

**16. Effect of Historically Wide Wheat Basis on Crop Insurance:
Are Cash Settlement Prices the Answer?**

Art Barnaby

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Dr. Art Barnaby was raised on a diversified farm in Elk County, Kansas. Art received his B.S. degree from Fort Hays State University, M.S. from New Mexico State University and a Ph.D. in Agricultural Economics from Texas A&M University. Art joined the Agricultural Economics faculty in 1979. He currently holds the rank of Professor. Art conducts extension education programs on financial planning, risk, government commodity programs, and crop insurance. Art is an author of the KSU Risk Management web page located at www.AgManager.info and has also worked with the private crop insurance industry, RMA, and Farmer Commodity groups on crop insurance issues. His research work with the private sector was the basis for the first revenue insurance contract, Crop Revenue Coverage. Art is the winner of the 2009 Excellence in Extension Award presented by the National Association of Public and Land Grant Universities. He is also a past three time winner of the AAEA Distinguished Extension Program Award. Art is a frequent speaker at professional, farmer-producer, ag lender, and insurance industry meetings.

Abstract/Summary

The recent experience of wide wheat basis may affect crop insurance, with RMA now considering changes from using futures prices to using cash settlement prices. This presentation will discuss these potential changes and how crop insurance is affected by the situation.

Common Crop Insurance Policy (CCIP)

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Common Crop Insurance Policy (CCIP)

1. How does the new Common Crop Insurance Policy (CCIP) change crop insurance coverage?
2. Would farmers be better off if CCIP used cash prices rather than futures prices for price discovery?
3. Does the CCIP change rates and signup?

Common Crop Insurance Policy (CCIP)

YP Yield Protection
RP Revenue Protection
RP-HPE Revenue Protection with Harvest Price Exclusion

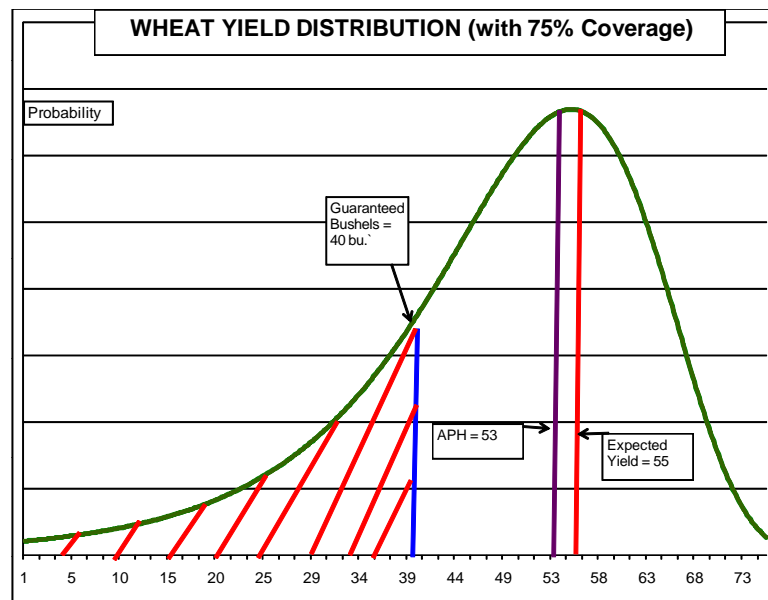
aka for new CCIP

YP APH or MPCJ
RP CRC or RA-HPO
RP-HPE RA or IP

All contracts will use the same price election and is a major change from previous crop insurance contracts.

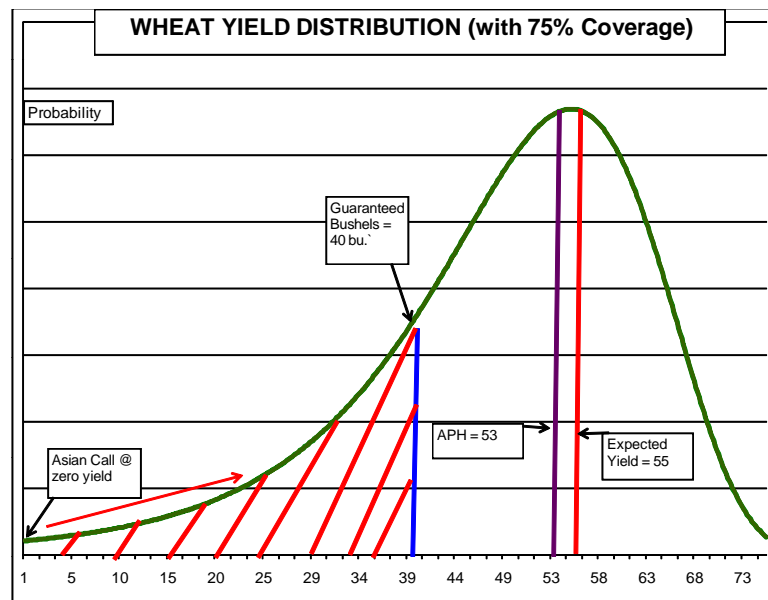
Common Crop Insurance Policy Values for Example Farm

APH	53.3
Coverage Level	75%
Guaranteed Bu.	40 bu.
Base Price	\$7.00
Maximum Price	\$14.00
Coverage	\$280.00



Yield Protection (YP) Payout Table

Hvst Price	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00
Yield									
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00
30	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
25	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00	105.00
20	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
15	175.00	175.00	175.00	175.00	175.00	175.00	175.00	175.00	175.00
10	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00
5	245.00	245.00	245.00	245.00	245.00	245.00	245.00	245.00	245.00
0	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00



"Call" in Revenue Protection

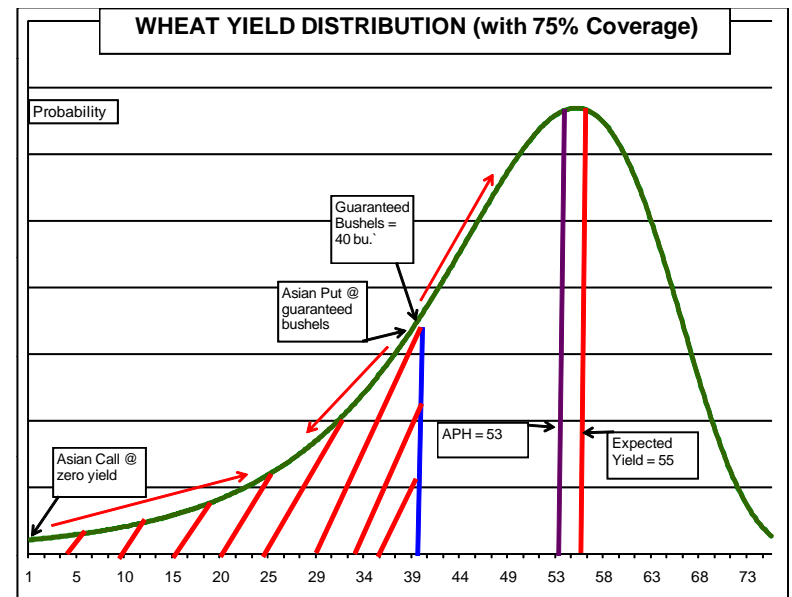
Hvst Price	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00
Yield									
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	2.50	5.00	7.50	10.00
30	0.00	0.00	0.00	0.00	0.00	5.00	10.00	15.00	20.00
25	0.00	0.00	0.00	0.00	0.00	7.50	15.00	22.50	30.00
20	0.00	0.00	0.00	0.00	0.00	10.00	20.00	30.00	40.00
15	0.00	0.00	0.00	0.00	0.00	12.50	25.00	37.50	50.00
10	0.00	0.00	0.00	0.00	0.00	15.00	30.00	45.00	60.00
5	0.00	0.00	0.00	0.00	0.00	17.50	35.00	52.50	70.00
0	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00

Intrinsic Value of CME Call Option

Hvst Price	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00
Yield									
65	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
60	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
55	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
50	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
45	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
40	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
35	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
30	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
25	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
20	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
15	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
10	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
5	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00
0	0.00	0.00	0.00	0.00	0.00	20.00	40.00	60.00	80.00

"Call" in RP Plus YP Payments

Hvst Price	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00
Yield									
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	35.00	35.00	35.00	35.00	35.00	37.50	40.00	42.50	45.00
30	70.00	70.00	70.00	70.00	70.00	75.00	80.00	85.00	90.00
25	105.00	105.00	105.00	105.00	105.00	112.50	120.00	127.50	135.00
20	140.00	140.00	140.00	140.00	140.00	150.00	160.00	170.00	180.00
15	175.00	175.00	175.00	175.00	175.00	187.50	200.00	212.50	225.00
10	210.00	210.00	210.00	210.00	210.00	225.00	240.00	255.00	270.00
5	245.00	245.00	245.00	245.00	245.00	262.50	280.00	297.50	315.00
0	280.00	280.00	280.00	280.00	280.00	300.00	320.00	340.00	360.00



"Put" in Revenue Protection with Harvest Price Exclusion

Hvst Price	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00
Yield									
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	30.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	55.00	32.50	10.00	0.00	0.00	0.00	0.00	0.00	0.00
40	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
35	70.00	52.50	35.00	17.50	0.00	(17.50)	(35.00)	(35.00)	(35.00)
30	60.00	45.00	30.00	15.00	0.00	(15.00)	(30.00)	(45.00)	(60.00)
25	50.00	37.50	25.00	12.50	0.00	(12.50)	(25.00)	(37.50)	(50.00)
20	40.00	30.00	20.00	10.00	0.00	(10.00)	(20.00)	(30.00)	(40.00)
15	30.00	22.50	15.00	7.50	0.00	(7.50)	(15.00)	(22.50)	(30.00)
10	20.00	15.00	10.00	5.00	0.00	(5.00)	(10.00)	(15.00)	(20.00)
5	10.00	7.50	5.00	2.50	0.00	(2.50)	(5.00)	(7.50)	(10.00)
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Intrinsic Value of CME Put Option

Hvst Price	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00
Yield									
65	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
60	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
55	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
50	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
45	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
40	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
35	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
30	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
25	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
20	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
15	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
10	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
5	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
0	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00

Revenue Protection with Harvest Price Exclusion (RP-HPE) Payout Table

Hvst Price	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00
Yield									
65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	30.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	55.00	32.50	10.00	0.00	0.00	0.00	0.00	0.00	0.00
40	80.00	60.00	40.00	20.00	0.00	0.00	0.00	0.00	0.00
35	105.00	87.50	70.00	52.50	35.00	17.50	0.00	0.00	0.00
30	130.00	115.00	100.00	85.00	70.00	55.00	40.00	25.00	10.00
25	155.00	142.50	130.00	117.50	105.00	92.50	80.00	67.50	55.00
20	180.00	170.00	160.00	150.00	140.00	130.00	120.00	110.00	100.00
15	205.00	197.50	190.00	182.50	175.00	167.50	160.00	152.50	145.00
10	230.00	225.00	220.00	215.00	210.00	205.00	200.00	195.00	190.00
5	255.00	252.50	250.00	247.50	245.00	242.50	240.00	237.50	235.00
0	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00	280.00

What, a "put" with Negative Values?

- YP with 20 bushel yield pays \$140.
- HP-HPE reduces the payment by \$20 to \$120.
- When prices increase the HPE will take on negative values when the yield is below the guaranteed bushels.

Value of CME Options vs. RP "Options"

- HPE has "put" cost equal to RP-HPE minus YP premium divided by guaranteed bushels.
- Ex. RP-HPE = \$17.14 minus YP = \$13.35 equal \$3.79 divided by 40 bu. = 9.5 cents.
- RP "call" cost equal to RP minus RP-HPE premium divided by guaranteed bushels.
- Ex. RP = \$20.30 minus RP-HPE = \$17.14 equal \$3.16 divided by 40 bu. = 7.9 cents.
- CME over \$1 for at the money July 11 option.

Changing CCIP from Futures to Cash Prices

- Asian "Put" & "Call" in CCIP have a zero basis.
- The "Put" in CCIP measures the change in price from planting to harvest.
- Cash settled CCIP would set the base price equal to the futures plus expected basis.
- The harvest cash price equals the futures plus basis.

Changing CCIP from Futures to Cash Prices

- Changing CCIP to cash settled rather than future settled will not change the result unless the basis widens.
- If the expected basis is \$1 under and the harvest price is \$1 under then the change in price is the same whether one uses futures or cash prices to make revenue payments.
- However, if there is also a YP loss then those losses will be paid at a price that is \$1 less using cash rather than futures to settle CCIP payments.

Changing CCIP from Futures to Cash Prices

- RP-HPE price election set at the current basis of \$1.00 under.
- Futures prices decline from \$7 to \$6 at Harvest.
- Harvest basis widens from \$1.00 to \$1.50 under.
- Harvest basis strengthen from \$1.00 to \$0.50 under.

RP-HPE with Planting Price @ \$1.00 Under & price falls from \$7 to \$6

Zero basis					Harvest Basis, \$1.50 Under				
Yield	YP	HPE	Tot Ins.	Basis	Yield	YP	HPE	Tot Ins.	Basis
65	0.00	0.00	0.00	0.00	65	0.00	0.00	0.00	(1.50)
60	0.00	0.00	0.00	0.00	60	0.00	0.00	0.00	(1.50)
55	0.00	0.00	0.00	0.00	55	0.00	0.00	0.00	(1.50)
50	0.00	0.00	0.00	0.00	50	0.00	15.00	15.00	(1.50)
45	0.00	10.00	10.00	0.00	45	0.00	37.50	37.50	(1.50)
40	0.00	40.00	40.00	0.00	40	0.00	60.00	60.00	(1.50)
35	35.00	35.00	70.00	0.00	35	30.00	52.50	82.50	(1.50)
30	70.00	30.00	100.00	0.00	30	60.00	45.00	105.00	(1.50)
25	105.00	25.00	130.00	0.00	25	90.00	37.50	127.50	(1.50)
20	140.00	20.00	160.00	0.00	20	120.00	30.00	150.00	(1.50)
15	175.00	15.00	190.00	0.00	15	150.00	22.50	172.50	(1.50)
10	210.00	10.00	220.00	0.00	10	180.00	15.00	195.00	(1.50)
5	245.00	5.00	250.00	0.00	5	210.00	7.50	217.50	(1.50)
0	280.00	0.00	280.00	0.00	0	240.00	0.00	240.00	(1.50)

RP-HPE with Planting Price @ \$1.00 Under & price falls from \$7 to \$6

Zero basis					Harvest Basis, \$0.50 Under				
Yield	YP	HPE	Tot Ins.	Basis	Yield	YP	HPE	Tot Ins.	Basis
65	0.00	0.00	0.00	0.00	65	0.00	0.00	0.00	(0.50)
60	0.00	0.00	0.00	0.00	60	0.00	0.00	0.00	(0.50)
55	0.00	0.00	0.00	0.00	55	0.00	0.00	0.00	(0.50)
50	0.00	0.00	0.00	0.00	50	0.00	0.00	0.00	(0.50)
45	0.00	10.00	10.00	0.00	45	0.00	0.00	0.00	(0.50)
40	0.00	40.00	40.00	0.00	40	0.00	20.00	20.00	(0.50)
35	35.00	35.00	70.00	0.00	35	30.00	17.50	47.50	(0.50)
30	70.00	30.00	100.00	0.00	30	60.00	15.00	75.00	(0.50)
25	105.00	25.00	130.00	0.00	25	90.00	12.50	102.50	(0.50)
20	140.00	20.00	160.00	0.00	20	120.00	10.00	130.00	(0.50)
15	175.00	15.00	190.00	0.00	15	150.00	7.50	157.50	(0.50)
10	210.00	10.00	220.00	0.00	10	180.00	5.00	185.00	(0.50)
5	245.00	5.00	250.00	0.00	5	210.00	2.50	212.50	(0.50)
0	280.00	0.00	280.00	0.00	0	240.00	0.00	240.00	(0.50)

Does the CCIP change rates and signup?

1. Farmers' current coverage under CRC, RA, IP & APH will roll to the new equivalent CCIP coverage, unless farmers change their coverage before September 30 sales closing.
2. Change from futures to cash would increase RP payments only if prices fall and basis widens; then only over a limited range of yields. If prices increase or basis becomes stronger then the current futures based RP payout is greater.
3. Harvest price is June average on July wheat.

Does the CCIP change rates and signup?

4. Premium rates are set by RMA as a percentage of coverage.
5. There will likely be some small changes in rates because farmers will not be able to adverse select between RA-HPO and CRC, but no "major" rate changes.
6. Premium cost per acre will be higher because the price election set by the market is expected to be about \$2 higher (\$5.42 in 2010).

Don't get caught on the wrong side of the basis!

1. Recently the basis has been more than \$1 under at delivery points.
2. If KS were to have a short crop the basis may approach even at delivery points. Longs may squeeze the shorts for delivery.
3. Farmers with forward contracts or basis contracts could lose a dollar before considering any price level change.

Don't get caught on the wrong side of the basis!

4. With wheat prices over \$7 some farmers may want to lock in some sales for new crop wheat.
5. Forward contracts will lock in the basis too that will likely be bid wide.
6. An alternative suggestion is to use an HTA, puts/window, or futures if you can stand the margin calls.

Thank You

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