

CDE DAIRY MARKETS & MANAGEMENT UPDATE

All prices — TUESDAY, DEC. 31, 2019 — except where noted

Happy New Year: It seems like 2019 flew by. Perhaps there is some truth in the adage, "Time flies when you're having fun." I have enjoyed the past year and am grateful for the opportunity to stay involved in the dairy industry. The dairy industry in Pennsylvania has taken a hit over the last few years. Multiple years of depressed milk prices and tough crop years have decreased the number of dairy farms, cow numbers and milk production. The losses resulted in a 2019 that saw Pennsylvania and Minnesota flipflop back and forth as the seventh and eighth largest dairy states in the United States depending on monthly production. Perhaps with better forages and milk prices Pennsylvania will be able to make up some lost ground and retain the number seven slot in 2020. Despite the recent downturn, Pennsylvania still has a vibrant dairy industry and tremendous opportunity for growth especially in per cow production.

Unfortunately, Class III prices over the next 12 months are down, relative to the end of November. Class III futures price averages \$17.53 per hundredweight, down \$0.40 from this time last month. However, Class IV futures price is averaging \$17.76 for the next 12 months, virtually the same as the end of November, up 5 cents from the end of last month. Both Class III and Class IV prices remain well above their 5-year averages of \$15.65 and \$14.76 per hundredweight, respectively.

November U.S. milk production increased by 0.59% over last November, driven by an increase of about half a pound of milk per cow. Cow numbers decreased by 0.25% to 9.331 million head compared to one year ago. Cow numbers seem to have moderated and are growing slightly month over month. Cow numbers have increased 14,000 head since August of 2019. Dairy cow slaughter is down nearly 4.5% compared to November 2018.

Pennsylvania milk production continued its decline, falling another 1.3% compared to last November. However, milk production per cow, per

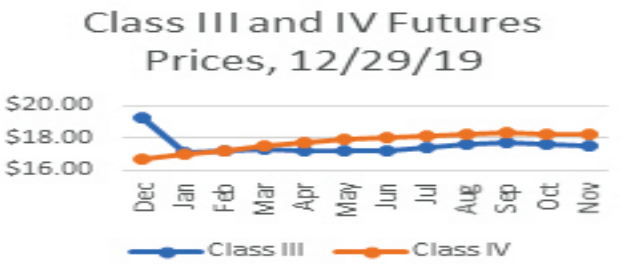
haps partly due to better forages in 2019 compared to 2018, have increased 1.4 pounds per cow per day across all mature dairy cows. Cow numbers remained at 485,000 head for the fifth month in a row.

November export value experienced growth compared to 2018, increasing nearly 14.5% to over \$519 million. Despite trade disputes in 2019, exports are on track to reach a record value this year, due to better prices and increased exports to non-trade dispute countries.

Although milk markets have experienced a recent downturn, 2020 is still looking like it will be better than 2019. Domestic demand is expected to remain strong, and exports are expected to continue to increase. We should also see resolution to some of the trade issues relative to dairy going into the new year. Despite how hectic the holidays can be on the farm, I hope you were able to take some extra time to spend with your family and friends this holiday season. I wish each of you the best in your dairy endeavors for 2020.



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Prices change daily. This market information is an example for educational purposes. The market data below are compiled weekly by Farmshine, via CME & USDA reports

***AVG =**
Average
basis for
North-
East and
Mid-East

***MARGIN =**
Milk
Price
over
Feed
Cost

***YELLOW =**
per cwt.
payment
triggered

***NEW**
FEED =
\$/CWT.
IOFC =
\$/COW

****USDA SEP. 2019****
ALL-MILK MAILBOX
\$22.50 \$19.81
"N" ENGL \$19.90 \$19.60
SE \$19.70 \$19.39
\$20.70 \$19.12
"APPAL" \$20.10 \$18.85
"U.S." \$19.30 \$18.58
"PA" \$19.60 \$18.50
"NY" \$19.40 \$18.43
"IN" \$18.80 \$18.35
"OH" \$19.30 \$18.34
"MI" \$17.90 \$17.15

Price
averages do
not include
lower-end
'common'
cows and
heifers.

Average
to high
dressing

CME DAILY FUTURES & OPTIONS TRADING — DEC. 31, 2019 AT THE CLOSE

| DEC-19 | JAN-20 | FEB-20 | MAR-20 | APR-20 | MAY-20 | JUN-20 | JUL-20 | AUG-20 | SEP-20 | OCT-20 | NOV-20 | TREND |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|

| CLASS III MILK FUTURES (\$/CWT) | | | | | | | | | | | | |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| 19.32 | 17.26 | 17.38 | 17.43 | 17.37 | 17.35 | 17.39 | 17.55 | 17.62 | 17.70 | 17.65 | 17.53 | ↑↑ |
| 2 WEEKS AGO | | | | | | | | | | | | |
| 19.38 | 16.96 | 17.07 | 16.94 | 16.92 | 16.91 | 17.00 | 17.23 | 17.40 | 17.54 | 17.47 | 17.37 | |

| HIGHEST & LOWEST DAILY SETTLE PRICE OVER LIFE OF CONTRACT AND MONTH/YEAR IT OCCURRED | | | | | | | | | | | | |
|--------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| 20.41 12/19 | 19.34 12/19 | 18.92 12/19 | 18.16 12/19 | 17.76 12/19 | 17.50 12/19 | 17.39 12/19 | 17.59 11/19 | 17.64 11/19 | 17.73 11/19 | 17.65 12/19 | 17.55 12/19 | |
| 14.60 11/18 | 14.62 11/18 | 14.63 11/18 | 14.59 11/18 | 14.65 11/18 | 15.12 11/18 | 15.01 11/18 | 15.01 11/18 | 14.99 11/18 | 14.52 11/18 | 14.52 11/18 | 15.02 11/18 | |

| MILK BASIS (\$/CWT) — PA BASIS & 2014-16 AVG OF PA/NY/VT/OH — YOUR INDIVIDUAL BASIS WILL VARY (MAILBOX - CLASS 3) | | | | | | | | | | | | |
|-------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|------|--|
| PA 2.75 | 2.30 | 1.81 | 1.58 | 1.19 | 1.60 | 1.28 | 1.01 | 0.85 | 1.33 | 1.87 | 1.70 | |
| *AVG 2.72 | 2.70 | 2.25 | 2.02 | 1.25 | 2.14 | 1.80 | 1.12 | 0.90 | 1.32 | 1.82 | 1.65 | |

| MPP/DMC OFFICIAL GROSS MARGINS per cwt. (USDA All-Milk, com/alfalfa hay & Illinois soybean prices, feed for all classes of dairy cattle on the farm) | | | | | | | | | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|-----|--------|--------|--------|--------|--------|--------|--------|--|
| MPP SEP-18 | OCT-18 | NOV-18 | DEC-18 | DMC | JAN-19 | FEB-19 | MAR-19 | APR-19 | MAY-19 | JUN-19 | JUL-19 | |
| 8.26 | 8.96 | 8.66 | 7.85 | | 7.71 | 7.91 | 8.66 | 8.82 | 9.00 | 8.63 | 9.27 | |

| U.S. AVG MILK MARGIN per 100 lbs milk based on 75-lb herd avg & USDA's All-Milk price, USDA-reported com & alfalfa hay & Ill. soybean prices (lactating feed only) | | | | | | | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| OCT-18 | NOV-18 | DEC-18 | JAN-19 | FEB-19 | MAR-19 | APR-19 | MAY-19 | JUN-19 | JUL-19 | AUG-19 | SEP-19 | |
| 11.73 | 11.40 | 10.63 | 10.79 | 11.00 | 11.63 | 11.61 | 11.76 | 11.82 | 12.52 | 12.94 | 13.39 | |

| PA AVG MILK MARGIN per 100 lbs milk based on 75-lb herd average and USDA's PA All-Milk price, USDA com & alfalfa hay & Buff., NY soybean prices (lactating feed only) | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| OCT-18 | NOV-18 | DEC-18 | JAN-19 | FEB-19 | MAR-19 | APR-19 | MAY-19 | JUN-19 | JUL-19 | AUG-19 | SEP-19 | |
| 11.68 | 11.29 | 10.46 | 10.37 | 11.34 | 11.39 | 11.21 | 11.54 | 11.52 | 11.48 | 12.73 | 13.17 | |

| CLASS III MILK (\$/CWT) OPTIONS — PUTS — Daily Strike Price / Premium | | | | | | | | | | | | |
|-----------------------------------------------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--|
| 19.25 0.01 | 17.25 0.28 | 17.50 0.44 | 17.50 0.47 | 17.50 0.53 | 17.25 0.44 | 17.50 0.59 | 17.50 0.49 | 17.50 0.50 | 17.75 0.58 | 17.75 0.66 | 17.50 0.59 | |

| CORN (\$/BU) OPTIONS — CALLS | | | | Example Daily Strike Price / Premium | | SOYMEAL (\$/TON) OPTIONS — CALLS | | | |
|------------------------------|------------|------------|------------|--------------------------------------|--|----------------------------------|-----------|-----------|-----------|
| MAR-20 | JUL-20 | SEP-20 | DEC-20 | | | MAR-20 | JUL-20 | SEP-20 | DEC-20 |
| 3.60 29.40 | 3.60 45.30 | 4.00 25.10 | 4.10 23.70 | | | 300 06.40 | 310 12.75 | 300 20.35 | 320 13.85 |

| CORN FUTURES (\$/BU) | | | | | | | | | | | | |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| MAR-20 | MAY-20 | JUL-20 | SEP-20 | DEC-20 | MAR-21 | MAY-21 | JUL-21 | SEP-21 | DEC-21 | JUL-21 | SEP-21 | TREND |
| 3.882 | 3.952 | 4.014 | 4.014 | 4.030 | 4.120 | 4.164 | 4.194 | 4.100 | 4.114 | 4.176 | 4.176 | ↑↑ |

| 2 WEEKS AGO | | | | | | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 3.870 | 3.934 | 3.994 | 3.980 | 4.000 | 4.092 | 4.142 | 4.174 | 4.076 | 4.090 | 4.090 | 4.090 | |

| SOYMEAL FUTURES (\$/TON) | | | | | | | | | | | | |
|--------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| JAN-20 | MAR-20 | MAY-20 | JUL-20 | AUG-20 | SEP-20 | OCT-20 | DEC-20 | JAN-21 | MAR-21 | MAY-21 | JUL-21 | TREND |
| 297.5 | 302.3 | 306.1 | 309.8 | 311.1 | 311.8 | 311.2 | 312.9 | 311.9 | 309.8 | 309.8 | 311.0 | MIXED |

| 2 WEEKS AGO | | | | | | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| 302.9 | 307.4 | 310.5 | 313.6 | 314.4 | 314.7 | 311.1 | 309.7 | 309.7 | 308.9 | 306.8 | 306.1 | |

| PA MILK MARGIN & IOFC—LATEST PSU VALUES — *DEC. 2019 | | | |
|------------------------------------------------------|-----------------------------|------------------------------|--|
| FEED COST (\$/CWT milk) | IOFC (\$/COW @ 75 lbs milk) | PA MILK MARGIN (\$/CWT milk) | |
| *DEC. *6.84↓ | *11.12 ↓ | *14.83 ↓ | |
| *PREV MO *6.87 | 11.17 | *14.89 | |
| YR AGO 6.71 | 8.47 | 11.29 | |

| CME DAIRY CASH-SETTLED FUTURES (\$/LB) 12/31/19 SPOT CASH TREND | | | | | | | | | | | | |
|-----------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------|
| DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
| NFDM 1.213 | 1.207 | 1.213 | 1.226 | 1.236 | 1.257 | 1.270 | 1.270 | 1.270 | 1.270 | 1.270 | 1.270 | 1.2300 ↑↑ |

| ANNOUNCED FEDERAL ORDER PRICES (\$/CWT) *NEW | | | | | | | | | | | | |
|----------------------------------------------|------------|------------|------------|----------------|--------------|--|--|--|--|--|--|--|
| CL I ADV↓ | CL II↑ | CL III↑ | CL IV↑ | *ALL-MILK-U.S. | *ALL-MILK-PA | | | | | | | |
| 19.01(JAN) | 16.85(NOV) | 20.45(NOV) | 16.60(NOV) | *21.00(NOV)↑ | *21.00(NOV)↑ | | | | | | | |

| CATTLE - DAIRY PURPOSES(\$/HD) NORTHEAST (Avg. DEC. 18, 2019 sale New Holland, PA) | | | | | | | | | | | | |
|------------------------------------------------------------------------------------|------|-----------|---------------|---------------|-----------|-------------------|--------|-------------|--------------|---------------------|--|--|
| COWS Fresh | Bred | Springing | HEIFERS: Bred | Beef x (bred) | Springing | Open: 300-600 lbs | Beef X | 600-800 lbs | 800-1200 lbs | BULLS (600-1800 lb) | | |
| 1050 | 875 | N/A | 650 | N/A | 925 | 350 | N/A | 485 | N/A | 775 | | |

| FOUR WEEK RUNNING AVG | | | | | | | | | | | | |
|-----------------------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| 1100 | 925 | 1250 | 650 | N/A | 950 | 300 | N/A | 425 | 650 | 825 | | |

| FED HOLSTEIN STEERS (\$/CWT LIVEWEIGHT) CURRENT 2 WEEKS AGO YR AGO | | | | | | | | | | | | |
|--------------------------------------------------------------------|------------|-------|-------|-------|---|--|--|--|--|--|--|--|
| Choice & Prime 1250-1550 lbs | light test | 80.50 | 84.75 | 83.00 | ↓ | | | | | | | |

| BULL CALVES: No. 1 & 2, 90-130 lbs 70-85 lbs | | | | | | | | | | | | |
|----------------------------------------------|--|-------|-------|-------|---|--|--|--|--|--|--|--|
| | | 63.00 | 81.00 | 45.00 | ↓ | | | | | | | |

| Premium White Breakers Boners Lean | | | | | | | | | | | | |
|------------------------------------|--------|--------|--------|--|--|--|--|--|--|--|--|--|
| N/A | 53.75↑ | 52.25↑ | 48.85↑ | | | | | | | | | |

| 2 WEEKS AGO | | | | | | | | | | | | |
|-------------|-------|-------|-------|--|--|--|--|--|--|--|--|--|
| N/A | 52.00 | 50.00 | 43.00 | | | | | | | | | |

| YEAR AGO | | | | | | | | | | | | |
|----------|-------|-------|-------|--|--|--|--|--|--|--|--|--|
| N/A | 59.50 | 54.50 | 47.50 | | | | | | | | | |