Apples to Twinkies 2013:
Comparing Taxpayer Subsidies for Fresh Produce and Junk Food

WashPIRG

Mike Russo
Dan Smith
U.S. PIRG

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Executive Summary

At a time when America faces high obesity rates and tough federal budget choices, taxpayer dollars are funding the production of junk food ingredients. Since 1995, the government has spent $292.5 billion on agricultural subsidies, $19.2 billion of which have subsidized corn- and soy-derived junk food ingredients.

These subsidies are all the more egregious at a time when America is facing an obesity epidemic. Children are three times more likely to be obese than their counterparts three decades ago. With over 31 percent of the adolescent population now overweight or obese, and estimates of obesity-related medical costs reaching $150 billion per year, it is absurd that the federal government continues to finance the production of sweeteners and oil additives.

The concentrated distribution of subsidy payments further demonstrates how the current system fails to appropriately direct federal dollars. The system disproportionately benefits larger commodity crop producers, sending tax subsidies to large, already-profitable players. These subsidies also do not fund all crops equally. Apples, the only fruit or vegetable to receive significant federal subsidies, garnered only $689 million over the same period.

Had these subsidies gone directly to America's 146 million taxpayers, the apple subsidies would enable each taxpayer to buy half an apple each year—but the annual junk food subsidies would add up to nearly 20 Twinkies each.

Key findings:

- Of the total $292.5 billion allotted in agriculture subsidies, 3.8 percent of farmers collected $178.5 billion, while 62 percent of farms did not receive any federal funds.
- Taxpayers spent $84.4 billion on corn production, $8.1 billion of which funded production of corn starch and sweeteners. Of the total domestic corn produced, 9.6 percent ended up in junk food and beverages as sweeteners or thickeners.

- Soy subsidies rank fifth on the list of subsidized crops, costing taxpayers $27.8 billion. Since 1995, soy oils have consumed approximately $11.1 billion in taxpayer subsidies.

- With the money used to subsidize corn and soy junk food ingredients, the government could buy almost 52 billion Twinkies—enough to circle the Earth 132 times when placed end to end, or meet the caloric needs of the entire U.S. population for 12 days.

Introduction

Since 1995, the United States government has dispensed $292.5 billion in taxpayer dollars through a complex system of agricultural subsidies.[1] These subsidies do not, for the most part, go to help struggling family farmers. Instead, they reward the largest, most profitable agribusinesses. Inexcusably, a significant portion underwrites junk food ingredients.

These misguided subsidies are all the more absurd given the gravity of the national obesity epidemic. With more than 31 percent of children and adolescents obese or overweight, and estimates of annual obesity-related medical costs reaching $150 billion, American taxpayers simply cannot afford to finance sweeteners and oils.[2] Experts estimate obesity-related economic productivity loss could reach $580 billion annually by 2030.[3]

To combat this epidemic, the U.S. Department of Agriculture (USDA) recommends that fruits and vegetables make up half of the food on Americans' plates.[4] Yet there is a huge discrepancy between what the government suggests we eat and what they subsidize—commodity crops like corn, soy, rice, wheat, and cotton. Many of these most-subsidized commodity crops are not eaten as-is—for example, only one percent of American-grown corn is the familiar sweet corn directly eaten by humans, rather than being fed to livestock or processed into additives or other ingredients.[5] Additives derived from commodity crops, like corn sweeteners, corn starch, and soy oils, have become staples of the American diet, and consequently have helped fuel the obesity epidemic.

While federal subsidies for corn and soy remain high, fruit and vegetable programs receive only one percent of federal subsidies.[6] Apples are the *only* fresh fruit among the domestic commodities that receive significant federal funding.[7] And, of the comparatively modest $689 million spent on apples, only about a third subsidizes *fresh* apples; industry processes much of the annual apple crop into products such as apple juice or apple sauce, much of which may be sweetened with corn products.[8]

This subsidy spending does not reflect public priorities—instead, it allows large agribusinesses to pad their profits at taxpayer expense. Subsidies to highly profitable corporations are egregious enough, but subsidizing junk food additives is a flagrant misuse of federal funds.

Federal Agricultural Policy Has Lost Its Way

Farm payments were originally intended to provide a safety net for family farmers and stabilize the food supply. These New Deal programs were a reaction to the Great Depression and Dust Bowl, designed to protect farmers from crop losses. Over time, larger players exerted their influence to encourage the creation of a dizzying

array of new programs—direct payments, market loans, and counter-cyclical payments, among others.

Big Ag's lobbying efforts have resulted in billions of federal dollars disproportionally funding commodity crops. Of the $292.5 billion spent since 1995, $84.4 billion went to corn subsidies, $35.5 billion to wheat, and $27.8 billion to soy. Other big ticket items included cotton, rice, sorghum, livestock, dairy, peanuts, barley, and tobacco. Funding for non-crop specific disaster relief and conservation programs comprised the majority of the remainder.[9]

Beyond disproportionately favoring these select commodity crops, the current subsidies are heavily biased towards the biggest producers. Since 1995, 75 percent of the $292.5 billion total spent on agricultural subsidies has funded just 3.8 percent

Federal Agricultural Subsidies at a Glance

Current federal agricultural policy includes a variety of subsidy programs that share important common features. They are highly concentrated towards the biggest, most profitable farms, and primarily support a select few commodity crops—corn, soybeans, wheat, cotton, and rice. Small farms and those that raise so-called "specialty crops"—fresh fruits and vegetables—are largely left to their own devices, while large commodity crop producers garner significant taxpayer support. The problematic subsidy programs include:

- **Direct Payments** – since 1996, the federal government has given direct payments to farmers regardless of individual economic need or the greater financial climate. Originally instituted as a temporary alternative to traditional commodity subsidies, direct payments are based on historic production for a given plot of land. This payment system not only drives up land prices, but costs taxpayers an estimated $5 billion a year. Lawmakers are currently considering proposals that would end this program, but would roll much of the savings into creating new "shallow loss" programs that could pose their own problems (see sidebar).

- **Crop Insurance** – the federal crop insurance program uses taxpayer dollars to subsidize more than 60 percent of the premiums paid by agribusinesses to the 16 private companies that offer crop insurance. The federal government further compensates these insurers for nearly a quarter of their operation and administration costs. Last year, crop insurance cost taxpayers more than $11 billion.

- **Counter Cyclical Payments** – when crop prices fall below targets set by Congress, farmers can collect additional subsidies for the commodities once produced on their land. Because payments are based on historical, rather than current, production, farmers can potentially collect subsidies on crops they no longer grow.

of farms. While this favored minority collected $178.5 billion during the period, 62 percent of farms did not collect any subsidies. [10]

These overly-concentrated subsidies not only benefit the biggest players, they also harm smaller, unsubsidized farmers by inflating land prices, promoting consolidation, and encouraging industrial agribusiness practices without any benefit to public health.[11]

Federal Subsidies for Empty Fillers and Flavor Enhancers

While neither corn nor soy is unhealthy per se, these crops can potentially harm public health when turned into additives to sweeten and thicken food and beverages. Corn becomes high fructose corn syrup, corn syrup, or corn starch—carbohydrates with virtually no nutritional value. Soy is separated into meal and oil—the meal becomes livestock feed and the oil becomes a fat-based additive such as hydrogenated vegetable oil.

These empty-calorie additives find their way into the majority of junk foods and beverages in America. Products infused with corn and soy additives line our grocery and pantry shelves—breakfast cereals, baked goods, candy, frozen desserts, ketchup, dressings, and sauces are a few household favorites.[1] Artificially sweetened and chockablock with calories, these products are high in taste, but low in nutritional value.

High Fructose Corn Syrup, Corn Syrup, and Corn Starch

High fructose corn syrup (HFCS), corn syrup, and corn starch have become the fillers of choice, in part because of deliberate agricultural policy decisions to subsidize corn. Corn starch, a thickening agent and the base from which corn syrups are derived, comes from the endosperm of a corn kernel. It acts as a fat replacer to stabilize processed foods and creates the texture and 'mouth-feel' normally associated with creamy foods.[13] It does not provide meaningful nutritional value.

The food industry produces corn syrup by breaking down starch into individual glucose molecules; it further processes that

Proposed "Shallow Loss" Programs are Not Real Reform

Congress has recently considered proposals that that would replace the Direct Payments program with new "shallow loss" programs. These new subsidies would ensure farmers receive additional payments on top of crop insurance, if crop prices dip below recent levels. Substituting these new programs for the discredited Direct Payments is not real reform, however. These new programs could serve to lock in currently-high commodity crop prices, because payouts would be based on recent years' prices. And they are structured in such a way to continue favoring the largest, most profitable players.

syrup to create HFCS. Added enzymes convert the glucose molecules into the sweeter fructose.[14] The amount of fructose in HFCS varies depending on the formula, but generally the higher the fructose content, the less healthy the sweetener.[15] These sweeteners are widely available and cheaper than sugar.

Since 1995, the U.S. has produced 190.7 billion bushels of corn, 13.8 billion of which were churned into corn sweetener, while 4.6 billion bushels were converted into corn starch and used as a processed food stabilizer. Thus, of the total domestic corn produced, 9.6 percent ended up as sweeteners or thickeners. Translated into taxpayer dollars, $8.1 billion of the $84.4 billion spent on corn subsidies has financed the production of starch and sweeteners.[16]

Subsidies for Soy Oils

Soy oil, commonly called "vegetable oil" or "hydrogenated vegetable oil" on ingredient lists, accounts for 65 percent of all edible oils ingested by Americans.[17] To produce soy oils, the liquid left over from the soybean separation process is hydrogenated, converting certain healthy fatty acids into unhealthy ones. This additive extends the shelf life of foods and creates oils which operate similarly to shortening, increasing risks of heart disease and elevating cholesterol levels.[18]

Soy is so prevalent in the national diet that when Americans deep fry chicken, chomp on tortilla chips, or drizzle dressing on salad, they are most likely consuming soy oil. Soy's ubiquity is no coincidence—soy subsidies since 1995 tally up to $27.8 billion—the fifth most-heavily subsidized crop on the federal list. Soy oil constitutes approximately 40 percent of a soybean's value, meaning that since 1995, soy oils have consumed approximately $11.1 billion in taxpayer dollars.[19]

Comparing Junk Food and Fresh Food Subsidies

Corn sweeteners, corn starch, and soy oils have directly cost taxpayers $19.2 billion since 1995. Federal subsidies for these products have underwritten an obesity epidemic whose hidden costs—measured in expenditures related to healthcare and economic loss—are much higher. And yet, the federal government continues to subsidize ingredients for empty-calorie products at much higher rates than they subsidize fresh fruit and vegetables. While apples are the only fruit or vegetable which receive an appreciable subsidy, the billions going to commodity crops dwarf the $689 million in funding this fruit received over the last 18 years.[20]

The Twinkie offers an illustration of the degree to which federal payments favor junk food production. Of the 37 ingredients in a Twinkie, taxpayers subsidize at least 17, including corn syrup, high fructose corn syrup, vegetable shortening, and corn starch.[21] Twinkies pack a powerful caloric punch, but no health benefit.

With the money used to subsidize corn and soy junk food ingredients since 1995, the government could buy almost 52 billion Twinkies—enough to circle the Earth 132 times when placed end to end, or provide enough calories to feed the entire U.S. population for 12 days.[22]

Taxpayers cannot afford to finance empty-calorie products when they foster obesity-related illnesses and raise already high health care costs. Subsidies to corn sweeteners, corn starch, and soy oils are inexcusable.

Directly comparing Twinkie and apple subsidies demonstrates the subsidies' priorities. Had the $689 million spent on apples gone directly to America's

144 million taxpayers, each would have had $4.71 to spend between 1995 and 2012—which would buy nine apples.[23] In comparison, each taxpayer's junk food subsidy allotment of $131.33 would buy 355 Twinkies. Per year, a taxpayer could afford just over half an apple, but almost 20 Twinkies.

Conclusion

The federal government has spent billions of taxpayer dollars supporting junk food ingredients over the last two decades. These payments favor the largest agribusinesses and disproportionately subsidize commodity crops, favoring corn and soy. Rather than reflecting our nation's established health priorities, these subsidies mirror a pattern of special interest influence. With childhood obesity rates worryingly high, this use of taxpayer dollars thwarts common sense. Almost any other conceivable use would be a wiser investment. It is past time to end these wasteful, counterproductive subsidies.

Table 1: Apples and Twinkies Purchasable with Federal Subsidies, by Major U.S. City

City	State	Population	Share of Junk Food Subsidies	Number of Twinkies	Share of Apple Subsidies	Number of # Apples
Albuqurque	New Mexico	555,417	$1,887,284	5,100,766	$67,725.96	128,390
Arlington	Texas	375,600	$1,276,273	3,449,386	$45,799.59	86,824
Atlanta	Georgia	443,775	$1,507,929	4,075,483	$54,112.65	102,583
Austin	Texas	842,592	$2,863,092	7,738,087	$102,743.25	194,774
Baltimore	Maryland	621,342	$2,111,294	5,706,200	$75,764.66	143,630
Boston	Massachusetts	636,479	$2,162,729	5,845,213	$77,610.42	147,129
Charlotte	North Carolina	775,202	$2,634,104	7,119,199	$94,525.91	179,196
Chicago	Illinois	2,714,856	$9,224,966	24,932,341	$331,041.75	627,567
Cleveland	Ohio	390,928	$1,328,357	3,590,154	$47,668.64	90,367
Colorado Springs	Colorado	431,834	$1,467,354	3,965,821	$52,656.60	99,823
Columbus	Ohio	809,798	$2,751,659	7,436,917	$98,744.45	187,193
Dallas	Texas	1,241,162	$4,217,416	11,398,422	$151,343.73	286,908
Denver	Colorado	634,265	$2,155,206	5,824,880	$77,340.46	146,617
Detroit	Michigan	701,475	$2,383,582	6,442,115	$85,535.85	162,153
El Paso	Texas	672,538	$2,285,256	6,176,367	$82,007.35	155,464
Fort Worth	Texas	777,992	$2,643,584	7,144,822	$94,866.11	179,841
Fresno	California	505,882	$1,718,966	4,645,853	$61,685.80	116,940
Houston	Texas	2,160,821	$7,342,379	19,844,267	$263,484.32	499,496
Indianapolis	Indiana	834,852	$2,836,792	7,667,005	$101,799.46	192,985
Jacksonville	Florida	836,507	$2,842,416	7,682,204	$102,001.26	193,367
Kansas City	Missouri	464,310	$1,577,706	4,264,070	$56,616.63	107,330
Las Vegas	Nevada	596,424	$2,026,624	5,477,361	$72,726.23	137,870
Long Beach	California	467,892	$1,589,877	4,296,966	$57,053.41	108,158
Los Angeles	California	3,857,799	$13,108,638	35,428,752	$470,408.95	891,771
Louisville	Kentucky	605,110	$2,056,138	5,557,130	$73,785.38	139,877
Memphis	Tennessee	655,155	$2,226,189	6,016,727	$79,887.72	151,446
Mesa	Arizona	452,084	$1,536,162	4,151,790	$55,125.83	104,504
Miami	Florida	413,892	$1,406,388	3,801,047	$50,468.80	95,675
Milwaukee	wisconsin	598,916	$2,035,091	5,500,247	$73,030.10	138,446
Minneapolis	Minnesota	392,880	$1,334,990	3,608,080	$47,906.66	90,818
Nashville	Tennessee	624,496	$2,122,011	5,735,165	$76,149.25	144,359
New York	New York	8,336,697	$28,327,745	76,561,472	$1,016,552.92	1,927,115
Oakland	California	400,740	$1,361,698	3,680,264	$48,865.09	92,635
Oklahoma City	Oklahoma	599,199	$2,036,053	5,502,846	$73,064.61	138,511
Omaha	Nebraska	421,570	$1,432,477	3,871,560	$51,405.04	97,450
Philadelphia	Pennsylvania	1,547,607	$5,258,703	14,212,712	$188,710.76	357,746
Phoenix	Arizona	1,488,750	$5,058,710	13,672,188	$181,533.91	344,140
Portland	Oregon	603,106	$2,049,329	5,538,726	$73,541.02	139,414
Raleigh	North Carolina	423,179	$1,437,944	3,886,336	$51,601.23	97,822
Sacramento	California	475,516	$1,615,783	4,366,982	$57,983.06	109,920
San Antonio	Texas	1,382,951	$4,699,209	12,700,565	$168,633.08	319,684
San Diego	California	1,338,348	$4,547,650	12,290,946	$163,194.32	309,373
San Francisco	California	825,863	$2,806,248	7,584,453	$100,703.37	190,907
San Jose	California	982,765	$3,339,394	9,025,389	$119,835.55	227,176
Seattle	Washington	634,535	$2,156,123	5,827,360	$77,373.38	146,679
Tucson	Arizona	524,295	$1,781,532	4,814,952	$63,931.03	121,196
Tulsa	Oklahoma	393,987	$1,338,751	3,618,247	$48,041.64	91,074
Virginia Beach	Virginia	447,021	$1,518,959	4,105,293	$54,508.46	103,334
Washington	District of Columbia	632,323	$2,148,607	5,807,046	$77,103.65	146,168
Wichita	Kansas	385,577	$1,310,174	3,541,012	$47,016.15	89,130

Table 2: Apples and Twinkies Purchasable with Federal Subsidies, by State

State	Population	Share of Junk Food Subsidies	Number of Twinkies	Share of Apple Subsidies	Number of # Apples
Alabama	4,822,023	$16,385,031	44,283,867	$587,984	1,114,661
Alaska	731,449	$2,485,433	6,717,386	$89,191	169,082
Arizona	6,553,255	$22,267,684	60,182,930	$799,085	1,514,853
Arkansas	2,949,131	$10,021,023	27,083,845	$359,609	681,722
California	38,041,430	$129,263,175	349,359,931	$4,638,663	8,793,674
Colorado	5,187,582	$17,627,185	47,641,040	$632,559	1,199,164
Connecticut	3,590,347	$12,199,848	32,972,561	$437,797	829,946
Delaware	917,092	$3,116,240	8,422,270	$111,828	211,995
District of Columbia	632,323	$2,148,607	5,807,046	$77,104	146,168
Florida	19,317,568	$65,640,281	177,406,165	$2,355,529	4,465,458
Georgia	9,919,945	$33,707,555	91,101,499	$1,209,610	2,293,099
Hawaii	1,392,313	$4,731,021	12,786,543	$169,775	321,848
Idaho	1,595,728	$5,422,216	14,654,639	$194,578	368,869
Illinois	12,875,255	$43,749,573	118,242,090	$1,569,972	2,976,250
Indiana	6,537,334	$22,213,585	60,036,717	$797,144	1,511,173
Iowa	3,074,186	$10,445,954	28,232,309	$374,857	710,630
Kansas	2,885,905	$9,806,183	26,503,199	$351,899	667,107
Kentucky	4,380,415	$14,884,465	40,228,285	$534,135	1,012,579
Louisiana	4,601,893	$15,637,038	42,262,266	$561,142	1,063,776
Maine	1,329,192	$4,516,538	12,206,860	$162,078	307,257
Maryland	5,884,563	$19,995,497	54,041,883	$717,547	1,360,278
Massachusetts	6,646,144	$22,583,317	61,035,992	$810,412	1,536,326
Michigan	9,883,360	$33,583,240	90,765,515	$1,205,149	2,284,642
Minnesota	5,379,139	$18,278,087	49,400,236	$655,917	1,243,444
Mississippi	2,984,926	$10,142,653	27,412,575	$363,973	689,997
Missouri	6,021,988	$20,462,461	55,303,949	$734,304	1,392,045
Montana	1,005,141	$3,415,427	9,230,883	$122,564	232,349
Nebraska	1,855,525	$6,304,996	17,040,529	$226,257	428,924
Nevada	2,758,931	$9,374,731	25,337,111	$336,416	637,756
New Hampshire	1,320,718	$4,487,744	12,129,038	$161,045	305,298
New Jersey	8,864,590	$30,121,503	81,409,467	$1,080,923	2,049,143
New Mexico	2,085,538	$7,086,570	19,152,892	$254,305	482,094
New York	19,570,261	$66,498,921	179,726,815	$2,386,342	4,523,870
North Carolina	9,752,073	$33,137,133	89,559,818	$1,189,140	2,254,293
North Dakota	699,628	$2,377,306	6,425,153	$85,311	161,726
Ohio	11,544,225	$39,226,790	106,018,350	$1,407,670	2,668,568
Oklahoma	3,814,820	$12,962,597	35,034,047	$465,168	881,835
Oregon	3,899,353	$13,249,837	35,810,370	$475,476	901,376
Pennsylvania	12,763,536	$43,369,957	117,216,100	$1,556,349	2,950,425
Rhode Island	1,050,292	$3,568,848	9,645,535	$128,070	242,786
South Carolina	4,723,723	$16,051,012	43,381,112	$575,997	1,091,938
South Dakota	833,354	$2,831,702	7,653,248	$101,617	192,638
Tennessee	6,456,243	$21,938,041	59,292,004	$787,256	1,492,428
Texas	26,059,203	$88,548,073	239,319,115	$3,177,584	6,023,857
Utah	2,855,287	$9,702,145	26,222,013	$348,166	660,029
Vermont	626,011	$2,127,159	5,749,078	$76,334	144,709
Virginia	8,185,867	$27,815,231	75,176,299	$998,161	1,892,249
Washington	6,897,012	$23,435,756	63,339,881	$841,002	1,594,316
West Virginia	1,855,413	$6,304,615	17,039,500	$226,244	428,898
Wisconsin	5,726,398	$19,458,059	52,589,348	$698,261	1,323,717
Wyoming	576,412	$1,958,624	5,293,577	$70,286	133,244
TOTAL	**313,914,040**	**$1,066,666,667**	**2,882,882,883**	**$38,277,778**	**72,564,508**

Endnotes

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16 Table 27 – U.S. Use of Field Corn, by Crop Year, *Sugar and Sweeteners Yearbook Tables*, United States Department of Agriculture, at http://www.ers.usda.gov/data-products/sugar-and-sweeteners-yearbook-tables.aspx#25480.

17 *'Low-lin' Oil Helps Keep Us Healthier and Profitable*, United Soybean Board, Jan. 2011, at http://www.unitedsoybean.org/topics/consumer/low-lin-oil-helps-keep-us-healthier-and-profitable/.

18 *About Trans Fat and Partially Hydrogenated Oils*, Center for Science in the Public Interest, at http://cspinet.org/new/pdf/trans_q_a.pdf.

19 *Farm Subsidy Database*; Table 9: Soybeans: Monthly Value of Products Per Bushel of Soybeans Processed, and Spot Price Spread, U.S., 1990/91-2010/11, *Oil Crops Yearbook*, U.S. Department of Agriculture, at http://www.ers.usda.gov/data-products/oil-crops-yearbook.aspx. To account for the impact of inflation, oil's average share of the price since 1995 is weighted by the total soybean production in a given year, which may be found in Table 2: Soybeans: Acreage Planted, Harvested, Yield, Production, Value, and Loan Rate, U.S., 1960-2013, *Oil Crops Yearbook*, U..S. Department of Agriculture, at http://www.ers.usda.gov/data-products/oil-crops-yearbook.aspx. While the USDA has yet to publish data for 2012, both the 17 and 5 year averages for oil value are 40%.

20 *Farm Subsidy Database*.

21 The full list includes wheat flour,

sugar, corn syrup, high fructose corn syrup, vegetable shortening, animal shortening, eggs, dextrose, modified corn starch, corn flour, glucose, sweet dairy whey, soy protein isolate, calcium caseinate, corn dextrin, soy lecithin, and corn starch. Laura Coffey, *37 Ingredients Twinkie Eaters Ingest*, NBC News, at http://www.today.com/id/38872091/ns/today-today_food/t/ingredients-twinkie-eaters-ingest/#.Ucya4fnVBsm.

22 Prior to the recent Hostess bankruptcy, the per-unit cost of a Twinkie was roughly $.37 when bought in bulk. See *Apples to Twinkies 2012*, U.S. PIRG Education Fund, July 2012, at http://www.uspirgedfund.org/sites/pirg/files/reports/Apples-to-Twinkies-web-vUS.pdf. Twinkies are 4 inches long, and provide 150 calories each.

23 Number of taxpayers: *Tax Stats at a Glance*, *FY 2011*, Internal Revenue Service, at http://www.irs.gov/uac/SOI-Tax-Stats-Tax-Stats-at-a-Glance. Number of apples: Series APU0000711111, Bureau of Labor Statistics, lists the price per pound of a Red Delicious apple as $1.406 as of May 2013. See http://www.bls.gov/data/#prices. Livestrong.com lists the average weight of a Red Delicious apple about 6 ounces, or 3/8 of a pound, meaning each apple would cost 53 cents. See http://www.livestrong.com/article/303353-calories-in-one-red-deliciousapple/.