



ARE DAIRY FUTURES IN YOUR FUTURE?

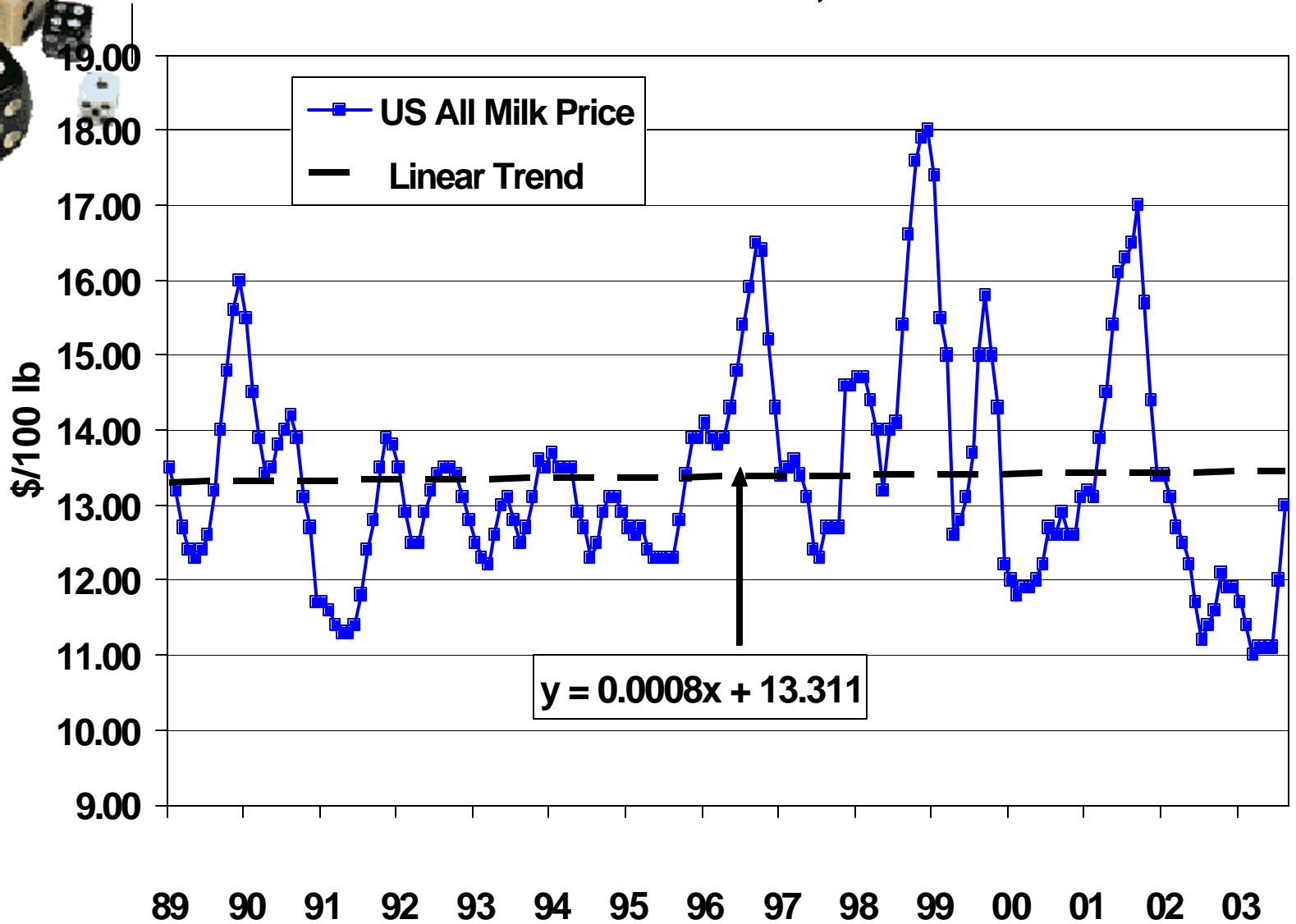
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US All Milk Price and Trend, 1989-2003





Milk Price Problems

- **Volatile – large and unpredictable price swings cause cash flow problems**
- **Flat – long run average price is flat and profit margins are slim, on average**
- **Low profits, new investment, high debt, & large family living needs, also cause cash flow problems**



**Quality
of life**

**Profitability
& Cash flow**



The challenge

- **Make a profit and manage “normal” cash flows at long run average prices**
- **Develop a strategy to survive during periods of low prices**



I. Five Questions

- **What are the most important risks your farm business is exposed to?**
- **How vulnerable is your farm business to volatile prices?**
- **What strategies are available to manage price risk?**
- **Do you have the right attitude?**
- **Do you have the time, knowledge and skills?**



Managing Risk

- **Understanding the sources of risk, risk exposure and impacts**
- **Setting priorities**
- **Understanding strategies and decision tools available and the potential reduction in risk, risk exposure and impacts**
- **Your attitude to risk**



1. Sources of Risk

- **Weather & other natural phenomena**
 - Local
 - Regional, national, global
- **Technology**
- **Societies attitudes & preferences**
- **Government and other institutions**
- **Individual human behavior**



Risk Impacts

- **Reduced production**
- **Lower prices**
- **Increased operating cost**
- **Increased investment costs**
- **Increased demands on the manager**



Prioritizing Risk

CHANCE

Highly
likely

Very
unlikely

Act if cost
effective

Do nothing

**Act
immed-
iately**

Action
required

Small
impact

Disastrous
Impact

\$ IMPACT



Prioritizing Risk

- **RISK -- the chance of loss or an unfavorable outcome or event**
 - Anticipated
 - Unexpected
- **RISK EXPOSURE -- The amount of loss if it occurs**
- **The financial consequences for the business**



Prioritizing Risk

- You need to know your current financial health, past farm performance and trends
 - Profit
 - Cash Flow
 - Solvency
 - Farm & financial performance



3. Risk Mgt. Strategies

- **Prevent low prices with futures, options, contracts?**
- **Ride it out?**
 - **Draw on savings or borrow**
 - **Restructure debt payments**
 - **Adjust expenses, especially maintenance & new investments**
 - **Add off-farm income or cut family living expenses**



Cost:Benefit

- **All risk management strategies involve costs and effectiveness varies among alternatives**
 - **Financial benefits & costs**
 - **Time, new knowledge and skills**
 - ➔ **Evaluate trade-offs**



4. Attitude to Risk

- **Risk averse – willing to accept a lower expected profit to avoid downside risk or will pay to reduce risk**
 - **Risk preferer – NOT willing to accept lower profit or pay for risk reduction**
- Attitude to risk affects an individuals decisions in a given risk situation**



Attitude & Expectations

- **Futures and options are a tool to manage downside price risk and prevent the financial problems low prices will cause**
- **It is unrealistic to expect that using futures and options will increase your average profit**



II. Dairy Futures & Options

- **Fairly new & still evolving; volume & liquidity are changing**
- **Offered by Chicago Mercantile Exchange:**
 - **Class III milk (for cheese)**
 - **Class IV milk (for butter/powder)**
 - **Butter**
 - **Nonfat dry milk**

Details at <http://www.cme.com/prd/ag/>



Dairy Futures & Options

- **Class III futures are the most useful for us**
 - **Most of the milk in the southeast is sold for fluid (Class I) uses and Class III has been the primary “mover” for class I prices**
 - **Most of the trading volume is in the Class III contracts**

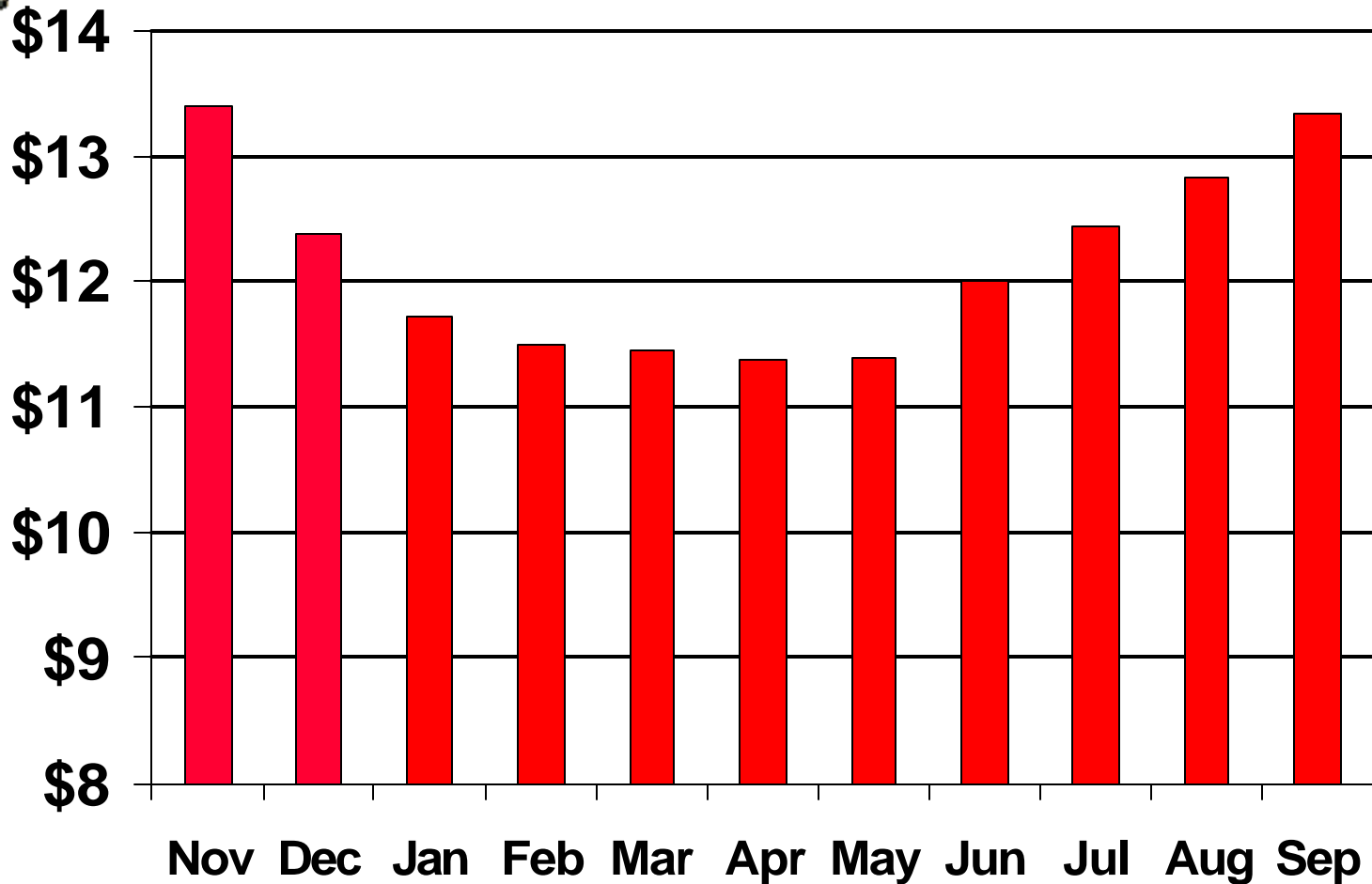


Using Dairy Futures

- **Two uses:**
 - **Price forecasting and planning**
 - **Hedging your milk price**



Class III Futures Prices on 10/21/03



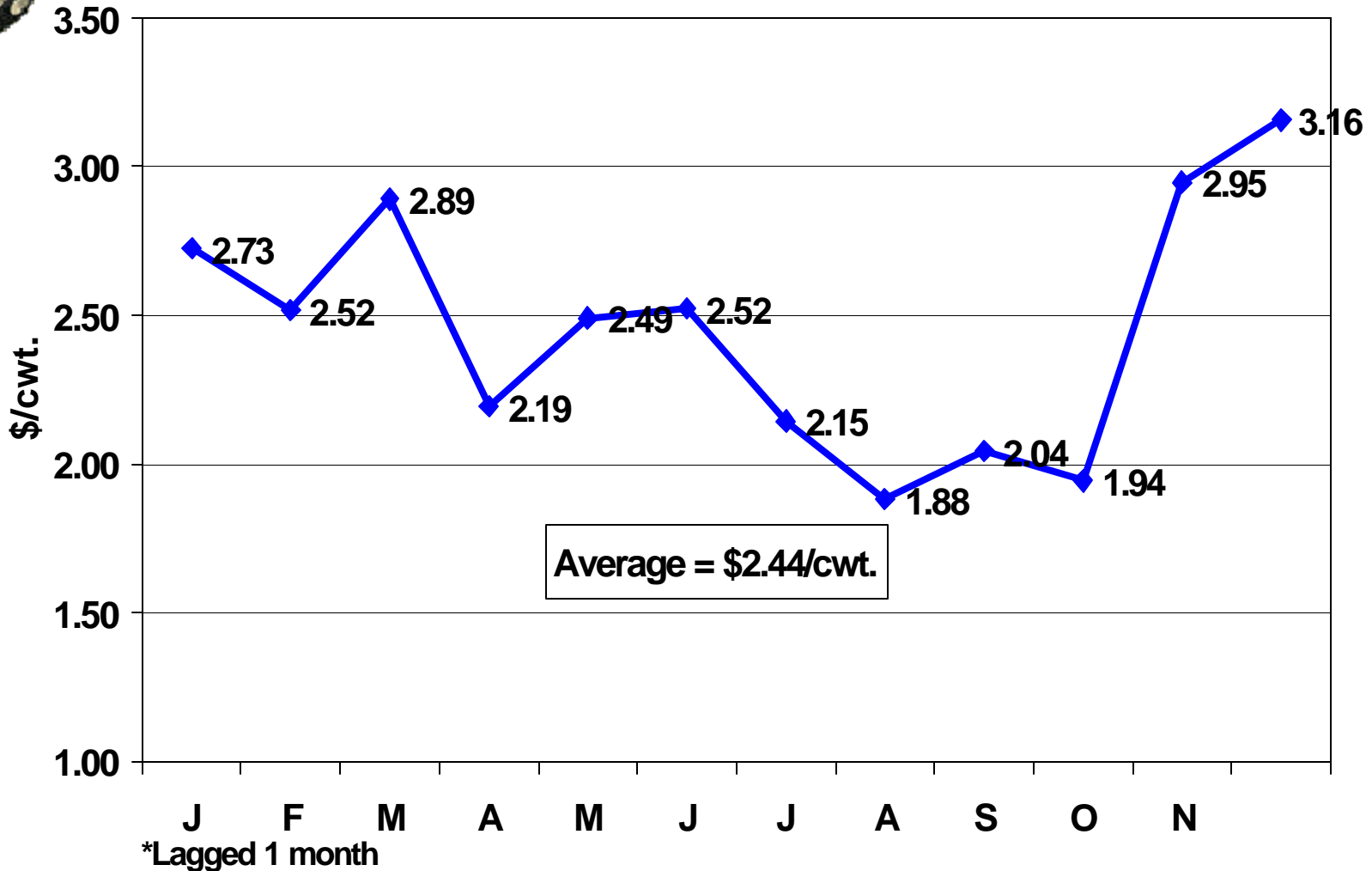


Price Forecasting

- **Look at historical relationships between a futures price and your milk price**
- **Add this difference to the futures price for a particular month**



Monthly Difference Between Class III* and FO 5 Mailbox Price, Monthly, 1995-2003





Example on 10/21/03

Class III futures

price in January = \$11.73/cwt

+ Basis for January = \$ 2.73

= Expected mailbox

price in January = \$14.46



Hedging & Speculating

- **Producer sells a futures contract to protect against a price drop**
- **Processor buys a futures contract to protect against a cost increase**
- **Speculators try to outguess the market but provide “liquidity”**



Hedging Strategies

- **Milk is different – If you do nothing you get the average price paid by handler, + or -**
- **Fixed price (forward) contract with coop**
- **Hedge with futures**
- **Hedge with options**



Futures Contract

- **Forward contract = futures contract with Coop as broker**
- **Lock in a price on a certain volume of milk**
 - **By selling a contract for a specific month**
 - **By off-setting your position in the futures market by buying back an identical contract at or near the expiry date**
 - **At the expiry date the futures price = the cash market price**



Futures Contract

- **If the cash market price increases**
 - The futures price increases
 - You must buy back your contract at a higher price than you paid
 - This offsets the higher cash price
- **If cash market price falls**
 - The futures price falls
 - You buy back a lower priced contract
 - This offsets the lower cash price



Example

- Your target for January's mailbox price is \$14.10/cwt
- The January basis for your mailbox price is \$2.40/cwt
- The Class III price to hit your target is \$11.70
- You sell a contract at \$11.73



Result 1

- In January the actual cash price for Class III milk is down, at \$10.73/cwt
- You buy your contract back at \$10.73/cwt and make **\$1.00/cwt**
- But your mailbox price is only \$10.73 + 2.40/cwt. Basis = \$13.13/cwt
- Total income is \$13.13 + **\$1.00** = \$14.43/cwt, so you hit your target



Result 2

- In January the actual cash price for Class III milk is higher, at \$12.73/cwt
- You must buy your contract back at \$12.73/cwt and lose \$1.00/cwt
- But your mailbox price is \$12.73 + 2.40/cwt. Basis = \$15.13/cwt
- Total income is \$15.13 - \$1.00 = \$14.43/cwt, so you hit your target!!!!



Futures Contract

- **Locks in a price!**
- **Pay a commission**
- **May need to make margin calls to ensure you can cover your position -- Deposit cash in your trading account when the futures price moves above the price you locked in**



Options

- The right (but not the obligation) to buy or sell a futures contract
- A “put”= right to sell & allows the producer to hedge
- A “call”= right to buy & allows the processor to hedge



Options

- **An option is for a specific futures contract and a specific price**
- **The agreed upon futures contract price is called the strike price**
- **The cost of an option is called a premium**
- **Premiums are established by public outcry pit trading, similar to the way futures prices are established**



Options

- **There are a range of strike prices for each futures contract**
- **Premiums have 2 components:**
 - **Time value -- shrinks as the expiry date approaches**
 - **Intrinsic value -- related to the relationship between the strike and current price of the futures contract**



Options

- **In-the-money -- Underlying futures price is favorable compared to the strike price**
- **Out-of-the-money -- Futures price is unfavorable vs. strike price**
- **At the money**



Example on 10/21/03

- **January Futures = \$11.73/cwt**
- **A January Put option for \$11.75 had a 62 cent/cwt premium**
- **A Put option for \$11.50 had a 49 cent premium**
- **A Put for \$12.00 had a 77 cent premium**



Example on 10/21/03

- **Futures contract is for 200,000 lb of milk**
- **A \$11.75 January put would cost $2,000 \times \$0.62/\text{cwt} = \$1,240$ in premiums**
- **Price floor = $\$11.75 - \$0.62 = \$11.13/\text{cwt}$.**



Exercising Options

1. **Producer buys a put and the market price falls**
 - **If the strike price is above the futures settlement price the in-the-money option is exercised (automatically) at expiry date**
 - **The producer gets this money to supplement the lower market price**



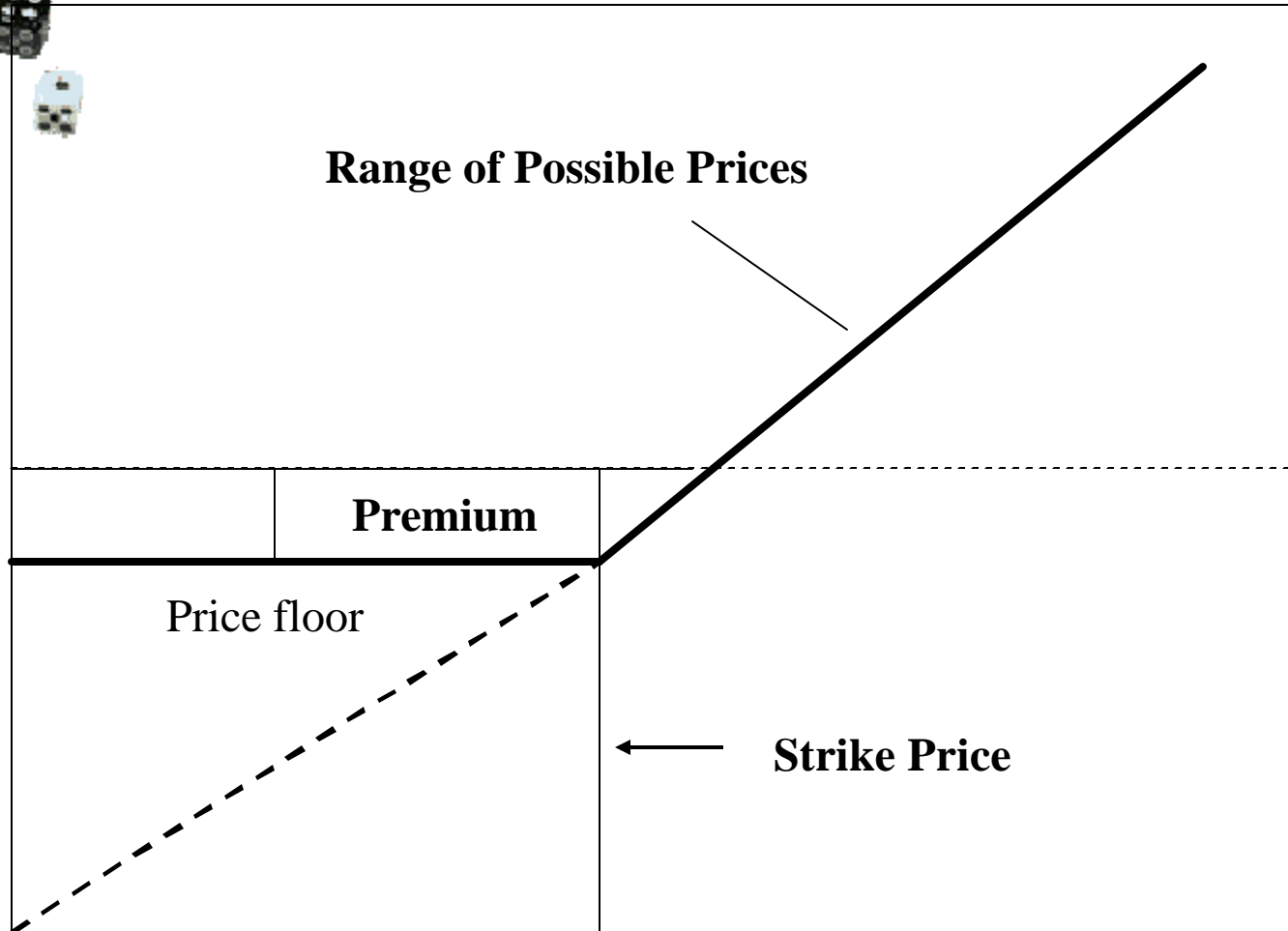
Exercising Options

2. **Producer buys a put and the market price increases**
 - **If the strike price is below the futures price at the settlement date the out-of-the-money option is worthless and is allowed to expire**
 - **Producer gets higher cash market price**

Buying a Put Option



Net
Cash
Price



Market price = futures price at settlement



Using Futures Tools

- **Setting price targets**
- **Timing of decisions**
- **Quantities to be hedged**
- **Choosing among contracting, futures or options**



Price Targets

- **Full Cost of Production**
- **Cash Flow**
 - **Cash costs + or - debt service + or - family living?**
- **Price Enhancement – beat the market**

BUT the target must be “reasonable” in light of past prices and price movements



Price Targets

- **Know your financial health and performance**
- **Know your cost of production**
- **Know your cash flow needs**
- **Know your financial risk exposure at various price levels**
- **Know milk price history**

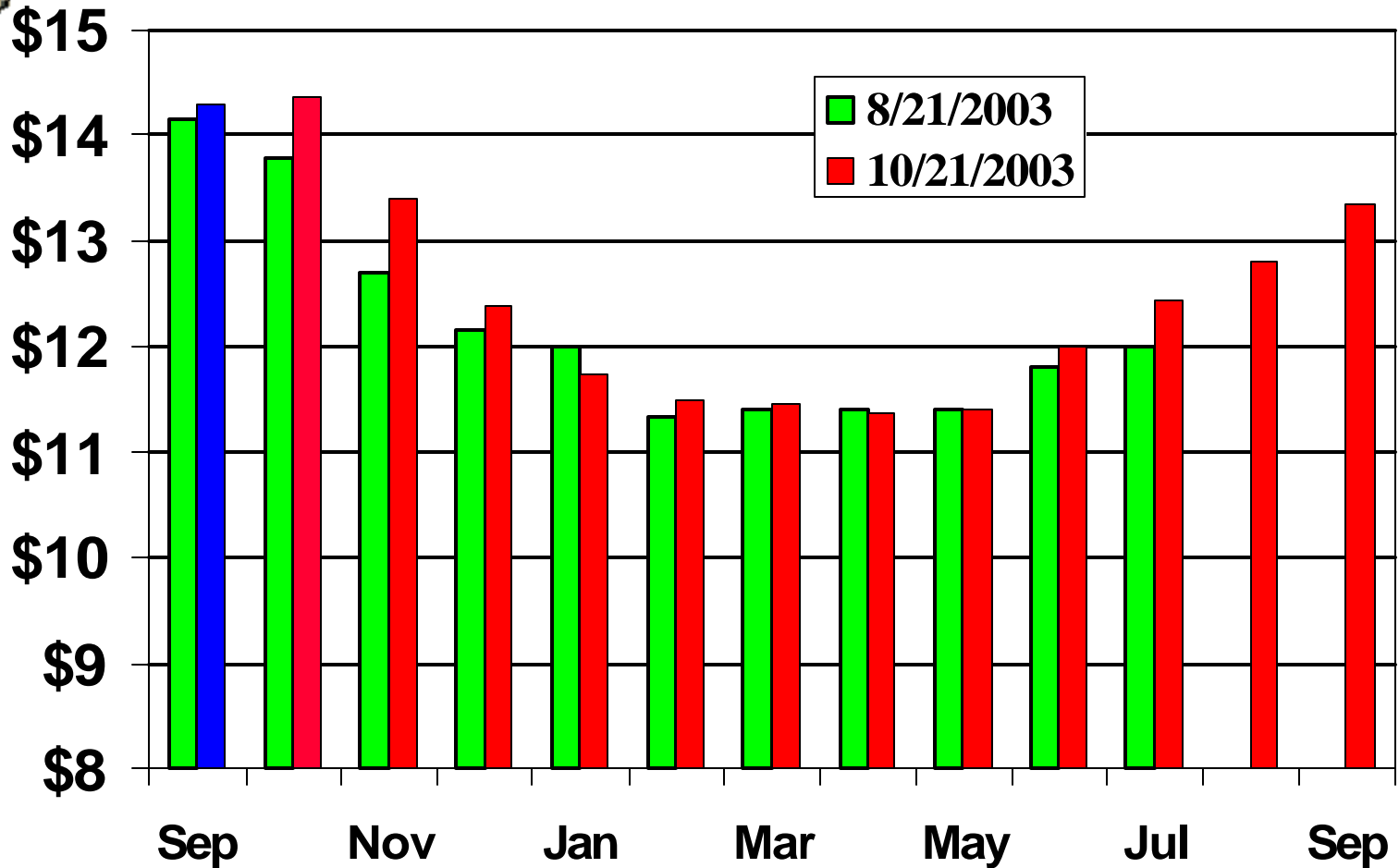


Hedging

- **Do not hedge expecting to increase your average milk price – the purpose is to reduce the financial impact of low prices by fixing a price or creating price floor**
- **The futures market may not provide an opportunity to hit your target**

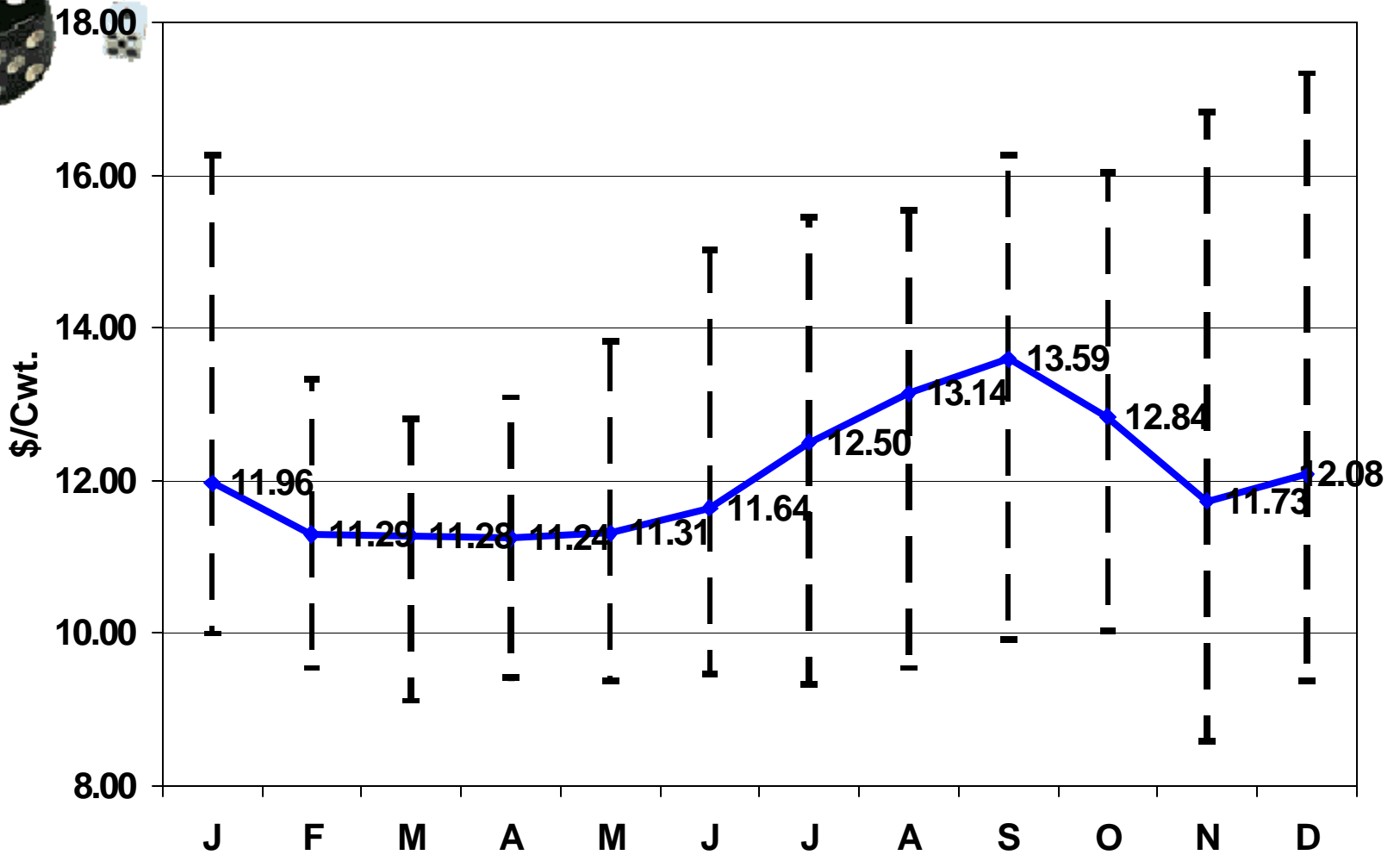


Class III Futures Prices on 8/21/03 & 10/21/03





US Class III Price, Monthly Average and Range, 1995-2003





Basis

- **Strict definition: The difference between the cash price at a particular location and the price of a particular futures contract for the same product**
- **Our definition: The difference between the futures price and your price at the farm**



Basis

Which Milk Price?

- Federal Order Blend Price
- Gross Farm Price
- Mailbox price



Mailbox Price Basis

- **Affected by many factors:**
 - **Federal order Class prices (4) , Class use and the blend price(s)**
 - **Over order premiums**
 - **Coop re-blending**
 - **Premiums for fat, volume, quality**
 - **Deductions for hauling, promotion, coop retains, etc.**



Problem

- **There is no futures contract or contract month that correspond one-to-one with the price you would like to hedge**
- **FO minimum Class price formulas are complex but all are based on national surveys of wholesale prices for cheese, butter and nonfat dry milk**



FO Prices

- **The Class I and the Class II skim price are announced in advance, on the 23rd of the preceding month based on a two-week survey**
- **Class II butterfat and Class III and Class IV prices are announced retroactively on the 5th of the following month based on a monthly survey of wholesale prices**

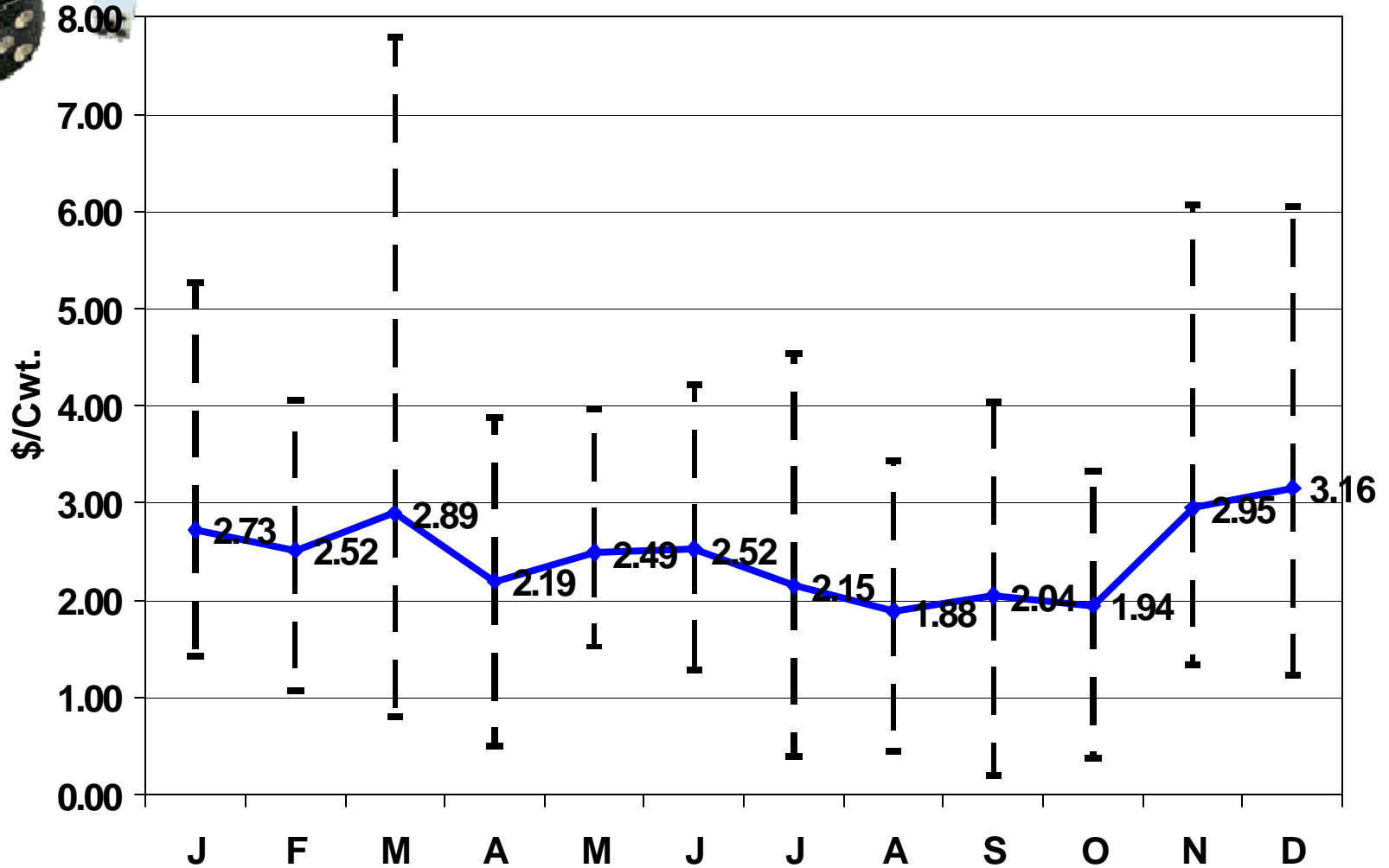


FO Prices

- **FOs 5, 6 & 7 have high Class I use (65-90%)**
- **Focus on Class III futures, with a one month lag**
 - **Class III sets the Class I price most of the time**
 - **This months Class III market affects next months Class I price**



FO 5 Basis based on Class III and Mailbox Prices, Monthly Average and Range, 1995-2003





Basis Risk

- **Basis has been volatile**
- **Basis cannot be predicted with certainty -- may strengthen or weaken**
- **Calculate the basis history for your farm**



Basis Risk

- **Variability in historic basis patterns means you cannot lock in a price with futures or set a price floor with options with certainty or confidence**
- **Options seem more useful than futures under our market conditions but can be pricey**



Pulling the Trigger

- **Volatility means pricing opportunities come and go.**
- **Futures prices respond to:**
 - **Market fundamentals, so track key economic factors and understand their impact on prices**
 - ◆ **Supply factors**
 - ◆ **Demand factors**
 - **Technical trading driven by market psychology, so following price moves and interpreting patterns can help**



DAV03 [10] - Milk

LAST: 14.35

CHANGE: 0.00

HIGH: 14.35

LOW: 14.30

10/23/2003





What Next?

- **Forward contracts, futures and options have a place on some farms**
 - **Learn more**
 - **Trade paper**
 - **Find a broker**



Information Sources

- **Market reports: USDA, trade publications, etc.**
- **Web sites**
 - www.cme.com
 - www.aae.wisc.edu/future
 - www.usda.gov
 - www.usda.mannlib.cornell.edu
- **Brokers & advisors**



Paper trading

- **It takes a while for most folks to get comfortable and willing to commit to a trade:**
 - **Formal management & marketing clubs**
 - **Informal groups of producers**
 - **Individual study**



Finding a broker

- **A broker who specializes in dairy futures is essential**
 - **CME web site**
 - **Coop management**
 - **Other farmers, friends, advisors**
- **Don't be afraid to interview them!**
- **Develop a written marketing plan**



III. Summary

- **Futures prices are useful for price forecasting**
- **Use historic price relationships between your mailbox price and the Class III futures price as a guide**



Summary

- **Futures & options can be used to hedge milk prices but:**
 - **Is price risk your highest priority?**
 - **If so, are futures and options the most effective price risk management tool?**
 - **Do you have the financial information you need to assess risk exposure and set sound price targets?**
 - **Do you have the appropriate attitude to implement a hedging strategy?**

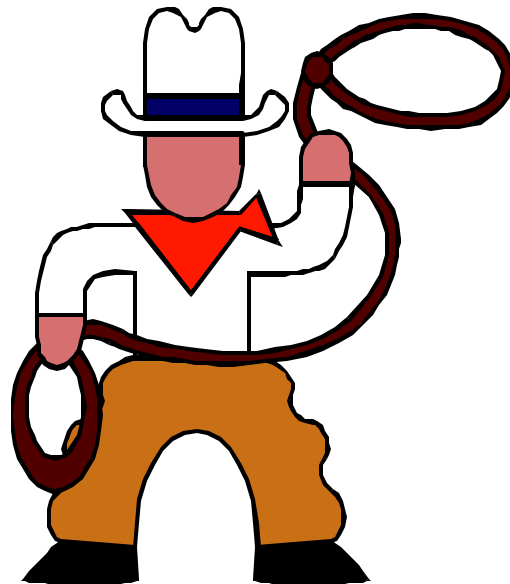


Summary

- **Basis risk is a problem**
 - **Develop historic basis data for your farm**
 - **You won't hit your target all the time**
- **Some family member must have the interest, time and skill to learn the ropes**
- **Find a competent broker you trust and can work with**
- **Develop a written marketing plan**



“If it’s easy, fun or can be done from the seat of a tractor, there ain’t no money in it”



**Anonymous
Cowboy**



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