

# **USDA-Iowa State University Database on the Isoflavone Content of Foods**

## **Release 1.4**

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**April 2007**

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## ERRATA

Following the release of “USDA-Iowa State University Database on the Isoflavone Content of Foods” in 1999, we have made a number of minor updates. They are:

- Release 1.1 contains a few minor corrections to descriptions for infant formulas.
- Release 1.2 contains corrections to the values for formononetin and biochanin A in red clover.
- Release 1.3 contains corrections to one infant formula and adds data for another.
- Release 1.4 contains corrections to the values for soybean butter; soy flour, full fat, roasted; soybeans, immature seeds, raw (Edamame); and soybeans, mature seeds, dry roasted (soy nuts).

We have recently issued the corrected version as “USDA-Iowa State University Database on the Isoflavone Content of Foods, Release 1.4”. If you have downloaded an earlier release before April 18, 2007; we recommend that you replace it with **Release 1.4**.

## Documentation

The development of the database for Isoflavones, one of the families of phytoestrogens, in foods was a collaborative effort between the Food Composition Laboratory (FCL), and the Nutrient Data Laboratory (NDL) of ARS/USDA and the Department of Food Science and Human Nutrition of the Iowa State University (ISU). Many scientists are interested in isoflavones because of their weak estrogenic and other biological properties. The main dietary sources of isoflavones are soybeans and soyfoods. Some other food legumes contain very small amounts of isoflavones.

Data for isoflavone contents of foods were collected from scientific articles published in refereed journals. In addition, isoflavones data were generated by extensive sampling of soy-containing foods and subsequent analysis at the Iowa State University. Data for only the most prominent isoflavones, Daidzein, Genistein, Glycitein and their glucosides were evaluated using the expert system described by Mangels, et al (J. Am. Diet. Assoc. 93:284-296, 1993) for five general categories: analytical method, analytical quality control, number of samples, sample handling and sampling plan. The analytical method described by Murphy, et al (J. Agric. Food Chem. 45:4635-4638, 1997) was used as the reference method for evaluating analytical methodologies in the published articles. Although acid addition to extraction solvent and use of internal standard to adjust analytical errors due to work-up procedures are highly recommended, only few studies have used these procedures. Since this is the first database on isoflavones, the methodology criteria for inclusion in the database were relaxed so as to include as many foods as possible.

The glucoside forms of the isoflavones are converted to free forms (aglycone) to be absorbed by the gut and exert their potentially protective effects (Murphy, et al, J. Agric. Food Chem. 45:4635-4638, 1997). Therefore, we have converted the values for glucoside forms into aglycone (free) forms by using appropriate ratios of molecular weights and have added them to their respective free form values to generate mean values for each aglycone form: Daidzein, Genistein and Glycitein. Simple addition of free and glucoside forms of isoflavone concentrations without this correction will overestimate true isoflavone aglycone concentration by almost a factor of two (Wang and Murphy, J. Agric. Food Chem. 42:1666-1673, 1994; 44:2377-2383, 1996).

Values expressed on a dry weight basis were converted to wet weight basis either by using given moisture content or by assuming commonly expected moisture content for that particular food. The table contains mean values, standard errors of the means (SEM), minimum (Min) and maximum (Max) values for individual aglycone forms: Daidzein, Genistein and Glycitein and the total isoflavone content. The totals are given if values were available for at least Daidzein and Genistein. The values for total isoflavones may not agree with the simple addition of the mean individual values. Several articles did not report Glycitein values. Glycitein contributes about 5%-10% to the total content. For example: soy flour full fat (NDB No. 16115), daidzein mean was calculated from 20 values (#S), genistein mean from 21 values, glycitein mean from 7 values, and total isoflavones mean from 20 values. Reinli and Block (Nutr. Cancer 26:123-148, 1996)

summarized values for daidzein and genistein available prior to 1996. However, values for glycitein were not included because of the lack of data on the estrogenic activity of glycitein. Preliminary evidence suggests that glycitein has as potent an estrogen activity as daidzein and genistein (Song et al, J. Agric. Food Chem, 1999 In press). Each mean is assigned a Confidence Code (CC) of a, b, or c. The Confidence code is an indicator of relative quality of the data and the reliability of a given mean value. A confidence Code of “a” indicates considerable reliability, due either to a few exemplary studies or to a large number of studies of varying quality.

The user is reminded that the variety, the crop year and the location affect the isoflavone contents of the soybeans (Wang and Murphy, J. Agric. Food Chem.,42:1674-1677,1994) and contribute to the large variability in the isoflavone contents of soybeans, as well as, soyfoods. The soybean varieties, therefore, were divided into ‘food quality’ (NDB no.16108) and ‘commodity grade’ (NDB no. 99091) for U.S. varieties. Japanese (NDB no. 99092) and Korean (NDB no. 99093) varieties were also separated from the U.S. varieties. The method of extracting proteins (alcohol vs aqueous) in the processing of various soy products also affects the isoflavone contents; alcohol extraction reducing the contents significantly.

The isoflavone database is typical of small data sets which can be developed for food components of recent scientific interest. A review of the numbers of studies which contributed acceptable data reveals that for most foods, one study contributes the values for each isoflavone. For example, daidzein values for 73 foods were derived from single studies. It should be noted that one study may have reported values for one or more foods. Furthermore, a single study may have analyzed multiple samples for a single food.

Coumestrol (the most common coumestan), though not an isoflavone, has a similar structure and competes with estradiol for cytoplasmic receptors in mammary tumor cells. Biochanin A and formononetin, 4-methyl ether derivatives of genistein and daidzein respectively, are reduced to genistein and daidzein by the gut bacteria.. These three compounds share the estrogenic/antiestrogenic, antioxidant and antiproliferative activities of the prominent isoflavones (Mazur *et al.* Anal. Biochem. 233(2):169-180, 1996). Very few articles contained values for these three compounds. Therefore a separate table for their contents in foods was prepared.

The completed database contains three files;

1. Isfl\_tble (isoflavone\_table) is the table of analytical isoflavone values.
2. Isfl\_ref (isoflavone\_references) is a list of references/studies from which isoflavone values were obtained.
3. CBF\_tble is the table of analytical Coumestrol, BiochaninA and Formonetin values.

## Isfl\_tbl - Analytical Isoflavone Values for Foods

Isfl\_tble contains isoflavone values for 128 foods.

The fields in the table are as follows:

NDB	USDA Nutrient Data Bank Number <sup>1</sup>
Desc	Food description
NutrDesc	Name of the isoflavone
Dein	Daidzein
Gein	Genistein
Glein	Glycitein
Total Isofl.	Isoflavone total <sup>2</sup>
Mean	Mean value (mg/100g edible portion)
SEM	Standard error of the mean
#S	Number of means/individual values <sup>3</sup>
Min	Minimum value (mg/100g edible portion)
Max	Maximum value (mg/100g edible portion)
CC	Confidence Code <sup>4</sup>
Reference. No.	Reference(s) from which isoflavone values were obtained <sup>5</sup>

Footnotes:

<sup>1</sup>The NDB number is a five-digit numerical code used in the USDA Nutrient Database for Standard Reference, the electronic version of Agriculture Handbook No. 8, which can be downloaded from this site. Foods in the Isoflavone Database which do not have corresponding entries in the USDA Nutrient Database for Standard Reference, are given tentative NDB numbers starting with '99---'. For more information on these files contact the Nutrient Data Laboratory, 4700 River Road, Unit 89, Riverdale, MD 20737. Tel. 301-734-8491.

<sup>2</sup> Values in the Total isoflavones column may not agree with the simple additions of the mean individual isoflavone values. Several articles did not report Glycitein values. Glycitein contributes only about 5% to 10% of the total content. Therefore if an article reported values for at least Daidzein and Genistein, then the total value for that food was calculated.

<sup>3</sup>#S is the total number of means/individual values used to compute the data in the Isoflavones Database. In the scientific literature each value can be a mean of many values (depending on the number of samples used in the study) or an individual value. Furthermore there may be more than one value for a single food in one reference. As a result, the total number of references may not equal #S. Since the data have been compiled from various sources, #S does not necessarily equal "n" in statistical terms.

<sup>4</sup>The Confidence Code designated as a, b, or c is a general indicator of the quality of the data (a=best). The procedure for determining confidence codes is described in Mangels, et al. (J. Am. Diet. Assoc. 93:284-296, 1993).

<sup>5</sup>Documentation for each reference can be found in the Isfl\_ref file.

This work was partially supported by a grant from the U.S. Army Medical R & D Command (MM 4529EVM).

### **CBF\_tbl - Analytical Coumestrol, Biochanin A, Formononetin values for Foods**

CBF\_tble contains individual values for Coumestrol, Biochanin A and Formononetin for 41 foods. The fields in this table: NDB, and Ref. No. are the same as in the file, Isfl\_tbl.

### **Isfl\_ref - Isoflavones References**

Isfl\_ref provides a list of 38 references from which values for the Isoflavones Database were obtained. The reference numbers from the reference file correspond with the Ref. No. Column. All references list authors, title, journal citation and the foods and isoflavones analyzed.

(Units = mg/100 g edible portion for Mean, Standard error of the mean (SEM), Min, and Max; #S = the total number of means/individual values; CC=Confidence code)

NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
99001	9-grain bread	Daidzein	0.01		1	0.01	0.01	c	19
		Genistein	0.01		1	0.01	0.01	c	19
		Total Isofl.	0.02		1	0.02	0.02	c	19
11001	Alfalfa seeds, sprouted, raw	Daidzein	0.00		2	0.00	0.00	b	11, 21
		Genistein	0.00		2	0.00	0.00	b	11, 21
		Glycitein	0.00		1	0.00	0.00	c	21
		Total Isofl.	0.00		2	0.00	0.00	b	11, 21
99003	Alfalfa seeds, sprouted, raw, mixed with clover seeds, sprouted, raw	Daidzein	0.00		1	0.00	0.00	c	21
		Genistein	0.00		1	0.00	0.00	c	21
		Glycitein	0.00		1	0.00	0.00	c	21
		Total Isofl.	0.00		1	0.00	0.00	c	21
16104	Bacon, meatless	Daidzein	2.80		1	2.80	2.80	c	36
		Genistein	6.90		1	6.90	6.90	c	36
		Glycitein	2.40		1	2.40	2.40	c	36
		Total Isofl.	12.10		1	12.10	12.10	c	36
16014	Beans, black, mature seeds, raw	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.00		1	0.00	0.00	c	11
		Total Isofl.	0.00		1	0.00	0.00	c	11
16024	Beans, great northern, mature seeds, raw	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.00		1	0.00	0.00	c	11
		Total Isofl.	0.00		1	0.00	0.00	c	11
16028	Beans, kidney, all types, mature seeds, cooked, boiled, without salt	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.00		1	0.00	0.00	c	11
		Total Isofl.	0.00		1	0.00	0.00	c	11
16027	Beans, kidney, all types, mature seeds, raw	Daidzein	0.02		2	0.01	0.02	b	17
		Genistein	0.04		2	0.02	0.06	b	17
		Total Isofl.	0.06		2	0.03	0.08	b	17



(Units = mg/100 g edible portion for Mean, Standard error of the mean (SEM), Min, and Max; #S = the total number of means/individual values; CC=Confidence code)

NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
16033	Beans, kidney, red, mature seeds, cooked, boiled, without salt	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.00		1	0.00	0.00	c	11
		Total Isofl.	0.00		1	0.00	0.00	c	11
16032	Beans, kidney, red, mature seeds, raw	Daidzein	0.01		1	0.01	0.01	c	17
		Genistein	0.00		1	0.00	0.00	c	17
		Total Isofl.	0.01		1	0.01	0.01	c	17
16037	Beans, navy, mature seeds, raw	Daidzein	0.01		2	0.00	0.01	c	11, 17
		Genistein	0.20		2	0.00	0.41	c	11, 17
		Total Isofl.	0.21		2	0.00	0.42	c	11, 17
16040	Beans, pink, mature seeds, raw	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.00		1	0.00	0.00	c	11
		Total Isofl.	0.00		1	0.00	0.00	c	11
16042	Beans, pinto, mature seeds, raw	Daidzein	0.01		2	0.00	0.02	c	11, 17
		Genistein	0.26		2	0.00	0.52	c	11, 17
		Total Isofl.	0.27		2	0.00	0.54	c	11, 17
99026	Beans, red, mature seeds, raw	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.31		1	0.31	0.31	c	11
		Total Isofl.	0.31		1	0.31	0.31	c	11
16045	Beans, small white, mature seeds, raw	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.74		1	0.74	0.74	c	11
		Total Isofl.	0.74		1	0.74	0.74	c	11
11053	Beans, snap, green, cooked, boiled, drained, without salt	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.00		1	0.00	0.00	c	11
		Total Isofl.	0.00		1	0.00	0.00	c	11
11052	Beans, snap, green, raw	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.00		1	0.00	0.00	c	11
		Total Isofl.	0.00		1	0.00	0.00	c	11

(Units = mg/100 g edible portion for Mean, Standard error of the mean (SEM), Min, and Max; #S = the total number of means/individual values; CC=Confidence code)

NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
16052	Broadbeans (fava beans), mature seeds, raw	Daidzein	0.02		1	0.02	0.02	c	17
		Genistein	0.00		2	0.00	0.00	c	12, 17
		Total Isofl.	0.03		1	0.03	0.03	c	17
99008	Broadbeans, fried	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	1.29		1	1.29	1.29	c	11
		Total Isofl.	1.29		1	1.29	1.29	c	11
16056	Chickpeas (garbanzo beans, bengal gram), mature seeds, raw	Daidzein	0.04		2	0.00	0.08	c	11, 17
		Genistein	0.06		2	0.00	0.12	c	11, 17
		Total Isofl.	0.10		2	0.00	0.20	c	11, 17
99009	Clover sprouts, raw	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.35		1	0.35	0.35	c	11
		Total Isofl.	0.35		1	0.35	0.35	c	11
99010	Country rye bread, Finland	Daidzein	0.00		1	0.00	0.00	c	19
		Genistein	0.00		1	0.00	0.00	c	19
		Total Isofl.	0.00		1	0.00	0.00	c	19
16062	Cowpeas, common (blackeyes, crowder, southern), mature seeds, raw	Daidzein	0.01		2	0.00	0.03	c	11, 17
		Genistein	0.02		2	0.00	0.03	c	11, 17
		Total Isofl.	0.03		2	0.00	0.06	c	11, 17
18216	Crackers, crispbread, rye	Daidzein	0.01	0.00	3	0.00	0.01	b	19
		Genistein	0.01	0.00	3	0.00	0.01	b	19
		Total Isofl.	0.01	0.00	3	0.00	0.02	b	19
12220	Flax seed, raw	Daidzein	0.00		1	0.00	0.00	c	19
		Genistein	0.00		1	0.00	0.00	c	19
		Total Isofl.	0.00		1	0.00	0.00	c	19
16173	Frichick (meatless chicken nuggets), canned, cooked	Daidzein	4.35		1	4.35	4.35	c	21
		Genistein	9.35		1	9.35	9.35	c	21
		Glycitein	0.90		1	0.90	0.90	c	21
		Total Isofl.	14.60		1	14.60	14.60	c	21
16172	Frichick (meatless	Daidzein	3.45		1	3.45	3.45	c	21

(Units = mg/100 g edible portion for Mean, Standard error of the mean (SEM), Min, and Max; #S = the total number of means/individual values; CC=Confidence code)

NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
	chicken nuggets), canned, raw	Genistein	7.90		1	7.90	7.90	c	21
		Glycitein	0.85		1	0.85	0.85	c	21
		Total Isofl.	12.20		1	12.20	12.20	c	21
22125	GREEN GIANT, HARVEST BURGER, Original Flavor, All Vegetable Protein Patties, frozen	Daidzein	2.95		1	2.95	2.95	c	21
		Genistein	5.28		1	5.28	5.28	c	21
		Glycitein	1.07		1	1.07	1.07	c	21
		Total Isofl.	9.30		1	9.30	9.30	c	21
22117	GREEN GIANT, HARVEST BURGER, Original Flavor, All Vegetable Protein Patties, frozen, prepared	Daidzein	2.58		1	2.58	2.58	c	21
		Genistein	4.68		1	4.68	4.68	c	21
		Glycitein	0.95		1	0.95	0.95	c	21
		Total Isofl.	8.22		1	8.22	8.22	c	21
03931	Infant formula, ENFAMIL NEXT STEP, powder, soy formula, not reconstituted	Daidzein	7.23		2	7.15	7.30	b	22, 23
		Genistein	14.75		2	14.50	15.00	b	22, 23
		Glycitein	3.00		2	2.95	3.05	b	22, 23
		Total Isofl.	25.00		2	24.90	25.10	b	22, 23
03863	Infant formula, MEAD JOHNSON, GERBER soy, with iron, powder, not reconstituted	Daidzein	8.08		2	6.50	9.65	b	22, 23
		Genistein	13.90		2	12.80	15.00	b	22, 23
		Glycitein	3.12		2	2.93	3.30	b	22, 23
		Total Isofl.	25.09		2	22.23	27.95	b	22, 23
03824	Infant formula, MEAD JOHNSON, PROSOBEE, with iron, liquid concentrate, not reconstituted	Daidzein	1.10		1	1.10	1.10	c	26
		Genistein	2.22		1	2.22	2.22	c	26
		Total Isofl.	6.03		2	3.32	8.75	c	26, 31
03826	Infant formula, MEAD JOHNSON, PROSOBEE, with iron, powder, not reconstituted	Daidzein	7.05		2	6.90	7.20	b	22, 23
		Genistein	14.94		2	14.45	15.43	b	22, 23
		Glycitein	2.95		2	2.83	3.07	b	22, 23
		Total Isofl.	24.94		2	24.18	25.70	b	22, 23
03823	Infant formula, MEAD JOHNSON, PROSOBEE,	Daidzein	1.71		1	1.71	1.71	c	32
		Genistein	2.18		1	2.18	2.18	c	32

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NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
	with iron, ready-to-feed	Total Isofl.	3.89		1	3.89	3.89	c	32
03843	Infant formula, ROSS, ISOMIL, with iron, powder, not reconstituted	Daidzein	6.03		2	6.03	6.03	b	22, 23
		Genistein	12.23		2	11.43	13.03	b	22, 23
		Glycitein	2.73		2	2.70	2.77	b	22, 23
		Total Isofl.	20.99		2	20.16	21.83	b	22, 23
99112	Infant formula, ROSS, ISOMIL, with iron, powder, reconstituted from powder, as fed	Daidzein	0.78		1	0.78	0.78		39
		Genistein	1.58		1	1.58	1.58		39
		Glycitein	0.35		1	0.35	0.35		39
		Total Isofl.	2.71		1	2.71	2.71		39
03841	Infant formula, ROSS, ISOMIL, with iron, ready-to-feed	Daidzein	1.91		1	1.91	1.91	c	32
		Genistein	2.26		1	2.26	2.26	c	32
		Total Isofl.	4.17		1	4.17	4.17	c	32
03891	Infant formula, WYETH-AYERST, NURSOY, with iron, liquid concentrate, not reconstituted	Daidzein	1.02		2	0.79	1.25	b	22, 26
		Genistein	2.82		2	2.19	3.45	b	22, 26
		Glycitein	0.35		1	0.35	0.35	c	22
		Total Isofl.	4.02		2	2.98	5.05	b	22, 26
03893	Infant formula, WYETH-AYERST, NURSOY, with iron, powder, not reconstituted	Daidzein	5.70		1	5.70	5.70	c	22
		Genistein	13.55		1	13.55	13.55	c	22
		Glycitein	2.05		1	2.05	2.05	c	22
		Total Isofl.	26.00		2	21.30	30.70	b	22, 31
03890	Infant formula, WYETH-AYERST, NURSOY, with iron, ready-to-feed	Daidzein	0.75		1	0.75	0.75	c	23
		Genistein	1.60		1	1.60	1.60	c	23
		Glycitein	0.28		1	0.28	0.28	c	23
		Total Isofl.	2.63		1	2.63	2.63	c	23
99018	Instant beverage, soy, powder, not reconstituted	Daidzein	40.07	6.19	6	29.50	70.00	a	5, 36, 38
		Genistein	62.18	2.78	6	55.00	73.15	a	5, 36, 38
		Glycitein	10.90	0.14	4	10.50	11.10	b	36
		Total Isofl.	109.51	4.11	6	100.10	125.00	a	5, 36, 38
99019	Kala chana, mature seeds,	Daidzein	0.00		1	0.00	0.00	c	11

(Units = mg/100 g edible portion for Mean, Standard error of the mean (SEM), Min, and Max; #S = the total number of means/individual values; CC=Confidence code)

NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
	raw	Genistein	0.64		1	0.64	0.64	c	11
		Total Isofl.	0.64		1	0.64	0.64	c	11
99020	Lapacho tea (Tecoma heptaphylla)	Daidzein	0.02		1	0.02	0.02	c	19
		Genistein	0.03		1	0.03	0.03	c	19
		Total Isofl.	0.05		1	0.05	0.05	c	19
16069	Lentils, mature seeds, raw	Daidzein	0.00	0.00	3	0.00	0.01	b	11, 17
		Genistein	0.00	0.00	3	0.00	0.01	b	11, 17
		Total Isofl.	0.01	0.01	3	0.00	0.02	b	11, 17
16072	Lima beans, large, mature seeds, cooked, boiled, without salt	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.00		1	0.00	0.00	c	11
		Total Isofl.	0.00		1	0.00	0.00	c	11
16071	Lima beans, large, mature seeds, raw	Daidzein	0.02		2	0.00	0.04	c	11, 17
		Genistein	0.01		2	0.00	0.01	c	11, 17
		Total Isofl.	0.03		2	0.00	0.05	c	11, 17
16074	Lima beans, thin seeded (baby), mature seeds, raw	Daidzein	0.00		1	0.00	0.00	c	11
		Genistein	0.00		1	0.00	0.00	c	11
		Total Isofl.	0.00		1	0.00	0.00	c	11
16112	Miso	Daidzein	16.13	4.36	7	7.10	36.64	a	5, 15, 21, 36
		Genistein	24.56	4.23	9	11.70	52.39	a	5, 12, 15, 21, 36
		Glycitein	2.87	0.47	3	2.30	3.80	b	21, 36
		Total Isofl.	42.55	9.18	7	22.70	89.20	a	5, 15, 21, 36
99002	Miso soup mix, dry	Daidzein	24.93		2	20.75	29.11	c	5
		Genistein	35.46		2	33.69	37.24	c	5
		Total Isofl.	60.39		2	54.44	66.35	c	5
16080	Mung beans, mature seeds, raw	Daidzein	0.01		2	0.00	0.01	c	11, 17
		Genistein	0.18		2	0.00	0.37	c	11, 17
		Total Isofl.	0.19		2	0.00	0.38	c	11, 17
16083	Mungo beans, mature	Daidzein	0.01		2	0.00	0.02	c	11, 17

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NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
	seeds, raw	Genistein	0.01		2	0.00	0.03	c	11, 17
		Total Isofl.	0.03		2	0.00	0.05	c	11, 17
16113	Natto (soybeans, boiled and fermented)	Daidzein	21.85	2.69	5	16.02	31.46	a	21, 24
		Genistein	29.04	3.01	7	21.52	42.53	a	12, 21, 24
		Glycitein	8.17	1.21	5	6.89	13.01	a	21, 24
		Total Isofl.	58.93	7.38	5	46.40	86.99	a	21, 24
42299	Oil, canola and soybean	Daidzein	0.00		1	0.00	0.00	c	21
		Genistein	0.00		1	0.00	0.00	c	21
		Glycitein	0.00		1	0.00	0.00	c	21
		Total Isofl.	0.00		1	0.00	0.00	c	21
04044	Oil, soybean, salad or cooking	Daidzein	0.00	0.00	3	0.00	0.00	a	21
		Genistein	0.00	0.00	3	0.00	0.00	a	21
		Glycitein	0.00	0.00	3	0.00	0.00	a	21
		Total Isofl.	0.00	0.00	3	0.00	0.00	a	21
16087	Peanuts, all types, raw	Daidzein	0.03		2	0.01	0.05	b	17
		Genistein	0.24		2	0.08	0.39	b	17
		Total Isofl.	0.26		2	0.13	0.39	b	17
16085	Peas, split, mature seeds, raw	Daidzein	2.42	2.42	3	0.00	7.26	b	11, 17
		Genistein	0.00	0.00	3	0.00	0.01	b	11, 17
		Total Isofl.	2.42	2.42	3	0.00	7.26	b	11, 17
16101	Pigeon peas (red gram), mature seeds, raw	Daidzein	0.02		1	0.02	0.02	c	17
		Genistein	0.54		1	0.54	0.54	c	17
		Total Isofl.	0.56		1	0.56	0.56	c	17
19015	Snacks, granola bars, hard, plain	Daidzein	0.05		1	0.05	0.05	c	19
		Genistein	0.08		1	0.08	0.08	c	19
		Total Isofl.	0.13		1	0.13	0.13	c	19
99105	Soybean butter, full fat, Worthington Foods, Inc.	Daidzein	22.00		1	22.00	22.00	c	24
		Genistein	30.00		1	30.00	30.00	c	24
		Glycitein	5.00		1	5.00	5.00	c	24

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NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
		Total Isofl.	57.00		1	57.00	57.00	c	24
99042	Soy cheese, unspecified	Daidzein	11.24		2	1.38	21.10	c	5, 10
		Genistein	20.08		2	1.95	38.20	c	5, 10
		Total Isofl.	31.32		2	3.33	59.30	c	5, 10
99041	Soy cheese, cheddar	Daidzein	1.80		2	0.20	3.40	c	36
		Genistein	2.25		2	0.50	4.00	c	36
		Glycitein	3.10		2	2.70	3.50	c	36
		Total Isofl.	7.15		2	3.40	10.90	c	36
99054	Soy cheese, mozzarella	Daidzein	1.10		1	1.10	1.10	c	36
		Genistein	3.60		1	3.60	3.60	c	36
		Glycitein	3.00		1	3.00	3.00	c	36
		Total Isofl.	7.70		1	7.70	7.70	c	36
99056	Soy cheese, parmesan	Daidzein	1.50		1	1.50	1.50	c	36
		Genistein	0.80		1	0.80	0.80	c	36
		Glycitein	4.10		1	4.10	4.10	c	36
		Total Isofl.	6.40		1	6.40	6.40	c	36
99043	Soy drink	Daidzein	2.41		2	0.70	4.12	c	6, 26
		Genistein	4.60		2	2.10	7.10	c	6, 26
		Total Isofl.	7.01		2	2.80	11.22	c	6, 26
99045	Soy fiber	Daidzein	18.80		2	16.58	21.03	c	5, 20
		Genistein	21.68		2	17.11	26.26	c	5, 20
		Glycitein	7.90		1	7.90	7.90	c	20
		Total Isofl.	44.43		2	38.13	50.73	c	5, 20
99080	Soy flour (textured)	Daidzein	59.62	12.18	8	1.65	123.25	a	20, 26, 32, 36
		Genistein	78.90	14.75	8	2.75	144.02	a	20, 26, 32, 36
		Glycitein	20.19	2.87	4	15.60	28.28	b	20, 36
		Total Isofl.	148.61	28.71	8	4.40	295.55	a	20, 26, 32, 36
16117	Soy flour, defatted	Daidzein	57.47	9.28	9	22.60	93.90	a	5, 27, 28, 33, 35, 36

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NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
		Genistein	71.21	5.54	9	46.51	100.54	a	5, 27, 28, 33, 35, 36
		Glycitein	7.55	1.82	3	3.95	9.89	c	33, 35, 36
		Total Isofl.	131.19	11.25	9	73.72	168.09	a	5, 27, 28, 33, 35, 36
16115	Soy flour, full-fat, raw	Daidzein	71.19	6.95	20	18.20	130.92	a	7, 10, 11, 19, 20, 25, 26, 28, 35
		Genistein	96.83	7.38	21	6.39	145.23	a	7, 10, 11, 19, 20, 25, 26, 28, 35
		Glycitein	16.18	2.65	7	4.80	24.83	a	7, 10, 20, 25, 35
		Total Isofl.	177.89	12.57	20	59.80	264.84	a	7, 10, 11, 19, 20, 25, 26, 28, 35
16116	Soy flour, full-fat, roasted	Daidzein	99.27	10.01	3	87.65	119.20	c	1, 5, 21
		Genistein	98.75	16.21	3	70.74	126.90	c	1, 5, 21
		Glycitein	16.40		2	14.40	18.40	c	1, 21
		Total Isofl.	208.95	37.29	3	161.70	260.50	c	1, 5, 21
99111	Soy hot dog, frozen, unprepared	Daidzein	3.40		1	3.40	3.40	c	36
		Genistein	8.20		1	8.20	8.20	c	36
		Glycitein	3.40		1	3.40	3.40	c	36
		Total Isofl.	15.00		1	15.00	15.00	c	36
16119	Soy meal, defatted, raw	Daidzein	57.47		1	57.47	57.47	c	34
		Genistein	68.35		1	68.35	68.35	c	34
		Total Isofl.	125.82		1	125.82	125.82	c	34
16120	Soymilk, fluid	Daidzein	4.45	0.75	14	1.14	9.84	a	1, 5, 10, 14, 15, 16, 21, 34, 35
		Genistein	6.06	0.84	16	1.12	11.28	a	1, 5, 10, 12, 14, 15, 16, 21, 34, 35



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NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
		Glycitein	0.56	0.09	5	0.36	0.86	a	1, 21, 35
		Total Isofl.	9.65	1.76	14	1.26	21.13	a	1, 5, 10, 14, 15, 16, 21, 34, 35
99014	Soy milk, iced	Daidzein	1.90		2	0.34	3.45	c	5
		Genistein	2.81		2	1.78	3.85	c	5
		Total Isofl.	4.71		2	2.12	7.31	c	5
99096	Soy milk skin or film (Fook or yuba), cooked	Daidzein	18.20		1	18.20	18.20	c	10
		Genistein	32.50		1	32.50	32.50	c	10
		Total Isofl.	50.70		1	50.70	50.70	c	10
99053	Soy milk skin or film (Fook or yuba), raw	Daidzein	79.88		2	43.76	116.00	c	10, 34
		Genistein	104.80		2	77.91	131.70	c	10, 34
		Glycitein	18.40		1	18.40	18.40	c	10
		Total Isofl.	193.88		2	121.66	266.10	c	10, 34
99049	Soy noodles, flat	Daidzein	0.90		1	0.90	0.90	c	36
		Genistein	3.70		1	3.70	3.70	c	36
		Glycitein	3.90		1	3.90	3.90	c	36
		Total Isofl.	8.50		1	8.50	8.50	c	36
99038	Soy paste	Daidzein	15.03	3.79	6	3.00	27.20	a	5, 34, 36
		Genistein	15.21	4.87	6	0.31	29.98	a	5, 34, 36
		Glycitein	7.70		1	7.70	7.70	c	36
		Total Isofl.	31.52	9.26	6	3.31	59.40	a	5, 34, 36
99060	Soy protein concentrate, aqueous washed	Daidzein	43.04	24.04	3	16.68	91.05	b	5, 20
		Genistein	55.59	10.60	3	40.29	75.95	b	5, 20
		Glycitein	5.16		2	4.27	6.05	c	20
		Total Isofl.	102.07	32.82	3	61.23	167.00	b	5, 20
16121	Soy protein concentrate, produced by alcohol extraction	Daidzein	6.83	3.68	5	0.79	21.09	a	5, 20, 26
		Genistein	5.33	1.69	5	1.29	10.73	a	5, 20, 26
		Glycitein	1.57		1	1.57	1.57	c	20
		Total Isofl.	12.47	5.24	5	2.08	31.82	a	5, 20, 26

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NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
16122	Soy protein isolate	Daidzein	33.59	5.99	14	7.70	68.89	a	1, 4, 5, 10, 20, 30, 33, 35, 36
		Genistein	59.62	6.68	14	27.17	105.10	a	1, 4, 5, 10, 20, 30, 33, 35, 36
		Glycitein	9.47	1.81	11	5.40	26.40	a	1, 4, 20, 30, 35, 36
		Total Isofl.	97.43	11.11	14	46.50	199.25	a	1, 4, 5, 10, 20, 30, 33, 35, 36
16125	Soy sauce made from hydrolyzed vegetable protein	Daidzein	0.10		1	0.10	0.10	c	21
		Genistein	0.00		1	0.00	0.00	c	21
		Glycitein	0.00		1	0.00	0.00	c	21
		Total Isofl.	0.10		1	0.10	0.10	c	21
16123	Soy sauce made from soy and wheat (shoyu)	Daidzein	0.93	0.24	3	0.60	1.40	b	5, 21, 34
		Genistein	0.82	0.21	5	0.30	1.54	a	5, 12, 21, 34
		Glycitein	0.45		1	0.45	0.45	c	21
		Total Isofl.	1.64	0.33	3	1.27	2.30	b	5, 21, 34
99063	Soy-based liquid formula for adults, ROSS, ENRICH	Daidzein	0.14		1	0.14	0.14	c	6
		Genistein	0.40		1	0.40	0.40	c	6
		Total Isofl.	0.54		1	0.54	0.54	c	6
99064	Soy-based liquid formula for adults, ROSS, GLUCERNA	Daidzein	0.02		1	0.02	0.02	c	6
		Genistein	0.06		1	0.06	0.06	c	6
		Total Isofl.	0.08		1	0.08	0.08	c	6
99065	Soy-based liquid formula for adults, ROSS, JEVITY ISOTONIC	Daidzein	0.03		1	0.03	0.03	c	6
		Genistein	0.31		1	0.31	0.31	c	6
		Total Isofl.	0.34		1	0.34	0.34	c	6
99072	Soybean chips	Daidzein	26.71		1	26.71	26.71	c	5
		Genistein	27.45		1	27.45	27.45	c	5
		Total Isofl.	54.16		1	54.16	54.16	c	5
43299	Soybean curd cheese	Daidzein	9.00		1	9.00	9.00	c	10
		Genistein	19.20		1	19.20	19.20	c	10

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NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
		Total Isofl.	28.20		1	28.20	28.20	c	10
99034	Soybean, curd, fermented	Daidzein	14.30		1	14.30	14.30	c	36
		Genistein	22.40		1	22.40	22.40	c	36
		Glycitein	2.30		1	2.30	2.30	c	36
		Total Isofl.	39.00		1	39.00	39.00	c	36
99030	Soybeans, Brazil, raw	Daidzein	20.16	3.03	6	9.89	30.48	b	2
		Genistein	67.47	13.40	6	28.28	110.98	b	2
		Total Isofl.	87.63	14.51	6	42.54	141.46	b	2
99092	Soybeans, Japan, raw	Daidzein	34.52	11.49	7	13.40	100.65	a	11, 37
		Genistein	64.78	13.04	8	13.00	138.24	a	11, 37
		Glycitein	13.78	1.64	6	9.10	20.40	b	37
		Total Isofl.	118.51	22.16	7	68.80	238.89	a	11, 37
99093	Soybeans, Korea, raw	Daidzein	72.68	6.12	18	21.00	124.20	a	3
		Genistein	72.31	5.71	18	24.80	110.70	a	3
		Total Isofl.	144.99	10.73	18	45.80	231.70	a	3
99040	Soybeans, Taiwan, raw	Daidzein	28.21		1	28.21	28.21	c	11
		Genistein	31.54		1	31.54	31.54	c	11
		Total Isofl.	59.75		1	59.75	59.75	c	11
99035	Soybeans, flakes, defatted	Daidzein	36.97	8.61	9	13.92	88.04	a	7, 8, 14, 29, 30
		Genistein	85.69	14.67	9	44.41	156.06	a	7, 8, 14, 29, 30
		Glycitein	14.23		2	1.71	26.76	c	7, 29
		Total Isofl.	125.82	22.76	9	61.34	244.10	a	7, 8, 14, 29, 30
99036	Soybeans, flakes, full-fat	Daidzein	48.23		2	22.10	74.35	c	7, 32
		Genistein	79.98		2	28.00	131.96	c	7, 32
		Glycitein	1.57		1	1.57	1.57	c	7
		Total Isofl.	128.99		2	50.10	207.89	c	7, 32
11451	Soybeans, immature,	Daidzein	6.85		1	6.85	6.85	c	11

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NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
	cooked, boiled, drained, without salt	Genistein	6.94		1	6.94	6.94	c	11
		Total Isofl.	13.79		1	13.79	13.79	c	11
11450	Soybeans, immature, seeds, raw (includes edamame)	Daidzein	9.27	1.62	3	6.62	12.20	c	10, 11, 24
		Genistein	9.84	2.46	3	5.94	14.40	c	10, 11, 24
		Glycitein	4.29		1	1.29	4.29	c	24
		Total Isofl.	20.54	3.13	3	16.85	26.60	c	10, 11, 24
99100	Soybeans, green, mature seeds, raw	Daidzein	67.79	4.58	4	54.60	75.35	b	24, 36
		Genistein	72.51	6.84	4	62.65	91.72	b	24, 36
		Glycitein	10.88	2.98	4	6.72	19.69	b	24, 36
		Total Isofl.	151.17	12.00	4	135.40	186.76	b	24, 36
16109	Soybeans, mature cooked, boiled, without salt	Daidzein	26.95		1	26.95	26.95	c	11
		Genistein	27.71		1	27.71	27.71	c	11
		Total Isofl.	54.66		1	54.66	54.66	c	11
16111	Soybeans, mature seeds, dry roasted (includes soy nuts)	Daidzein	67.45	13.76	7	53.60	86.00	a	5, 10, 11, 24, 36
		Genistein	94.76	17.55	8	86.90	110.55	a	5, 10, 11, 12, 24, 36
		Glycitein	13.36	11.87	5	0.00	30.70	a	10, 24, 36
		Total Isofl.	176.94	16.69	7	151.00	201.90	a	5, 10, 11, 24, 36
16108	Soybeans, mature seeds, raw (US, food quality)	Daidzein	46.64	5.42	22	9.88	91.30	a	9, 10, 11, 17, 35, 36, 37
		Genistein	73.76	6.80	22	20.67	134.10	a	9, 10, 11, 17, 35, 36, 37
		Glycitein	10.88	0.74	16	4.80	16.70	a	10, 35, 36, 37
		Total Isofl.	128.35	11.66	22	36.20	220.90	a	9, 10, 11, 17, 35, 36, 37
99091	Soybeans, mature seeds, raw (US, commodity grade)	Daidzein	52.20	5.30	14	20.74	79.23	a	7, 11, 34, 37
		Genistein	91.71	9.26	14	42.79	150.10	a	7, 11, 34, 37
		Glycitein	12.07	1.41	11	4.22	18.14	a	7, 37
		Total Isofl.	153.40	14.80	14	71.93	237.00	a	7, 11, 34, 37

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NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
11452	Soybeans, mature seeds, sprouted, raw	Daidzein	19.12	2.70	3	13.78	22.50	c	10, 34
		Genistein	21.60	5.60	3	11.25	30.50	c	10, 34
		Total Isofl.	40.71	8.25	3	25.03	53.00	c	10, 34
16167	Soylinks, frozen, cooked, MORNING STAR breakfast	Daidzein	0.75		1	0.75	0.75	c	21
		Genistein	2.70		1	2.70	2.70	c	21
		Glycitein	0.30		1	0.30	0.30	c	21
		Total Isofl.	3.75		1	3.75	3.75	c	21
16166	Soylinks, frozen,raw, MORNING STAR breakfast	Daidzein	1.18		1	1.18	1.18	c	21
		Genistein	2.45		1	2.45	2.45	c	21
		Glycitein	0.30		1	0.30	0.30	c	21
		Total Isofl.	3.93		1	3.93	3.93	c	21
02019	Spices, fenugreek seed	Daidzein	0.01		1	0.01	0.01	c	17
		Genistein	0.01		1	0.01	0.01	c	17
		Total Isofl.	0.02		1	0.02	0.02	c	17
12036	Sunflower seed kernels, dried	Daidzein	0.00		1	0.00	0.00	c	19
		Genistein	0.00		1	0.00	0.00	c	19
		Total Isofl.	0.00		1	0.00	0.00	c	19
99107	Tea, green, Japan	Daidzein	0.01		1	0.01	0.01	c	18
		Genistein	0.04		1	0.04	0.04	c	18
		Total Isofl.	0.05		1	0.05	0.05	c	18
99106	Tea, jasmine, Twinings	Daidzein	0.01		1	0.01	0.01	c	18
		Genistein	0.03		1	0.03	0.03	c	18
		Total Isofl.	0.04		1	0.04	0.04	c	18
16114	Tempeh	Daidzein	17.59	3.13	6	4.67	27.30	a	5, 13, 21, 26, 35, 36
		Genistein	24.85	5.47	6	1.11	39.77	a	5, 13, 21, 26, 35, 36
		Glycitein	2.10	0.67	3	0.90	3.20	b	21, 35, 36
		Total Isofl.	43.52	8.34	6	6.88	62.50	a	5, 13, 21, 26, 35, 36

(Units = mg/100 g edible portion for Mean, Standard error of the mean (SEM), Min, and Max; #S = the total number of means/individual values; CC=Confidence code)

NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
99081	Tempeh burger	Daidzein	6.40		1	6.40	6.40	c	36
		Genistein	19.60		1	19.60	19.60	c	36
		Glycitein	3.00		1	3.00	3.00	c	36
		Total Isofl.	29.00		1	29.00	29.00	c	36
16174	Tempeh, cooked	Daidzein	19.25		1	19.25	19.25	c	21
		Genistein	31.55		1	31.55	31.55	c	21
		Glycitein	2.20		1	2.20	2.20	c	21
		Total Isofl.	53.00		1	53.00	53.00	c	21
16162	Tofu, MORI-NU, silken, firm	Daidzein	11.13		2	8.55	13.71	b	5, 21
		Genistein	15.58		2	12.85	18.31	b	5, 21
		Glycitein	2.40		1	2.40	2.40	c	21
		Total Isofl.	27.91		2	23.80	32.02	b	5, 21
16128	Tofu, dried-frozen (koyadofu, kori tofu, or tung tou-fu)	Daidzein	25.34		1	25.34	25.34	c	34
		Genistein	42.15		1	42.15	42.15	c	34
		Total Isofl.	67.49		1	67.49	67.49	c	34
99084	Tofu, AZUMAYA, extra firm, cooked (steamed)	Daidzein	8.00		1	8.00	8.00	c	21
		Genistein	12.75		1	12.75	12.75	c	21
		Glycitein	1.95		1	1.95	1.95	c	21
		Total Isofl.	22.70		1	22.70	22.70	c	21
99083	Tofu, AZUMAYA, extra firm, prepared with nigari	Daidzein	8.23		2	7.35	9.10	b	21
		Genistein	12.45		2	11.10	13.80	b	21
		Glycitein	1.95		2	1.70	2.20	b	21
		Total Isofl.	22.63		2	20.15	25.10	b	21
99085	Tofu, AZUMAYA, firm, cooked	Daidzein	12.80		1	12.80	12.80	c	21
		Genistein	16.15		1	16.15	16.15	c	21
		Glycitein	2.40		1	2.40	2.40	c	21
		Total Isofl.	31.35		1	31.35	31.35	c	21
16126	Tofu, firm, prepared with calcium sulfate and nigari	Daidzein	9.44	1.68	6	2.90	14.55	a	6, 21, 34
		Genistein	13.35	2.00	7	4.96	21.26	a	6, 12, 21, 34

(Units = mg/100 g edible portion for Mean, Standard error of the mean (SEM), Min, and Max; #S = the total number of means/individual values; CC=Confidence code)

NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
		Glycitein	2.08	0.15	4	1.70	2.40	a	21
		Total Isofl.	24.74	3.77	6	7.85	34.55	a	6, 21, 34
16129	Tofu, fried (aburage)	Daidzein	17.83	2.60	4	12.20	24.70	b	10, 21
		Genistein	28.00	3.41	4	19.00	35.10	b	10, 21
		Glycitein	3.37	1.07	3	1.60	5.30	b	10, 21
		Total Isofl.	48.35	6.06	4	36.90	65.10	b	10, 21
16130	Tofu, okara	Daidzein	5.39		2	0.57	10.20	c	21, 35
		Genistein	6.48		2	1.95	11.00	c	21, 35
		Glycitein	1.64		2	1.09	2.20	c	21, 35
		Total Isofl.	13.51		2	3.61	23.40	c	21, 35
99097	Tofu, pressed (Tau kwa), raw	Daidzein	13.60		1	13.60	13.60	c	10
		Genistein	13.90		1	13.90	13.90	c	10
		Glycitein	2.00		1	2.00	2.00	c	10
		Total Isofl.	29.50		1	29.50	29.50	c	10
16427	Tofu, raw, regular, prepared with calcium sulfate	Daidzein	9.02	2.86	4	1.15	14.60	b	6, 11, 35, 36
		Genistein	13.60	3.61	4	2.89	18.66	b	6, 11, 35, 36
		Glycitein	1.98		2	1.05	2.90	c	35, 36
		Total Isofl.	23.61	6.33	4	5.09	33.70	b	6, 11, 35, 36
16132	Tofu, salted and fermented (fuyu)	Daidzein	14.29		2	3.58	25.00	c	10, 34
		Genistein	16.38		2	3.96	28.80	c	10, 34
		Glycitein	5.00		1	5.00	5.00	c	10
		Total Isofl.	33.17		2	7.54	58.80	c	10, 34
99086	Tofu, soft, VITASOY-silken	Daidzein	8.59		1	8.59	8.59	c	6
		Genistein	20.65		1	20.65	20.65	c	6
		Total Isofl.	29.24		1	29.24	29.24	c	6
16127	Tofu, soft, prepared with calcium sulfate and nigari	Daidzein	11.99	2.69	7	3.44	25.80	a	6, 10, 21, 34
		Genistein	18.23	3.77	7	5.26	37.70	a	6, 10, 21, 34
		Glycitein	2.03	0.28	3	1.70	2.60	b	10, 21
		Total Isofl.	31.10	6.19	7	8.70	63.50	a	6, 10, 21, 34

(Units = mg/100 g edible portion for Mean, Standard error of the mean (SEM), Min, and Max; #S = the total number of means/individual values; CC=Confidence code)

NDB No	Description	NutrDesc	Mean	SEM	#S	Min	Max	CC	Reference No.
43476	Tofu, yogurt	Daidzein	5.70		1	5.70	5.70	c	36
		Genistein	9.40		1	9.40	9.40	c	36
		Glycitein	1.20		1	1.20	1.20	c	36
		Total Isofl.	16.30		1	16.30	16.30	c	36
23501	USDA Commodity, beef patties with VPP, frozen, cooked	Daidzein	0.67	0.15	5	0.30	1.05	a	21
		Genistein	1.09	0.19	5	0.50	1.65	a	21
		Glycitein	0.10	0.03	5	0.00	0.20	a	21
		Total Isofl.	1.86	0.35	5	0.90	2.90	a	21
23506	USDA Commodity, beef patties with VPP, frozen, raw	Daidzein	0.35	0.07	5	0.20	0.55	a	21
		Genistein	0.77	0.12	5	0.35	1.10	a	21
		Glycitein	0.02	0.02	5	0.00	0.10	a	21
		Total Isofl.	1.14	0.20	5	0.55	1.75	a	21
22126	WORTHINGTON FOODS, LOMA LINDA, BIG FRANKS, meatless franks, canned	Daidzein	1.00		1	1.00	1.00	c	21
		Genistein	2.05		1	2.05	2.05	c	21
		Glycitein	0.30		1	0.30	0.30	c	21
		Total Isofl.	3.35		1	3.35	3.35	c	21
22116	WORTHINGTON FOODS, LOMA LINDA, BIG FRANKS, meatless franks, canned, prepared	Daidzein	1.35		1	1.35	1.35	c	21
		Genistein	2.00		1	2.00	2.00	c	21
		Glycitein	0.40		1	0.40	0.40	c	21
		Total Isofl.	3.75		1	3.75	3.75	c	21



**A TABLE FOR COUMESTROL, FORMONONETIN AND BIOCHANIN A ( mg/100g)** 22

<b>NDB NO.</b>	<b>Food description</b>	<b>Ref. No.</b>	<b>Coumestrol</b>	<b>Formononetin</b>	<b>Biochanin A</b>
11052	Green beans, raw	11	0.00	0.15	Trace
11053	Green beans, ckd	11	0.00	Trace	Trace
16071	Lima beans, large, dry	11 17	1.48 0.00	Trace 0.01	Trace 0.00
16072	Lima beans, large, ckd	11	0.00	0.01	0.00
16056	Garbanzo beans, dry	11 17	0.00 0.00	0.00 0.14	1.52 1.78
16028	Kidney beans, ckd	11	0.00	0.00	0.41
16042	Pinto beans, dry	11 17	3.61 0.00	Trace 0.00	0.56 0.00
16074	Lima beans, small, dry	11	0.00	0.55	0.37
16024	Great northern beans, dry	11	0.00	0.00	0.60
16040	Pink beans, dry	11	0.00	1.05	0.00
16062	Blackeyed beans, dry	11 17	0.00 0.00	0.00 0.00	1.73 0.00
16045	Small white beans, dry	11	0.00	0.82	0.00
16085	Split peas, yellow & green	11 17	0.00 0.00	0.00 0.00	0.86 0.00
	Split peas, round	11	8.11	0.00	0.00
	Chinese peas, ckd	11	0.00	0.00	9.31
99019	Kala chana,dry	11	6.13	0.00	1.26
16080	Mung beans, dry	11 17	0.00 Trace	0.61 0.01	0.00 0.01
99009	Clover sprouts	11	28.1	2.28	0.44
11001	Alfalfa sprouts	11 21	4.68 0.00	Trace 261	0.00 0.00
19015	Granola candy bar	19	Trace	0.00	0.00
99001	9-grain bread, US	19	0.00	0.00	0.00
18216	Crispbread, Finland	19	Trace	0.00	0.00
12036	Sunflower seeds	19	Trace	0.03	Trace

**A TABLE FOR COUMESTROL, FORMONONETIN AND BIOCHANIN A ( mg/100g)** 23

<b>NDB no.</b>	<b>Food Description</b>	<b>Ref. No.</b>	<b>Coumestrol</b>	<b>Formononetin</b>	<b>Biochanin A</b>
99020	Lapacho tea	19	0.00	0.01	0.03
16115	Soy flour, UK	19	0.00	0.03	0.07
99106	Jasmine tea	18	0.03		
99107	Green tea	18	0.03		
16108	Soybeans, dry	17	0.05	0.07	0.01
16027	Kidney beans, dry	17	0.00	0.01	Trace
16032	Kidney beans, red, dry	17	0.00	0.00	0.01
16037	Navy beans, dry	17	0.00	0.00	0.00
16027	Kidney beans, white dry	17	0.00	0.00	0.01
16095	Groundnut, americana	17	0.00	0.00	0.01
16101	Pigeon peas, dry	17	Trace	0.01	0.10
16052	Broad beans, dry	17	0.00	0.02	Trace
16083	Black gram (urad dahl)	17	0.00	0.00	0.03
16087	Peanut	17	0.00	0.01	0.01
16069	Lentils	17	0.00	0.01	0.00
	Red clover	28		1322	833
11452	Soy sprouts	34	38.6	0.00	
99003	Alfalfa sprouts mixed with clover sprouts	21	466	1771	2946

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soybeans, Corsoy var., Glycine max

Daidzein, Genistein, Glycitein, Cinnamic acids (Chlorogenic, Caffeic, p-coumeric, Ferulic)

30. Seo, A., and Morr, C.V.

Improved high-performance liquid chromatographic analysis of phenolic acids and isoflavonoids from soybean protein products.

J. Agric. Food Chem., 32, 1984, p.530-533.

defatted soy flakes, soy protein isolates (Ralston Purina co.)

Daidzein, Genistein, some phenolic compounds

31. Setchell, K. D. R., Zimmer-Nechemias, L., Cai, J., and Heubi, J. E.

Exposure of infants to phyto-oestrogens from soy-based infant formula.

Lancet, 350, 1997, p.23-27.

infant soy formula: Nursoy (powder), Isomil (powder), Prosobee (liquid concentrate)

Total isoflavones

32. Setchell, K. D. R., and Welsh, M. B.

High-performance liquid chromatographic analysis of phytoestrogens in soy protein preparations with ultraviolet, electrochemical and thermospray mass spectrometric detection.

J. Chromatography, 386, 1987, p.315-323.

textured soy protein, soy flakes, Prosobee (ready to feed), Isomil (ready to feed)

Daidzein, Genistein

33. Wang, C., Ma, Q., Pagadala, S., Sherrad, MS., and Krishnan, PG.

Changes of isoflavones during processing of soy protein isolates.

J. Am. Oil Chemists Society, 75(3), 1998, p.337-341.

Soy flour (defatted), soy protein isolate (made in lab)

Daidzein, Genistein, Glycitein

34. Wang, G., Kuan, S. S., Francis, O. J., Ware, G. M., and Carman, A. S.

A simplified HPLC method for the determination of phytoestrogens in soybean and its processed products.

J. Agric. Food Chem., 38, 1990, p.185-190.

soybeans, defatted soy meal, tofu-hard, tofu-soft, tofu-dry-spiced, soymilk skin(film), soymilk, soy sauce, soy paste-hot, soy paste-sweet, tofu-fermented, soy sprouts (homemade), soy sprouts (grocery)

Daidzein, Genistein, Formononetin, Coumestrol



35. Wang, H-J., and Murphy, P. A.  
Mass balance study of isoflavones during soybean processing.  
J. Agric. Food Chem., 44(8), 1996, p.2377-2383.  
soybeans (Vinton 81, 1992), soybeans (Vinton 81, 1993), soybean flour, products made in the lab  
- tempeh, soymilk, okara, tofu (momen or cotton, CaSo<sub>4</sub> coag.), whey, soy protein isolate,  
defatted soy flour  
Daidzein, Genistein, Glycitein
36. Wang, H-J., and Murphy, P. A.  
Isoflavone content in commercial soybean foods.  
J. Agric. Food Chem., 42, 1994, p.1666-1673.  
soybean (Vinton 81 90H), soybean (Vinton 81, 91I), green soybeans, defatted soy flour, soy  
granule, TVP, soy isolate, roasted soybeans, instant beverage (dry samples), tofu (CaSO<sub>4</sub> ppt),  
tempeh, bean paste, fermented bean curd, Honzukuri miso (rice and soybeans), soy hot dog, soy  
bacon, Tempeh burger, tofu yogurt, soy Parmesan, cheddar cheese, mozzarella cheese, flat  
noodles  
Daidzein, Genistein, Glycitein
37. Wang, H-J., and Murphy, P. A.  
Isoflavone composition of American and Japanese soybeans in Iowa: Effects of variety, crop year,  
and location.  
J. Agric. Food Chem., 42, 1994, p.1674-1677.  
soybeans (Vinton 81-1989, 1990, 1991 at 3 locations), 1989 crops of Pioneer II, Strayer 2233,  
Pioneer 9202, Prize, HP 204, LS301, XL72  
Daidzein, Genistein, Glycitein
38. Xu, X., Wang, H-J., Murphy, P. A., Cook, L., and Hendrich, S.  
Daidzein is a more bioavailable soymilk isoflavone than is genistein in adult women.  
J. Nutr., 124, 1994, p.825-832.  
soymilk (powder, Now Foods)  
Daidzein, Genistein