

The Importance of Sample Source in Making Nutrient Comparisons of Foods

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Background

- FDA, USDA, EPA Databases
 - 1st Milk
 - Potato
 - Produce Fresh
 - Snack foods
 - Confections
 - Frozen Produce
 - Chocolate
- Germany, UK, Egypt, Kenya, Mexico

Creating a Database

Three Main Steps

1. Sample Collection
2. Chemistry – Methodology
3. Math to Summarize Data

Sampling

- Plays a critical role in a valid food composition study, yet it is often the least documented and most problematic phase

Why Sampling?

- Comparative Claims Substantiation
 - Fresh vs. Frozen
 - In-Home vs. Fast Food
 - School Lunch
 - Organic
 - GMO requirements
- Trend analysis
 - Then vs. now

Creating a Database

Variables

- Seasonal
- Regional
- Varietal
- Shelf life
- Processing
- Handling
- Distribution
- Market share

How to determine Variables

- Modeling a seasonal time table
 - Start Date or Harvest Date
 - By region
 - By variety
 - Standardization practices

Harvest Date

- Region
 - Avocado by county
 - San Diego to Ventura
 - Kiwifruit by country
 - Eleven countries

Harvest Date

- Standardization
 - Nuts - moisture
 - Avocadoes – moisture / fat
 - Kiwi – brix
 - Orange – sugar
 - Strawberry - brix

Sampling Design

Pre-sampling Surveys:

- When is the product available?
- Where is it available?
- What is the best point of sampling?
- How should it be handled to minimize nutrient losses?

Complete Harvest Timeline

- Follow through Mid season to End season
- Nutrient by nutrient
 - Potato example
 - Vitamin C peaks early season
 - B6 peaks in storage

Sampling Design

- Point of Sampling:
 - Market-basket
 - Production line
 - Warehouse

Removal of Outliers

- Never remove outliers when
 - They are representative of a large variation
 - They are almost always representative of a large variation
- If you cannot say why it is an error keep it.

Comparative Claims

- Missing detail in sampling
 - 2 days a year
 - representative of what
 - market basket
- Unreported origin
- Unreported Methodology

Results – No basis for Comparison

Set Regulatory Standards

- Comparative Claims
- FTC side by side comparison requirements
- Database not adequate for comparisons

Science is such a wonderful thing.

Nowhere else can you get such
wholesale conjecture
from such a trifling investment
of fact.

Mark Twain