The Conservation Reserve Program: Achievements to Date and Challenges Ahead

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Proposed 2013 Farm Bills

**Senate Farm Bill** (release on May 9)
*The Agriculture Reform, Food and Jobs Act of 2013*
• Reduce conservation spending by $5 billion
• Reduce the CRP enrollment cap to 25 million acres

**House Farm Bill** (release on May 10)
*The Federal Agriculture Reform and Risk Management (FARRM) Act of 2013*
• Reduce conservation spending by $6 billion
• Reduce the CRP enrollment cap to 24 million acres
Outline

• Highlights of CRP Achievements
• Impacts of Reducing the Size of the CRP
• Criteria for Selecting CRP Contracts for Renewal
• Economic, Environmental and Distributional Implications of the Selection Criteria
The CRP

• Established by the Food Security Act of 1985, reauthorized in all subsequent Farm Bills.

• Under the CRP, farmers convert highly erodible cropland or other environmentally sensitive acreage to resource conserving covers, such as native grasses, trees, and filterstrips.

• In return, farmers receive an annual rental payment for a contract period of 10-15 years.

• The 1985 Act directed USDA to enroll up to 45 million acres by 1990.
The CRP – cont.

• A primary goal of the CRP was to reduce soil erosion on highly erodible cropland.

• Secondary objectives included
  - protecting soil productivity,
  - reducing sedimentation,
  - improving water quality,
  - improving fish and wildlife habitat,
  - curbing production of surplus commodities, and
  - providing income support for farmers.

• Enrollment is limited to 25 percent of the cropland within a county.
The CRP—cont.

• The CRP uses a bidding process to select land into the program.

• In the initial signups, eligible parcels (bids) were selected based on the rental rates requested.

• The selection criterion has been broadened to include multiple environmental benefits.

• CRP uses an index known as the Environmental Benefits Index (EBI) to rank submitted bids.
The CRP – cont.

Figure 1. Conservation Reserve Program - Cumulative Enrollment by Year (Acres)

Data source: USDA (2012c). Shown here are acreages at the end of fiscal year (September 30).
The CRP – cont.
### Table. CRP Enrollment, Rental Payments and Expiration in California and the Pacific Northwest

<table>
<thead>
<tr>
<th>State</th>
<th>FY 2012 Enrollment (acres)</th>
<th>FY 2012 Rental Payment (dollars)</th>
<th>Cumulative Rental Payment 1987-2013 (dollars)</th>
<th>Contract Expiration: FY 2013-17 (acres)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>101,228</td>
<td>4,615,526</td>
<td>157,398,824</td>
<td>52,896</td>
<td>52%</td>
</tr>
<tr>
<td>OR</td>
<td>546,432</td>
<td>28,711,677</td>
<td>633,057,210</td>
<td>234,186</td>
<td>43%</td>
</tr>
<tr>
<td>WA</td>
<td>1,488,621</td>
<td>81,422,150</td>
<td>1,577,863,713</td>
<td>638,479</td>
<td>43%</td>
</tr>
<tr>
<td>ID</td>
<td>648,800</td>
<td>29,473,403</td>
<td>842,394,504</td>
<td>221,519</td>
<td>34%</td>
</tr>
<tr>
<td>Total</td>
<td>2,785,081</td>
<td>144,222,756</td>
<td>3,210,714,251</td>
<td>1,147,080</td>
<td>41%</td>
</tr>
</tbody>
</table>
CRP Environmental Impacts

• *Reduced soil erosion*: By 224 million tons a year, or approximately 6.8 tons per CRP acre, based on 1997 enrollments (Sullivan et al. 2004).

• *Improved water quality*: Reduced nitrate loadings by 90 percent, sediment and herbicide loadings by 50 percent, and phosphorous loadings by 30 percent in some U.S. agricultural regions.

• *Wildlife habitat*: By converting row cropland into native grasslands and trees, the CRP benefits many wildlife species.
# CRP Economic Impacts

## Table 1. Selected Economic Impacts of the Conservation Reserve Program

<table>
<thead>
<tr>
<th>Impacts</th>
<th>Total $\text{ million/year}$</th>
<th>Per CRP acre $\text{/acre/year}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced soil erosion $^b$</td>
<td>653</td>
<td>20</td>
</tr>
<tr>
<td>Recreational benefits $^b$</td>
<td>963</td>
<td>29</td>
</tr>
<tr>
<td>Increased agricultural land value $^c$</td>
<td>1108</td>
<td>34</td>
</tr>
<tr>
<td>Increased developed land value $^c$</td>
<td>786</td>
<td>24</td>
</tr>
</tbody>
</table>

$^a$ All benefits estimates are adjusted for inflation to represent 2011 dollars and total benefits are rounded to the nearest million dollars.

$^b$ Source: Sullivan et al. (2004)

$^c$ Wu and Lin (2010) estimated that the CRP increased farmland value by $18–25 per acre (with an average of $21.5) and increased developed land value by $6–274 per acre (with an average of $140/acre) in 1997. Multiplying the averages by the total acreages of agricultural land and developed land in 1997, we obtain the total increases in agricultural land value and developed land value, respectively. Assume a discount rate of 5%, annualized benefits from increased land values are calculated by multiplying the total increases by 5%. Dividing the annual benefits by the total CRP acreage in 1997 gives the per acre benefits, which are adjusted by the Consumer Price Index (CPI) to represent the 2011 dollars.
## Proposed Changes to the CRP

<table>
<thead>
<tr>
<th>FY Year</th>
<th>Contract Expiration (million acres)</th>
<th>CRP Acres Without Re-enrollment (million acres)</th>
<th>&quot;Stepdown Approach&quot; (million acres)</th>
<th>Renewed or New CRP Acres Needed (million acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Senate Bill</td>
<td>House Bill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>3.3</td>
<td>26.2</td>
<td>30.0</td>
<td>29.0</td>
</tr>
<tr>
<td>2014</td>
<td>2.0</td>
<td>24.2</td>
<td>27.5</td>
<td>26.0</td>
</tr>
<tr>
<td>2015</td>
<td>1.7</td>
<td>22.6</td>
<td>26.5</td>
<td>26.0</td>
</tr>
<tr>
<td>2016</td>
<td>1.2</td>
<td>21.4</td>
<td>25.5</td>
<td>25.5</td>
</tr>
<tr>
<td>2017</td>
<td>2.6</td>
<td>18.8</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>2018</td>
<td>1.5</td>
<td>17.2</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>2019</td>
<td>1.0</td>
<td>16.2</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>2020</td>
<td>4.6</td>
<td>11.7</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>2021</td>
<td>3.1</td>
<td>8.5</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>2022</td>
<td>4.3</td>
<td>4.2</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>2023</td>
<td>0.2</td>
<td>4.0</td>
<td>25.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Total</td>
<td>25.5</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Targeting Criteria for CRP Land Retention

1. Cost targeting – to retain CRP lands that require lowest rental payment per acre.

2. Benefit targeting – to retain CRP lands that provide the highest environmental benefit per acre.

3. Benefit-cost targeting – to retain CRP lands that offer the highest benefit-cost ratios.

4. Benefit-maximizing targeting – to retain CRP lands that provide the largest environmental benefit for a given budget.
Performance of the Criteria

- Amount of land conserved (A): $A_1 \geq A_4 \geq A_3 \geq A_2$
- Total crop production (Y): $Y_2 \geq Y_4 \geq Y_3 \geq Y_1$
- Output price (p): $p_1 \geq p_3 \geq p_4 \geq p_2$
- Consumer surplus (CS): $CS_2 \geq CS_4 \geq CS_3 \geq CS_1$
- Producer surplus (PS): $PS_1 \geq PS_3 \geq PS_4 \geq PS_2$
- Total environmental benefit (B): $B_4 \geq B_3 \geq B_1; B_4 \geq B_2$
Implications – Cost Targeting

• Leads to the largest amount of land in conservation and the lowest total output.

• Leads to the highest output price and the largest producer surplus.

• Should be farmers’ and fiscal conservative’s most favored strategy.

• Most pro-poor policy if the poor own CRP land.

• However, if the poor are not landowners, it is the least pro-poor policy.
Implications – Benefit Targeting

• Lead to lowest output price and the highest consumer surplus.

• Should be consumers, labor and input suppliers’ most preferred strategy.

• Farmers’ least preferred strategy because it results in the lowest output price and producer surplus.
Implications – Benefit-Cost Targeting

• The most efficient strategy (i.e., maximize the social welfare for a given budget).

• Also maximizes the total environmental benefit for a given budget when the output price is not affected.

• However, when the output price is affected, it is no longer maximizing the total environmental benefit for a given budget.

• Not the most preferred strategy of any group.
Implications – Benefit-Maximizing Targeting

• Less efficient than benefit-cost targeting.

• Generate the largest amount environmental benefit for a given budget because it takes into account slippage.

• Slippage occurs when some non-cropland is converted to cropland.

• Ignoring the slippage effects will reduce environmental gains and, in the worst scenario, could make a conservation program counter productive.
For More Information

Visit the OreCal website (http://oregonstate.edu/orecal):
  • Wu, JunJie, Bruce Weber. “What would happen if the Conservation Reserve Program were reduced?” OreCal Issues Brief #002.

Or the C-FARE website: