

February 19, 2008

Farm Bill Sugar Provisions Move Program “From Bad to Worse”

Summary

While the House and Senate farm bills differ in several respects, they contain largely identical language on sugar, including the following major changes:

- The Senate farm bill raises the price support loan rate for raw sugar in quarter-cent increments from 18 cents per pound in 2008 to 19 cents in 2012. The beet sugar loan rate would be set at 128.5% of the cane rate, raising it 1.5 cents by 2012, to 24.42 cents per pound. The House bill raises the two loan rates to 18.5 and 23.5 cents per pound, respectively.
- Both bills impose new restrictions on the Secretary of Agriculture’s authority to establish and adjust sugar import quotas to meet domestic needs.
- The bills further restrict the domestic marketing allotment system to set a floor at 85% of domestic sugar consumption and eliminate the import trigger for suspension of allotments.
- They create a very expensive and uneconomic program to divert surplus sugar into production of fuel ethanol without regard to taxpayer costs.

The combined affects of these more onerous sugar program provisions, if maintained by the farm bill conference committee and signed into law by the President, will be uniformly bad for everyone in the country, except for a few thousand sugar crop growers and sugar processors. In particular:

- The higher support level in the Senate bill and the more restrictive import quota and allotment provisions will **raise the cost of sugar to consumers and to food and beverage manufacturers** by an average of 2 cents per pound, equal to \$400 million a year or **\$2 billion** over the life of the farm bill.
- The increased costs for sugar in the US market relative to sugar in other markets will accelerate the **loss of US jobs** in manufacturing of sugar-containing products as foreign manufacturers gain an increased competitive advantage. Since 1997, 75,000 such jobs have been lost.
- The higher market prices will stimulate sugar production in both the United States and Mexico, leading to **surplus supplies** that must be removed from the market at taxpayer expense.
- Federal budget costs will be considerably greater than the \$1.3 billion projected by the Congressional Budget Office. We estimate that **the cost over the ten-year budgeting horizon will be \$5.4 billion.**
- The provisions reducing USDA’s flexibility in managing import quotas and marketing allotments may violate US trade obligations, making the sugar program more vulnerable to challenges in the World Trade Organization, and creating the potential for retaliation against other US agricultural commodities.

The Senate Farm Bill

During the prolonged run-up to the Senate’s approval of the 2007 farm bill, there were areas of major contention with respect to various programs. These included the overall scale of spending, whether there should be a permanent disaster program, the scope of conservation programs, the level at which to set payment limits, and whether to take some of the money from direct payments to finance other provisions. Unfortunately, the sugar provisions were not extensively discussed. Perhaps as a result, what emerged from the Senate on sugar is even worse than in the House bill (H.R. 2419). This matters because in all likelihood the sugar industry will try to convince conference committee members to adopt the Senate language.

In the table below we review the main changes affecting sugar and how they compare to current law.

Senate Bill
<p>Loan Rates:</p> <ol style="list-style-type: none"> 1. Increases the raw cane sugar loan rate from 18 cents per pound for the 2008 crop year to 18.25 in 2009, 18.50 in 2010, 18.75 in 2011 and 19 in 2012. The one-cent increase is double the House increase. 2. Sets the beet sugar loan rate at 128.5% of the cane rate, increasing it from the current 22.9 cents to 23.1 cents in 2008 and to 24.42 cents by 2012, a rise of 1.5 cents or about 7%. The House increase is 0.6 cents. 3. Removes the Secretary’s authority to reduce loan rates in the event of a multilateral trade deal.
<p>Marketing Allotments:</p> <ol style="list-style-type: none"> 1. Eliminates the 1.532 million ton import trigger for suspensions of allotments. 2. Mandates that the OAQ cannot be less than 85% of estimated human consumption. 3. Makes in-process beet sugar subject to allotments 4. Defines forfeitures as being “marketed” in the year in which the loan was made, not the year in which the forfeiture takes place. 5. Includes sale of sugar for subsidized ethanol production in definition of “marketed” for purposes of enforcing marketing allotments. 6. Reallocation of deficits to imports is limited to raw sugar imports.
<p>TRQ Administration:</p> <ol style="list-style-type: none"> 1. Requires the Secretary of Agriculture to initially set the import quotas each year at the minimum required to comply with international trade agreements, except for specialty sugars. 2. Limits the Secretary’s authority to increase the refined sugar quota to the period prior to April 1, generally in the event of a natural disaster.
<p>Diversion of Sugar to Ethanol:</p> <ol style="list-style-type: none"> 1. Requires the Secretary to purchase sugar (or sell any CCC-owned sugar that has been forfeited) to produce fuel ethanol or other forms of bioenergy if necessary to

- prevent sugar loan forfeitures. This takes effect for 2007/08 upon passage.
2. Secretary must announce his initial estimate of the quantity to be diverted to ethanol by September 1 and publish re-estimates prior to the beginning of the second, third and fourth quarters of the fiscal year.
 3. USDA is not allowed to incur storage costs on sugar purchased for ethanol.

Miscellaneous Provisions:

1. Requires USDA to include Mexican sugar and HFCS supply-demand information in the World Agricultural Supply and Demand Estimates report each month.
2. Directs the Secretaries of Agriculture and State to work to restore US membership in the International Sugar Organization within one year.
3. If there is a PIK (payment-in-kind) program to reduce sugar production after beets or cane have been planted, those crops can be used for bioenergy feedstocks.
4. Sets minimum monthly storage payments for CCC-owned sugar: 15 cents/cwt for refined beet sugar and 10 cents/cwt for raw cane sugar.

Impacts on the market price

We estimate that these provisions, taken as a whole, will raise US market prices for sugar by an average of **two cents per pound** for the five-year period. The average wholesale beet sugar price over the past ten years under current law was 26 cents per pound. (That is the Midwest f.o.b. price, i.e., at the factory. Refined sugar prices along the coasts average one to two cents higher.) The average raw sugar price was 21.1 cents per pound over the 10-year period.

The four factors that will push up prices are 1) the higher loan rates, 2) starting the year with the minimum TRQ and placing severe limits on subsequent quota increases, 3) the diversion of sugar supplies to ethanol, and 4) the Secretary's reduced ability to increase the refined sugar quota or reallocate allotment deficits to refined sugar. The House bill has additional limits on the Secretary's authority in the form of mandatory shipping patterns for imports.

In fact, the whole focus of these new, more onerous sugar program provisions is to force up the price of refined sugar. Beet processors have always been principally interested in the support level for refined sugar. Now that most of the cane sector is vertically integrated into refining, they make money off the refined price, even if the raw sugar price is low. By forcing most additional imports to be raw sugar, grower-owned refineries will face less competition from imported refined sugar, and will keep their raw material costs down.

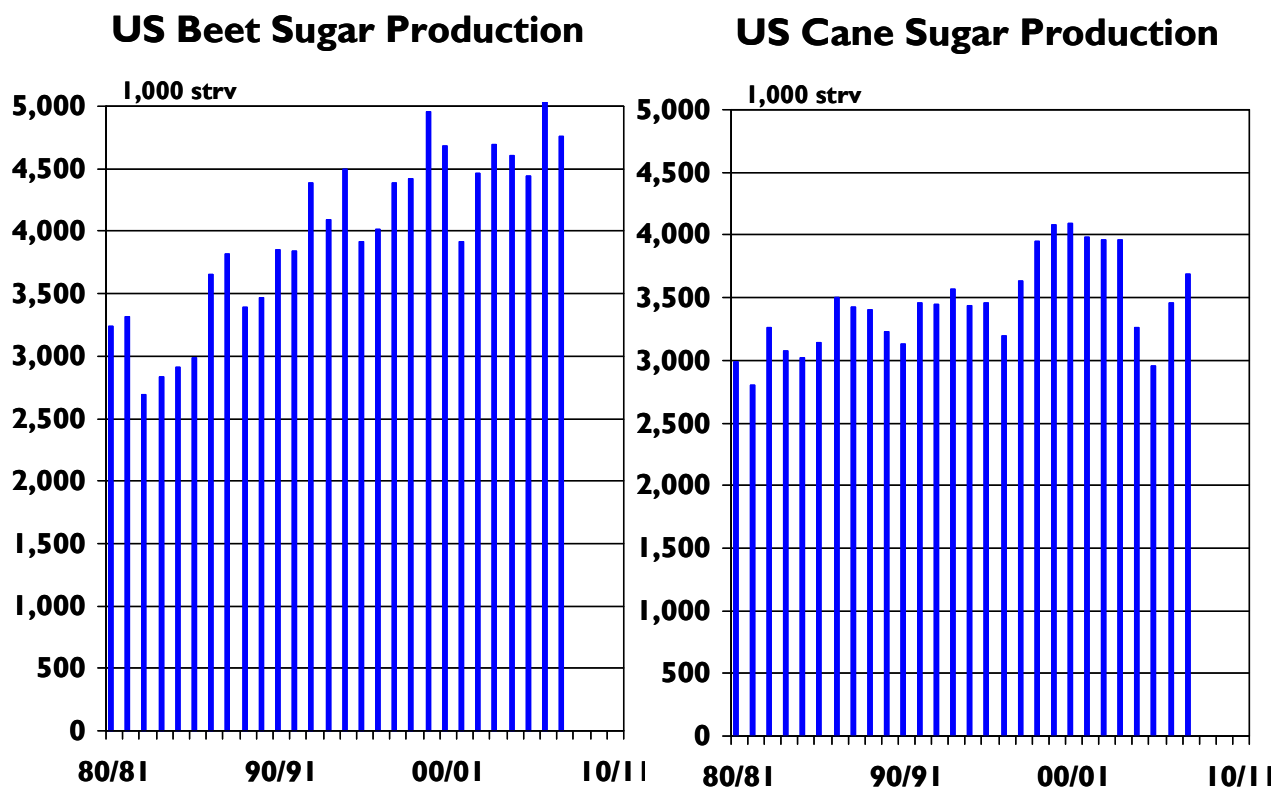
Each additional penny per pound on the price of sugar costs consumers \$200 million per year on the 10 million tons that are sold for domestic food use each year. Therefore a two-cent increase in average refined sugar prices will **cost consumers \$400 million per year or \$2 billion over the life of a five-year bill**. That is on top of the \$1.9 billion per year that the Government Accountability Office estimates that the sugar program costs consumers already.

Impacts on sugar production

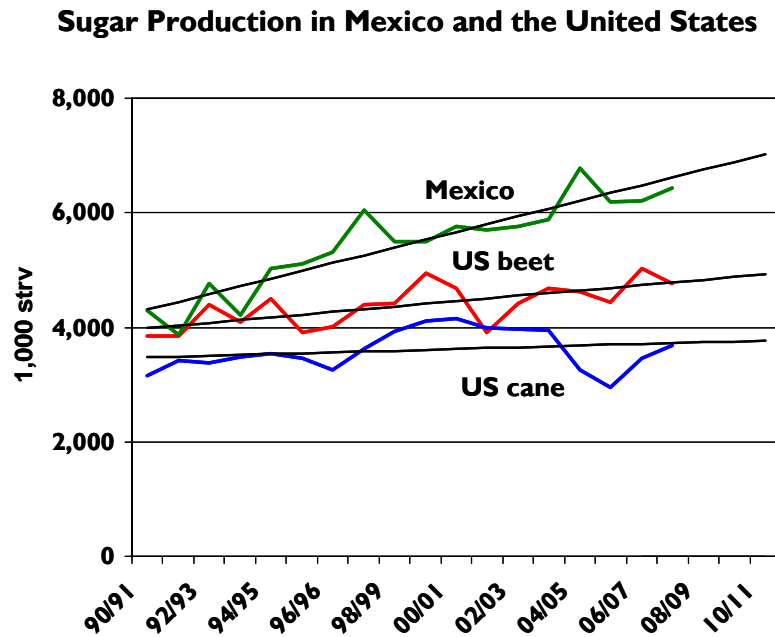
If the Senate language is passed into law, higher prices will stimulate a significant increase in sugar production in both the United States and Mexico. This is abundantly clear from the past performance of the two sugar industries.

The current sugar program was first put in place in the Agriculture and Food Act of 1981, which President Reagan signed into law on December 22 of that year. It established a price support loan program with a raw cane sugar loan rate rising from 17 cents to 18 cents per pound over the course of four years, and it has remained at 18 cents per pound since then. As USDA implemented the program, it limited imports through quotas with the objective of keeping market prices for raw cane sugar in the 21-22 cent per pound range. This was a dramatic increase over the 15-cent price objective targeted by the Carter administration.

Not surprisingly, the generous support price prompted a sustained expansion in production of both cane and beet sugar, as shown in the two charts below. US beet sugar production has risen from 3 million tons to 5 million tons over the period. Similarly, US cane sugar production rose from 3 million tons to 4 million tons before being dealt a setback by the 2005 hurricanes, from which the sector is now recovering. Even though the support price was constant, this expansion was possible because of the strong pace of productivity growth in the industry, just as in the rest of American agriculture.



Productivity growth in Mexico has been even greater. The chart below shows historical sugar production for both countries, and the trend projection assuming continuation of the constant support level that has prevailed. (The metric Mexican data has been converted into short tons, raw value.)



With US sugar consumption at 10 million tons, the Congressional requirement that marketing allotments not be less than 85% of consumption allows domestic producers to sell all of their current production of about 8.5 million tons. The remaining 1.5 million tons will be accounted for by U.S. minimum import commitments under the Uruguay Round Agreement, additional specialty sugars, and the various bilateral free trade agreements. Therefore, any imports from Mexico and any incremental production in the United States will typically be considered as surplus to requirements.

A two-cent increase in market prices would provide a strong incentive for both US and Mexican producers to expand production. Farmers do respond to market signals. The price elasticity of supply for both sugarcane and sugar beets is typically about 0.3. This means that for each 10% increase in price, there will be a 3% increase in production. In this case, starting from a wholesale market price for refined sugar of about 26 cents per pound, a 2-cent higher market price would represent an increase of 7.7%. **Therefore, sugar production in both countries would expand by 2.3%.**

In 2008/09, sugar production in the United States and Mexico under current policy (with allotments triggered off) will likely be 8.5 and 6.5 million strv (short tons, raw value), respectively. If unconstrained, a 2.3% increase in production would be about 200,000 tons in the US and 150,000 tons in Mexico. Thus there would be **an additional surplus of 350,000 tons** on top of what is already in the works as a result of the culmination of NAFTA with completely free trade in sweeteners in 2008.

In USDA's January 2008 "Sugar and Sweeteners Outlook" report, the Department laid out some alternative scenarios for Mexican production and exports, assuming a continuation of current US sugar policy. The table is reproduced below. It shows three scenarios, depending on the degree to which high fructose corn syrup (HFCS) replaces sugar in food and beverages in Mexico. The lowest sugar exports to the United States are if HFCS stays at a 30% share in the beverage industry. Higher exports occur if HFCS achieves either 75% or 90% penetration in beverages. The chart on the next page shows the three export scenarios. Even the lowest has exports of 500-700,000 metric tons per year over the course of the next farm bill.

Table 17--Alternative long term Mexico sugar and high fructose corn syrup (HFCS) projections.

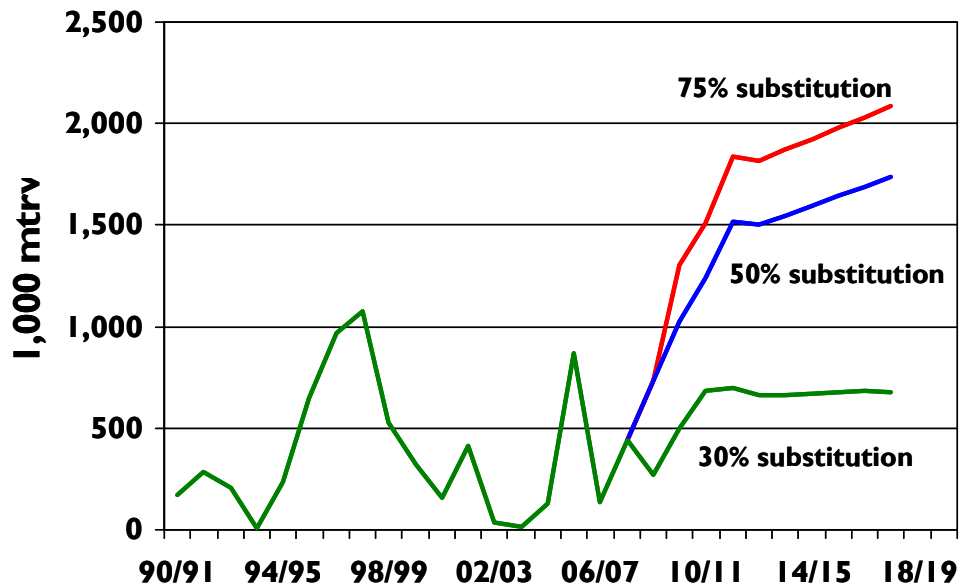
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<i>1,000 metric tons, raw value</i>															
Version 1: HFCS sweetener share in beverage industry = 30 percent															
Beginning Stocks	1,965	1,294	1,656	1,726	1,605	1,319	921	688	548	485	483	522	582	658	670
Sugar Production	5,604	5,633	5,830	6,020	6,067	6,130	6,277	6,402	6,541	6,671	6,784	6,878	6,956	7,021	7,085
Imports	240	464	200	0	0	0	0	0	0	0	0	0	0	0	0
Supply	7,809	7,391	7,686	7,746	7,692	7,449	7,198	7,089	7,087	7,158	7,267	7,399	7,538	7,677	7,765
Disappearance	5,649	5,600	5,520	5,670	5,674	5,946	5,915	5,878	5,941	6,006	6,071	6,136	6,203	6,270	6,338
Consumption	5,326	5,210	5,150	5,670	5,674	5,846	5,815	5,878	5,941	6,006	6,071	6,136	6,203	6,270	6,338
Other Disappearance	323	390	370	0	0	0	0	0	0	0	0	0	0	0	0
Exports	866	135	440	271	499	682	696	665	661	667	675	681	679	737	809
Ending Stocks	1,294	1,656	1,726	1,605	1,319	921	688	548	485	483	522	582	658	670	685
Stocks-to-Consumption	0.243	0.318	0.335	0.273	0.225	0.158	0.118	0.093	0.082	0.080	0.086	0.095	0.106	0.107	0.096
High Fructose Corn Syrup	650	650	650	331	395	489	587	598	610	622	635	647	660	672	685
Estandar sugar price (cents/lb)	26.66	28.50	19.37	19.62	19.80	20.29	20.65	20.92	20.96	20.77	20.42	20.01	19.59	19.36	19.36
Version 2: HFCS sweetener share in beverage industry = 75 percent															
Beginning Stocks	1,965	1,294	1,656	1,726	1,662	1,469	1,274	1,108	1,003	909	824	747	677	613	555
Sugar Production	5,604	5,633	5,830	6,020	6,077	6,105	6,223	6,315	6,417	6,518	6,617	6,716	6,816	6,917	7,016
Imports	240	464	200	0	0	0	0	0	0	0	0	0	0	0	0
Supply	7,809	7,391	7,686	7,746	7,738	7,573	7,498	7,422	7,420	7,427	7,441	7,483	7,492	7,530	7,572
Disappearance	5,649	5,600	5,520	5,353	5,240	5,061	4,873	4,917	4,962	5,007	5,052	5,098	5,144	5,191	5,238
Consumption	5,326	5,210	5,150	5,353	5,240	5,061	4,873	4,917	4,962	5,007	5,052	5,098	5,144	5,191	5,238
Other Disappearance	323	390	370	0	0	0	0	0	0	0	0	0	0	0	0
Exports	866	135	440	731	1,029	1,238	1,517	1,501	1,549	1,597	1,642	1,688	1,735	1,783	1,830
Ending Stocks	1,294	1,656	1,726	1,662	1,469	1,274	1,108	1,003	909	824	747	677	613	555	503
Stocks-to-Consumption	0.243	0.318	0.335	0.310	0.280	0.262	0.227	0.204	0.183	0.165	0.148	0.133	0.119	0.107	0.096
High Fructose Corn Syrup	650	650	650	814	967	1,223	1,467	1,496	1,526	1,556	1,586	1,617	1,649	1,681	1,713
Estandar sugar price (cents/lb)	26.66	28.50	19.37	19.38	19.38	19.37	19.36	19.36	19.36	19.36	19.36	19.36	19.36	19.36	19.36
Version 3: HFCS sweetener share in beverage industry = 90 percent															
Beginning Stocks	1,965	1,294	1,656	1,726	1,662	1,409	1,208	1,038	938	850	769	697	631	571	517
Sugar Production	5,604	5,633	5,830	6,020	6,077	6,105	6,223	6,315	6,417	6,518	6,617	6,716	6,816	6,917	7,016
Imports	240	464	200	0	0	0	0	0	0	0	0	0	0	0	0
Supply	7,809	7,391	7,686	7,746	7,738	7,514	7,432	7,351	7,355	7,368	7,387	7,412	7,447	7,488	7,533
Disappearance	5,649	5,600	5,520	5,353	5,029	4,799	4,560	4,597	4,635	4,674	4,713	4,752	4,791	4,831	4,872
Consumption	5,326	5,210	5,150	5,353	5,029	4,799	4,560	4,597	4,635	4,674	4,713	4,752	4,791	4,831	4,872
Other Disappearance	323	390	370	0	0	0	0	0	0	0	0	0	0	0	0
Exports	866	135	440	731	1,300	1,507	1,836	1,815	1,870	1,925	1,977	2,030	2,084	2,139	2,194
Ending Stocks	1,294	1,656	1,726	1,662	1,409	1,208	1,038	938	850	769	697	631	571	517	468
Stocks-to-Consumption	0.243	0.318	0.335	0.310	0.280	0.262	0.227	0.204	0.183	0.165	0.148	0.133	0.119	0.107	0.096
High Fructose Corn Syrup	650	650	650	814	1,184	1,467	1,780	1,795	1,831	1,867	1,904	1,941	1,979	2,017	2,056
Estandar sugar price (cents/lb)	26.66	28.50	19.37	19.38	19.38	19.37	19.36	19.36	19.36	19.36	19.36	19.36	19.36	19.36	19.36

Source: ERS long term sweetener projections model.

A 50% substitution scenario is now thought by many to be the most likely. Taking the midpoint between USDA's 30% and 75% scenarios as an estimate of the 50% level results in exports averaging 883,000 metric tons per year during a 5-year farm bill. That is 973,000 short tons, and it will all be coming to the United States. If higher prices cause production to increase by 350,000 tons above the current policy scenario, **excess supplies will average more than 1.3 million tons per year and will have to be diverted to ethanol.** The budget implications of this are discussed below.

In April 2007, the Mexican government announced its National Program for the Sugar Cane Agroindustry (PRONAC). Among its goals are to increase sugar production to 6.6 million metric tons, raw value, by 2012, including 890,000 metric tons (or 981,000 short tons) for export to the United States as sugar or sugar in products.

Mexican Sugar Exports



Impact on budget costs

The Congressional Budget Office (CBO) estimated the 10-year cost of the House farm bill's sugar provisions at roughly the baseline amount of \$1.2 billion and the Senate version's at about the same amount. This is likely to be a serious underestimate for a number of reasons, but the primary one is a faulty projection of the cost of diverting sugar to ethanol – both the cost per ton and the quantity that will have to be diverted.

Budget outlays for the sugar program traditionally rise when sugar processors forfeit the sugar serving as collateral for the loans the government gives them. At the new loan rates that rise to 19 cents per pound for raw cane sugar and 24.4 cents for refined beet sugar, each 100,000 tons forfeited costs the government \$38 million or \$49 million, respectively. The diversion of surplus sugar to ethanol production is intended to keep prices up to prevent forfeitures.

The ethanol program would work either by selling government-owned sugar at sharply discounted prices to ethanol producers, or buying sugar in the marketplace to support prices and then reselling it cheaply. In either case, the minimum cost to the government is the difference between the loan rate and the price at which it then can sell the sugar.

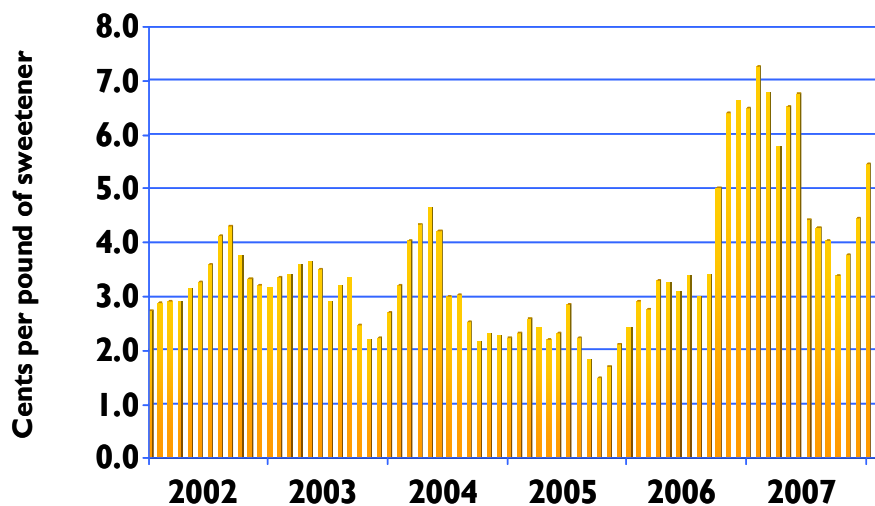
CBO assumed that ethanol producers would pay 10 cents per pound for the sugar. Unfortunately, there is no analytical basis for that number. Ethanol facilities that currently use corn will not pay any

more to substitute some sugar for corn than they have to pay for the corn that they would otherwise ferment into ethanol.

The so-called “net corn costs” for producing corn sweeteners or ethanol in a corn refinery using wet-milling technology are calculated by USDA and others on an ongoing basis.¹ Historically, the cost per pound of starch has averaged about 3 cents per pound. Recently it has been about 6 cents after rising as high as 7 cents in early 2007. (Per-pound starch costs depend on the market prices of corn and the various byproducts.) Net raw material costs in dry milling ethanol facilities are about the same.

According to USDA, one gets 2.65 gallons of ethanol per bushel of wet-milled corn, 2.75 gallons per bushel of dry-milled corn, 135.4 gallons per ton of raw sugar, and 141 gallons per ton of refined sugar.² A bushel of wet-milled corn yields 31.5 pounds of starch (dry basis). Therefore, it takes about 12 pounds of corn starch (31.5 pounds divided by 2.65 gallons) to produce a gallon of ethanol, compared to more than 14 pounds of raw or refined sugar.

Net Corn Cost



In order to prevent loan forfeitures, market prices have to be higher than the actual loan rate in order to cover the 9 months of interest on the loan and certain other factors. Therefore, USDA will have to pay market prices for any sugar it buys to divert to ethanol – at a cost of at least 26 cents per pound for refined sugar and 22 cents for raw sugar.

¹ The USDA calculations are at <http://www.ers.usda.gov/briefing/sugar/data.htm> in Tables 31a and 31b.

² USDA, “The Economic Feasibility of Ethanol Production from Sugar in the United States”, July 2006, pp 16-17

If an ethanol producer has net corn costs of 72 cents per gallon (6 cents per pound of starch times 12 pounds of starch to make each gallon), that is about all he will be willing to pay for 14.2-14.8 pounds of sugar to replace the corn, i.e. about 5 cents per pound of sugar. And that is on a delivered basis.

If USDA is buying refined beet sugar at 26 cents and selling it at 5 cents, the net budget outlay is 21 cents per pound or \$420 per ton of sugar. If the Department buys raw sugar at 22 cents, the net budget outlay is 17 cents or \$340 per ton of sugar. This does not even take into account the transportation cost of moving the sugar to corn ethanol plants in the Midwest. In the following budget discussion we use a conservative average of \$380 per ton.

Under the Senate farm bill, rising US and Mexican sugar production levels plus surplus sugar from Mexico will require that hundreds of thousands of tons of sugar be diverted to ethanol each year. Each 100,000 tons will involve Federal budget costs of about \$38 million. In the table below, we show the quantities that will have to be diverted, which are the sum of USDA's projected Mexican exports to the United States with 50% HFCS substitution and our estimate of the additional production in both countries in response to higher loan rates and market prices.

Budget Cost of Converting Sugar to Ethanol				
Fiscal Year	Mexican Exports (50% level)	US + MX Production Response	Total To Divert	Conversion To Ethanol @\$380/ton
	1,000 short tons, raw value			\$ million
2009	552	0	552	210
2010	842	175	1,017	386
2011	1,058	350	1,408	535
2012	1,220	350	1,570	597
2013	1,194	350	1,544	587
5-Yr. Total				2,315
2014	1,218	350	1,568	596
2015	1,248	350	1,598	607
2016	1,276	350	1,626	618
2017	1,306	350	1,656	629
2018	1,330	350	1,680	638
10-Yr. Total				5,403

The baseline Mexican exports in the table are derived from the USDA's Economic Research Service (ERS) table on page 6 by taking the average of the 30% and 75% scenarios and converting to short tons. (There are 1.1023 short tons in a metric ton. The years in the ERS table are fiscal years.) The production response kicks in as loan rates begin to rise with the 2009 crop year. The result is that within a year or two, **more than one million tons of sugar will have to be subsidized into**

ethanol each year at an annual cost of \$500-600 million. One million tons of sugar would produce 140 million gallons of ethanol, about the same as one large corn dry milling facility. Spending \$500-600 million per year to produce so little ethanol makes no sense at all, when the same dry milling facility would produce the same amount of ethanol from corn without any additional government outlays.

Additional budget outlays will total \$2.3 billion for the first five years and \$5.4 billion for the 10-year period. If there is a greater degree of HFCS substitution for sugar in Mexico, costs could be \$6-7 billion.

Violating international trade obligations

A final objection to the Senate and House bills is that they increase the risk of a World Trade Organization (WTO) challenge to the US sugar program. This is well documented in a paper by O'Mara & Associates, which also notes that the cost of diverting sugar to ethanol would be included in the Aggregate Measure of Support for sugar.³

As the authors note in their summary:

Establishing a statutory date before which the Secretary [of Agriculture] can take action to increase imports to supply the domestic market; making mandatory the application of orderly shipping patterns [a House provision]; and guaranteeing 85 percent of domestic consumption to U.S.-produced sugar, places the United States at risk of violating several provisions of the General Agreement on Tariffs and Trade (GATT) 1991, including:

- a. Article III: National Treatment on Internal Taxation and Regulation;
- b. Article XI: General Elimination of Quantitative Restrictions;
- c. Article XIII: Non-Discriminatory Administration of Quantitative Restrictions, and
- d. Article XXIII: Nullification or Impairment.

A WTO challenge to the US sugar program could eventually result in retaliation against other US commodities. Therefore, the potential victims of the Senate and House farm bills' sugar provisions include not only consumers, workers, sugar users and independent sugar refiners, but US producers of exported commodities like wheat, corn, soybeans, beef and pork.

³ "Proposed Changes to the U.S. Sugar Program and International Trade Obligations", undated.