Dairy Risk Management

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Risk Management

What is risk?
Risk Includes:

- Financial risk
- Legal/environmental, government risk
- Physical output risk
- Input price risk
- Output price risk
- Human resource risk
National Dairy Risk Management Project

- The Ohio State University and University of Wisconsin Project
- USDA Funded
- A total dairy risk management package
- Computerized decision making package
- Curriculum package
- Videos
- Right here from 1:00 to 3:00 March 11
Today, we will concentrate on milk price risk management:

![Graph showing supply and demand with $14.25 per CWT and 157 Billion Lbs.]

- Supply
- Demand

$/CWT

$14.25

157 Billion Lbs.
Why price risk management?

- The **reduction** in the federal dairy price support program; complete elimination end of 1999

- **Market forces** determine dairy product prices and farm level milk prices--loss of government safety net

- Dairy producers, milk buyers, processors, marketers, purchasers all experience price volatility and price uncertainty--"**Price Risk**"
Available Price Risk Management Tools:

- Hedging in Futures
- Options
- Cash forward price contracts
Note: The BFP replaced the M-W price series in April 1995
CME 40# Cheddar Block Prices, 1996-99

Price Per Pound

Jan  Feb  Mar  Apr  May  Jun  Jul  Aug  Sep  Oct  Nov  Dec

$1.00  $1.10  $1.20  $1.30  $1.40  $1.50  $1.60  $1.70  $1.80  $1.90  $2.00

CME Grade AA Butter Prices 1996-99

Dollars per pound

Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec

1996

1997

1998

1999
Some in the dairy industry strongly resist moving to a market oriented industry--still have hopes the government will provide some type of price protection

“We need the government to protect our prices”!!!!
Farm Program Changes:

- Since 1981, the federal dairy price support has moved to market orientation
  - 1950 to 1981, support based on parity
  - Since 1981, support based on surpluses and government cost
  - 1996 FAIR Act calls for termination end of 1999
Change to market orientation:

Supply
Support Prior to 1981
Support since 1990
Demand

$/Cwt.
$13.10
$12.25
$10.10

158
Billion Lbs.
Farm Program Changes:

• Federal milk marketing orders

• International trade

• Dairy Compacts
Marketing Tools:

• **Hedging in futures**
  - Locks in a specific price

• **Buying a PUT option**
  - Establish a floor price--price insurance
  - Leaves open the opportunity for higher prices

• **Cash forward price contract**
  - Locks in a specific price

• **Advanced strategies**
  - Use of PUTs and CALLs
  - Opportunity to take advantage of changing market conditions
**Example**

**Alternative Price Risk Management Options**

Assume on March 10th a dairy product wants to protect the price of June milk.

1. Can hedge by **selling** a June BFP futures contract @ $12.75

2. Can **buy** a June BFP PUT option with a strike price of $12.50 for a premium of $0.21

3. Can cash forward contract with a milk buyer for a **base price** @ $12.70
<table>
<thead>
<tr>
<th>Date</th>
<th>Cash milk price</th>
<th>BFP futures price</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/10</td>
<td>Project June mailbox price: $12.75 + $1.00 = $13.75</td>
<td>Sell June BFP futures @ $12.75</td>
<td>$1.00</td>
</tr>
<tr>
<td>7/3</td>
<td>Milk plant pays for June milk @ $13.00</td>
<td>Cash settle the June BFP futures @ $12.00 announced BFP</td>
<td>$1.00</td>
</tr>
<tr>
<td>Change</td>
<td>Loss: $0.75</td>
<td>Gain: $0.75</td>
<td></td>
</tr>
</tbody>
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**Net price:** $13.00 cash price + $0.75 futures gain = $13.75

| 7/3  | Milk plant pays for June milk @ $14.50 | Cash settle the June BFP futures @ 13.50 | $1.00 |
| Change | Gain: $0.75 | Loss: $0.75 | |

**Net price:** $14.50 cash price - $0.75 futures loss = $13.75
Buying a June BFP Put with a strike price of $12.50 at a premium of $0.21

The established **floor** for June milk is:
- $12.50 strike price
- $0.21 premium paid
- $12.29
+ $1.00 basis
= $13.29 **floor price** for June

If the June BFP is announced at **$12.00**, less than the **$12.50** strike price, the June BFP PUT option is exercised.

| Sell June BFP futures contract @ | $12.50 |
| Cash settle at announced June BFP | - $12.00 |
| Futures gain | =$ 0.50 |
| Minus premium paid | - $0.21 |
| Equals Net gain | =$ 0.29 |

**Net price:** $13.00 June cash price + $0.29 futures gain = $13.29

If the June BFP is announced at **$13.50**, higher than the **$12.50** strike price, the June BFP PUT option expires **worthless**. The net result is:

**Net price:** $14.50 June cash price – $0.21 PUT premium paid = $14.29
Sign a cash forward price contract for June milk with a milk buyer at a base price of $12.70.

If the June BFP is announced at $12.00, net June milk price will be:

\[
\text{Net Price: } \$12.70 \text{ base price} + \$1.00 = \$13.70
\]

If the June BFP is announced at $13.50, net June milk price will be:

\[
\text{Net Price: } \$12.70 \text{ base price} + \$1.00 = \$13.70
\]
A summary of the net June milk price under these three alternative risk management tools is shown below:

<table>
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<tr>
<th>June BFP announced at</th>
<th>If hedged @ $12.75 June BFP</th>
<th>If bought June BFP Put with strike price of $12.50 and $0.21 prem.</th>
<th>If signed cash forward price contract @ $12.70 June base price</th>
</tr>
</thead>
<tbody>
<tr>
<td>$12.00</td>
<td>$13.75</td>
<td>$13.29</td>
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What Should be Your Objective in Price Risk Management?

- Protect a good milk price
  - Based on Personal Goals
  - Based on Business Goals (Cost of Production)

- Protect Your Cash Flow

- NOT TO ACHIEVE THE HIGHEST MILK PRICE
  
  *No one knows what will be the highest price in the future*

M-W Price Series Used Prior to April, 1995