

## **Procedures to Establish the FY 2010 Regional Sugar Loan Rates**

### **Summary**

The Farm Service Agency (FSA) has reviewed the methodology used to calculate regional loan rates and is modifying the procedure to establish state raw cane sugar loan rates. The state raw cane sugar loan rate calculation method used for FY 2010 equalizes the likelihood of loan collateral forfeiture among cane processors in the different states and requires that all States have the same #16 futures contract forfeiture level. The new method incorporates a complete accounting of the costs of loan redemption, which includes location discounts. FSA also now excludes cost data from the mills that are fully integrated with a refinery because the forfeiture calculation of an integrated mill/refiner includes the profitability of making refined sugar, while a traditional independent sugarcane mill profits only from selling raw cane sugar. The procedures used for beet sector calculations remain unchanged.

### **Background**

The Federal Agriculture Improvement and Reform Act of 1996, extended by the Food, Conservation, and Energy Act of 2008 (the 2008 Act), requires price supports for sugar produced from the 1996 through 2012 domestic sugarcane and sugar beet crops. The raw cane sugar national loan rate was set at 18 cents per pound for the 2002 through 2007 crops and incrementally increases to 18.75 by the 2012 crop year. The refined beet sugar national loan rate was set at 22.9 cents per pound for the 2002 through 2007 crops and equals 128.5 percent of the raw cane sugar support for each of the 2009 through 2012 crop years.

Under the sugar program, sugar beet and sugarcane processors can borrow from the Commodity Credit Corporation (CCC) using sugar as collateral. If, at loan maturity, the market price is not high enough to cover the costs of loan repayment, i.e. loan principal, interest, and marketing costs, the borrower can satisfy his loan obligation by forfeiting the loan collateral to CCC. This type of loan is referred to as a “non recourse loan” because forfeiting sugar loan collateral completely satisfies the loan obligation.

A major mandate of the sugar program since the Farm Security and Rural Investment Act of 2002 requires CCC to operate the program at no cost to the Federal Government by avoiding forfeiture of sugar to CCC. To encourage loan repayment, CCC employs mandated supply control mechanisms to maintain the sugar price at a level greater than what is referred to as the “forfeiture price,” the price at which the borrower is expected to be indifferent to repaying or forfeiting the loan.

Consistent with other farm commodities, FSA uses regional differentials for establishing sugar loan rates to equalize price support, or the likelihood of loan forfeiture, by borrowers regardless of their location. Historically, FSA adjusted loan rates by the difference in freight costs, thereby eliminating an incentive for processors far away from their market to forfeit sugar to CCC. When a borrower forfeits sugar, CCC takes title to the loan collateral at the processor’s

warehouse and the borrower escapes the cost of transporting the sugar to market. Generally, sugar far from a market is valued lower than closer sources to compensate for higher transporting costs. Without regionalized loan rates, processors furthest from their markets would be more inclined to forfeit their loans to avoid shipping costs.

### Regional Beet Sugar Loan Rates

USDA annually surveys each sugar beet processor for the total quantity of refined beet sugar shipped to end-users during the last fiscal year and the total freight cost paid on those shipments. Freight costs represent the cost of shipping from the point of production to the buyer's location and, therefore, exclude intermediate handling and storage charges incurred from storing sugar at processor distribution centers.

Beet processors are sorted into six geographic regions. For each region, the sum of the freight costs across all processors in that region is divided by the sum of the quantity for which freight was paid to compute a regional Freight Cost (Table 1). Next, a National freight cost is computed across all regions---the product of the regional freight cost and the regional share of production (2.78 cents/pound in Table 1). Then a Regional Adjustment Factor is computed by subtracting each regional freight cost from the National freight cost. For example, The Michigan and Ohio adjustment factor is 1.48 cents per pound, which is the national freight cost, 2.78 cents per pound, less the regional freight cost, 1.30 cents per pound. Finally, the Regional Loan Rate equals the national loan rate, 23.45, plus the regional adjustment factor (Table 1, column E).

**Table 1. Calculation of FY 2010 Regional Beet Sugar Loan Rates (cents/pound)**

	A	B	C	D	E
	Region	Freight Cost 1/	Share of Production (2007)	Regional Adjustment Factor	Regional Loan Rate
1	Michigan and Ohio	1.30	0.12	1.48	24.94
2	Minnesota and eastern 1/2 of North Dakota	2.82	0.53	-0.04	23.41
3	NE ¼ of Colorado, Nebraska, and SE ¼ of Wyoming	3.66	0.05	-0.87	22.58
4	Montana, NW 1/4 of Wyoming and W ½ of North Dakota	2.83	0.05	-0.05	23.40
5	Idaho, Oregon and Washington	3.63	0.20	-0.85	22.60
6	California	1.49	0.05	1.29	24.74
7	National	2.78	1.00	0.00	23.45

1/ Includes freight only.

## State Raw Cane Sugar Loan Rates

USDA has made adjustments for location, on a state basis, since the raw cane sugar nonrecourse loan program was established by the 1981 farm bill. Until FY 2010, state raw cane sugar loan rates were calculated using the same method used to adjust beet sugar loan rates.

FSA made three technical changes in the state raw sugar loan rate calculation, starting with FY 2010. FSA equalized the threat of forfeiture of raw cane sugar across sugarcane states by (1) requiring that all States have the same #16 futures contract forfeiture level; (2) including in the calculation a complete accounting of the costs associated with loan redemption; and (3) excluding transportation cost data from mills that are fully integrated with a refinery. These technical changes result in a reduction to the loan rates in Florida and Hawaii, and an increase in the loan rates in Louisiana and Texas.

(1) Requiring the same forfeiture price for all cane states:

If state loan rates for raw sugar are to equalize the incentive to forfeit raw sugar, then the forfeiture price, in terms of the #16 raw sugar futures price on the Intercontinental Exchange in New York City (ICE), should be the same for all states. All raw cane sugar is priced relative to the #16 raw sugar futures price on the ICE. However, the previous methodology used to calculate state raw sugar loan rates did not result in a common forfeiture price. This flaw was eliminated by solving simultaneously for state raw sugar loan rates that achieve a common forfeiture price (see Appendix for calculations associated with the FY 2010 announced loan rates).

The beet sugar loan rate calculation procedure is not adjusted because of the difference in pricing refined beet sugar versus raw cane sugar. In contrast, refined beet sugar is priced FOB to the sugar beet mill.

(2) Including a complete accounting of costs associated with loan redemption:

The old methodology excluded the location discounts that domestic cane processors realize when they deliver to nearby refineries. The nearest refineries to Hawaii, Louisiana, and Texas have negotiated discounts with the nearest sugarcane mills in recognition that mills would have to pay extra shipping costs if they had to send their raw sugar to other refineries. Incorporating these discounts into the methodology for determining the state loan rates for raw sugar reduces the calculated raw sugar loan rates of the states that incur these discounts -- Hawaii, Louisiana, and Texas, and increases the calculated raw sugar loan rate for Florida, which does not incur a location discount.

(3) Excluding data from integrated cane mill/refineries:

Integrated cane mills/refineries face completely different incentives to forfeit their raw sugar than the incentives faced by traditional independent sugarcane mills that sell only raw sugar.

Integrated cane mills/refineries, having the option to sell refined sugar, do not calculate the price needed from the raw sugar market to avoid forfeiture, as would an independent sugarcane mill. In the past, cost data from all mills have been included in calculating state forfeiture prices and state loan rates. In reality, however, the integrated operation must consider the profit to be made from refining their raw sugar in calculating a forfeiture price. Since these entities' incentive to forfeit is different from the incentive for independent mills, including integrated cane mills/refiners in the state loan rate calculation would result in a state average that reflects the incentive to forfeit faced by neither independent mills nor integrated mill/refiners. Excluding the integrated mill/refineries eliminates the mills with zero raw sugar transportation costs.

The raw cane sugar loan rates for FY 2010, incorporating all the changes discussed above, are as follows:

	FY2010 New Approach	FY 2010 Old Method	FY 2009
Florida	17.92	18.35	18.07
Hawaii	15.88	16.14	16.37
Louisiana	18.96	18.49	18.28
Texas	17.81	17.14	17.22
U.S. Total	18.25	18.25	18.00

Sugar cane processors in Louisiana and Texas receive higher loan rates and cane processors in Florida and Hawaii receive lower loan rates than they would have received under the old method for FY 2010. Florida's loan rate decreases due to the exclusion of integrated mill/refineries, which have zero transportation costs. Hawaii's loan rate decreases because it suffers the highest location discount from its refiner. The Texas and Louisiana loan rates increase as their marketing costs are relatively lower than those in Florida and Hawaii. The #16 contract raw sugar futures price that would lead to forfeiture is 20.51 cents per pound for all states.

### **Appendix New Raw Cane Loan Rate Calculation**

CCC adopted the following method to calculate regional loan rates that will equalize the incentives to forfeit for all States of the cane sector.

Let:  $LR_j + C_j + LR_j * .75 * i = Y$ ; and  $\sum_j = LR_j * w_j = LR_N$

Where:  $C_j, i, w_j, LR_N$  are given.

Solve for:  $LR_j; Y$

$LR_j$  = CCC loan rate for region  $j$ —where  $j$  = F (Florida); H (Hawaii); L (Louisiana); T (Texas).

$LR_N$  = national loan rates as specified in the current farm bill.

$C_j$  = Weighted average sum of marketing and redemption costs for region  $j$ .

$i$  = The interest rate charged by CCC on commodity loans which is the annual CCC borrowing rate from the US Treasury announced in the month the loan is placed plus 1 percent.

$Y$  = Minimum price to forfeit; and

$w_j$  = fraction of production of region  $j$  relative to the total production of the cane sector.

**Example:**

Let  $C$  = freight + stevedoring + terminal charges + interisland transportation (Hawaii only) + insurance related to transportation + location discounts.

$C_F$  = 2.40 cents per pound;  $C_H$  = 4.47;  $C_L$  = 1.35; and  $C_T$  = 2.52.

$i$  = CCC lending rates as of 1/02/09 = 1.375 percent

$W_F$  = .49;  $W_H$  = .05;  $W_L$  = .42;  $W_T$  = .05

$LR_N$  = 18.25 cents per pound of raw cane sugar.

Then:

$$LR_F * (1 + .75 * i) + 2.40 = Y$$

$$LR_H * (1 + .75 * i) + 4.47 = Y$$

$$LR_L * (1 + .75 * i) + 1.35 = Y$$

$$LR_T * (1 + .75 * i) + 2.52 = Y$$

$$LR_F * .49 + LR_H * .05 + LR_L * .42 + LR_T * .05 = 18.25$$

Solving  $LR_j$  and  $Y$

$$LR_F = 17.92$$

$$LR_H = 15.88$$

$$LR_L = 18.96$$

$$LR_T = 17.81; \text{ and}$$

$$Y_j = 20.51$$