(Lecture notes for the Week 2 First Session, Monday, 2/17/14)

Introductory Pricing/Marketing Workshop for Grains, On-Line

Review

Hedging, by going through Homework X

New

Basis Proof

Breakeven Basis, when do you lift a Hedge?

Pricing Tools

<u>Homework X</u>   ;)   Check out examples in Lesson 2

Information for Hedge (all in bushels)

Date: 2/17/2014

July Corn Futures	**$4.47**
Cash Price	**$3.96**
Expected Late June Basis	**$-.30 (30 cents under futures)**
Monthly Storage Costs	**$0.02 (So 4 months times $0.02 equals $0.08 storage)**
Brokerage Cost	**$0.01**

In the Table below the above information allows you to fill out the first line for date 2/17/14, and the last Column labeled E.B., which allows you to find Net Price Expected.

Date to lift Hedge 6/17/2014

July Corn Futures	**$4.05**
Cash Price	**$3.80**

This information should allow you to fill in the remainder of the below table, use the above costs. Remember the examples.

I will begin our session tomorrow evening reviewing hedging by going over this Homework/Example

HEDGE TABLE

$B = C - F$

CASH	Buy		FUTURES		BASIS	E.B.
Date	Operation	¢/bu.	Operation	¢/bu.	¢/bu.	¢/bu.
2/17/14	Store	3.96	Sell July	4.47	-.51	-.51
6/17/14	Sell	3.80	Buy July	4.05	-.25	-.30
Gain (+) or Loss (-)		-.16		+.42	+.26	+.21
Storage Cost		-.08			-.08	-.08
Net From Cash Market		-.24				
Brokerage				-.01	-.01	-.01
Net From Futures		+.41		+.41		
Net From Hedge		+.17			+.17	+.12
Net Price Received	3.96 +17	4.13				
Net Price Expected	3.96 + 12	4.08				

.25
-.30
-.51

HEDGE TABLE

CASH			FUTURES		BASIS	E.B.
Date	Operation	¢/bu.	Operation	¢/bu.	¢/bu.	¢/bu.
Gain (+) or Loss (-)						
Storage Cost						
Net From Cash Market						
Brokerage						
Net From Futures						
Net From Hedge						
Net Price Received						
Net Price Expected						

Hedge (can be different only by the amount different from expected basis)

July Futures		$4.47		$4.47
Basis	Exp.	-0.30	-.35	-0.25 Actual (+0.05)
Storage		-0.08		-0.08
Brokerage		-0.01		-0.01
Exp. Net Price		$4.08	4.03	$4.13 Net Price

Or

Cash	$3.80
Storage	-0.08
Brokerage	-0.01
Net from Futures	+0.42
Net Price	$4.13

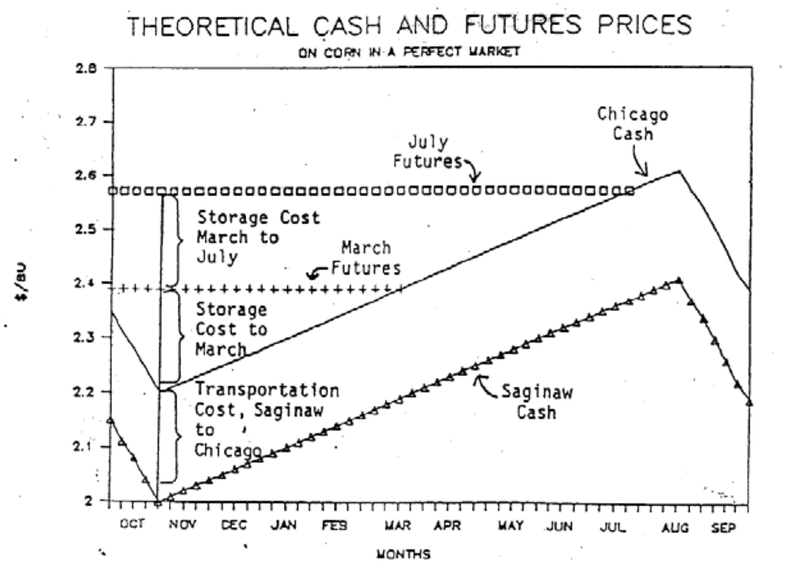
Hedge (can be different only by the amount different from expected basis)

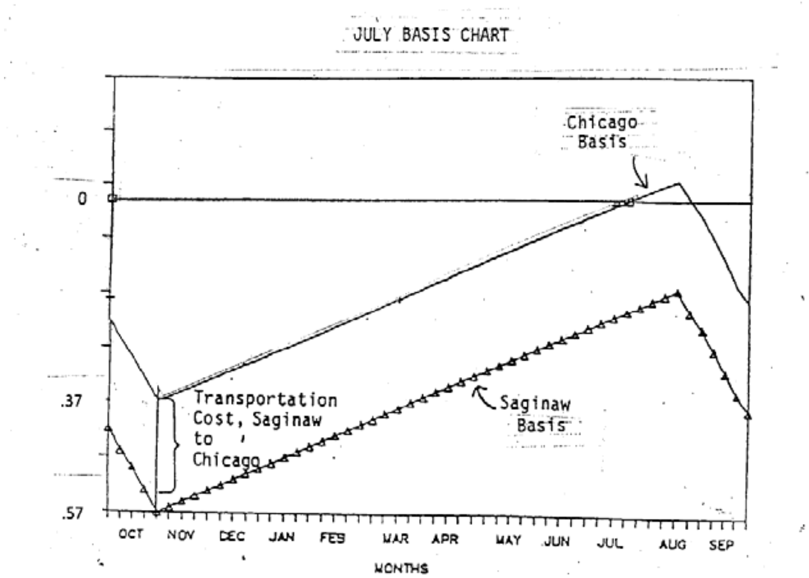
July Futures		$4.47	$4.47	
Basis	Exp.	-0.30	-0.25	Actual (+0.05)
Storage		-0.08	-0.08	
Brokerage		-0.01	-0.01	
Exp. Net Price		$4.08	$4.13	Net Price

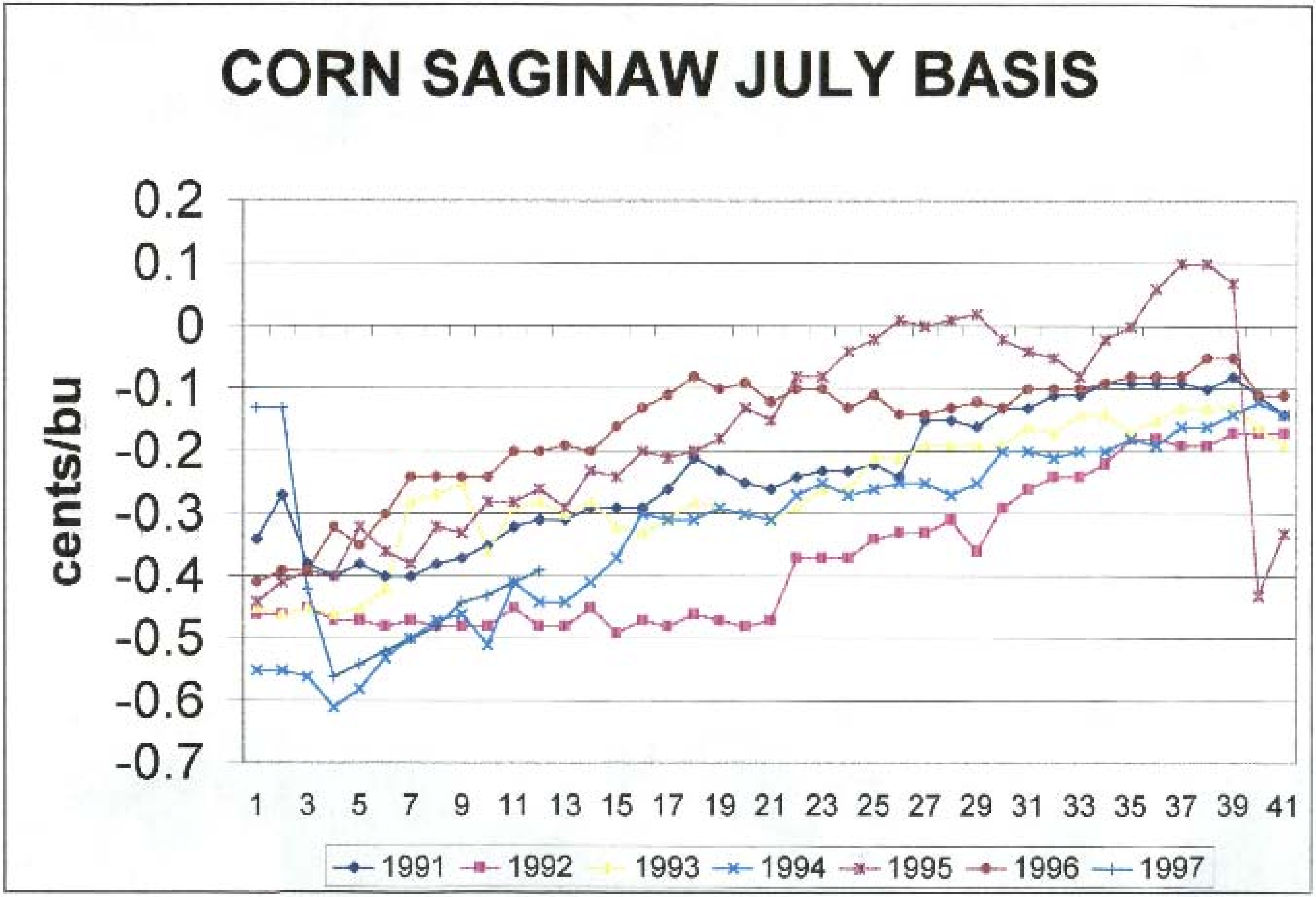
Or

Cash	$3.80
Storage	-0.08
Brokerage	-0.01
Net from Futures	+0.42
Net Price	$4.13

Basis Proof


THEORETICAL CASH AND FUTURES PRICES
ON CORN IN A PERFECT MARKET
$/BU
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
Chicago Cash
July Futures
Storage Cost March to July
March Futures
Storage Cost to March
Transportation Cost, Saginaw to Chicago
Saginaw Cash
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
MONTHS


JULY BASIS CHART
Chicago Basis
0
.37
.57
Transportation Cost, Saginaw to Chicago
Saginaw Basis
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
MONTHS


CORN SAGINAW JULY BASIS
cents/bu
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41
1991
1992
1993
1994
1995
1996
1997

<u>Basis Proof</u> **(will go through by hand)** **<u>Gain is Basis Change</u>**

Gain is Basis Δ

Today Future = 3.00

Cash = 2.00

Basis = -1.00 ⟷ -.20

Expect the Basis to go to -.20

Basis gain +.80

Futures Up, Cash up

Sell F = 3.00 → Buy 3.80

-.20

Buy Cash 2.00 → 3.60 sell

Loss

F gain 3.00 - 3.80 = -.80

c gain 3.60 - 2.00 = +1.60

+.80

Futures down, Cash down

Sell 3.00 → buy 2.00

Buy 2.00 → 1.80 ← -.20

Fut 3.00 - 2.00 = +1.00

cash 2.00 - 1.80 = -.20

+.80

Basis Proof (continued)

sideways market

sell 3.00 → 2.60

−.20

buy 2.00 → 2.40

Fut 3.00 − 2.60 = +.40

cash 2.40 − 2.00 = +.40

+.80

Breakeven Basis, when do you lift a Hedge?

Break-Even Basis Line helps us answer two questions.

1) **Should we hedge?**

    a. **Basis needs to be weaker than the B-E Basis Line to consider hedging.**

2) **When to get out of/lift the hedge?**

    a. **When basis strengthens to B-E Basis, consider lifting hedge.**

Breakeven Basis Chart

Plot a break-even basis line and then the monthly basis as you go through time:

Expected normal basis on June 15:	**-20¢**
Harvest October 15:	**Lift hedge by June 15**
Storage cost:	**3¢ per month** x 8 = .24.

+ .20.

.44.

B.E.

-60

-20

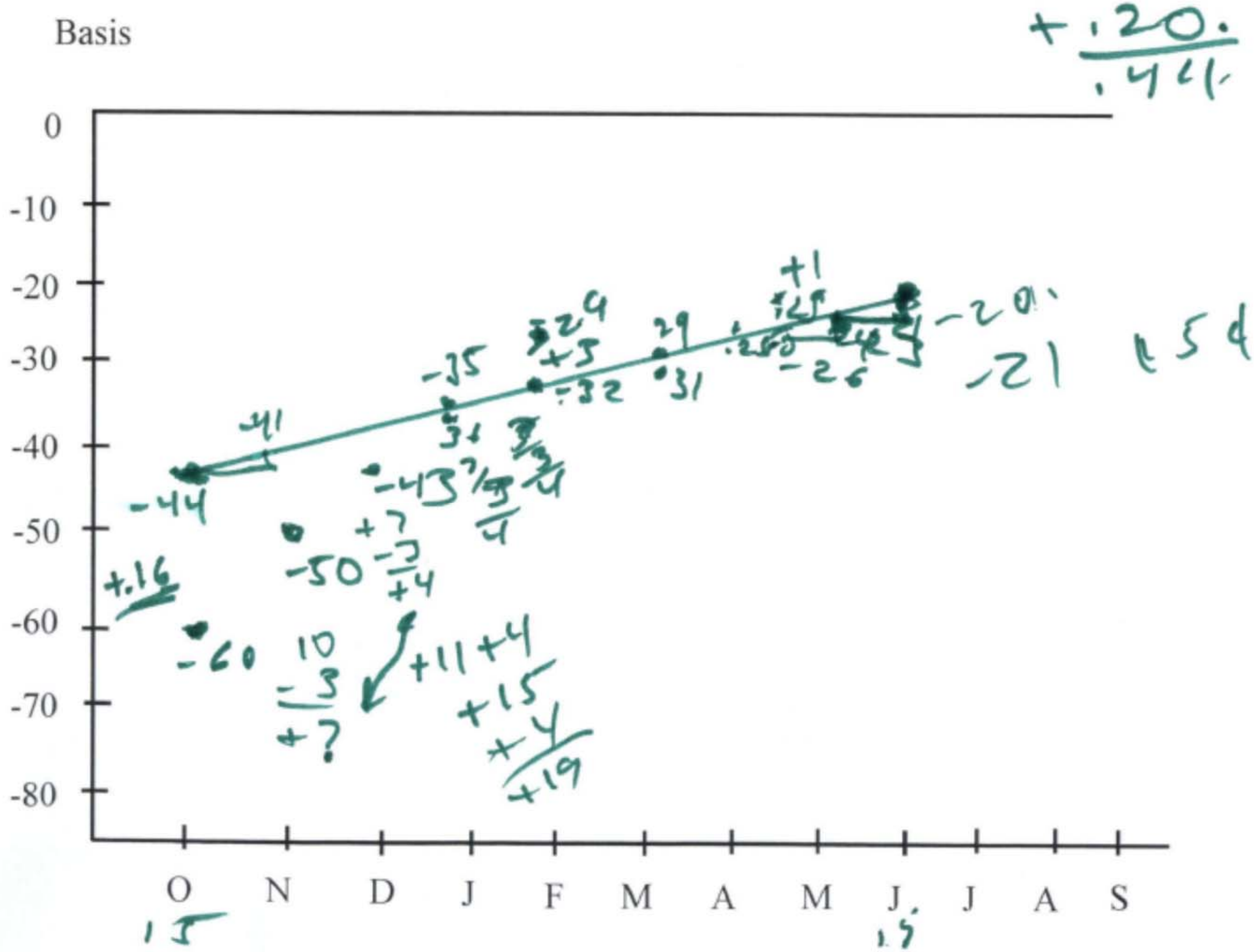
+40

-24

+16

+3

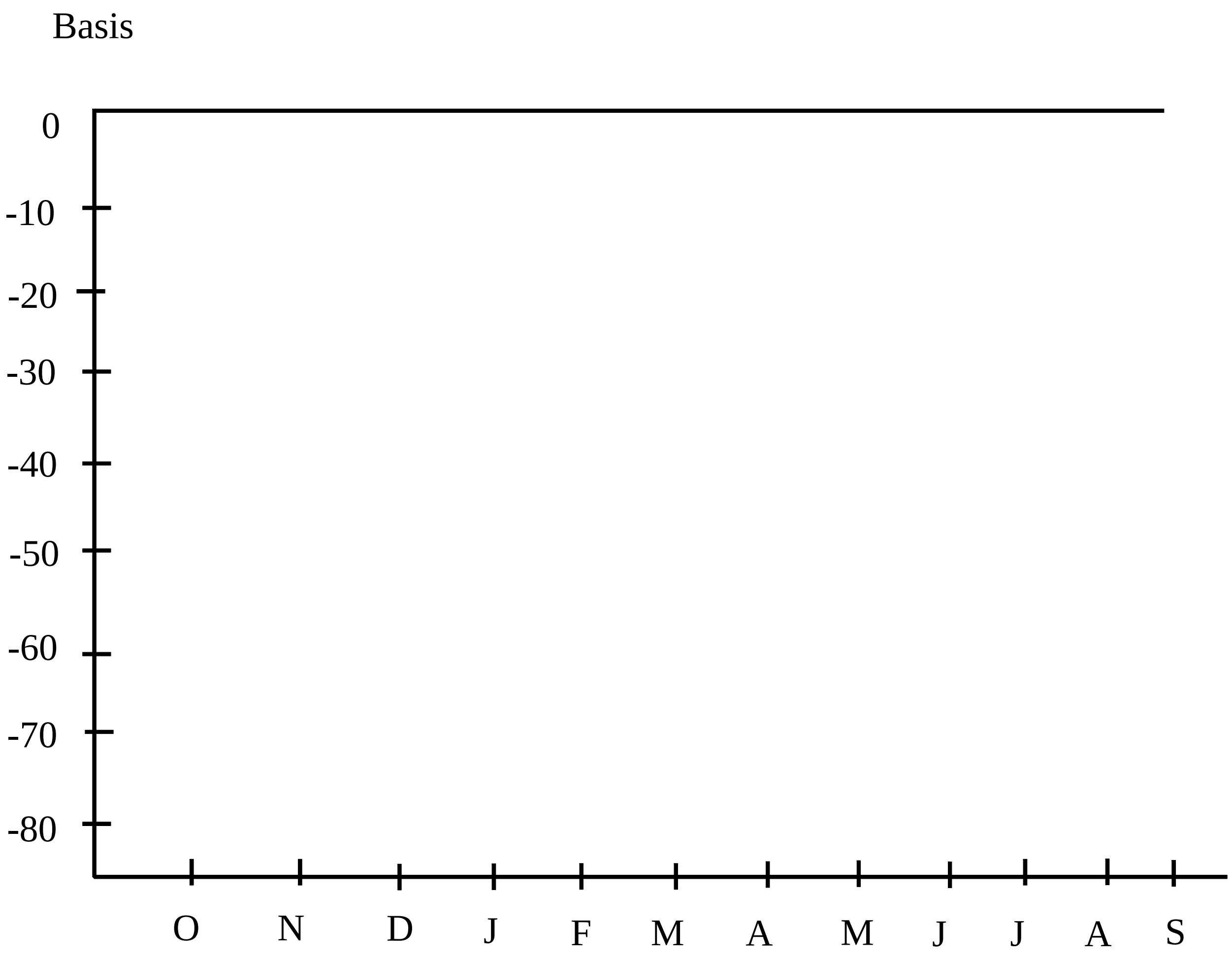
+19



Breakeven Basis Chart

Plot a break-even basis line and then the monthly basis as you go through time:

Expected normal basis on June 15:	**-20¢**
Harvest October 15:	**Lift hedge by June 15**
Storage cost:	**3¢ per month**



Breakeven Basis Table

Calculate the monthly break-even basis next to monthly basis listed below:

Expected normal basis on June 15:	**-20¢**
Harvest October 15:	**Lift hedge by June 15**
Storage cost:	**3¢ per month**

	Basis	**B.E.**	
October 15	-60	-44	+16
November 15	-50	-.41	
December 15	-43	-.38	
January 15	-36	-35	+3 +16 = 19
February 15	-29	-.32	+3 +16 = ~~19~~ 17
March 15	-31	-.29	
April 15	-25	-.26	+1 +16 = 17
May 15	-24	-.23	
June 15	-21	-.20	-1 +16 = 15

4.00
-.20
-.20
4.09

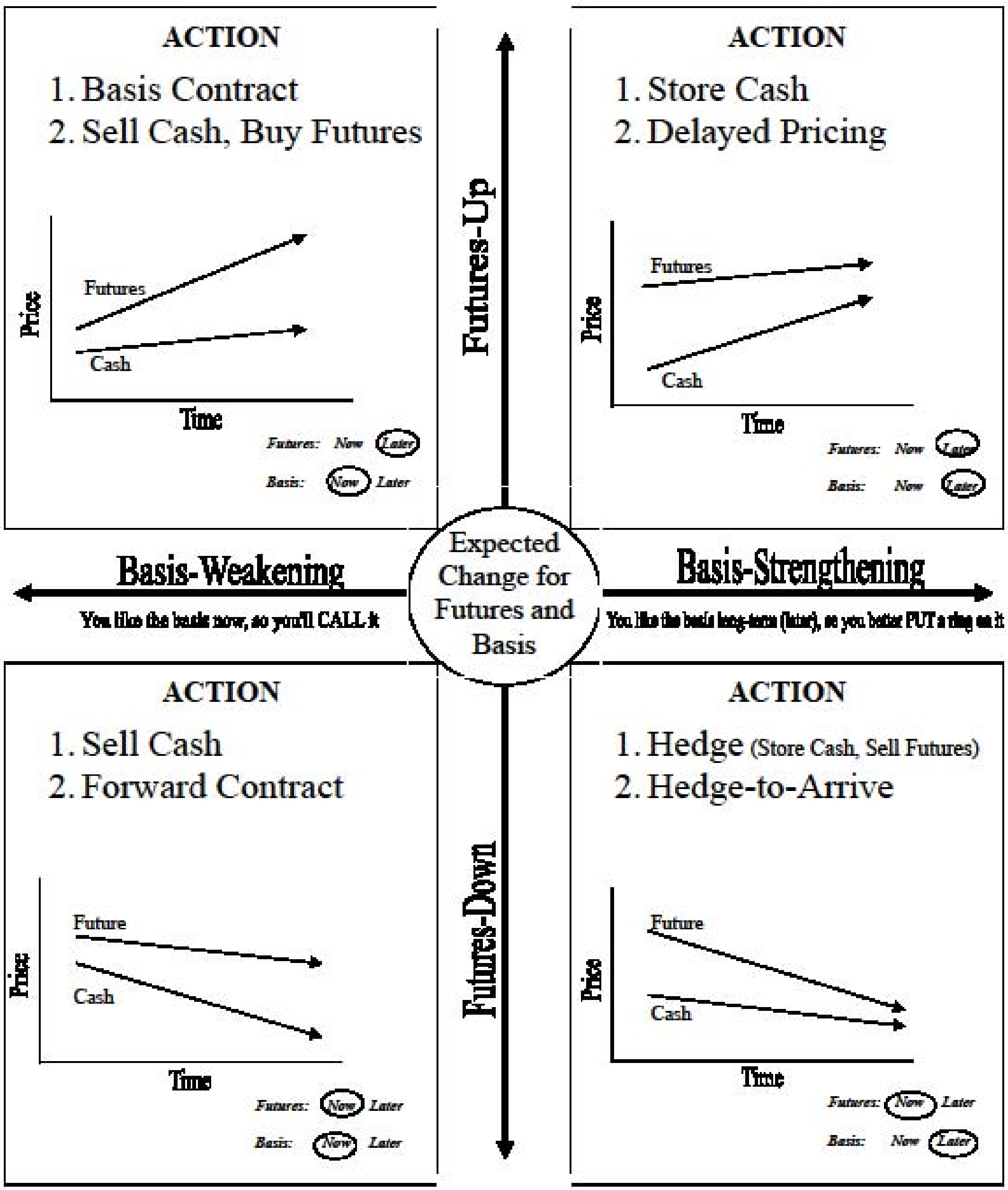
Breakeven Basis Table

Calculate the monthly break-even basis next to monthly basis listed below:

Expected normal basis on June 15:	**-20¢**
Harvest October 15:	**Lift hedge by June 15**
Storage cost:	**3¢ per month**

	Basis	B.E.
October 15	_____	_____
November 15	_____	_____
December 15	_____	_____
January 15	_____	_____
February 15	_____	_____
March 15	_____	_____
April 15	_____	_____
May 15	_____	_____
June 15	_____	_____

Pricing Decision Chart for Cash Product Sellers



Background paper for Definitions, and Advantages and Disadvantages, is on webpage

CROP MARKETING ALTERNATIVES

I. The Cash Market

A. Definition: A price agreement for the immediate delivery of a commodity.

B. Advantages

1. Cash quickly available
2. Price is known at time of sale
3. No commitment to deliver a given amount
4. Easy to understand
5. Deal with people you know

C. Disadvantages

1. Timing may be inopportune, especially at harvest
2. May not be able to take advantage of special pricing opportunities before harvest
3. Selling price is not established when commitment is made to produce a crop
4. Similarly, storing for later cash sale entails considerable risk

Corn Futures 2/14/14

@C - CORN - CBOT

Month	Last	Change	Open	High	Low	Close	Time	More
Mar 14	445'4	4'6	440'2	446'0	438'0	445'2s	03:02P	
May 14	451'0	4'2	446'0	451'4	443'2	450'6s	02:59P	
Jul 14	455'0	4'0	450'6	455'4	448'2	455'0s	08:30A	
Sep 14	456'4	4'0	452'2	456'6	450'0	456'2s	08:28A	
Dec 14	459'4	3'4	456'0	460'0	454'0	459'6s	12:08P	
Mar 15	469'4	3'6	465'0	469'6	463'6	469'4s	02:55P	
May 15	475'2	3'4	472'0	475'4	470'0	475'6s	02/16	
Jul 15	478'2	3'4	475'4	478'4	474'4	478'4s	03:23P	
Sep 15	464'2	3'0				469'4s	02/14	

CBOT CORN			Mason, MI			
Mon	Price	Chg	Delivery	Basis	Cash	
Mar 14	445'2s	4'6	FEB 2014	-0.40	4.05	
Mar 14	445'2s	4'6	MAR 2014	-0.38	4.07	
Jul 14	455'0s	4'0	JUN 2014	-0.30	4.25	
Dec 14	459'6s	3'4	O/N 2014	-0.50	4.10	

STORE (OR WAIT TO FORWARD CONTRACT)

Cash Price 4.05
(Store)

	Prices Up	Prices Down
Cash Price	5.00 (Sell)	3.00 (Sell)
Less: Storage Costs	-.08 20	-.08 .2.
Equals Net Price Received	4.92	3.92

STORE (OR WAIT TO FORWARD CONTRACT)

Cash Price ______________
(Store)

	Prices Up	Prices Down
Cash Price	______________ (Sell)	______________ (Sell)
Less: Storage Costs	______________	______________
Equals Net Price Received	______________	______________

Delayed Pricing or Price Later Agreements

A. Definition: Agreements that grain delivered to elevators will be priced at a time selected by the seller. The elevator takes title to the product, may sell it, and charges the producer for "service" and storage.

B. Advantages

1. Easy to understand
2. Price determined by producer on date after commodity is delivered to elevator
3. No margin money required
4. Quantity not standardized
5. Provides off-farm storage at harvest

C. Disadvantages

1. Grower loses title of commodity on delivery
2. Service and storage costs may be higher than other alternatives
3. Cannot use contract as loan collateral
4. Claim against elevator is same as any other creditor
5. No downward price protection

DELAYED PRICING

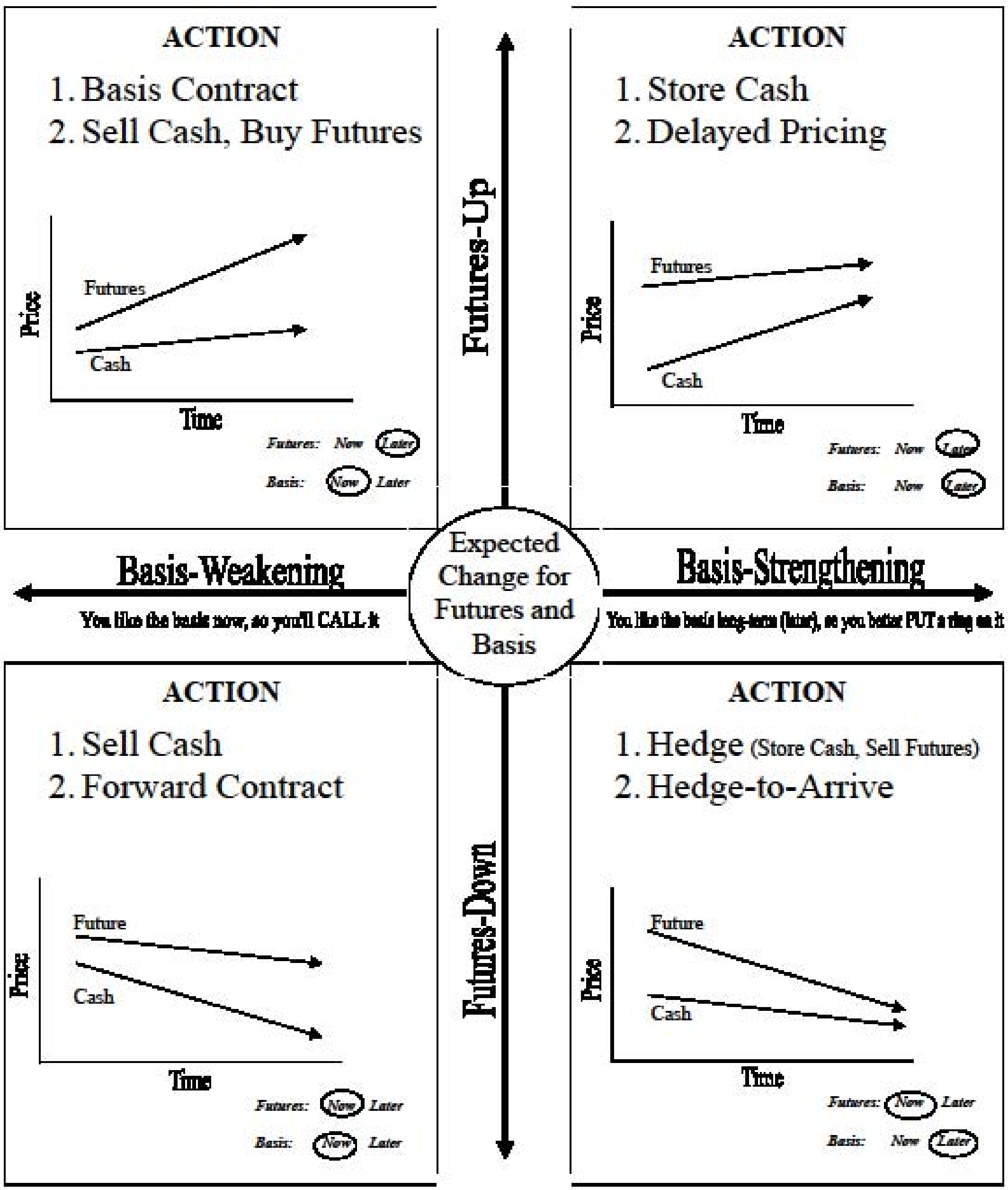
Cash Price 4.05
(Deliver)

	Prices Up	Prices Down
Cash Price	5.00	3.00
Less: D. P. Charges (4mo 5c)	-.20	-.20
Equals Net Price Received	4.80	2.80

DELAYED PRICING

Cash Price	______________ (Deliver)	
	Prices Up	**Prices Down**
Cash Price	______________	______________
Less: D. P. Charges	______________	______________
Equals Net Price Received	______________	______________

Pricing Decision Chart for Cash Product Sellers



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4. Similarly, storing for later cash sale entails considerable risk

CASH SALES

Cash Price	4.05 (Sell)	
	Prices Up	**Prices Down**
Cash Price (For Comparison)	5.00	3.00
Cash Sales Above Equals Net Price Received	4.05	4.05

CASH SALES

Cash Price ______________
(Sell)

	Prices Up	Prices Down
Cash Price (For Comparison)	______________	______________
Cash Sales Above Equals Net Price Received	______________	______________

Forward Contracts

A. Definition: Price agreements for future delivery of a commodity.

B. Advantages

1. Easier to understand than futures contracts
2. No margin money necessary
3. Quantity not standardized
4. Price specified at sale
5. Deal with people you know

C. Disadvantages

1. Difficult to get out from cash contract if oversold, i.e., crop failure
2. May offer lower net return than futures contract
3. May have to buy on market to fulfill forward contract
4. One party may default

FORWARD CONTRACT

Cash Price (For Comparison)	4.05	
	on farm	off farm
Forward Contract Price	4.25	
Less: Storage Costs	-.08	-.24
Equals Net Price Received	4.17	4.01

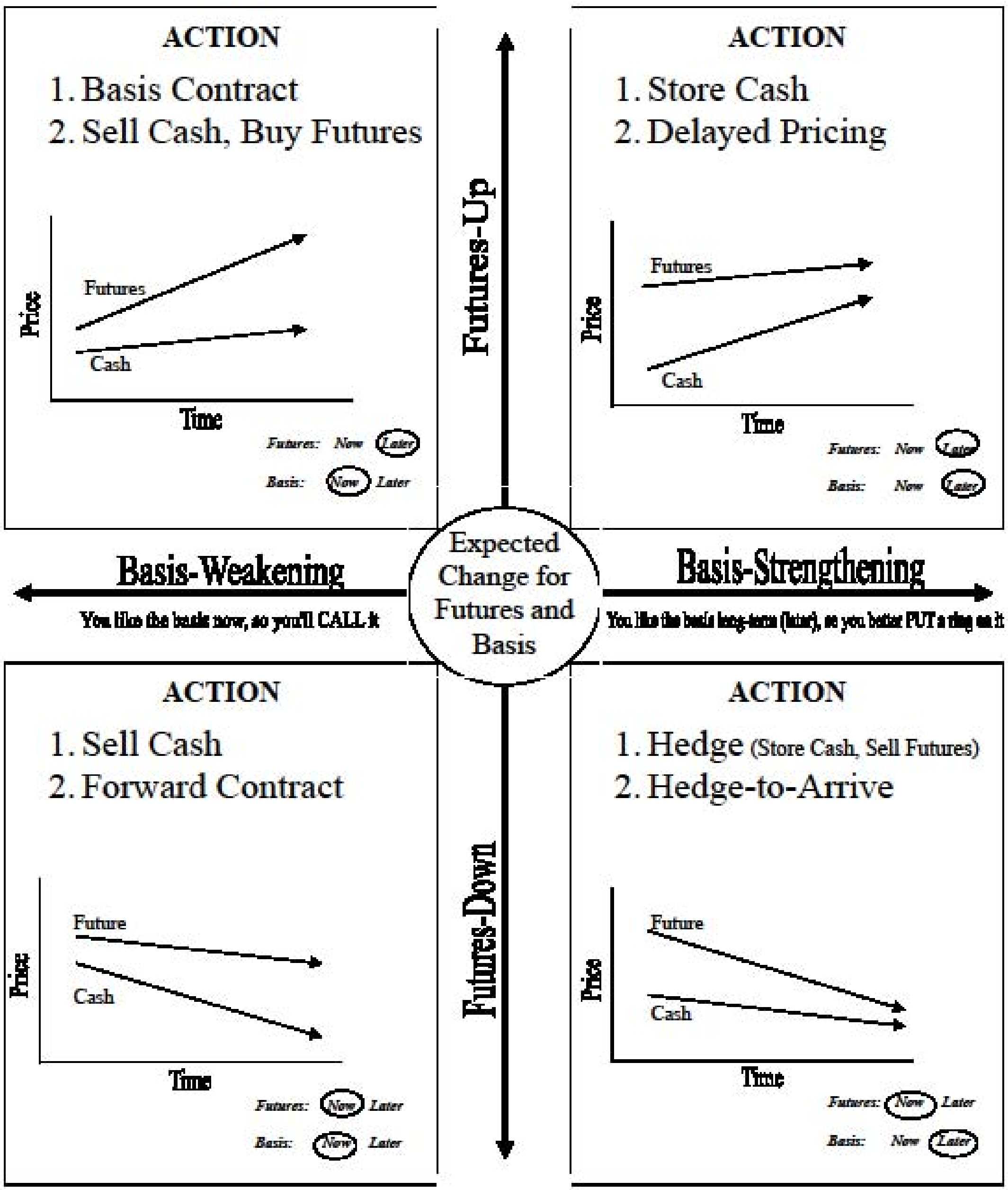
	Prices Up	Prices Down
Cash Price (For Comparison)	5.00 - .08	3.00 - .08
Forward Contract Price	4.25	4.25
Less: Storage Costs	-.08	-.08
Equals Net Price Received	4.17	4.17

FORWARD CONTRACT

Cash Price (For Comparison)	______________
Forward Contract Price	______________
Less: Storage Costs	______________
Equals Net Price Received	______________

	Prices Up	Prices Down
Cash Price (For Comparison)	______________	______________
Forward Contract Price	______________	______________
Less: Storage Costs	______________	______________
Equals Net Price Received	______________	______________

Pricing Decision Chart for Cash Product Sellers



Hedging with Futures

A. Definition: Hedging is establishing an opposite position in the futures market as being held in the cash market, concurrently. In that way, the hedger is isolated from major changes in the level of price since the cash and futures markets tend to move together. An individual committed to the production of a commodity or holding the commodity would have sold futures to be hedged. An individual committed to the production of a commodity would have purchased futures related to inputs that must be purchased later in the cash market.

B. Advantages

1. Reduces risk by locking in a price (profit)
2. Flexibility
   a. Offset--futures position can be liquidated quickly without additional costs
   b. Deliver--while rare, this option is always available
3. Returns can be estimated in advance and used to evaluate other prices
4. Extends period of marketing (at least another year)

C. Disadvantages

1. Requires margin
2. Difficult to understand terminology
3. Requires knowledgeable and willing lender
4. Requires competent broker
5. Basis risk
6. Quantity traded is standardized
7. Psychology of marketplace, i.e., requires discipline

<u>HEDGE</u> (Hedge-to-Arrive)

July (Futures Month)	4.55 (Sell)	4.05
Expected Basis	-.25	
Storage Costs	-.08	
Brokerage Costs	-.01	
Net Expected Price	4.21	F.C. 4.17

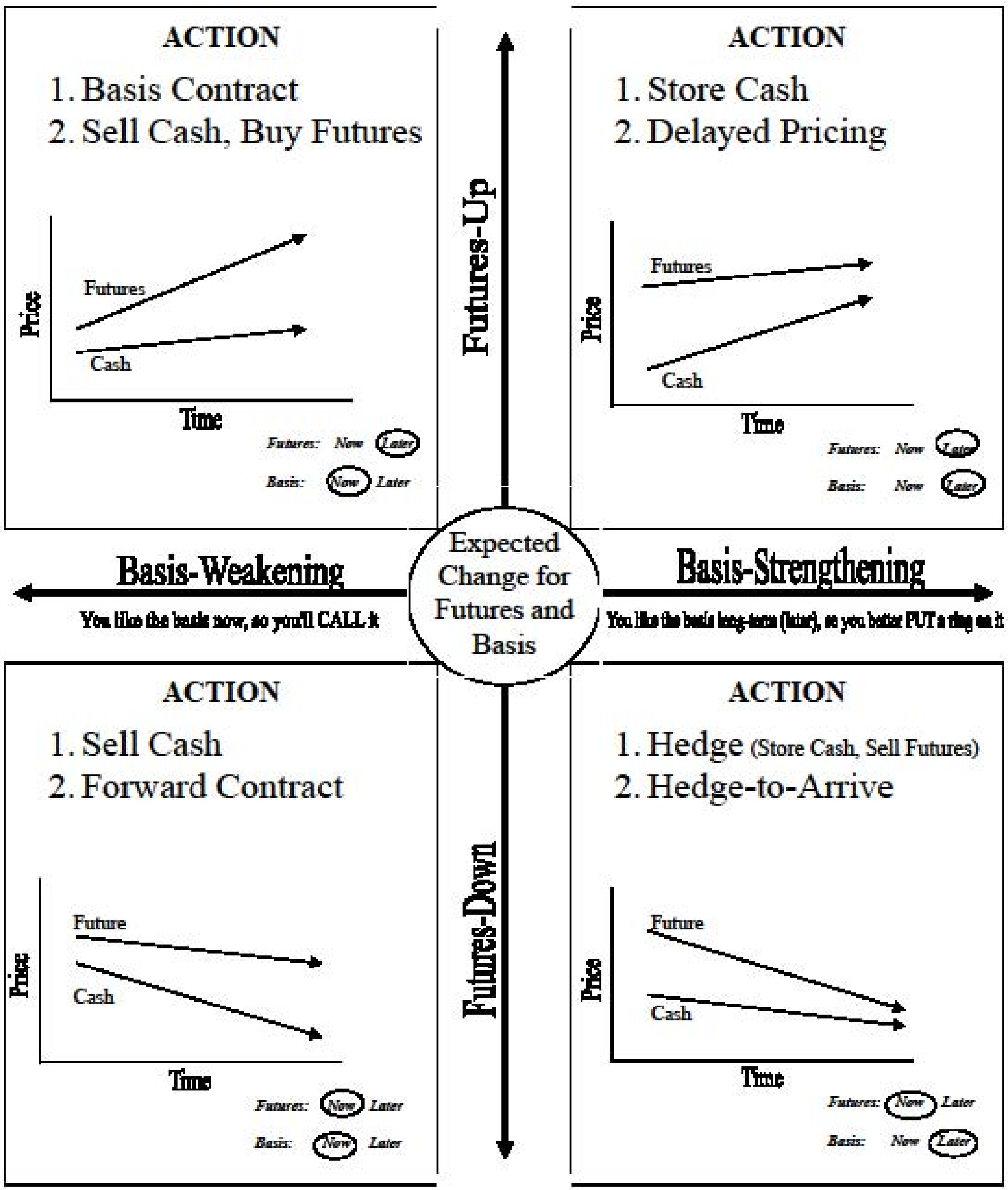
	Prices Up	Prices Down
(Futures Month)	(Buy)	(Buy)
Actual Basis		
Cash Price		
Plus Net Returns from Futures Sell and Buy		
Less:		
Storage Cost		
Brokerage Cost		
Equal Net Returns		
Equals Net Price Received		

<u>HEDGE</u> (Hedge-to-Arrive)

(Futures Month)	(Sell)
Expected Basis	
Storage Costs	
Brokerage Costs	
Net Expected Price	

	Prices Up	**Prices Down**
(Futures Month)	(Buy)	(Buy)
Actual Basis		
Cash Price		
Plus Net Returns from Futures Sell and Buy		
Less:		
Storage Cost		
Brokerage Cost		
Equal Net Returns		
Equals Net Price Received		

Pricing Decision Chart for Cash Product Sellers



Basis Contracts

A. Definition: Contract to price a product at a fixed discount (or premium) to a given futures contract. Timing of the pricing is determined by the producer as with Delayed Pricing.

B. Types

1. Delivery to elevator at specified times in the future, either later in the same crop year or at harvest or later in the new crop year
2. Immediate delivery to the elevator which takes title to the product and pays the producer some proportion (like 80 percent) of the current cash value of the product

C. Advantages

1. Allows producer to take advantage of a favorable basis when the level of price may not be attractive
2. Easier to understand than futures contracts
3. Deal with people you know
4. For "Type 2" basis contracts, cash is available for a portion of the current value of the contract

D. Disadvantages

1. Producer is exchanging a speculative position in the cash market for one in the futures market
2. Difficult to forecast futures prices
3. Not available in some locations
4. For "Type 2" basis contracts, elevator retains a portion of the value of the contract for which no interest is paid; an alternative is to sell the entire amount for cash and buy the equivalent in futures contracts
5. For "Type 2" basis contracts, producers may be liable for margin calls

BASIS CONTRACT

(Futures Month)	(Price)
Less: Cash Price	
	(Deliver Cash)
Basis Contract	

	Prices Up	Prices Down
(Futures Month)	(Price)	(Price)
Less: Basis Contract		
Equals Net Price Received		

SELL CASH and BUY FUTURES

A. Definition: For a seller, buying an equivalent amount of futures at the time the cash product is sold. For a buyer, selling an equivalent amount of futures at the time the cash product is purchased.

B. Advantages

1. Allows producer to take advantage of a favorable basis when the level of price may not be attractive
2. Provides flexibility in timing sales and purchases related to such considerations as availability of storage space, transferring income from one tax year to the next, need for cash, etc.; unfavorable prices can be avoided when the cash transaction must be made

C. Disadvantages

1. Same as for hedging with futures except that the risk is in the level of price rather than in basis
2. Difficult to forecast futures prices
3. Higher margin requirements than for hedging
4. Lenders may be unwilling to finance margins
5. Profits or losses are treated by IRS as capital gains or losses and not normal income or business expenses as is the case with gains or losses from hedgers (an advantage for profits)

SELL CASH and BUY FUTURES

________ (Futures Month)	________ (Buy)
Cash Price	________ (Sell)
Actual Basis	________

	Prices Up	Prices Down
________ (Futures Month)	________ (Sell)	________ (Sell)
Cash Price	________	________
Plus Net Returns from Futures Buy and Sell	________	________
Less: Brokerage Cost	________	________
Equals Net Price Received	________	________
Actual Basis	________	________

Pricing Decision Chart for Cash Product Sellers