FARM CREDIT EAST

Dairy Risk Management Applied

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APRIL 30TH, 2020 FARM CREDIT EAST/CROP GROWERS WEBINAR

Outline

- What's your Risk Profile?
- Types of Milk Price Risk Management (your tool box)
- Concepts in Milk Price Risk Management

Why Consider Milk Risk Management?

What's your risk profile ?

Basic Risk Factors

Debt per cow	Working capital per cow	Break-Even Milk Price

Definitions

- Working Capital = Current Assets minus Current Liabilities
- Break-Even Milk Price = Accrual Expenses without Depreciation + Family Living Expense + Scheduled Principal payments –Non-milk income

Risk Factors

Factor	Low Risk	Medium Risk	High Risk
Debt per cow	<$3,000	$4,000	>$5,000
Working Capital per cow	>$1,400	$900	<$500
Break-Even Milk price	<$17.00	$18.00	>$19.00

Definitions – Alternative Risk Factors

- EBITDA = *Net* Earnings Before Interest *Expense, Income* Taxes, Depreciation *and* Amortization
- Near Cash Per Cow = Cash + Deferred Milk + Prepaids + Available Credit – Accounts Payable – Operating Loan Balance
- Net Cost of Production = Accrual expenses including depreciation & Family Living Minus Non-milk income

Risk Factors - Alternative

Factor	Low Risk	Medium Risk	High Risk
Debt to EBITDA	<3	5	>7
Near Cash per Cow	>$1,200	$400	<$0
Net Cost of Production	<$16.50	$17.50	>$18.50

These Factors are Connected

The risk factors are generally associated with each other

- High Debt per cow usually low Working Capital per cow and High break-even
- Chicken or the egg: Debt leads to secondary effects on your balance sheet.

30 to 40% of Farms

- High Debt
- Low Working Capital (Near Cash)
- = HIGH RISK for market down turns

Types of milk price Risk management (Your Tool Box)

CME: Forward contracting

CME: Options (puts, calls, fences)

Government subsidized programs

- USDA: DMC
- Crop insurance: LGM
- Crop insurance: DRP

Subsidized Programs: Details

- DMC – Protects NASS IOFC in theory (margin).
  - $9.50 margin max –
- Crop Insurance: LGM - Protects Class III IOFC in theory (margin).
  - Last business Friday of each month.
- Crop Insurance: DRP – Class III, Class IV, combo, Components….not a margin product
  - Open most days the CME is open
  - Mimics a put option (Floor)

Milk Risk Management: Style

- DMC – Through USDA (NASS All Milk)
  - **Enroll once a year**
- Crop Insurance: LGM – Dairy (Class III)
  - **Once a month**
- Crop Insurance: DRP – (Class III, Class IV, combo, Comp)
  - Open most days the CME is open
  - Good if you **like to be constantly engaged with the market** to find your best deal

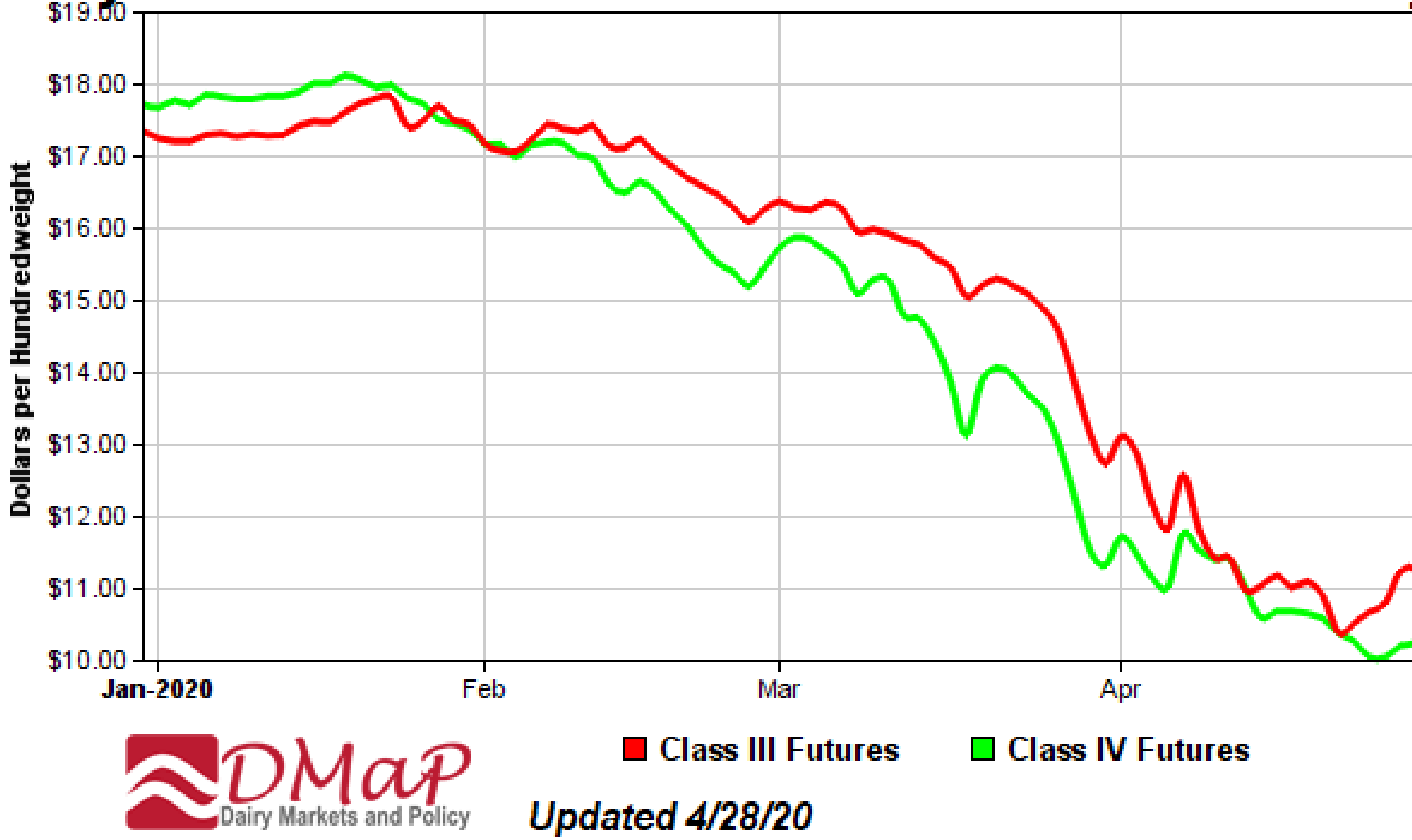
Premium differences:

USDA: DMC	Crop Insurance: LGM – Dairy	Crop Insurance: DRP
15 to 11 cents on Tier I # (5,000,000# per year)	15 to 30 cents; a wide variety depending on length and deductible.	Formerly, 8 to 35 cents. Recently, most quotes are in the mid-30 cent range.

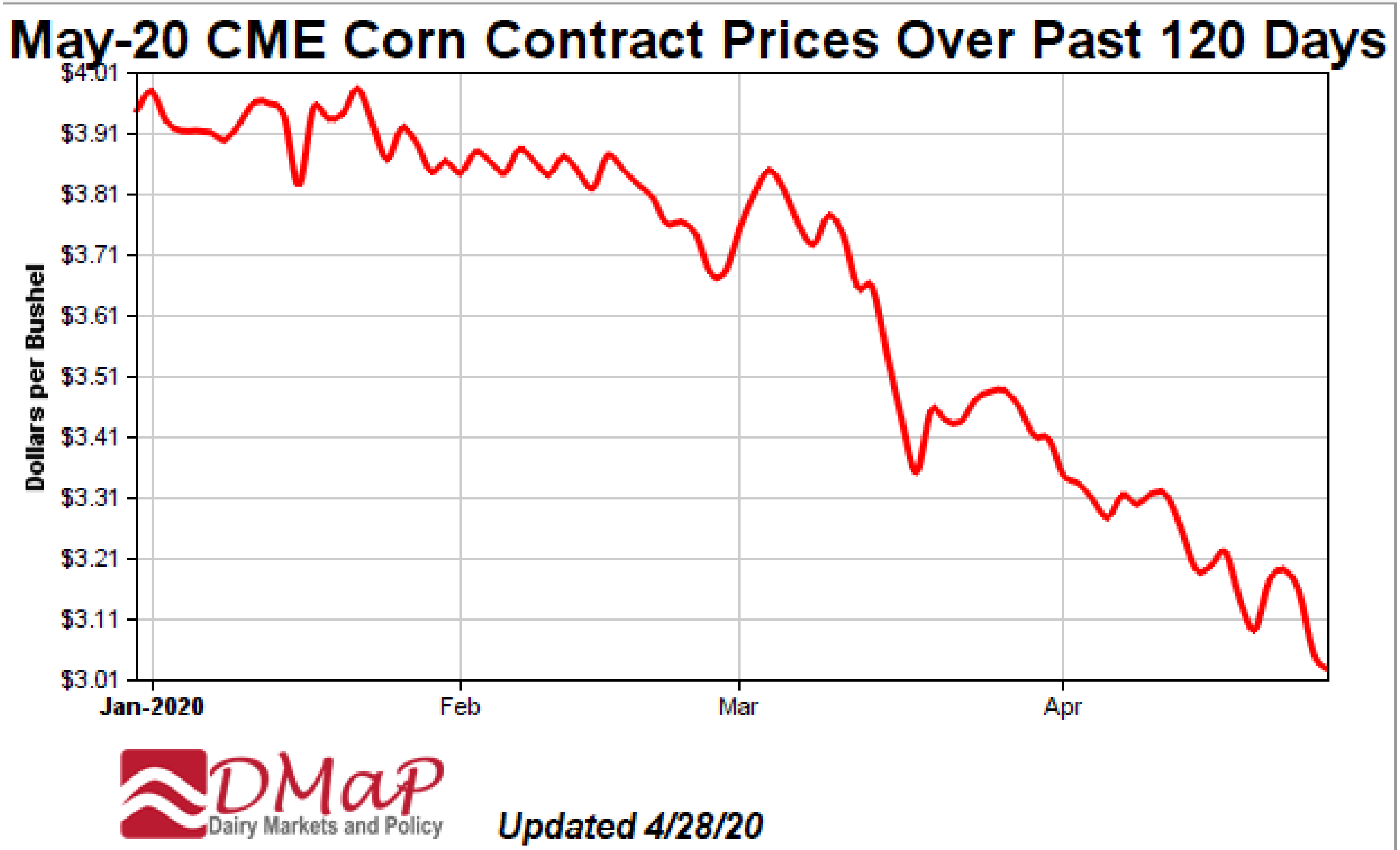
Margin Products

- LGM and DMC are built on similar foundation (Protect margin: Milk – Feed = Margin)
  - Only 13,077 dairy farmers signed up for DMC coverage 2020, which was 10,000 fewer than 2019
- Both: LGM & DMC will likely payout in 2020
- But with feed dropping at the same time as milk, margin program benefits won't be as powerful of a tool as a straight milk price floor such as DRP in 2020.

May-20 CME Milk Contract Prices Over Past 120 Days



Updated 4/28/20



May-20 CME Corn Contract Prices Over Past 120 Days
Dollars per Bushel
$4.01
$3.91
$3.81
$3.71
$3.61
$3.51
$3.41
$3.31
$3.21
$3.11
$3.01
Jan-2020
Feb
Mar
Apr
DMaP
Dairy Markets and Policy
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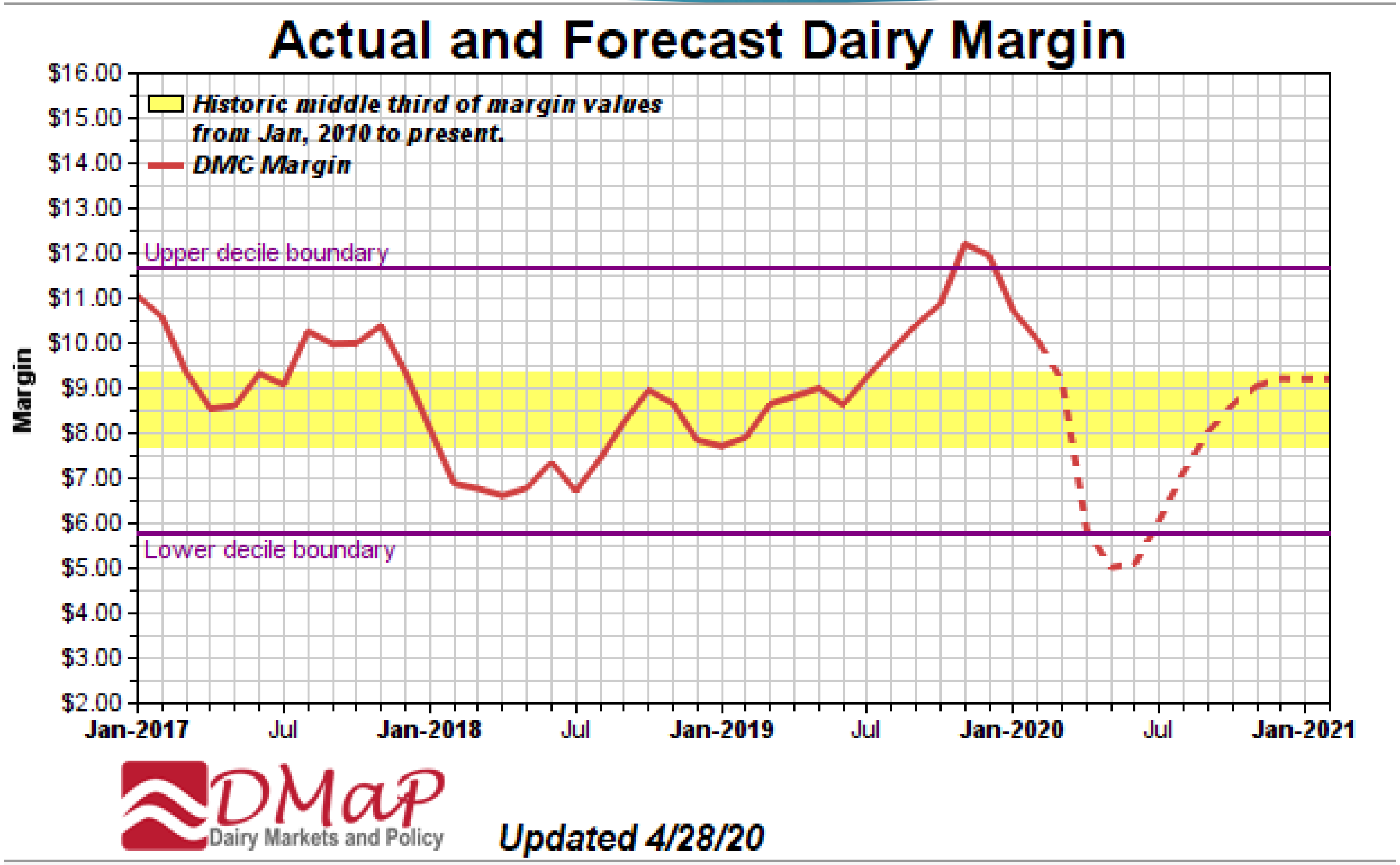
DMC projection
(https://dairymarkets.org/Tools/MILC-MPP.html)



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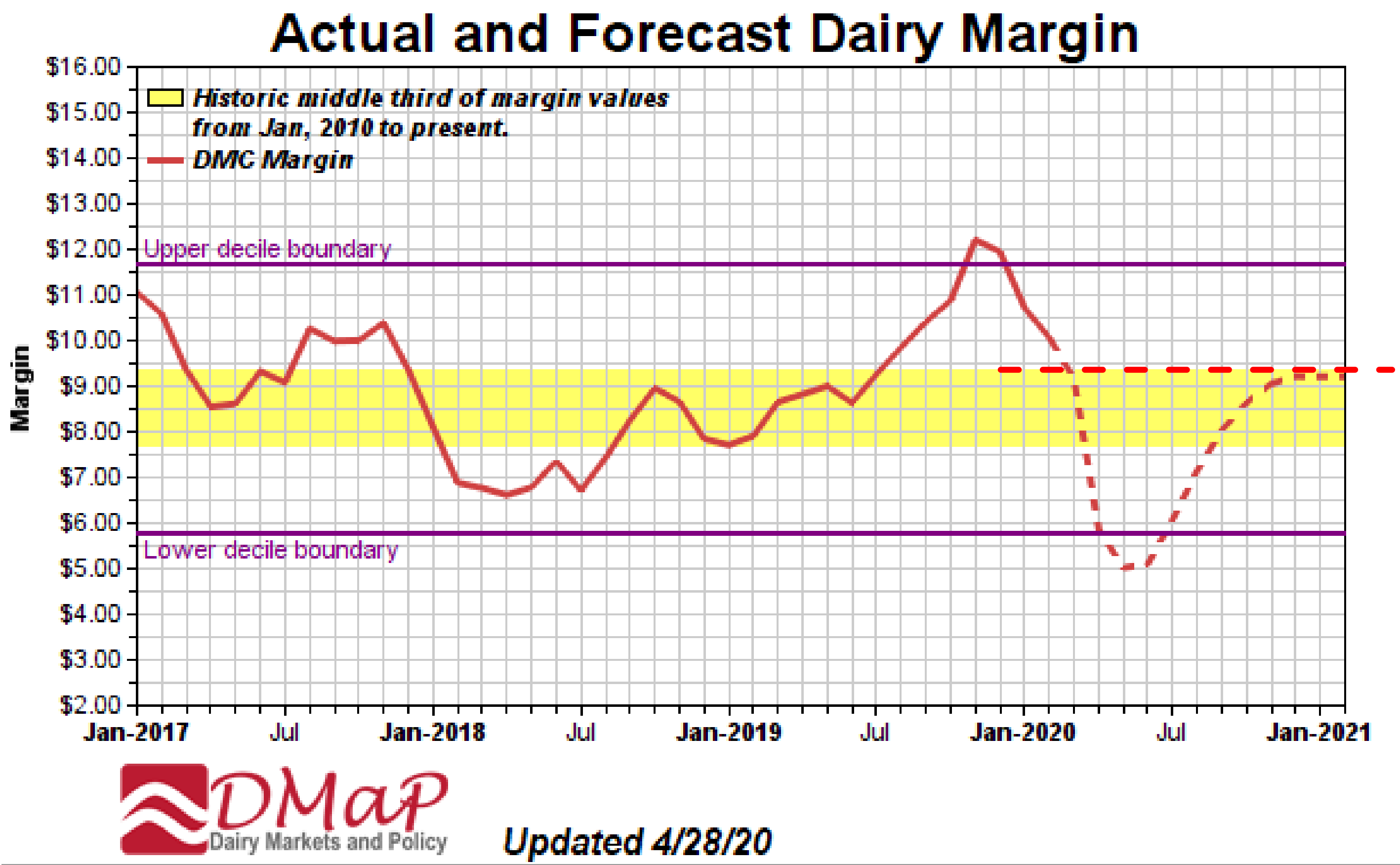
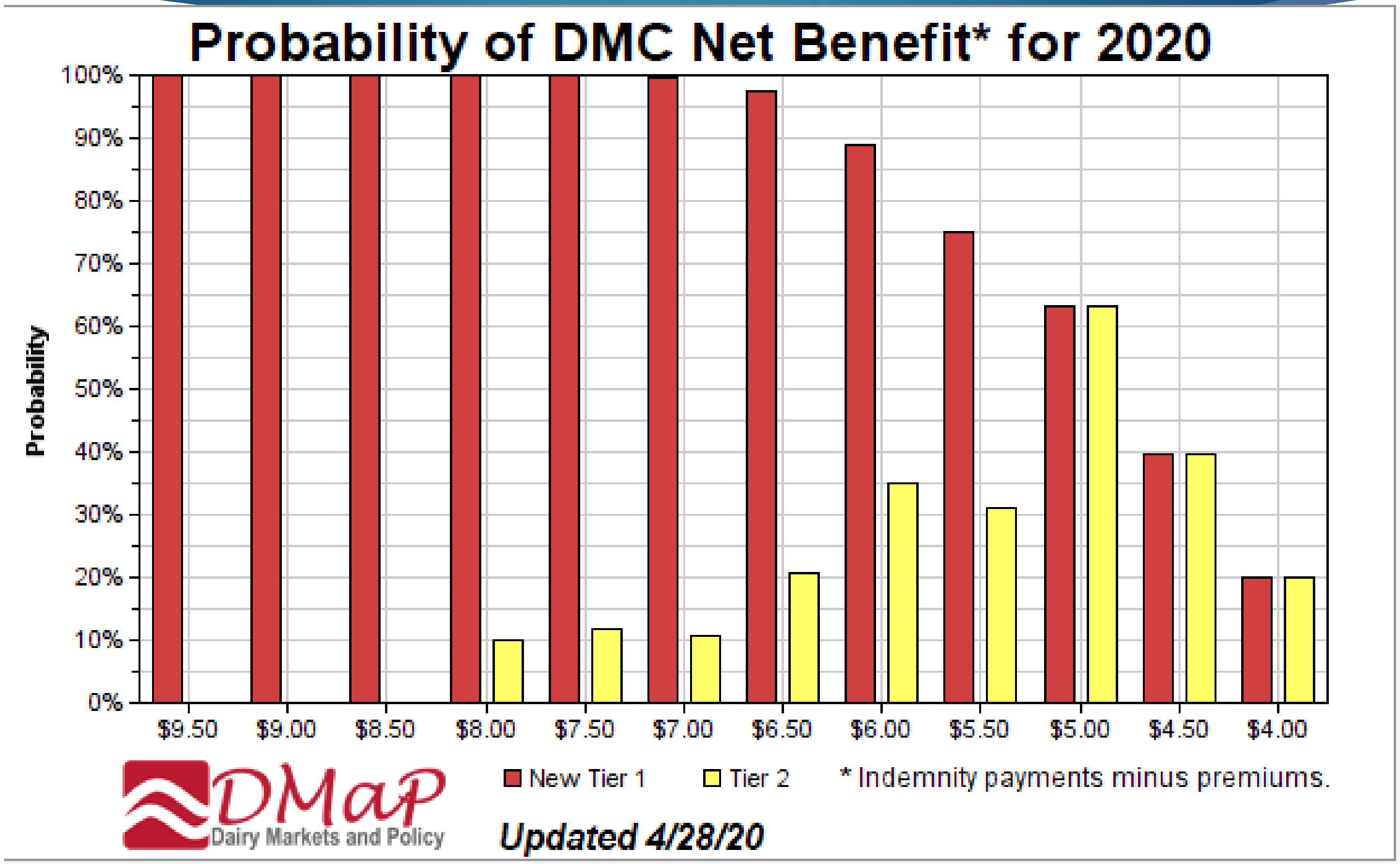
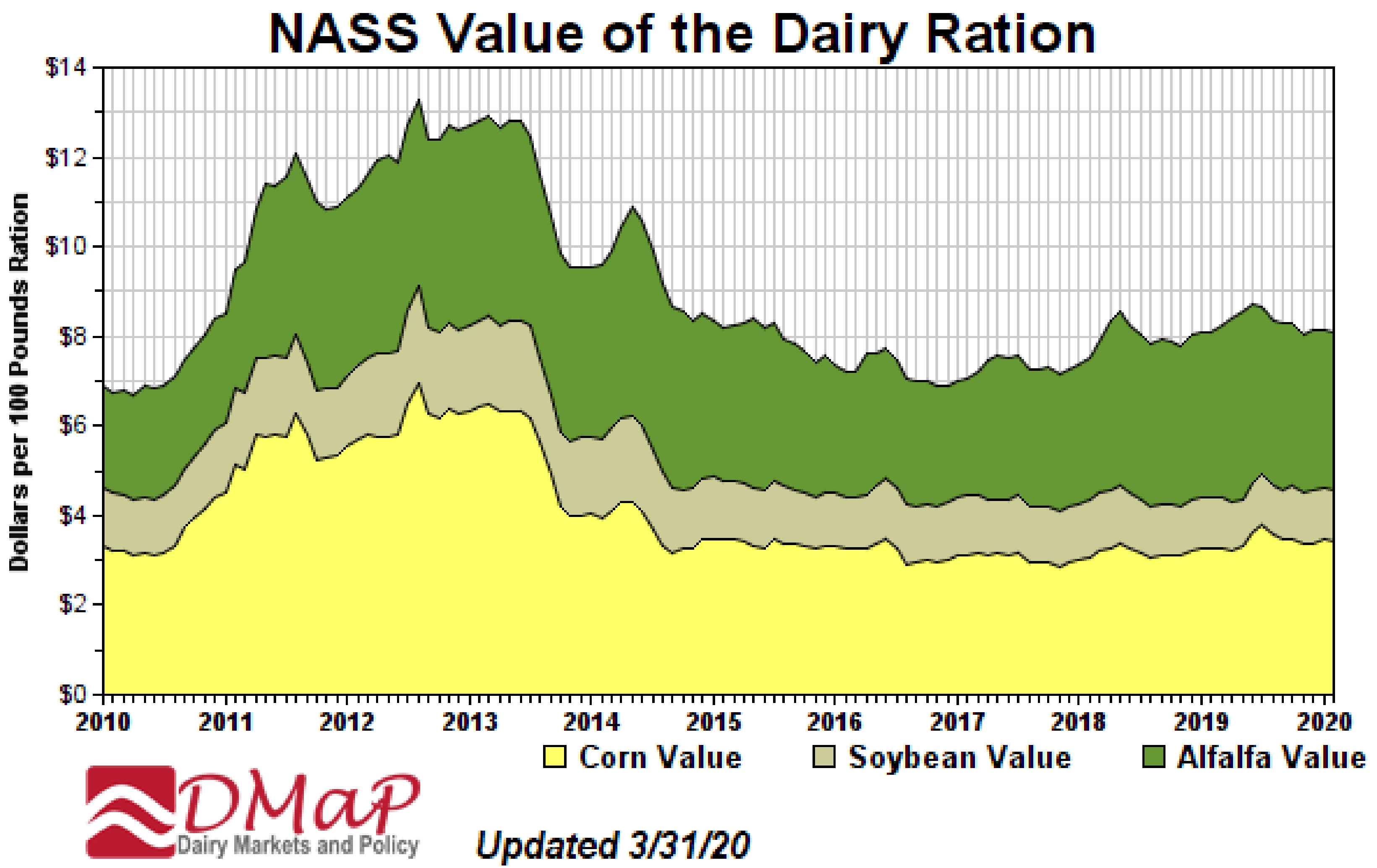


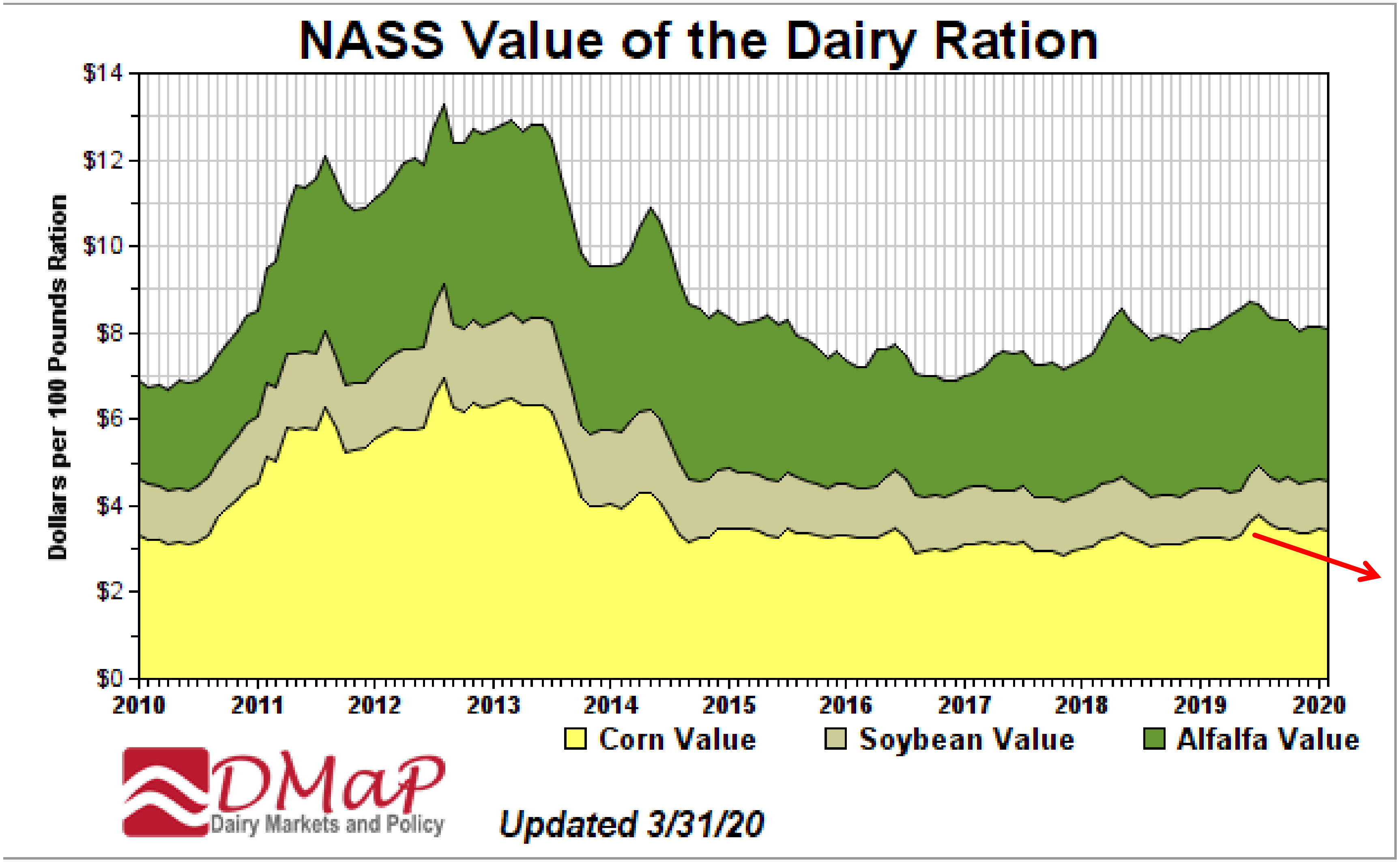
DMC Probability



This chart calculates the probability that the indemnities received at the various coverage levels will exceed the cost of the premiums for the year.



DMaP Dairy Markets and Policy



NASS Value of the Dairy Ration
Dollars per 100 Pounds Ration
$14
$12
$10
$8
$6
$4
$2
$0
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Corn Value
Soybean Value
Alfalfa Value
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DRP – as Risk Management Tool

- Milk Only – can hedge feed other ways
- More nimble and flexible
- Class IV has provided good opportunities in the past 12 to 18 months
- Opportunities in DRP as of today seem to be on the Class III side
- Component endorsements can be useful for the furthest quarters
- Premiums have been a bit volatile recently

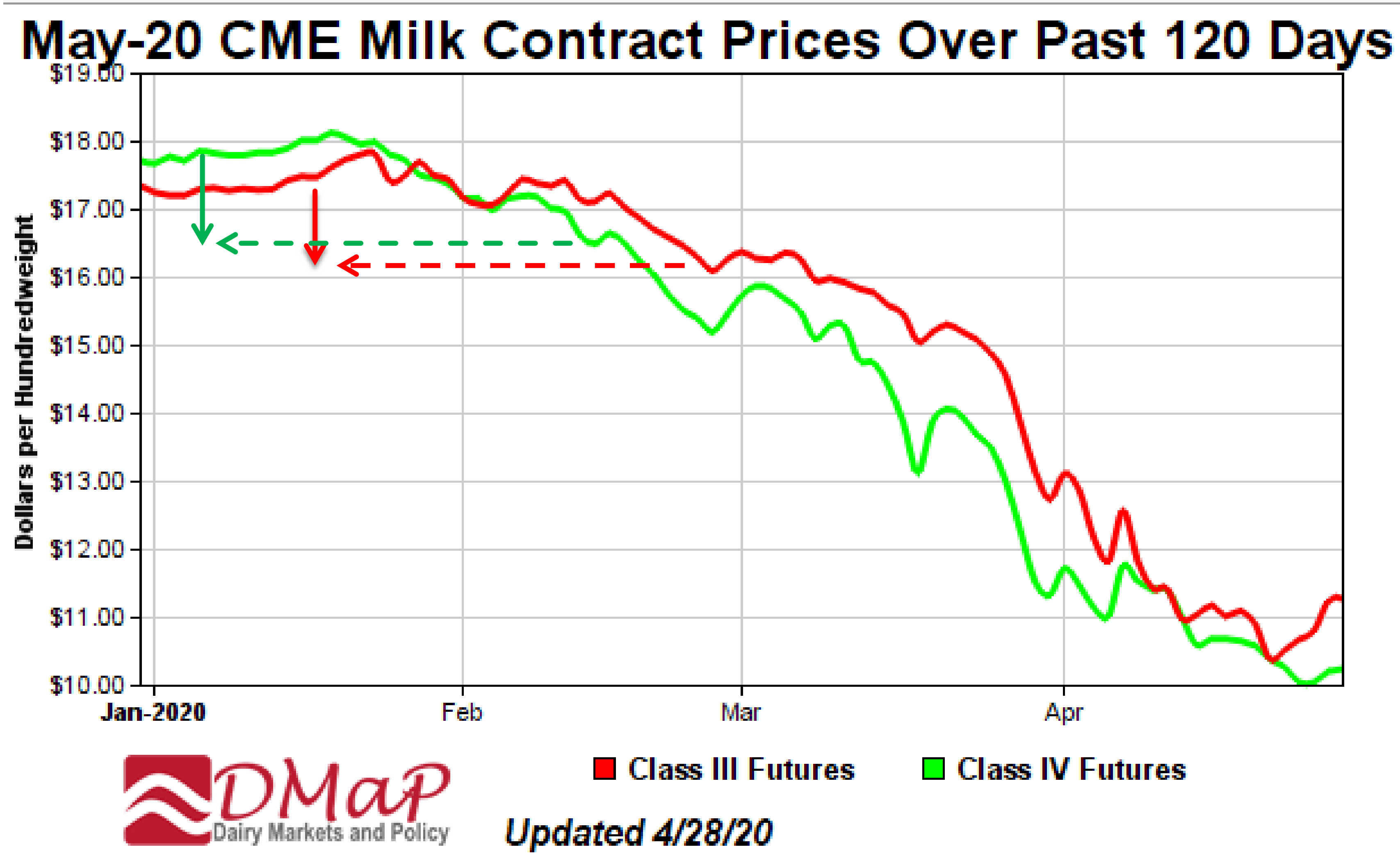
Your Share of the Risk

LGM: you select a deductible

- Example: $0.50 or $1.00.
- The premium amount will reflect the risk
- i.e. higher for the $0.50 deductible

DRP: you select a Coverage Level

- Example: the highest level you can select is 95%
- Therefore, it's like a deductible…but just a percentage
- Premiums vary based on the % of risk you share


May-20 CME Milk Contract Prices Over Past 120 Days
$19.00
$18.00
$17.00
$16.00
$15.00
$14.00
$13.00
$12.00
$11.00
$10.00
Dollars per Hundredweight
Jan-2020
Feb
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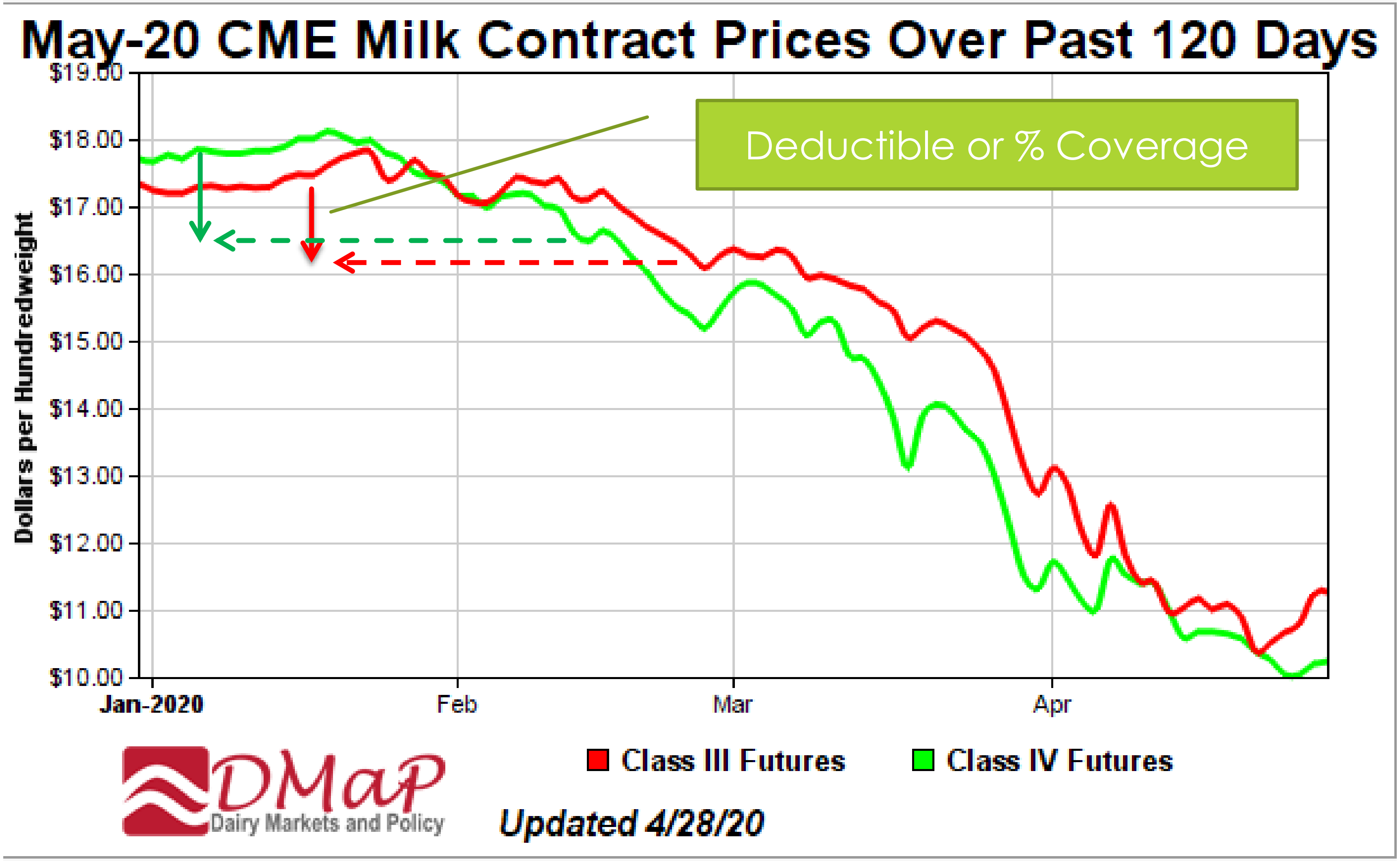
Class III Futures
Class IV Futures
DMaP
Dairy Markets and Policy
Updated 4/28/20



May-20 CME Milk Contract Prices Over Past 120 Days
Deductible or % Coverage
Dollars per Hundredweight
$19.00
$18.00
$17.00
$16.00
$15.00
$14.00
$13.00
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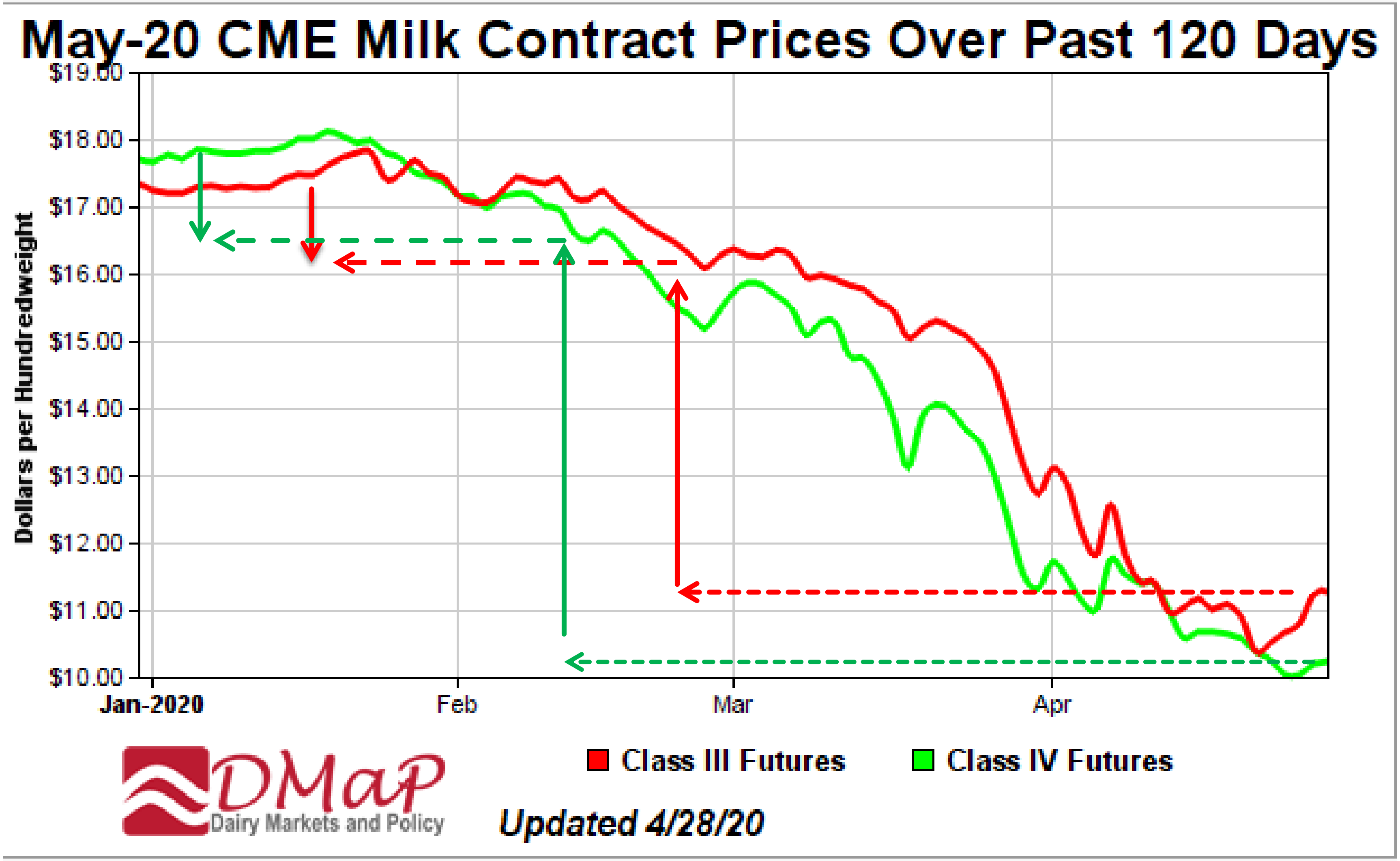

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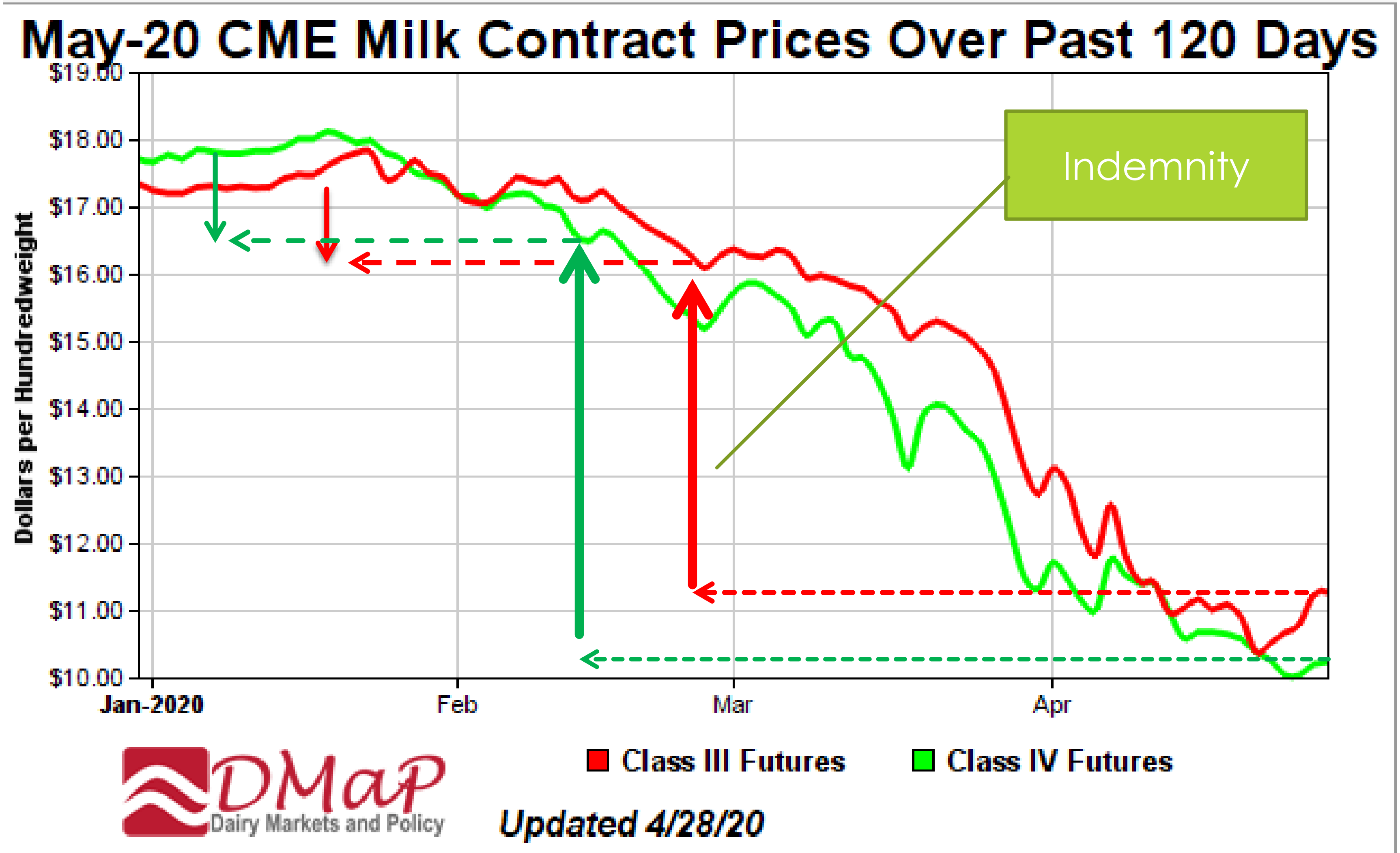
May-20 CME Milk Contract Prices Over Past 120 Days
Indemnity
$19.00
$18.00
$17.00
$16.00
$15.00
$14.00
$13.00
$12.00
$11.00
$10.00
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Concepts in using Milk Price Floors

Establish a floor that guarantees a level of profit - (Hedging)

Marketing tool - (Speculating?)

Manage your Risk with a Plan

- The elements of that plan are:
  - Know your NCOP
  - Know your Break-Even
  - Know your Basis

Definitions

- NCOP = Net cost of production. Accrual expenses including depreciation minus non-milk income.
- Break-even milk price = Similar to NCOP except replace depreciation with schedule principal payments.
- Basis = the difference in your gross milk check price from a publicly traded product during the same period

Basis for Milk

Basis in your milk check is a factor of ALL influences - including quality, other premiums, component % and PPD

PPD – the wild card: this portion of your milk check can make basis frustrating. Best to average it over time.

Basis is the Difference between a Your price and the class price. Yes, it's that simple.

Basis Analysis with DRP

- For those working with a Farm Credit related crop insurance company, the DRP online "tool" has a nice quarterly basis history
- This tool also does the math <u>for you</u>!

Example calculation:	
DRP Class III Expected price of	$16.70
Less 5%	$0.84
Less premium	$0.35
Plus expected basis to Class III	$1.70
Equals a "floor" of:	$17.21

Using a “Floor” = Betting on a Bear Market

- Betting on a bear market with a 5% (“75 - 90 cent”) minimum threshold is a game to be played when **times are good**
- There is very little logic in capturing a LOW floor when you have to “break” a 5% threshold. (Unless Black Swan)
- Watch for class prices in the far out futures trading HIGHER THAN THEIR NORMAL level.
- The time at which you feel a floor is unnecessary due to strong markets could be the right time.

Ways to keep the floor HIGH

- Higher of Class III or Class IV
- Look for outlier situations
- Generally, place floor well in advance (look 3 to 5 quarters ahead)
- Consider component DRP if you want to be very far out in the future

Strategies

Continuous coverage as long as you can protect at a level higher than your NCOP

- Best for HIGH RISK Farms
- Place this protection 9 to 15+ months in advance
- Try starting with 10 or 20% of your milk. At 20%, that takes 5 separate transactions to get 100% of your milk
- Automatically results in dollar cost averaging

Target: find quarters in the future that you feel could be upset and deliver high floors

- Best for farms with mid to lower risk
- This is by it's nature a bit speculative
- Can try to time the "bumps" to deliver a higher floor (good luck with that)
- DRP in essence becomes a marketing tool

A Written Risk Management Strategy

Ex 1- Break-Even strategy with Dollar cost averaging:

- Evaluate the X Wednesday of every month
- Act when floor plus basis exceeds B-E Milk Price minus 50 cents
- I will not place over 20% of my quarterly milk on any single day unless the position exceeds $1.00 higher than my B-E Milk Price

Ex 2 – NCOP price strategy with a speculative factor:

- Place when floor plus basis exceeds my NCOP
- I will not place over 20% of my quarterly milk on any single month unless the position exceeds $1.50 higher than my NCOP
- I will not exceed 50% of projected milk # hedged under any circumstances (I want to limit my cost of the program)

Milk Risk Management - Summary

- I believe these tools can be used to enhance profit in the long term
- Will result in some losses (costs) along the way. *Nobody wins all the time.*
- Another marketing tool in addition to premiums and component %
- Becoming an *essential tool for some farms* considering the amount of debt carried by a portion of our farms.

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