

Dairy Revenue Protection: A Risk Management Tool

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Dairy Revenue Protection (DRP) is one of many tools available for dairy producers to help manage milk price risk. DRP is different from other risk management programs utilizing milk futures markets through a Risk Management Agency (RMA) insurance program, to set a revenue protection price. We will help you understand the many different decisions that need to be made when utilizing DRP. We will first define some of the terminology utilized and then explain the program decisions and finally provide some examples of how the program works.

Terminology

Quarter blocks- Contracts are offered annually in each of the four quarters: First quarter (January, February, March), Second quarter (April, May, June), Third quarter (July, August, September), and Fourth Quarter (October, November, December).

Milk price floor- Knowing the lowest price you will receive allows you the ability to capture upside price potential.

Purchase window- Time frame each day when you can purchase a DRP contract. The purchase window is available between 4:00 pm and 10:00 am Eastern time.

Provider- Company who sells RMA insurance products and offers DRP coverage.

Coverage level- Percentage of contracted price from 80 to 95% that determines your revenue guarantee.

Trigger milk price- Is the average price for each quarter at which your policy will begin to make a payment.

Premium- The amount owed for DRP coverage for the quarter.

Premium subsidy- The amount of your premium cost covered by RMA ranging from 44 to 55% of the total premium. Subsidy percentage decreases as coverage increases from 80 to 95% of contract per hundredweight coverage price.

Class III or IV coverage- Pricing method using Class III and or Class IV milk price.

Component coverage- Pricing method using milk component prices for fat, protein, and other milk solids.

Protection factor- A numeric value chosen by you for each contract that magnifies coverage. Premiums become more costly as coverage increases.

CME- Chicago Mercantile Exchange, venue where dairy futures and options are traded.

Put Option- The right but not the obligation to sell a futures contract at a specified price within a specified time window. If the futures contract price declines, put options increase in value.

Call Option- The right but not the obligation to buy a futures contract at a specified price within a specified time window. If the futures contract price increases, call options increase in value.

RMA- Risk Management Agency, the division of USDA that manages the DRP program.

FMMO- Federal Milk Marketing Orders establish certain provisions under which dairy processors purchase fresh milk from dairy farmers supplying a marketing area.

Introduction

DRP is a federally subsidized revenue guarantee insurance program for dairy producers. It is a risk-management tool to minimize the impact of milk price declines on revenue. DRP also covers declines in milk yield in your pooled region caused by natural occurrences. DRP uses the CME futures market to set revenue guarantees, in quarter blocks, through USDA's RMA. This revenue guarantee locks in a milk price floor with a known risk and contract cost. If the announced milk price is above your contract price, your only expense is the known cost of that contract.

DRP can be a useful tool to help manage milk price risk. One of the challenges with DRP insurance is that it uses CME milk futures, which change daily, to set your coverage. Milk futures also tend to trade on a downhill gradient with the most active trading reaching out only about the first six months of the 24 months that are available. DRP insurance is offered through many RMA insurance providers.



One challenge of DPR coverage is that it does not provide good protection from a negative Producer Price Differential (PPD). Class III price may be high, but due to milk price formulas and FMMO pooling, the actual producer pay price may be below the Class III price and not trigger a DRP payment. Since coverage is based on CME prices and not actual milk price, it does not cover negative PPD.

Having a relationship with a provider before the day you wish to purchase a contract is very important. The purchase window for a contract is typically between 4:00 pm and 9:00 am Central time, while futures markets are closed. Contracts are offered per quarter, for up to the next five quarters.

DRP Decisions and Coverage Selection

- 1) **Who to use as your DRP insurance provider:** Many RMA insurance companies sell DRP insurance. Some providers offer online coverage quote tools with daily emails providing current quarterly futures price, contract milk price, and trigger milk price information to help producers decide when to purchase coverage. RMA provides an agent locator tool at <https://www.rma.usda.gov/Information-Tools/Agent-Locator-Page>
- 2) **Level of coverage to purchase:** Producers can choose coverage, in 5% increments, between 80 and 95% of milk price futures quotes as the trigger price. The higher the coverage percentage, the closer the trigger price is to current futures price, increasing premium cost per hundredweight for the contract. The higher the percentage of coverage, the lower the premium subsidy percentage.

Coverage, %	80	85	90	95
Premium Subsidy, %	55	49	44	44

- 3) **Amount of milk to cover in a contract:** Not all milk for a quarter must be covered by the same contract. The same milk production cannot be covered by more than one contract, but multiple contracts for the same quarter can be purchased, each covering a portion of that quarter’s production. Contracts can be purchased at multiple times for a different portion of each quarter’s milk production.

The farmer is obligated to produce at least 85% of the covered milk volume if Class III or IV coverage is chosen, or 90% of components covered if fat and protein coverages are chosen. When milk actually marketed during the quarter is below 85% of the declared covered milk production for the quarter, the amount of milk covered will be determined by pounds of milk marketed for the quarter divided by 0.85. A farm does not have to prove why their milk production declined. Individual farm production declines do not trigger indemnity payments only reducing the amount of milk covered by the contract if the 85 or 90% of covered volume is not met (see Example 1).

- 4) **Quarter of coverage/when to purchase:** Coverage is available by calendar quarter. Markets change daily and contract prices are determined after the market closes. The time window to purchase a contract is typically between 4:00 pm and 10:00 am Eastern time. At any time, sales may be available for up to five quarters. Premiums are generally more expensive for farther out quarters because of greater uncertainty in the market. Sales close 15 days before the end of the quarter and are not available if there is not sufficient futures trading to create an average. At times, some quarters may not have all contract options available due to limited trading that day.
- 5) **Type of coverage:**
Class III, Class IV, or Component Blend (Fat and Protein):
 Each Federal order prices milk slightly differently. Some use component pricing, while others use fat and Class III skim pricing. The final FMMO price received by dairy producers in a Federal order is based on how milk is utilized in that order, or the percentage of each class, one through four, sold in that order. This is the blend price. To better manage risk, you can choose the market-based coverage option that best matches how milk on your farm is priced. Class I milk is not traded but is a calculated price based on the average advanced Class III and Class IV skim milk price plus 74 cents, plus the advanced fat price.

Class III and Class IV milk do not always move together. As a risk management strategy, using both classes can help manage farm price risk. Since 2000, Class IV milk value has exceeded Class III value 40% of the time, creating even more pricing uncertainty.

Component blend pricing is also available allowing producers to choose the fat and protein component value that best matches the milk that they sell. This option is especially attractive for high component herds.

Using multiple contracts and a blend of all three coverage options may be the best risk management strategy.

For example, if a herd with 3.55% protein and 4.55% fat compares protected price Class III coverage to component coverage at 95%, Class III may only be \$16.25/cwt, while the component-based coverage would provide \$19.80/cwt coverage based on the components produced. Keep in mind, Class III prices and component prices are based on the prices traded on the CME. Class III price may move independent of components. Using both allowances may allow you to manage risk more effectively. (Detailed Example #2 below)

- 6) **Protection factor:** This can be thought of as your average producer price differential and basis. The protection factor is a multiplier from 1 to 1.5, available in 0.05 increments. The protection factor does not change the trigger price, but it does increase the final revenue guarantee and cost of the premium (see Example 3 below).
- 7) **When to pull the trigger on purchasing a contract**
Deciding at what market price to purchase a contract is based on each farm's unique financial situation. The first step of any marketing plan when using the futures market is knowing your cost of production and farm basis. Basis is the difference between CME class and component prices and the price you are paid. For the sake of DRP, the basis between the chosen class or component coverage and your farm gate price is important. This will allow you to know the DRP coverage level that will equal breakeven. The two most common strategies are to start purchasing contracts once the futures price reaches your farm's break-even to avoid losses or to lock in profits. The other option is to purchase a contract even when prices are below breakeven to protect the farm from even lower prices.
- 8) **Premium payments**
Premiums are due at the end of the insured quarter.

Notice of loss

Producers do not have to track markets to determine if prices were below the trigger price. They will receive a Notice of Probable Loss from RMA approximately 10 days after all DRP data for the quarter insured has been released. If a possible loss is determined for your region and coverage trigger price selected, you will be notified. You will then have 60 days to provide the milk production worksheet and milk marketing records from your milk processor to the RMA.

DRP versus forward contracting

Forward contracting is an agreement between the milk buyer and the dairy farm. With a forward contract, a farm agrees to sell a stated quantity of milk, during a given period in the future, for a set price. All the milk under the contract is sold at the given price minus milk handling fees, such as hauling, promotion, and member fees. Regardless of whether the announced FMMO milk price is above or below the contracted price, the dairy farmer will receive the contracted price. Forward contracting is only available for producers who sell to handlers of Class II, III, or IV milk.

Producers with a DRP contract have set a minimum price for their milk and will receive the milk price announced by the FMMO. When the FMMO milk price is below the contract trigger price, farmers will also receive a DRP payment. The producer pays the DRP premium whether the announced price is higher or lower but retains the opportunity to benefit from market price increases using DRP that are not available with forward contracting. If available to you, forward contracting at a price above breakeven that meets your cash flow needs is a wise business decision. Producers may participate in both forward contracting and DRP.

DRP versus futures and options

A futures contract is for 200,000 lb or 2,000 cwt of milk (for one month), while DRP contracts are available to match the amount of milk a farm may sell in the covered quarter. A herd milking 80 cows would need to produce more than 83 lb/cow/day to fill one futures contract.

Futures:

Milk class and component futures are traded on the CME. A futures contract involves a commitment to either accept or deliver a specified quantity and quality of a commodity at a specified time and at a specified place of delivery. No commodity changes hands until the contract matures; most dairy contracts are cash settled. While using futures contracts does not cost much up front, if the contract's price trades higher than your contract, you will be required to pay

a margin call within 24 hours. If the market trades lower than your contract's price, your contract gains value. Farms must have cash available to meet margin calls when using futures contracts.

Options:

Another component of futures contracts are options (puts and calls). These tools give you the option to purchase or sell a futures contract. Producers often sell their options to others before the contract expires.

DRP is similar to buying a put option with a strike price close to the current futures price, which gains value if/when futures prices decline. The cost of the DRP contract is similar to a put premium but is subsidized by USDA. Unlike a put option, where the premium is due when the option is purchased, DRP is billed at the start of the quarter with premiums due at the end of the covered quarter when indemnities are determined.

When using DRP, producers know their premium risk at the time of purchase and do not have to be concerned about margin calls like they do with dairy futures. When using futures, producers are at risk of large margin calls when price moves in the opposite direction of their contract. If price goes up, they cannot capture any of the upside potential. Instead, they will have to pay a margin call if price increases. This moves their gains from the cash market, their milk check, into the futures market to pay the margin call. They still receive the price they locked in with the futures contract but no gains. Futures markets are traded by month, but DRP is only available by quarter. DRP is similar to buying a put option; they both gain value as milk price declines. DRP can be purchased in smaller contracts, is a quarterly average, and has a subsidized premium. DRP is similar to a put option but is somewhat different.

DRP versus Dairy Margin Coverage

Dairy margin coverage (DMC) provides dairy operations with risk management coverage that pays when the difference (the margin) between the national all milk price and the average cost of feed falls below a margin selected by program participants. Participants can choose margin coverage levels between \$4.00 and 9.50/cwt. DMC is a two-tiered program with coverage of base production over 5 million pounds of milk costing more than coverage for the first 5 million pounds. Base production is determined from a farm's highest production during 2011, 2012, or 2013. Farms can then select coverage between 5 and 95% for this historic production.

DRP and DMC are federally subsidized and allow producers to participate in both programs. DRP protects participants from a decline in price, making it most useful when futures prices are above breakeven. It can also be used to protect against low prices falling even further. DMC benefits producers when prices are low. DMC must be decided for the entire year in the last quarter of the previous year, unlike DRP, which allows producers to make coverage decisions based on expected milk price and production each quarter. DMC is based on production history that may be very different from your current production, limiting coverage if you have expanded the herd. DRP uses current production, allowing you to cover all the milk you are currently producing.



Summary

DRP is one of many tools for a producer to manage risk. Before using any risk management tool, it is important to understand your cost of production and market volatility. Using DRP or any risk management tool successfully to improve your operation's bottom line requires an understanding of milk pricing, milk markets and committing time to watch how class and component prices are moving. Then determine where your farm's greatest market risk is and where protection will benefit the operation. Using these tools requires patience. It is recommended to start slowly, protecting only a portion of your milk at a time.

Additional Resources

Dairy Revenue Protection Q&A from USA RMA.

<https://www.rma.usda.gov/News-Room/Frequently-Asked-Questions/Dairy-Revenue-Protection>

Dairy Revenue Protection, Risk Management Agency Fast Sheet, Published April 2019.

[https://www.rma.usda.gov/en/Fact-Sheets/National-Fact-Sheets/Dairy-Revenue-Protection#:~:text=Dairy%20Revenue%20Protection%20\(Dairy%20DRP,elected%20by%20the%20dairy%20producer.](https://www.rma.usda.gov/en/Fact-Sheets/National-Fact-Sheets/Dairy-Revenue-Protection#:~:text=Dairy%20Revenue%20Protection%20(Dairy%20DRP,elected%20by%20the%20dairy%20producer.)

Appendix of Examples

Example 1

Decreased milk production below contracted amount

Class coverage based on pounds:

1,450,000 lb of milk are covered but due to heat stress only 1,200,000 lb (82.7%) of declared milk are produced.

Since the produced milk is less than 85% of covered production required, the amount of milk covered will be reduced. Coverage will be reduced based on actual milk production.

$(1,200,000 \text{ lb produced} / 0.85) = 1,411,765 \text{ lb of milk covered}$

Milk production used for indemnity calculation will be more than what was produced, even though it is still less than the covered amount.

Component coverage was chosen, and heat stress caused fat to drop to 3.3%, which is below the declared 3.8% fat. This decline represents 86.8% of declared fat which is less than the required 90%. The actual milk fat coverage will be reduced to $(3.3/0.9) = 3.67\%$ fat.

Example 2

DRP Example Comparing Class III Coverage to Component Coverage:

Assumptions:

- A contract for fourth quarter 2020 coverage is purchased.
- Class III milk price with 95% coverage is chosen for 0.5 million pounds of milk.
- The current Class III futures price is \$17.11/cwt. At 95% coverage, the trigger/protected Class III milk price is \$16.25/cwt.
- You decide to cover an additional 0.5 million pounds with a separate contract using the component-based coverage matching your herd components of 3.55% protein and 4.55% fat. Milk fat price is \$1.8984/lb, protein price is \$3.2136/lb for a total of \$20.84/cwt. At 95% coverage, the trigger/protected price is \$19.80/cwt.
- Protection factor is 1.5 for both policies.
- At the end of the fourth quarter, Class III milk price is \$16.15/cwt, triggering a DRP payment for the Class III policy.
- At the end of the quarter, the fat price is \$1.8213/lb and protein price drops to \$2.5387/lb, creating a final price of \$18.09/cwt.

Payment from Class III coverage:

Revenue guarantee: \$121,875

= [5,000 (cwt covered) x \$16.25 (trigger price) x 1.5 (protection factor)]

Minus

Actual Revenue: \$121,125

=[\$16.15 (Class III milk price) x 5,000 (cwt covered) x 1.5 (protection factor)]- \$3,050 (producer premium)

= Producer payment \$-2,300 (while a payment was triggered, it was not enough to cover the premium cost)

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Payment from Component coverage with 4.55% Fat and 3.55% Protein:

Revenue guarantee: \$148,500
 = [5,000 (cwt covered) x \$19.80 (trigger price) x 1.5 (protection factor)]

Minus

Actual Revenue: \$135,675
 = [\$18.09 (component milk price) x 5,000 (cwt covered) x 1.5 (protection factor)] - \$4,050 (producer premium)

= Producer payment \$8,775

While this example shows a strong benefit to component coverage over Class III coverage, this is not always the case. Component and Class III or Class IV prices do not always move together or at the same magnitude and may influence other class pricing and the PPD. When calculating Class I milk price, both Class III and Class IV skim milk prices are used along with butter price. Your risk management strategy may benefit from using all three.

For example, a comparison of first quarter 2021 milk futures in early June and late July is presented in the table below. Using these two times to compare purchase coverage, all prices but protein declined from the June purchase period compared to the July purchase period for the same quarter. Since your milk price may be based on each of these factors, using a mix of the four for coverage may help offset potential risk.

Future timing	Class III (\$/cwt)	Class IV (\$/cwt)	Fat (\$/lb)	Protein (\$/lb)
Early June	\$16.22	\$16.04	\$2.2073	\$2.5543
Late July	\$16.17	\$14.95	\$1.9764	\$2.8393
Percent change	-0.3%	-6.8%	-10.5%	+11%

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Example 3

DRP Example Comparing Protection Factor:

Assumptions

- A contract for third quarter 2020 coverage is purchased.
- Class III milk price with 95% coverage is chosen.
- You choose to cover 1 million pounds of your 3rd quarter production.
- The current Class III futures price is \$17.40/cwt. At 95% coverage, the trigger/protected Class III milk price is \$16.53/cwt.
- You must then decide on the protection factor between 1 and 1.5. The producer premium ranges from \$0.27- 0.40/cwt based on your production factor choice.
- At the end of the third quarter, Class III milk price average is \$16.05/cwt, triggering a DRP payment.

Payment results protection factor changed:

Payment at protection factor 1:

Revenue guarantee: \$165,300
 = [10,000 (cwt covered) x \$16.53 (trigger price x 1 (Protection factor))]

Minus

Actual Revenue: \$160,500
 = [\$16.05 (Class III milk price) x 10,000 (cwt covered) x 1 (Protection factor)] - \$2,700 (Producer premium)

= Producer payment \$2,100

Payment at protection factor 1.5:

Revenue guarantee: \$247,950
 = [10,000 (cwt covered) x \$16.53 (trigger price) x 1.5 (Protection factor)]

Minus

Actual Revenue: \$240,750
 = [\$16.05 (Class III milk price) x 10,000 (cwt covered) x 1.5 (Protection factor)] - \$4,000 (Producer premium)

= Producer payment \$3,200

In this example even with the higher premium cost, the producer indemnity payment increased \$1,100 when moving from a protection factor of 1 to 1.5. The producer premium for a million pounds of milk was \$2,700 with a protection factor of 1 but increased to \$4,000 when the protection factor was increased to 1.5. If there had not been a payment, the higher protection factor would have increased farm expenses by \$1,300, or \$0.13/cwt.