

Development of Version 4.0 of the ILSI® Crop Composition Database

International Life Sciences Institute
International Food Biotechnology Committee

BASF Plant Science
Bayer CropScience
Dow AgroSciences
Monsanto
Pioneer/DuPont
Syngenta

SkyDev Technologies
(Software development)

Dr. Wayne Parrott, UGA
(Academic consultant)



ILSI[®] and IFBiC – Brief Summary

International nonprofit foundation: www.ilsi.org

Global science network: Academia, govt, industry, WHO, FAO

Goal: Scientific solns to global health issues

Focus areas : Obesity, biotech-derived foods, functional foods, risk assessment

Support: Govt funding, endowment, charitable & corporate foundations



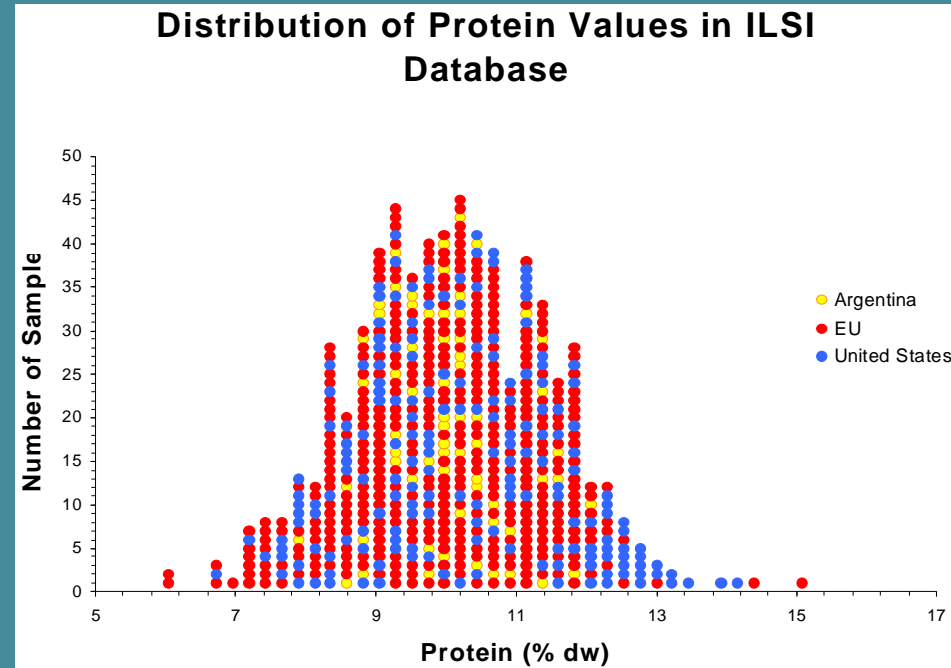
Food Safety Assessments

Substantial equivalence, GRAS & HOS

Compare to conventional crops

Companies accumulating high-quality comp data

Need accessible curated data sources



ILSI[®] Crop Composition Database

www.cropcomposition.org

Conventional crops: corn, soybean, cotton (forage, grain/seed)

Metabolites: nutrients, anti-nutrients, other metabolites

Data: 114 analytes, > 115K data points

Years: 1995 – 2004

Sites: Argentina, Australia, Brazil, Bulgaria, Canada, Chile, France, Germany, Hungary, Italy, Philippines, Spain, United States

What's New in Version 4.0?

Software & Hardware:

Java™

Oracle Database 11g SE1

Dell Quad-Core200 Server

Enhancements:

Intuitive GUI

Speed

Scalability

Security

Multiple output formats (analytes, units, report type)

The screenshot shows the web interface for the International Life Sciences Institute (ILSI) Crop Composition Database. At the top, there is a logo of a globe and the text "International Life Sciences Institute Crop Composition Database". Below this are navigation links: "About the CCDB", "Query", and "Help".

The main section is titled "Primary Search Criteria". It contains three panels:

- Crop Type / Tissue Type:** Includes a "Crop Type" dropdown menu with "Corn - Field - Maize - Zea mays" selected, and a "Tissue Type" dropdown menu with "Forage" selected. A "Help" link is visible.
- Crop Year:** Includes a "Crop Year(s)" dropdown menu with "All Years", "2005", "2004", "2003", and "2002" options. A "Help" link is visible.
- Location:** Includes two dropdown menus: "Country(s)" with options "Any Country", "ARGENTINA", "AUSTRALIA", "BRAZIL", and "BULGARIA"; and "Regions(s)" with options "Any Region", "BR - GOIAS", "BR - MATO GROSSO", "BR - PARANA", and "BR - RIO GRANDE DO SUL". A "Help" link is visible.

Below the search criteria panels is a section for "Analyte Filters" with a "View Result Set Summary >" button.

Database Output



International Life Sciences Institute Crop Composition Database

[About the CCDB](#) [Query](#) [Help](#)

Result Set Summary

The Result Set Summary shows the results of your initial search grouped by the Analyte Types for the Data Sets that were found. You can expand each Analyte Type to see the number of samples, and the min, max, and mean values for the samples in the primary unit of measure for each.

You can use this information below when defining the specific Analytes you would like to display in your final report.

Results matching your query criteria

[Help](#)

Analyte Type	Analyte	Samples	Min	Max	Mean	Units
<input checked="" type="checkbox"/> Amino Acids	-	-	-	-	-	-
	Alanine	1309 (0<LOQ)	4.03	12.80	7.00	mg/g FW
	Arginine	1309 (0<LOQ)	1.09	5.87	3.86	mg/g FW
	Aspartic Acid	1309 (0<LOQ)	3.07	11.10	6.10	mg/g FW
	Cystine/Cysteine	1309 (0<LOQ)	1.12	4.61	1.96	mg/g FW

Analytes

Choose the Analytes you would like to display in your report output. You may choose individual Analytes or may select an Analyte Type and choose to display all Analyte Types for the Analyte chosen.

Analytes to show in output

[Help](#)


Analyte Type: Analyte: Units:

Analyte List

[Help](#)

Amino Acids: Alanine (% Total AA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amino Acids: Alanine (% DW)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amino Acids: Alanine (% FW)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amino Acids: Alanine (mg/g DW)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amino Acids: Alanine (mg/g FW)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Report Output Options



International Life Sciences Institute Crop Composition Database

[About the CCDB](#) [Query](#) [Help](#)

Fields

In this section you can choose the metric fields and other fields you would like to display in your report.

Check the fields you would like to display and for the Grouping Fields you can click the up and down arrows to arrange the order in which to display the fields in your report.

Metric Fields [Help](#)

<input checked="" type="checkbox"/> Minimum Value	<input checked="" type="checkbox"/> Maximum Value	<input checked="" type="checkbox"/> Mean Value
<input type="checkbox"/> Number of Samples	<input type="checkbox"/> Samples Below LOQ	<input type="checkbox"/> Samples With Unit

Grouping Fields [Help](#)

<input checked="" type="checkbox"/> Analyte Type	↑ ↓
<input checked="" type="checkbox"/> Analyte	↑ ↓
<input type="checkbox"/> Crop Year	↑ ↓
<input type="checkbox"/> Crop Type	↑ ↓
<input type="checkbox"/> Crop Source	↑ ↓
<input type="checkbox"/> Tissue Type	↑ ↓
<input type="checkbox"/> Country	↑ ↓
<input type="checkbox"/> Region	↑ ↓
<input type="checkbox"/> Analysis Method	↑ ↓

[< Revise Query Filters](#) [Report Options >](#)

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Report Options

In this section you can choose the options that affect how the results of your search will be presented in the final report.

Start by choosing one of the predefined Report Types.

You must then choose an output format.

And lastly, you can optionally provide a Title and Description to display at the top of your report and choose whether to display the Query Criteria and Report Options on your final report.

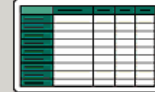
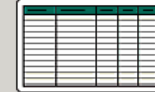
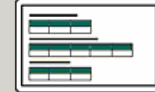
You may go back and forth between this page and the final report to refine your output.

Report Type [Help](#)

Summary Report

Detail Report

Tabular Report



Report Orientation [Help](#)

Portrait

Output Format [Help](#)

HTML

Report Info [Help](#)

Title

Description

Show Query Criteria?

Yes

No

< Revise Analyte/Field Selections

Run Report >

Database Validation Work

Approach: Risk-based validation

Divide workload

Compare v4.0 & v3.0 output

Verify consistency of v4.0 outputs

Results: v4.0 & v3.0 are highly consistent

Some minor differences observed

Conclusion: Verified & improved data quality/integrity

Timeline & Future Directions

Jan 2008: SkyDev Technologies selected as developer

Apr 2009: Complete v4.0 upgrade

May 2009: Public release of v4.0

Fall 2009: Increase data volume

2010+: More crops/tissues, new database fcns, data import tools