



# **PROGRAMMATIC ENVIRONMENTAL ASSESSMENT**

of

## **Implementing the Sugar Program and Sugar Storage Facility Loan Program**

as modified by the  
2002 Farm Security and Rural Investment Act

**FARM SERVICE AGENCY**  
UNITED STATES DEPARTMENT OF AGRICULTURE



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## CHAPTER 1.0 Purpose of and Need for Action

### 1.1 Introduction

#### 1.1.1 Overview of the Farm Service Agency's Changes to the Sugar Program and Implementation of a Sugar Storage Facility Loan Program

The Farm Service Agency (FSA) proposes to implement changes to the Sugar Program and implement a Sugar Storage Facility Loan Program (SSFLP) as required by passage of the 2002 Farm Security and Rural Investment Act (2002 Act). Both sugar program changes would be implemented as a national program, but the majority of program activity would occur primarily in states and territories producing and processing sugar. The primary sugarcane producing and processing locations are in Florida, Hawaii, Louisiana, Texas, and the Commonwealth of Puerto Rico. The primary sugar beet producing and processing states are Michigan, Ohio, Minnesota, North Dakota, Colorado, Montana, Nebraska, New Mexico, Texas, Wyoming, California, Idaho, Oregon, and Washington.

The specific program changes and additions are to:

- Terminate market assessments.
- Reauthorize market allotments.
- Make in-process sugars eligible for loans.
- Grant the Commodity Credit Corporation (CCC) authority to establish a pre-plant Payment-in-Kind (PIK) program for sugar beet and sugarcane processors and continue the existing PIK program.
- Reauthorize the nonrecourse sugar loan program.
- Extend nonrecourse loans to include in-process beets and cane syrups.
- Authorize the Secretary to reduce previously fixed sugar loan rates if required.
- Terminate loan forfeiture penalties and the requirement for a 30-day forfeiture notice.
- Establish a loan program for sugar storage facilities.

FSA would provide the personnel to implement and administer the Sugar Program through the CCC. The CCC would provide the funding for operating the Sugar Program.

#### 1.1.2 Purpose of Using a Programmatic Environmental Assessment to Analyze this Action

FSA is preparing this Programmatic Environmental Assessment (PEA) to address the implementation of changes to an existing Federal program (Sugar Program) and to implement a new Federal program (Sugar Storage Facility Loan Program). FSA has a framework in place to ensure National Environmental Policy Act (NEPA) compliance at the field level, where site-specific NEPA evaluations will take place prior to implementing a SSFLP action. The evaluations will consist of completing an Environmental Assessment (EA). The site-specific EA will tier off of this PEA.

A PEA allows FSA to reduce paperwork and identify potential impacts at a national level to be aware of at a site-specific level. Regulations promulgated by the Council on Environmental Quality (CEQ) state:

#### Sec. 1500.4 Reducing paperwork.

(i) Using **program**, policy, or plan environmental impact statements and **tiering** from statements of broad scope to those of narrower scope, to eliminate repetitive discussions of the same issues (Secs. 1502.4 and 1502.20).

#### Sec. 1502.4 Major Federal actions requiring the preparation of environmental impact statements.

(b) Environmental impact statements may be prepared, and are sometimes required, for **broad Federal actions** such as the adoption of new agency programs or regulations (Sec. 1508.18). Agencies shall prepare statements on broad actions so that they are relevant to policy and are timed to coincide with meaningful points in agency planning and decisionmaking.

(c) When preparing statements on broad actions (including proposals by more than one agency), agencies may find it useful to evaluate the proposal(s) in one of the following ways:

1. Geographically, including actions occurring in the same general location, such as body of water, region, or metropolitan area.
2. Generically, **including actions which have relevant similarities**, such as common timing, impacts, alternatives, methods of implementation, media, or subject matter.
3. By stage of technological development including federal or federally assisted research, development or demonstration programs for new technologies which, if applied, could significantly affect the quality of the human environment. Statements shall be prepared on such programs and shall be available before the program has reached a stage of investment or commitment to implementation likely to determine subsequent development or restrict later alternatives.

FSA plans to use this PEA to address similar actions in the implementation of these two programs, and to tier off of this document for site-specific implementation of the programs whenever NEPA analysis is required.

## 1.2 Purpose of the Proposed Action

The purpose of this proposed action under the Sugar Program is to establish flexible markets for sugar beets and sugarcane in order to provide more effective price support throughout the market year. More effective price support is needed to reduce loan forfeitures to the CCC and operate the program to the maximum extent possible at no cost to the Federal government. Loan forfeitures have largely resulted from wholesale sugar prices running at, or near, 22-year lows for most of the past two years.

The purpose of this proposed action under the Sugar Storage Facility Loan Program (SSFLP) is to assist sugar processors with meeting potential increased sugar storage requirements caused by the effects of reauthorizing market allotments. If a processor cannot market a quantity of sugar because of the allotment, then they may have to place the sugar into storage. The SSFLP is needed to transfer the cost of sugar storage from the Federal government to industry and modify or replace aging sugar storage infrastructure.

## 1.3 Need for the Proposed Action

On May 13, 2002, President George W. Bush signed the 2002 Act, making many provisions of the Act effective for the 2002 crop year. The 2002 Act replaces the Federal Agriculture Improvement and Reform

Act of 1996 (1996 Act). FSA is mandated to implement the Sugar Program and the SSFLP according to the provisions in the law or be in violation of the law.

## 1.4 Objectives of the Proposed Action

The objectives of the proposed action under the provisions of the Sugar Program are to:

- Operate the nonrecourse Sugar Program to the maximum extent possible at “no cost” to the government.
- Facilitate sugar inventory management.
- Avoid loan forfeiture to the CCC.

The objectives of the proposed action under the provisions of the SSFLP are to:

- Transfer the cost of sugar storage from the government to industry.
- Provide sugar storage capacity to accommodate the effects of market allotments.
- Provide sugar storage facilities that meet approved CCC standards.

### 1.4.1 Minimum Standards or Criteria for Satisfying Objectives

The minimum criterion for satisfying all three objectives of the Sugar Program is for FSA to fully implement the sugar provisions of the 2002 Act. Anything less does not allow the Federal government to avoid forfeitures, achieve effective price supports, and operate as a “no-net-cost” program. Similarly, FSA can satisfy objectives a. and b. of the SSFLP only by fully implementing the sugar provisions of the 2002 Act. To satisfy objective c. of the SSFLP, FSA must fully implement the SSFLP provision of the 2002 Act and require all modified and new storage facilities to meet CCC approval standards.

## 1.5 Related Environmental Impact Statements, Environmental Assessments, and Other Documents

There are no known related NEPA Environmental Impact Statements (EISs), Environmental Assessments (EAs), or other documents that would influence the scope of this assessment.

## 1.6 Required Decisions

The primary decision FSA would make is to promulgate FSA regulations, program policies, and procedures on administering the CCC operation of the Sugar Loan and SSFLP Programs. In turn, the CCC would decide what SSFLP loans are approved, what sugar loans are approved, what sugar storage facilities meet standards, how to allocate assigned market allotments, and what PIK bids to accept.



## 1.7 Scoping and Relevant Environmental Issues

### 1.7.1 Scoping

FSA personnel within the Conservation and Environmental Programs Division (CEPD), with assistance from outside NEPA specialists, performed internal scoping of the proposed action, purpose and need, objectives, minimum standards, relevant environmental issues, potential environmental effects, and possible alternatives.

The proposed action drives three potential outcomes: modification or construction of sugar storage facilities, increases in sugar beet and sugarcane production, or decreases in sugar beet and sugarcane production. Cause and effect diagrams were drawn and analyzed for each of the potential outcomes. Relevant environmental issues were derived from the diagrams and possible measurement indicators for each issue were identified during internal scoping.

FSA will also provide a Notice of Availability of the final PEA. All scoping comments will be analyzed and relevant comments will be incorporated into the final PEA.

### 1.7.2 Relevant Environmental Issues

FSA personnel within CEPD, with assistance from an outside NEPA specialist, completed an FSA-929, Matrix of Environmental Relationships, to identify the possible relevant environmental factors for the proposed action. The FSA-929, dated July 6, 2002, is attached in Appendix B and identifies 15 factors believed to be relevant. Table 1.1 shows how these factors are addressed in this PEA.

**Table 1.1. Link of FSA-929 Environmental Factors with Issues Addressed in This PEA.** Several of the 15 environmental factors are combined in this PEA for purposes of analysis and discussion.

Issue Addressed in This PEA	Relevant FSA-929 Environmental Factor
Increase in wetland acres impacted	Wetlands Land Cover
Reduction of flowage area within floodplains	Floodplains
Increased irrigation from ground and surface water resources	Sole Source Aquifers Water Quantity
Impacts to threatened/endangered species and/or critical habitat	Threatened/Endangered Species Wildlife Habitat
Impacts to cultural resources	Historic/Archeological
Impacts on the quality of water resources	Water Quality Pesticides/Fertilizers Natural Streams Soil Erosion
Impacts on air quality	Air Quality
Impacts on economic conditions	Social/Economic
Impacts to Environmental Justice communities	Environmental Justice

Table 1.2 identifies measurement indicators for each of the issues identified in Table 1.1.

**Table 1.2 Relevant Environmental Issues and Measurement Indicators.** Table identifies relevant issues to be analyzed in this assessment and measurement indicators for each issue.

Relevant Environmental Issues	Measurement Indicators
#1. Increase in wetland acres impacted	% increase in impacted acres
#2. Reduction of flowage area within floodplains	% increase in impacted acres
#3. Increased irrigation from ground and surface water resources	% increase in annual acre-feet
#4. Impacts to threatened/endangered species, critical habitat, and wildlife	To be evaluated during site-specific analysis
#5. Impacts to cultural resources	To be evaluated on a site-specific basis
#6. Impacts on the quality of water resources	% increase in tons per acre per year (TAY) Aquatic-life or human-health criteria % increase in pounds of nutrients
#7. Impacts on air quality	% increase in million pounds of emissions % increase in tons per acre per year (TAY)
#8. Impacts on economic conditions	% increase in sugar prices, loan funds available, employment, and community income
#9. Impacts to Environmental Justice communities	See impacts on air quality, water quality, and economics

### 1.7.3 Environmental Issues with Minor Impact

Sixteen environmental factors on the FSA-929, Matrix of Environmental Relationships, were deemed to be only slightly impacted by this action. These resources include:

- Wilderness
- Coastal Barrier Resources System
- Wild or Scenic Rivers
- Energy Supply
- Natural Landmarks
- Odor
- Noise
- Radiation
- Timber Production
- Important Farmland
- Prime Range Land
- Prime Forest Land
- Fish Production
- Recreation
- Population Migration

## 1.8 Federal Permits, Licenses, Entitlements, Consultations, and Requirements Needed to Implement the Action

FSA would promulgate program regulations, policies, and procedures to implement the proposed action. These will require the completion of a site specific EA for each SSFLP project before modification or construction of sugar storage facilities. Each project will be required to obtain all zoning, planning, constructing, special use, operating, 404, and storm water permits before constructing and operating storage facilities.

Table 1.3 shows a list of potential permits, licenses, entitlements, consultations, and requirements for implementation of the SSFLP and Sugar Program and the potential agencies with whom to coordinate when preparing site-specific environmental assessments for construction of sugar storage facilities.

**Table 1.3 List of State, Federal and Local Governmental Agencies from which Permits, Licenses, Entitlements and Requirements for the SSFLP and Sugar Program May Be Required.**

<b>Agency</b>	<b>Authorization, Permit, Consultation, or Plan</b>
<b>State</b>	
Environmental Conservation/Quality	Construction Permit (air, water, ground disturbance)
Fish and Game/Wildlife	Threatened/Endangered Species consultation Habitat evaluations
Natural Resources	Land Use Permit Water Use Permit
Farm/Agriculture Service	Special Use permits
State Historic Preservation Office (SHPO) and/or Tribal Historic Preservation Office (THPO)	Historic property and cultural resource consultation
Other State Offices	Permits, authorizations, reporting as needed
<b>Federal Government</b>	
Environmental Protection Agency (EPA)	NPDES Permit
Army Corps of Engineers	Section 404 Permit
Farm Service Agency	Permits, authorizations, reporting as needed
Commodity Credit Corporation (CCC)	Storage facility inspection and authorization
<b>Local Government</b>	
County/City Government	Development Permits Administrative Approvals

## CHAPTER 2.0 Alternatives Including the Proposed Action

### 2.1 Description of Alternatives Considered

#### 2.1.1 Alternative A—No Action

The No Action Alternative would be for FSA to continue administering and CCC operating the Sugar Program under the provisions of the 1996 Farm Bill and the respective implementing regulations, policies, and procedures. The provisions of that legislation, which differ from those in the 2002 Act, are:

- Fixed raw sugarcane and sugar beet loan rates.
- Marketing assessments paid by sugar processors.
- Loan forfeiture penalties.
- No sugar pre-plant PIK program.
- No market allotments.
- No SSFLP program.
- No expanded reporting requirements on non-TRQ sugar, molasses, and syrups.

There would be three outcomes as a result of selecting this alternative:

- The Federal government will continue to have the burden of reducing up to a projected 1 million tons of sugar inventory each year during 2002 to 2011, eventually requiring modified or new sugar storage facilities at Federal government expense
- Loan forfeitures would continue at a rate of approximately \$10 million per year and possibly increase due to pressure from outside imports
- Sugar production would follow past trends as dictated by market conditions, which have been relatively flat (very stable prices for the past 15 years). A large upswing in market trend is not expected, so no new storage facilities would be constructed until market trends show an ability to market the increase in production.

The Sugar Program would continue as a national program, with the majority of activity occurring primarily in states and territories producing and processing sugar. The primary sugarcane producing and processing locations are in Florida, Hawaii, Louisiana, Texas, and the Commonwealth of Puerto Rico. The primary sugar beet producing and processing states are Michigan, Ohio, Minnesota, North Dakota, Colorado, Montana, Nebraska, New Mexico, Texas, Wyoming, California, Idaho, Oregon, and Washington.

#### 2.1.2 Alternative B—Implement Sugar Program

The Implement Sugar Program Alternative would be for FSA to implement changes to the Sugar Program and implement the SSFLP as required by passage of the 2002 Act. The specific program changes are to:

- Terminate market assessments.
- Reauthorize market allotments.

- Make in-process sugars eligible for loans.
- Grant the CCC authority to establish a pre-plant PIK program for sugar beet and sugarcane processors and continue the existing PIK program.
- Reauthorize the nonrecourse sugar loan program.
- Extend nonrecourse loans to include in-process beets and cane syrups.
- Authorize the Secretary to reduce previously fixed sugar loan rates if required.
- Terminate loan forfeiture penalties and the requirement for a 30-day forfeiture notice.
- Establish a loan program for sugar storage facilities.

There would be four outcomes as a result of selecting this alternative:

- Modified or new sugar storage facilities would be constructed under the SSFLP. Up to 10 sugar beet storage facilities—each averaging 500,000 hundredweight (cwt)—and up to 14 sugarcane storage facilities—each averaging 46,667 cwt (2007 facility size is 70,000 cwt)—could be constructed upon approval of loan applications. Table 2.1 shows the projected funding for the SSFLP.
- Sugar inventory management would be reduced. Improved management under this alternative is projected to achieve a 65% reduction in inventory to be managed, reducing from about 1 million tons per year to about 336,000 tons per year.
- Loan forfeitures would decrease by 15%, from \$10 million per year to \$8.5 million per year.
- Sugar production would increase or decrease as dictated by market conditions. Market trends have been relatively flat (very stable prices for the past 15 years); however, a \$0.01 increase in price per pound of sugar could lead to expanded production and storage facilities and a better market for sugar beyond the processing season. Forecast predictions, however (shown in Table 2.2), show a relatively static market with small upswings and downturns.

**Table 2.1 Funding Projections for SSFLP.** Table shows by fiscal year the numbers of sugar beet and sugarcane storage facilities to be constructed and the funding requirements.

Item	Fiscal Year					
	2002	2003	2004	2005	2006	2007
Number of Sugar Beet Units		2	2	2	2	2
Total Loans for Sugar Beets (\$ M)		14.02	14.02	14.02	14.02	14.02
Number of Sugarcane Units		3	3	3	3	2
Total Loans for Sugarcane (\$ M)		8.4	8.4	8.4	8.4	8.4

*(Source: Dan Colacicco sent via email.)*

**Table 2.2 Sugar Production Forecast.** Table identifies annual production forecasted for sugar beets, sugarcane, and total sugar.

Production Commodity	Year						Avg.
	2002	2003	2004	2005	2006	2007	
Sugar Beets (1,000 tons)	4,000	4,500	4,628	4,268	4,637	4,235	4,378
Sugarcane (1,000 tons)	4,004	4,250	4,417	4,061	4,334	3,964	4,172
Total Sugar (1,000 tons)	8,004	8,750	9,045	8,329	8,970	8,199	8,550

(Source: Dan Colacicco sent via email.)

Sugar program changes would be implemented as a national program, but the majority of program activity would occur primarily in states and territories producing and processing sugar. The primary sugarcane producing and processing locations are in Florida, Hawaii, Louisiana, Texas, and the Commonwealth of Puerto Rico. The primary sugar beet producing and processing states are Michigan, Ohio, Minnesota, North Dakota, Colorado, Montana, Nebraska, New Mexico, Texas, Wyoming, California, Idaho, Oregon, and Washington.

### 2.1.3 Alternative C—Implement a Reduced Sugar Program

The Implement a Reduced Sugar Program Alternative would be for FSA to implement changes to the Sugar Program and implement the SSFLP as required by passage of the 2002 Act, but only at 50% of annual funding levels across the 2002-2007 budget. Sugar program changes would be the same as listed above.

There would be two outcomes as a result of selecting this alternative: approximately half the number of modified or new sugar storage facilities would be constructed under the SSFLP, and sugar production would increase by approximately half as much or decrease as dictated by market conditions.

## 2.2 Defining a Reasonable Set of Alternatives

Alternatives A and B are considered the reasonable set of alternatives to be analyzed in this PEA. The rationale for this limited set of alternatives is explained here.

President Bush’s May 13, 2002 signing of the 2002 Act made many provisions of the Bill effective for the 2002 crop year. The law drives the proposed action in Alternative B. FSA is mandated to implement the Sugar Program and the SSFLP according to the provisions in the law or be in violation of the law.

Therefore, while Alternative A is not legally feasible because the 2002 Act has replaced the 1996 Farm Legislation, this alternative is included and analyzed in this PEA as required by the NEPA and Council on Environmental Quality regulations (40 CFR 1500-1508). The No Action Alternative provides the environmental baseline for comparing effects across the alternatives.

Alternative C is not considered reasonable because implementing the sugar program at a 50% annual funding level would not allow FSA to meet all of the objectives of the proposed action. Under the provisions of the Sugar Program, Alternative C would not maximize to the extent possible operating the

program at “no cost” to the government. Selecting Alternative C would also increase rather than avoid loan forfeitures. Under the provisions of the SSFLP, Alternative C would not be able to provide the storage capacity to accommodate the effects of market allotments. If the storage capacity was provided at government expense to meet the capacity objective, then Alternative C does not meet the objective of transferring the cost of sugar storage from government to industry.

Percentage options other than 50% funding were available for analysis; however, any percentage other than 100% implementation would not allow FSA to meet the objectives of the proposed action or comply with the 2002 Act.

### 2.3 Summary Comparison of Attainment of Program Objectives

Table 2.3 summarizes to what degree Alternative A and Alternative B would meet the defined program objectives as described in Section 1.4, Objectives of the Proposed Action. Implementation of Alternative B would meet the objectives of the Sugar Program changes and the new SSFLP.

**Table 2.3 Summary Comparison of Attainment of Program Objectives.**

Objectives	Alternative A—No Action (Current Management)	Alternative B—Implement Sugar Program
<b>Sugar Program</b>		
Operate the nonrecourse Sugar Loan Program to the maximum extent possible at “no cost” to the government.	Nonrecourse program funding burden placed on the Federal government.	Nonrecourse program funding to be shifted to processors.
Facilitate sugar inventory management	Federal sugar inventories would continue to be about 1 million tons per year.	Federal sugar inventories would decrease by 65% to around 336,000 tons per year.
Avoid loan forfeiture to the CCC	Forfeitures to continue at same rate (approximately \$10 million per year) with same 30-day forfeiture notice requirement and ongoing penalties.	Forfeitures to be reduced by 15% (approximately \$8.5 million per year) with no forfeiture notice requirement or ongoing penalties.
<b>Sugar Storage Facility Loan Program</b>		
Transfer the cost of sugar storage from the government to industry	Sugar storage financed by government.	Sugar storage on new facilities to be financed by industry through new loans.
Provide sugar storage capacity to accommodate the effects of market allotments	Market allotments continue to be static; no economic incentive to construct new storage capacity.	Market allotments adjusted to meet market needs; potential economic incentive to construct processed sugar storage capacity.

## 2.4 Summary Comparison of Predicted Resource Effects

The existing environmental effects of the current Sugar Program are identified in Section 3.2, Baseline for and Effects of Alternative A—No Action. The environmental effects of selecting Alternative B are analyzed in Section 3.3, Environmental Effects of Alternative B—Implement Sugar Program. The comparison of environmental effects between the alternatives for each environmental issue is summarized in Table 2.4.

**Table 2.4 Comparative Matrix of Alternatives and Effects.** Table summarizes the environmental effects of alternatives.

Relevant Environmental Issues	Measurement Indicators	Effects of Alternative A	Effects of Alternative B
#1. Increase in wetland acres impacted	% increase in impacted acres	LOW: 0% to 1% <sup>1</sup>	LOW: 0% to 2%
#2. Reduction of flowage area within floodplains	% increase in impacted acres	LOW: 0% to 2%	LOW: 0% to 2%
#3. Increased irrigation from ground and surface water resources	% increase in annual acre-feet	LOW: 0% to 5%	LOW: 0% to 5%
#4. Impacts to threatened/endangered species, critical habitat, and wildlife	Site-specific analysis	unlikely	unlikely
#5. Impacts to cultural resources	Site-specific analysis	unlikely	unlikely
#6. Impacts on the quality of water resources	Tons per acre per year	LOW: Avg. of 1.49 TAY <sup>2</sup>	LOW: Avg. of 1.49 TAY
	Exceed any aquatic-life or human-health criteria	None Exceeded	None Exceeded
	% increase in pounds of nutrients	LOW: 0% to 5%	LOW: 0% to 5%
#7. Impacts on air quality	% increase in million pounds of emissions	LOW: 0% to 5%	LOW: 0% to 5%
	Tons per acre per year	MED: 33.12 and 40 TAY	MED: 33.12 and 40 TAY
#8. Impacts on economic conditions	Increase in sugar prices	LOW	LOW
	Stability of sugar markets	Variable; decreasing	Stable
#9. Impacts on Environmental Justice communities	See impacts for water quality, air quality, and economics	LOW	LOW

<sup>1</sup>The impact of not having site-specific data for all existing locations as disclosed throughout the document made assessment of impacts more subjective. The proportional relationship between modest increases in sugar production and effects was used to conclude the effects were also modest. Therefore, these ratings of effects were developed for purposes of comparison.

<sup>2</sup>TAY = tons per acre per year



## CHAPTER 3.0 Baseline and Environmental Effects

The traditional Chapters 3.0, Affected Environment, and 4.0, Environmental Effects, have been combined into this single chapter to simplify the document. The major resource issues, as listed above in Section 1.7.2, are discussed below in sections 3.2.1 through 3.2.8. Each subsection includes a presentation of the environmental baseline, impacts of Alternative A—No Action and Alternative B—Implement Sugar Program, and cumulative impacts on the issue under each alternative.

### 3.1 Introduction to the Baseline

The affected environment throughout this chapter is generally described and discussed in terms of the 14 states producing sugar beets and the four states and one commonwealth producing sugarcane. The sugar beet producing states are: California, Colorado, Idaho, Michigan, Minnesota, Montana, Nebraska, New Mexico, North Dakota, Ohio, Oregon, Texas, Washington, and Wyoming. The sugarcane producing locations are: Florida, Hawaii, Louisiana, Texas, and the Commonwealth of Puerto Rico.

Unless stated otherwise, the 1999 crop year is used for the baseline because a substantial amount of the data was available from that year. Under the Sugar Program for 1999, 1.21 million acres (all numbers are rounded up to two significant digits) were planted in sugar beets and 1.57 million acres in sugarcane.

Many of the environmental effects on issues are based on the marginal increases (worst-case) in sugar production that may result from implementing the sugar program. Table 3.1 shows FSA’s forecast changes from 2002-2007 compared to the most current production forecast for 2000/01. The highest production increases were used in assessing effects. For example: for sugar beets the 2.95% increase in 2006 is used; for sugarcane the 7.83% increase in 2004 is used; and for total sugar the 5.24% increase in 2004 is used. However, the increases are often offset by decreases. The 10-year CBA projections show sugar production decreased by an average of 0.4% under the provisions of the 2002 Act than under a continuation of the Agricultural Market Transition Act. Therefore, cumulative impacts fluctuate in the short- and long-term and result in little net cumulative change.

**Table 3.1 Sugar Production Forecast and Production Changes.** Table identifies annual production forecasted for sugar beets, sugarcane, and total sugar and shows the production change as compared to crop year 2000/01.

Production Commodity	Year							Avg.
	2000/01	2002	2003	2004	2005	2006	2007	
<b>Sugar Beets (1,000 tons)</b>	4,500	4,000	4,500	4,628	4,268	4,637	4,235	4,378
% Change	NA	-12.50	0.00	2.76	-5.44	<b>2.95</b>	-6.26	-2.71
<b>Sugarcane (1,000 tons)</b>	4,071	4,004	4,250	4,417	4,061	4,334	3,964	4,172
% Change	NA	-1.67	4.21	<b>7.83</b>	-0.25	6.07	-2.70	2.48
<b>Total Sugar (1,000 tons)</b>	8,571	8,004	8,750	9,045	8,329	8,970	8,199	8,550
% Change	NA	-7.08	2.04	<b>5.24</b>	-2.90	4.45	-4.54	-0.25

(Source: Email from Dan Colacicco [2002-2007 figures]; 2000/01 figures from [www.ers.usda.gov/data/](http://www.ers.usda.gov/data/))

### 3.1.1 Assumptions Used in Analysis

The analysis in this PEA uses the following assumptions:

- Changes in sugar production translate to no net change in acres used for farming.
- The existing baseline is not drawn from pristine land; rather, from existing crop land.
- SSFLP loans to sugar processors will mostly be used for renovation, not new construction.

#### 3.1.1.1 *Changes in sugar production translate to no net change in acres used for farming.*

In years where increases in sugar production are forecast, an assumption based on current farming practice was made about how production would be accommodated. Acreage increases would not come from converting noncrop land to agricultural uses, but rather from farmers changing the makeup of their acreage to include more sugar crops in place of other commodity crops with lower returns. While the number of acres under sugar production would increase, a corresponding decrease would occur with other crops. Thus, the number of overall acres being farmed for all crops within the sugar-producing states would remain basically the same.

Decreases in sugar production would reverse the conversion. Acreage previously used for sugar production would be converted to use by another commodity crop with higher returns than sugar. The number of overall acres being farmed for all crops would remain basically the same.

Therefore, increases or decreases in sugar production would translate to conversion of existing cropland into or out of sugar production.

#### 3.1.1.2 *The existing baseline is not drawn from pristine land, but from non-sugar crop land.*

The baseline used for this analysis is acreage currently being farmed, not any non-agricultural acreage (see Section 3.1.1.1). Therefore, the acreage has the following features:

Feature	Relevant Environmental Issues
<b>Location:</b> Acreage to be used is currently farmed land. Does not include any incorporation of land outside of currently farmed land.	Wetlands (Issue 1) Floodplains (Issue 2) Increased irrigation (Issue 3) Threatened and endangered species (Issue 4)
<b>Current Use:</b> The land probably is currently raising a commodity crop (e.g., hay, corn, soybeans, wheat, oats, etc.). Even if the land has been fallow, the acres still lie within the existing farmland area and are not used for other purposes. The land has been plowed from 6 to 12 inches deep.	Cultural resources (Issue 5) Air quality (Issue 7) Water quality (Issue 6) Threatened and endangered species (Issue 4)
<b>Fertilizers, Pesticides, and Herbicides:</b> If the land is being used for another crop, then the appropriate fertilizers, pesticides, and herbicides will be used to address the soil, crop, and insect requirements. Applications are kept to a minimum to keep operating costs down.	Water quality (Issue 6) Air quality (Issue 7) Environmental Justice (Issue 9)
<b>Water Use:</b> Water use depends on the geography and on the crop. The amount of water needed changes slightly between crop types, and only crops that are beneficial are used in any geographic area.	Increased irrigation (Issue 3) Water quality (Issue 6) Environmental Justice (Issue 9)

Feature	Relevant Environmental Issues
<b>Planting and Harvesting Practices:</b> Producers have purchased equipment over the years that can help in planting and harvesting their crops. Manual labor may be more intensive for some crops over others.	Economic conditions (Issue 8) Environmental Justice (Issue 9)

**3.1.1.3 SSFLP loans to sugar processors will mostly be used for renovation, not new construction.**

FSA anticipates that, over the course of the next 10 years of this program, it will issue an average of two (2) loans per year to sugar processors. FSA has estimated a low number of loans due to lack of processor interest during the development of the SSFLP regulation (Kyer, personal communication). Also, the largest projection of increase in sugar output is 500,000 tons (Table 3.1; difference between 2000/2001 base year and 2004 increase), which can be handled by two storage facilities. The projections in Table 3.1 show a slight decrease in production and, therefore, a decrease of existing storage space to be used.

FSA believes that if the loans are used, most will be to renovate existing facilities or to expand capacity at existing storage facilities to store more on the same footprint (no new ground disturbance). If new storage facilities construction takes place, it would be adjacent to current storage, and would either not require the acquisition of new land for that construction or would require up to an additional 3 acres. For those few loans that may be for increased storage or for new facilities, this PEA evaluates effects based on three new facilities with an impact on approximately 3 acres of land each.

Discussions with sugar growers associations have indicated that their processors are running at or near capacity, and they currently see no need to expand storage facilities with the status of the current and projected markets. By comparison, in the last three years, over 1,000 loans totaling \$75 million have been issued to producers to increase storage at their farms. Interest has not been the same from the processors.

Renovation of existing storage facilities typically does not trigger NEPA. The majority of the loans is anticipated to be for renovations and will therefore not have an impact on the environment.

**3.2 Baseline and Environmental Effects of Alternatives**

This section discusses the major resources likely to receive impacts from the alternatives, and compares the impacts of the alternatives on the resource issue.

**3.2.1 Issue #1: Increase in Wetland Acres Impacted**

**3.2.1.1 Baseline for Issue #1**

Under the Sugar Program the total area farmed for sugar production represented only 4% of the total arable cropland of 68.85 million acres. There are 0.91 million acres of wetlands in the total arable cropland area. Using the 4% figure for extrapolation, 40,000 acres of wetlands could be farmed in conjunction with sugar production. However, data are not available on the specific number of wetland acres being farmed as a result of just sugar production.

The effects on wetlands are mitigated by wetland conservation provisions in the FSA Handbook for Sugar Loans, 10-SU (Revision 3) and FSA Handbook for Highly Erodible Land Conservation and Wetland Conservation, 6-CP (Revision 2). Conservation provisions for wetlands and Highly Erodible Lands

(HEL) were enacted under Title XII of the Food Security Act of 1985 (known as the “Sodbuster and Swampbuster Program”) and amended by the Farm Acts of 1990 and 1996. Title XII states that if natural wetlands are converted to cropland after Dec. 1985, the farmer can lose eligibility for federal program benefits for all land that is cropped (not just the converted wetlands). Such limitations, along with the current stability in the market, have prevented lands designated as wetlands to be converted to commodity crop production, including sugar.

Also, sugar producers that use Federal loans are spot-checked by the National Resource Conservation Service (NRCS) to ensure no conversion from wetlands is performed without an appropriate plan for mitigation, restoration, or cessation of use.

The CCC has agreements on 66 processor-operated sugar storage facilities. These facilities are sited on an estimated 660 acres and are not known to include any wetland areas.

Currently there are no restrictions for the placement of new facilities in a wetland area. However, before approval will be given to such a facility location, the applicant is required to provide information about alternate sites considered, identify mitigation measures to be completed, have completed the Section 404 permit application process with the U.S. Army Corps of Engineers, and demonstrate compliance with Executive Order 11990, *Protection of Wetlands*.

### **3.2.1.2 Impacts of Alternative A—No Action**

The effects of selecting Alternative A would result in no net change of acres being farmed. If wetlands have been farmed up to this point, no new acreage of wetlands will be farmed for sugar production. All producers must comply with the requirements of Title XII of the Food Security Act, which helps restrict conversion of wetlands for agricultural commodity production. Changes in production would be determined by existing market conditions as operated under the 1996 Act. Just as annual production forecasts change under the 2002 Act as shown in Table 3.1, similar changes would be expected if the Sugar Program continued operating under the 1996 Act. Based on sugar production history, forecast changes rarely exceed 10%. Therefore, the effects are considered very low.

### **3.2.1.3 Impacts of Alternative B—Implement Sugar Program**

The direct effects (worst case) of selecting Alternative B may result in approximately 150,000 acres of cropland being converted from one commodity crop to sugar production, per the assumption discussed in Section 3.1.1. A possible 10 acres would be impacted if 3 new sugar storage facilities were constructed. The number of current wetland acres planted with sugar is unknown. The impact of the Title XII of the Food Security Act also helps restrict conversion of wetlands for cropland use. Therefore, this increase of sugar production from existing farmland is considered to have a very low impact.

From Table 3.1, the largest forecasted increase in total sugar production is 5.24% in year 2004. The additional acres were calculated by multiplying the baseline of potentially impacted acres times the percent increase forecasted.

FSA does not make it a policy to construct facilities in wetlands, and strongly discourages siting a new facility where it would have an adverse effect on the environment, including wetlands. If a facility were proposed for siting in a wetland area, impacts would be analyzed completely. The CCC and FSA would evaluate, in conjunction with cooperating agencies, the impact that the new facility’s footprint would have, as well as any activity or wastewater flow from the facility. Site-specific NEPA analysis would be required before the approval of any construction loans under the SSFLP. Mitigations to potentially impacted wetlands would be analyzed in an EA and incorporated into the FONSI by the decision maker.

Typically, the analysis and procedural effort required for taking wetlands is rigorous enough to not placing a facility within a designated wetland area, unless the best expansion of existing facilities would impact wetlands. However, no new facilities are anticipated to be placed in wetland areas.

#### **3.2.1.4 Cumulative Effects for Issue #1**

In 1780, wetlands were estimated to total 221 million acres in the contiguous 48 states. Eighty percent of all wetlands lost since the colonial period is attributed to bringing land into agricultural use. Between 1954 and 1974, agriculture accounted for 81% of all wetland losses; but this fell to 20% for the period 1982 to 1992. Since 1992, approximately 112 million acres of remaining wetlands are on rural non-federal lands.

Based on sugar production history, changes would rarely exceed 10% and the increase would be addressed by converting previously farmed lands with other crops to sugar production. An increase of 150,000 acres in sugar production would just decrease production of another commodity crop. In addition, the requirements for producers participating in FSA programs to comply with Title XII of the Farm Security Act would prevent conversion of wetlands for crop production. Therefore, the cumulative effects are considered very low.

Selecting Alternative B would add no current or future effects to the cumulative baseline for wetlands. For those years when production decreases, impacted wetlands would likely be reduced for sugar, but would still be used for other crops. By following the assumption outlined in Section 3.1 of not converting noncrop land for agricultural use, all increases in production would come from existing cropland, which may or may not already include wetland acres. In either instance, no future losses of wetlands are predicted through 2007.

For new storage facilities, which will be located near existing processing facilities, the FSA loan authorization and CCC authorization and certification process would require justification for locating the new facility in a wetland area. While it is anticipated that no wetland areas would be directly impacted by a new storage facility footprint, there may be secondary impacts from wastewater, access, and increased traffic flow to the facility. Each site-specific EA would address those secondary impacts to wetlands and would need to be clearly justified and mitigated for the construction and operation to be approved.

### **3.2.2 Issue #2: Reduction of Flowage Area Within Floodplains**

#### **3.2.2.1 Baseline for Issue #2**

Data are not available on the specific number of acres of sugar production located within floodplains.

The CCC currently has agreements on 66 processor-operated sugar storage facilities. These facilities are sited on an estimated 660 acres and are not known to be located in floodplain areas. Data are not available on the numbers of floodplain acres being used for sugar storage facility sites.

In order to locate a new storage facility within a floodplain, processors must comply with the requirements of EO 11988, *Floodplain Management*. Section 1 of the EO states that each agency shall:

*“...take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; (2) providing Federally undertaken, financed, or assisted construction and*

*improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.”*

The agency must determine if the new storage facility will impact the floodplain, modify its design to minimize potential harm to the floodplain, and prepare and circulate a notice containing an explanation of why the action is proposed to be located in the floodplain. This requirement applies to any construction action that is federally funded.

If facilities are to be constructed in a floodplain, then the structure must include accepted floodproofing and other flood protection measures.

For production activities, FSA has no control over where producers farm. However, row crop production, such as sugar beets and sugarcane, has not been viewed by FSA as having a negative impact on floodplain values.

#### **3.2.2.2 Impacts of Alternative A—No Action**

The effects of selecting Alternative A would result in either increases or decreases in acres of floodplains being farmed for sugar production, depending on actual yield and continuing market trends. Just as annual production forecasts change under the 2002 Act as shown in Table 3.1, similar changes would be expected if the Sugar Program continued operating under the 1996 Act. Based on sugar production history, forecast changes would rarely exceed 10%; therefore, the effects are considered to be minimal.

#### **3.2.2.3 Impacts of Alternative B—Implement Sugar Program**

The direct effects of selecting Alternative B could result in an increase in sugar production in floodplain acres. By following the assumption outlined in Section 3.1 of not converting noncrop land for agricultural use, all increases or decreases in production would come from conversion of existing cropland, which may or may not already include floodplain acres. No new acreage is anticipated to be converted for sugar use, even with the highest projected increase at 5.24% in 2004. In either instance, no future losses of floodplain acres are predicted through 2007.

Since floodplains are routinely used for agricultural production and normally have little adverse effect on flowage areas or floodways, these effects are considered to be minor.

If current production of sugar is within existing floodplain areas, the production will typically remain there and not be moved to other non-floodplain areas. Also, row crop production, such as sugar beets and sugarcane, has not been viewed by FSA as having a negative impact on floodplain values.

New storage facilities could be sited on floodplains if existing storage facilities are located in floodplains. The CCC and FSA would evaluate, in conjunction with cooperating agencies, the impact that the new facility's footprint would have on the floodplain, as well as any activity or wastewater flow from the facility. Mitigations to the potential of siting new storage facilities in floodplains would be analyzed in the EA and could be incorporated into the FONSI by the decision maker.

#### **3.2.2.4 Cumulative Effects for Issue #2**

Data are not available for establishing a cumulative effects baseline for sugar production located within floodplains.

Based on sugar production history, changes would rarely exceed 10% in either direction and any increase would be addressed by converting previously farmed lands with other crops to sugar production. This would increase acres being farmed for sugar production, but would not change the land-use designation of the farmland. Therefore, the cumulative effects are considered minimal.

For those years when production decreases, floodplains used for sugar production would likely also be reduced. By following the assumption outlined in Section 3.1 of not converting noncrop land for agricultural use, all increases and decreases in production would come from converting existing cropland to sugar production or out of sugar production, which may or may not already be on floodplains.

Alternative B and the future construction of storage facilities under the Sugar Storage Facility Loan Program could involve up to 10 acres of additional floodplains, assuming all new facilities were constructed in floodplains adjacent to current storage facilities in floodplains. The CCC authorization and certification process would require justification for locating the new facility in a floodplain area. The rigors described justifying the location of a storage facility within a floodplain may prevent such placements. Each site-specific EA would address any impacts to floodplains, and construction would need to be clearly justified and mitigated before the siting would be approved.

### **3.2.3 Issue #3: Increased Irrigation from Ground and Surface Water Resources**

#### **3.2.3.1 Baseline for Issue #3**

The acres planted in sugar beets (crop year 1998) required 1.54 million acre-feet (maf) of irrigation water per crop year under the Sugar Program. This is 13.6% of the combined irrigation requirements for corn, wheat, barley, small grains, sorghum, and sugar beets in the sugar producing states. Irrigation occurs in two ways: flood irrigation and sprinkler. In most sugar beet states, flood irrigation is the major use, with return systems at the end of the rows to ensure that all water stays in the field and is absorbed. For sprinkler systems, fields are watered typically 8-10 times during the growing season, depending on rainfall in those areas. Fields also have water return systems so that most water stays in the field and is absorbed.

Data are not available on the amount of irrigation required for acres planted in sugarcane. However, most cane-producing areas typically do not require irrigation due to the climate and location of the fields, depending instead on natural rainfall for moisture. Sugarcane is a drought-tolerant crop and can withstand natural moisture shortages with minimal reduction in overall yield.

#### **3.2.3.2 Impacts of Alternative A—No Action**

The effects of selecting Alternative A would result in either increases or decreases in the acre-feet of irrigation for sugar production depending on actual yield, market trend, and other factors. Just as annual production forecasts change under the 2002 Act as shown in Table 3.1, similar changes would be expected if the Sugar Program continued operating under the 1996 Act. Based on sugar production history, forecast changes would rarely exceed 10%; therefore, the effects on irrigation are considered to be minor.

Data are not available on the percent of irrigation requirements supported by sole source aquifers. Table 3.2 identifies the sole source aquifers in sugar producing states that would possibly be impacted by potential increases to sugar production.

The acres planted in sugar beets (crop year 1998) required 1.54 million acre-feet of irrigation. Data are not available on the percent of irrigation requirements supported by surface water resources or the

irrigation requirements of acres planted in sugarcane. However, most sugarcane acreage depends on natural moisture for irrigation and is not irrigated from surface or groundwater sources.

**Table 3.2 List of Sole Source Aquifers in Sugar Producing States.** Table lists sole source aquifers possibly supporting sugar production. States or commonwealths not listed have no sole source aquifers.

Sugar Beet States	Sole Source Aquifers
California	Fresno County, Santa Margarita, Campo/Cottonwood, and Ocotillo-Coyote Wells
Idaho	Eastern Snake River Plain, Spokane Valley Rathdrum Prairie, and Lewiston Basin
Michigan	St. Joseph
Minnesota	Mille Lacs
Montana	Missoula
Ohio	Allen County and Miami Valley Buried
Oregon	Central Pierce County and North Florence
Texas	Edwards
Washington	Spokane Valley Rathdrum Prairie, Lewiston Basin, Eastern Snake River Plain, Vashon-Maury, Whidbey Island, Camano Island, and Marrowstone Island
Sugarcane States	Sole Source Aquifers
Florida	Volusia-Floridan and Biscayne
Hawaii	Southern Oahu and Molokai
Louisiana	Chicot and Southern Hills
Texas	Edwards

(Source: [www.epa.gov/safewater/swp/ssa/](http://www.epa.gov/safewater/swp/ssa/) for each EPA Region)

### 3.2.3.3 Impacts of Alternative B—Implement Sugar Program

The direct effects of selecting Alternative B would be the potential of converting existing cropland with a commodity crop to sugar production. The difference in irrigation requirements between the two crops may vary, but the potential increase is considered to be low. For example, the largest projected increase over the 2000/2001 base year for sugar beet production (which typically has irrigation requirements) is 2.95% (see Table 3.1), which translates to 45,430 acre-feet above what is currently used for sugar beet irrigation. However, the converted cropland previously had a crop that was irrigated, so the difference in irrigation requirements between a sugar crop and another crop is negligible.

Forecasts for production over the next 5 years (Table 3.1) show a minor decrease (-0.25) in overall production from the 2000/2001 base year; thus, irrigation for sugar production would remain level.



### **3.2.3.4 Cumulative Effects on Issue #3**

The U.S. has abundant freshwater supplies. Annual renewable supplies in surface and ground water sources total about 1.5 billion acre-feet per year (maf/yr). Irrigated croplands have increased 40% since 1969, while water application rates have declined approximately 20%. The total quantity of irrigation water applied has increased by nearly 15% since 1969. Total water withdrawals from irrigation (including cropland, pastureland, parks, and golf courses) have increased from about 120 maf/yr to 150 maf/yr.

Ongoing efforts to improve yield quality and drought tolerance with different beet and cane hybrids, in conjunction with efforts to limit use of water resources, combine to make marginal increases in production to have negligible or no overall impact on water resource availability.

Selecting Alternative B would add no current or future effects to the cumulative baseline for irrigation. For those years when sugar production decreases, irrigation use would likely remain level due to the planting and irrigation of other commodity crops. By following the assumption outlined in Section 3.1 of not converting noncrop land for agricultural use, all increases and decreases in production would come within existing cropland.

## **3.2.4 Issue #4: Effects on Threatened/Endangered Species, Critical Habitat, and Wildlife Habitat**

### **3.2.4.1 Baseline for Issue #4**

The Endangered Species Act (ESA) requires each Federal Agency to evaluate every proposed action to determine whether the action “may effect” a listed species or its habitat. If a determination of “may effect” is made, the agency is required to consult with the U.S. Fish and Wildlife Service (USFWS) under guidelines contained in Section 7 of the ESA, or modify the proposed action to remove the “may effect.”

If the proposed action is Federally authorized or funded, the requirements contained in Section 7 of the ESA apply. There are four major steps to the Section 7 consultation process:

- Determine if listed species are present in the action area. The USFWS will provide a list of species known to occur or that may occur in the vicinity.
- If listed species are present in the action area, the Federal agency must determine if the action may affect it.
- If the Federal agency determines that the action is not likely to adversely affect listed species, no further consultation is required.
- If the Federal agency determines the action is likely to adversely affect listed species, informal or formal consultation must be initiated. Any Section 7 consultation usually starts with informal consultation. Informal consultation with USFWS may result in an early determination that the proposed action is not likely to adversely affect the listed species or its habitat. Then no formal consultation would be necessary.

Based on USFWS information available as of July 29, 2002, there are currently 552 listed threatened/endangered species for the states shown in this PEA as producing sugar beets, and 587 listed threatened/endangered species for the states shown as producing sugarcane.

FSA incorporates its compliance with the ESA into its NEPA process, both at the site-specific level and the programmatic level.

#### **3.2.4.2 Impacts of Alternative A – No Action**

The effects of selecting Alternative A would result in no increase or decrease in the effects upon threatened/endangered species, critical habitat, or wildlife habitat. Just as annual production forecasts change under the 2002 Act as shown in Table 3.1, similar changes would be expected if the Sugar Program continued operating under the 1996 Act. Based on the assumption of the conversion of existing cropland for commodity crop use presented in 3.1.1.1, no new acreage should be converted to sugar production. This would lessen the chance that any threatened or endangered species habitat would be affected.

The CCC currently has agreements on 66 processor-operated sugar storage facilities. These facilities are sited on approximately 660 acres and are not known to adversely affect any threatened or endangered species or critical habitat. If endangered or threatened species or critical habitat are adversely affected by existing storage facility sites, then increases or decreases in production would not cause further adverse effects at or near existing facilities.

#### **3.2.4.3 Impacts of Alternative B – Implement Sugar Program**

One direct effect of selecting Alternative B would place 150,120 acres into sugar production as a result of the 5.24% production increase in 2004. Based on the assumption stated in Section 3.1.1.1, this increase would not have a proportional increase in the number of threatened/endangered species, critical habitat, or wildlife habitat affected because no new ground would be converted to sugar production. Therefore, it is anticipated that there would be no effects upon threatened or endangered species or critical habitat.

For any storage facilities constructed with financial assistance through the SSFLP, FSA will ensure that a site-specific EA is completed. This EA will include compliance with Section 7 of the ESA. Prior to a loan being approved, FSA will ensure that no threatened or endangered species are adversely affected. Informal or formal consultation will be utilized as appropriate on a site-by-site basis.

FSA officials met with USFWS, Division of Endangered Species, on July 19, 2002. Both the provisions of the Sugar Program and SSFLP were explained to USFWS officials. It was determined that FSA would comply with the requirements of Section 7(a)(2) of the ESA for each of its SSFLP loans. It was also decided that further consultation should take place between FSA and USFWS concerning FSA's compliance with Section 7(a)(1) for the Sugar Program.

#### **3.2.4.4 Cumulative Effects on Issue #4**

Regardless of whether or not a program is in place, FSA has no control over producers and their farming practices as related to the protection of threatened/endangered species, critical habitat, and wildlife habitat. However, overall impacts of the 2002 Act are expected to be unchanged from the existing program in regards to endangered/threatened species, critical habitat, and wildlife habitat. By following the assumption outlined in Section 3.1.1.1 of not converting noncrop land for agricultural use, all increase in production would come from existing cropland, which may or may not already impact these resources.

Potential impacts caused by construction of new sugar storage facilities under the SSFLP will be analyzed by a site-specific EA.

### 3.2.5 Issue #5: Impacts to Cultural Resources

#### 3.2.5.1 Baseline for Issue #5

Cultural resources include prehistoric and historic archaeological sites, architectural, and American Indian resources. Prehistoric archeological resources include the physical remnants of human activity that predate written records. They include sites, structures, artifacts, and other evidence of prehistoric human behavior.

Historic resources can be materials, properties, or locations that postdate written records. These resources can include archaeological sites, structures, artifacts, documents, and other evidence of human behavior. They can also include locations of events that were important in history or that are associated with the lives of historically significant persons.

It is important to note that resources must normally be greater than 50 years old to be considered as historic and eligible for the National Register of Historic Places (see discussion of applicable laws and regulations below). However, it is possible for some resources less than 50 years old to be eligible (National Park Service, 1982). Properties that are of exceptional importance to a community, state, region or the nation may be eligible. The criteria used to determine this are the following:

- Association with events that have made a significant contribution to the broad patterns of our history
- Association with the lives of persons significant in our past
- Embodiment of the distinctive characteristics of a type, period, or method of construction, or representative of the work of a master, or possession of high artistic values, or, representative of a significant and distinguishable entity whose components may lack individual distinction
- Likelihood of yielding information important to prehistory or history

American Indian resources may be prehistoric sites and artifacts, areas of occupation and events, historic and current sacred areas, materials, and sources used to produce tools and other objects, hunting and gathering areas, and other resources that may be of importance to contemporary Americans Indians.

The number of documented cultural resources is extensive. The National Register of Historic Places (begun in 1967) now includes 58,000 listings and incorporates 800,000 significant historic properties (Baer, 1995) across the country. However, not all properties that are eligible for the National Register of Historic Places are actually formally nominated and listed. States also maintain lists of state significant sites and properties. The Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) has documented—through narrative, plans, and photographs—25,000 historic structures, and continues its role in “preservation through documentation.” HABS/HAER is creating an archive of American architecture and engineering to help us better understand what historic resources tell us about America's diverse ethnic and cultural heritage. Federal agencies annually survey over six million acres for historic and cultural resources, and continue to identify sites that may be eligible for listing or some other protection.

There are numerous Federal statutes and associated regulations that govern the appropriate evaluation and treatment of cultural resources on lands administered or controlled by Federal agencies or that could be potentially affected by proposed Federal projects. Several of these are briefly discussed below.

- *Antiquities Act of 1906 (34 Stat. 225; 16 U.S.C. 431)* provides for the protection of historic or prehistoric remains or any object of antiquity on federal lands; establishes criminal penalties for

unauthorized destruction or appropriation of antiquities; and authorizes scientific investigation of antiquities on federal lands, subject to permit and regulations.

- *Historic Sites Act of 1935 (49 Stat. 666; 16 U.S.C. 461-467)* authorizes the establishment of national historic sites and the preservation of historic sites and archaeological properties of national significance; provides the basis for the designation of national historic landmarks; establishes criminal penalties for violation of regulations pursuant to the Act; and authorizes interagency, intergovernmental and interdisciplinary efforts for the preservation of cultural resources.
- *National Historic Preservation Act of 1966 (NHPA) (80 Stat. 915; 16 U.S.C. 470)* declares historic preservation as a national policy and defines it as the protection, rehabilitation, restoration, and reconstruction of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, or culture, including the encouragement of preservation at state, local, and private levels. The law also directs the expansion of the National Register of Historic Places to include cultural resources of state and local significance, in addition to those of national significance; establishes an Advisory Council on Historic Preservation (ACHP); and in Section 106 of the Act provides direction for Federal agencies in the event an undertaking affects a property eligible for or included in the National Register. These affects include both direct impacts and potential offsite visual impacts from the construction of facilities that can be viewed from an historic property. Section 106 of the NHPA is implemented by regulations issued by the ACHP (36 CFR 800.3 to 800.9). These regulations are generally administered by the State Historic Preservation Officer (SHPO), and if appropriate, the Tribal Historic Preservation Officer (THPO) of each state or tribe.
- *American Indian Religious Freedom Act of 1978 (92 Stat. 469; 42 U.S.C. 1966)* establishes as U.S. policy the protection and preservation of American Indians and their inherent right to freely believe, express, and practice their traditional religions. It also directs federal agencies to consult with native traditional religious leaders to determine appropriate policy for protecting and preserving the religious and cultural rights and practices of American Indians.
- *Archaeological Resources Protection Act (ARPA) of 1979 (93 Stat. 721; 16 U.S.C. 470)* clarifies and defines archaeological resources; prohibits the removal, sale, receipt, and interstate transport of illegally obtained archaeological resources from public or Indian lands; provides substantial criminal and civil penalties for those who violate the terms of the Act; authorizes confidentiality of site-location information; and authorizes permit procedures to enable qualified individuals to study archaeological resources on public and Indian lands.
- *Native American Graves Protection and Repatriation Act (NAGPRA), Public Law 101-601, (25 U.S.C. 3001-3013)* addresses the rights of lineal descendants, Indian tribes, and Native Hawaiian organizations to certain Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony with which they are affiliated. NAGPRA mandates that Federal land managers must consult with Federally recognized Indian tribes regarding planned excavations on Federal lands, and establishes procedures that Federal agencies must follow in the event of inadvertent discovery of Native American human remains and cultural items.

“Inadvertent discovery” means the unanticipated encounter or detection of human remains, funerary objects, sacred objects, or objects of cultural patrimony found under or on the surface of Federal or tribal lands pursuant to section 3 (d) of the Act.

If anyone inadvertently discovers human remains, funerary objects, sacred objects, or objects of cultural patrimony on Federal or tribal lands after November 16, 1990, they must immediately

notify the responsible Federal or Tribal official by phone and mail. If the discovery is made during a Federal activity, then the activity must stop and efforts made to protect the remains and objects until the matter is resolved with the appropriate Tribal official.

If a Federal activity, then the Federal official must ensure the site and objects are protected and then contact the corresponding tribe within three days to initiate consultation for resolving what to do with the remains—whether to remove them or leave them in place. Work may resume at the activity in 30 days or as directed by the agreement formed by the Federal agency and Native American tribe or Native Hawaiian organization. The Federal official must also prepare a plan of action (POA) detailing how the remains will be handled, including any steps required by the Native American tribe or Native Hawaiian organization for addressing treatment of the remains (see 43 CFR 10.4 and 10.5).

Historic resources can most easily be identified through literature searches; research at the SHPO/THPO, and at local archives and historic commissions, and field reconnaissance. This work must be conducted by a qualified professional.

No data are available on current cultural sites impacted by the existing 2.78 million acres of sugar-producing cropland. To analyze the level of impact at a national scope is unrealistic for purposes on this PEA. However, a site-specific NEPA analysis will provide the necessary information to determine if a cultural resource would be impacted by increased production or the modification or construction of new storage facilities.

Two major factors indicate that sugar production or storage should not typically impact cultural resources: the “plow zone” and the Section 106 consultation process.

The “plow zone” is the top 6 inches or so of soil that are turned over for planting. Activities that do not impact beyond this zone are not considered to be an undertaking under Section 106 of the NHPA. Acreage that has been plowed in the past typically has enough soil disturbances that any cultural resources existing in the area most probably will have been impacted.

The Section 106 consultation process is triggered when a federally funded activity may adversely affect a cultural resource. Impacts go beyond just the physical footprint of construction or new land and include direct damage, demolition, destruction, or obstructing viewsheds. Impacts may also affect cultural resources within the Area of Potential Effect (APE) for a project—typically ranging from a 0.5 to 1 mile radius around the action. Impacts may affect these resources as well:

- Sacred sites (and access to them)
- Viewsheds
- Landscapes
- Archaeological and paleontological sites
- Historic buildings, bridges, and other structures

If impacts do occur to these areas, FSA would follow established NEPA and Section 106 consultation procedures. FSA would evaluate alternative locations, level of impact, mitigation measures, and consult to establish concurrence, as required by regulation.

NEPA is not always the driving factor for analysis. Evaluation of cultural resources will always appear in a NEPA document, but “a finding of adverse effect on a historic property does not necessarily require an EIS under NEPA [36 CFR 800.1(a)(1)].” Likewise, just because a Federal action may not require a full

NEPA analysis (fall under a Categorical Exclusion), the action still must be evaluated for impact on a cultural resource to determine if a Section 106 review and consultation is required.

The CCC currently has agreements on 66 processor-operated sugar storage facilities. These facilities are sited on an estimated 660 acres and are not known to impact any cultural resource sites. Data are not available on the number of cultural resources impacted by existing sugar storage facilities.

#### ***3.2.5.2 Impacts of Alternative A—No Action***

The effects of selecting Alternative A would result in no increase or decrease in the number of cultural resource sites impacted by sugar production. Just as annual production forecasts change under the 2002 Act as shown in Table 3.1, similar changes would be expected if the Sugar Program continued operating under the 1996 Act. However, based on the assumption of the conversion of existing cropland for commodity crop use presented in 3.1.1.1, regardless of forecast changes, no new acreage would be plowed. There would be no anticipated effects on existing cultural resources.

The CCC currently has agreements on 66 processor-operated sugar storage facilities. These facilities are sited on approximately 660 acres and are not known to include any cultural resources. However, data are not available on the numbers of cultural resources included on sugar storage facility sites. If cultural resource sites are impacted by existing storage facility sites, then increases or decreases in production would not adversely impact cultural resource sites at or near existing facilities and would not impact new sites.

#### ***3.2.5.3 Impacts of Alternative B—Implement Sugar Program***

One direct effect of selecting Alternative B would also place 150,120 plowed acres in to sugar production as a result the 5.24% production increase in 2004. However, based on the assumption stated in Section 3.1.1.1, this increase would not have a proportional increase in the number of cultural resources impacted because no new ground would be plowed. All ground would fall in the “plowed zone” as defined in 3.2.5.1. There would be no anticipated effects on cultural resources.

Another direct effect of selecting Alternative B would result from siting new storage facilities. Up to 3 facilities impacting 10 acres may be constructed to store the additional 500,000 tons generated during 2004 over the 2000/2001 base year (Table 3.1). Site-specific EAs would be required before the approval of any construction loans under the SSFLP. Mitigations to the potential of siting new storage facilities on land containing possible cultural resources or in ways to obstruct viewsheds would be analyzed in the EA and could be incorporated into the FONSI by the decision maker. Standard contract language also provides for protection of and consultation on any cultural resources discovered during construction.

#### ***3.2.5.4 Cumulative Effects on Issue #5***

Alternative B and the future construction of storage facilities under the Sugar Storage Facility Loan Program would involve up to 10 acres of additional acres impacted by the construction. For those years when production decreases, impacted cultural resources would likely remain unchanged. By following the assumption outlined Section 3.1.1.1 of not converting noncrop land for agricultural use, all increases in production would come from existing cropland, which may or may not already impact cultural resources. No new resources are anticipated to be disturbed.

### 3.2.6 Issue #6: Impacts on the Quality of Water Resources

#### 3.2.6.1 Baseline for Issue #6

This EA analyzes the impact on the quality of water resources by reviewing four possible factors:

- Erosion (water and wind)
- Pesticides/Herbicides
- Fertilizers
- Soil Salinity

**Erosion:** Soil erosion occurs in two ways: water erosion and wind erosion. Both the production of sugar beets and sugarcane would be associated with some erosion. Wind erosion is more typical with the production of sugar beets than sugarcane due to the geographical areas in which they are grown.

Tables 3.3 and 3.4 show the average annual wind erosion in the sugar-producing states. Sugar beets and sugarcane are row crops and are considered to be cultivated.

**Table 3.3. Estimated Average Annual Wind Erosion in Sugarcane States (tons/acre/year).** Years shown are 1992 and 1997, where overall the average erosion decreased due to improved farming techniques.

State	Year	Cropland			Pastureland
		Cultivated	Noncultivated	Total	
Florida	1992	0.0	0.0	0.0	0.0
	1997	0.0	0.0	0.0	0.0
Hawaii	1992	0.0	0.0	0.0	0.0
	1997	0.0	0.0	0.0	0.0
Louisiana	1992	0.0	0.0	0.0	0.0
	1997	0.0	0.0	0.0	0.0
Texas	1992	9.4	1.5	9.2	0.0
	1997	9.4	0.2	9.2	0.0
Caribbean	1992	0.0	0.0	0.0	0.0
	1997	0.0	0.0	0.0	0.0
<b>National average, All Cropland</b>	<b>1992</b>	<b>2.7</b>	<b>0.2</b>	<b>2.4</b>	<b>0.1</b>
	<b>1997</b>	<b>2.5</b>	<b>0.2</b>	<b>2.2</b>	<b>0.1</b>

*(Source: Table 11, Summary Report, 1997 National Resources Inventory, Natural Resources Conservation Service, Revised December 2000)*

**Table 3.4. Estimated Average Annual Wind Erosion in Sugar Beet States (tons/acre/year).** Years shown are 1992 and 1997, where overall the average erosion decreased due to improved farming techniques.

State	Year	Cropland			Pastureland
		Cultivated	Noncultivated	Total	
California	1992	0.8	0.3	0.6	0.4
	1997	0.7	0.2	0.5	0.4
Colorado	1992	10.6	0.9	9.2	1.8
	1997	10.4	1.3	9.1	1.7
Idaho	1992	4.8	0.2	4.0	0.2
	1997	3.9	0.2	3.3	0.2
Michigan	1992	2.6	0.2	2.1	0.1
	1997	2.4	0.2	1.9	0.1
Minnesota	1992	6.4	0.2	5.9	0.1
	1997	5.8	0.1	5.3	0.1
Montana	1992	7.2	0.1	6.0	0.1
	1997	3.8	0.2	3.2	0.1
Nebraska	1992	1.7	0.3	1.6	0.1
	1997	1.6	0.2	1.5	0.1
New Mexico	1992	16.7	3.0	13.6	5.1
	1997	12.1	3.4	9.9	5.3
North Dakota	1992	2.1	0.1	1.9	0.0
	1997	4.0	0.2	3.6	0.1
Ohio	1992	0.1	0.0	0.1	0.0
	1997	0.1	0.0	0.1	0.0
Oregon	1992	1.9	0.1	1.4	0.1
	1997	2.0	0.1	1.5	0.1
Washington	1992	5.6	0.5	4.9	0.2
	1997	5.0	0.8	4.3	0.0
Wyoming	1992	7.7	1.0	3.9	1.7
	1997	6.2	0.4	3.0	0.7
<b>National average, All Cropland</b>	<b>1992</b>	<b>2.7</b>	<b>0.2</b>	<b>2.4</b>	<b>0.1</b>
	<b>1997</b>	<b>2.5</b>	<b>0.2</b>	<b>2.2</b>	<b>0.1</b>

(Source: Table 11, Summary Report, 1997 National Resources Inventory, Natural Resources Conservation Service, Revised December 2000)

Sugar beets typically have a cover crop during the winter or are grown year-round (as in California). Thus the land is continually used and not allowed to be fallow land, if possible. Cane crops typically run in a 4- to 5-year cycle, with new growth starting on the next crop year within 2 weeks of being planted and being harvested. Wind erosion is of concern, but efforts are made to ensure a crop is in the ground to reduce erosion.



Wind erosion at beet storage facilities, which are typically located in open fields near the producers, is also of concern. Cooperatives are often required to have a Special Use Permit and a plan in place for the reduction of erosion and dust control. Other crops, such as hay, are often grown in these fields to reduce all types of erosion and to comply with the Special Use Permits.

With water retention and return mechanisms used in irrigated fields, and the limited amount of irrigation that occurs (from 8-10 times per crop season), erosion by standard farming practices is minimal. Very little water escapes the field for flow downstream. In cases where water does pass through the field and heads downstream, typically the next farmer downstream is able to take the water for use.

Current water quality factors downstream of sugar producers are monitored carefully. Producers on highly erodible land (HEL) must comply with FSA's 6-CP requirements.

Erosion that occurs with a large weather event, such as a hurricane, large tropical storm, or flood, is occasional and occurs across all arable land, not just sugar-producing land. In such cases, the amount of water typically overruns the return mechanisms and there is larger-scale damage.

No data were found to distinguish between erosion from sugar beet and sugarcane fields, and between sugar-producing fields and other commodity crops. However, standard practices for crop cover and furrowing help to reduce soil loss by erosion. The amount depends on the type of soil and other factors.

**Pesticides and Herbicides:** Pesticides and herbicides are generally applied to reduce the threat of root maggots, cut worms, wire worms, and other pests. Producers try to use as little as possible, due to cost of the product and the cost of application.

Sugar beet producers typically apply these products to the ground prior to planting or while the plants are pre-emergent. Pre-emergent applications in the Midwest and West occur with machinery, either in granular or liquid format. Most additional herbicide applications—and pesticide applications if an infestation occurs—are applied by side-dressing with tractors in the Midwest and West. In California, the standard practice is to apply herbicides by air. Sulfur is also applied by air to control mildew growth.

Cane producers may also apply pesticides and herbicides, but they are typically side-dressed as needed.

For crop year 1999, 17.93 million pounds of active pesticide ingredients were applied to sugar beet acreage and 4.39 million pounds of active pesticide ingredients were applied to sugarcane acreage, respectively. Tons of pesticide was calculated using data collected during 1992-1996 and updated August 20, 1999 for the Pesticide National Synthesis Project. The detailed list of active ingredients of these pesticides is found at <http://ca.water.usgs.gov/pnsp/crop/sbeets> and [sugarcane.html](http://ca.water.usgs.gov/pnsp/crop/sugarcane.html), respectively.

**Fertilizers:** Sugar beets and sugarcane are nitrogen scavengers. Sugar beet producers typically add fertilizers heavy in nitrogen and phosphates to address the needs of the crops. Application occurs at various times of the year, depending on location.

For crop year 2000, 1.563 million acres were planted in sugar beets. Nitrogen fertilizer was applied to 1.53 million acres for a total of 166.2 million pounds applied; phosphate was applied to 1.44 million acres for a total of 101.4 million pounds applied; and potash was applied to 0.78 million acres for a total of 58.8 million pounds applied. Table 3.5 summarizes the quantities of fertilizer applied.

**Table 3.5 Sugar Beet Fertilizer Use by State.** Table provides the percent of acres treated and the total amount of fertilizer applied for the eleven participating sugar beet states. No data are available for sugarcane states.

ST	Planted Acres (1,000)	Percent of Acres Treated and Total Fertilizer Applied					
		Nitrogen		Phosphate		Potash	
		Percent	Million Pounds	Percent	Million Pounds	Percent	Million Pounds
CA	98	99	12.0	90	7.0	19	0.9
CO	72	98	6.3	79	2.8	38	0.7
ID	212	97	30.2	86	20.3	43	7.3
MI	189	100	25.7	98	11.7	95	31.5
MN	490	100	40.6	97	30.0	54	11.0
MT	61	100	8.9	99	5.5	66	1.7
NE	78	95	9.5	88	3.3	29	0.3
ND	258	94	17.4	92	12.7	38	2.8
OR	16	100	2.3	79	1.0	23	0.3
WA	28	99	2.3	77	1.4	55	1.0
WY	61	97	11.0	97	5.7	42	1.3
<b>Total</b>	<b>1,563</b>	<b>98</b>	<b>166.2</b>	<b>92</b>	<b>101.4</b>	<b>50</b>	<b>58.8</b>

(Source: *Agricultural Chemical Usage Field Crops, May 2001, National Agricultural Statistics Service, USDA, Sugar Beets Table, p. 85 at <http://usda.mannlib.cornell.edu/>.)*

For crop year 2000, 1.57 million acres were planted in sugarcane. The 120 pounds/acre of nitrogen equates to approximately 188.4 million pounds applied. No data are available on quantities of other fertilizers applied for sugarcane production.

Sugarcane producers typically test the soil for pH and add lime to address pH imbalance, nitrogen, and phosphorus, as needed. During April, additional fertilizer may applied. Best management practices are to ensure the fertilizer is injected into the ground where it will be locked into place by the soil and not transported by water off the field.

Phosphorus erosion from Florida sugarcane fields is of concern. Legislation mandates that the Everglades Agricultural Area (EAA) in southern Florida (including about 144,000 hectares of sugarcane) must reduce the phosphorus content of water discharged by at least 25% from the baseline mean calculated using 1978 through 1988 data. This is one of several measures aimed at sustaining much of the unique habitat characteristic of the predrained Everglades. Research into sugarcane varieties has shown several types increase the uptake of phosphorus ranging from 0.65 grams to 8.5 grams per kilogram of plant tissue ([www.canalpoint.sugarcane.usda.gov](http://www.canalpoint.sugarcane.usda.gov)). Ongoing research into sugarcane varieties will help to reduce phosphorus sent downstream and meet the required reduction.

**Soil Salinity:** Groundwater sources for irrigation are typically more saline than surface water sources. The salinity of the water is then retained by the soil and, in periodic flood and erosion events, may increase the salinity of downstream waters.

With water retention and return mechanisms used in each field, and the limited amount of irrigation that occurs (up to 8-10 times per crop season), soil salinity typically increases in place and is mitigated with the addition of fertilizers to counter the pH shift. Very little water escapes the field for flow downstream. In cases where water does pass through the field and heads downstream, typically the next farmer downstream is able to take the water for use, even with the increased salinity.

### 3.2.6.2 *Impacts of Alternative A—No Action*

The effects of selecting Alternative A would result in either increases or decreases in the number of tons of erosion, tons of pesticides and fertilizers, and soil salinity, depending on production yield and other factors. Just as annual production forecasts change under the 2002 Act as shown in Table 3.1, similar changes would be expected if the Sugar Program continued operating under the 1996 Act. Based on sugar production history, forecast changes would rarely exceed 10%; therefore, the effects are considered insignificant.

### 3.2.6.3 *Impacts of Alternative B—Implement Sugar Program*

**Erosion:** The direct effects of selecting Alternative B would be converting up to 150,000 acres of existing cropland to sugar production as a result the 5.24% production increase in 2004. However, based on the assumptions stated in Sections 3.1.1.1 and 3.1.1.2, the land is being converted from other crop use; therefore, the erosion differences between the corps will be miniscule. Therefore, the effects are considered to be low.

**Pesticides and Herbicides:** The direct effects of selecting Alternative B would be adding up to 150,000 additional acres to sugar production as a result the 5.24% production increase in 2004. This would cause a proportional increase in pesticide and herbicide application, resulting in 1.20 million pounds of appropriate pesticides being applied to the additional acreage at current application rates. However, based on the assumptions stated in Sections 3.1.1.1 and 3.1.1.2, the land is being converted from other crop use and is not pristine; therefore, pesticide and herbicide application occurred with the previous land. The estimated difference between the sugar crop and the replaced commodity crop would be in the type of pesticide and herbicide applied.

The USGS conducted an assessment of the impacts of pesticides on the quality of water resources in 20 U.S. watersheds. The analysis included 76 pesticides, which account for approximately 75% of agricultural pesticide use. Twenty of these pesticides are used in sugar production, and these 20 compounds account for 81% of the total pounds of pesticide applied for sugarcane and 4% of the total pounds applied to sugar beets.

The analysis identified Method Detection Level (MDL) values for each compound and defined aquatic-life and human health criteria. These criteria were assumed to be concentrations at which there is an estimated significant risk of adverse effects based on toxicological studies. Comparisons of National Water Quality (NAWQA) results to established water-quality criteria for many individual constituents are considered important in managing water resources. Table C-1 in Appendix C compares MDL values to the aquatic-life and human-health criteria for the 20 compounds used in sugar production pesticides. The effects of pesticide increases are considered low because all 20 MDL values were well below the significant aquatic-life and human-health thresholds.

**Fertilizers:** The direct effects of selecting Alternative B would be adding up to 150,000 additional acres to sugar production as a result the 5.24% production increase in 2004. This would cause a proportional increase in fertilizer application resulting in an additional 18.97 million pounds of nitrogen, 5.47 million pounds of phosphate, and 3.18 million pounds of potash. The effects of this increase are considered low

because of the need these plants have for the fertilizers, which retain the nutrients within the plant structure. Current fertilizing practices apply most fertilizers before planting or immediately after planting. Water runoff that may occur typically is trapped with the water return mechanisms in the field.

**Soil Salinity:** The direct effects of selecting Alternative B would be adding up to 150,000 additional acres to sugar production as a result the 5.24% production increase in 2004. Using the assumption stated in Section 3.1, that no new cropland would be created, but existing cropland would be converted to use for sugar, the amount of increased irrigation with groundwater, with resulting soil salinity, is either the same or increase negligibly. Arable land currently irrigated with groundwater will continue to be irrigated with groundwater. The only change will be the makeup of the crops on the land.

#### 3.2.6.4 *Cumulative Effects for Issue #6*

**Erosion:** Soil conservation provisions under the Food Security Act of 1985, the 1996 Act, and further implemented by FSA Handbooks 10-SU and 6-CP have encompassed 95% of HELs subject to conservation and reduced erosion by an estimated two-thirds. Prior to the conservation programs, approximately 60% of erosion rates on lands subject to conservation were distributed in the medium to high range of 10-40 TAY. The conservation program for 1997 showed the distribution to be 89% of the erosions rates were less than 10 TAY (USDA 2000).

In addition, based on the assumption in Section 3.1.1.1 that existing cropland is converted from one crop to another, soil erosion is not very different between the crops. Sugarcane crops leave stubble in the field for 3-5 years, which greatly reduces wind and water erosion.

**Pesticides and Herbicides:** Synthetic pesticides were developed for commercial agriculture in the 1940s and 1950s and were widely used by the mid-1970s. Herbicides and insecticides account for most pesticide use and recent increases in total pesticides are from fungicides and pesticides for high-value crops. From 1964 to 1997, pesticide use on selected crops (not including sugar beets and sugarcane) increased from 1.23 to 2.41 pounds per acre.

For those years when production decreases, impacts from soil erosion, pesticides, and fertilizers would likely also be reduced. By following the assumption outlined in Section 3.1 of not converting noncrop land for agricultural use, all increases in production would come from existing cropland, which is likely to already be experiencing pesticide and herbicide application. The average scenario would increase pesticide application for sugar production by 1.20 million pounds through 2007, which is a marginal adjustment over the pesticides and herbicides applied to the previous crop.

**Fertilizers:** With the improvement of hybrid crops that need less intervention, cumulative effects in fertilizers will be dependent on the amount of sugar produced. Increases in sugar acreage would increase fertilizer application in that way, but with the conversion of existing crop lands to sugar production means that the change in fertilizer makeup will be only slight. Fertilizer nutrients for sugar cropland would increase by 17.62 million pounds through 2007; however, the increase in fertilizer over the previous commodity crop will be negligible.

**Soil Salinity:** Even with increased acreage used for sugar production, soil salinity will remain about the same. Arable land currently irrigated with groundwater will continue to be irrigated with groundwater. The only change will be the makeup of the crops on the land, typically not in the amount of water used.

### 3.2.7 Issue #7: Impacts on Air Quality

#### 3.2.7.1 Baseline for Issue #7

Air quality factors evaluated include:

- Air emissions from burning sugarcane
- Particulate matter from wind erosion
- Air emissions from burning bagasse in processing mills

**Air Emissions from Burning Sugarcane:** Most of the 1.57 million acres of sugarcane are burned prior to harvest every 3-5 years. Cane field burning clears debris and leaves from the cane so it arrives at the mill for processing with minimum extraneous material. Table 3.6 shows a range of the amount of emissions assuming all acres are burned.

**Table 3.6 Air Emissions from Burning Sugarcane.** This table shows the calculated least to greatest range of tons of air emissions burned, averaged over a 4-year crop cycle.

Particulates (tons)		Carbon Monoxide (tons)		TOC			
				Methane (tons)		Nonmethane (tons)	
Least	Greatest	Least	Greatest	Least	Greatest	Least	Greatest
7,065	56,050	70,650	540,475	1,415	27,605	4,710	800,700

(Source: Table 2.5-5, Emission Factors and Fuel Loading Factors for Open Burning of Agricultural Materials, *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources.*)

**Particulate Matter from Wind Erosion:** The discussion of erosion under 3.2.6.1 includes comprehensive information about wind erosion for all cropland in the sugar-producing states. Tables 3.3 and 3.4 show the average erosion in tons/acre/year, compared with the national average. Erosion is higher in the western states and in sugar beet areas due to the amount of wind and type of soil. There are no data on the differences between wind erosion rates for sugar beets or sugarcane and other row crops grown in the sugar-producing states. However, it is assumed that the difference is marginal.

In the four sugarcane states and the Commonwealth of Puerto Rico, only Texas shows any wind erosion above 0.0 tons/acre/year for its cropland (9.4 tons/acre/year). In the sugar beet states, overall wind erosion is higher, ranging from 0.1 TAY to 12.1 TAY for all cropland. No data are available for just sugar beet and sugarcane fields.

**Air Emissions from Burning Bagasse in Processing Mills:** Bagasse is the matted cellulose fiber residue from sugarcane processing that is being used as a fuel for firing various furnaces and boilers. Table 3.7 shows the type and rates of potential emissions. No data are available on the tons of bagasse resulting from production or the tons burned annually for energy; therefore, no baseline quantities are available. However, processing plants are required to comply with the Clean Air Act for pollutants, and each facility has an Approval Order under which to operate that has set limits for pollutants, which cannot be exceeded without penalty.

**Table 3.7 Emission Factors for Bagasse-Fired Furnaces and Boilers.** The table identifies the emission factors for particulate matter (PM), carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and polycyclic organic matter.

Pollutant	Emission Factor (lb/ton)
PM – Uncontrolled	15.6
PM - Controlled with Mechanical Collector	8.4
PM - Controlled with a Wet Scrubber	1.4
PM-10 – Controlled with Wet Scrubber	1.36
CO <sub>2</sub> – Uncontrolled	1,560
NO <sub>x</sub> – Uncontrolled	1.2
Polycyclic organic matter - Uncontrolled	0.001

(Source: Table 1.8-1, Emission Factors for Bagasse-Fired Boilers, *Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources.*)

### 3.2.7.2 Impacts of Alternative A—No Action

The effects of selecting Alternative A would result in either increases or decreases in the number of pounds of air emissions and tons of wind erosion. Just as annual production forecasts change under the 2002 Act as shown in Table 3.1, similar changes would be expected if the Sugar Program continued operating under the 1996 Act. Based on sugar production history, forecast changes would rarely exceed 10%; therefore, the effects are considered insignificant. The proportional average of the two rates for the acreage currently under production would stay the same. Therefore, the overall effects are considered to be very low.

### 3.2.7.3 Impacts of Alternative B—Implement Sugar Program

**Air Emissions from Burning Sugarcane:** The direct effects of selecting Alternative B would be converting up to 122,674 acres to sugarcane production as a result of the 7.83% production increase in 2004. The burning of these additional acres would result in a proportional increase in the quantity of air emissions. Increased emissions are summarized in Table 3.8.

**Table 3.8 Pollutant Emissions Increase Under Alternative B.** The table identifies the emissions increase from the burning of sugarcane fields.

Pollutant	Total Increase (tons)	Per-Acre Increase (pounds)
PM	4,945	6.30
CO	47,700	60.76
Total Organic Compounds	9,305	11.85

The effects of these emissions are considered to be minor because the increases in pollution are short-term, occur once every four years, and not all acres are burned at once.

**Particulate Matter from Wind Erosion:** The direct effects (worst case) of selecting Alternative B would be converting 150,000 acres from another commodity crop to sugar production as a result of the 5.24% production increase in 2004. Erosion rates would match those typical of sugar beet and sugarcane production in the respective states.

Wind erosion rates for various row crops vary; however, the difference between the rates for sugar beets or sugarcane and other local commodity crops is assumed to be marginal. Therefore, the overall effects of an increase in sugar production are considered to be low.

**Air Emissions from Burning Bagasse in Processing Mills:** The direct effects of selecting Alternative B would be 122,674 additional acres planted in sugarcane as a result of the 7.83% production increase in 2004. Not all the excess bagasse would be burned in the processor plants, but mills burning bagasse are still required to comply with Clean Air Act requirements. The effects of these emissions are considered to be low.

#### **3.2.7.4 Cumulative Effects for Issue #7**

Data are not available for establishing a cumulative effects baseline for air quality. However, the forecasts of production rates through 2007 show a slight overall decline (-0.25%) compared to 2000/2001 production. The overall impacts to air quality during the forecasted timeframe will be brief and only short term.

FSA would monitor the effects of the SSFLP as implemented. For new construction of storage facilities, a NEPA analysis must be completed, which will include an evaluation of the impact of the new facility on air quality. If concerns arose in any location due to the increase in production at a processing facility, FSA would analyze those resource impacts within the appropriate State and coordinate issues with the State regulators.

For those years when production decreases, impacts from air emissions from burning sugarcane and wind erosion would likely also be reduced. By following the assumption outlined in Section 3.1 of not converting noncrop land for agricultural use, all increases in production would come from existing cropland, which is likely to already be experiencing wind erosion and emissions from burning. The worst-case scenario would increase air emissions by 6.3 pounds of PM per acre, 60.76 pounds of carbon monoxide per acre, and 11.85 pounds of total organic compounds per acre. Wind erosion would increase up to 223,500 tons in 2004, but fall below 2000/2001 levels in 2005, based on FSA sugar production projections.

### **3.2.8 Issue #8: Impacts on Economic Conditions**

#### **3.2.8.1 Baseline for Issue #8 and Impacts of Alternative A—No Action**

Domestic sugar markets have been oversupplied since FY 1999, resulting in low producer prices and forfeitures of sugar loan collateral. These forfeitures, over 900,000 tons at the end of FY 2000, or almost 10 percent of annual domestic usage, has burdened the CCC with high storage costs and burdened the domestic market by depressing prices.

During FY 2000, CCC acquired 1,024,491 tons of sugar through the sugar program. Sugar beet and sugarcane processors forfeited 892,491 tons of nonrecourse loan collateral, and CCC purchased 132,000 tons of sugar to reduce the cost of FY 2000 forfeitures. However, the USDA has limited options for disposing of the sugar. While internal uses decrease the total by about 15,000 tons, the remainder is difficult to market and cannot, by World Trade Organization commitment, be sold on the world market.

The effects of selecting Alternative A would result in either increases or decreases in the economic impact for sugar production, depending on market trend, price, and other factors. In addition:

- The Federal government would continue to have the burden of reducing up to a projected 1 million tons of sugar inventory each year during 2002 to 2011, eventually requiring modified or new sugar storage facilities at Federal government expense.
- Loan forfeitures would continue at a rate of approximately \$10 million per year and possibly increase due to pressure from outside imports.
- Sugar production would follow past trends as dictated by market conditions, which have been relatively flat (very stable prices for the past 15 years). A large upswing in market trend is not expected, so no new storage facilities would be constructed under the extended 1996 Act until market trends show the ability to market the increase in production.

Based on sugar production history and forecasts, changes would rarely exceed 10%; therefore, farm income may increase or decrease, consumer/user sugar expenditures for domestic sugar would decrease slightly because of pressure from imported sugar, and federal expenditures on the program would remain the same or slightly increase due to increased sugar inventory management issues brought on by increased pressure from outside imports.

However localized the impacts may be, the overall impacts on economic conditions would be low.

### ***3.2.8.2 Impacts of Alternative B—Implement Sugar Program***

In conjunction with internal analysis conducted as part of the potential implementation of this program, FSA conducted a Cost/Benefit Assessment (CBA) of the 2002 Act (see Appendix D). The CBA states that, since the signing of the 2002 Act, the risk of CCC forfeitures has fallen sharply. Sugar users are anticipating that mandated supply control measures to be implemented October 1, 2002 will tighten supply and increase prices in 2003.

An assessment of the sugar program's costs and benefits concluded that the 2002 Act changes—principally the establishment of sugar marketing allotments and the elimination of the loan forfeiture penalty—will increase farm income, increase consumer/user sugar expenditures, and slightly decrease federal expenditures. The elimination of the sugar loan forfeiture penalty increases the likelihood and cost of forfeitures because it increases the price, by about a cent per pound, a processor must achieve in the market to be deterred from forfeiting sugar loan collateral to CCC.

The cost/benefit analysis (CBA) assumes the current oversupply conditions will exist throughout the next decade and be exacerbated by Mexican imports. The forecast of the economic impacts is very sensitive to the imposition of sugar marketing allotments. Sugar marketing allotments shift the burden of surplus sugar storage from CCC to the sugar beet and sugarcane processors and increases sugar prices. Marketing allotments are dependent on the level of Mexican sugar imports, and to a lesser degree, sugar (or products for the extraction of sugar) imports from other nations not under the sugar tariff rate quota (TRQ). Sugar marketing allotments are likely to be suspended if these imports exceed 276,000 short tons, raw value, because this is difference between the required World Trade Organization minimum TRQ and the import level in the allotment suspension trigger. The cost/benefit assessment assumed that sugar marketing allotments would be suspended in five of the next 10 years.

The CBA concluded that the 2002 Act sugar program changes will result in a slight decrease in domestic sugar production. The sugar program changes are expected to decrease the annual average available



stocks-to-use ratio by 26 percent, increase sugar prices about 9 percent, increase sugar loan collateral forfeitures by 15 percent, decrease average CCC sugar inventory by 67 percent, and slightly reduce, by \$13 million per year, CCC expenditures on the sugar program.

Employment figures with farmers and at the 66 sugar facilities under CCC storage agreements may reflect a similar increase. New construction for new facilities would increase temporary construction jobs. Indirect economic benefits may increase to local economies from the SSFLP construction contracts in terms of a slight increase in employment and a potential slight increase in income.

### **3.2.8.3 Cumulative Effects for Issue #8**

The discussions above of the impacts of each alternative would continue as cumulative effects on the economy.

## **3.2.9 Issue #9: Impacts on Environmental Justice Communities**

### **3.2.9.1 Baseline for Issue #9**

The FSA is required to comply with the stipulations under EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, typically referred to as Environmental Justice. The EO requires each Federal agency to take the appropriate steps to identify and avoid any disproportionately high and adverse human health or environmental effects of Federal programs, policies, and activities on minority and low-income populations.

In sugar-producing areas, some migrant workers are typically used for planting and harvesting. While most farming practices are moving away from labor-intensive hand work, the planting and harvesting still involves labor-intensive machinery work with some handwork required.

An example of how labor-intensive the sugarcane planting and harvesting efforts are, planting the cane is done by machine, followed by a few workers to ensure that the cane is in the row, followed by another machine that hips up the rows and covers the cane. For a 200-acre plot of land, 6 tractors, 2 combines, and 2 loaders are used to harvest the field in 7 days, working for 12-14 hours each day. One farmer with 2,000 acres in Louisiana hires 15-20 migrant workers for the harvesting and planting (a period of about three to four months). With about 1.57 million acres of sugarcane in production, 12,000 to 15,000 low-income workers may be in the fields during that time.

The typical approach is for migrant workers to be hired to work in the fields and lodged in existing infrastructure in the local communities. Workers are often housed in motels, transported to and from the worksite, and are provided food by a hired cook to meet their dietary needs and tastes. Some crews may live in housing provided onsite by the farmer, although this practice is decreasing because of cost and liability. Producers are moving to use existing infrastructure during the short planting and harvesting season rather than producer-owned structures that are not used for a period of time (Smith, personal communication, 08/02/02).

In sugar beet areas, harvesting and planting is labor intensive as well, but with machinery. Occasional hand crews are used to thin beets, but most labor is performed by machine. Housing for workers is typically provided in local communities, or the workforce comes from those existing communities.

In both sugar beet and sugarcane states, low income and minority populations may reside near the fields or processing plants. These populations are occasionally subjected to fugitive dust from preparing the fields for planting, and again from harvesting, including cane burning. Those living near processing plants

are subjected to machinery noise and transportation vehicle noise for bringing raw product to the plants and carrying processed sugar from the plants.

### **3.2.9.2 Impacts of Alternative A—No Action**

The effects of selecting Alternative A would result in either increases or decreases annual production, with a corresponding increase or decrease in labor used. Just as annual production forecasts change under the 2002 Act as shown in Table 3.1, similar changes would be expected if the Sugar Program continued operating under the 1996 Act. Based on sugar production history, forecast changes would rarely exceed 10%; therefore, the effects are considered to be low and not changing from current levels.

### **3.2.9.3 Impacts of Alternative B—Implement Sugar Program**

Implementation of the Sugar Program typically will not cause production to shift to new areas, so the current environmental justice communities would maintain the benefits from sugar planting and harvest. The potential increase in the price of sugar may positively impact wages for sugar workers.

Air quality from burning of cane fields may have a negative impact on workers. When farmers provide housing close to the fields for the harvesting and planting seasons, the increase of burning acres with the potential increase may degrade the air quality. However, the farmers must comply with State regulation for when to burn and how much is allowed to be burned at one time. A green burn typically has little to no smoke, and has little particulate matter. A later burn provides more smoke and a longer burn, but limits on when to burn and how much help to control the overall amount of emissions.

Increase in use of pesticides and fertilizers for conversion of existing land to sugar production is not anticipated to be a large change over the pesticides and fertilizers required for the previous commodity crop. The impact on workers would be negligible due to mechanical application and the personal protective equipment worn by the applicator. Acceptable human health thresholds would not be exceeded.

Impacts to low income and minority populations residing near the fields or processing plants may increase periodically, as forecasted by FSA. Fugitive dust may remain the same because of the conversion of existing cropland to sugar production. Those living near processing plants will not be subjected to increased machinery noise over the baseline, but possibly to more transportation noise from increased raw product entering and refined product leaving the plants.

Site-specific NEPA analysis of the impact of a project on an environmental justice community would be addressed at the time of proposing construction of a new storage facility.

### **3.2.9.4 Cumulative Effects for Issue #9**

Regardless of whether or not a program is in place, FSA has no control over producers and their burning practices, or processors and their burning practices. All are required to comply with appropriate Federal and state laws regarding burning practices and times.

Overall impacts will be negligible due to the 0.25% decrease projected in overall production through 2007. Variations per year, as shown in Table 3.1, indicate that effects generated by the minor increases in production in one year are not anticipated to be maintained. There is a possibility that long-term impacts may slightly increase the adverse effects on an environmental justice community. A decrease in production may lead to declining work for these communities. However, other events over the next 7-10 years that are not related to the implementation of this program (e.g., improved technology and machinery that reduce the need for manual labor in the fields, crops with improved sugar yield that may reduce the

number of acres needed to meet market allotments) may also contribute to the loss of jobs and income from sugar producing areas. Fluctuations in sugar production as implementation of the proposed action would not be the only impact, but could have an overall adverse impact to these communities.

### **3.2.10 Unavoidable Adverse Effects**

Sugar farmers may unilaterally decide to violate the HEL and wetland provisions in the FSA Handbooks. The loss of economic incentives and access to USDA programs help keep violations low, however they still occur annually. The effects could be increased erosion on HEL areas. Spot checks by the NRCS will help keep violations low.

In areas where sugar beets are grown, harvesting occurs late in the year and beets are typically stored by piling them in fields before trucking them to processing facilities. The beets typically freeze in these “pilers,” and piles are typically covered with a lime slurry (to reflect sunlight and not retain the heat) and/or straw to reduce the potential of thaw. Thaw too long prior to processing may cause beets to rot, which would cause problems of odor and runoff into surrounding surface water impoundments or streams.

If production was to increase as a result of implementing these two programs, air quality may degrade a small amount, soil erosion may increase a small amount, and water use may increase, depending on the area of production. These effects may be adverse in some areas and not in others. A site-specific analysis would occur with the construction of new facilities, but will not be conducted with a producer’s decision to convert existing crop acreage to sugar production.

### **3.2.11 Relationship of Short-Term Uses and Long-Term Productivity**

Arable land is used annually in the short term to continue long-term production of sugar. The land is subject to soil and wind erosion and is routinely treated with pesticides and fertilizers to ensure long-term production. Annual withdrawals of water are made from ground and surface resources for irrigation.

### **3.2.12 Irreversible and Irretrievable Commitment of Resources**

Fossil fuels consumed by equipment and vehicles for construction and farming are considered irreversible. A new storage facility’s footprint would commit resources within that footprint to be removed. Site-specific analyses for these facilities would evaluate what resources, if any, would be irreversibly and irretrievably committed.

## CHAPTER 4.0 Lists of Preparers and Contacts

### 4.1 List of Preparers

**Table 4.1 List of Preparers.** Table identifies by name, education, and years experience those who contributed as part of the interdisciplinary team.

Name	Contribution	Education	Years of Experience
James Fortner	Editor, Reviewer	B.S., Agricultural Education	17
Kathleen Schamel	Cultural resources data; Reviewer	B.A.; M.A., Anthropology	18
Chris Kyer	Reviewer of Sugar Storage Facility Loan Program information	B.A., Geography	32
Daniel Colacicco	Economic Data	Ph.D., Agricultural Economics	25
Thomas Bickerton	Economic Data	M.A., Economics M.A., Russian	21
Don Steck	Editor, Contracting Officer's Representative	B.S., Soil Science	25
Benjamin Smallwood	Pest Management Specialist	B.S., Agronomy	34
Randle K. Bunner	Writer/Editor NEPA Specialist	B.S., Civil Engineering M.S., Engineering Management	16
C. Kelson Forsgren	Writer/Editor NEPA Specialist	M.S., Technical Communication	10
Jan Lewandrowski	Resource Economics	Ph.D., Resource Economics	13

### 4.2 List of Contacts

**Table 4.2 List of Contributors.** Table identifies by name, job title, organization, and contribution those parties who participated as part of the scoping process or who contributed information to this EA.

Name	Job Title	Organization	Contribution
Brad Smith	Farm Loan Specialist	FSA	Details about sugarcane production, acreage, fertilizers, and potential impacts in Louisiana.

Name	Job Title	Organization	Contribution
Tony Zitterkopf	Regional Manager	Western Sugar Cooperative	Details about sugar beet production, acreage, fertilizers, and potential impacts in Montana and Wyoming.
Ben Goodwin	Executive Manager	California Beet Growers Association	Details about sugar beet production, acreage, fertilizers, and potential impacts in California.
Kevin Vollmer	Regional Manager	Western Sugar Cooperative	Details about sugar beet production, acreage, fertilizers, and potential impacts in Colorado and Nebraska.
Lois E. Hill	Program Manager; Sole Source Aquifer Coordinator	EPA Region 4	Water quality, sole source aquifers
Duke Rivet	Archaeologist Manager	Culture, Recreation, and Tourism, State of Louisiana	Impacts to archaeological sites
Marc Ribaldo	Agricultural Economist	Economic Research Service	Water quality
Jeff Johnson	Farm Loan Specialist	Farm Service Agency, Minnesota	Details about sugar beet production in Minnesota

FSA was required by Congress to promulgate regulations for implementing the Sugar Loan Program and the Sugar Storage Facility Loan Program within 90 days of the signing of the 2002 Farm Security and Rural Investment Act. The reduced time frame has prevented FSA from completing consultation with various agencies, including U.S. Fish and Wildlife Service, Federal Emergency Management Agency, and U.S. Army Corps of Engineers regarding threatened and endangered species, floodplain management, and wetlands, respectively. FSA has contacted the Environmental Protection Agency, other divisions of the U.S. Department of Agriculture, some sugar-producing states, and representatives from sugar growers' cooperatives for information relative to the baseline for this PEA and the impact of the implementation of the programs on their respective areas of interest. FSA will continue ongoing coordination with agencies, as required, and will coordinate with the appropriate state and local authorities for any site-specific impacts under these programs.

## Appendix A – Glossary of Terms

**2002 Act** – Shortened title of The Farm Security and Rural Investment Act of 2002, signed by President Bush on May 13, 2002, and designated as Public Law 107-171.

**Acre-feet** – A volume of water covering an acre of land to a depth of 1 foot, or 325,851 gallons. Large volumes are often characterized as million acre-feet (maf).

**Categorical Exclusion (CATEX)** – An action authorized by regulation that does not require a more detailed analysis of the impacts to the human environment. For purposes of FSA, CATEX actions include maintenance activities, renovation of existing structures, and activities within the “plow zone” of existing farmlands.

**Commodity Credit Corporation (CCC)** – A federally owned and operated corporation within the U.S. Department of Agriculture created to stabilize and support agricultural prices and farm income by making loans and payments to producers, purchasing commodities, and by various other operations. The CCC handles all money transactions for agricultural price and income support and related programs.

**Environmental Assessment (EA)** – A written environmental analysis document required by the National Environmental Policy Act. Required content and format of an EA is described in the Council on Environmental Quality Regulations, 40 CFR Part 1500-1508 (Revised 1992). The primary purpose of an EA is to determine whether any effects caused by implementing a proposed action would be significant. If significant effects would occur or be likely to occur, then an Environmental Impact Statement would be required. If no significant impacts would occur or be likely to occur, then the decision maker signs a Finding of No Significant Impact.

**Environmental Impact Statement (EIS)** – A detailed written environmental analysis document required by the National Environmental Policy Act. Required content and format of an EIS is described in the Council on Environmental Quality Regulations, 40 CFR Part 1500-1508 (Revised 1992).

**Finding of No Significant Impact (FONSI)** – A decision document prepared by a Federal agency briefly presenting the reasons why an action not otherwise excluded from analysis, will not have a significant impact on the human environment and for which an environmental impact statement therefore will not be prepared.

**General Agreement of Tariffs and Trade (GATT)** – First signed in 1947, the agreement was designed to provide an international forum that encouraged free trade between member states by regulating and reducing tariffs on traded goods and by providing a common mechanism for resolving trade disputes. GATT membership now includes more than 110 countries.

**Irrigation Withdrawals** – Includes the water withdrawn/consumptively used in artificially applying water to farm and horticultural crops. Some data sources include water to irrigate recreational sites such as parks and golf courses.

**Market Allotments** – When in effect, allotments provide each processor or producer of a specified commodity a specific limit on sales for the year, above which penalties would apply. Sugar allotments for example, were authorized during 1991-95, but were suspended by the 1996 Act. Marketing allotments for sugar were reauthorized under the 2002 Act.

**Marketing Assessments** – A fee or charge per unit of domestic production or sales that the producers, processors, or first purchasers must pay to the Government in order to help pay for commodity program costs. Marketing assessments for sugar were terminated under the 2002 Act.

**Million Acre-Feet (maf)** – Designation with large amounts of water, typically with amount of water applied or flow of water used for farming purposes.

**National Environmental Policy Act (NEPA)** – Public Law 91-190 as amended established a national policy for the environment and established the Council on Environmental Quality. NEPA compliance is triggered by major Federal actions that involve Federal funding, Federal land, or Federal employees. NEPA requires decision makers to consider via environmental analysis documents the impacts on the human environment before the actions can be taken.

**Nonrecourse Loans** – Program provides commodity-secured loans to producers for a specified period of time (typically 9 months), after which the producer may either repay the loan and accrued interest or transfer owner of the commodity pledged as collateral to the CCC as full settlement of the loan, without penalty. Sugar processors are eligible for these loans. Participants agree to store and maintain a certain quantity of a commodity as loan collateral, for which they receive loan funds from the CCC based on the announced commodity-specific per-unit loan rate. The loans are called nonrecourse because, at the producer's option, the CCC has no recourse but to accept the commodity as full payment of the loan.


**Payment-in-Kind (PIK)** – Process by which commodity producers have the option of diverting a portion of their crop from production in exchange for receiving CCC sugar held in inventory. Producers offer bids for the amount of CCC inventory they would accept in exchange for forgoing harvest or a farmer specified number of planted acres. Bids are subject to a per-acre cap based on a producer's average sugar production. A sugar PIK was offered in August of 2000 and 2001 to address large sugar supplies and low prices in the domestic sugar market. The producer PIK program is continued in 2002. In addition, the Secretary can now exchange CCC-owned inventory sugar for reductions in acreage prior to planting.

**Tariff-rate Quota (TRQ)** – An import restriction system based on tariffs and quantity quotas agreed to in the Uruguay Round Agreement on Agriculture. A certain quantity of imports, called the quota amount, is allowed to enter a country after payment of a relatively low tariff. A higher, over-quota tariff is imposed for imported quantities above the quota amount. For sugar, the TRQ cannot be less than 1.23 million short tons of raw sugarcane nor less than 24,250 short tons for refined sugar. The sugar TRQ is retained for 2002. On June 1 each year, unused quota for each quota-holding country may be reallocated to qualified quota holders.

## **Appendix B – FSA-929, Environmental Factors**



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FSA-929 U.S. Department of Agriculture Farm Service Agency		1. Office National, Washington, D.C.		
MATRIX OF ENVIRONMENTAL RELATIONSHIPS		2. Date July 6, 2002		
		3. Description of Proposed Program: (Attach additional sheets if necessary)		
Sugar Storage Facility Loan Program and Sugar Program - See Exhibit A for background and description of programs.				
A. ENVIRONMENTAL FACTORS	POTENTIAL ALTERNATIVES (See Exhibit B for discussion)			
	B. (1) PROPOSED PROGRAM	C. (2) NO ACTION	D. (3) REDUCED PROGRAM	E. (4)
4. Wetlands	++	+	++	
5. Floodplains	++	+	++	
6. Sole Source Aquifers	++	+	++	
7. Threatened/Endangered Species	++	+	++	
8. Wilderness	+	+	+	
9. Coastal Barrier Resources System	+	+	+	
10. Wild or Scenic River	+	+	+	
11. Natural Landmark	+	•	+	
12. Historic/Archeological	++	+	++	
13. Water Quality	++	•	++	
14. Water Quantity	++	+	++	
15. Air Quality	++	+	++	
16. Odor	+	+	+	
17. Noise	+	+	+	
18. Radiation	+	+	+	
19. Energy Supply	+	+	+	
20. Pesticides/Fertilizers	++	+	++	
21. Land Cover	++	+	++	
22. Soil Erosion	+	+	+	
23. Important Farmland	+	•	•	
24. Prime Range Land	+	+	+	
25. Prime Forest Land	+	+	+	
26. Wildlife habitat	++	•	++	
27. Fish Production	+	+	+	
28. Timber Production	+	+	+	
29. Recreation	+	+	+	
30. Natural Streams	++	+	++	
31. Social/Economic	++	+	++	
32. Environmental Justice	++	+	++	
33. Population Migration	+	+	•	
34. Remarks:				
See Exhibit C for a discussion of those resources or factors identified as moderate or severe. See Exhibit D for a copy of the applicable authorizing sections from the 2002 Farm Bill.				
35. Conclusion:				
a) The proposed action has been determined that it may have a significant impact on the quality of the human environment. Preparation of an EIS is recommended to fully examine alternatives and national impacts from the proposed action.				
b) The proposed action has been determined that it is not likely to have a significant impact on the quality of the human environment, but the preparation of an EA is recommended to more fully examine alternatives and national impacts from the proposed action on the resources and factors identified in this matrix as "moderate."				x
c) The proposed action has been determined not to have the potential to significantly impact the quality of the human environment and no further review or assessment is necessary. The proposed action is a CAT-EX.				
36. Name of Preparer		James P. Fortner		
37. Signature of Preparer				
38. Title of Preparer		Environmental Compliance Manager		

Relationship of Impacts Toward the Environment: + Slight; ++ Moderate; +++ Severe  
 (For those impacts determined to be moderate or severe, attach discussion of potential adverse impacts)

## Appendix C—Human Health Criteria

**Table C-1. Aquatic-Life and Human-Health Criteria for Pesticides in Water.** Table compares Method Detection Level (MDL) values for 20 ingredients found in pesticides used on sugar crops against Aquatic-life and Human-health Criteria, and shows each to be below significant thresholds. Complete table is located at the source website.

Pesticide Compound and Type		Method Detection Limits MDL (ug/L)	Aquatic-Life Criterion (ug/L)	Human Health Criterion (ug/L)
Aldicarb	I	0.55	1	1
Carbaryl	I	0.003	0.2	700
Carbofuran	I	0.003	1.8	40
Methomyl	I	0.017	---	200
Pebulate	H	0.004	---	---
2, 4-D	H	0.15	4	70
Pendimethalin	H	0.004	---	---
Trifluralin	H	0.002	0.2	5
Azinphos-methyl	I	0.001	0.1	---
Diazinon	I	0.002	0.08	0.6
Ethoprop	I	0.003	---	---
Malathion	I	0.005	0.1	200
Methyl parathion	I	0.006	---	2
Phorate	I	0.002	---	---
Atrazine	H	0.001	1.8	3
Metribusin	H	0.004	1	100
Terbacil	H	0.007	---	90
Diuron	H	0.02	---	10
Fenuron	H	0.013	---	---

*(Source: USGS National Water Quality Survey, Pesticide National Synthesis Project, Pesticides Analyzed in NAWQA Samples: Use, Chemical Analysis and Water Quality Criteria, Updated August 20, 1999, also at <http://ca.water.usgs.gov/pnsp/anstrat/index.html>)*

Table Legend:

I = Insecticide

H = Herbicide

--- = No Data Available

## Appendix D — Cost Benefit Assessment

## COST BENEFIT ASSESSMENT

Date: July 23, 2002  
Agency: USDA/Farm Service Agency  
Contact: Dan Colacicco  
Dairy and Sweeteners Analysis Group  
Economic and Policy Analysis Staff  
Farm Service Agency  
United States Department of Agriculture  
Washington, DC 20250  
Phone: (202) 690-0050

I. Title: Sugar Program

II. Need for Action.

Domestic sugar markets, have been oversupplied since FY 1999, resulting in low producer prices and forfeitures of sugar loan collateral. These forfeitures, over 900,000 tons at the end of FY 2000, or almost 10 percent of annual domestic usage, has burdened the Commodity Credit Corporation with high storage costs and burdened the domestic market by depressing prices. The Farm Security and Rural Investment Act of 2002 (2002 Act) is expected to improve the income of domestic sugar cane and sugarbeet producers. The 2002 Act requires substantial revisions in sugar program regulations, 7 CFR parts 1435 and 1436. The 2002 Act substantially modified the sugar program by increasing the financing opportunities for both the crop and sugar storage, reducing the fees the industry pays the Commodity Credit Corporation, simplifying the sugar payment-in-kind program, and instituting a domestic supply-control program under certain conditions.

III. Options Considered.

The 2002 Act provides the Secretary with few options in administering the sugar program's five major components, which are comprised of a sugar loan program, an information collection function, a marketing allotment program, a processor payment-in-kind program, and a storage facility loan program. Common to all parts of the sugar program is the requirement that the Secretary operate the various component programs to avoid forfeitures of sugar collateral under the sugar loan program.

The sugar loan program was modified to increase the benefits to sugar beet and sugarcane farmers. The loan rates remain unchanged--18.0 cents per pound for raw cane sugar and 22.9 cents per pound for refined beet sugar. The 2002 Act increases the price support for domestic sugar by eliminating the recourse loan option and eliminating the forfeiture penalty established by the Agricultural Market Transition Act. The 2002 Act also eliminates the sugar marketing assessment. The 2002 Act permits CCC to accept bids for CCC sugar inventory from sugarcane and sugar beet processors to reduce production. The 2002 Act also requires the Secretary to make loans available for in-process sugars at 80 percent of the applicable loan rate for raw cane sugar and refined beet sugar, depending on the sugar content.

The information reporting requirements were expanded. The 2002 Act requires Louisiana sugarcane producers to report acreage and yields. Importers of sugars, syrups, or molasses to be used for domestic human consumption or to be used for the extraction of sugar for domestic human consumption must report the quantities of products imported and the sugar content or equivalent of the products. The reporting requirement does not apply to sugars, syrups, or molasses within tariff-rate quotas quantities subject to the lower rate of duties.

The 2002 Act restores and modifies the sugar marketing allotment program that was suspended by the Agricultural Market Transition Act. The new sugar marketing allotments are always established prior to the crop year. Allotments and the processor allocations will be suspended if sugar imports for human consumption exceed 1,532,000 short tons, raw value, and CCC reduces the overall allotment quantity in response to the imports. The suspension is lifted if imports are reduced to a level at or below 1,532,000 tons. Thus, processors will always have an allocation, but at times the allocations may be suspended due to imports exceeding the trigger level and the overall allotment quantity was reduced.

The 2002 Act expanded CCC's authority to administer sugar payment-in-kind programs (PIKs). The 2002 Act establishes a Processor PIK program which permits CCC to accept bids from sugar beet and sugarcane processors for CCC sugar by offering to reduce production.

The 2002 Act provides that CCC shall establish a storage facility loan program similar to the current farm storage facility loan program. Borrowers must have a satisfactory credit history, demonstrate a need for more storage, and demonstrate that they have the ability to repay the loan.

#### IV. Legislative Basis for Action.

Subtitle D of the 2002 Act.

#### V. Expected Impacts

When the 2002 Act was signed by the President in May, domestic sugar markets remained burdened by oversupply, substantial CCC sugar inventory, and weak prices (see Figures 1 and 2) that occurred during implementation of the previous sugar program established by the Federal Agriculture Improvement and Reform Act of 1996 (1996 Act). CCC faced the risk of forfeitures of 2001-crop sugar as the new farm law came into force. However, as market participants have reacted to 2002 Act provisions, especially those relating to mandatory marketing allotments, the risk of forfeitures has fallen sharply. Sugar users are anticipating that mandated supply control measures, scheduled to be imposed on October 1, 2002, will tighten supply and increase prices next year. Their expectation of a tightening in supply is reflected in the upward trend in raw cane sugar prices since May. Prices for refined beet sugar remain above forfeiture levels.

#### Sugar Loan Program.

Eliminating the recourse loan option and sugar loan forfeiture penalty increase support for sugar beet and sugar cane producers by guaranteeing them an alternative to the market for selling

sugar, and increasing the proceeds from sugar loan forfeitures. Nonrecourse loans permit CCC borrowers to eliminate their indebtedness by giving CCC title to the loan collateral, which guarantees borrowers at least the loan proceeds for their sugar. CCC charged a penalty, 1.0 cent per pound for raw cane sugar and 1.072 cents per pound of refined beet sugar, upon forfeiture. Elimination of the forfeiture penalty means that market prices must now be a cent per pound higher than under the previous farm bill to discourage a processor from forfeiting sugar loan collateral to CCC. The elimination of recourse loans has little economic impact since CCC never exercised the recourse loan option under the previous farm bill. Elimination of the forfeiture penalty is expected to cost CCC about \$10 million per year in reduced penalty revenue and increased forfeitures (Table 1).

The Sugar Loan Program is expanded to include loans for in-process sugar, which are set at 80 percent of the raw cane sugar or beet sugar loan rate, as applicable. To be eligible for loans, sugar now must be stored in CCC-approved warehouses to ensure the quality of CCC's loan collateral or assets. CCC will use temporary approvals as required to ensure this requirement does not interrupt loan making. Loan settlement will be based on an expanded schedule of premiums and discounts, such as the #14 Board of Trade raw sugar contract, to be more consistent with standard commercial sugar-trading practices. The previous 30-day notification of intent to forfeit sugar loan collateral is eliminated, permitting processors to forfeit their September sugar production. None of these changes are expected to change the cost of the sugar program, farm income, or consumer/user expenditures.

The 2002 Act eliminates the requirement that CCC add 1 percentage point to the interest rate as calculated by the procedure in place in 1996 but does not establish a sugar loan interest rate. CCC has decided to use the rates required for other commodity loans, which leaves the sugar loan interest unchanged. Reducing the interest rate by 1 percentage point would have cost CCC about \$5 million per year.

Supply Control: Marketing Allotment and Processor PIK Programs-The 2002 Act provides USDA with two new instruments to control sugar supply: flexible marketing allotments and a processor-PIK diversion program. Marketing allotments, mandated at the start of each crop year, will enable the Secretary to limit marketings of sugar. However, marketing allotments are suspended if imports rise above 1.532 million tons and CCC increases the overall allotment quantity. If allotments are suspended CCC may implement a processor PIK program that does not require producers to plant all of their crop before diverting acreage, as is the case with the existing PIK authority. Equally important, the new farm law does not bar the Secretary from making use of other traditional programs that were implemented during the previous farm bill, such as unrestricted sales of CCC inventory, including exchanges of Certificates of Quota Eligibility (CQEs), and producer PIK programs, which were implemented in FY 2000 and FY 2001. The traditional instrument available to control import supply is the sugar tariff rate quota (TRQ), which has been set close to the World Trade Organization minimum since FY 1999.

Marketing allotments will enable the Secretary to exert direct control over marketings by establishing an overall allotment quantity (OAQ).” Annual marketing allotments and the OAQ is determined by the following calculation:

OAQ = Estimated consumption + Reasonable Carryover Stocks (End Year)) -  
1.532 million tons (the TRQ Trigger) - Carry-in Stocks.

CCC will establish the Reasonable Carryover Stocks at a level to avoid forfeiture of sugar loan collateral to CCC.

However, Mexico, which has the ability to deliver large volumes of raw sugar into the United States, will be a major factor in determining whether allotments are in effect. Imports of high-tier Mexican sugar are economic at current world and U.S. raw sugar prices and Mexican imports may cause the suspension of sugar marketing allotments

USDA can reduce supply by operating a PIK, with the new authority in the 2002 Act, or trading CCC inventory for Certificates of Quota Eligibility, which give the bearer the right to import raw sugar at the low TRQ rates. Implementation of a processor PIK program would save producers the cost of planting and maintaining a crop. PIKs indirectly reduce sugar program costs by averting forfeitures that would occur in years of oversupply. USDA last implemented producer PIKs towards the end of FY 2000 and FY 2001. Participating processors must act in conjunction with producers, that is, the acreage to be reduced must have been under contract with the processor during the applicable crop year and the land left fallow during the crop year the PIK program is implemented. CCC may permit processors to bid, in lieu of acreage, desugarizing capacity or other measures of sugar production as CCC may approve.

The impacts of a revised sugar program were compared to the AMTA sugar program using the Mid-Session Review of the President's Budget economic assumptions. Sugar production is expected to be 0.4 percent loss with 2002 Act than under a continuation of AMTA (Table2). However, production is expected to fluctuate more as a result of supply shocks (occurring in years when imports may exceed 1.532 million tons and allotments are suspended). The supply control programs are expected to reduce average annual total stocks by 740,000 tons and the stocks-to-use ratio by 26 percent.

Prices per pound of sugar are expected to be about 1.8 cents higher, or 9 percent, due to the effect of the supply control tools--marketing allotments, PIKs, and CQE exchanges. The price increase represents a increase in revenue for sugar producers and a increase in wholesaler's costs of about \$400 million. A penny of the increase is due to the elimination of the forfeiture penalty. The remainder of the price increase, 0.8 cents per pound, was due the assumption that the use of imprecise supply control measures would result in prices, on the average, higher than forfeiture levels, which was the case in the 1990s.

If USDA is able to implement marketing allotments to control production incentives over half of the projected period and conduct inventory reduction programs that are weighted toward maximizing CCC revenues, it is possible that the 2002 Act would lower sugar program costs by about \$13 million per year (10-year average), compared to costs under 1996 Act provisions. Marketing allotments are expected to reduce forfeitures by 15 percent because forfeitures are subject to a processor's marketing allotment allocation. The assumed combination of restricted marketings and CCC, PIK and sale activities reduces CCC's expected annual inventory 65 percent, from 960,000 tons to 340,000 tons per year. If, on the other hand, other conditions prevail, such as more years of high imports that suspend allotments and if USDA implements

programs that produce less revenue (PIKS), then sugar program savings will be less.

### Storage Facility Loans

The 2002 Act provides that CCC shall amend its existing storage facility loan program to include loans for processors of sugar. This program is likely to add to the cost of making loans available is the storage facility loan program. More than \$100 million in loans for financing new storage is expected to occur. Assuming only limited forfeitures of loans made for storage occur, CCC is projected to incur about \$1.4 million in expenses.

## VI. Summary of Impacts

An assessment of the sugar program's costs and benefits concluded that the 2002 Act changes, principally the establishment of sugar marketing allotments and the elimination of the loan forfeiture penalty, will increase farm income, increase consumer/user sugar expenditures, and slightly decrease federal expenditures. The elimination of the sugar loan forfeiture penalty increases the likelihood and cost of forfeitures because it increases the price, by about a cent per pound, a processor must achieve in the market to be deterred from forfeiting sugar loan collateral to CCC.

The cost/benefit analysis (CBA) assumes the current oversupply conditions will exist throughout the next decade and be exacerbated by Mexican imports. The forecast of the economic impacts is very sensitive to the imposition of sugar marketing allotments. Sugar marketing allotments shift the burden of surplus sugar storage from CCC to the sugar beet and sugarcane processors and increases sugar prices. Marketing allotments are dependent on the level of Mexican sugar imports, and to a lesser degree, sugar (or products for the extraction of sugar) imports from other nations not under the sugar tariff rate quota (TRQ). Sugar marketing allotments are likely to be suspended if these imports exceed 276,000 short tons, raw value, because this is difference between the required World Trade Organization minimum TRQ and the import level in the allotment suspension trigger. The cost/benefit assessment assumed that sugar marketing allotments would be suspended in five of the next 10 years.

The CBA concluded that the 2002 Act sugar program changes will result in a slight decrease in domestic sugar production. The sugar program changes are expected to decrease the annual average available stocks-to-use ratio by 26 percent, increase sugar prices about 9 percent, increase sugar loan collateral forfeitures by 15 percent, decrease average CCC sugar inventory by 67 percent, and slightly reduce, by \$13 million per year, CCC expenditures on the sugar program.



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