U.S. Cotton Supply Response
Under the 2002 Farm Act

Paul C. Westcott and Leslie A. Meyer
Agricultural Economists
U.S. Department of Agriculture
Economic Research Service
February 2003
Presentation Overview

• Program provisions of the 2002 Farm Act
  – Marketing loans
  – Counter-cyclical payments
  – Direct payments
• Income support features
• Potential production influences
• 2003 acreage projections for upland cotton
• USDA baseline projections for upland cotton
2002 Farm Act
3-Piece Commodity Program
3-Piece Commodity Program

- Marketing loan program
  - Upland cotton loan rate increased slightly
  - Loan rates raised for competing crops, except soybeans
- New counter-cyclical payments
  - Price dependent payments
- Direct payments
  - Replace Production Flexibility Contract payments
  - Soybeans, minor oilseeds, peanuts added
3-Piece Commodity Program

• Marketing loans coupled
  – Paid on current production
  – Depend on market prices

• Counter-cyclical payments mostly decoupled
  – Do not depend on current production (fixed base and payment yield)
  – But depend on market prices

• Direct payments fixed and decoupled
  – Do not depend on current production or market prices
Counter-cyclical payment terms

• Upland cotton example for 2003--loan rate $0.52, target price $0.724, direct payment rate $0.0667

• “Effective price” defined as higher of market price or loan rate, plus direct payment rate

• CCP equals target price minus “effective price”

• Alternatively, CCP equals (target price - direct payment rate) - higher of market price or loan rate
  – Per-unit revenue protection of CCPs up to the “effective target price” of $0.6573
Counter-cyclical payment examples

• Upland cotton examples for 2003--loan rate $0.52, target price $0.724, direct payment rate $0.0667

• Example 1--Assume price of $0.55

  \[ CCP = 0.724 - (0.55 + 0.0667) = 0.1073 \]

  (re-arranging terms)

  \[ CCP = (0.724 - 0.0667) - 0.55 = 0.1073 \]

• Example 2--Assume price of $0.6573

  \[ CCP = 0.724 - (0.6573 + 0.0667) = 0 \]

  (re-arranging terms)

  \[ CCP = (0.724 - 0.0667) - 0.6573 = 0 \]

• Illustrate “effective target price” concept ($0.6573)
Counter-cyclical and direct payments for cotton under the 2002 Farm Act

Decoupled payments

Assumes 100 acres cotton, 100 acres cotton base, 640 lbs/acre yield, 605 lbs/acre direct payment yield, 625 lbs/acre counter-cyclical payment yield.
Cotton revenues under the 2002 Farm Act

Assumes 100 acres cotton, 100 acres cotton base, 640 lbs/acre yield, 605 lbs/acre direct payment yield, 625 lbs/acre counter-cyclical payment yield.
Counter-cyclical payments overlap with marketing loan benefits

• Marketing loans enable farmers to attain per-unit revenues that, on average, exceed commodity loan rates (Marketing loan or LDP “bonus”)
  – Cotton LDP bonus has been about $0.045
  – Implies cotton marketing loan benefits up to a $0.565 price
• Counter-cyclical payments increase as prices decline to the $0.52 loan rate
• Implicit “double” counter-cyclical benefits in price range from $0.52 to $0.565
• As price falls to loan rate, gain two counter-cyclical benefits
Cotton revenues under the 2002 Farm Act, with above-loan-rate marketing loan benefit

Cotton revenues

Assumes 100 acres cotton, 100 acres cotton base, 640 lbs/acre yield, 605 lbs/acre direct payment yield, 625 lbs/acre counter-cyclical payment yield. Assumes per-unit revenue facilitated by marketing loans exceeds loan rate by an average of 4.5 cents/lb.
Marketing Loans
Marketing loans under the 2002 Farm Act

• Affect planting decisions
  – Paid on current production

• Change in marketing loan rate for upland cotton
  – Small increase

• Changes in marketing loan rates for competing crops
  – Sorghum, wheat, corn loan rates increased
  – Soybean loan rate decreased
### Marketing assistance loan rates, 2002 Farm Act and 2001 rates

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Upland cotton ($/lb)</td>
<td>$0.5192</td>
<td>$0.52</td>
<td>$0.52</td>
</tr>
<tr>
<td>Sorghum ($/bu)</td>
<td>$1.71</td>
<td>$1.98</td>
<td>$1.95</td>
</tr>
<tr>
<td>Wheat ($/bu)</td>
<td>$2.58</td>
<td>$2.80</td>
<td>$2.75</td>
</tr>
<tr>
<td>Corn ($/bu)</td>
<td>$1.89</td>
<td>$1.98</td>
<td>$1.95</td>
</tr>
<tr>
<td>Soybeans ($/bu)</td>
<td>$5.26</td>
<td>$5.00</td>
<td>$5.00</td>
</tr>
</tbody>
</table>
Counter-cyclical Payments
Counter-cyclical Payment Effects

- Paid on pre-determined quantity—decoupled from actual production
- Linked to market prices in range from loan rate to “effective target price”
- Affects revenue risk
- May encourage production of program crop for which producer has acreage base, if risk averse
Direct Payments
Direct Payment Effects

• Fixed, decoupled payments
• Wealth effect
  – Less risk averse with higher wealth
• Payments can raise agricultural investment
  – Greater loan availability
  – Lower cost of loans
• Wealth and investment effects may have small production impacts
Implications for
Upland Cotton Acreage in 2003
2003 upland cotton supply response factors

- Price incentives (and net returns) among competing crops
- Policy influences, particularly marketing loans
- Upland cotton acreage response elasticities
## Upland cotton acreage response elasticities

<table>
<thead>
<tr>
<th>Crop</th>
<th>Elasticity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Own-price effect:</strong></td>
<td></td>
</tr>
<tr>
<td>Upland cotton</td>
<td>+0.466</td>
</tr>
<tr>
<td><strong>Competing crops:</strong></td>
<td></td>
</tr>
<tr>
<td>Sorghum</td>
<td>-0.103</td>
</tr>
<tr>
<td>Corn</td>
<td>-0.036</td>
</tr>
<tr>
<td>Wheat</td>
<td>-0.029</td>
</tr>
<tr>
<td>Soybeans</td>
<td>-0.025</td>
</tr>
</tbody>
</table>
2003 upland cotton planting incentives

• Current USDA price projections for 2002/03
  – Upland cotton price below $0.52 loan rate
    • $0.405 (August - December average)
  – Competing crop prices above loan rates
    • Sorghum, $2.40 ($1.98 loan rate)
    • Corn, $2.35 ($1.98 loan rate)
    • Wheat, $3.60 ($2.80 loan rate)
    • Soybeans, $5.40 ($5.00 loan rate)
2003 upland cotton planting implications

• 2002 plantings
  – Plantings may have been reduced by policy uncertainties
  – Adjusted “policy-uncertainty neutral” plantings of 14.2 million acres

• 2003 plantings
  – Cotton prices remain in marketing loan range
  – Stronger incentives to plant competing crops
    • Prices above loan rates
  – Implies a small reduction (160,000 acres) in upland cotton acreage from 2002’s adjusted “policy-uncertainty neutral” plantings of 14.2 million acres
  – Suggests 2003 upland plantings at 14.0-14.1 million acres
Uncertainties

• Changes in economic incentives
  – Price expectations

• Planting-time weather
  – El Niño effect in 1998 contributed to reduced plantings in Western States
Baseline Projections for Upland Cotton Acreage
Baseline acreage issues

- Same analytical framework used
  - Prices for upland cotton and competing crops
  - Policy/marketing loan effects
  - Elasticities

- Upland cotton acreage fairly flat, 13.9-14.2 million
  - Upland cotton acreage increases in 2004-06
    - Prices for competing crops fall from recent high levels
  - Upland cotton acreage declines slightly over rest of projections
    - Prices for competing crops increase more than cotton
Conclusions

• 2002 Farm Act provides income support through:
  – Marketing loans
  – Counter-cyclical payments
  – Direct payments

• Production effects of these income support measures are mostly from the marketing loan program

• 2003 upland cotton acreage likely to be about 14 million acres
  – 2002 plantings may have been reduced by policy uncertainties last spring
  – 2003 planting incentives for crops competing with upland cotton reflect prices above loan rates
USDA Web Sites for 2002 Farm Act Information

• USDA Farm Act homepage
  – http://www.usda.gov/farmbill

• Side by side comparison of 1996 and 2002 Farm Acts, with selected analyses

• Frequently asked questions

• Economic analysis and impacts of the 2002 Farm Act