

Dairy-Revenue Protection Risk Management to Protect Component Values

Jersey producers will have a new risk management tool that will more fully protect the value of their high component milk if a new insurance product being developed by the American Farm Bureau Federation (AFBF) and its subsidiary American Farm Bureau Insurance Services Inc. (AFBIS) becomes reality. For

producers of high component milk, risk management tools and safety net programs have never fully accounted for their milk's higher-than-standard butterfat and protein content. The MILC program was based off the Class I price, and Federal Milk Market Order prices assume component levels of 3.5% butterfat and 2.99% true protein. The Margin Protection Program (MPP) uses USDA's all milk price, which is based on the national average of butterfat and protein in producer milk. While those component averages are higher than 3.5% and 2.99%, they are still well below average Jersey milk. Producers opting to manage risk by using Class III and Class IV futures and options remain limited to prices that are based on milk that is 3.5% butterfat and 2.99% true protein.

The concept of AFBF's Dairy Revenue Protection (Dairy-RP) comes from crop insurance programs that offer protection to growers from unexpected declines in commodity yields and/or prices. As the name implies, Dairy-RP will insure expected revenue, which is the combination of expected milk price multiplied by

expected milk production. Being developed in conjunction with the Federal Crop Insurance Corporation (FCIC), policies would be sold by USDA-approved insurance providers. Just as with crop insurance, USDA would subsidize the insurance premiums. Premiums will be based on market-implied

risk and priced using actuarially appropriate methods. Insurance contracts will be available in segments of calendar quarters (three month blocks), and can be purchased for up to the next five quarters.

To participate in Dairy-RP, a producer only has four decisions to make.

The first decision is whether to base the insured milk price on Class III and Class IV CME futures prices or on individual component prices for butterfat and protein that are derived from CME futures. Producers opting to insure their milk price

will select a ratio of Class III and Class IV that totals 100, for example 65% Class III and 35% Class IV. Producers opting to insure their component prices will need to choose their component test levels, for example 4.7% butterfat and 3.5% protein.

The second decision is how many pounds of milk or pounds of components to insure. Insuring pounds of milk is straight forward. The producer simply needs to select a desired volume, for example 4,000,000 pounds. To insure pounds of components, the producer needs to assign butterfat and protein test levels to their milk, for example 4,000,000 pounds of milk that is 4.7% butterfat and 3.5% protein.

Table 1 Guarantee Calculations			
Quarterly Average CME Milk Futures Value		Farmers Choice % of Component	Calculated Price
Class III	\$ 17.00	75.0%	\$ 12.75000
Class IV	\$ 16.25	25.0%	\$ 4.06250
Price Guarantee/CWT			\$ 16.81250
Farmers Choice Milk Covered/Lbs		Price Guarantee/CWT	Total Revenue Guarantee
4,000,000		\$ 16.81	\$ 672,500.00
Coverage Level			90%
Producer's Revenue Guarantee			\$ 605,250.00
Realized Revenue Calculations			
Quarterly Announced FMMO Class Values		Farmers Choice % of Component	Calculated Price
Class III	\$ 14.45	75.0%	\$ 10.83750
Class IV	\$ 13.81	25.0%	\$ 3.45312
Price Realized/CWT			\$ 14.29
State-Indexed Actual Production/Lbs		Actual Price/ CWT	Realized Revenue
3,920,000		\$ 14.29	\$ 560,192.00
This is an example of realized prices and only applies to 1 quarter. In this example, the producer would not have to pay all 5 quarters to get just one coverage.			

Indemnity Calculations	
Prod Rev Guarantee	\$ 605,250.00
Realized Prod Revenue	\$ 560,192.00
Indemnity	\$ 45,058.00

The decisions of which price and how many pounds to insure will determine the producer’s expected revenue for the quarter (expected price x pounds insured = expected revenue). The next decision to be made is how much of the expected revenue to insure. Producers can opt to insure from 70% to 90% of their expected revenue. Essentially, at this step producers are selecting their deductible. Premiums to insure 90% of expected revenue will be higher than premiums to insure 70% of expected revenue.

The final decision is which calendar quarters to insure. Policies will be available for up to the next five calendar quarters. Producers can opt to insure any or all of the five quarters available. Because CME futures prices vary daily, Dairy-RP premiums will fluctuate daily in concert with the futures markets.

Tables 1 and 2 demonstrate the determination whether indemnity payments are due. At the end of each insured quarter, the producer’s realized revenue will be calculated and compared to insured revenue. The first step to calculating realized revenue is to adjust the producer’s volume of insured milk or components to his or her state’s indexed production. For example, assume a producer insured 4,000,000 pounds of milk and the state’s expected production was 5,000 pounds of milk per cow for that quarter. However, if the state’s actual production turned out to be 4,900 pounds per cow, a 2% decline, the producer’s insured volume of milk would be reduced by 2% to 3,920,000 pounds. Then the state-indexed pounds of milk (or components) are multiplied by the announced Class III and IV prices (or the announced component prices) to determine the producer’s realized revenue.

For Jersey producers, the difference between insuring Class III and Class IV milk values compared to insuring component values can be significant. Table 1 demonstrates insuring 90% of the expected revenue from 4,000,000 pounds of milk using a blend of 75% Class III and 25% Class IV milk when the futures prices were \$17.00 and \$16.25, respectively. If at the end of the quarter the state-indexed production fell by 2% (80,000 pounds) and the Class III and IV prices declined

to \$14.45 and \$13.81, respectively, the producer would receive an indemnity payment of just over \$45,000.

Table 2 demonstrates buying the same insurance for 4,000,000 pounds of milk that is 4.7% butterfat and 3.5% protein. Given the same 2% decline in production and relative decline in component prices, the producer would realize an indemnity of nearly \$57,000, a gain of nearly \$12,000 over using Class III and IV. The difference is because all of the butterfat (4.7%) and all the protein (3.5%) could be insured instead of being locked

into Class III and IV default component levels of 3.5% butterfat and 2.99% protein.

More detailed information about Dairy-RP along with a nine-question producer survey can be found at the following web site.

<https://www.farmbureauofillscropinsurance.com/dairy-risk-survey/>

Given that Dairy-RP will offer a feature unique from other risk management programs, that being the option to insure pounds of components, NAJ will continue to support its development and eventual introduction into the marketplace. Jersey producers should be encouraged that Dairy-RP recognizes that not all milk is created equal.

Table 2 Guarantee Calculations			
Quarterly Average CME Component Value/lb.		Farmers Choice % of Component	Calculated Price
Butterfat	\$ 2.50	4.7%	\$ 11.750
Protein	\$ 1.70	3.5%	\$ 5.950
Solid % Fixed			
Solids	\$ 0.31	5.7%	\$ 1.767
Price Guarantee/CWT			\$ 19.467
Farmers Choice Milk Covered/Lbs.		Price Guarantee/CWT	Total Revenue Guarantee
4,000,000		\$ 19.47	\$ 778,800.00
Coverage Level			90%
Producer's Revenue Guarantee			\$ 700,920.00
Realized Revenue Calculations			
Quarterly Announced FMMO Component Value/lb.		Farmers Choice % of Component	Calculated Price
Butterfat	\$ 2.12	4.7%	\$ 9.964
Protein	\$ 1.44	3.5%	\$ 5.040
Solid % Fixed			
Solids	\$ 0.26	5.7%	\$ 1.428
Actual Price/CWT			\$ 16.432
State-Indexed Actual Production/Lbs.		Actual Price/ CWT	Realized Revenue
3,920,000		\$ 16.43	\$ 644,056.00
<small>This is an example of realized prices and only applies to 1 quarter. In this example, the producer would not have to pay all 5 quarters to get just one coverage.</small>			

Indemnity Calculations	
Prod Rev Guarantee	\$ 700,920.00
Realized Prod Revenue	\$ 644,056.00
Indemnity	\$ 56,864.00

NAJ Milk & Component Outlook - July 2017 Jersey Price Comparisons

<u>JULY '17 STATISTICAL BLEND PRICE</u>		<u>JULY '17 MONTHLY MILK VOLUME</u> (Million #)		<u>JULY '17 JERSEY REGULATED BLEND PRICE</u>	
Northeast (Boston)	\$18.01	Northeast (Boston)	2,306	Northeast (Boston)	\$21.94
Appalachian (Charlotte)	\$19.35	Appalachian (Charlotte)	470	Appalachian (Charlotte)	\$22.70
Southeast (Atlanta)	\$19.64	Southeast (Atlanta)	422	Southeast (Atlanta)	\$24.70
Florida (Tampa)	\$21.45	Florida (Tampa)	197	Florida (Tampa)	\$24.70
Midwest (Cleveland)	\$17.01	Midwest (Cleveland)	1,712	Midwest (Cleveland)	\$20.99
Upper Midwest (Chicago)	\$15.80	Upper Midwest (Chicago)	3,020	Upper Midwest (Chicago)	\$19.78
Central (Kansas City)	\$16.52	Central (Kansas City)	1,436	Central (Kansas City)	\$20.48
Southwest (Dallas)	\$17.29	Southwest (Dallas)	1,172	Southwest (Dallas)	\$21.16
Arizona (Phoenix)	\$17.02	Arizona (Phoenix)	427	Arizona (Phoenix)	\$20.56
Pacific Northwest (Seattle)	\$16.60	Pacific Northwest (Seattle)	759	Pacific Northwest (Seattle)	\$19.85
ALL FMMO MARKET AVERAGE	\$17.87	ALL FMMO MARKET TOTAL	11,921	ALL FMMO MARKET AVERAGE	\$21.69
California 4b (Cheese Milk)	\$15.29			California 4b (Cheese Milk)	\$19.43
California Overbase	\$15.42			California Overbase	\$19.48
<i>Prices reflect Federal Order minimum blend prices for city shown.</i>		<i>Total Grade A milk volume sold under FMMO during month.</i>		<i>Prices reflect FMMO minimum prices at Jersey component values.</i>	
<u>JULY '17 JERSEY BLEND WITH ESTIMATED PROTEIN OR CHEESE YIELD PREMIUMS</u>		<u>JULY '17 DOLLAR DIFFERENCE: JERSEY MILK WITH PREMIUMS VS. STATISTICAL BLEND PRICE</u>		<u>JULY '17 PERCENT DIFFERENCE: JERSEY MILK WITH PREMIUMS VS. STATISTICAL BLEND PRICE</u>	
Northeast (Boston)	\$22.13	Northeast (Boston)	\$4.12	Northeast (Boston)	22.9%
Appalachian (Charlotte) (includes protein prem.)	\$23.00	Appalachian (Charlotte)	\$3.65	Appalachian (Charlotte)	18.8%
Southeast (Atlanta)	\$24.70	Southeast (Atlanta)	\$3.25	Southeast (Atlanta)	15.2%
Florida (Tampa)	\$24.70	Florida (Tampa)	\$3.25	Florida (Tampa)	15.2%
Midwest (Cleveland) (includes protein premium)	\$21.48	Midwest (Cleveland)	\$4.47	Midwest (Cleveland)	26.3%
Upper Midwest (Chicago) (includes cy premium)	\$19.97	Upper Midwest (Chicago)	\$4.17	Upper Midwest (Chicago)	26.4%
Central (Kansas City)	\$20.48	Central (Kansas City)	\$3.96	Central (Kansas City)	24.0%
Southwest (Dallas)	\$21.16	Southwest (Dallas)	\$3.87	Southwest (Dallas)	22.4%
Arizona (Phoenix) (includes protein)	\$20.84	Arizona (Phoenix)	\$3.82	Arizona (Phoenix)	22.4%
Pacific Northwest (Seattle)	\$19.85	Pacific Northwest (Seattle)	\$3.25	Pacific Northwest (Seattle)	19.6%
ALL FMMO MARKET AVERAGE	\$21.83	ALL FMMO MARKET AVERAGE	\$3.78	ALL FMMO MARKET AVERAGE	21.3%
California 4b (Includes CY Premium)	\$20.53	California 4b (Includes CY Premium)	\$5.25	California 4b (Includes CY Premium)	34.3%
California Overbase	\$20.58	California Overbase	\$5.17	California Overbase	33.5%
<i>Includes a protein premium of \$0.05 for every 0.01% increase in protein over the market average.</i>		<i>Prices reflect difference between Jersey price with premiums, and the statistical blend price.</i>		<i>Percent difference in Jersey price with premiums, over the statistical blend price.</i>	
<u>ESTIMATED JERSEY MILK COMPOSITION</u>		<u>REGULATED MILK PRICES</u>		<u>AVERAGE JERSEY PRICE ADJUSTMENT PER CWT:</u>	
	<u>Jul-17</u>		<u>Jul-17</u>		<u>Jul-17</u>
Butterfat	4.80	FMMO Milkfat	\$ 2.9456	FMMO Milkfat Adjustment	\$3.26
TRUE Protein	3.65	FMMO True Protein	\$ 1.2248	FMMO True Protein Adjustment	\$0.71
Other Solids	5.73	FMMO Other Solids	\$ 0.2599	FMMO Other Solids Adjustment	(\$0.00)
Solids Not Fat (SNF)	9.38	CA 4b (Cheese Milk) Milkfat	\$ 2.8812	CA 4b (Cheese Milk) Milkfat	\$3.74
Cheese Yield (90% Fat Recovery, 38% Moisture)	12.62	CA 4b (Cheese Milk) SNF	\$ 0.5978	CA 4b (Cheese Milk) SNF	\$0.42
		CA Overbase Milkfat	\$ 2.7920	CA Overbase Milkfat	\$3.62
CME Block Cheese Price	\$ 1.66	CA Overbase SNF	\$ 0.6490	CA Overbase SNF	\$0.44

NAJ Milk & Component Outlook - 2017 Prices through July

2017 AVERAGE STATISTICAL BLEND PRICE FOR EACH FEDERAL ORDER		2017 MILK VOLUME (Million #)		2017 AVERAGE JERSEY REGULATED BLEND PRICE	
Northeast (Boston)	\$17.38	Northeast (Boston)	16,259	Northeast (Boston)	\$21.29
Appalachian (Charlotte)	\$18.98	Appalachian (Charlotte)	3,340	Appalachian (Charlotte)	\$22.21
Southeast (Atlanta)	\$18.97	Southeast (Atlanta)	3,316	Southeast (Atlanta)	\$22.27
Florida (Tampa)	\$20.89	Florida (Tampa)	1,521	Florida (Tampa)	\$24.04
Mideast (Cleveland)	\$16.52	Mideast (Cleveland)	12,275	Mideast (Cleveland)	\$20.39
Upper Midwest (Chicago)	\$16.15	Upper Midwest (Chicago)	19,028	Upper Midwest (Chicago)	\$20.14
Central (Kansas City)	\$16.31	Central (Kansas City)	9,628	Central (Kansas City)	\$20.22
Southwest (Dallas)	\$17.14	Southwest (Dallas)	7,899	Southwest (Dallas)	\$20.78
Arizona (Phoenix)	\$16.36	Arizona (Phoenix)	3,059	Arizona (Phoenix)	\$19.62
<u>Pacific Northwest (Seattle)</u>	<u>\$16.19</u>	<u>Pacific Northwest (Seattle)</u>	<u>4,393</u>	<u>Pacific Northwest (Seattle)</u>	<u>\$19.53</u>
ALL FMMO MARKET AVERAGE	\$17.49	ALL FMMO MARKET TOTAL	80,717	ALL FMMO MARKET AVERAGE	\$21.05
California 4b (Cheese Milk)	\$15.14			California 4b (Cheese Milk)	\$19.23
California Overbase	\$15.24			California Overbase	\$19.31
<i>Prices reflect Federal Order minimum blend prices for city shown.</i>		<i>Total Grade A milk volume sold under FMMO.</i>		<i>Prices reflect FMMO minimum prices at Jersey component values.</i>	
2017 AVERAGE JERSEY BLEND WITH ESTIMATED PROTEIN OR CHEESE YIELD PREMIUMS		2017 AVERAGE DOLLAR DIFFERENCE: JERSEY MILK WITH PREMIUMS VS. STATISTICAL BLEND PRICE		2017 AVERAGE PERCENT DIFFERENCE: JERSEY MILK WITH PREMIUMS VS. STATISTICAL BLEND PRICE	
Northeast (Boston)	\$21.51	Northeast (Boston)	\$4.13	Northeast (Boston)	23.7%
Appalachian (Charlotte) (includes protein prem.)	\$22.54	Appalachian (Charlotte)	\$3.23	Appalachian (Charlotte)	16.8%
Southeast (Atlanta)	\$22.27	Southeast (Atlanta)	\$3.02	Southeast (Atlanta)	15.7%
Florida (Tampa)	\$24.04	Florida (Tampa)	\$3.16	Florida (Tampa)	15.1%
Mideast (Cleveland) (includes protein premium)	\$20.96	Mideast (Cleveland)	\$4.43	Mideast (Cleveland)	26.8%
Upper Midwest (Chicago) (includes cy premium)	\$20.37	Upper Midwest (Chicago)	\$4.17	Upper Midwest (Chicago)	25.7%
Central (Kansas City)	\$20.22	Central (Kansas City)	\$3.89	Central (Kansas City)	23.8%
Southwest (Dallas)	\$20.78	Southwest (Dallas)	\$3.66	Southwest (Dallas)	21.4%
Arizona (Phoenix) (includes protein)	\$19.94	Arizona (Phoenix)	\$3.57	Arizona (Phoenix)	21.8%
<u>Pacific Northwest (Seattle)</u>	<u>\$19.53</u>	<u>Pacific Northwest (Seattle)</u>	<u>\$3.34</u>	<u>Pacific Northwest (Seattle)</u>	<u>20.7%</u>
ALL FMMO MARKET AVERAGE	\$21.22	ALL FMMO MARKET AVERAGE	\$3.66	ALL FMMO MARKET AVERAGE	21.2%
California 4b (Includes CY Premium)	\$20.48	California 4b (Includes CY Premium)	\$5.34	California 4b (Includes CY Premium)	35.3%
California Overbase	\$20.55	California Overbase	\$5.32	California Overbase	34.9%
<i>Includes a protein premium of \$0.05 for every 0.01% increase in protein over the market average.</i>		<i>Prices reflect difference between Jersey price with premiums, and the statistical blend price.</i>		<i>Percent difference in Jersey price with premiums, over the statistical blend price.</i>	
ESTIMATED JERSEY MILK COMPOSITION	2017	REGULATED MILK PRICES	2017	AVERAGE JERSEY PRICE ADJUSTMENT PER CWT:	2017
Butterfat	4.91	FMMO Milkfat	\$2.5415	FMMO Milkfat Adjustment	\$2.88
TRUE Protein	3.74	FMMO True Protein	\$1.8112	FMMO True Protein Adjustment	\$1.08
Other Solids	5.73	FMMO Other Solids	\$0.3000	FMMO Other Solids Adjustment	(\$0.01)
Solids Not Fat (SNF)	9.47	CA 4b (Cheese Milk) Milkfat	\$2.4950	CA 4b (Cheese Milk) Milkfat	\$3.52
Cheese Yield (90% Fat Recovery, 38% Moisture)	12.95	CA 4b (Cheese Milk) SNF	\$0.7365	CA 4b (Cheese Milk) SNF	\$0.58
		CA Overbase Milkfat	\$2.4691	CA Overbase Milkfat	\$3.49
CME Block Cheese Price	\$1.59	CA Overbase SNF	\$0.7579	CA Overbase SNF	\$0.58