RISK MANAGEMENT IN U.S. COTTON PRODUCTION

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The ‘Uncertainty’ of Cotton Risk Management

• Planting Flexibility
• New and rapidly evolving insurance options
• Have to consider the interaction of risk management tools
• Low prices and poor market outlook
• Policy uncertainty
Recent Legislative History of U.S. Crop Insurance

• **Crop Insurance Improvement Act (1980)**
  – Introduced a premium subsidy & private sector delivery. Greatly expanded insurable crops and areas.

• **Food, Agriculture, Conservation, and Trade Act (1990)**
  – Emphasized rate increases and actions to control fraud.
  – Mandated to test market new products.

• **Crop Insurance Reform Act (1994)**
  – Created linked catastrophic coverage to reduce disaster assistance & increased premium subsidies.

• **Agricultural Risk Protection Act (2000)**
  – Provided for $8 billion additional crop insurance spending over a 5 year period and mandated USDA becoming more of a regulator rather than carry out its own development program.
<table>
<thead>
<tr>
<th>Yield/Price Percent Coverage</th>
<th>Old APH Subsidy Percentage</th>
<th>Old CRC Subsidy Percentage</th>
<th>ARPA Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>50/100</td>
<td>55</td>
<td>42</td>
<td>67</td>
</tr>
<tr>
<td>55/100</td>
<td>46</td>
<td>35</td>
<td>64</td>
</tr>
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<td>65/100</td>
<td>42</td>
<td>32</td>
<td>59</td>
</tr>
<tr>
<td>75/100</td>
<td>24</td>
<td>18</td>
<td>55</td>
</tr>
<tr>
<td>85/100</td>
<td>13</td>
<td>10</td>
<td>38</td>
</tr>
</tbody>
</table>
2000 PROPOSED NONIRRIGATED COTTON RATES

PERCENT CHANGE

- 5% Increase (116)
- No Change (278)
- 5% to 10% Decrease (150)
- 10% to 25% Decrease (16)
- 25% to 50% Decrease (94)
Table 2. Washington County, Mississippi Cotton Farmer’s Premium Cost-Comparison for MPCI assuming a 750 Pound Yield and 63 Cent Price

<table>
<thead>
<tr>
<th>Level</th>
<th>Coverage</th>
<th>1998</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>50%</td>
<td>$236.00</td>
<td>$10.74</td>
<td>$4.00</td>
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<tr>
<td>55%</td>
<td>$260.00</td>
<td>$15.43</td>
<td>$5.22</td>
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<tr>
<td>60%</td>
<td>$284.00</td>
<td>$21.69</td>
<td>$6.35</td>
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<tr>
<td>65%</td>
<td>$307.00</td>
<td>$25.09</td>
<td>$8.95</td>
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<tr>
<td>70%</td>
<td>$331.00</td>
<td>$38.29</td>
<td>$11.70</td>
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<tr>
<td>75%</td>
<td>$355.00</td>
<td>$58.34</td>
<td>$17.43</td>
</tr>
<tr>
<td>80%</td>
<td>$378.00</td>
<td>N/A</td>
<td>$27.26</td>
</tr>
</tbody>
</table>
Percent Cotton Acreage Insured, All plans

- Total Percent of Planted Acres
- Buy up Percent
Aggregate Cotton Acreage by Insurance Type

Million Acres


APH Buy-Up  CRC  CAT  Other
Proportion of Insured Acres at Various Coverage Levels, 2001

Coverage Level
- U.S.
- Texas
- Mississippi
- Louisiana
- Georgia

Percent

Proportion of insured acres for various coverage levels in U.S., Texas, Mississippi, Louisiana, and Georgia for the year 2001.
U.S. Cotton Loss Ratio by type of Insurance

Ratio


CAT  APH Buy Up  CRC
Crop Insurance Benefits & Costs

\[
\text{Indemnity} = \text{Price} \times \left[ \text{Coverage} \times \text{APH \ Level} \times \text{Actual \ Yield} - \text{Actual \ Yield} \right]
\]

if \[
\text{Coverage \ Level} \times \text{APH \ Yield} > \text{Actual \ Yield}
\]

\[
\text{Premium} = \text{Price} \times \left[ \text{Coverage} \times \text{APH \ Yield} \right] \times \text{Premium \ Rate} \times \left[ 1 - \text{Subsidy \ Percent} \right]
\]

Expected Return to Insurance = Expected Indemnity - Premium
Cotton Market Price and Insurance Coverage Price

Cents per Pound


Futures price
Loan Rate
MPCI--Southeast
CRC/IP
February Cotton and Soybean Futures Price Relative to the Loan Rate

Ratio (Futures/Loan)

2001 2002

Cotton Soybeans
Factors Related to the Expected Net Benefit of Crop Insurance

- Value of the Crop/unit
- Expected yield/acre
- Insurance coverage
- Policies providing greater coverage
- Greater risk resulting in higher rates
- Greater rating error in favor of the producer
- Increased subsidy levels
- Greater producer risk aversion
Final Thoughts