

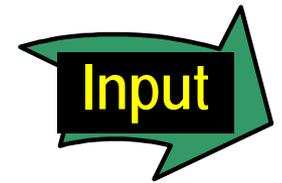


# Stakeholder Input



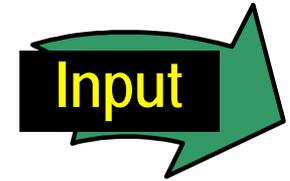
- NPLs meet with stakeholders frequently
- Previously, in-person stakeholder meetings were held about every 5 years
- Due to high cost, replaced with alternates
- As an Example for NP 107
  - Workshop in Beltsville ~55 people, Oct 2011, focused on food composition database and national food consumption survey
  - USDA Open Website (Sep-Oct 2012) for general input
    - >100 written comments

# ARS Nutrition Priority Setting



- In place of stakeholder meeting, used USDA Open webpage.
  - Collected >100 comments
  - Able to get broader input than those who could afford to attend, including academics, other federal agencies, general public
- Retrospective review Assessments also used
- NPL's assess input in relation to resources available for action plan

# Food Safety Input



- Listen/work-with stakeholders, customers, other agencies, industry, academia, etc, etc...nationally and internationally
- Focus investments in science: relevance (Keep It Simple)
- Deliver excellence in research
- Collaborations

# ARS Action Plans



Planning

- Guide research agenda for 5 years
- Consistent format across 18 national programs
- Tie each program to ARS & REE Strategic Plans
- NPLs responsible for content
- Identify research needs, what ARS will do, and benefits of the work

# Action Plan Ingredients



Planning

- Goal
- Component
- Problem Statement
- Research Need
- Anticipated Products
- Potential Benefits
- Resources Available

# Human Nutrition Action Plan Components



Planning

- 1. Linking Agricultural Practices and Beneficial Health Outcomes
- 2. Monitoring Food Composition and Nutrient Intake of the Nation
  - About 1/5 of funding for nutrient database and WWEIA/NHANES
  - Used by many Federal agencies, EFSA and other countries
- 3. Scientific Basis for Dietary Guidance
- 4. Prevention of Obesity and Obesity-Related Diseases
- 5. Life Stage Nutrition and Metabolism
  - 3 cooperating centers have Congressionally-mandated missions

[www.ars.usda.gov/HumanNutrition](http://www.ars.usda.gov/HumanNutrition)

***In developing these Statement Headings it was critical that they align with USDA and other Federal Strategic Plans***

# 2016-2020 Food Safety Action Plan

## *Component 1: Foodborne Contaminants*



**Planning**

### *Problems Statement Headings*

*1.1 Population Systems*

*1.2 Systems Biology*

*1.3 Microbial Contaminants: Technologies for Detection and Characterization*

*1.4 Chemical and Biological Contaminants: Detection and Characterization methodology, Toxicology and Toxinology*

*1.5 Intervention and Control Strategies*

*1.6 Predictive Microbiology/Modeling: Data Acquisition and Storage; Genomics Database*

*1.7 Antimicrobial Resistance*

*In developing these Statement Headings it was critical that they align with USDA and other Federal Strategic Plans*

# Implementation and Assessment



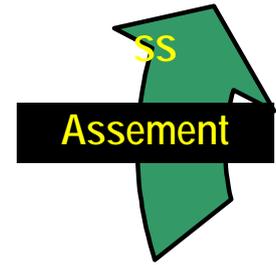
Implementation

The Action Plan is a living document: Research is subject modification if changes in needs/issues/priorities are required

- FS Regular meetings with FSIS/FDA (formal Qu), and ad-hoc
- Regular contact with NIFA (reports sent Qu)
- Annual evaluation: continued relevance, performance, achievement of milestones, accomplishments and impact
- Annual Food Safety Workshop

*Conduct Food Safety Program stakeholder and customer research workshop. The workshop brings together various USDA agencies (ARS, FSIS, NIFA, and ERS), DHHS (FDA, CDC), other Federal agencies senior administrators, managers and scientists representing the various Federal government agencies that undertake food safety research regulatory, and public health oversight. Representatives from the Office of Chief Scientist/Under Secretary for REE can participate to discuss current, and future critical Federal food safety initiatives. Discussions and information presented at the workshop inform participants of the priorities and needs to be undertaken in the next year as part of the 5-year research cycle. This will be a means to continue strengthening inter-departmental collaborations with other Federal Government Agencies; and to address future USDA and DHHS budget initiatives*

# Assessment



- **End of cycle: project required to provide a detailed report on productivity, achievement of milestones, accomplishments and their impact, and full justification for continuance in the research area.**
- **Conduct a Retrospective Review:**
  - Documents prepared by NPLs
  - Sent to every stakeholder, customer: industry, academia etc, nationally and internationally
  - Requested an honest evaluation: Reports collected, combined and not edited for content
  - Final report written (warts and all). Submitted for internal review within ONP, (food safety committee)

**Nutrition :5-person panel that conducted a 5-year retrospective assessment in 2012 ( helped draft Action Plan for 2014-2019).**

- Harvey Anderson, Eric Hentges, Sheila Innis, Barbara Schneeman, Connie Weaver (Panel Chair)
- Panel evaluated impact, strengths and weaknesses, made recommendations



## Impact: What is it?

- **Impact has to be seen and assessed in the context of relevance to stakeholders – those needing the research with certain goals in mind, those conducting the research, and those anticipating the benefits from the research**
- **Impact is NOT the number of publications or presentations**
- **Should Expect**
  - Food safety knowledge advanced or problem/issue solved
  - Technology transfer
  - Regulation and policy development
  - Consumer relevance

# Coordination across agencies

- REE Action Plan Goal Team for Childhood Nutrition
  - Team of ARS, ERS and NIFA
- Trans-Federal government- ICHNR
  - Meets 2 times/year
  - 4 Subcommittee meet more frequently – Will shortly release the National Nutrition Research Roadmap
- USDA Human Nutrition Coordinating Committee
  - Chaired by ARS; co-chaired by FNS (due to retirement, no co-chair for 2 years)
  - Meets quarterly for information exchanges among agencies; includes one formal presentation plus agency announcements
  - Also includes NIFA, ERS, CNPP, OCS, NAL, FDA, NIDDK, NHLBI, AoA, ODPHP
  - Frequent individual follow-up meetings with reps on topics of mutual interest; especially with NIFA
- ARS NPL's attend NIH Nutrition Coordinating Committee
  - Meets monthly
  - Due to retirement, no meetings currently
- NPL represents USDA as ex officio member of NIDDK Advisory Council

# Karen Cullen, CNRC Scientist (107)

- Administers the USDA Center for Collaborative Research on WIC Nutrition Education Innovations at the USDA/ARS Children's Nutrition Research Center at Baylor College of Medicine
- Funded by the FNS Office of Policy Support
- Currently funds 4 projects that required a partnership between a university-based researcher and a state or local Special Supplemental Nutrition Program for Women, Infants and Children (WIC) to test creative approaches to WIC nutrition education.
- UC Berkeley, Yale, UC Davis, William Paterson University (Wayne, NJ)

## **Coordination**

**Due to fiscal constraints the interactive and full Annual Food Safety Program stakeholder and customer research workshop normally held in WV (Shepherdstown) has not been held since February 2013. A series of small focused workshops have been held with invitations to major stakeholders and customers. Next full Workshop will be held in Virginia, early March 2016**

**REE Goal 5 Report written by Team: Joint focus on produce research. Report clearly showed interactive nature of research and how each of the agencies research program complemented each other.**

*Hi Colleagues, "I would like to add my thanks to those of Jeanette for all of your hard work in writing, editing, supplying statistics, graphics, photos and other information for our team report. It truly was a team effort!"*

*Bob Gravani, OCS*

## **Collaboration**

**No single individual, Project, Department, Institute, Center or Program can possibly encompass the breadth of skills or competencies need to deliver results against the food safety challenges and issues that confront us now or in the future. Therefore we continue to increase collaborations both nationally and internationally [where appropriate], increasing the capability to deliver results through creative science and innovative solutions, in a timely manner. *Currently NP108 collaborate with scientists in > 55 countries.***

# Accomplishment – Nutrition Monitoring

- **Food Composition Database**
  - Gold standard for the world – other countries model their databases after this and use our values when theirs are blank
  - Currently updated annually – moving toward continuous updates
  - Now provides measures of nutrient variability
  - >8,700 foods with up to 146 constituents
- **What We Eat in America, NHANES**
  - Only nationally representative diet survey
  - Continuous collection of data on 5,000 people/year
  - Released in 2-year packages
  - Multiple free databases to allow analysis of NHANES data by others
    - Cited in >5,000 research papers

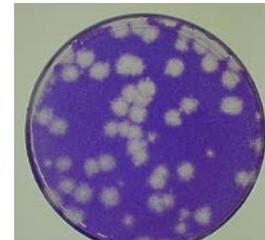
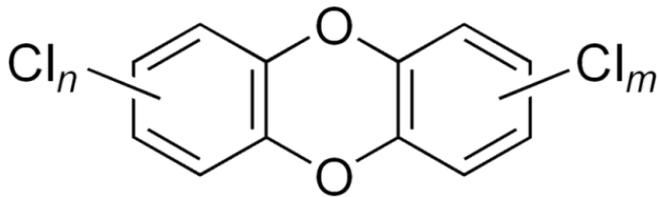
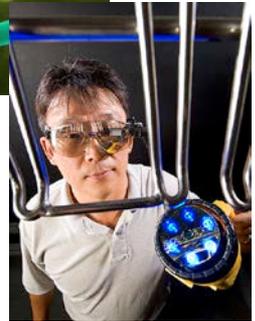
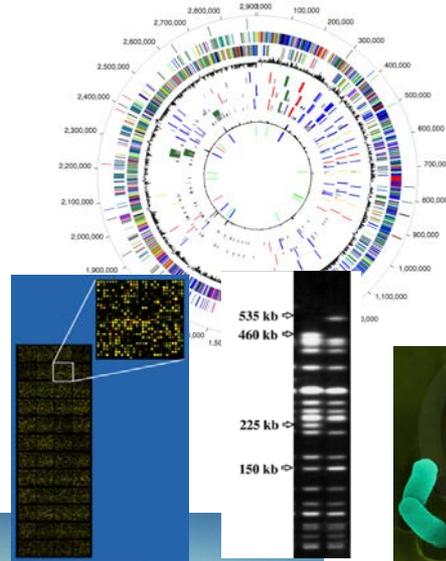
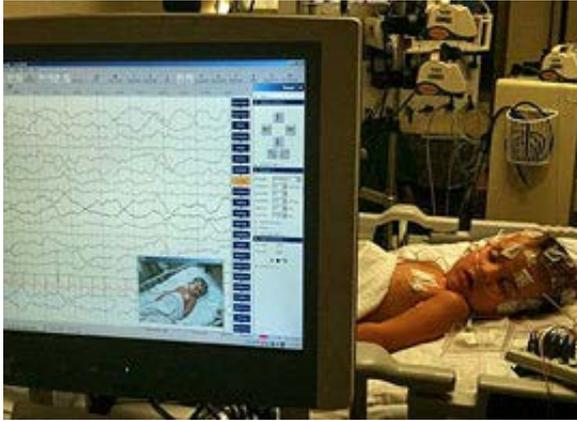
# Accomplishment – Nutrient Requirements

- The current Dietary Reference Intake for energy needs of 3-5 year olds was based on a very small number of children so it was evaluated using doubly-labeled water by study of 97 children with carefully measure activity levels. The current DRI overestimates calories needed by almost 600 Calories/day.
- Calories available from tree nuts are lower than the number listed on nutrition labels. Adult volunteers in room calorimeters eating controlled diets absorbed up to 32% fewer calories from whole almonds than the label value. Walnut and pistachio feeding gave smaller, but significant, differences from label numbers.

# Accomplishment – Children's Health

- Infant formula choices have been controversial with some countries recommending against soy formula due to plant estrogen content. Children who were breastfed were compared with those given soy or cow's milk formula exclusively for 4-6 months. At the age of 5 years, no differences were found with ultrasound in volume or structure of reproductive organs in boys or girls.
- School lunches brought from home are less nutritious than those from USDA approved programs. Lunches brought from home had more sodium, less fruit, vegetables, whole grains, or milk than national school lunch program guidelines.

# USDA-ARS Food Safety Research Program



## Food Safety: Context

- **12 federal Agencies/Departments have jurisdiction over some aspect of food-safety regulation**
- **Two primary regulatory Departments (United States Department Agriculture (USDA) and Department of Health Human Services-Food and Drug Administration (FDA). Each inspects different types of foods and have different budgets. These 2 agencies are the Programs major stakeholders**
- **Department of Health Human Services-Centers Disease Control (CDC) system for reporting outbreaks does not synchronize easily with the regulatory system**
- **Food Safety is now considered a Public Health issue, and it has been influenced by several new initiatives: For example: the new Food Safety Modernization Act**



## FDA Food Safety Modernization Act (Law)

**Act is designed to make it easier for the FDA to identify the source of an outbreak of foodborne illness, trace its path and swiftly remove it from the food supply**

**However, the Act (Law) specifically does not include food items regulated by the USDA: meat, poultry, or processed eggs**

**The Act represents a big adjustment for some parts of the U.S. food system: How? →**

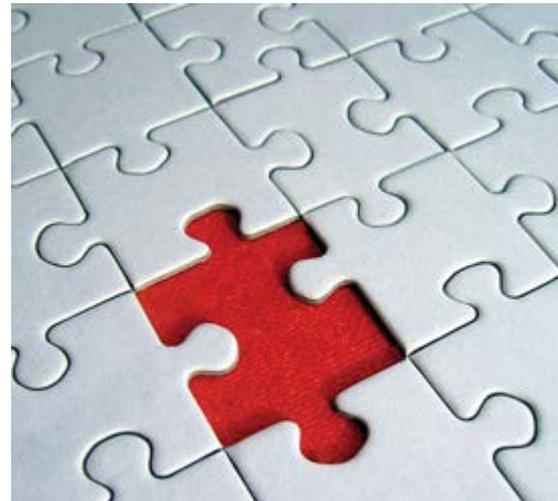
## The Act will influence the direction of some research due to specific requirements, especially on supply and trade

- More frequent mandatory inspections
- Mandatory recalls
- New produce safety rules
- Regulation of imported food
- Inspection on demand of facility safety records
- New roadmaps for ensuring safe foods
- Strengthening of existing collaboration among all food safety agencies (including international)



**How does the USDA-ARS Food Safety Program fit into this Act or Law, and also the USDA (FSIS)/REE and other Federal Food Safety Strategic Plans?**

**What criteria are needed?  
How is a Program developed?**



## **Criteria for Developing a Program – Goal/Mission**

- Provide the means to ensure that the food supply is safe and secure for consumers**
- Since food safety is a global issue, ensure that food and feed meet foreign and domestic regulatory requirements.**
- Research seeks ways to assess, control or eliminate potentially harmful food contaminants**
- Research accomplishments and outcomes are (expected) to be utilized in national and international strategies delivering results to stakeholders and customers**
- Research is impact driven: so we try and solve problems**

## ***Food Safety: examples of accomplishments with impact***

**Radio frequency pasteurization process for shell eggs with no reduction in egg quality: implementation has potential to reduce Salmonella illnesses by approximately 110,000 annually**

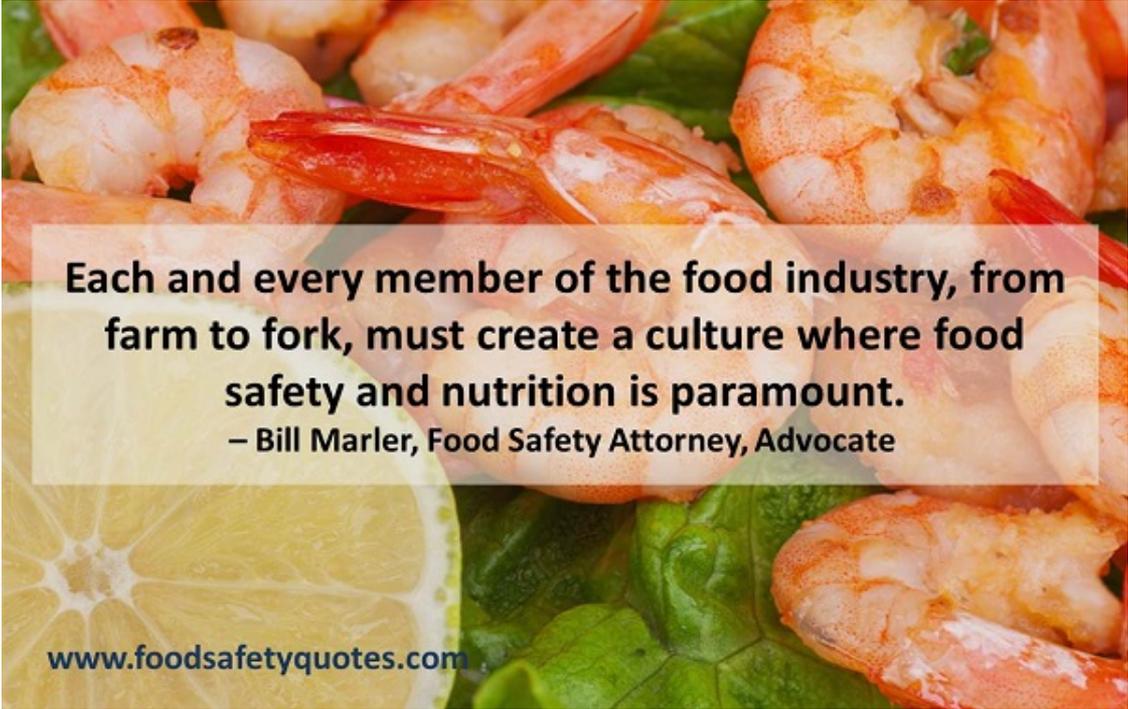
**Conducted a multi-year *Listeria* Market Basket Survey for the FDA and FSIS showing a significant decrease in contamination in tested RTE foods over a decade, providing baseline prevalence data for future risk assessments and policy decisions**

**Studies indicated the current leafy green field distance guidelines may not be adequate to limit the occurrence of E. coli O157:H7 in crops planted near concentrated animal feeding operations**

**Concerns exist over antimicrobial-resistant (AMR) E. coli and Salmonella in cattle: studies conveyed to industry and regulatory agencies indicate that sanitizing interventions currently employed at beef processing plants effectively eliminate AMR bacteria from the final products**

**“Safe and nutritious food is a prerequisite for a healthy life -- not only for basic human survival, but also for ensuring strong digestive, immune, cognitive, and other health functions.”**

*World Health Day 2015 : Food Safety and Food Security Blog  
POSTED BY JULIA DUNCAN\*, ELIZABETH BUCKINGHAM\* & JOSHUA GLASSER‡  
\*Secretary of State's Office of global Food Security,  
‡Bureau of Oceans and International Environmental  
and Scientific Affairs' Office of International Health & Biodefense*



**Each and every member of the food industry, from farm to fork, must create a culture where food safety and nutrition is paramount.**

**– Bill Marler, Food Safety Attorney, Advocate**

[www.foodsafetyquotes.com](http://www.foodsafetyquotes.com)

**Thank you**