Harnessing Public-Private Partnerships to Improve Food Safety & Nutrition Outcomes

A Partnership for Public Health:

USDA Branded Food Products Database

October 18, 2018

USDA ILSI North America GS1 US WORLD SYNC LABELINSIGHT UNIVERSITY OF MARYLAND CFS³ Center for Food Safety and Security Systems UM FDA

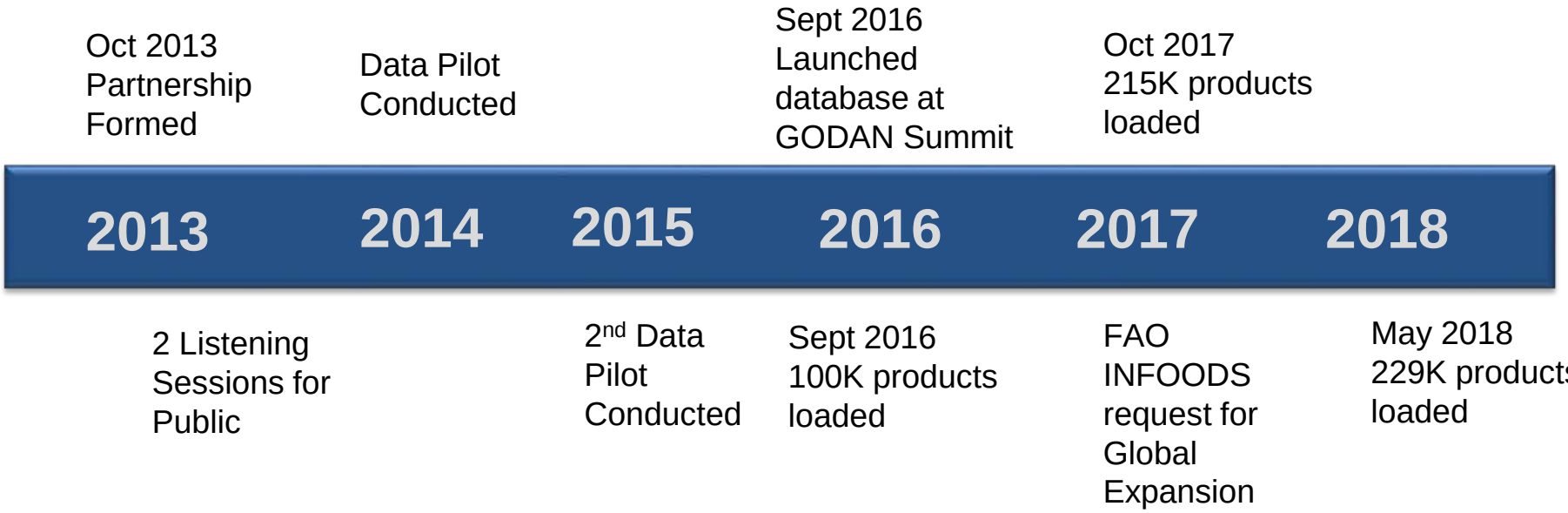
A Partnership for Public Health: USDA Branded Food Products Database

Why was the USDA Branded Food Products Database established as a Public-Private Partnership?

- The 6 Partners came together:
  - as this project could not be accomplished by any single Partner alone
  - with expertise in data quality and management, data collection, supply chain standards, and research knowledge that was essential to success
  - for a shared goal and the skill to deliver

- This successful PPP is a model for how multiple sectors can collaborate to benefit public health.

Partnership Journey



Evolution of Partnership Development

- ILSI North America publication, "Principles for Building Public-Private Partnerships to Benefit Food Safety, Nutrition and Health Research" published in the October 2013 issue of Nutrition Reviews.

- Partnership formed in 2013

- Steering Committee
- Operations and Management Group
- Criteria Group
- Data Quality Subgroup
- IT Infrastructure Group
- Communications Group

Food Composition Databases Enter the World of Big Data

- The research community felt that the benefit of gaining a much larger amount of computed data by food manufacturers on food products far outweighed the desire for analytical data

- This was a paradigm shift for the USDA

1st Beta Test

- Identified which attributes need to be “Mandatory” vs. “Recommended” in the USDA Branded Food Products Database GS1 Implementation Guide as agreed by the Partnership.
- Beta test companies learned how to publish nutritional data through the GS1 standards. The submission of nutrient information to GS1 is a new process for food manufacturers.
- Quality control checks have been established at the GS1 level to ensure that mandatory attributes as decided upon by the Partnership are provided.
- The USDA Nutrient Data Lab understands they must accept data as submitted by the manufacturer and previous procedures for quality control checks at the USDA level are unobtainable due to the sheer volume of data that will be received.

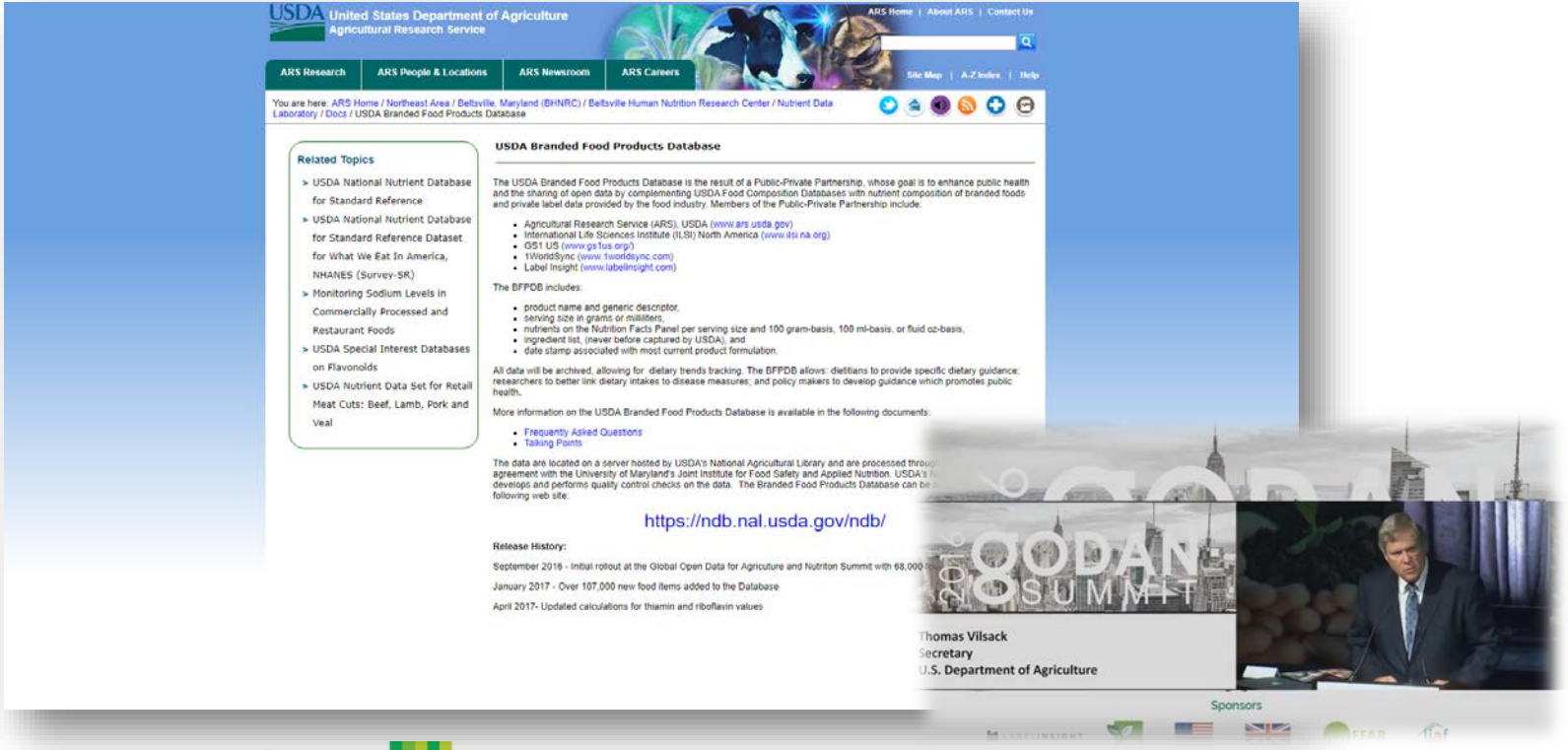
Nutrient Distribution for Beta Test of USDA Branded Food Products Database

Nutrients	Beta Test Products
Calories, Protein, Fat, Carbohydrates, Dietary Fiber, Sugars, Calcium, Iron, Vitamin C, Vitamin A, Saturated Fatty Acids, Trans Fatty Acids, Cholesterol	240
Phosphorus	27
Potassium	59
Zinc	27
Riboflavin	27
Pantothenic acid	25
Folate, total	27
Monounsaturated fatty acids	58
Polyunsaturated fatty acids	57

2nd Beta Test

- Created two separate mechanisms in which food companies could provide data.
  - GS1 mechanism through 1WorldSync
  - Food label scanning through Label Insight
- These mechanisms provided environments in which food companies have control over their data within a 3rd party environment outside of University of Maryland and USDA.
- Both 1WorldSync and Label Insight voluntarily provided access to test data to successfully complete the 2nd beta test.
- Over 1,000 foods were tested, allowing a greater understanding of the data.

Launched USDA Branded Food Products Database in September 2016 at GODAN Summit



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Impact by the numbers

- In the inaugural year, the USDA Branded Food Products Database and the USDA National Nutrient Database had a combined **17 million** page views from **1.2 million** users.

- Today, it is the 4th most used API offered by the US government

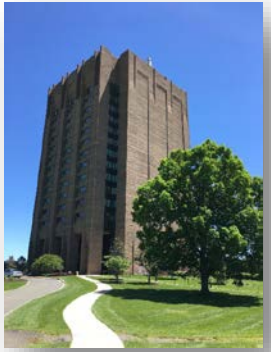
Success Factors

The USDA Branded Food Products Database is embedded within the USDA National Nutrient Database, which is recognized by the research community worldwide as the gold standard for food composition databases.

More About the USDA Branded Food Products Database

- Hosted by USDA's National Agricultural Library, who also enhanced the search program to improve the user interface.
- Accessed through the same search program as the USDA National Nutrient Database for Standard Reference, but is clearly identified as a distinctive, yet connected, Database.

NAL National Agricultural Library
Advancing Access to Global Information for Agriculture



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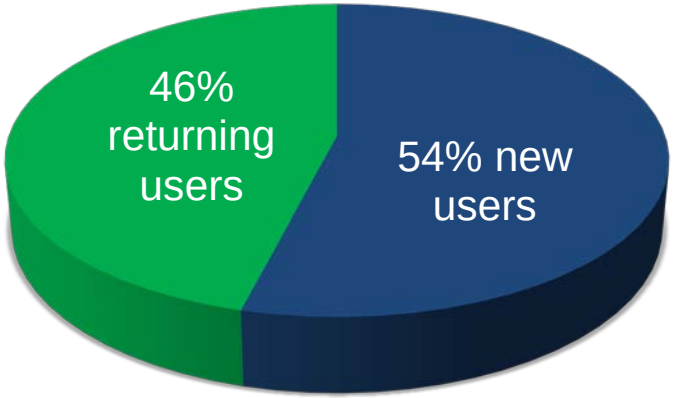
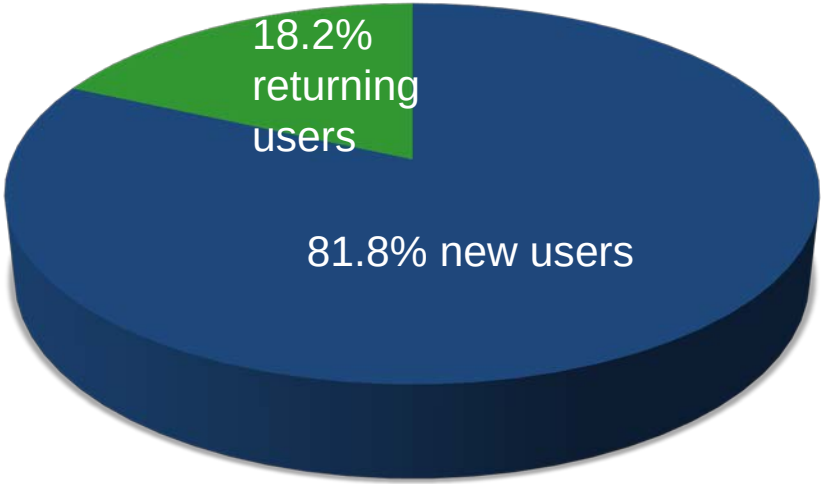
Users of the Database

August 2017



Q1 and Q2 2018



Stakeholders and their questions

Food Industry and App Developers

- Downloads
- API
- Formulations
- Analytical methods
- Database updates

Educators

- Curriculum development
- Using as a tool to teach food labeling

Consumers

- Support for navigating the database
- Nutrients missing from database
- Nutrients in foods

Researchers

- Nutrient content of foods over time
- Nutrient retention

What it Took to Facilitate the Rules of Engagement for the Public-Private Partnership, Engage the Public Sector to Tell Us What They Want, and Invite the Private Sector to Voluntarily Submit Data

Achieving a transparent, actionable framework for public-private partnerships for food and nutrition research

2015; 101:1359-63

Prerequisite principle:

- Have a clearly defined and achievable goal to benefit the public.

Governance principles:

- Articulate a governance structure including a clear statement of work, rules, and partner roles, responsibilities, and accountability, to build in trust, transparency, and mutual respect as core operating principles – acknowledging there may be "deal breakers" precluding the formation of an effective partnership in the first place.
- Ensure that objectives will meet stakeholder partners' public and private needs, with a clearly defined baseline to monitor progress and measure success.

Operational principles:

- 9 principles

How we define success

- The Database can be directly linked to specific years of NHANES surveys, to more accurately assess dietary intakes of the USA.
- Having an historical record of branded and private label foods, enabling comparisons of current and past consumptions.
- Ability to track changes in the food supply linked with efforts to foster that change.
- Providing stronger data needed to inform public policy and regulatory decisions.

Success Factors

- The Partners were successful in gaining voluntary submission of data from food manufacturers because of the two options available for data submission.
- Both of these options are trusted, secured mechanisms for manufacturers to submit their data for inclusion in the USDA Branded Food Products Database.
- Options offered leverage current business practices, making the sharing of this data with the USDA seamless.

FAO INFOODS

Partners met with FAO INFOODS at the International Congress on Nutrition in October 2017 Buenos Aires, Argentina

Global Expansion

- 2018—Discovery phase
- 2019—Pilot expansions

National Nutrient Databank Conference July 2018

- The database research community recognizes the need for collaboration in collection of branded food data

- The transition has begun:
  - The National Sodium Monitoring Program
  - The Harvard School of Public Health epidemiology research studies

- Importance of standardizing the approach to food categories

Exploring New Collaborations

Child Nutrition Programs

Consumer Food Data Systems

What it took to Accomplish Data Sharing and Create Usable Database Data

How are suppliers submitting data?

1. 1WorldSync via GS1 Global Data Synchronization Network

2. Label Insight

- Data provided is formatted per the GS1 Standard
- University of Maryland receives product data directly from the above partners, aggregates, and publishes

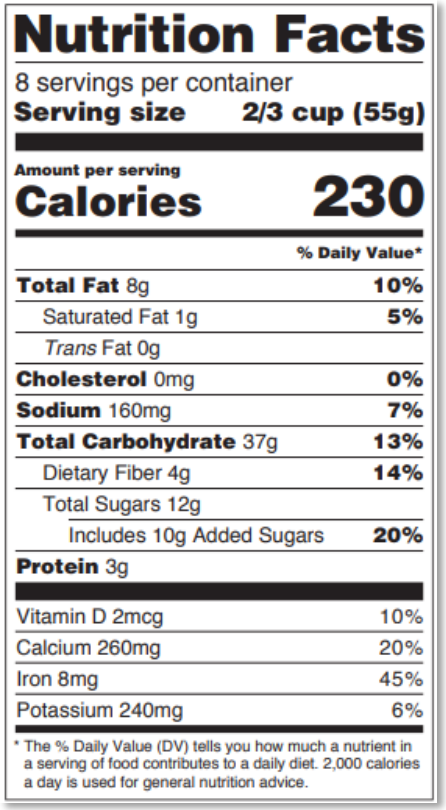
Unprecedented Coverage

- 251,035 branded products
- 84% sales coverage
- National and regional brands
- 238 food categories

Unprecedented Data

Every one of the 251,000+ products in the USDA Branded Food Products Database is available to search and filter on:

- U.P.C. and Global Trade Item Number, GTIN
- 3 million Nutrients
- Ingredients
- Brand and Product Description
- Size and Net Weight
- Serve Size and Standardized Weights/Volumes
- Date Collected



Nutrition Facts

8 servings per container

Serving size **2/3 cup (55g)**

Amount per serving

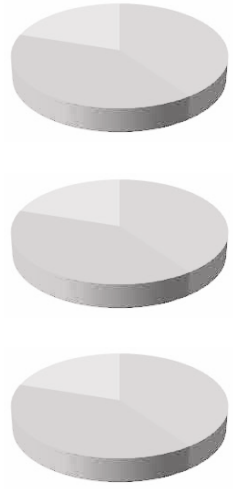
Calories **230**

	% Daily Value*
Total Fat 8g	**10%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 160mg	**7%**
Total Carbohydrate 37g	**13%**
Dietary Fiber 4g	**14%**
Total Sugars 12g	
Includes 10g Added Sugars	**20%**
Protein 3g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 240mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Unprecedented Access

- The USDA Branded Foods Database is in the public domain and is accessible via an Application Programing Interface (API) or directly via the internet where users can search, filter, and export their results.



4th highest API traffic on data.gov

969,268 users through Q2 2018

11,879,345 page views through Q2 2018

Data Quality is more than a number

With research as the primary use case, Data Quality is imperative. However, in today's digital age, Data Quality is not one dimensional, and can no longer be defined by a number or percentage.

Collection

- Versatile and all encompassing images
- Avoid high-risk data sources such as crowdsourcing or manual collection

Currency

- How relevant is your data?
- What percentage of the market does your data represent?

Flexibility

- How can you transform your data to meet specific use cases?
- Not all insights are available initially, so how do you architect your data to be able to generate insights?

Completeness

- How do you capture all data from a package?
- Retroactive data mining is far less costly than creating new data capture methodologies.

Definition

- How does your data and terminology compare to industry standards?
- Know your audience and intended recipients of the data

Accessibility

- How do you structure your data so that it is easily accessed and consumed?
- Taxonomies are key to powering search

Key Learnings

- Understand and Define all Data Elements Upfront
  - Communicate Data Limitations
  - Collaborate on Shared Terminology
- Don't Dictate - Let the Data Tell the Story
  - Food Labels Are Complex
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- Better Understand the Use Case
  - Importance of Standardization for Comparison
  - Nutrition Facts Replica
  - Year Book Perspective & Archiving Data
- Create a Roadmap and Meet Regularly with Partnership
  - Future Features Must Be Captured & Communicated
  - Maximize Collaboration

What's Next?

- Continue to grow the database, create awareness, and increase use
- Preparation of transparency and data quality documentation
- Increase private label food items

What's Next (con't.)

- Global expansion and creation of the **USDA Global Branded Food Products Database**
- Pursue opportunities for collaboration with USDA FNS Child Nutrition Programs
- Pursue opportunities for collaboration with USDA ERS Consumer Food Data Systems
- Align on a standardized, validated algorithm to be used across all food products to determine food groupings