### 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.

(c) The daily CME futures prices for butter, cheese, and dry whey for the months within the Quarterly Insurance Period are used in the Expected Butterfat Price, Expected Protein 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.

(d) The 2018 formulas for the monthly price calculations are as follows:

(i) **Expected Butterfat Price =**

(Butter Futures Price - Butter Make Allowance) x Butter Manufacturing Yield

= (Butter Futures Price − 0.1715) x 1.211

(ii) **Expected Protein Price =**

((Cheese Futures Price - Cheese Make Allowance) x Cheese Manufacturing Yield Casein) + ((((Cheese Futures Price - Cheese Make Allowance) x Cheese Manufacturing Yield Butterfat) – Expected Butterfat Price x Butterfat Retention Rate) x Butterfat-to-Protein Ratio)

=((Cheese Futures price – 0.2003) x 1.383) + ((((Cheese Futures Price – 0.2003) x 1.572) – Expected Butterfat price x 0.9) x 1.17)

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

(Dry Whey Futures Price - Dry Whey Make Allowance) x Dry Whey Manufacturing Yield

= (Dry Whey Futures Price − 0.1991) x 1.03

(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 4:00 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 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 *AMS Price Formulas* 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.

(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 *AMS Pricing Formulas 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 Class III and Actual Class IV monthly price calculation formulas for each month are below, using the current formulas:

(i) **Actual Butterfat Price =**

(Butter Price - Butter Make Allowance ) x Butter Manufacturing Yield
= (Butter Price – 0.1715) x 1.211

(ii) **Actual Protein Price =**

= ((Cheese Price - Cheese Make Allowance) x Cheese Manufacturing Yield Casein+ ((((Cheese Price - Cheese Make Allowance) x Cheese Manufacturing Yield Butterfat)) - Butterfat Price x Butterfat Retention Rate) x Butterfat-to-Protein Ratio

=((Cheese Price – 0.2003) x 1.383) + ((((Cheese Price – 0.2003) x 1.572) – Butterfat Price x 0.9) x 1.17)

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

(Dry Whey Price - Dry Whey Make Allowance) x Dry Whey Manufacturing Yield
= (Dry Whey Price – 0.1991) x 1.03

(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 Class III and Actual Class IV prices, 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 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)

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

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

Class IV Skim Milk Price = Nonfat Solids Price x 9

Nonfat Solids Price = (Nonfat Dry Milk Price – Nonfat Dry Milk Make Allowance) x Nonfat Dry Milk Manufacturing Yield
= (Nonfat Dry Milk Price – 0.1678) x 0.99

Butterfat Price = (Butter Price - Butter Make Allowance ) x Butter Manufacturing Yield
= (Butter Price – 0.1715) x 1.211

## 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.

(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.

(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 AMS-ranked top 23 milk production states will use the AMS-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 AMS-ranked top 23 milk producing states 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 |
| 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 |

| State | Region Group | Pooled Region | Pooled Region # |
|-------|--------------|---------------|-----------------|
| Wisconsin | State | Lake States | 4 |
| Wyoming | Group | Mountain | 5 |