AG MANAGER
K-State Research and Extension

www.agmanager.info
barnaby@ksu.edu
785.532.1515 (phone)
785.532.6925 (fax)

G.A. "Art" Barnaby Jr.

Farmers and Others are Asking Why Different University Farm Bill Decision Aids Give Different Results?[1]

Dear Art,

The NASS has published the attached estimates. I am confused as it appears that the gross (potential) calculation, 10% of the 5 year Olympic average, is using the harvested acres or something close to it if failed acres are included and comparing this to the "planted" yield.

Do you have any insight on this?

Crop Agent

Dear Crop Agent

The easy question first. Assuming FSA follows the previous ACRE program method, FSA will calculate the county yield based on NASS's total county production divided by harvested acres plus failed aces. This is the reason neither NASS harvested yield nor planted yield will equal many of the prior 5 year historical county yields used to set the

[1]Prepared by G. A. (Art) Barnaby, Jr., Professor, Department of Agricultural Economics, K-State Research and Extension, Kansas State University, Manhattan, KS 66506, March 1, 2015, Phone 785-532-1515, e-mail – barnaby@ksu.edu.

ARC-CO guarantee. FSA doesn't use planted yield because some wheat acres are planted for graze out and some corn acres are planted for silage. FSA will determine the failed acres later in the year.

Thanks for question,
Art

Dear Art,

Below is an email conversation I had with one of your counterparts in another state on the results of the Texas A&M calculator.

Recently I ran analysis using the Texas A&M calculator for my farming operation to decide on the election to use for the Farm Bill signup. This calculator showed payments when the price of corn was greater than $3.70 for the entire life of the farm bill using the PLC election.

According to your presentation I viewed, there should be no payment when the price of corn is greater than $3.70 per bushel using the PLC election.

Is there a software glitch in the Texas A&M program which could give false information?

Thank you

A Farmer, who needs to make a decision.

My email conversation to follow:

> *Dear SE Conference Professor,*
>
> *Would you clarify whether there is a farm payment using the PLC election when corn prices are greater than $3.70 per bushel?*
>
> *KSU calculator says no payment.*
> *I think there is a software glitch in the Texas calculator giving false information.*
>
> *Thank you*
>
> *A Farmer, who needs to make a decision.*
>
> Dear Farmer,
>
> Thanks for the message and question.

I can explain the numbers.

The K-State spreadsheet provides an exact calculation of payments given the exact information you plug in. So, if you plug in a price of $3.70 or above, it will tell you that the PLC rate is 0.

But the online decision tool at Texas A&M and the one at Illinois both calculate a probability-based analysis using 500 possible draws of prices and yields around the projections you provide. So, although you may project a price of $3.70 or above, the simulation will produce a percentage of the 500 draws where the price ends up below $3.70 and there would be a PLC payment. There may be no PLC payment for most of the draws, but averaging over the 500 draws does give you an average PLC rate, and that shows up as your expected PLC, even though your expected price may be above $3.70.

This probability-based analysis is more thorough than the straight-forward spreadsheet calculation, but it can produce the counter-intuitive result you described. The spreadsheet answer can be easier to interpret, but it is correct only if you are exactly right in your projections. The online tools provide a better analysis of the historical range of possible outcomes around a given projection.

SE Professor

Dear Professor,

I would like to point out to you what is, in my estimation, analysis which may give misleading projections to a farmer. Professor you may be correct, however if the price is above $3.70 there will be no PLC and the Texas calculator prints out information to the contrary falsely indicating to the farmer PLC may have larger payments than ARC-CO indicating PLC may be a better alternative when in fact it is not.

Thank you

A Farmer, who needs to make a decision.

Dear Farmer,

I will try to explain the results from the models while trying not to tick off all of the Agricultural Economists in the country. May I suggest readers review the 3 video tapes on AgManager.info that explains how the calculations are done for each FSA commodity program (at: http://www.agmanager.info/policy/commodity/2012/default.asp). The calculations inside all of these black-box computer models have to follow those

calculations, because they are directly from FSA. So the bottom line will depend on two variables, the price and yield used in the calculations.

For estimating payments, KSU is using NASS harvested yields that were released recently. In some cases, the harvested yields will underestimate the final ARC-CO payment because the failed acres will lower the final approved FSA county yield and increase the payment, unless it is already at the maximum. However, notice that the 2014/15 NASS county yield for Garfield County, Oklahoma wheat was 15.1 bushels (Table 1), which is more than 50% below the county average. The gross payment before the 10% stop loss was $91.33, but after the stop loss is applied, the payment is $21.12 per payment acre. One would multiply the net payment by 85% to get the average payment per base acre.

Because the Garfield payment is deep in the money, that will be the payment. The error remaining in the national wheat price is small because of weighting and wheat is near the end of the marketing year. The national wheat price will be final at the end of May and reported by USDA at the end of June, but no payment will be made until October 2015. For counties that NASS has reported a yield for 2014/15, the error will be small as they will only change by the number of failed acres as determined by FSA. Therefore, payment estimates for 2014/15 will be very close to final payments.

However, if the gross payment is significantly higher than the net payment, then it is clear the final payment is at the 10% stop loss. For Garfield County Oklahoma wheat, the final ARC-CO payment is $21.12 (only rounding will move the number by a penny) (Table 1). The payment calculator for 2014 lets the user put in their own error, in this case 2 percent. This payment calculator has been posted on AgManager at: http://www.agmanager.info/policy/commodity/2012/ARC-2014_Tradeoff-PLC-ARC-2015.xlsx . However, it will only calculate payments for counties for which NASS has published yields. The payment calculator will also generate the expected ARC-CO guarantee for the next year (Table 2).

The KSU payment calculator comes with the farm's cc yield (program yield, payment yield), that was updated prior to end of the February (farmers were given additional 30 days to update yields), set equal to county average yield. Once the farm's cc yield is final on April 1, it will not change during the life of the Farm Bill. The cc yield used for PLC payments for Garfield County was set at 32 bushels that is equal to the 32 bushel county average yield. The breakeven point is $4.84 for wheat, where PLC payments exceed ARC-CO with an average county yield.

However, this farm has a higher cc yield, equal to 44 bushels, so the user typed over the 32 bushel default with 44 bushels (Table 2). This farm's 44 bushel program yield will not change during the life of the Farm Bill, and the higher program yield increases

the breakeven point from $4.84 to $5.02. The higher program yield will make the PLC more attractive, but it doesn't mean the PLC will pay more than ARC-CO.

Notice that for this farm assuming a 15.1 bushel county yield that did occur in 2014, would require a price over $8.11 to reduce the maximum ARC-CO payment. However, PLC would pay more than ARC-CO with a $5.28 national wheat price if the county wheat yields were average. The payment calculator will provide similar numbers for corn and other crops.

Page 2 in the simple payment calculator will provide an estimate for next year's ARC-CO guarantee. The payoff matrix will show the difference in payments between PLC and ARC-CO under different prices and county yields scenarios. ARC-CO will provide payments for low yields and high prices. PLC will provide large payments for low prices, regardless of yield, but no payment with high prices, even if yield is low. With a $5.95 national wheat price next year in 2015/16, and a below-average 26 bushel county yield, ARC-CO will pay the maximum of $21.12 and PLC will pay nothing. If next year's price (which doesn't start measuring until June 1) is $4.12 then PLC will pay over $60 based on a 44 bushel payment yield, while ARC-CO will only pay $21.12. For prices between $4.70 and $5.40 there are not large differences between the two payments.

Why Does The A&M Model Show Payment When the User Enters a Price Greater than the Reference Price?

NASS has generated a 2014/15 wheat yield for many counties and the wheat price is near the end of the wheat marketing year and because of the weights, the wheat price is near final. So these price and yield numbers have almost no error left. I ran the same wheat farm though the A&M model. They have narrowed the price error for the current year only, as they now only show a small 70 cent 2014 PLC wheat payment with a 98% chance of no payment (Table 6). This is the likely the result of farmer questions on why was the model still showing wheat PLC payments for 2014 when the price will be over $5.50. They show the Garfield County Oklahoma ARC-CO wheat payment at $17.96 (after the reduction for the 15% of base acres receiving no payment) and 100% chance that it is the payment. We agree with this payment calculation.

For the remaining four years, A&M is assuming a 40% error on price and some unknown error for yield. This is a guess because the KSU-OSU team doesn't really know what A&M is assuming for a price risk error. About 25% of the price draws generated a payment over $56 and there is no yield risk in PLC as the FSA farmer cc yield is locked in for the life of the Farm Bill. A $56 PLC payment for this farm would require a national weighted average wheat price for the entire marketing year to be below $4.00. Some of draws generated PLC payments as high as $95. That would require a wheat price draw of $2.96 for the national average price! The model only needs to draw a few of these really low prices and the PLC payment is so much larger

than the 10% capped ARC-CO payment that the PLC payment overwhelms the results. In nearly all cases, the A&M model will pick PLC because of these low price draws. For this farm the A&M model predicted the PLC payment would be nearly 50% higher than the ARC-CO payment (Table 6).

Bottom line: there is no wheat PLC payment for 2014/15 and there will only be an ARC-CO wheat payment if the county yield is below average. Some of the eastern Kansas counties will have no wheat payments in 2014/15 from either program. Readers will find those prices are updated on AgManager.info each month (link is at: http://www.agmanager.info/crops/insurance/risk_mgt/default.asp), and because of weighting, much of the corn price has been determined, and many counties have had 2014 NASS county corn yields published. Again many eastern Kansas counties will have no ARC-CO corn payments because the yields are way above average. It is too early to say, but it is possible these corn growers may not receive any PLC payments either.

The ARC-CO favors low yield-risk counties. High yield-risk counties with an average county yield that has a standard error plus or minus 50%, don't benefit from really low yields because of the 10% stop loss in ARC-CO. But high risk counties can also have yields that are 50% above average and that will eliminate the ARC-CO payment. And a really low yield may reduce the guarantee the next year! In low yield-risk counties with very little yield variability, for example York County, Nebraska, ARC-CO starts to look like a "put" with a $4.55 strike vs. $3.70 in PLC. But don't forget about the 10% stop loss in ARC-CO. Because of the 10% ARC-CO stop loss, the county has a cup on the yield but there is no cap on the yield for above-average yields. Just another level of complication for farmers to consider.

A&M could still be right on corn price, but because of the weighting, over half of the corn price has already been determined. Farmers with 2014 80% crop insurance triggered corn payments with a price below $3.70 with no yield loss and paid on all planted acres, not just 85% of the base acres. This payment has been paid on the 2014 crop. Next year the price trigger with no yield loss is $3.32 for 80% RP crop insurance. So even if 2015/16 corn prices are below $3.32, many ARC-CO enrolled farmers will be covered with their crop insurance. Remember the APH yields have been increased via trend yield adjustment and the new yield exclusion (YE) for yields setting the APH.

I think if you look at the updated national prices on this website used to determined FSA payments, most reasonable people will recognize that for 2014/15 year there is no wheat PLC payment. It is very unlikely that soybeans will have a PLC payment. Corn is titling towards no PLC payment, but price could reverse. Sorghum has the best chance of PLC payment, but no guarantees.

After entering the 2014 county yield and the current expected wheat price the OSU-KSU model generated a Garfield County ARC-CO payment for 2014, but no PLC payments. The remaining 4 years are estimates based on user-entered prices and yields (Table 7).

The professor response that describes the A&M and IL methods is correct.
But I don't agree with his comment; *"This probability-based analysis is more thorough than the straight-forward spreadsheet calculation, but it can produce the counter-intuitive result you described. The spreadsheet answer can be easier to interpret, but it is correct only if you are exactly right in your projections. The online tools provide a better analysis of the historical range of possible outcomes around a given projection."*

These simulated results assume a lot of observations. That is true for estimating the national program cost or an insurance pool. But your farm is going to have only 5 observations. It possible to win 5 times in 5 plays at the casino, but you will not win over the long run. The large numbers will win out, but for this, you will only have 5 observations. In some cases, we already know the results for 1 of the 5 observations. On some farms, the payment is zero and others are at the maximum ARC-CO payment for the same crop. Their best argument is on the price estimate because it is a single national price that does have a lot price draws. However, I think most farmers would be surprised at how low some of those price draws are in the analysis.

The OSU-KSU decision aid is not approved by FSA. Only A&M and IL models are government approved. So, if you think the A&M model is a better forecaster of prices and yields than your guess, then use the A&M model.

Art,

I don't farm in Kansas, but thank you for responding to my concerns. When I viewed your video I was impressed with your presentation as it gave a very straight forward approach to explaining the new farm program. Einstein once said, if you cannot explain a situation in simple terms to another person you may not understand the situation yourself.

A Farmer, who needs to make a decision.

Wow, we don't get many notes from happy campers, so thank you. AB

Ok folks,

I've received a couple of phone calls today asking questions about the new release that you did of "Estimated ARC-CO Payments for 2014" across the state. You are estimating a $12 payment for wheat in my county. The problem is, of all of the 150+ Farms that have been run thru the KSU/OSU Decision Tool for my county - their hasn't been any Farms (that I can recall) that show an ARC-CO payment in 2014-15! I've got a couple of producers upset that they have spent so much time studying and working on this for themselves and their landlords and yet what you put out on Friday is completely different than what the decision tool is showing!!!

So...what's going on? Are we doing something wrong? Are you guys using different data than what is in the decision tool?

County Agent

Dear Extension Agent,

In spite of your suggestion that the OSU-KSU model favors PLC, it is just not true.

I entered a wheat farm in to the OSU-KSU model that is fully based and cannot reallocate base to other crops. So the base will remain wheat only and the farmer has an FSA program yield equal to 44 bushel.

I first ran the OSU-KSU model by just accepting the default values and assumed the farm had a program yield equal to the county average yield of 32 bushels. The result for PLC with default values are in table 3. Based on the default values of yield equal to the county average and FAPRI (University of Missouri) prices, the total PLC payment is $15.88 per base acre. These forecasted payments occurred in 2015, 2016, and 2017. The total ARC-CO payments using the default values were $40.86 per base acre. The payments occurred in the same years (Table 4). Therefore the user either changed some of the yields or prices to generate higher payments from PLC. However, that is a possible outcome, so PLC may pay more. It all depends on the user's forecasted prices and yields over the next 4 years. In our opinion, it is a close call for both wheat and corn, and only after 5 years will one know which program paid the most.

Because this farm has a higher program yield, the projected PLC payment is $21.83 per payment acre (Table 5), but ARC-CO is still higher at $40.86. So the only way to generate lower payments for ARC-CO than PLC would have required the user to enter lower prices or higher county harvested yields. Users should enter different yields and prices, then answer the question: Do I think the national wheat price will fall below $5?

Everyone has forgotten the hole in the Deficiency Payment safety net, renamed PLC. In 1989, Kansas had its worst wheat crop with a state yield more than 50% below average. Farmers lost their crop with many yields near zero and they lost the Deficiency Payments due to higher prices. Right when wheat farmers needed the government payment they received none. The USDA's response was "too bad, so sad; farmers should have purchased crop insurance". The farmers countered that crop insurance did not cover the loss because it paid the loss at a fixed price, the same as Yield Protection. That was the start of the "Harvest Price" (original name was Market Value Protection). MVP was released in 1990 as a private product. RP-insured wheat farmers who suffer a crop failure combined with a higher price eliminating the PLC payment will better protected because RP would cover the loss of the crop and the government payment. Many academic economists want the harvest price eliminated from crop insurance, that now protect the PLC payment in addition to marketing plans. In 1990, Kansas had Senator Bob Dole and he did provide an ad hoc disaster aid program. I doubt that even Bob Dole would be able to provide an ad hoc disaster aid program in today's political world.

Updating the Yields and Prices with New Information

Art's Suggestion

If you are very risk adverse and want a safety first program, you will pick PLC even if think ARC-CO will pay more. Anyone can create a Black Swan event over the next 4 years where the corn price will hit $2.50, and the PLC would pay a lot more, unless your farm is over the $125,000 payment limit.

However, less risk adverse farmers may accept the catastrophic price risk and select ARC-CO, especially if there is a known payment in 2014. If farmers expect the national corn price to fall below $3.20 (remember this is not your local elevator price, not futures price, and not crop insurance prices) then farmers are more likely to pick PLC. However, if they think prices are likely to be above $3.70 then they would likely select ARC-CO. For prices between $3.20 and $3.70, it could go either way, and will depend on the county yields. Farmers expecting soybean prices below $7, wheat prices below $5.20, and sorghum prices below $3.50 are more likely select PLC.

More Results on the Oklahoma Case Problem

The OSU-KSU model picks ARC-individual as the best commodity program for this farm because the wheat yields were much higher than the county averages. The A&M model picked PLC. Just because one these models picks a program doesn't mean it is the best option. Remember the analysis is based on forecasted prices and yields, either yours or the model's. In addition, there are likely other considerations.

This farm is insured at 80% RP wheat coverage at the enterprise level. The RP would have paid claims if the 2014 price had fallen below $5.61 without a yield loss. That claim, if any, has already been paid, while the government makes the FSA payment a year or more after harvest. For the next wheat marketing year that starts on June 1, the effective put price in the current 80% RP 2015 wheat contract is $5.04. If the price of wheat falls below $5.04, then crop insurance will pay claims with no yield loss. For 80% RP corn, the effective put for 2014 was $3.69 and many corn farmers have received corn crop insurance payments because of the low fall price. For next year, 80% RP corn has an effective put at $3.32. The point is that farmers have some protection against very low prices in their insurance contract and it is on all planted acres with no payment limits. It is difficult to keep the correct years together because insurance claims are paid at harvest while FSA payments are paid more than a year after harvest for **the same crop year.**

This farm has already hedged the 2015 wheat crop. In years when he sold too quickly, he just sold the next year's crop. A margin call can be good news.

This farmer is expecting an increased APH on the 2016/17 wheat crop because he should be able to exclude the 2007 freeze year and the 2014 drought yield. That will likely increase the crop insurance coverage and provide more protection from a catastrophic price loss. This will provide some catastrophic price coverage, if he does not chose PLC for the catastrophic price coverage.

This farmer will not select ARC-individual even though the OSU-KSU model picked this program. The farm is 100% wheat base and cannot be reallocated. He has just started rotating to other crops to breakup wheat disease and weed issues in the hope of higher wheat yields in the future. Because these crops are new, the farm's crop insurance coverage is based on an RMA T-yield. In addition to the "low" APH, he cannot buy coverage above 75% for soybeans, sorghum, or canola. Selecting either PLC or ARC-CO on the wheat will allow this farmer to buy SCO on these new crops because they are not enrolled in ARC, and higher RP coverages are not available.

This farmer is still flipping coins between ARC-CO and PLC. There will be one more NASS price before the end of sign-up, but farmers will only have 1 day to call FSA and change their selection. This farmer thinks USDA will extend the deadline as they did for updating yields, and that would mean two more NASS prices. Washington is telling me no, so don't bet the farm on any more extensions.

An Over-Hyped Farm Bill Decision

This decision has been over-hyped by a lot of people with a dog in the fight. But let's look the Oklahoma wheat farm example. This farm's average gross income is about $300 per acre, but with wide variation. High yields have provided a gross revenue way

over the average and in crop loss years, the gross has been way under the average. In spite of what you have read from the academic experts, a wheat farmer is nearly always better off with a crop than a crop insurance check. A 60 bushels yield with a low $5 wheat price will make the $300 gross. These experts always forget about the large deductible in any insurance payment and the impact of a declining APH on the insurance guarantee, but YE should help with the APH.

The 2014/15 ARC-CO wheat payment is $21.12 per payment acre. He is paid on 85% of the base acres so that drops the payment to $17.96 (85% X 21.12). That is about 6% of his expected gross income. If he has wheat acres with no base, that will lower the 6% value and for farmers over the $125,000 payment limit, the percentage will be even smaller than 6%. It is unlikely that if PLC pays that ARC-CO will not pay, so in many cases the difference in payment is “likely small” over the life of the Farm Bill, meaning the effect on gross income could be as little as 3%.

Bottom line, farmers will make more important decisions that will have greater impact on their incomes than the Farm Bill decision. These include selection of seed, selection of crop to plant, crop insurance decisions, adding private crop insurance such as hail, crop marketing, plant timing, etc. If a farmer really thought we were going to have $2.50 corn over the next 3 years, then he should be selling some of the corn crop 3 years out. I am not recommending that anyone sell corn that far out at these price levels, but it should cause farmers to think about how likely those extremely low prices are, and not do the normal reaction that prices will always be low. The author doubts that many farms will be lost by selecting the “wrong” FSA program, but if they cancel or cut their insurance contract, they may have to call the auctioneer, because most of the safety net is in the crop insurance program.

All of these issues and more will be covered in the Wednesday, March 11, 2015 KSU webinar at 11 a.m., Central Standard Time. To enroll or for more information then select the follow link: http://www.agmanager.info/events/Webinars/default.asp.

Table 1. The 2014 ARC-CO Payment for Garfield County Oklahoma wheat

2014/15 ARC County Payment

State: **OKLAHOMA** **Irr. Type:** **All** **Crop** **wheat**
County: **GARFIELD**

5 Yr. Olympic Avg. County Yield	32.00	2014 Price[1]	**$5.9800**	per Bushel
5 Yr. Olympic Avg. MYA Price Per Bushel	$6.6000	% Error of Price	**2.0%**	
ARC-County Guarantee = 86% times Reference Revenue	$181.63	2014 NASS Co. Yield[2]	15.10	

2014/2015	ARC Guar-antee	NASS Yield	2014/15 PRICE	Current Year County Revenue	Gross ARC-CO Pay-ment[3]	**NET ARC-CO PYMT with 10% Stop Loss[4]**	Current 5 yr. Oly. Avg. Yield	Next Yr's 5 yr. Oly. Avg. Yield
Expected Price	$181.63	15.10	$5.98	$90.30	$91.33	**$21.12**	32.00	32.00
Low Price	$181.63	15.10	$5.86	$88.49	$93.14	**$21.12**		
High Price	$181.63	15.10	$6.10	$92.10	$89.53	**$21.12**		

[1]The prices for wheat, corn, sorghum and soybeans are KSU estimates. The prices for the other crops are FAPRI, University of Missouri estimates.
[2]NASS did not release yields for all counties. In some counties acres for different classes of a crop or practices are combined. The NASS yield is total production divided by harvested acres. FSA will divide production by harvested acres plus FSA determine failed acres, except for soybeans and they will be divide by planted acres. The failed acres will likely not be determined until this fall. So the county yield is not final nor is the price final for wheat until July 1 for wheat and October 1 for the other crops.
[3]If the Gross Payment is substantially larger than the Net Payment after the 10% stop loss is applied, then the Net Payment will be the final payment. While the final price and yields will change slightly, if the Gross Payment equals the Net Payment, then any error will in price or yield estimates will change the final Net Payment paid by FSA.
[4]The net payment is per payment acre. Remember acres with no base receive no payment and 15% of the base acres receive no payments.

Table 2. The Estimated Garfield County Oklahoma ARC-CO guarantee and the Price-Yield Tradeoffs between ARC-CO vs. PLC

Comparison of ARC-County vs. PLC Payments for 2015/16 Marketing Year

State:	OKLAHOMA	**Irr. Type:**	All	**Crop**	wheat
County:	GARFIELD				

	ARC		PLC	
2015 5 Yr. Olympic Avg. County Yield	32	Program Yield	44.0	per Bushel
2015 5 Yr. Olympic Avg. MYA Price Per: Bushel	$6.6000	Reference Price	$5.5000	
Benchmark Revenue	$211.20	PLC > ARC-Co, @	$5.02	

			ARC Payment							
			Yield							
	MYA Price	PLC Payment	19	21	23	26	29	**32**	35	38
	$8.1111	$0.00	$21.12	$11.30	$0.00	$0.00	$0.00	**$0.00**	$0.00	$0.00
	$7.5103	$0.00	$21.12	$21.12	$8.89	$0.00	$0.00	**$0.00**	$0.00	$0.00
	$6.9540	$0.00	$21.12	$21.12	$21.12	$0.83	$0.00	**$0.00**	$0.00	$0.00
	$6.5604	$0.00	$21.12	$21.12	$21.12	$11.06	$0.00	**$0.00**	$0.00	$0.00
	$6.1891	$0.00	$21.12	$21.12	$21.12	$20.71	$2.15	**$0.00**	$0.00	$0.00
	$5.9511	$0.00	$21.12	$21.12	$21.12	$21.12	$9.05	**$0.00**	$0.00	$0.00
	$5.7222	$0.00	$21.12	$21.12	$21.12	$21.12	$15.69	**$0.00**	$0.00	$0.00
	$5.6100	$0.00	$21.12	$21.12	$21.12	$21.12	$18.94	**$2.11**	$0.00	$0.00
Ref Price	**$5.5000**	$0.00	$21.12	$21.12	$21.12	$21.12	$21.12	**$5.63**	$0.00	$0.00
	$5.4450	$2.42	$21.12	$21.12	$21.12	$21.12	$21.12	**$7.39**	$0.00	$0.00
	$5.3906	$4.81	$21.12	$21.12	$21.12	$21.12	$21.12	**$9.13**	$0.00	$0.00
	$5.2828	$9.56	$21.12	$21.12	$21.12	$21.12	$21.12	**$12.58**	$0.00	$0.00
	$5.1771	$14.21	$21.12	$21.12	$21.12	$21.12	$21.12	**$15.96**	$0.43	$0.00
Break Evel	$4.9182	$25.60	$21.12	$21.12	$21.12	$21.12	$21.12	**$21.12**	$9.49	$0.00
	$4.6723	$36.42	$21.12	$21.12	$21.12	$21.12	$21.12	**$21.12**	$18.10	$4.08
	$4.4387	$46.70	$21.12	$21.12	$21.12	$21.12	$21.12	**$21.12**	$21.12	$12.96
	$4.1280	$60.37	$21.12	$21.12	$21.12	$21.12	$21.12	**$21.12**	$21.12	$21.12
	$3.8390	$73.08	$21.12	$21.12	$21.12	$21.12	$21.12	**$21.12**	$21.12	$21.12

Table 3. OSU-KSU PLC Payments based a 32 bushel FSA Program Yield

PLC Payments with Current Base Acres and UPDATED FSA Yields 100% Share							
Crop	**Base Acres**	**PLC Payment**					
		2014	**2015**	**2016**	**2017**	**2018**	**NPV**
Wheat_Winter	100	$ -	$ 898	$ 653	$ 163	$ -	$ 1,588
Totals		$ -	$ 898	$ 653	$ 163	$ -	
Total Discounted PLC Payment @ 5% Discount Rate					**$**		**1,588**

Table 4. OSU-KSU ARC-CO Payments based Default Prices and Yields

Crop	**ARC-County Payments with Current Base Acres Paid on 85% of Base Acres 100% Share**					
	2014	**2015**	**2016**	**2017**	**2018**	**Net Present Value**
Wheat_Winter	$ -	$ 1,946	$ 1,972	$ 514	$ -	$ 4,086
Totals	$ -	$ 1,946	$ 1,972	$ 514	$ -	
Total Discounted ARC Payments @ 5% Discount Rate				$		4,086

Table 5. OSU-KSU PLC Payments based a 44 bushel FSA Program Yield

PLC Payments with Current Base Acres and UPDATED FSA Yields 100% Share							
Crop	Base Acres	PLC Payment 2014	2015	2016	2017	2018	NPV
Wheat_Winter	100	$ -	$ 1,234	$ 898	$ 224	$ -	$ 2,183
Totals		$ -	$ 1,234	$ 898	$ 224	$ -	
Total Discounted PLC Payment @ 5% Discount Rate					$		2,183

Table 6. Texas A&M Decision Aid Results for the Oklahoma Wheat Farm Example

Wheat

FSA Program	Reallocate Base	2014	2015	2016	2017	2018	Sum
ARC-CO	Yes						Hide Details
Expected Payment		$1,796	$831	$919	$892	$353	$4,791
Probability of Payment		100%	58%	59%	58%	26%	
25% of Payments		≤ $1,796	≤ $0	≤ $0	≤ $0	≤ $0	
25% of Payments		≥ $1,796	≥ $1,803	≥ $1,860	≥ $1,911	≥ $180	
5% of Payments		≥ $1,796	≥ $1,836	≥ $2,030	≥ $2,108	≥ $1,851	
PLC	Yes						Hide Details
Expected Payment		$7	$2,219	$2,042	$1,671	$1,216	$7,155
Probability of Payment		2%	67%	65%	56%	45%	
25% of Payments		≤ $0	≤ $0	≤ $0	≤ $0	≤ $0	
25% of Payments		≥ $0	≥ $3,861	≥ $3,535	≥ $3,061	≥ $2,115	
5% of Payments		≥ $0	≥ $6,997	≥ $6,422	≥ $5,868	≥ $5,031	

Table 7. OSU-KSU ARC-CO Payments based a 2014 $6 price and 15.1 bushel County yield; with Default Values in the Remaining 4 Years

Crop	ARC-County Payments with Current Base Acres Paid on 85% of Base Acres 100% Share					
	2014	2015	2016	2017	2018	Net Present Value
Wheat_Winter	$ 1,796	$ 1,450	$ 1,431	$ 514	$ -	$ 4,919
Totals	$ 1,796	$ 1,450	$ 1,431	$ 514	$ -	
Total Discounted ARC Payments @ 5% Discount Rate				$		4,919