

Dairy Revenue Protection- Commodity Exchange Endorsement (DRP-CEE)

This endorsement contains an explanation of the manner in which the data from CME, the Federal Reserve, AMS Announced Milk and Component prices, and NASS Milk Production information is used to set prices for Dairy Revenue Protection.

1. Abbreviations

AMS - Agricultural Marketing Service an agency within USDA.

CME – The Chicago Mercantile Exchange.

NASS - The National Agricultural Statistics Service, an agency within USDA.

RMA - the Risk Management Agency, an agency within USDA that has authority to operate the crop insurance programs authorized under the Federal Crop Insurance Act (7 U.S.C. § 1501-1524).

USDA – The United States Department of Agriculture.

2. Expected Prices

- (a) The daily CME futures prices for Class III Milk and Class IV Milk for the months within the Quarterly Insurance Period are used to calculate the Expected Class III Milk Price and Expected Class IV Milk Price.
- (b) The Expected Class III (and Class IV) Milk Price is the simple average of the corresponding futures prices for those months falling within a given Quarter of a Quarterly Coverage Endorsement, rounded to the nearest cent.
- (c) The daily CME futures prices for butter, cheese, nonfat dry milk, and dry whey for the months within the Quarterly Insurance Period are used in the Expected Butterfat Price, Expected Protein Price, Expected Nonfat Solids Price, and Expected Other Solids Price using USDA milk pricing calculations for the Sales Period during which you purchased coverage for the applicable Quarterly Coverage Endorsement. Expected butter, nonfat dry milk, cheese and dry whey prices for a particular month are equal to their respective futures prices, converted to dollars per pound, and rounded to nearest one-hundredth cent. Monthly and quarterly expected component prices are also in dollars per pound, rounded to one-hundredth cent.
- (d) The AMS 2019 formulas for the monthly price calculations are as follows:
 - (i) **Expected Butterfat Price =**
$$\frac{(\text{Expected Butter Price} - \text{Butter Make Allowance}) \times \text{Butter Manufacturing Yield}}{1.211}$$

21-DRP-CEE (March 2020)

(ii) **Expected Protein Price =**

$$\begin{aligned} & ((\text{Expected Cheese Price} - \text{Cheese Make Allowance}) \times \text{Cheese} \\ & \text{Manufacturing Yield Casein}) + (((\text{Expected Cheese Price} - \text{Cheese Make} \\ & \text{Allowance}) \times \text{Cheese Manufacturing Yield Butterfat}) - \text{Expected Butterfat} \\ & \text{Price} \times \text{Butterfat Retention Rate}) \times \text{Butterfat-to-Protein Ratio} \end{aligned}$$

$$= ((\text{Expected Cheese Price} - 0.2003) \times 1.383) + (((\text{Expected Cheese Price} - 0.2003) \times 1.572) - \text{Expected Butterfat price} \times 0.9) \times 1.17$$

(iii) **Expected Other Solids Price=**

$$(\text{Expected Dry Whey Price} - \text{Dry Whey Make Allowance}) \times \text{Dry Whey Manufacturing Yield}$$

$$= (\text{Expected Dry Whey Price} - 0.1991) \times 1.03$$

(iv) **Expected Nonfat Solids Price =**

$$(\text{Expected Nonfat Dry Milk Price} - \text{Nonfat Dry Milk Make Allowance}) \times \text{Nonfat Dry Milk Manufacturing Yield}$$

- (d) These calculations are performed for the day corresponding to the sales period for every month with a published futures price.
- (e) The final calculated three-month average Expected Butterfat Price, Expected Protein Price, and Expected Other Solids Price, as defined in the Dairy Revenue Protection Policy and above, is the simple average of the calculation results for each month within the Quarterly Insurance Period to which the Quarterly Coverage Endorsement applies.
- (f) The daily futures settlement price is used to determine expected prices for each Sales Period (day) for which Dairy Revenue Protection is offered. The futures prices will be released by RMA daily following the CME release of preliminary settlement prices by no later than 4:30 P.M. CT. or no sales will occur for that Sales Period.

3. Actual Prices

- (a) The Actual Class III Milk Price, Actual Class IV Milk Price, Actual Butterfat Price, Actual Protein Price, Actual Nonfat Solids Price, and Actual Other Solids Price will be the simple average of their respective monthly price data collected from the AMS, Market Information Branch, *Announcement of Class and Component Prices* for the months in the Quarter applying to the Quarterly Coverage Endorsement; unless the formulas used in the current version of the *Marketing Order Statistics Price Formulas* report, found at (<https://www.ams.usda.gov/resources/price-formulas>, change after the Sales Period.

21-DRP-CEE (March 2020)

- (b) If report formulas change, actual prices will be recalculated by us according to the associated AMS actual prices formulas that were in effect for the Sales Period during which you purchased coverage for the applicable Quarterly Coverage Endorsement.
- (c) The factors for Butter Manufacturing Yield, Nonfat Dry Milk Manufacturing Yield, Dry Whey Manufacturing Yield, Cheese Manufacturing Yield Casein, Cheese Manufacturing Yield Butterfat, Butterfat Retention Rate, Butterfat To Protein Ratio, Butter Make Allowance, Nonfat Dry Milk Make Allowance, Dry Whey Make Allowance, and Cheese Make Allowance are published in the *Marketing Order Statistics Price Formulas* report.
- (d) These components' current values, are defined below in the formulas.
- (e) These factors change infrequently, but in the event they are changed, all policies currently in force will be recalculated based on the factor values on the day for the Sales Period during which you purchased coverage for the applicable Quarterly Coverage Endorsement.
- (f) The Actual Butterfat Price, Actual Protein Price, Actual Other Solids Price, Actual Nonfat Solids Price, Actual Class III Milk Price and Actual Class IV Milk Price monthly price calculation formulas for each month are below, using the current formulas:

(i) **Actual Butterfat Price =**

$$\begin{aligned} & (\text{Butter Price} - \text{Butter Make Allowance}) \times \text{Butter Manufacturing Yield} \\ & = (\text{Butter Price} - 0.1715) \times 1.211 \end{aligned}$$

(ii) **Actual Protein Price =**

$$\begin{aligned} & = ((\text{Cheese Price} - \text{Cheese Make Allowance}) \times \text{Cheese Manufacturing Yield Casein} + (((\text{Cheese Price} - \text{Cheese Make Allowance}) \times \text{Cheese Manufacturing Yield Butterfat}) - \text{Butterfat Price} \times \text{Butterfat Retention Rate}) \times \text{Butterfat-to-Protein Ratio} \\ & = ((\text{Cheese Price} - 0.2003) \times 1.383) + (((\text{Cheese Price} - 0.2003) \times 1.572) - \text{Butterfat Price} \times 0.9) \times 1.17 \end{aligned}$$

(iii) **Actual Other Solids Price =**

$$\begin{aligned} & (\text{Dry Whey Price} - \text{Dry Whey Make Allowance}) \times \text{Dry Whey Manufacturing Yield} \\ & = (\text{Dry Whey Price} - 0.1991) \times 1.03 \end{aligned}$$

(iv) **Actual Nonfat Solids Price =**

21-DRP-CEE (March 2020)

(Actual Nonfat Dry Milk Price – Nonfat Dry Milk Make Allowance) x Nonfat Dry Milk Manufacturing Yield

= (Nonfat Dry Milk Price – 0.1678) x 0.99

(v) **Actual Class III Milk Price =**

(Class III Skim Milk Price x 0.965) + (Actual Butterfat Price x 3.5)

Class III Skim Milk Price = (Actual Protein Price x 3.1) + (Actual Other Solids Price x 5.9)

(vi) **Actual Class IV Milk Price =**

(Class IV Skim Milk Price x 0.965) + (Actual Butterfat Price x 3.5)

Class IV Skim Milk Price = Actual Nonfat Solids Price x 9

- (g) These calculations are performed for every month applying to the Quarter of the Quarterly Coverage Endorsement.
- (h) The final calculated three-month average Actual Butterfat Price, Actual Protein Price, Actual Other Solids Price, Actual Nonfat Solids Price, Actual Class III Milk Price and Actual Class IV Milk Price, as defined in the Dairy Revenue Protection Policy and above, will be the simple average of the calculation results for each month within the Quarterly Insurance Period to which the Quarterly Coverage Endorsement applies.
- (i) Actual prices will generally be released at the same time as the Actual Milk Production per Cow, three to four weeks after the end of the Insurance Period.

4. Futures Options Prices and Volatilities

- (a) CME dairy related futures-options are used to infer implied volatilities to calibrate premium rates.
- (b) Interest rates from the Federal Reserve H.15 publication are used to establish the implied volatilities.

5. Actual and Expected Milk Production per Cow

- (a) The Actual Milk Production per Cow for each base state is calculated as the ratio of quarterly milk production to quarterly milk cows as published in the NASS *Milk Production* report for the Insurance Period. The Actual Milk Production per Cow will generally be available three to four weeks after the end of the Insurance Period.
- (b) Unless otherwise specified, your Actual Milk Production per Cow in your Pooled Production Region will be equal to the Actual Milk Production per Cow as shown in the RMA-published Actuarial Documents in your State.

21-DRP-CEE (March 2020)

- (c) For States grouped into a Pooled Production Region, the sum of the values for the states in the pool is used in those respective grouped States calculations.
- (d) Expected Milk Production per Cow for each Pooled Production Region is determined by RMA and published quarterly, by state, in the Dairy Revenue Protection Actuarial Documents.

6. Pooled Production Regions

- (a) The 23 milk production states listed below will use the NASS-published production and milk yields for the state.
- (b) In the table below, these are identified by the word “State” in the Region Group column.
- (c) States not in the 23 milk producing states listed below are pooled into regions for the purposes of determining state level production and milk yields.
- (d) The following table lists each state and whether or not a state is pooled with other states in a production region.

State	Region Group	Pooled Region	Pooled Region #
Alabama	Group	Southeast	3
Alaska	Group	Pacific	8
Arizona	State	Mountain	5
Arkansas	Group	Southeast	3
California	State	Pacific	8
Colorado	State	Mountain	5
Connecticut	Group	Northeast	6
Delaware	Group	Northeast	6
Florida	State	Southeast	3
Georgia	Group	Southeast	3
Hawaii	Group	Pacific	8
Idaho	State	Mountain	5
Illinois	State	Corn Belt	2
Indiana	State	Corn Belt	2
Iowa	State	Corn Belt	2
Kansas	State	Northern Plains	7
Kentucky	Group	Appalachian	1
Louisiana	Group	Southeast	3
Maine	Group	Northeast	6
Maryland	Group	Northeast	6
Massachusetts	Group	Northeast	6
Michigan	State	Lake States	4
Minnesota	State	Lake States	4
Mississippi	Group	Southeast	3
Missouri	Group	Corn Belt	2
Montana	Group	Mountain	5

21-DRP-CEE (March 2020)

State	Region Group	Pooled Region	Pooled Region #
Nebraska	Group	Northern Plains	7
Nevada	Group	Mountain	5
New Hampshire	Group	Northeast	6
New Jersey	Group	Northeast	6
New Mexico	State	Mountain	5
New York	State	Northeast	6
North Carolina	Group	Appalachian	1
North Dakota	Group	Northern Plains	7
Ohio	State	Corn Belt	2
Oklahoma	Group	Southern Plains	9
Oregon	State	Pacific	8
Pennsylvania	State	Northeast	6
Rhode Island	Group	Northeast	6
South Carolina	Group	Southeast	3
South Dakota	State	Northern Plains	7
Tennessee	Group	Appalachian	1
Texas	State	Southern Plains	9
Utah	State	Mountain	5
Vermont	State	Northeast	6
Virginia	State	Appalachian	1
Washington	State	Pacific	8
West Virginia	Group	Appalachian	1
Wisconsin	State	Lake States	4
Wyoming	Group	Mountain	5