Advanced Grain Marketing Techniques: Hedging Soft White Wheat

Mykel Taylor

Feb 15, 2011

WSU Extension Economist
School of Economic Sciences

Outline

- Managing risk exposure
- Marketing plans
- Marketing tools
- Track your performance
- Stress less (live longer)

Washington State University Extension

Managing Risk

- Risk preferences vary across people
- How do we limit production risk?
  - Crop insurance
  - Fertilizer/chemical application
  - Varietal selection
- How do we limit price risk?
  - Revenue insurance
  - Marketing contracts (Shepherd’s Grain)
  - Pray

Price Risk

- Sources of price risk
  - Domestic markets
  - International markets
  - *Not under your control*
- Manage your exposure with a marketing plan
  - Revenue insurance
  - Forward contracting
  - Hedging

Marketing Tools

- Why hedge your new crop?
  - Limits downside price risk
  - Still exposed to ***basis risk***

WASHINGTON STATE UNIVERSITY EXTENSION

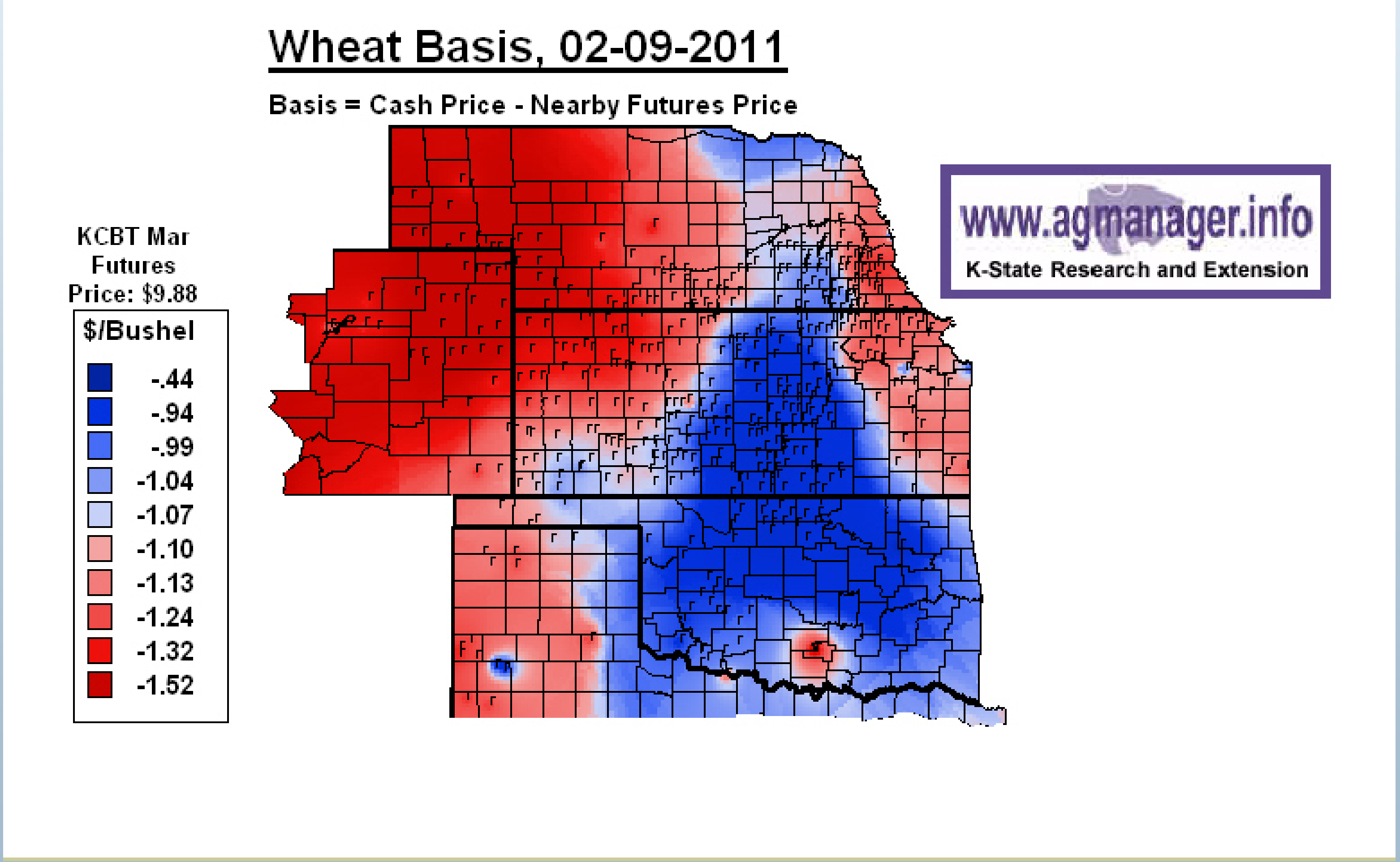
Basis

- Basis defined

  Cash Price – Nearby Futures Price = Basis

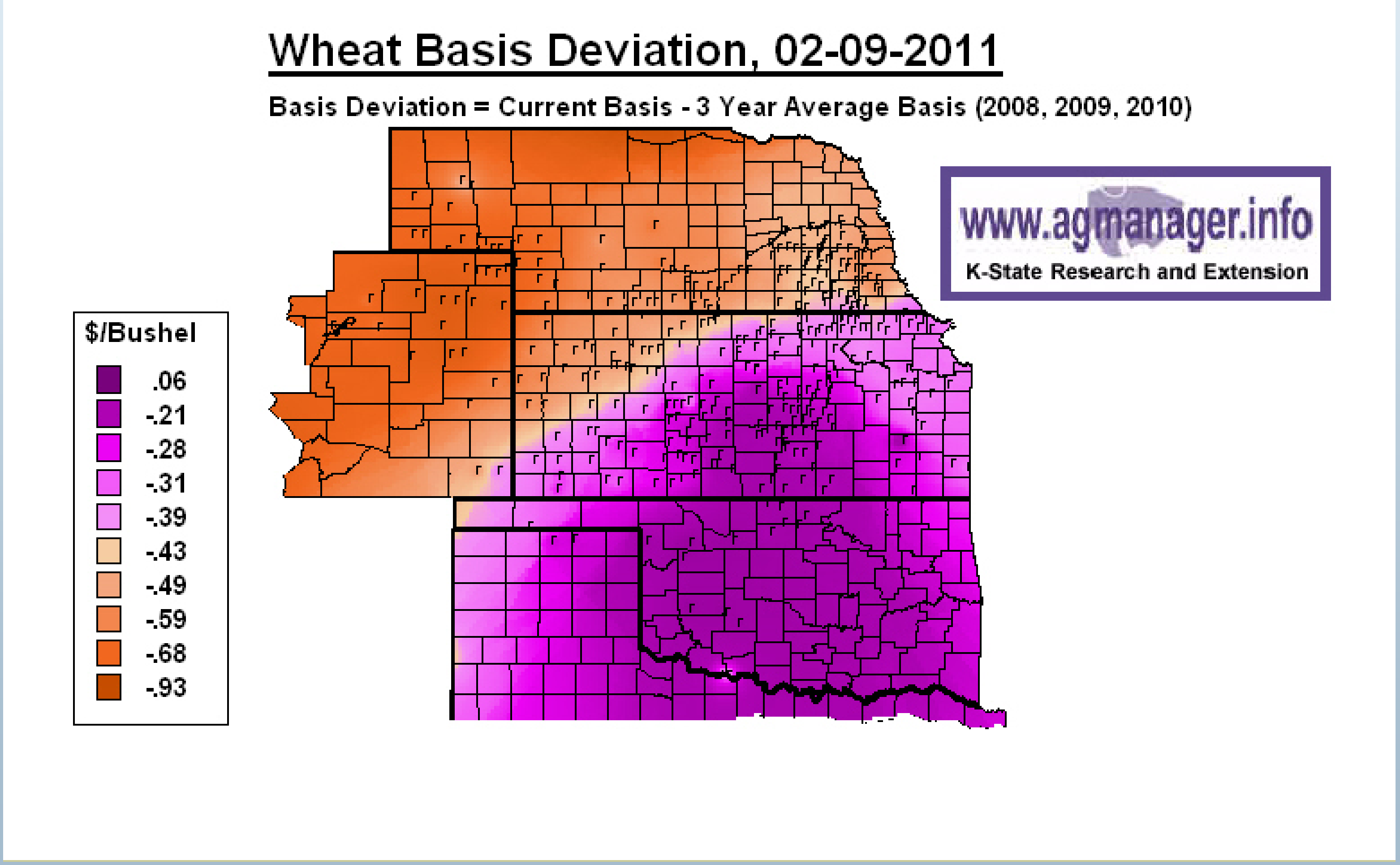
  - Reflects costs of transporting to a terminal market
  - Can be affected by local market conditions
    - Alternative uses: feedlots, bio-fuel plants
    - May vary over time
  - Kansas HRW wheat basis example

Geographic Variation



Washington State University Extension

Geographic Variation



WASHINGTON STATE UNIVERSITY EXTENSION

Basis

- Why trade price risk for basis risk?
  - Prices tend to be more volatile
  - Basis relationships for a given location tend to be stable over time
  - Relative risk exposure is reduced

Basis

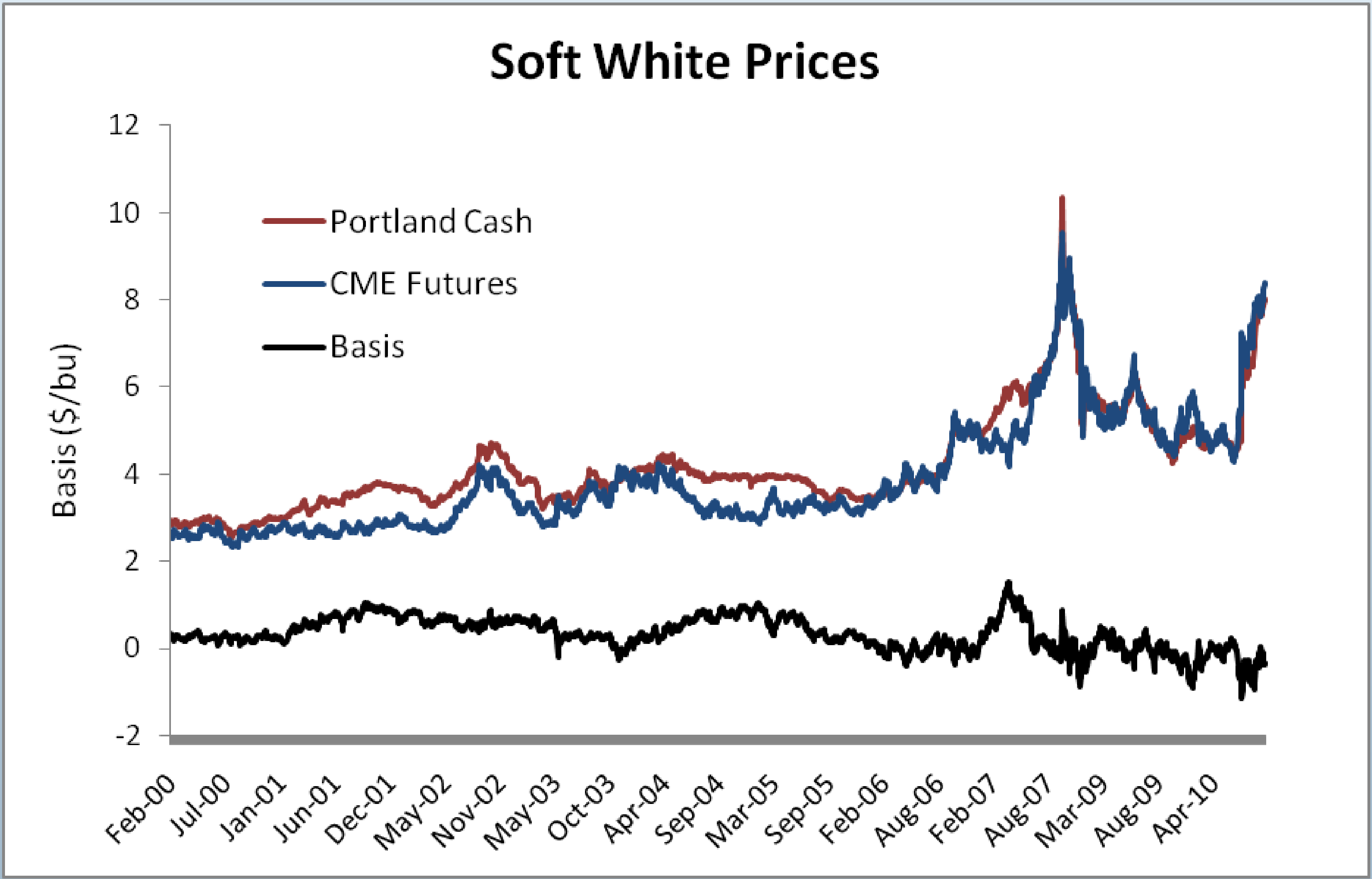
- Soft white wheat is not traded on the futures
- Cross-hedge with a CME soft red wheat contract

Wheat Futures

Contract Size	5,000 bushels (~ 136 Metric Tons)	
Deliverable Grade	#2 Soft Red Winter at contract price, #1 Soft Red Winter at a 3 cent premium, other deliverable grades listed in Rule 14104.	
Pricing Unit	Cents per bushel	
Tick Size (minimum fluctuation)	1/4 of one cent per bushel ($12.50 per contract)	
Contract Months/Symbols	March (H), May (K), July (N), September (U) & December (Z)	
Trading Hours	CME Globex (Electronic Platform)	6:00 pm - 7:15 am and 9:30 am - 1:15 pm Central Time, Sunday - Friday
	Open Outcry (Trading Floor)	9:30 am - 1:15 pm Central Time, Monday - Friday
Daily Price Limit	$0.60 per bushel expandable to $0.90 and then to $1.35 when the market closes at limit bid or limit offer. There shall be no price limits on the current month contract on or after the second business day preceding the first day of the delivery month.	
Settlement Procedure	Physical Delivery	
Last Trade Date	The business day prior to the 15th calendar day of the contract month.	
Last Delivery Date	Second business day following the last trading day of the delivery month.	

Washington State University Extension

Historical Data 2000-2011



WASHINGTON STATE UNIVERSITY EXTENSION

Historical Data 2000-2011

	CME Futures	Portland Cash	Basis
		($/bu)	
Average	3.89	4.22	0.33
Minimum	2.34	2.56	-1.16
Maxiumum	9.53	10.35	1.53
Std. Deviation	1.29	1.12	0.39

Washington State University Extension

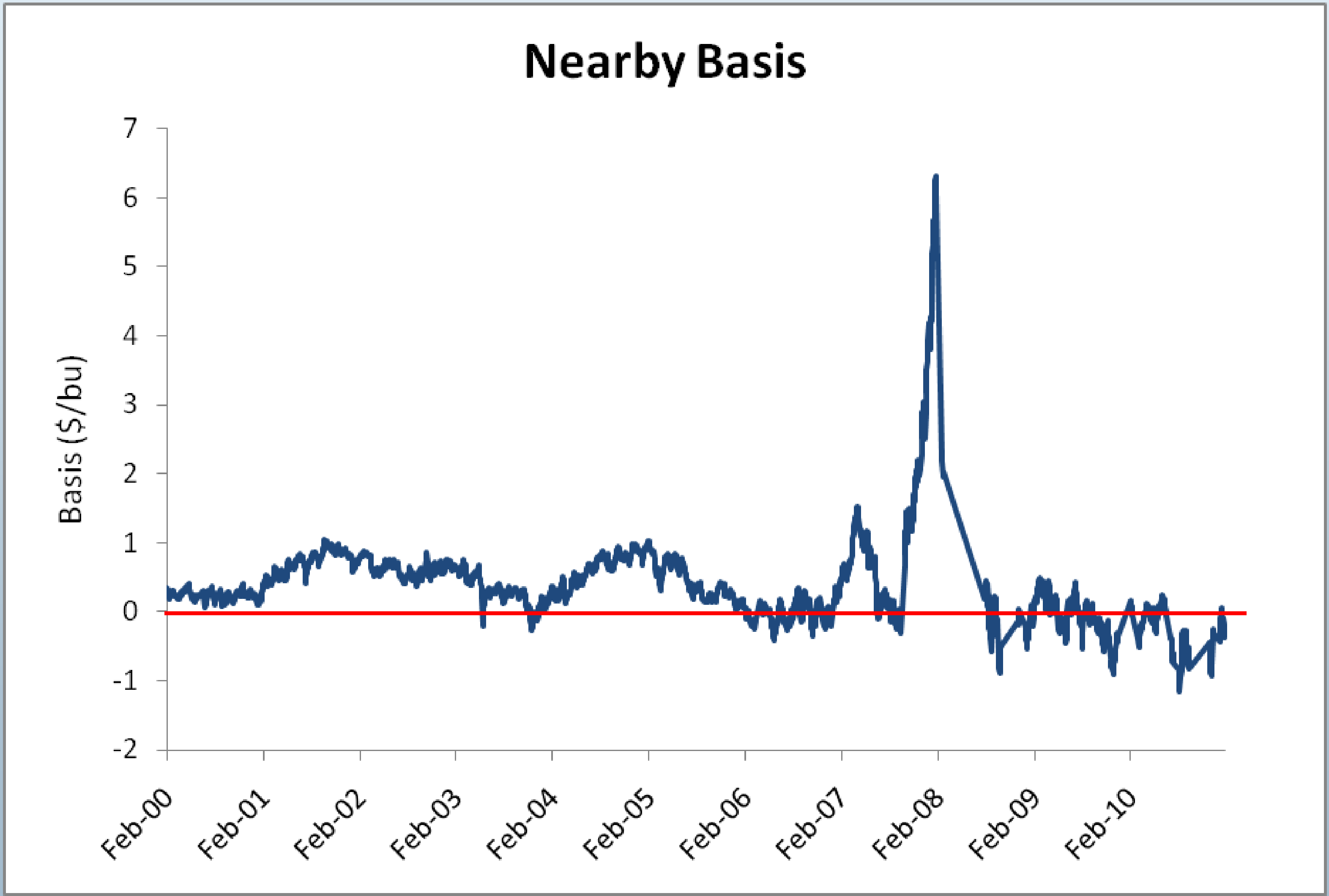
Historical Data 2000-2011

	CME Futures	Portland Cash ($/bu)	Basis
Average	3.89	4.22	0.33
Minimum	2.34	2.56	-1.16
Maxiumum	9.53	10.35	1.53
Std. Deviation	1.29	1.12	0.39

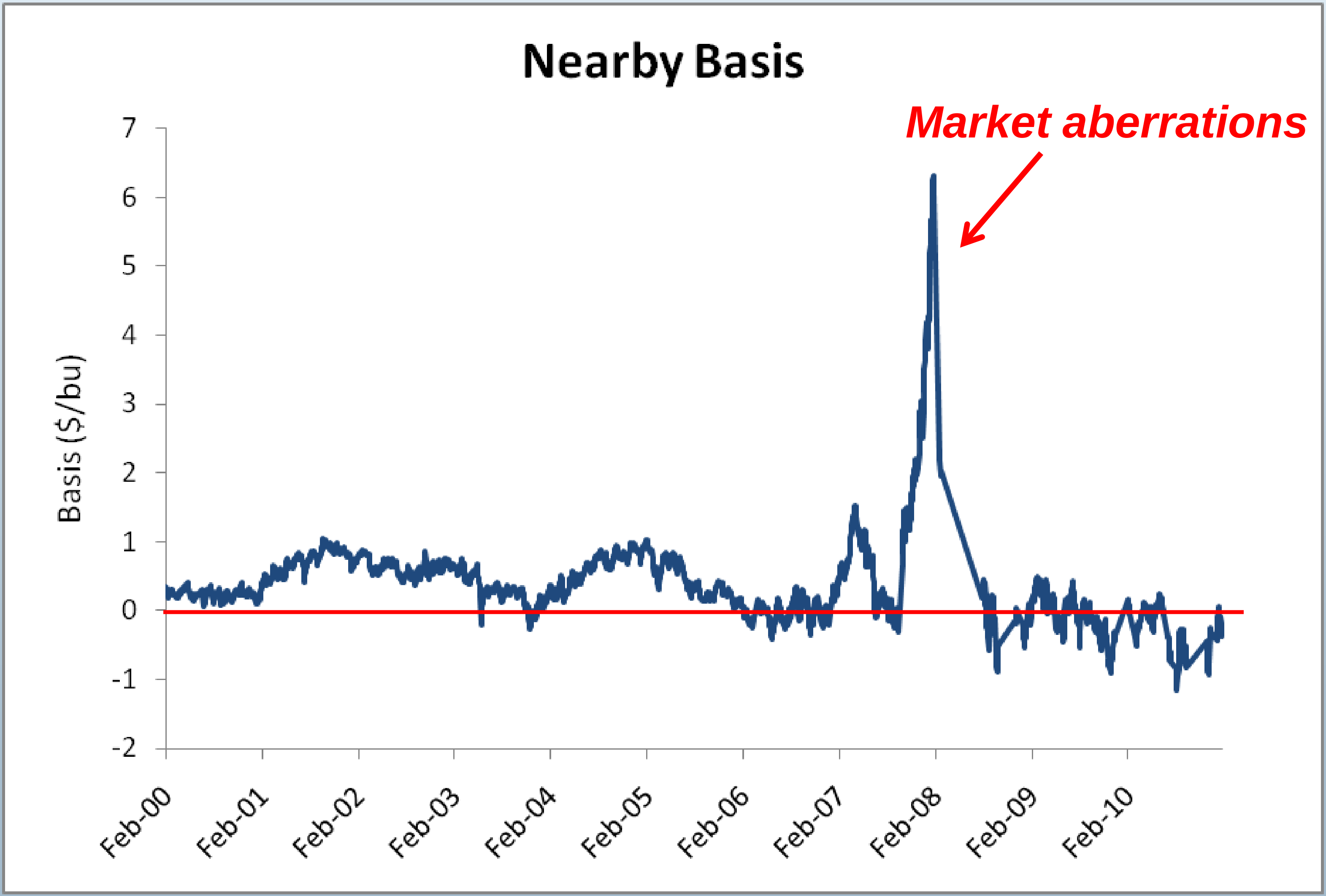
- Basis deviation is lower
  - Less volatile than prices
  - 95.4% of observations within 2 STD's (graph)

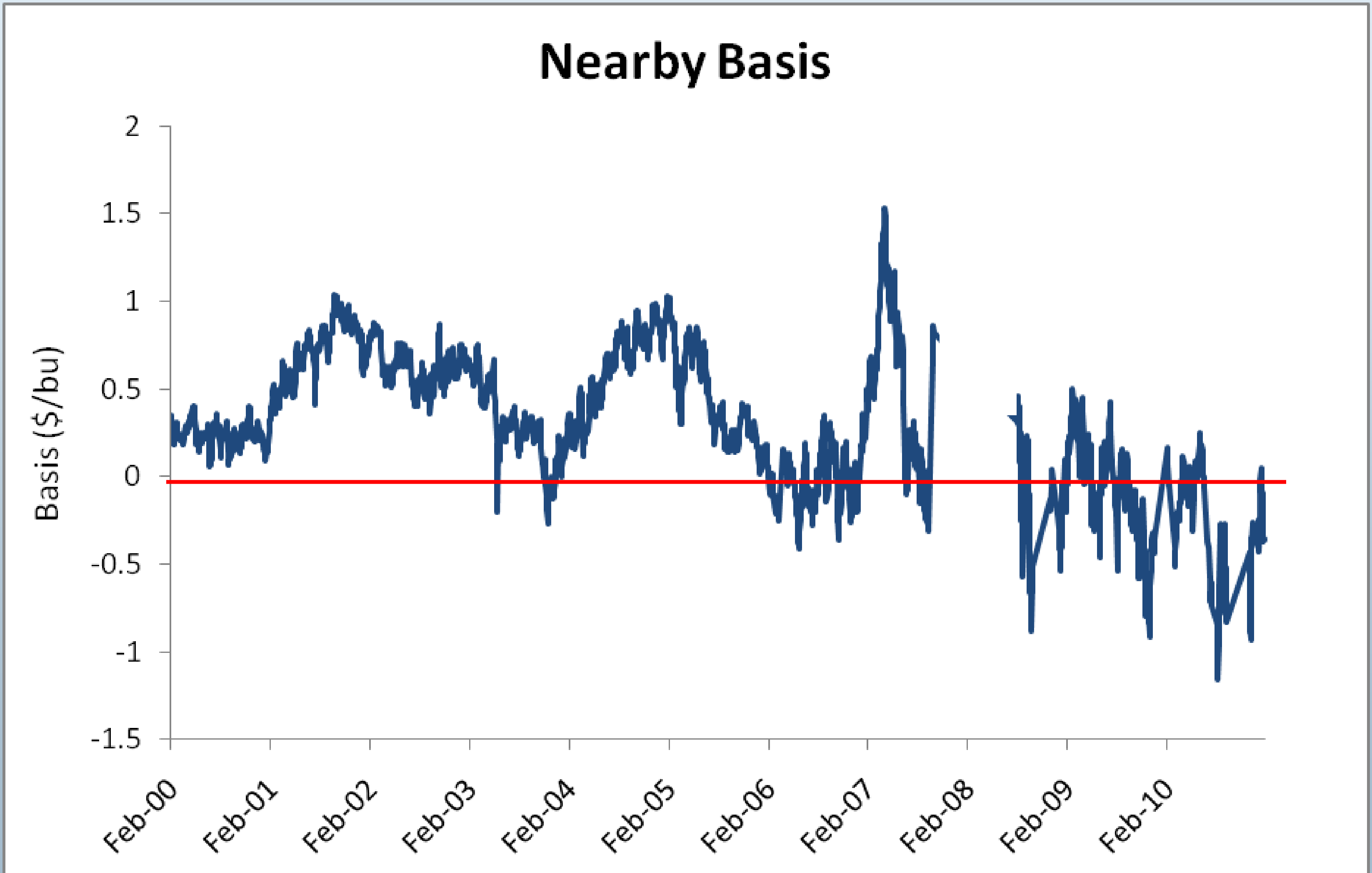
Washington State University Extension

Historical Data 2000-2011



Historical Data 2000-2011




Nearby Basis
Basis ($/bu)
2
1.5
1
0.5
0
-0.5
-1
-1.5
Feb-00
Feb-01
Feb-02
Feb-03
Feb-04
Feb-05
Feb-06
Feb-07
Feb-08
Feb-09
Feb-10

Washington State University Extension

Basis Levels 2008-2010

	CME Futures	Portland Cash ($/bu)	Basis
Average	5.67	5.54	-0.13
Minimum	4.28	4.25	-1.16
Maxiumum	8.97	8.45	0.50
Std. Deviation	1.06	1.00	0.31

Washington State University Extension

Basis Levels 2008-2010

	CME Futures	Portland Cash	Basis
		($/bu)	
Average	5.67	5.54	-0.13
Minimum	4.28	4.25	-1.16
Maxiumum	8.97	8.45	0.50
Std. Deviation	1.06	1.00	0.31

- Basis will range from -0.75 to 0.49
- Cash price will range from $3.54 to 7.54
- Risk exposure is still lower for basis

New Crop Hedge

- Example of new crop hedge
  - Sell a July wheat contract for some proportion of your expected wheat harvest
  - Size of contract not to exceed your estimated harvest (we aren’t speculating here)
  - Take an offsetting position on that July contract prior to expiration
  - Calculate your actual price received

New Crop Hedge

- Scenario 1
  - Price decreases at harvest

Date	Price Decreases	
15-Feb	Sell July Wheat Contract	$9.25/bu
1-Jul	Buy July Wheat Contract	$8.85/bu
	Futures Gain	+ $0.40/bu
(Cash price = $8.78)	Actual Basis	- $0.07/bu
	Commission Costs	- $0.02/bu
	Actual Cash Sale Price	$9.16/bu

Additional revenue = $0.38/bu

New Crop Hedge

- Scenario 2
  - Price increases at harvest

Date	Price Increases	
15-Feb	Sell July Wheat Contract	$9.25/bu
1-Jul	Buy July Wheat Contract	$9.65/bu
	Futures Loss	- $0.40/bu
(Cash price = $9.58)	Actual Basis	- $0.07/bu
	Commission Costs	- $0.02/bu
	Actual Cash Sale Price	$9.16/bu

Additional revenue = $0.00/bu

Cost of risk protection = $0.42/bu

New Crop Hedge

- Those scenarios demonstrated how a hedge protects from downside price risk

- What about the basis risk?
  - Examples assumed:

    expected basis = *actual* basis

  - Not a bad assumption if basis variability is <u>low</u>

- What if the basis changes?

New Crop Hedge w/ Basis Change

- Scenario 3
  - Harvest price decrease, basis widens

	Date	Price Decreases	
	15-Feb	Sell July Wheat Contract	$9.25/bu
	1-Jul	Buy July Wheat Contract	$8.85/bu
		Futures Gain	+ $0.40/bu
(Cash price = $8.48)		Actual Basis	- $0.37/bu
		Commission Costs	- $0.02/bu
		Actual Cash Sale Price	$8.86/bu

Additional revenue = $0.38/bu

Gain in futures from hedge is not enough to cover weakening of basis and you get **$0.30/bu less** than Scenario 1 ($9.16/bu)

New Crop Hedge w/ Basis Change

- Scenario 4
  - Harvest price decrease, basis narrows

	Date	Price Decreases	
	15-Feb	Sell July Wheat Contract	$9.25/bu
	1-Jul	Buy July Wheat Contract	$8.85/bu
		Futures Gain	+ $0.40/bu
(Cash price = $9.08)		Actual Basis	$0.23/bu
		Commission Costs	- $0.02/bu
		Actual Cash Sale Price	$9.46/bu

Additional revenue = $0.38/bu

Gain in futures plus strengthening of the basis earns you **$0.30/bu more** than Scenario 1 ($9.16/bu)

New Crop Hedge

- Depending on the direction of a change in basis, you can benefit or lose
  - Basis widens: lose money
  - Basis narrows: gain money
- Is this a level of variability you can live with?
- If not, what are your other marketing options?

Marketing Tools

- Forward contracting
  - Alternative to hedging
  - Allows you to price new crop prior to harvest
  - Eliminates downside price risk *and* basis risk
    - No commission costs
    - Fewer transaction costs (paperwork, time)

WASHINGTON STATE UNIVERSITY EXTENSION

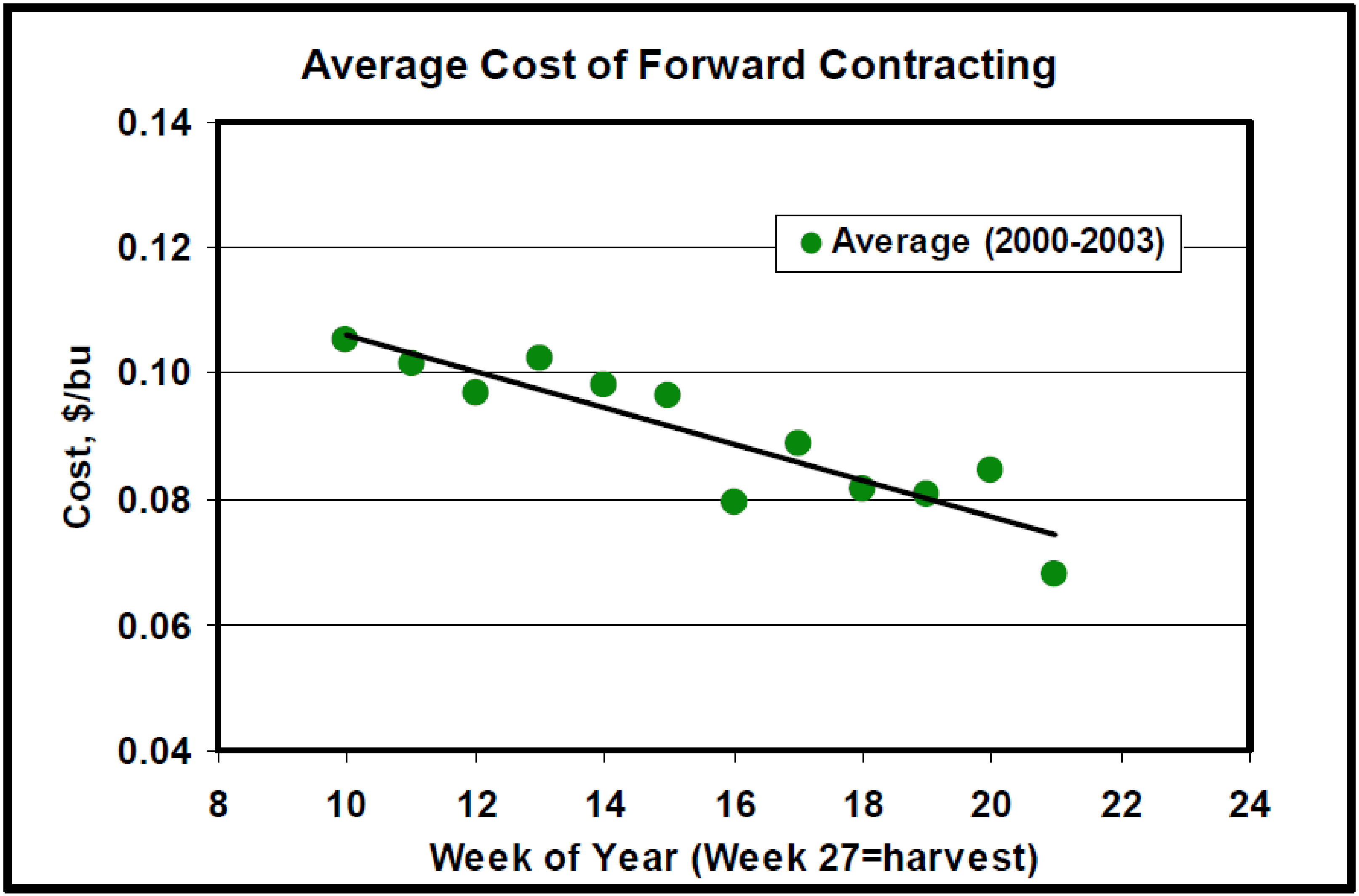
Forward Contracting

- Cost of risk management
  - Elevators will charge you a premium for accepting your price risk
  - New crop bids and cash prices converge as harvest nears

- Another Kansas example
  - Cost of forward contracting across 48 locations
  - Four years of data

WASHINGTON STATE UNIVERSITY EXTENSION

Forward Contracting



Washington State University Extension

Marketing Tools

- Track your progress
  - Data collection over time will help you evaluate your marketing plan
  - If you encounter Scenario 2 and 'miss out' on a harvest time price increase, are you going to hedge next year?
  - What is your 3,4,5 year average price under a marketing plan?
  - How does it compare to selling cash at harvest?

Marketing Tools

- Risk management isn't a free lunch
  - Hedging
    - Commission costs
    - Losses in futures market
  - Forward contracting
    - Risk premium from transfer of basis risk to elevator
  - Management time
    - Tracking your performance over multiple years

- What is it worth to you to stress less?

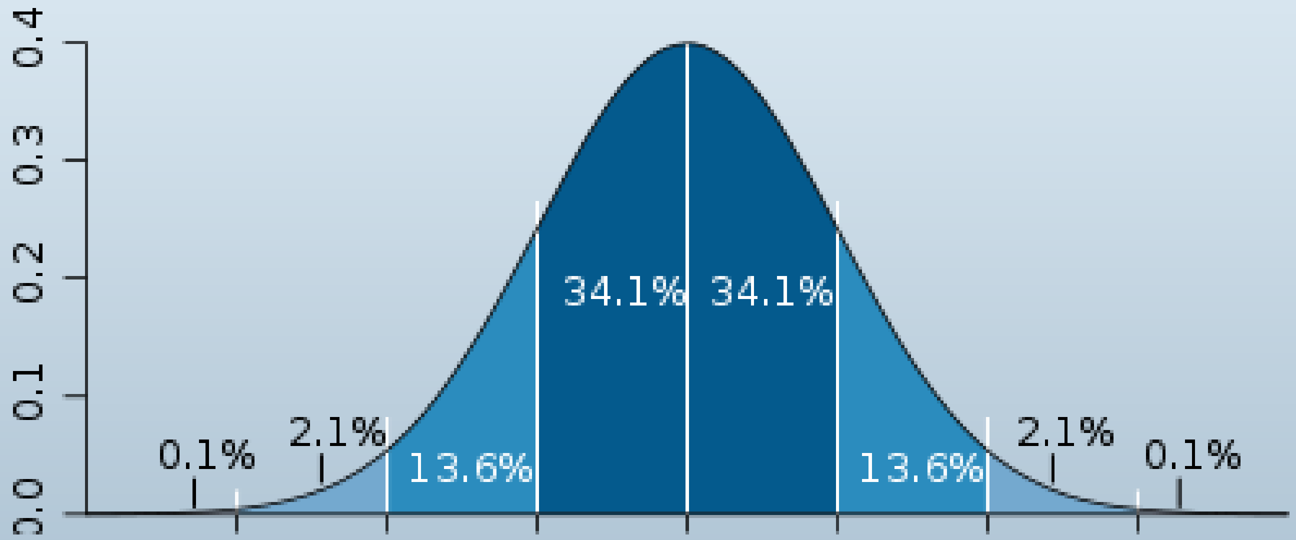
Questions?

Mykel Taylor

m_taylor@wsu.edu

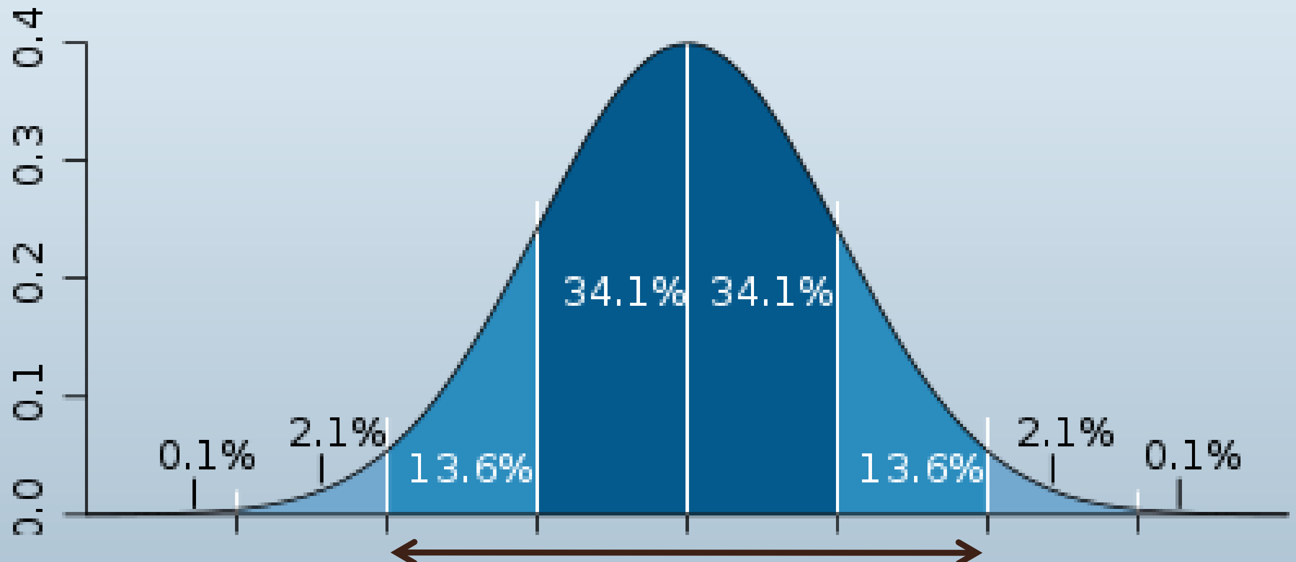
509-335-8503

Standard Deviation



WASHINGTON STATE UNIVERSITY EXTENSION

Standard Deviation



Basis will range from -0.45 to1.11

Cash price will range from $1.98 to $6.46

Which do you want to predict?