



# Risk Analysis Program and Exclusive Tools on Foodrisk.org

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# Joint Institute for Food Safety & Applied Nutrition

## When?

- ❖ Established in 1996.


## What?

- ❖ A multidisciplinary research, education and outreach program – domestic and international in scope

## How?

- ❖ A collaborative effort between the University of Maryland, the U.S. Food and Drug Administration (CFSAN and CVM), and the private sector
- ❖ Collaborations have extended to include other federal and international government agencies, industry, other academic institutions and consumer groups

## Concepts of Operation

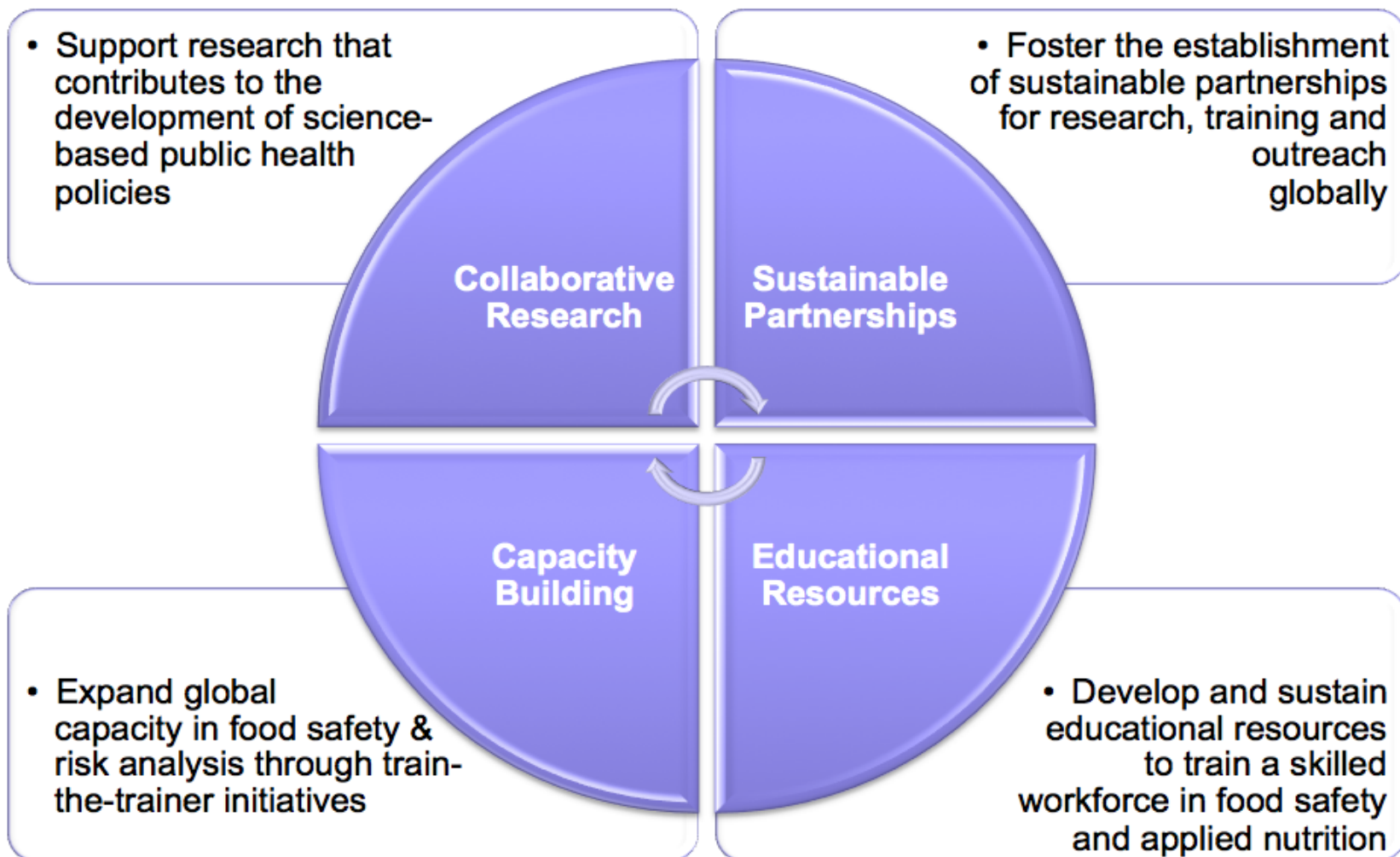
- ❖ Build programs through partnerships to promote food safety at home and abroad
  - ❖ Leverage and share resources
  - ❖ Create a neutral environment conducive to exchange of ideas and research
  - ❖ Develop domestic and international collaborations
- 

# Partners

International	Foreign Gov.	Foreign Industry	FDA	UMD	Other Univ.	Corporate Sponsors	Other Agencies
APEC	Bangladesh	Bangladesh Shrimp and Fish Foundation	Center for Food Safety and Applied Nutrition	College of Agriculture and Natural Resources	University of Mississippi	Waters THE SCIENCE OF WHAT'S POSSIBLE™ Nestlé Good Food, Good Life GENERAL MILLS Cargill ADM JohnDiversey Clean is just the beginning MeadJohnson Nutrition MARS Coca-Cola Unilever Kellogg's Abbott MONSANTO kraft foods Make today delicious ConAgraFoods real you be	USDA: FSIS NIFA ARS FAS  EPA  USAID
COMESA	China	Confederation of India Industry Food and Agriculture Centre of Excellence	Center for Veterinary Medicine	School of Public Health	Virginia Tech	life	
IICA	India	India Spice Board		Center or Health Risk and Communication	UC Davis		
PAHO	Mexico			College of Computer Math and Natural Sciences	iFSH/IIT		
CODEX	Thailand						
WHO	UK –FERA						
World Bank	Malaysia						
	Jamaica						



# JIFSAN Strategic Thrusts



# Food Safety Training Portfolio

- International Training Program
  - Good Agricultural Practices (GAP)
  - Good Aquacultural Practice (GAqPs)
  - Commercially Sterile Packaged Food (CSPF)
  - Food Inspector Training (FIT)
- Global Food Safety Collaborating Training Initiatives
- International Food Safety Training Laboratory (IFSTL)
  - Courses in microbiology and chemistry lab methods
- Food safety risk analysis courses
  - Risk Assessment
  - Risk Management
  - Risk Communication





## Core Courses (online & classroom)

- Overview of risk analysis
- Risk management
- Risk communication
- Risk assessment
- 1 day Risk communication

## Intermediate & Advanced Courses

- Quantitative risk assessment methods: probabilistic methods and model building

## Customized courses

- Risk Communication
- Risk Management
- Quantitative Risk Assessment
- Overview



# New Courses

## Added

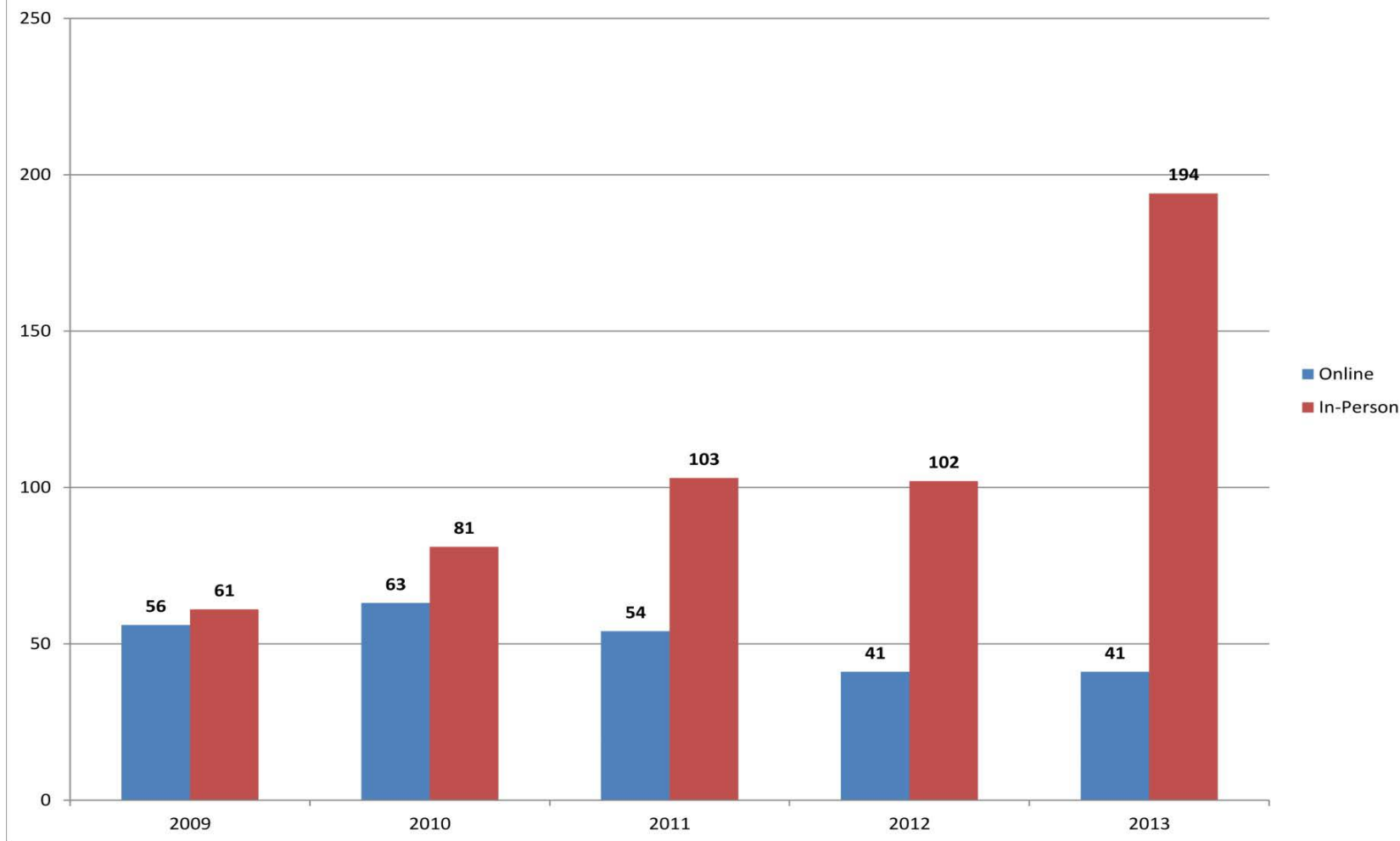
- Quantitative Risk Assessment Refresher with Epix Analytics Fall 2013
- Advanced Quantitative Risk Assessment with Epix Analytics, Fall 2013
- International Food Law (Spring 2014-Malaysia; Fall, 2014)

## Planned 2015

- Chemical Risk Assessment
- Epidemiology for Food Safety Risk Analysis
- Risk Analysis for Regulatory Officials
- Introduction to Probability Theory



Participation in JIFSAN Risk Analysis Courses, 2009-2013





# Food Safety Risk Analysis Courses

1400 Individuals from 47 Countries



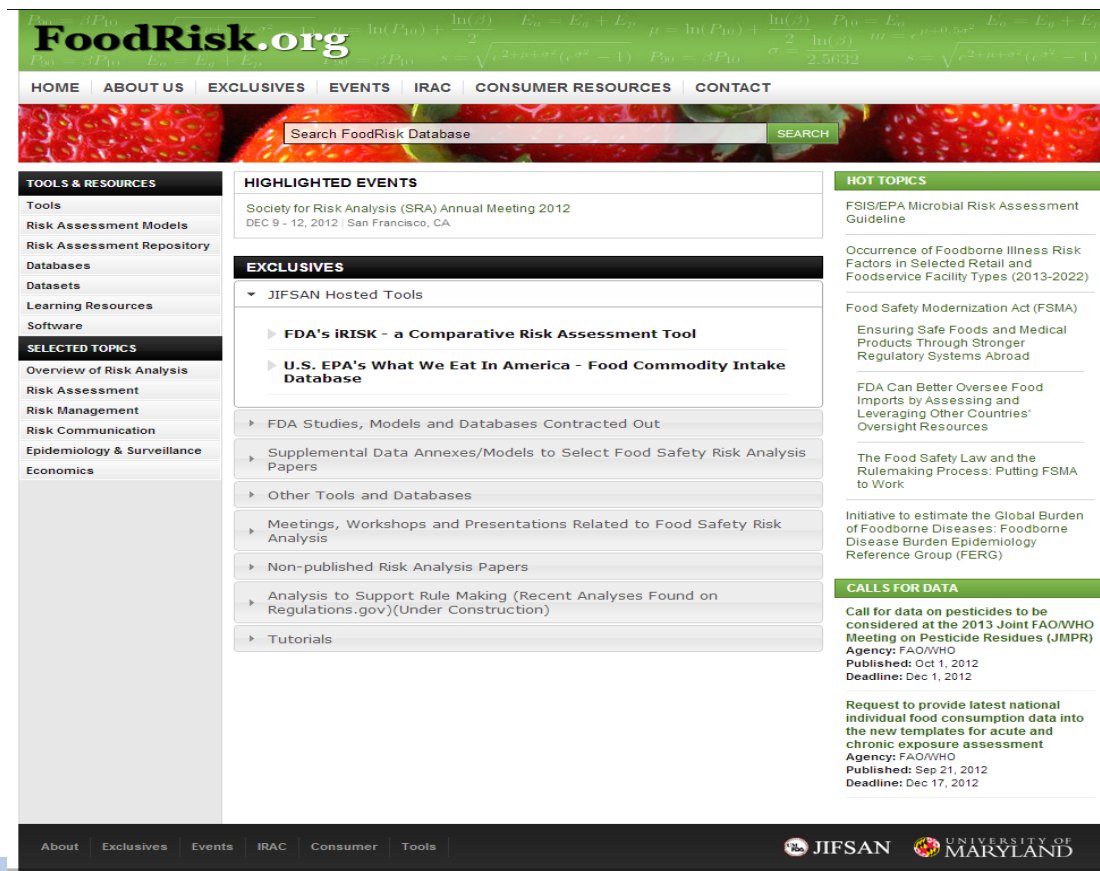
# Extended Internship



- ❖ International Life Science Institute (ILSI) /Coca Cola 3 month fellowship, Travel and tuition, mentoring costs
  - China (2011, 2012, 2013); Indonesia (2013)
- ❖ 2013 opened up fellowship to 4 participants (2 Malaysia sponsored by their government)
- ❖ 2013 Research projects
  - Sulfonamide in chicken meat
  - Acrylamide in potatoes
  - Campylobacter in broiler chicken
  - Carmel colorant in beverages
- ❖ 2014 2 China



# FoodRisk.org database



The screenshot shows the FoodRisk.org website. At the top, there is a navigation menu with links: HOME, ABOUT US, EXCLUSIVES, EVENTS, IRAC, CONSUMER RESOURCES, and CONTACT. Below the menu is a search bar with the text "Search FoodRisk Database" and a "SEARCH" button. The main content area is divided into three columns:

- TOOLS & RESOURCES:** A sidebar menu with links to Tools, Risk Assessment Models, Risk Assessment Repository, Databases, Datasets, Learning Resources, and Software.
- SELECTED TOPICS:** A sidebar menu with links to Overview of Risk Analysis, Risk Assessment, Risk Management, Risk Communication, Epidemiology & Surveillance, and Economics.
- HIGHLIGHTED EVENTS:** A section titled "Society for Risk Analysis (SRA) Annual Meeting 2012" held from DEC 9 - 12, 2012 in San Francisco, CA.
- EXCLUSIVES:** A section titled "JIFSAN Hosted Tools" containing several links:
  - FDA's iRISK - a Comparative Risk Assessment Tool
  - U.S. EPA's What We Eat In America - Food Commodity Intake Database
  - FDA Studies, Models and Databases Contracted Out
  - Supplemental Data Annexes/Models to Select Food Safety Risk Analysis Papers
  - Other Tools and Databases
  - Meetings, Workshops and Presentations Related to Food Safety Risk Analysis
  - Non-published Risk Analysis Papers
  - Analysis to Support Rule Making (Recent Analyses Found on Regulations.gov)(Under Construction)
  - Tutorials
- HOT TOPICS:** A section with several articles:
  - FSIS/EPA Microbial Risk Assessment Guideline
  - Occurrence of Foodborne Illness Risk Factors in Selected Retail and Foodservice Facility Types (2013-2022)
  - Food Safety Modernization Act (FSMA) Ensuring Safe Foods and Medical Products Through Stronger Regulatory Systems Abroad
  - FDA Can Better Oversee Food Imports by Assessing and Leveraging Other Countries' Oversight Resources
  - The Food Safety Law and the Rulemaking Process: Putting FSMA to Work
  - Initiative to estimate the Global Burden of Foodborne Diseases: Foodborne Disease Burden Epidemiology Reference Group (FERG)
- CALLS FOR DATA:** A section with two calls:
  - Call for data on pesticides to be considered at the 2013 Joint FAO/WHO Meeting on Pesticide Residues (JMPR). Agency: FAO/WHO. Published: Oct 1, 2012. Deadline: Dec 1, 2012.
  - Request to provide latest national individual food consumption data into the new templates for acute and chronic exposure assessment. Agency: FAO/WHO. Published: Sep 21, 2012. Deadline: Dec 17, 2012.

At the bottom of the page, there is a footer with links: About, Exclusives, Events, IRAC, Consumer, Tools, and logos for JIFSAN and the University of Maryland.

- ❖ Only comprehensive online resource for food safety risk analysis;
- ❖ Includes unique datasets, tools, and links to numerous sources of information.
- ❖ New Web based tools
- ❖ Host to the US Interagency Risk Assessment Consortium



# Foodrisk.org Exclusive Tools Now and Future

- **ICRA**: Interactive online Catalogue on Risk Assessment
- **FCID**: Food Commodity Intake Database
- **FDA-iRISK<sup>®</sup>**: Web-based, comparative risk assessment
- **PPOD**: Produce Point of Origin Database
- *Future*: **NoroDB**: Norovirus Literature Database
- *Future*: **Violations Database**: National Standardized Database of Food Safety Inspections for Retail Establishments
- *Future*: **Rule making database**



# Interactive online Catalogue on Risk Assessment - ICRA

- Web tool offering a dynamic model catalogue for existing microbial risk assessments for risk assessors aiming to develop their own models.
- Allows users to compare and contrast models from the same pathogen and/or commodity







# ICRA

- Funded by the **National Institute for Food and Agriculture (NIFA)** of the **United States Department of Agriculture**.
- Partnership between:
  - The **National Institute for Public Health and Environment (RIVM)** in the Netherlands
  - The **National Food Institute (DTU Food)** at the Technical University of Denmark
  - The **Joint Institute for Food Safety and Applied Nutrition (JIFSAN)** at the **University of Maryland**.





# ICRA

Interactive online Catalogue on Risk Assessment

[Home](#)[View/Compare Models](#)[Sign Up](#)[Admin](#)[Help](#)[Contact](#)

Welcome to The Interactive online Catalogue on Risk assessment (ICRA)! ICRA was funded by the National Institute for Food and Agriculture (NIFA) of the United States Department of Agriculture. It is a partnership between the National Institute for Public Health and Environment (RIVM) in the Netherlands, the National Food Institute (DTU Food) at the Technical University of Denmark, and the Joint Institute for Food Safety and Applied Nutrition (JIFSAN) at the University of Maryland. ICRA serves as a web tool offering a dynamic model catalogue for existing microbial risk assessments for risk assessors aiming to develop their own models. ICRA allows users to compare and contrast models from the same pathogen and/or commodity.

ICRA relies on contributions from risk assessors and modelers around the world to submit their models, populating the online catalogue. Therefore, we would like to invite you to upload your model! Don't worry: once your model is "live" on ICRA, you can always come back to revise or even remove it if you would like.

We have developed online tutorials to take you through the basic steps needed to enter your models. There is also a user guide that we recommend you peruse in case you have questions about the ICRA terms and hierarchy. We hope you find it straight forward and easy to understand. Please do not hesitate to contact us if you have any questions or comments.

We hope you find ICRA to be a valuable tool to which you are willing to contribute. On behalf of RIVM, DTU Food, and JIFSAN, I would like to thank you for your time and valuable collaboration. We invite you to explore the models currently in ICRA, as well as to sign up to enter your own models!



# ICRA

Interactive online Catalogue on Risk Assessment

[Home](#)

[View/Compare Models](#)

[Sign Up](#)

[Admin](#)

[Help](#)

[Contact](#)

X

**DVFA QMRA**

Campylobacter | Chicken

**METADATA**

**Region:** Denmark  
**Year:** 2001  
**Developed:** 2001  
**Software:** @Risk

**Description:** The model covers the food chain from entrance at the processing plant until human health risk estimate. The risk assessment was commissioned with the general risk management question "how to control Campylobacter". The model is a stochastic model, developed in Microsoft Excel, using @Risk (an add-in). The unit modelled is a random chicken carcass. The end product is a whole chicken, fresh or frozen.


**MODULES**

Entrance

  
 ↓  

Processing

[View References\(3\)](#)



DVFA QMRA / Processing

X

**CARMA**

Campylobacter | Chicken

**METADATA**

**Region:** Netherlands  
**Year:** 2000  
**Developed:** 2005  
**Software:** @Risk

**Description:** The Campylobacter in chicken meat risk assessment from The Netherlands. It follows the farm to illness pathway.

**MODULES**

Farm

  
 ↓  

processing

  
 ↓  

Cutting

  
 ↓  

retail

  
 ↓  

Consumer

  
 ↓  

Dose response

[View References\(3\)](#)

View References(3)

X

**VLA QMRA**

Campylobacter | Chicken

**METADATA**

**Region:** United Kingdom  
**Year:** 2001  
**Developed:** 1999  
**Software:** @Risk

**Description:** This stochastic model was developed as part of a PHD thesis project to cover the whole farm-to-fork chain from farm to human health risk estimate. Being one of the first of its kind, the model explores several methodologies for different parts of the food chain.

**MODULES**

Farm


  
 ↓  

Transport

  
 ↓  

Processing

[View References\(2\)](#)



VLA QMRA / Processing



DVFA QMRA / Processing

## Processing

### METADATA

Type: Slaughter

Description:

### PHASES



[View References\(0\)](#)

DVFA QMRA / Processing / Scalding

## Scalding

### METADATA

Description: Describes the effect of scalding for a positive flock in a typical industrial processing plant. If the flock is declared infected at entrance, then the following step may be applied - otherwise not.

- contamination\_addition
- prevalence\_change

### QUANTITY LEVEL ONES

Symbol	Unit	Subject
$prev_{scald}$	none	Carcass skin
$C_{scald}^{(i)}$	log (cfu/g)	Carcass skin

[View References\(0\)](#)

[View References\(3\)](#)

CARMA / processing

## processing

### METADATA

Type: Slaughter

Description: Industrial processing in a typical large Dutch processing plant

### PHASES



[View References\(0\)](#)

CARMA / processing / scalding

## scalding

### METADATA

Description: low scalding process

- inactivation\_reduction

### QUANTITY LEVEL ONES

Symbol	Unit	Subject
--------	------	---------

VLA QMRA / Processing

## Processing

### METADATA

Type: Slaughter

Description:

### PHASES



[View References\(0\)](#)

VLA QMRA / Processing / Scalding

## Scalding

### METADATA

Description: estimates additional contamination added during scalding

- contamination\_addition
- growth
- prevalence\_change

### QUANTITY LEVEL ONES

Symbol	Unit	Subject
$I_{sc}$	log cfu/carcass	Carcass

[View References\(0\)](#)





# Processing

## METADATA

Type: Slaughter

**Description:** Processing includes primary processing from entry to the slaughter house to after the immersion chiller. The model examines the effect on the prevalence and numbers of bacteria throughout, including cross contamination at the defeathering stage.

## PHASES



[View References\(0\)](#)

# Scalding

## METADATA

**Description:** Predicts the number of Campylobacter on a carcass after scalding.

- contamination\_addition
- growth
- inactivation\_reduction
- prevalence\_change

## QUANTITY LEVEL ONES

Symbol	Unit	Subject
$N_{\text{after scald}}$	log cfu/carcass	Carcass

[View References\(0\)](#)

## MODULE COMPARISONS

Type:

Slaughter

## PHASE COMPARISONS

inactivation reduction  
 contamination addition | X  
 growth | X  
 prevalence change | X

Dose response

[View References\(3\)](#)

# processing

## METADATA

Type: Slaughter

**Description:** Industrial processing in a typical large Dutch processing plant

## PHASES



[View References\(0\)](#)

# scalding

## METADATA

**Description:** low scalding process

- inactivation\_reduction

## QUANTITY LEVEL ONES

Symbol	Unit	Subject
$N_{\text{extsc}}(i)$	cfu/carcass	Carcass

[View References\(0\)](#)



# ICRA

- <http://icra.foodrisk.org>
- Sign up to enter a model at
  - <http://icra.foodrisk.org/signup>
  - Models must be approved by one of ICRA's moderators before being published live in ICRA's available list of risk assessment models



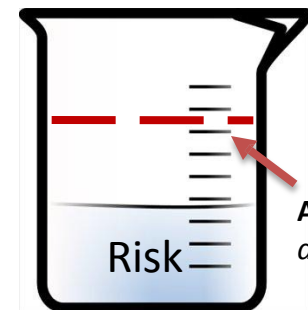
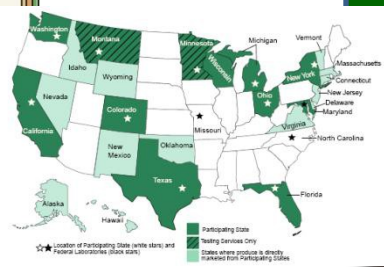
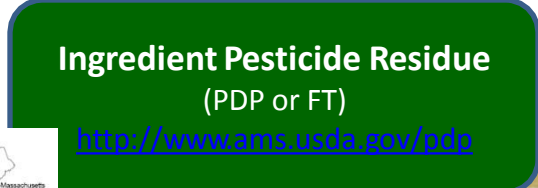
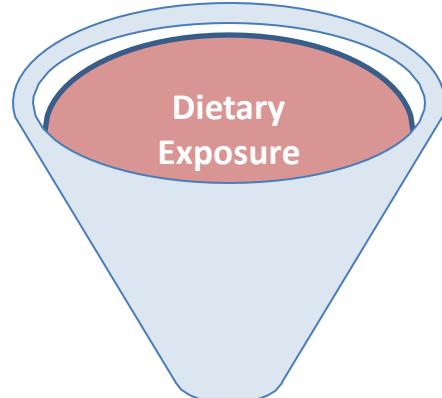
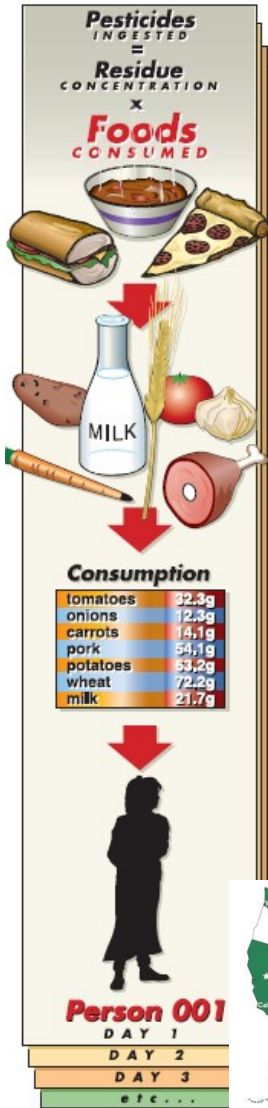
# FCID

- ***What We Eat in America – Food Commodity Intake Database (Currently 2003-2008)***
- Developed by **U.S. EPA's Office of Pesticide Programs (OPP)** to improve the utility of the WWEIA food consumption survey for dietary exposure assessment.
- Translates food consumption as reported eaten in WWEIA (1999-08 survey cycles) and CSFII (1994-96/1998) surveys into consumption of U.S. EPA-defined food commodities.
- Online version developed by **JIFSAN** in collaboration with **EPA**





# Dietary Risk Assessment Model



# Food Commodity Intake Database

What We Eat in America



## Welcome



**Welcome to the U.S. EPA's What We Eat in America - Food Commodity Intake Database, 2003-2008 (WWEIA-FCID 2003-08)!**

WWEIA-FCID 2003-08 was developed by U.S. EPA's Office of Pesticide Programs (OPP) to improve the utility of the WWEIA food consumption survey for dietary exposure assessment. WWEIA-FCID 2003-08 translates food consumption as reported eaten in WWEIA (1999-08 survey cycles) and CSFII (1994-96/1998) surveys into consumption of U.S. EPA-defined food commodities. Such food commodity intakes are expressed as grams of food commodity consumed per kg bodyweight per day for over 500 commodities derived from more than 6000 different foods and beverages reported in the two surveys. WWEIA-FCID 2003-08 is intended to complement the CSFII and NHANES/WWEIA databases in that it provides estimates of food consumption expressed as food commodities as opposed to foods per se (i.e., "as eaten") which can in some exposure and other situations be of more utility. The database also includes WWEIA 2003-08 food consumption and demographic data that is available through CDC's National Center for Health Statistics at [this page](#).

[Read more...](#)

[Frequently Asked Questions](#)

## Getting Started

Click the buttons below to get started.

- The **FCID Recipes** button provides a form that can be used to search FCID recipes and generate a printer-friendly report.
- The **FCID Commodity Consumption Calculator** button is an application that uses NHANES/WWEIA food intake and FCID recipes to estimate food commodity consumption.
- The **Database Contents** button provides a navigatable list of tables and forms in the database.

[FCID Recipes](#)

[FCID Commodity Consumption Calculator](#)

[Database Contents and More Information](#)

What We Eat in America - Food Commodity Intake Database 2003-08

U.S. Environmental Protection Agency - Office of Pesticide Programs  
© University of Maryland 2012 - 2014

Built and Maintained by



## Commodity Consumption Calculator

Caveats re: Use of the Percentile Calculator

Food Commodity / FCID Commodity Code

milk

Food Commodity Group



### Searched Commodities

3600222001 | Milk, fat-baby food/infant for  
 3600223000 | Milk, nonfat solids  
 3600223001 | Milk, nonfat solids-baby foo  
 3600224000 | Milk, water  
 3600224001 | Milk, water-babyfood/infant  
 3600225001 | Milk, sugar (lactose)-baby f  
 3700222501 | Milk, human  
 600349000 | Soybean, soy milk  
 600349001 | Soybean, soy milk-babyfood  
 9500113000 | Coconut, milk

### Selected Commodities

3600222000 | Milk, fat

Add Selected

Remove Selected

Add All

Remove All

### Filters

Age



Years

Months

Min

Max

Gender

All ▼

Race

All ▼

Generate Percentiles

Clear Fields





## Your Search

Commodities:

Milk, fat

[Convert Results to CSV](#)

## Percentage Eaters

98% of total US population eat searched commodities

## Percentiles - commodity mass (g)

	N	Mean	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
Commodity Eaters Only	46,943	18.2	0.6	2	3.5	5.1	6.5	7.9	9.4	11	12.6	14.3	15.9	17.8	19.8	22.3	25	28.2	32.2	38.4	49.1	210.1
Total Population	49,237	17.8	0.1	1.4	2.8	4.6	6	7.5	8.9	10.5	12.2	13.9	15.6	17.4	19.5	21.9	24.7	27.9	31.9	38	48.7	210.1

## Percentiles - commodity mass (g) per body mass (kg)

	N	Mean	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
Commodity Eaters Only	46,943	0.3	0	0	0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.8	1.2	8.7
Total Population	49,237	0.3	0	0	0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.8	1.2	8.7



# FCID

- <http://fcid.foodrisk.org>
- Coming Soon
  - Update to FCID 2005 – 2010
  - More significant digits
  - Notation for real zero vs rounded zero results
  - Updated interface for mobile device use
  - Ability to switch between new and old datasets



# FDA-iRISK®

- Web-based, risk ranking tool that enables one to compare public-health impact of microbial and chemical hazards
  - One hazard in different foods (Ecoli in ground beef, leafy greens)
  - Multiple hazards in a single food (Ecoli , salmonella, in leafy greens)
  - Multiple hazards in multiple foods





# FDA-iRISK®

- **Food and Drug Administration Center for Food Safety and Applied Nutrition (FDA/CFSAN)**
- **Joint Institute for Food Safety and Applied Nutrition (JIFSAN)**
- **Risk Sciences International (RSI)**





# FDA-iRISK<sup>®</sup> (cont.)

- Conduct fully quantitative, fully probabilistic risk assessments relatively rapidly and efficiently
- Compare and rank risks from multiple foodborne microbial and chemical hazards
- Predict effectiveness of prevention and control measures.
- Use FDA-iRISK<sup>®</sup>'s estimates of public-health impact to inform food-safety policy and management decisions. Source: FDA iRisk webinar





# iRISK Model Uses Established Components of Risk Assessment

## Hazard Identification

Describes hazard / host / food characteristics that impact the risk

## Exposure Assessment

How often is the hazard ingested?  
How many are ingested?

## Hazard Characterization

For a given ingested dose,  
how likely is the adverse effect?

## Risk Characterization

What is the probability of occurrence of the adverse effect?  
What is the impact of **interventions** to change the risk?



# What iRISK can do – a snapshot

- **Enables users to construct risk scenarios more easily**  
(user inputs data via online interface)
- **Carries out calculations** via Monte Carlo simulation
- **Saves data and presents results in two forms:**
  - brief, convenient table
  - accompanying full-documentation report, for reference



# iRISK: Some Features

- Built-in math / probabilistic calculation functions
- Built-in standard data entry templates
  - Users input data reflecting their real-world situations
- Built-in quick tutorial with examples
- Enables assessment/comparison of risks at all stages in food supply system
- Enables intervention comparisons
- Results presented as public-health metrics



# Examples of User Input (Data)

- Process model
  - Initial prevalence and levels
  - production/processing/handling steps
- Consumption patterns
- Dose-response relationship
- Health outcomes

**...all represented by quantitative data**



# Health Impact Metrics

- **Disability Adjusted Life Years (DALY)**, a commonly used metric
  - **Integrates info** on severity, duration of illness (burden of disease)
  - **Translates** # of illness cases & deaths **into common metric** (years of healthy life lost)
  - **Allows comparison** of burden of disease from microbial pathogens and chemical hazards (may have different illness severity and duration)



## Home

FDA-iRISK is a web-based system designed to analyze data concerning microbial and chemical hazards in food and return an estimate of the resulting health burden on a population level.

The data required to execute this analysis include the food and its associated consumption data and processing/preparation methods, the hazard and its dose-response curve, and the anticipated health effects of the hazard when ingested by humans. Each of these elements contributes an essential piece of information to the model on which the final estimate of risk is based.

When you register, you will be assigned your own personal workspace in which to model food/hazard risk scenarios. You may also share this workspace with others to view.

For a complete description, review the Quick Start Tutorial and User Guide on the [Help](#) page before beginning.

Please [Login](#) or [Register](#).

## Suggested Citation

Where the FDA iRISK system is used in risk assessment research and other food safety activities, reference to the system should be made as follows:

Food and Drug Administration Center for Food Safety and Applied Nutrition (FDA/CFSAN), Joint Institute for Food Safety and Applied Nutrition (JIFSAN) and Risk Sciences International (RSI). 2012. FDA-iRISK version 1.0. FDA CFSAN. College Park, Maryland. Available at <http://irisk.foodrisk.org/>.

HOME -&gt; my models

## Risk Models

Select a hazard, food, process model or risk scenario to work with on the tabs below, or add a new one.

Dose response models and hazard metrics are defined as part of hazards. Consumption models are included as part of foods. Process models modify hazard concentration in the food as the food is processed.

Computed risk scenarios combine information from previously-defined food, hazard, dose response, hazard metric, consumption and process model entries to compute a risk measure. Specified risk scenarios use provided data to compute the risk measure for a previously-defined food and hazard.

For a complete description, review the Quick Start Tutorial and User Guide on the [Help](#) page before beginning.

Show models for :

[Hazards \(4\)](#) [Foods \(4\)](#) [Process Models \(4\)](#) [Risk Scenarios \(6\)](#)

### Hazards

Select a hazard from the list below to edit or delete, or add a new hazard. Dose response models and hazard metrics are defined as part of the hazard.

Hazard	Type	<a href="#">Add Hazard</a>
Aflatoxin B1	Chemical	<a href="#">Edit</a> <a href="#">Delete</a>
Ammonia	Chemical	<a href="#">Edit</a> <a href="#">Delete</a>
L. monocytogenes	Microbial Pathogen	<a href="#">Edit</a> <a href="#">Delete</a>
Salmonella	Microbial Pathogen	<a href="#">Edit</a> <a href="#">Delete</a>



Home -> Reports -> Rank Scenarios


## Rank Scenarios Report

The report title and abstract provided will be included in the report. Use the checkboxes to select which scenarios to include in the report and click "Generate Report For Checked". Or, click "Generate Report For All Listed" to select all.

If the list of scenarios is very long, use the filters to refine the list.

Any scenarios with the same Group text will be treated as a group during ranking (their individual results will be summed).

Clicking on the "Generate" buttons will submit the request to a queue. Use the Report History tab on the Reports page to view its status.

List scenarios for: My Account 

Report Title: iRISK Scenario Ranking Summary Report

Report Abstract:

### Filters:

Food

Hazard

Metric

Exposure

Type

All

All

All

All

All

### Group

### Run Scenario



Aflatoxin B1 in Tortilla Chips  
*(Tortilla Chips, Aflatoxin B1, DALY, Chronic, Computed)*

# FDA-iRISK®

- <http://irisk.foodrisk.org>
- <http://foodrisk.org/exclusives/fda-irisk-a-comparative-risk-assessment-tool/>



# PPOD

- ***Produce Point of Origin Database***
- Selected commodity-specific information on the movement of produce in the United States, either domestic or international, based on seasonality data.
- Data are compiled from the **United States Department of Agriculture (USDA) Agricultural Marketing Service (AMS) Market Reports.**





# PPOD

- Commodities are supplemented with commodity-specific facts such as shelf life and links to information on the **Centers for Disease Control and Prevention (CDC) Outbreak Response Team (ORT)** and **Food and Drug Administration (FDA) Outbreak Investigations** websites
- Funded through FDA's Cooperative Agreement with JIFSAN



## Produce Point of Origin Database

### Commodity Movement Search

Welcome to the Produce Point of Origin Database (PPOD). PPOD is a searchable database that provides selected commodity-specific information on the movement of produce in the United States, either domestic or international, based on seasonality data. The information is compiled from the United States Department of Agriculture (USDA) Agricultural Marketing Service (AMS) Market Reports.

The movement data is categorized for each commodity by year and month, and includes only shipments exceeding 100,000 lbs. (with the exception of herbs). Commodity-specific facts on the shelf life and examples of related outbreaks, if applicable, are also provided for each type of produce. Links to information on the Centers for Disease Control and Prevention (CDC) Outbreak Response Team (ORT) and Food and Drug Administration (FDA) Outbreak Investigations are also available on the page of each produce commodity.

*We hope that you find this searchable database useful in researching the movement of produce commodities in the United States.*

Data is based on a custom movement report from the [United States Department of Agriculture/Agriculture Marketing Service's Fruits and Vegetable Portal](#). More about the data can be found on our [Methods Page](#)

### Commodities

Please select one of the following commodities to receive more data:

- Arugula
- Avocado
- Basil
- Blackberry
- Blueberry
- Cabbage
- Cantaloupe
- Cilantro
- Cucumber
- Green Grapes
- Green Onion
- Honeydew Melon
- Jalapeno Pepper
- Kale
- Lettuce (Iceberg)
- Lettuce (Domestic)

### Location

ARGENTINA

Location Results

◀ Return to Commodity Select

### Honeydew Melon



#### Shelf Life:

Storage of honeydew melon is 12-15 days at 45°F and 85% - 90% humidity.

#### For more information:

- <http://www.cdc.gov/foodsafety/outbreaks/surveillance-reporting/investigation-toolkit.html>
- [www.fda.gov/Food/RecallsOutbreaksEmergencies/Outbreaks/ucm272351.htm](http://www.fda.gov/Food/RecallsOutbreaksEmergencies/Outbreaks/ucm272351.htm)

### Commodity Report

#### LOCATION

All

#### YEAR

Select All

- 2009
- 2008
- 2007
- 2006
- 2005
- 2004

#### MONTH

Select All

- |  |                                 |
|--|---------------------------------|
| <input checked="" type="checkbox"/> 01-JAN | <input type="checkbox"/> 07-JUL |
| <input checked="" type="checkbox"/> 02-FEB | <input type="checkbox"/> 08-AUG |
| <input checked="" type="checkbox"/> 03-MAR | <input type="checkbox"/> 09-SEP |
| <input type="checkbox"/> 04-APR            | <input type="checkbox"/> 10-OCT |
| <input type="checkbox"/> 05-MAY            | <input type="checkbox"/> 11-NOV |
| <input type="checkbox"/> 06-JUN            | <input type="checkbox"/> 12-DEC |

Filter Results

[Click Here to Download Data](#)Show  entriesSearch: 

Transport Type	Location	Year	Month	Amount(x100,000LBS)
Truck	MEXICO	2012	01-JAN	37
Truck	MEXICO	2013	01-JAN	89
Truck	MEXICO	2012	02-FEB	84
Truck	MEXICO	2013	02-FEB	86
Truck	MEXICO	2012	03-MAR	76
Truck	MEXICO	2013	03-MAR	96
Boat	PANAMA	2012	02-FEB	<1
Boat	PANAMA	2012	03-MAR	1
Boat	DOMINICAN REPUBLIC	2012	01-JAN	<1
Boat	DOMINICAN REPUBLIC	2012	02-FEB	<1
Boat	HONDURAS	2012	01-JAN	50
Boat	HONDURAS	2013	01-JAN	128
Boat	HONDURAS	2012	02-FEB	142
Boat	HONDURAS	2013	02-FEB	157
Boat	HONDURAS	2012	03-MAR	127
Boat	HONDURAS	2013	03-MAR	157
Boat	COSTA RICA	2012	01-JAN	5
Boat	COSTA RICA	2013	01-JAN	27
Boat	COSTA RICA	2012	02-FEB	25
Boat	COSTA RICA	2013	02-FEB	55
Boat	COSTA RICA	2012	03-MAR	29
Boat	COSTA RICA	2013	03-MAR	43
Boat	BRAZIL	2012	01-JAN	6
Boat	BRAZIL	2013	01-JAN	6
Boat	BRAZIL	2013	02-FEB	6

Showing 1 to 25 of 35 entries

[Previous](#) [Next](#)**About the data:**

- <1 – Data exists for this data point but is less than 100,000LBS
- If data point does not exist for a queried month it is 0

Data was gathered from a custom movement report generated by the USDA Agricultural Marketing Service's ["Fruit & Vegetable" Portal](#)  
 For more information about our data see our [methods page](#).

# PPOD

- <http://ppod.foodrisk.org>
- Launching Soon
- Future Applications of PPOD





# Future - NoroDB

- ***Norovirus Literature Database***
- **FDA Center for Food Safety and Applied Nutrition (CFSAN) compiled**
- Searchable
- Coded with keywords for:
  - Research Keywords
  - Detection Methods
  - Viruses
- Funded through FDA's Cooperative Agreement with JIFSAN



## Literature Overview



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[<< first](#)
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[9](#)
[10](#)
[11](#)
[12](#)
[13](#)
[next >](#)
 Jump to page:

Page 13 of 13, showing 47 records out of 1247 total, starting on record 1201, ending on 1247

Leading Authors	Title	Year	Journal	Volume	Pages	View
Hoffmann, S., Batz, M.B., Morris, J.G.	<a href="#"><u>Annual Cost of Illness and Quality-Adjusted Life Year Losses in the United States Due to 14 Foodborne Pathogens</u></a>	2012	Journal of Food Protection	75	1292-1302	<a href="#">View</a>
Shen, Q., Zhang, W., Yang, S., Cui, L., Hua, X.	<a href="#"><u>Complete Genome Sequence of a New-Genotype Porcine Norovirus Isolated from Piglets with Diarrhea</u></a>	2012	Journal of Virology	86	7015-7016	<a href="#">View</a>
Horm, K.M, Davidson, P.M., Harte, F.M., D'Souza, D.H.	<a href="#"><u>Survival and Inactivation of Human Norovirus Surrogates in Blueberry Juice by High-Pressure Homogenization</u></a>	2012	Foodborne Pathogens and Disease	9	974-980	<a href="#">View</a>
Horm, K.M, Harte, F.M., D'Souza, D.H.	<a href="#"><u>Human Norovirus Surrogate Reduction in Milk and Juice Blends by High Pressure Homogenization</u></a>	2012	Journal of Food Protection	75	1984-1990	<a href="#">View</a>
Menon, V.K., George, S., Aladin, F., Nawaz, S., Sarkar, R., Lopman, B., Gray, J.J., Iturriza Gomara, M., Kang, G.	<a href="#"><u>Comparison of Age-Stratified of Antibodies against Norovirus GII in India and the United Kingdom</u></a>	2013	PLOS One	8	e56239	<a href="#">View</a>
Dai, Y.C., Zhang, X., Tan, M., Huang, P., Lei, W., Fang, H., Zhong, W., Jiang, X.	<a href="#"><u>A Dual Chicken IqY against rotavirus and norovirus</u></a>	2013	Antiviral Research	97	293-300	<a href="#">View</a>
David, R.	<a href="#"><u>Norovirus strikes back</u></a>	2013				<a href="#">View</a>
Murray, T.Y., Mans, J., Taylor, M.B.	<a href="#"><u>Human Calicivirus diversity in wastewater in South Africa</u></a>	2013	Journal of Applied Microbiology		1-11	<a href="#">View</a>



# Future – Violations Database

- ***A National Standardized Database of Food Safety Inspections for Retail Establishments***
  - Integrate open government data of food safety inspections for retail establishments
  - Build, maintain, study and distribute a national standardized database
  - Develop and provide data analysis tools
  - Offer a platform for local governments to contribute, share and utilize food safety data
- An academic team led by Professors Bederson, Jin and Leslie at **University of Maryland** and **UCLA**
- Funded by **Sloan Foundation** 2011-13
- To be joint with **JIFSAN** for future growth

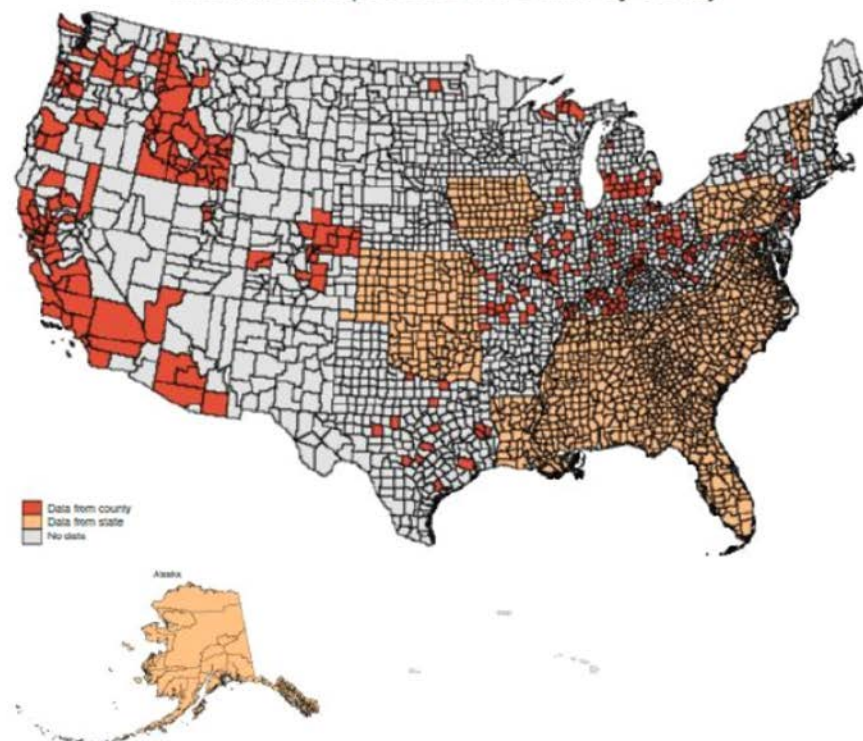


# Restaurant Food Safety Inspections

## Digital Disclosure with a Nationally Standardized Database

Jump to: [Project Description](#) | [Participants](#)

### Restaurant Inspection Data Online by county



## PROJECT DESCRIPTION

The goal of this project is to compile, study, and openly distribute a nationally standardized database of government health inspectors' restaurant ratings.

Information disclosure is an important policy tool in many contexts. By empowering consumers to make more informed choices, firms face enhanced incentives for delivering high quality services. If the disclosed information reflects regulatory activities, disclosure also allows the public to better monitor the government and improve the efficacy of regulation. Several studies verify this intuition, including our own research showing that the posting of restaurant hygiene grade cards in restaurant windows in Los Angeles in 1998 caused a 20% reduction in the number of people admitted to hospital with food-related illnesses ([Jin and Leslie, 2003](#)).





## restaurant inspections

[about](#)

Showing results 1-100 of 1208 | [Next](#)

1. [Jack in the Box](#)  
5920 Cutting Blvd, El Cerrito, CA 94530
2. [Jack in the Box](#)  
4740 Clayton Rd, Concord, CA 94530
3. [Jack in the Box](#)  
1051 Willow Pass CT, Concord, CA 94530
4. [Jack in the Box](#)  
3400 N Macarthur Dr, Tracy, CA 95376
5. [Jack in the Box](#)  
733 W Charter Way, Stockton, CA 95206
6. [Jack in the Box](#)  
1695 El Camino Real, S San Francisco, CA 94080
7. [Jack in the Box](#)  
22661 Lake Forest Dr, Lake Forest, CA 92630
8. [Jack in the Box](#)  
720 E Dyer Rd, Santa Ana, CA 92705

<i>Jurisdiction</i>	<i># of restaurants</i>	<i># of violations</i>
<b>Totals</b>		
<a href="#">Adams County, CO</a>		
<a href="#">Alameda County, CA</a>		
<a href="#">Clackamas County, OR</a>		
<a href="#">Contra Costa County, CA</a>		
<a href="#">Denver City, CO</a>		
<a href="#">El Paso County, CO</a>		
<a href="#">Fort Worth City, TX</a>		
<a href="#">Harris County, TX</a>		
<a href="#">Houston City, TX</a>		
<a href="#">Kern County, CA</a>		
<a href="#">King County, WA</a>		
<a href="#">Los Angeles County, CA</a>		
<a href="#">Maricopa County, AZ</a>		







# Analyses supporting rulemaking

## FoodRisk.org

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SEARCH

**TOOLS & RESOURCES**

- Tools
- Risk Assessment Models
- Risk Assessment Repository
- Databases
- Datasets
- Learning Resources
- Software

**SELECTED TOPICS**

- Overview of Risk Analysis
- Risk Assessment
- Risk Management
- Risk Communication
- Epidemiology & Surveillance
- Economics

Home » Risk Assessments

## Risk Assessments

[Avian Influenza](#) | [BSE](#) | [Cattfish](#) | [E. Coli O157:H7](#) | [Non-O157 STEC](#) | [Poultry Slaughter](#) | [Ready-to-Eat Meat & Poultry Products](#) | [Risk-Based Sampling Algorithms](#) | [Shell Eggs & Egg Products](#)

## Economic Analysis

## Rules

[Regulations.gov](#)

[About](#) | [Exclusives](#) | [Events](#) | [IRAC](#) | [Consumer](#) | [Tools](#)

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## USDA/ARS/BHNRC

- The **University of Maryland's College of Agriculture and Natural Resources' Center for Food Safety and Security Systems (CFS3)** entered into a 5-year agreement with **USDA's Agricultural Research Service's Beltsville Human Nutrition Research Center (BNHRC)**
- To help evaluate and upgrade their computer systems and information databases.



# USDA/ARS/BHNRC

- **Improving the use of nutrient data collected at USDA and the private sector**
  - Looking at ways to augment the USDA National Nutrient Database with ***“nutrient composition of branded foods and private label” data provided by the food industry.***





# ATIP - Branded Food Products Database for Public Health

- USDA maintains a National Nutrient Database
- Food industry has compositional data for their own products, very little of that data is publicly available through the database.
- Public-Private Partnership:
  - USDA/ARS
  - **International Life Sciences Institute (ILSI) North America**
  - **ATIP (Agricultural Technology Innovation Partnership) Foundation**
- Ensure this information will be made available to those who utilize such data including the government, the scientific community, proprietary end users, and the food industry.





# Other Training Programs AT JIFSAN



# GAPs WORLDWIDE

**Mexico**  
(2002, 2003 (twice),  
2005, 2006, 2009, 2010  
(twice), 2011, 2013)

**Guatemala**  
(2004, 2007, 2009)

**Honduras**  
(2004, 2009, 2012\*)

**El Salvador**  
(2006, 2009)

**Nicaragua**  
(2007, 2008)

**Costa Rica**  
(2008, 2010\*)

**Dominican  
Republic**  
(2002, 2009)

**Jamaica** (2013)

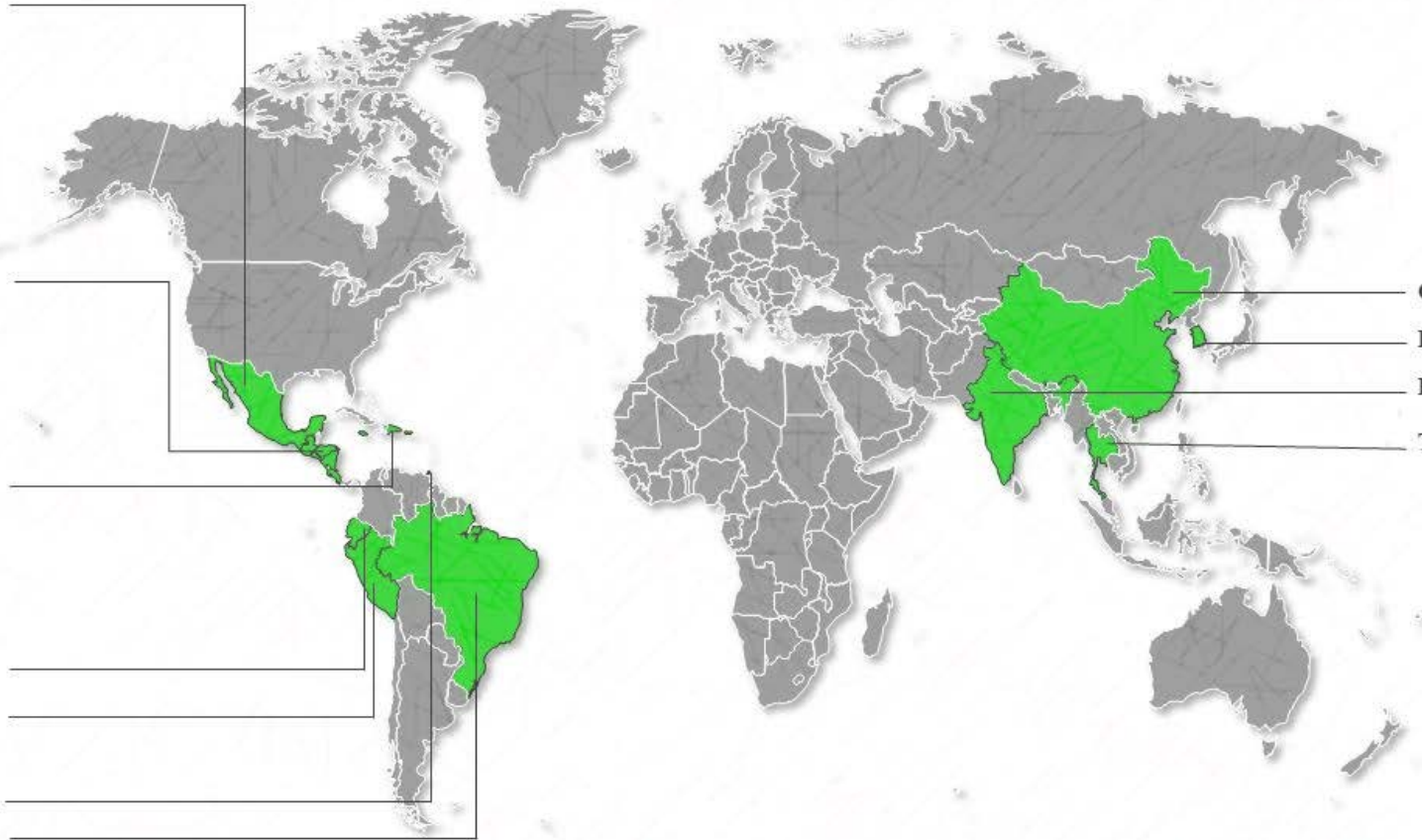
**Puerto Rico**  
(2002)

**Ecuador** (2013)

**Peru**  
(2003\*, 2007,  
2008, 2010)

**Trinidad** (2000\*)

**Brazil**  
(2001, 2005)



**China** (2006)

**Korea** (2004)

**India** (2012, **spice**)

**Thailand** (2005)

Not included in the map: 10 day internship in the US for India spice (2013)

\*: The following GAP trainings were regional trainings:

**Trinidad 2000**: West Indies.

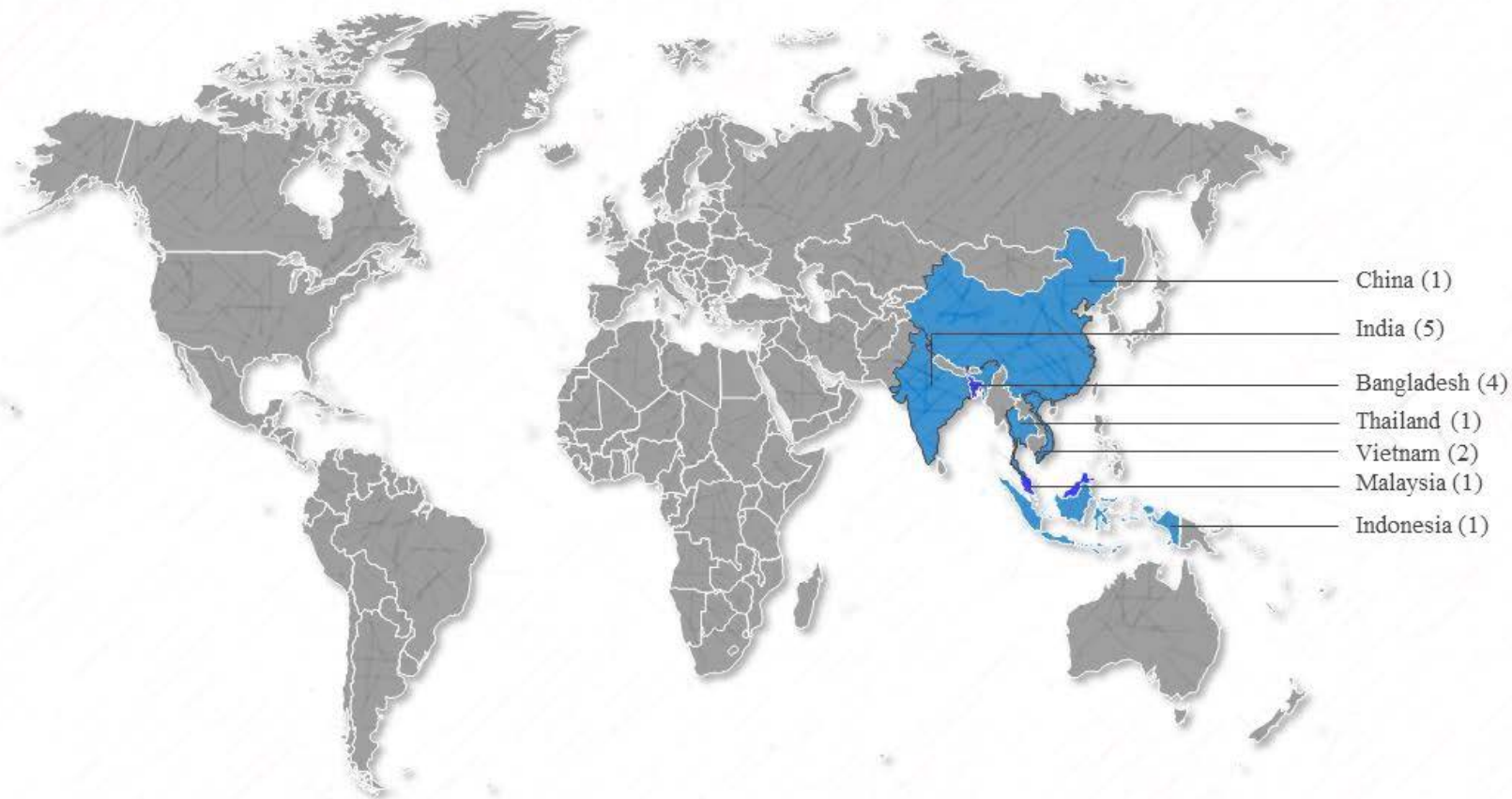
**Peru 2003**: Andean Region (Bolivia, Colombia, Ecuador, Peru, and Venezuela).

**Costa Rica 2010**: Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá), Dominican Republic, and Mexico.

**Honduras 2012**: Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá), Dominican Republic, Mexico, and the OIRSA office.



# GAqPs WORLDWIDE



Not included in the map: 10-day internship in the US for 9 Bangladeshi trainers (2010)

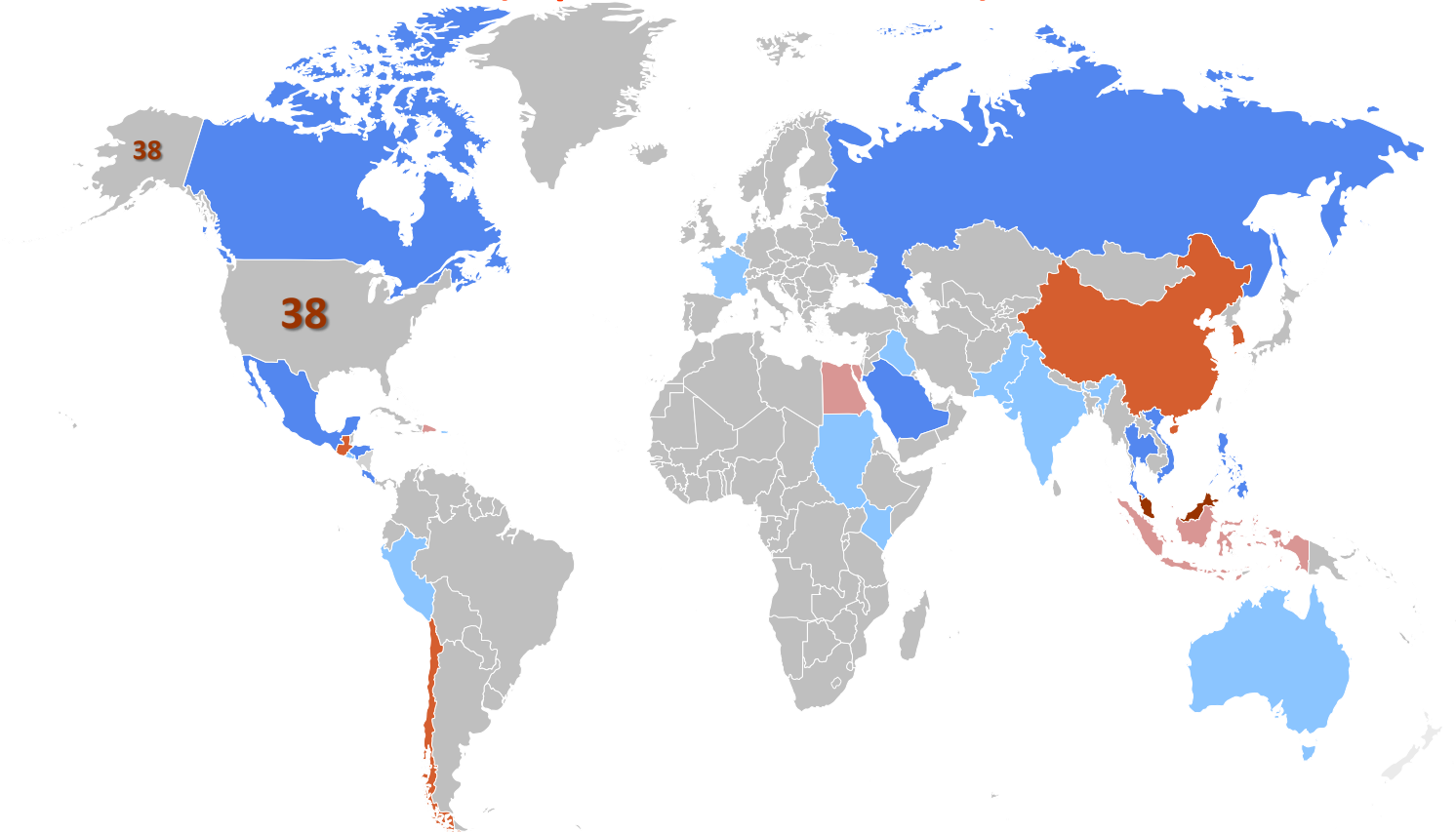
**One training session:** China (2011), Indonesia (2007), Malaysia (2010), Thailand (2007);  
**Two training sessions:** Vietnam (2006, 2012);  
**Four training sessions:** Bangladesh (2008, 2009, 2010, 2011);  
**Five training sessions:** India (2012, 2013 (four sessions in the same year in different cities)).

# CSPF & FIT WORLDWIDE



# IFSTL Participants WORLDWIDE

(up to Dec 2013)



**15 or more participants:**

Malaysia (18), USA (38)

10 to 14 participants:

Guatemala (10), Chile (11), China (11), Korea (14)

6 to 9 participants:

Dominican Republic (7), Egypt (6), Indonesia (9)

2 to 5 participants:

Canada (2), Costa Rica (2), Honduras (2), Philippines (2), Saudi Arabia (2), Thailand (2), Mexico (3), Russia (3), Vietnam (3)

Only one participant:

Australia, Barbados, El Salvador, France, India, Iraq, Kenya, Netherlands, Pakistan, Peru, Puerto Rico, Saint Lucia, Sudan



# Global Collaborating Training Initiative

- Obtain support through partnerships with host country, industry and local institutions
- Utilize existing resources within host country
- Develop a cadre of in-country trainers to conduct on-going extension-like training



## TRAINING CENTERS WORLDWIDE



- **Bangladesh (GAqP)**
    - Bangladesh Shrimp and Fish Foundation
  - **India (Supply Chain Management for Spices and Botanical Ingredients)**
    - CII Jubilant Bhartia Food and Agriculture Centre of Excellence
    - Spice Board
  - **Mexico (GAP)**
    - SENASICA who is reaching out to universities in MX
    - National Autonomous University of Mexico (initial partner)
  - **Thailand (CSPF)**
    - King Mongkut’s University of Technology Thonburi (KMUTT)
    - Chulalongkom University
- ❖ To provide a vehicle and framework to sustain in-country regional training and capacity building thereby leveraging JIFSAN and FDA training resources.





# International Food Training Center in Malaysia

In February 2013, JIFSAN, Delta Professional Consultancy and the Malaysia Ministry of Health initiated a 3 year project that focuses on building: laboratory testing capacity; risk analysis capabilities; increasing the skills of the Ministry's food inspection staff; and increasing their understanding of global food laws and regulations.



Courses taught so far:

## At JIFSAN

Methods for Development of Pesticides Residue Analysis and Use of Data in Risk Analysis

Risk Analysis

Methods of Identification of Salmonella and Campylobacter in Food

Methods for Identification of Shiga toxin Producing E. coli Lab

## In Malaysia

Food Inspection Training Microbiological Food Safety Lab

Food Safety and Food Defense

Global Food Laws and Regulation





# Success based on key principles

- Flexibility
- Country/market sector ownership and involvement
- Program aligns with country partners' agenda and using country partners' systems
- Country partners set the agenda based on needs of the country's food safety system/market sector
- Country partner identifies/obtains the resources to develop and sustain the program

