



COOPERATIVE EXTENSION

College of Agriculture, Forestry and Life Sciences

ADVANCED FARMING ECONOMICS

USING OPTIONS FOR RISK MANAGEMENT

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Constructing 2023 Marketing Plan



1. **Develop the Blueprint**
 - a) FLOID, Growth, Cash Flow
 - b) Price for PROFIT (WILL price some too early)
2. **Lay a REVENUE Foundation**
 - a. Put Options
 - b. Crop Insurance
3. **Frame up the Plan**
 - a. Strategies to add to Foundation Price
 - b. Market Carry, Basis Changes, Storage Cost
4. **Add a Roof**
 - a. Sell Call Options above GROWTH
5. **Finishing Touches**
 - a. Monitor and adjust

Pricing Tool Definitions

Basis = Cash – Futures

Controls movement

Strong – Attracts

Weak - Repels



Fixed price tools

Final price is known

No upside potential if prices go higher



Minimum-price tools

Upside potential

High cost-time value of premium makes it expensive to use on early sales



Marketing Tools

<u>Strategy</u>	<u>Type</u>	<u>When to Use</u>
Cash Sale	Fixed	Need cash
Hedge to Arrive	Fixed	Like price, not basis
Basis Contract	Fixed	Like basis, not price
Cash Forward	Fixed	Like price & basis
Futures	Fixed	Like price
Buy Put Option	Min Price	Prices going lower
Buy Call	Min Price	Prices going higher
Sell Call Option	Fixed	Like premium and strike

Cash Tools

- P+B** Basis Contract
- P+B** Hedge to Arrive (HTA)
- P+B** Forward contract



Any size – Not 5k
No brokerage fees
No margin calls
Basis may be “weak”
Must deliver!
Buyer Financials?

RISK → Replace bushels @ higher price

Crop Insurance→

Will replace bushels, but...

CI is a MA price, not the spot replacement price

Basis Risk

FUTURES Tools

Sell Futures Contract

Jan 13- Sell CZ23 @ 595
Jan 25- Now CZ23 @ 588



Contract is 5k bushels
Brokerage fees (< \$0.01/bushel)
Margin calls
 Initial - \$0.40 / bu
 Maintenance
No Basis set
No delivery requirement

RISK → 1. Margin Requirements – WC or LOC
2. Close Futures position w/o offsetting Cash

Crop Insurance→

1. Will replace margin if production loss, but...
2. CI is a MA price, not the spot replacement price

Marketing: Strategies to Consider

Corn-CU

FLOID FARMS: <i>Pricing Signals</i>	GROWTH	\$5.37
	BREAKEVEN	\$5.01
	CASH FLOW	\$4.80

1	Sell Futures HTA or CFC	Floor	\$6.02
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Fixed Price:

1. If price is higher than "GROWTH" sell your "comfort zone" up to 50%.
2. Futures contracts may incur margin calls. Cash sales/Hedge to Arrive contracts will not.

Options Tools

Buy Put Option

Futures	602
Strike	600
Premium	<u>-48</u>
Min Price	552

Purchase



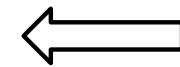
Contract is 5k bushels
 Brokerage fees (< \$0.01/bushel)
 No margin calls on BUY, but
 premium paid upfront
 No Basis set
 No delivery requirement

I promise bearer of this contract the right, but not the obligation, to sell Dec Corn Futures @ \$6.00 per bushel on any business day until November 20, 20XX. After November 20, 20XX, this contract is null and void.

I agree to pay \$0.48 per bushel for this right **\$2400**

Marketing: Strategies to Consider

Scenario 1:	Expected premiums for various STRIKE PRICES on a given day.	CU	Date	Days to exp	Futures	CALL Premium	Strike Price	PUT Premium	Volatility	Interest rate
			12/30/22	238	601.75	49	600	48	25.07%	0.00%
	Commodity:	Initial				90	530	18		
	Contract Month:	Range				83	540	22		
1	Current Futures Price:					77	550	25		
2	ATM Strike Price:					71	560	29		
	Trade Date:					65	570	33		
3	Option Expiration Date:					59	580	38		
	Days to Expiration:					54	590	42		
	Time to Expiration:					49	600	48		
4	Volatility:					45	610	53		
5	Interest Rate:					41	620	59		
	Dividend Rate:					37	630	65		
						33	640	71		
						30	650	78		
						27	660	85		
						24	670	92		
							OTM			
							ITM			



Marketing: Strategies to Consider



Scenario 2:	Expected premiums for a ATM STRIKE PRICE over Time.	
	Initial	Range
Commodity:	Corn	
Contract Month:	9	
Current Futures Price:	601.75	
ATM Strike Price:	600.00	
Trade Date:	12/30/22	5
Option Expiration Date:	08/25/23	
Days to Expiration:	238	
Time to Expiration:	65.2%	
Volatility:	25.07%	0.00%
Interest Rate:	0.00%	
Dividend Rate:	0.00%	Set to ZERO

CU

If the futures price, volatility and interest remain the same, the TIME component of the option PREMIUM will cost 8 cents over the next 75 days.

Date	Days to exp	Futures	CALL Premium	Strike Price	PUT Premium	Volatility	Interest rate
12/30/22	238	601.75	49	600	48	25.07%	0.00%
1/4/2023	233		49	600	47		
1/9/2023	228		48	600	47		
1/14/2023	223		48	600	46		
1/19/2023	218		47	600	45		
1/24/2023	213		47	600	45		
1/29/2023	208		46	600	44		
2/3/2023	203		46	600	44		
2/8/2023	198		45	600	43		
2/13/2023	193		45	600	43		
2/18/2023	188		44	600	42		
2/23/2023	183		43	600	42		
2/28/2023	178		43	600	41		
3/5/2023	173		42	600	40		
3/10/2023	168		42	600	40		
3/15/2023	163		41	600	39		
				OTM			
				ITM			

Marketing: Strategies to Consider

Corn-CU

FLOID FARMS: <i>Pricing Signals</i>	GROWTH	\$5.37
	BREAKEVEN	\$5.01
	CASH FLOW	\$4.80

2	Buy Put Option	Contract	CU23
		Strike Price	\$6.00
		<i>Premium</i>	<i>-\$0.48</i>
		Floor	\$5.52

Minimum Price:

1. If floor is > BREAKEVEN, protect up to Guaranteed Production (if Revenue Protection)
2. If floor is < BREAKEVEN, consider Strategy 4.
3. No margin call risk. Premiums paid at time of purchase.

Marketing: Strategies to Consider

Strategy 2:	BUY ATM PUT. Net Price over time with changes in Futures Price. Volatility & interest constant.	CU
	Initial	Range
Commodity:	Corn	
Contract Month:	9	
Expected Futures Price:	601.75	30
ATM Strike Price:	600.00	
Trade Date:	12/30/22	30
Option Expiration Date:	08/25/23	
Days to Expiration:	238	
Time to Expiration:	65.2%	
Volatility:	25.07%	0.00%
Interest Rate:	0.00%	
Dividend Rate:	0.00%	Set to ZERO

If the volatility and interest remain the same, the PUTS could be offset for more than the minimum price at time of purchase.

Date	Days to exp	Futures	Strike Price	PUT Premium	Minimum Price	Volatility	Interest rate
12/30/22	238	602	600	-48	552	25.07%	0.00%
		512	600	100	564		
		542	600	78	572		
		572	600	60	584		
1/29	208	602	600	44	599		
		632	600	32	616		
		662	600	23	637		
		692	600	16	660		
0	178	512	600	98	562		
1/0	178	542	600	76	570		
1/0	178	572	600	57	581		
2/28	178	602	600	41	595		
2/28	178	632	600	29	613		
2/28	178	662	600	20	634		
2/28	178	692	600	13	657		
			OTM				
			ITM				

Let's Practice

Harvest Period	October		
Expected Harvest Basis	\$0.60	Over Dec	
Commodity Pricing Signals			
	<i>Price</i>	<i>Futures</i>	<i>Crop Revenue</i>
Grow	\$4.74	\$4.14	\$474,237
Breakeven	\$4.35	\$3.75	\$435,218
Cash Flow	\$4.15	\$3.55	\$415,208