2014 – It Was One For the Record Books

Feed costs $4 to $5 per hundredweight lower relative to the peak
Increased export demand pushed U.S. milk prices to record levels
2014 helped to financially heal many operations
Today's Biggest Story For US Dairy Markets

U.S. Drought Monitor
California

April 14, 2015
(Released Thursday, Apr. 16, 2015)
Valid 7 a.m. EST

(Drought Conditions (Percent Area))

<table>
<thead>
<tr>
<th>Name</th>
<th>D6-D4</th>
<th>D1-D4</th>
<th>D2-D4</th>
<th>D3-D4</th>
<th>D4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0.14</td>
<td>99.86</td>
<td>99.11</td>
<td>99.44</td>
<td>86.60</td>
</tr>
<tr>
<td>Last Week before 1/01/15</td>
<td>0.15</td>
<td>98.86</td>
<td>99.11</td>
<td>99.44</td>
<td>86.60</td>
</tr>
<tr>
<td>3 Months Ago before 1/01/15</td>
<td>0.06</td>
<td>99.00</td>
<td>99.12</td>
<td>99.34</td>
<td>72.52</td>
</tr>
<tr>
<td>Start of Calendar Year 1/01/14</td>
<td>0.06</td>
<td>100.00</td>
<td>98.12</td>
<td>99.34</td>
<td>72.94</td>
</tr>
<tr>
<td>Start of Water Year 1/01/15</td>
<td>0.06</td>
<td>100.00</td>
<td>100.00</td>
<td>99.94</td>
<td>81.92</td>
</tr>
<tr>
<td>One Year Ago before 1/01/14</td>
<td>0.06</td>
<td>100.00</td>
<td>99.90</td>
<td>96.21</td>
<td>69.76</td>
</tr>
</tbody>
</table>

Intensity:
- D1 Abnormally Dry
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Michael Brew
NCCDC/NOAA

http://droughtmonitor.unl.edu/
CA Milk Production: Brakes Applied

Million Pounds

Year

2013
2014
2015

GBR
Rest of US Milk Production: Brakes Released

Million Pounds

2013
2014
2015
Dairy Markets Are Inelastic
Dairy Markets Are Inelastic
Milk Less Feed Costs

Dollars per hundredweight

US

CA

The Turndown in CA Milk Production

The US dairy industry was headed for MUCH lower milk prices in 2015.

Milk supplies are generally plentiful across the US:
- Even in the upper Midwest stories of $5 below minimum pricing can be heard.
- Tankers of milk not finding a home.

The turndown in CA milk production has muted lower milk prices.
Change in Dairy Cow Inventory,
Jan. 1, 2015 vs. 2007-09 average

[Map showing percentage changes in dairy cow inventory across different states, with some states showing increases and others showing decreases.]
My Biggest Risk Factor: Global Markets

How quickly can US dairy exports recover?
Predicting China’s demand for US dairy products challenging

Global milk supplies
- Oceania
- Europe

Stronger dollar hampering trade
Value of U.S. Dairy Trade

- **Imports**
- **Exports**

CWT Assisted (mil. pounds)

<table>
<thead>
<tr>
<th>Year</th>
<th>Cheese</th>
<th>Butter</th>
<th>WMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>125</td>
<td>73</td>
<td>0.0</td>
</tr>
<tr>
<td>2013</td>
<td>130</td>
<td>101</td>
<td>0.2</td>
</tr>
<tr>
<td>2014</td>
<td>103</td>
<td>54</td>
<td>35.0</td>
</tr>
</tbody>
</table>

Million Dollars

Jan 04 Jan 06 Jan 08 Jan 10 Jan 12 Jan 14
In 2014, USDA estimated 1 mmt of imports for 2014.

Source: USDA
Australia + New Zealand Milk Production

Source: USDA
Global Dairy Situation

![Global Dairy Situation Graph]

Oceania, S. America, EU/US, Prices (right axis)

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2015 – Lower Returns Ahead

Milk prices have moved significantly lower
- Increased U.S. milk supplies
- Decreased export demand for U.S. dairy products

Conventional wisdom suggests the 2nd half of 2015 will be better
- Requires export recovery
- Another good crop this year

We have not seen the last time of below $12 all milk prices
Butter Prices

Imports 8/13 to 2/14 – 3.4 TMT
8/14 to 2/15 – 8.9 TMT

U.S. Oceania
Cheese Prices

![Graph showing cheese prices from Jan 2002 to Jan 2014 for the U.S. and Oceania. The graph indicates fluctuations in cheese prices with a notable peak in 2008.](image_url)
U.S. Fluid Milk Sales

Actual

Million Pounds

Jan 02 Jan 04 Jan 06 Jan 08 Jan 10 Jan 12 Jan 14

0 1,000 2,000 3,000 4,000 5,000 6,000

Annual Growth, 6-month MA

-4% -3% -2% -1% 0% 1% 2% 3% 4%
Federal Order Milk Prices

[Graph showing milk prices per cwt from Jan 02 to Jan 14, with three lines indicating Class III, Class IV, and Class III Futures 4/17/2015.]
U.S. Milk Production

Billion Pounds


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US Milk Returns

Dollars per cwt

Feed costs  Non-feed costs  Receipts

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Margin Protection Program (MPP)

Passing the 2014 farm bill was a monumental challenge

Dairy had its fair share of fights
- Soviet-style dairy policy
- Supply management

Dairy took a big swing at policy change

Too early to grade the program

Policy NEVER works under all market outcomes
New Farm Program To Reduce Risk

All Milk Price

MPP Feed Cost

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Milk Less Feed Costs (MPP Margin)
CA All Milk Price Less US All Milk Price

Dollars per hundredweight

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Minimum Prices For Cheese Milk

Dollars per hundredweight

Jan 06 Jan 08 Jan 10 Jan 12 Jan 14

CA 4B FO Class III

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CA Feed Cost Less US Feed Cost

Dollars per hundredweight

Jan 02 Jan 04 Jan 06 Jan 08 Jan 10 Jan 12 Jan 14

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All Milk Price less Feed Cost

- The average cost of feed for a dairy operation required to produce a Cwt. of milk, determined in accordance with the following formula: 
  \[1.0728 \times \text{price of corn/bu.}] + \[0.00735 \times \text{price of soybean meal/ton}] + \[0.0137 \times \text{price of alfalfa hay/ton}].

- Milk, corn and alfalfa prices reported in Agricultural Prices; soybean meal price is Central Illinois, USDA/AMS
**MILC and the New Margin Program Compared**

<table>
<thead>
<tr>
<th></th>
<th><strong>New Margin Program</strong></th>
<th><strong>MILC</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coverage Level</strong></td>
<td>Pick $4 to $8 in $0.50 increments</td>
<td>Feed Adjusted $16.94 minus Boston Class I</td>
</tr>
<tr>
<td><strong>Coverage Quantity</strong></td>
<td>Pick 25% to 90% in 5% increments</td>
<td>34% or 45% applied to price difference above</td>
</tr>
<tr>
<td><strong>Payments</strong></td>
<td>Production history adjusted by US milk production growth</td>
<td>Capped – 2.985 million pounds or 2.4 million pounds</td>
</tr>
<tr>
<td><strong>Premiums</strong></td>
<td>Depends on coverage level</td>
<td>None</td>
</tr>
</tbody>
</table>

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## Higher Premiums At Higher Margin Coverage Levels

<table>
<thead>
<tr>
<th>Coverage Level</th>
<th>Tier 1 Premium per cwt for 2016-2018 for covered production history at 4 mil lbs or less</th>
<th>Tier 2 Premium per cwt, all years for covered production history over 4 mil lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>$4.00</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>$4.50</td>
<td>$0.010</td>
<td>$0.020</td>
</tr>
<tr>
<td>$5.00</td>
<td>$0.025 0.015</td>
<td>$0.040 0.020</td>
</tr>
<tr>
<td>$5.50</td>
<td>$0.040 0.015</td>
<td>$0.100 0.060</td>
</tr>
<tr>
<td>$6.00</td>
<td>$0.055 0.015</td>
<td>$0.155 0.055</td>
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<tr>
<td>$6.50</td>
<td>$0.090 0.035</td>
<td>$0.290 0.135</td>
</tr>
<tr>
<td>$7.00</td>
<td>$0.217 0.127</td>
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<tr>
<td>$7.50</td>
<td>$0.300 0.063</td>
<td>$1.060 0.230</td>
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<tr>
<td>$8.00</td>
<td>$0.475 0.175</td>
<td>$1.360 0.300</td>
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</tbody>
</table>
Hindsight Is 20/20

Looking backwards.....
- Small producers should have picked $4 or $8
- Larger producers should have picked $4, $6.5, $8

Looking forward......
- Does not mean the same choices
- Premium cost versus safety net
My Observations After The First Signup

Did producers think through the risk mitigation opportunities under MPP?

More education needed on correlation of their margin to the MPP margin

Use of futures markets versus MPP for risk protection

- 2015 Class III futures near $18 when 2015 signup started
- 2016 Class III futures near $16.75 today

Producer tools focused too much on program maximization and not enough on risk management

Tools need to compare risk reduction strategies
Work Needs To Start On 2016 Signup

Signup period 7/1/2015 – 9/30/2015
Choice must be made further from the period of coverage
This may highlight risk management versus program maximization or cause producers not to enroll
Compare futures market cost versus MPP cost
Producers need to think about what level of coverage they need to survive
US Production History Signed Up For 2015 MPP Payments

Billion pounds

<table>
<thead>
<tr>
<th>Price</th>
<th>Payments</th>
</tr>
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<tbody>
<tr>
<td>$4.00</td>
<td>140</td>
</tr>
<tr>
<td>$4.50</td>
<td>60</td>
</tr>
<tr>
<td>$5.00</td>
<td>50</td>
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<tr>
<td>$5.50</td>
<td>40</td>
</tr>
<tr>
<td>$6.00</td>
<td>30</td>
</tr>
<tr>
<td>$6.50</td>
<td>20</td>
</tr>
<tr>
<td>$7.00</td>
<td>10</td>
</tr>
<tr>
<td>$7.50</td>
<td>5</td>
</tr>
<tr>
<td>$8.00</td>
<td>0</td>
</tr>
</tbody>
</table>
Tool to Optimize Protection (TOPMargin) For Dairy Producers Under the MPP

WEBSITE: http://farmsbill.missouri.edu

TOPMargin is an Economic Evaluation Tool Developed by the Agricultural Markets and Policy (AMAP) Group, University of Missouri Version 2015.2.09
TOPMargin – Dairy Margin Risk Tool

Based on historical volatility, TOPMargin puts risk around the expected average margin outcome.
Let’s look at a 2,000,000 production history operation.
The Corner Solutions for MPP-Dairy Coverage - $4/90 – Average Margin $10.87 – 2 Mil. Lbs.

<table>
<thead>
<tr>
<th>Coverage Percentage</th>
<th>25</th>
<th>30</th>
<th>35</th>
<th>40</th>
<th>45</th>
<th>50</th>
<th>55</th>
<th>60</th>
<th>65</th>
<th>70</th>
<th>75</th>
<th>80</th>
<th>85</th>
<th>90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Margin Level</td>
<td>4.00</td>
<td>4.50</td>
<td>5.00</td>
<td>5.50</td>
<td>6.00</td>
<td>6.50</td>
<td>7.00</td>
<td>7.50</td>
<td>8.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOPMargin Dashboard**
Use the sliders to set the coverage percentage and margin level

- **Farm Premium Total 2015 Cost** $100
- **Average Farm MPP Total Expected Payments** $101
- **2015 Annual Average MPP-Dairy Margin Level** $10.87
- **Probability of a MPP-Dairy Payment** 1%

**MPP Composite Score Index**

- **Average Producer Net Program Returns Dollars**
  - 0.38
  - 0.49
  - 0.59
  - 0.78

- **Absolute Reduction in Low Margin Outcomes Dollars per cwt**
  - 2.44
  - 2.36
  - 2.28
  - 2.20

- **Percentage of Positive Program Return Outcomes Percent**
  - 3%
  - 5%
  - 7%

- **Percentage of Outcomes With Catastrophic Margin Percentage**
  - 0.8%
  - 0.5%
  - 0.3%
  - 0.0%

**Return To The Home Screen**

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The Corner Solutions for MPP-Dairy Coverage -
$8/90 – Average Margin $10.87 – 2 Mil. Lbs.
A Middle Solution for MPP-Dairy Coverage - $6/90 – Average Margin $10.87 – 2 Mil. Lbs.
Bimonthly MPP-Dairy Margin – 2015

Example
Bimonthly MPP-Dairy Margin – 2015

Example

Average Producer Net Program Returns
Dollars

(4,723)
(3,149)
(1,574)
(6,298)

$ per cwt

Baseline $8, 90%

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Summary

2015 will be a year of lower returns

- Export recovery necessary
- No drought in the Midwest

CA federal order will take time to resolve

Changes to financial/political landscape in CA could change relative position

Need producers to use MPP as risk management not program maximization

Download the tool to think through the alternatives

- [http://farmbill.missouri.edu](http://farmbill.missouri.edu)
- New web-based tool under development between University of Missouri and Texas A&M University

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