

MANAGING RISK:

Using Pre-harvest Strategies to Help “Win-The-Game” of Grain Marketing

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“What? Farming is risky?”

- Uncertainty from...

drought, flooding, HEAT, freezes, hail, wind,
FIRE, changing crop prices, RISING INPUT
COSTS, TRADE DISRUPTIONS, new
government policies, disease & pests, machinery
breakdowns, illness or injury, etc., etc.



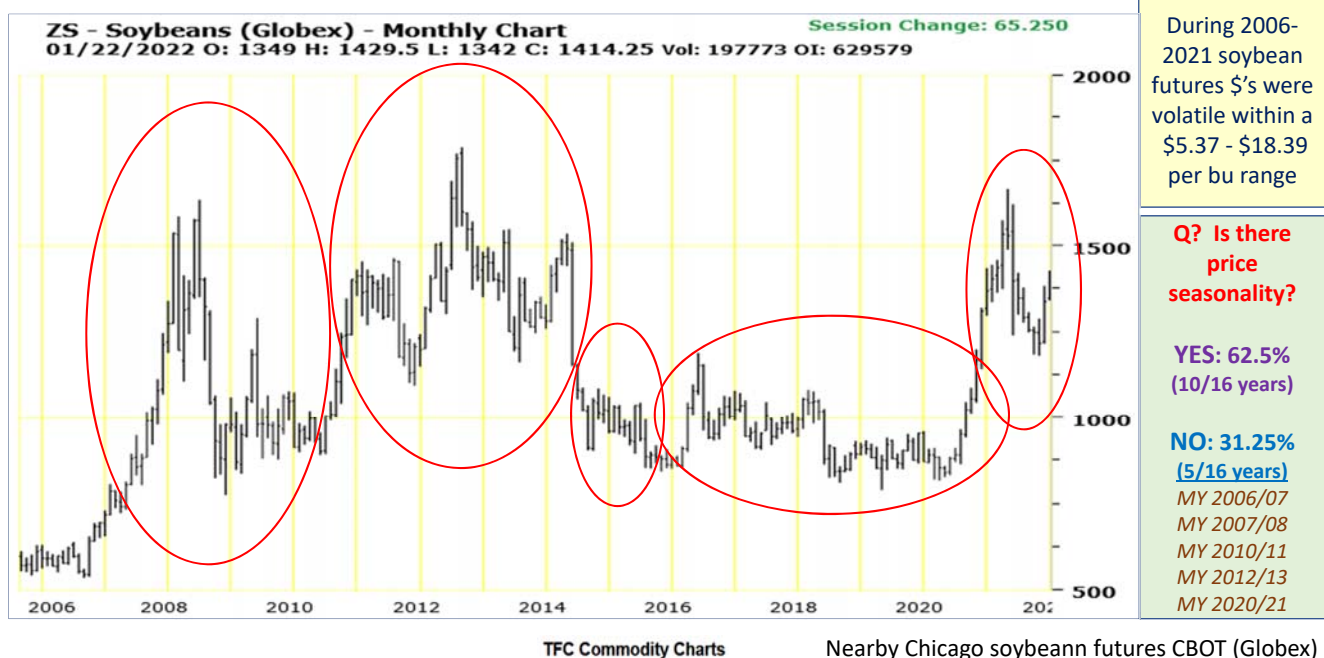
Alfred E. Newman

- Building your risk management toolkit will make you better able to cope....

PRE-HARVEST GRAIN MARKETING

- ...is pricing a portion of the expected crop prior to harvest, in hopes of obtaining a higher price than what might be available at or postharvest
- **Pricing opportunities to use:**
 - Grain market shocks or uncertainty
 - Seasonal patterns in grain prices
- **Examples:** 2019 wet late plantings & 2021 Brazil-China problems

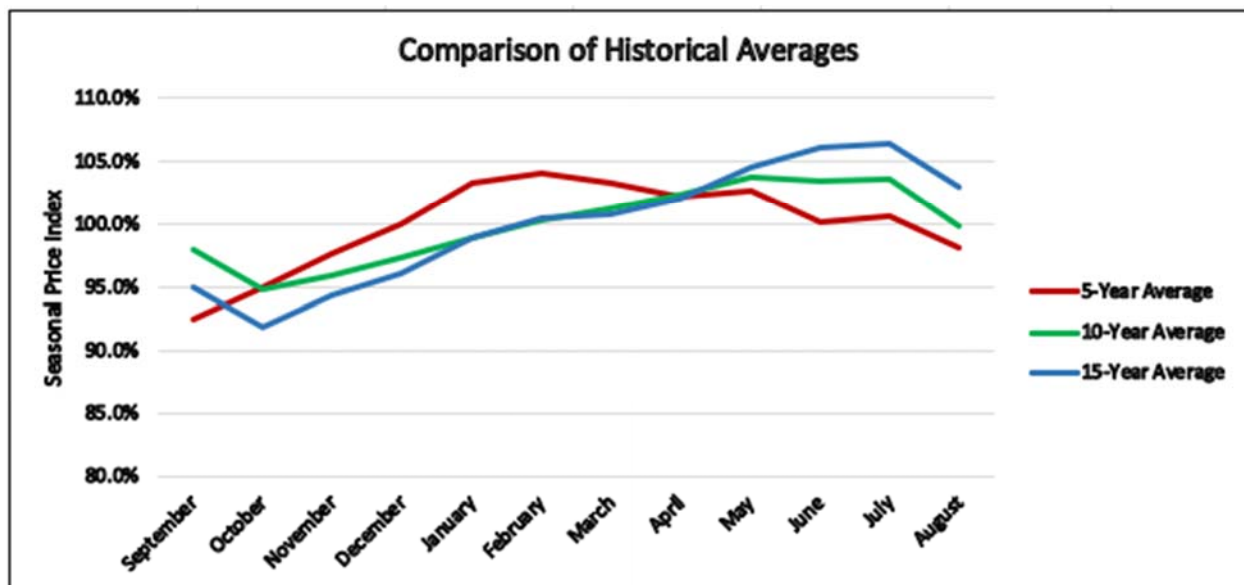
Monthly Soybean Futures Prices Since 2005/06



Historical Kansas Soybean Prices – *Since MY 1999/2000*



Seasonality of Kansas Soybean Prices – *Last 5-10-15 Years*



Monthly Corn Futures Prices Since MY 2005/06



During 2006-2021 soybean futures \$'s were volatile within a \$1.94 - \$8.49 per bu range

Q? Is there price seasonality?

YES: 81.25% (13/16 years)

NO: 18.75% (3/16 years)

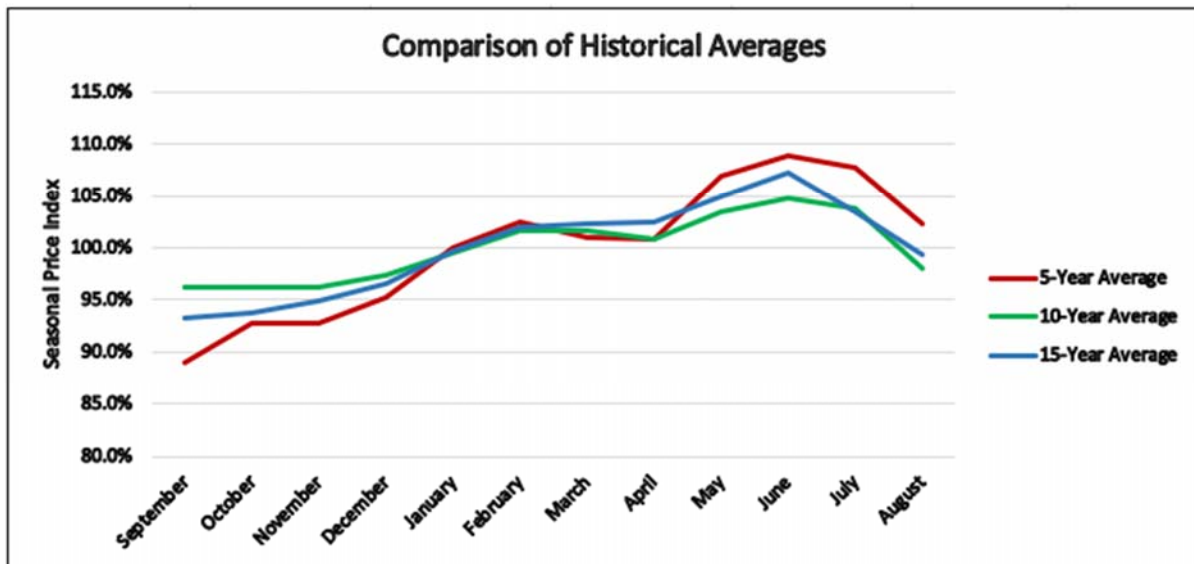
MY 2006/07
MY 2010/11
MY 2020/21

TFC Commodity Charts Nearby Chicago corn futures CBOT (Globex)

Historical Kansas Corn Prices – Since MY 1999/2000



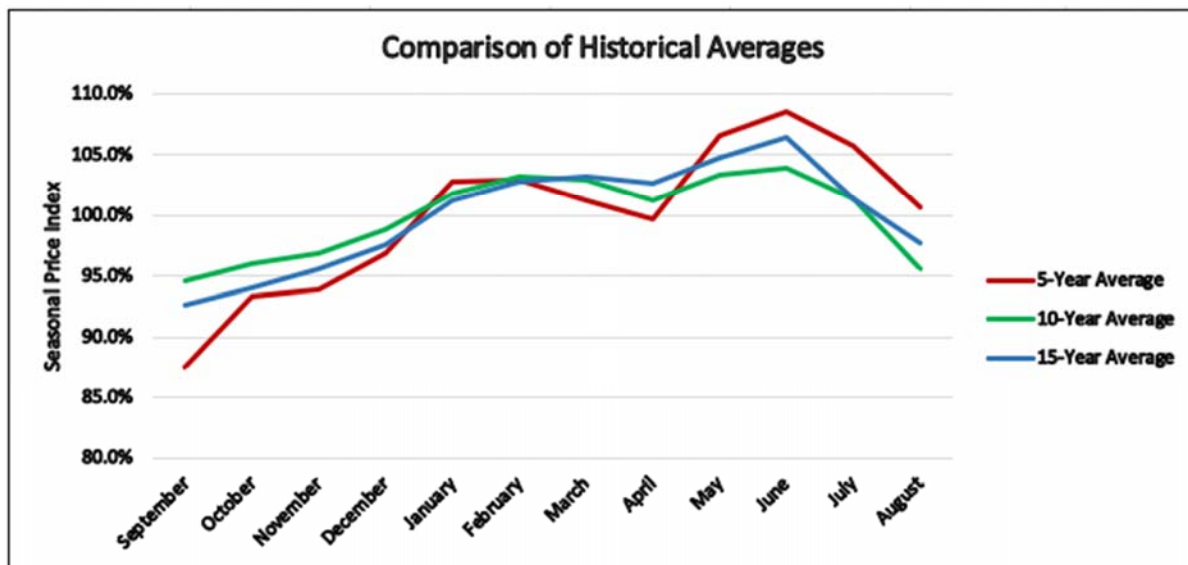
Seasonality of Kansas Corn Prices – *Last 5-10-15 Years*



Historical Kansas Sorghum Prices – *Since MY 1999/2000*



Seasonality of Kansas Milo Prices – Last 5-10-15 Years



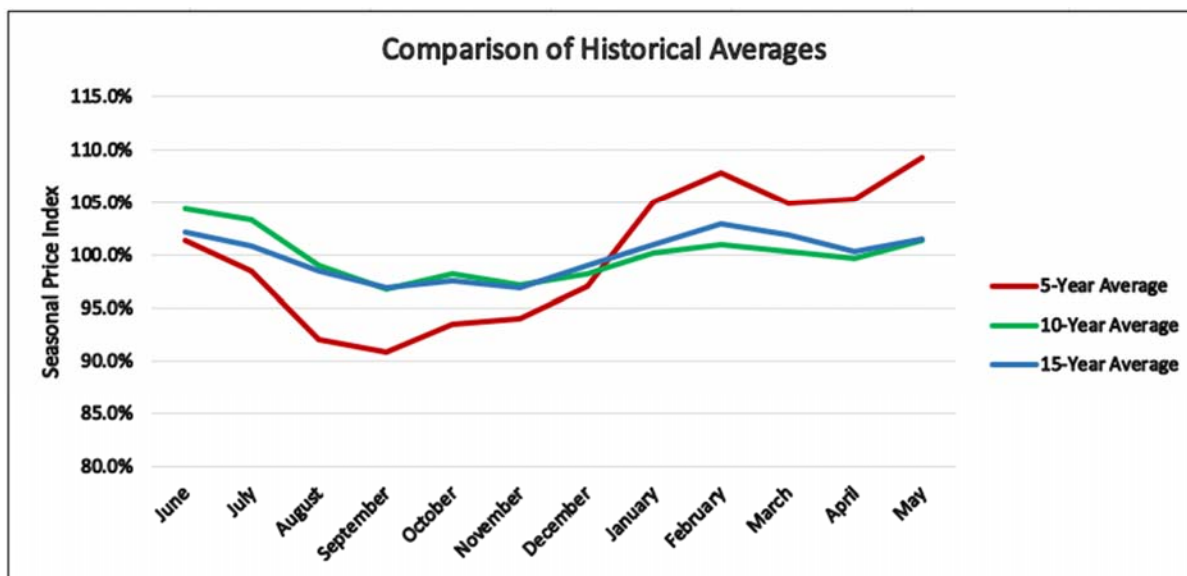
Monthly HRW Wheat Futures Since MY 2005/06



Historical Kansas Wheat Prices – *Since MY 1999/2000*



Seasonality of Kansas Wheat Prices – *Last 5-10-15 Years*



Another opportunity: seasonality of prices

- Crop prices have ***somewhat regular*** seasonal patterns
 - reflects the abundance of grain after harvest and its diminishing availability over the rest of the marketing year
- IF such seasonal patterns prevail in a particular year, there will likely be a benefit to pricing a share of your crop before harvest
- **Beware! These may not occur every year!**
 - Seasonal patterns won't be identical from year to year
 - Very difficult to out-guess the market on a consistent basis
 - Year-by-year question: does this year's price "work" for me?

So what do farmers do to market grain?

- Have farmers been reluctant to forward price much of their crop prior to harvest because they are uncertain about production?
- Which pricing tools do most farmers use?
- **Grain marketing study: producer practices and attitudes**
 - A survey of 600 U.S. Corn Belt crop producers
 - Conducted by **Kansas State University** – May 2017
 - Sponsored by **Farm Credit Services of America**

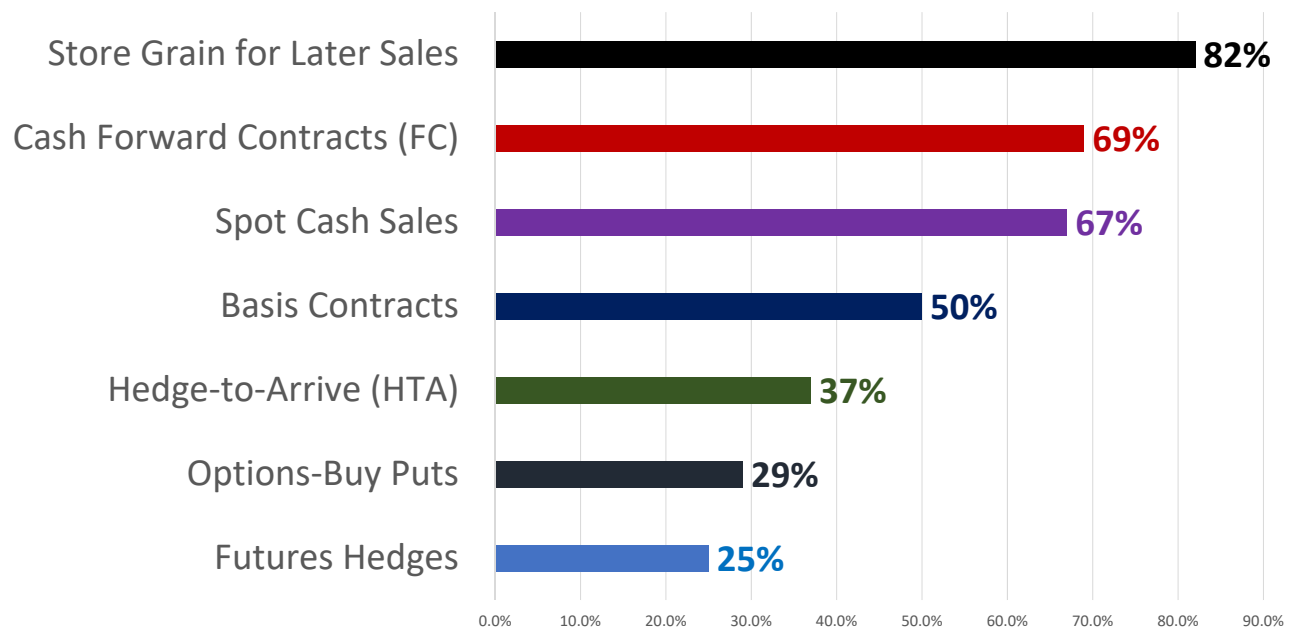
How Producers Market Their Crops

- On average, producers use 4 or 5 marketing tools
- The most popular marketing tool is **storage**, used by 82% at least occasionally; 1 in 5 farmers *always* store grain
- **Cash forward contracts & spot cash sales** are use by $\geq 2/3$ of farmers
- $\approx 1/4$ of these farmers use **futures & options**
- $\approx 2/3$ of these farmers price grain in small increments; only 5% indicated they go for a “home run” & price a large % of their grain sales at one time

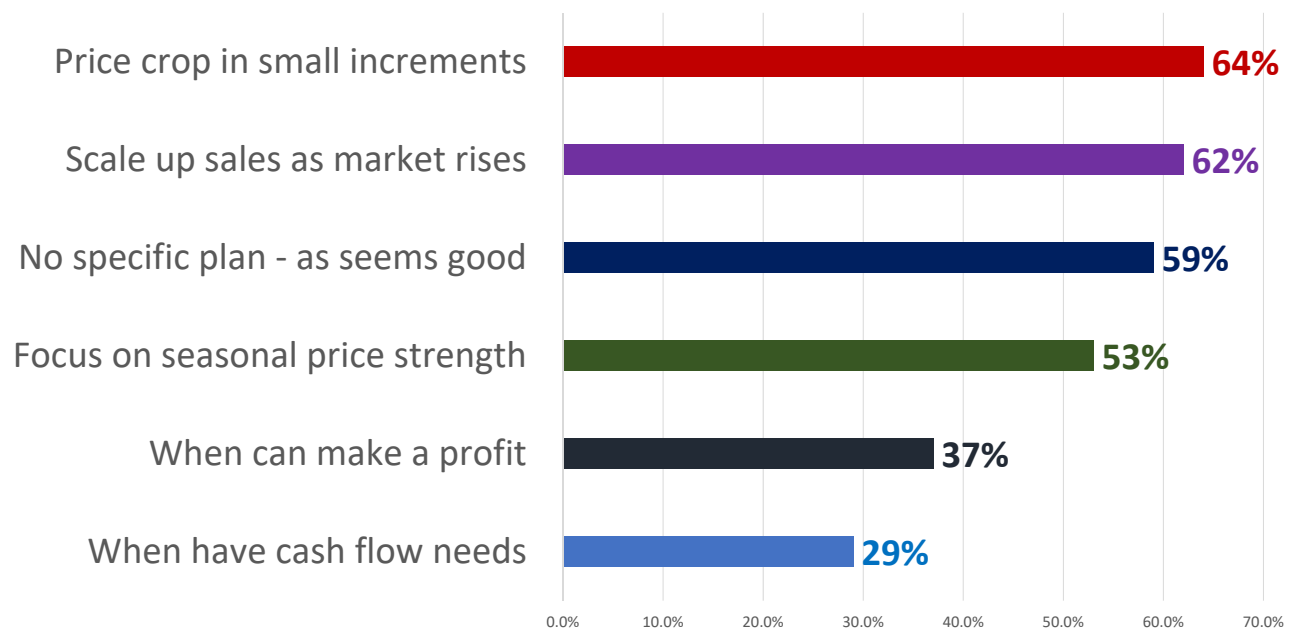
How Producers Market Their Crops (cont'd)

- 3/4 of these farmers indicate they have a good understanding of their **cost of production (COP)** – *BUT* a smaller % use COP in setting a target for their grain marketing strategies
 - Larger operations & younger producers are more likely to price grain using their cost of production as a target for setting a selling price
- 17% had a written, structured grain marketing plan *****

Use of Grain Marketing Tools



How Producers Time Grain Sales



Willingness to Price Expected Crops

None

25% or Less

26-50%

51-75%

More than 75%

Beginning in January

Once I know my crop insurance

Around planting time

After planting but before harvest

During harvest

After harvest

DEC 2022 Corn Put & Call Options – 1/14/2022

ELEC. CORN (Dec 2022) [10 Minute Delay]

Refresh 2

Last	Change	%Chg	Open	High	Low	Previous	Volume	Exchange	Trade Time
558'2s	0'4	0.09	557'2	561'0	556'0	557'6	15852	CBOT	01/14/22 13:19

Symbol: @CZ22 Go Symbol Search | Symbol Lookup Strike Range: Near-the-Money Chart | Options | Futures Chain

Mar 2022 | May 2022 | Jul 2022 | Sep 2022 | Dec 2022 | Mar 2023 | May 2023 | Jul 2023 | Dec 2023 | Dec 2024 Dec 2022

Dec 2022 Options

Days Until Expiration: 313

Calls									Puts									
Symbol	Price	Chg	Open	High	Low	Volume	Open Int	Strike	Symbol	Price	Chg	Open	High	Low	Volume	Open Int		
@CZ22C5100	72'5s	0'2	---	---	---	0	625	5100	@CZ22P5100	24'4s	-0'2	24'4	24'7	24'4	4	1637		
@CZ22C5200	67'1s	0'3	---	---	---	0	1696	5200	@CZ22P5200	29'0s	-0'1	28'7	29'4	28'7	11	3140		
@CZ22C5300	62'0s	0'3	62'7	62'7	62'7	55	5360	5300	@CZ22P5300	33'6s	-0'2	33'5	34'0	33'5	52	3345		
@CZ22C5400	57'1s	0'2	---	---	---	0	2173	5400	@CZ22P5400	39'0s	-0'1	38'6	38'7	38'6	101	2696		
@CZ22C5500	52'6s	0'3	51'3	52'4	51'3	31	925	5500	@CZ22P5500	44'4s	-0'1	44'0	44'4	44'0	129	3051		
@CZ22C5600	48'4s	0'2	"AT the Money"				2	3245	5600	@CZ22P5600	50'2s	-0'1	"AT the Money"				42	681
@CZ22C5700	44'6s	0'3	43'0	44'0	43'0	3	3956	5700	@CZ22P5700	56'3s	-0'1	56'0	56'0	56'0	2	100		
@CZ22C5800	41'1s	0'3	40'3	41'0	40'3	23	3153	5800	@CZ22P5800	62'6s	-0'1	---	---	---	0	37		
@CZ22C5900	37'6s	0'3	---	---	---	0	1820	5900	@CZ22P5900	69'3s	-0'1	---	---	---	0	2		
@CZ22C6000	34'6s	0'4	34'0	34'6	33'3	163	16674	6000	@CZ22P6000	76'3s	0'0	---	---	---	0	27		
@CZ22C6100	31'7s	0'4	30'2	31'2	30'2	21	1101	6100	@CZ22P6100	83'3s	-0'1	---	---	---	0	4		

In the money At the money

Quotes generated on: Sun. Jan 16, 2022 7:25 AM CST

ELEC. CORN (Dec 2022) [10 Minute Delay]

Refresh

Last	Change	%Chg	Open	High	Low	Previous	Volume	Exchange	Trade Time
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Dec 2022 Options

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<input checked="" type="checkbox"/> @CZ22C5100	72'5s	0'2	---	---	---	0	625	5100		<input checked="" type="checkbox"/> @CZ22P5100	24'4s	-0'2	24'4	24'7	24'4	4	1637
<input checked="" type="checkbox"/> @CZ22C5200	67'1s	0'3	---	---	---	0	1696	5200		<input checked="" type="checkbox"/> @CZ22P5200	29'0s	-0'1	28'7	29'4	28'7	11	3140
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<input checked="" type="checkbox"/> @CZ22C5400	57'1s	0'2	---	---	---	0	2173	5400		<input checked="" type="checkbox"/> @CZ22P5400	39'0s	-0'1	38'6	38'7	38'6	101	2696
<input checked="" type="checkbox"/> @CZ22C5500	52'6s	0'3	51'3	52'4	51'3	31	9213	5500		<input checked="" type="checkbox"/> @CZ22P5500	44'4s	-0'1	44'0	44'4	44'0	129	3051
<input checked="" type="checkbox"/> @CZ22C5600	48'4s	0'2	"AT the Money"			12	3243	5600		<input checked="" type="checkbox"/> @CZ22P5600	50'2s	-0'1	"AT the Money"			42	681
<input checked="" type="checkbox"/> @CZ22C5700	44'6s	0'3	43'0	44'0	43'0	3	3956	5700		<input checked="" type="checkbox"/> @CZ22P5700	56'3s	-0'1	56'0	56'0	56'0	2	100
<input checked="" type="checkbox"/> @CZ22C5800	41'1s	0'3	40'3	41'0	40'3	23	3153	5800		<input checked="" type="checkbox"/> @CZ22P5800	62'6s	-0'1	---	---	---	0	37
<input checked="" type="checkbox"/> @CZ22C5900	37'6s	0'3	---	---	---	0	1820	5900		<input checked="" type="checkbox"/> @CZ22P5900	69'3s	-0'1	---	---	---	0	2
<input checked="" type="checkbox"/> @CZ22C6000	34'6s	0'4	34'0	34'6	33'3	163	16674	6000		<input checked="" type="checkbox"/> @CZ22P6000	76'3s	0'0	---	---	---	0	27
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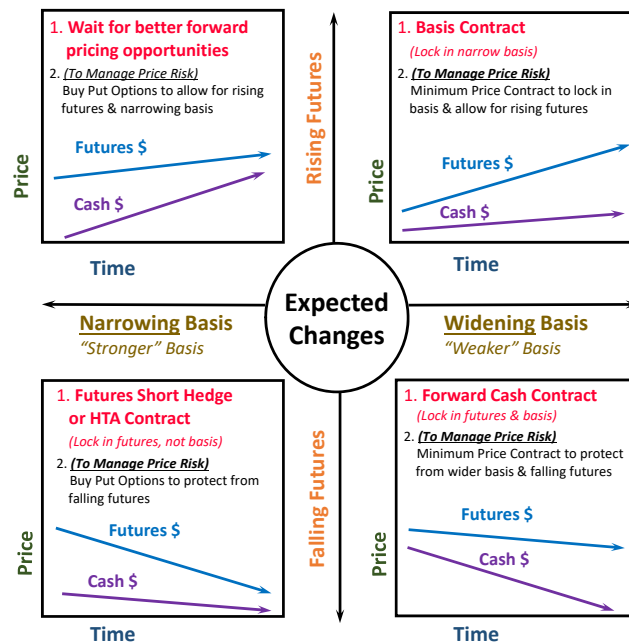
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Which pre-harvest grain sales strategy to use?



Types of crop insurance coverage

- **Revenue Protection (RP):** protects against both yield losses and price changes; "Harvest Price Option" incorporates higher price at harvest
 - HPO: revenue guarantee increases if Harvest Price is higher
- **Revenue Protection w/ Harvest Price Exclusion (RP-HPE):** covers yield and price declines, but only uses Projected Price (determined prior to planting/sign-up)
- **Yield Protection (YP):** only protects against yield losses
- All are multi-peril insurance products, sold through private crop insurance agents, but backed by USDA's Risk Management Agency

Crop Insurance Coverage in Pre-Harvest Strategies.....

- ❑ **RP coverage** (includes the **Harvest Price Option**) will also cover the value of replacement bushels in forward contracts when grain prices have risen at harvest
 - Rising harvest grain prices raise the cost of buying replacement bushels in the cash grain market **IF** a farmer has to buy bushels to fill their obligation to deliver grain for a pre-harvest forward contract
 - This is more likely to happen in widespread **U.S. “short crop” years** when fall harvest prices likely trend significantly higher

Crop Insurance Coverage in Pre-Harvest Strategies

- ❑ **Crop insurance**, particularly **Revenue Protection (RP Coverage, or Revenue Insurance)**, can provide **bushel-replacement coverage** for pre-harvest sales.
 - When there is a crop loss, **Crop Insurance** can provide money for farmers to buy **“replacement bushels”** needed to fulfill farmer’s grain delivery commitments with pre-harvest forward contracts
 - This **“bushel replacement coverage”** protects **pre-harvest futures “hedgies”** made for price risk management from becoming **“speculative positions”**
 - Can occur **IF** there are too few bushels for a 1-to-1 *futures-to-cash market hedge*

Comparing RP, RP-HPE, and YP

Example 1: lower yield, lower price			
	RP	RP-HPE	YP
Projected Price	\$4.00	\$4.00	\$4.00
APH yield, bu/a	100	100	100
Coverage level	70%	70%	70%
Production guarantee, bu/a	70	70	70
Revenue guarantee	\$280.00	\$280.00	-----
Harvest Price	\$3.25	\$3.25	\$3.25
HPO revenue guarantee	\$280.00	-----	-----
Actual yield, bu/a	40	40	40
Actual revenue	\$130.00	\$130.00	-----
Indemnity payment	\$150.00	\$150.00	\$120.00

Example 2: lower yield, higher price			
	RP	RP-HPE	YP
Projected Price	\$4.00	\$4.00	\$4.00
APH yield, bu/a	100	100	100
Coverage level	70%	70%	70%
Production guarantee, bu/a	70	70	70
Revenue guarantee	\$280.00	\$280.00	-----
Harvest Price	\$4.75	\$4.75	\$4.75
HPO revenue guarantee	\$332.50	-----	-----
Actual yield, bu/a	40	40	40
Actual revenue	\$190.00	\$190.00	-----
Indemnity payment	\$142.50	\$90.00	\$120.00

Reviewing pre-harvest grain marketing tools

- **Cash sales** – sell grain sometime after it has been harvested.
- **Forward contract** – sell grain prior to harvest through a contract with the elevator. The contract specifies the price and how much to be delivered and a delivery date.
- **Hedging** – sell a futures contract (5000 bu). At harvest, offset (buy) the futures contract and sell grain in the cash market to lock-in price.
- **Options** – put & call options. Buying a put option allows you to protect against the price going down, without limiting the upside.

So, How will this NC KS farm scenario work out?

❑ Probability of a Corn Yield Loss

80% Chance of NO Crop Loss → 100 /bu acre Yield
20% Chance of a Significant Crop Loss → 40 /bu acre Yield

?????

❑ Probability of Low, Average, High DEC²⁰²² Corn Prices in Oct²⁰²²

25%^{prob} **Low** U.S. corn prices → \$3.80 DEC²⁰²² + \$3.50 Cash\$^{Oct}

50%^{prob} **Average** U.S. corn prices → \$4.70 DEC²⁰²² + \$4.40 Cash\$^{Oct}

25%^{prob} **High** U.S. corn prices → \$5.70 DEC²⁰²² + \$5.40 Cash\$^{Oct}

?????