

# Taking the “Risk” Out of Price Risk Management

Ag Lender Meetings, October, 2021

R. Brent Young, Ph.D., Regional Extension Specialist Agriculture & Business Management



**AGRICULTURE AND  
BUSINESS MANAGEMENT**  
COLORADO STATE UNIVERSITY  
EXTENSION

CORN - October 2020 (Crop Year: Sep 1 - Aug 31)	2018/19	2019/20 Est.	2020/21 Proj.		2020/21 Forecasts			2021/22 Forecasts		
			Sep	Oct	High P	Normal	Low P	High P	Normal	Low P
Planted Acres (Million Acres)	88.9	89.7	92.0	91.0	90.8	91.0	91.2	91.0	92.0	94.0
Harvested Acres (Million Acres)	81.3	81.3	83.5	82.5	82.3	82.5	82.7	83.0	84.0	86.0
Yield (Bushels per Acre)	176.4	167.5	178.5	178.4	175.0	178.4	179.0	172.0	176.0	178.5
Beginning Stocks (Million Bu.)	2,140	2,221	2,253	1,995	1,995	1,995	1,995	2,165	2,165	2,165
Production	14,340	13,620	14,900	14,722	14,403	14,718	14,803	14,276	14,784	15,351
Imports	28	42	25	25	25	25	25	30	30	30
SUPPLY	16,509	15,883	17,178	16,742	16,423	16,738	16,823	16,471	16,979	17,546
Feed and Residual	5,429	5,827	5,825	5,775	5,750	5,775	5,800	5,800	5,800	5,850
Food, Seed, & Industrial	6,793	6,282	6,525	6,475	6,450	6,475	6,400	6,550	6,500	6,450
Ethanol & by-products	5,378	4,852	5,100	5,050	5,025	5,050	5,075	5,150	5,100	5,050
Export	2,066	1,778	2,325	2,325	2,400	2,325	2,300	2,400	2,250	2,100
USE	14,288	13,887	14,675	14,575	14,600	14,575	14,500	14,750	14,550	14,400
Ending Stocks	2,221	1,995	2,503	2,167	1,823	2,163	2,323	1,721	2,429	3,146
Average US Farm Price	3.61	3.56	3.50	3.60	4.25	3.65	3.50	3.85	3.45	3.25
Average DEC Futures								3.95	3.50	3.25
Average Colorado Price					4.50	3.75	3.60	4.00	3.65	3.40
	0.155	0.144	0.171	0.149	0.125	0.148	0.160	0.117	0.167	0.218

## U.S. Corn Balance Sheet for 2021/22

In thousands	Domestic Units		
	2020/21 (Feb)	2021/22	Diff.
Area planted (mil. acres)	90.8	92	+1.2
Yield (bu/acre)	172.0	179.5	+7.5
Production (mil. bu)	14,182	15,150	+968
MY Imports	25	25	-
MY Exports	2,600	2,650	+50
Feed & Residual	5,650	5,850	+200
Food, Seed, Industrial	6,375	6,625	+250
Ending Stocks	1,502	1,552	+50
Average Farm Price	\$4.30	\$4.20	-0.10

- Acres up to 92 million, increasing production by 7%
- Domestic usage up on rebound in FSI use and feed
- Exports up on strong prospects to China
- Stocks up slightly
- Prices are lower on returning global competition

2021 AOF



December 12, 2021

## Grain Marketing

 Center for Farm Financial Management  
 University of Minnesota

<http://www.cffm.umn.edu/GrainMarketing/marketingplans.aspx>

### Corn: 2021 Pre-Harvest Marketing Plan by Edward Usset

Expected 2021 production: 100,000 bushels

Objective: Buy crop insurance to protect my production risk and have 75% of my anticipated corn crop (based on APH) priced by mid-June.

- Price 15,000 bushels at \$3.75 cash price (\$4.25 Dec. futures) using forward contract/futures hedge/futures fixed contract.
- Price 10,000 bushels at \$4.05c/\$4.55f, or by March 29, pricing tool to-be-determined ("tbd").
- Price 15,000 bushels at \$4.35c/\$4.85f, or by April 27, pricing tool tbd.
- Price 10,000 bushels at \$4.65c/\$5.15f, or by May 26, pricing tool tbd.
- Price 15,000 bushels at \$4.95c/\$5.45f, or by June 10, pricing tool tbd.
- Price the last 10,000 bushels at \$5.25c/\$5.75f, or by June 24, pricing tool tbd.

Plan starts on January 1, 2021. Earlier sales may be made at a 40-cent premium and would be limited to 30,000 bushels.

Ignore decision dates and make no sale if prices are lower than \$3.75 local cash price/\$4.25 December futures.

Exit all options positions by mid-September 2021.



## Execution of Ed's Corn Marketing Plan

- All contracts filled by April 27<sup>th</sup> (\$5.93 high)
- Greatest margin out lay \$104,250 (\$6.36 close on May 7<sup>th</sup>)
- Current margin requirement \$26,450 (\$5.32 close on October 6<sup>th</sup>)
  - **Two contracts have made money**

## December Corn Futures Prices

- *From 1990 to 2014, December corn futures declined from May 1 to October 1 in **19 of 25** years or **76%** of the time. Corn prices dipped lower in three of four years by an average of **29** cents per bushel.*

- *Edward Usset, University of Minnesota*

## November Soybean Futures Prices

- *November soybean futures declined from spring to harvest in **16 of 25** years (**64** percent) by an average of **31** cents per bushel.*

- *Edward Usset, University of Minnesota*

# July KC Hard Red Winter Wheat Futures Prices

- *July Kansas City wheat futures declined from October 1<sup>st</sup> to July 1<sup>st</sup> in 14 of 25 years (56 percent). In 13 of 14 years (93 percent) the decline was greater than 10%.*

## Diagram of a Hedge (corn producer)

### Cash

2/15/21 Long \$4.45/bu.  
 4/15/21 cash @ \$4.55/bu. +\$0.10  
 7/15/21 cash @ \$4.80/bu. +\$0.25  
 9/15/21 cash @ \$4.55/bu. (\$0.25)  
 10/15/21 cash @ \$4.45/bu. (\$0.10)  
 11/15/21 Harvest Corn  
 Sold cash corn \$4.35

### Futures

2/15/21 Short (sell @\$4.45/bu.)  
 4/15/21 \$4.45-\$4.55 = (\$0.10)  
 7/15/21 \$4.55-\$4.80 = (\$0.25)  
 9/15/21 \$4.80-\$4.55 = +\$0.25  
 10/15/21 \$4.55-\$4.45 = +\$0.10  
 11/15/21 Harvest Corn  
 Bought futures \$4.35

Net price for corn  
 Sold Futures @\$4.45  
Bought Futures @\$4.35  
 Futures profit \$0.10  
 Cash \$4.35 + Futures \$0.10 = **\$4.45**

# Examples: Corn Producer

- Perfect Hedge (Zero Basis)
- Basis Hedge

## Futures perfect hedge (zero basis) price declines

- Today (2/15/21)
  - December 2021 corn futures trading @ \$4.45
  - **Sell** DEC 2021 corn futures contract @ **\$4.45**
- November 20, 2021
  - Harvest corn
    - Sell cash corn @ \$4.15
    - **Buy** back DEC 21 corn futures contract @\$4.15
- Net price for corn
  - Sold DEC futures for \$4.45, bought it back for \$4.15 = +\$0.30 + \$4.15 cash = **\$4.45** net price for corn

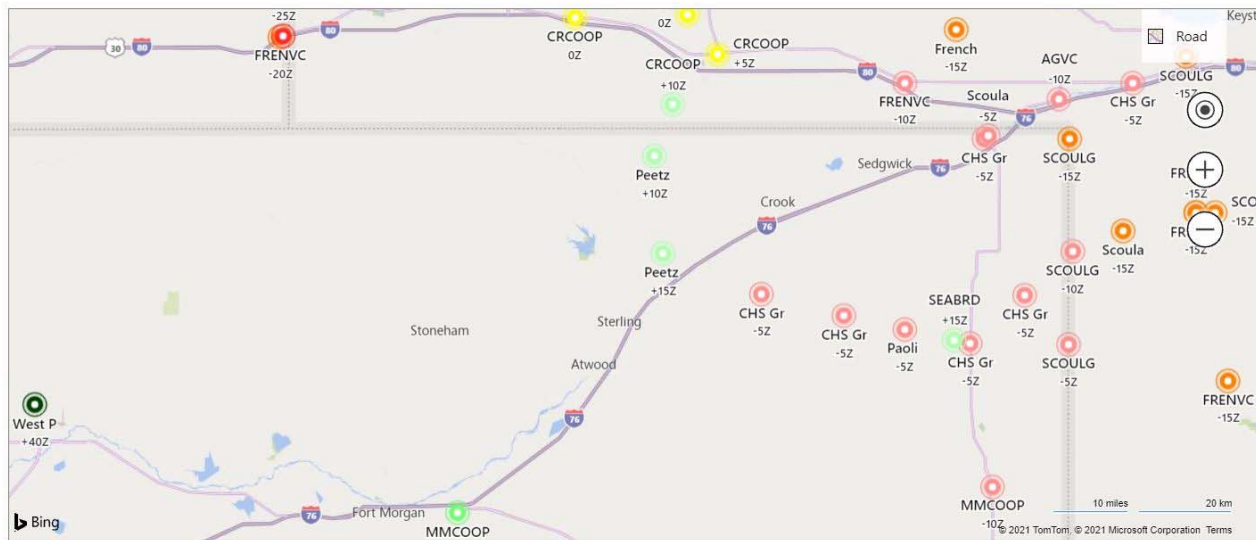
# Futures perfect hedge (zero basis) price increases

- Today (2/15/21)
  - December 2021 corn futures trading @ \$4.45
  - **Sell** DEC 2021 corn futures contract @ **\$4.45**
- November 20, 2021
  - Harvest corn
    - Sell cash corn @ \$4.65
    - **Buy** back DEC 21 corn futures contract @ \$4.65
- Net price for corn
  - Sold DEC futures for \$4.45, bought it back for \$4.65 =  
 $-\$0.20 + \$4.65 \text{ cash} = \$4.45$  net price for corn

# Futures with basis

- Today (12/28/20)
  - December 2021 corn futures trading @ \$4.25
  - **Sell** DEC 2021 corn futures contract @ **\$4.25**
- October 6, 2021
  - Harvest corn
    - Sell cash corn @ \$5.47
    - **Buy** back DEC 21 corn futures contract @ \$5.32
    - **Basis cash-futures**  $\$5.47 - \$5.32 = +\$0.15$
    - **Basis is 15 cents over**
- Net price for corn
  - Sold DEC futures for \$4.25, bought it back for \$5.32 =  $-\$1.07 + \$5.47 \text{ cash} = \$4.40$  net price for corn
- Cost of Production
  - Total direct costs = \$3.64/bu.

# Strong Basis



## Common Concerns regarding Pre-harvest Pricing

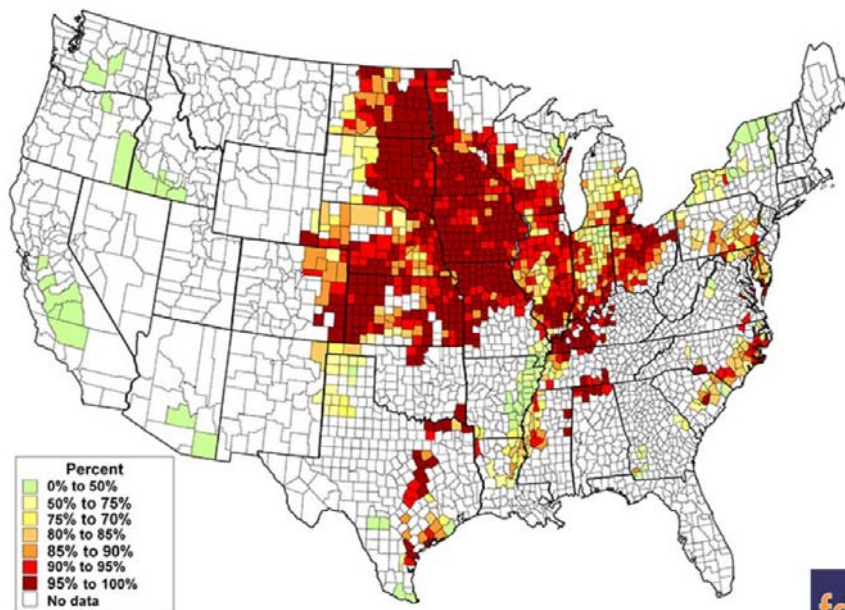
- **What if I don't produce enough bushels or pounds to cover my contracts?**
  - Revenue Protection crop insurance is the answer!
- **What if I sell and the price goes higher?**
  - Your marketing plan can include scale-in selling and the use of minimum pricing that utilizes **options** or minimum price contracts.



# Revenue Protection Crop Insurance

- Provides a revenue guarantee on a percentage of the actual production history (APH) of the farm.
- Using policies such as Revenue Protection (RP) or Revenue Protection with the Harvest Price Exclusion (RPE) guarantee both yield and price using farm level APHs.
  - Harvest price exclusion does not offer a higher harvest guarantee if market prices are higher than the price discovery period.
- Price Discovery Periods
  - Corn
    - February 1-28 December CME Futures contract – Harvest price October
  - Soybeans
    - February 1-28 November CME Futures contract – Harvest price October
  - Wheat
    - Aug 15 – Sept. 14 September KC HRW Futures contract – Harvest price July

**Figure 1. Percent of Acres Insured with Revenue Protection, Corn, 2016**



# Pre-harvest Marketing Strategies

- 2021 Projected Prices (price discovery)
  - Corn \$4.56 **\$4.58 v 0.23**
  - Soybeans \$11.78 **\$11.87 v 0.19**
- 2021 Projected Price (final)
  - Wheat \$4.98
- Coverage Levels
  - 50% 55% 60% 65%, 70%, 75%, 80%, 85%

## Corn RP Example

- Farm APH 180 bu./A
- 500 acres of corn
- You elect 75% coverage
- Projected price \$4.56
- Bushel guarantee  $180 \times .75\% = 135$  bu./A
- Revenue guarantee  $\$4.56 \times 135$  bu. = \$615.60
- Maximum bushels you could pre-harvest price  $500 \times 135 = 67,500$  bu. or 13 - 5000 bu. contracts

## Shortfall in Harvest Yields

- Actual yield 100 bu./A harvest price \$4.35
- Revenue guarantee \$615.60/A
- Actual revenue \$435.00/A
- Indemnity \$180.50/A
- Producer would negotiate with the grain merchandiser to “buy back” extra bushels not delivered. (usually 10 to 20 cents per bushel)
  - If the futures price at harvest is less than the futures price you contracted bushels for delivery the “buy back” could be less
  - The indemnity payment reflects a futures price average which is usually higher than the local cash price used to determine the buy back price.

## Managing Margin Account Loans

- Do not include in operating loan
  - How do you collateralize margin account loans?
- Limit open contracts to number that can be covered by crop insurance
  - Suggest Revenue Protection over Yield Protection
  - Communicate yield expectations above insurance coverage???
- Monitor open positions
  - Require periodic reports from commodity broker (part of the security agreement)
- Require brokerage account gains (minus minimum margin requirements) to be deposited back into margin loan account

# Questions?

**R. Brent Young**

**970-580-2204**

**[brent.young@colostate.edu](mailto:brent.young@colostate.edu)**