



A Representative Farm Approach to Farm Program Selection

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By the March 31, 2015 deadline, all producers operating on a farm must unanimously agree on the commodity program choice between the agriculture risk coverage program (ARC) or the price loss coverage program (PLC). The ARC program contains two coverage options- county (CO) or individual coverage (IC). Similar to the payment yield update decision (which is a farm owner decision), program election among ARC-CO and PLC can be made on covered commodity-by-covered commodity basis. In the likelihood that the producers on a farm select the ARC-IC (individual) coverage option, the ARC-IC decision applies to all covered commodities that are produced on the farm; i.e. it functions as a whole-farm revenue program.

This report uses a representative farm approach to detail the projected farm program payments for two farms operating in Louisiana. The first example contains production information related to a long grain rice and soybean farm located in southwestern Louisiana, specifically, Acadia parish. The second example depicts a diversified corn, cotton, grain sorghum, and soybean farm located in the northeast Mississippi River delta region of the state, specifically, Tensas parish. Historical production levels and MYA price data for each parish was obtained from USDA FSA (via USDA NASS) for the 2009 through 2013 crop years. Actual 2014 parish-level yields and projected MYA price were also obtained from USDA NASS. USDA NASS parish-level yield estimates, released on February 19th and March 6th for the previous crop year do not segregate the yield on a unit basis (i.e. irrigated and non-irrigated enterprises). Therefore, the USDA NASS reported parish yield for 2014 serves as an ‘unofficial’ estimate for the purpose of alternative program evaluation presented in this staff report.

Other assumptions are imposed into this analysis regarding the USDA FSA farm serial number size and base acre composition. For the Acadia parish farm the base acres present on the farm after the retain/reallocate election totals 1,000 acres. Of those 1,000 acres, 850 acres are based into long grain rice and 150 acres are based into soybeans. In comparing the ARC-CO and PLC programs, 85% of the base acres are eligible to receive payment, in the event that program payments are triggered. Therefore, the payment acres for long grain rice and soybeans are 722.5 and 127.5 acres, respectively. In the case of the diversified cotton and grain farm in Tensas parish, the base acres present on the farm (after the retain/reallocate election) totals 1,300 acres. Of those 1,300 acres, 900 acres were previously based into cotton, 150 acres are based into corn, 200 based into soybeans, and the remaining 50 acres were based into grain sorghum. Payment acres under either the ARC-CO or PLC option for this farming operation are: 765 acres of ‘generic’ base (old cotton base), 127.5 acres of corn, 170 acres of soybeans, and 42.5 acres of grain sorghum. Under the farm bill, the generic acres on the farm must be planted to a covered commodity so that those planted generic base acres transition into base acres of said planted covered commodity.

Through the use of an ARC-CO/PLC farm bill decision tool, developed by the LSU Agricultural Center, estimated farm program payments are compared specific to user-inputted values for future crop years. Future MYA prices were obtained from the farm prices contained in the University of Missouri FAPRI March 2015 U.S. Baseline Briefing Book (FAPRI-MU Report #01-15). Parish-level yields are said to be reflective of the previous three-year moving average for the 2015 through 2018 crop years. Price and production data used in the representative farm model for Acadia parish are listed in Tables 1 and 2, respectively. Tables 3 through 5 illustrate the price and production data used in the representative farm model for Tensas parish. This analysis assumes that the payment yield update has been elected to by the farm owner. Farm yields are representative (comparable) to those of the parish trend from 2009-2013. The denotation of an asterisk following future crop year production information serves as an estimate.

Table 1. Acadia parish long grain rice production and MYA price data.

YEAR	PARISH YIELD (CWT/PLT AC)	MYA PRICE (\$/CWT)
2009	72.98	\$12.90
2010	73.53	\$11.00
2011	77.99	\$13.40
2012	74.43	\$14.50
2013	81.95	\$15.40
2014	74.64*	\$12.50*
2015	77.00*	\$12.31*
2016	77.86*	\$12.43*
2017	76.50*	\$12.38*
2018	77.10*	\$12.50*

Table 2. Acadia parish soybean production and MYA price data.

YEAR	PARISH YIELD (BU/PLT AC)	MYA PRICE (\$/BU)
2009	32.00	\$9.59
2010	32.00	\$11.30
2011	30.00	\$12.50
2012	36.00	\$14.40
2013	38.00	\$13.00
2014	37.88*	\$10.20*
2015	37.29*	\$9.29*
2016	37.72*	\$9.44*
2017	37.63*	\$9.79*
2018	37.55*	\$10.26*

A direct program comparison between ARC-CO and PLC for the Acadia parish farm is provided in Tables 2.A., 2.B., and 2.C. From the specifications imposed, the PLC program payment estimation from the farm bill decision tool indicates a significant projected farm program payment per base acre for long

grain rice in Acadia parish. This is due to the fact that the MYA price estimates for long grain rice are below the \$14.00 reference price in each of the remaining five years of the farm bill. For farm owners who elect to update the yield history for long grain rice, increased productivity on the farm offers a substantial increase from the parish-average CC yield of 49 hundredweight under the 2008 farm bill. In the case of this representative farm, the PLC payment yield for long grain rice is said to be 54.36 hundredweight and 27.63 for soybeans. For soybeans, the opposite program (ARC-CO) holds greater potential for payment- although at a reduced frequency. The frequency of program payment is not the same for rice (PLC payment projected in every year) and soybeans (ARC-CO payment in 2015 and 2016 only). A matrix of decision choices afforded to producer(s) of the southwestern rice and soybeans farm are presented in a whole-farm context in Table 2.C.

Table 2.A. Farm program comparison for long grain rice in Acadia parish, payment per base acre.

YEAR	ARC-CO	PLC
2014	\$0	\$69.31
2015	\$0	\$78.09
2016	\$0	\$72.54
2017	\$0	\$74.85
2018	\$0	\$69.31

Table 2.B. Farm program comparison for soybeans in Acadia parish, payment per base acre.

YEAR	ARC-CO	PLC
2014	\$0	\$0
2015	\$22.01	\$0
2016	\$19.69	\$0
2017	\$0	\$0
2018	\$0	\$0

Table 2.C. Total payments to covered commodities on the Acadia parish farm under multiple combinations of commodity farm programs contained in the 2014 farm bill.

YEAR	RICE ARC-CO/ SY ARC-CO	RICE PLC/ SY ARC-CO	RICE ARC-CO/ SY PLC	RICE PLC/ SY PLC
2014	\$0	\$58,912.65	\$0	\$58,912.65
2015	\$3,301.87	\$69,676.79	\$0	\$66,374.92
2016	\$2,953.04	\$64,614.95	\$0	\$61,661.91
2017	\$0	\$63,625.66	\$0	\$63,625.66
2018	\$0	\$58,912.65	\$0	\$58,912.65
5-YR TOTAL	\$6,254.91	\$315,742.70	\$0	\$309,487.79

Results from Table 2.C suggest that long grain rice enrolled into the PLC program and soybeans enrolled into the ARC-CO program would result in higher farm program payments to the farm under the price and

yield conditions imposed into the decision tool (\$315,742). PLC payments to long grain rice account for 100% of the program payments in years 2014, 2017, and 2018. For the 2015 and 2016 crop years, PLC payments to the farm for rice account for over 95% of the program payments. The proportionate share of program payment to soybeans under the ARC-CO option represent 4.73% and 4.57% in the 2015 and 2016 crop years.

Similar to the methodology imposed in the previous example, farm owners who elect to update their yield history for corn, benefit from the increased productivity on the farm which offers a substantial increase from the parish-average CC yield of 78 bushels under the 2008 farm bill. In the case of this representative farm, the PLC payment yield for corn is 126 bushels; 38.3 bushels for soybeans; and 70 bushels for grain sorghum. A matrix of decision choices afforded to producer(s) of the farm are presented in a whole-farm context in Table 5.D. for the existing covered commodity base only. Program payments related to the planting of covered commodities to generic acres are not included in the Table 5.D.

Table 3. Tensas parish irrigated corn production and MYA price data.

YEAR	PARISH YIELD (BU/PLT AC)	MYA PRICE (\$/BU)
2009	153.0	\$3.55
2010	147.0	\$5.18
2011	151.0	\$6.22
2012	192.0	\$6.89
2013	192.0	\$4.45
2014	180.5*	\$3.70*
2015	188.17*	\$3.89*
2016	189.02*	\$3.90*
2017	185.90*	\$4.01*
2018	187.27*	\$4.12*

Table 4. Tensas parish grain sorghum production and MYA price data.

YEAR	PARISH YIELD (BU/PLT AC)	MYA PRICE (\$/BU)
2009	60.0	\$3.22
2010	93.0	\$5.02
2011	101.0	\$5.99
2012	110.0	\$6.33
2013	115.0	\$4.25
2014	83.09*	\$3.90*
2015	102.70*	\$3.62*
2016	100.26*	\$3.67*
2017	95.35*	\$3.76*
2018	99.44*	\$3.85*

Table 5. Tensas parish irrigated soybean production and MYA price data.

YEAR	PARISH YIELD (BU/PLT AC)	MYA PRICE (\$/BU)
2009	46.0	\$9.59
2010	42.0	\$11.30
2011	47.0	\$12.50
2012	53.0	\$14.40
2013	51.0	\$13.00
2014	63.64*	\$10.20*
2015	55.88*	\$9.29*
2016	56.84*	\$9.44*
2017	58.29*	\$9.79*
2018	57.17*	\$10.26*

Table 5.A. Farm program comparison for corn in Tensas parish, payment per base acre.

YEAR	ARC-CO	PLC
2014	\$70.86	\$0
2015	\$51.76	\$0
2016	\$36.44	\$0
2017	\$0	\$0
2018	\$0	\$0

Table 5.B. Farm program comparison for soybeans in Tensas parish, payment per base acre.

YEAR	ARC-CO	PLC
2014	\$0	\$0
2015	\$10.08	\$0
2016	\$7.51	\$0
2017	\$0	\$0
2018	\$0	\$0

Table 5.C. Farm program comparison for grain sorghum in Tensas parish, payment per base acre.

YEAR	ARC-CO	PLC
2014	\$43.90	\$2.98
2015	\$43.90	\$19.64
2016	\$42.13	\$16.66
2017	\$4.87	\$11.31
2018	\$0	\$5.95

Table 5.D. Total payments to covered commodity base acres on the Tensas parish farm under multiple combinations of commodity farm programs contained in the 2014 farm bill. (Program payments resulting from the plantings of covered commodities to generic base is not included.)

YEAR	CR ARC-CO/ SY ARC-CO/ GS ARC-CO	CR PLC/ SY ARC-CO/ GS ARC-CO	CR ARC-CO/ SY PLC/ GS ARC-CO	CR ARC-CO/ SY ARC-CO/ GS PLC	CR PLC/ SY PLC/ GS ARC-CO	CR PLC/ SY ARC-CO/ GS PLC	CR ARC-CO/ SY PLC/ GS PLC	CR PLC/ SY PLC/ GS PLC
2014	\$12,824.00	\$2,195.00	\$12,824.00	\$10,778.00	\$2,195.00	\$149.00	\$10,778.00	\$149.00
2015	\$11,975.00	\$4,211.00	\$9,959.00	\$10,762.00	\$2,195.00	\$2,998.00	\$8,746.00	\$982.00
2016	\$9,074.50	\$3,608.50	\$7,572.50	\$7,801.00	\$2,106.50	\$2,335.00	\$6,299.00	\$833.00
2017	\$243.50	\$243.50	\$243.50	\$565.50	\$243.50	\$565.50	\$565.50	\$565.50
2018	\$0	\$0	\$0	\$297.50	\$0	\$297.50	\$297.50	\$297.50
5-YR TOTAL	\$34,117.00	\$10,258.00	\$30,599.00	\$30,204.00	\$6,740.00	\$6,345.00	\$26,686.00	\$2,827.00

Table 5.E. Plantings to the existing generic acres on the Tensas parish representative farm, considering the 2014 and 2015 crop years only.

YEAR	CORN	SOYBEANS	GRAIN SORGHUM	COTTON	TOTAL
2014	200	300	100	300	900
2015	200	300	100	300	900

Table 5.F. Total payments to base acres on the Tensas parish farm under multiple combinations of commodity farm programs for the 2014 and 2015 crop years only. (Program payments resulting from the plantings of covered commodities to generic base are included.)

YEAR	CR ARC-CO/ SY ARC-CO/ GS ARC-CO	CR PLC/ SY ARC-CO/ GS ARC-CO	CR ARC-CO/ SY PLC/ GS ARC-CO	CR ARC-CO/ SY ARC-CO/ GS PLC	CR PLC/ SY PLC/ GS ARC-CO	CR PLC/ SY ARC-CO/ GS PLC	CR ARC-CO/ SY PLC/ GS PLC	CR PLC/ SY PLC/ GS PLC
2014	\$31,386.00	\$6,585.00	\$31,386.00	\$25,248.00	\$6,585.00	\$447.00	\$25,248.00	\$447.00
2015	\$29,741.00	\$11,625.00	\$24,701.00	\$26,102.00	\$6,585.00	\$7,986.00	\$21,062.00	\$2,946.00

Model results appearing in Table 5.A. are subject to the MYA price and parish yield combinations imposed by the producer in the farm bill decision tool. The expected decline in corn price, seems to indicate that the ARC-CO program could result in higher program payments compared to the PLC program given the MYA price forecast. Soybean payments made under the ARC-CO program for Tensas parish are estimated to be less frequent than the corn ARC-CO payments; with payment being triggered in two of the five-year farm bill. (This pattern was also observed in the southwest farm example.) Model results in Table 5.C. indicate that ARC-CO and PLC payment frequency is somewhat identical for grain sorghum. ARC-CO payment is estimated to be made in the first four years of the five-year bill, while grain sorghum payment under ARC-CO is estimated to be an annual occurrence in Tensas parish. The cumulative payment from the ARC-CO program is greater than that of the PLC program in this example.

Table 5.F. represents the impact that generic acres may have on potential farm program payments under each year of the farm bill. Generic acres are attributed to covered commodities annually based on the farm's planting ratio in that crop year. Assuming that 2015 planting intentions mirror the planting decisions made in 2014, as shown in Table 5.E., the estimated farm program payments listed in Table 5.F. will vary based on the amount of generic acres that exist on the farm and the intensity (degree) to which the covered commodities are planted. The generic base acres would be in addition to the existing covered commodity base acres of corn (150), soybeans (200), and grain sorghum (50). In the case of this Tensas parish farm, generic acres accounted for 900 of the 1,300 total base acres (slightly over 69%). Results in Table 5.F. considers the planting flexibility and associated farm program impact afforded to cotton base acres. The program payments reflect payment on 350 base acres of corn; 500 base acres of soybeans; and 150 base acres of grain sorghum expressed as a function of the farm's 2014 and 2015 plantings. The farm is said to plant 300 acres to cotton in each of the next two crop years. Due to the fact that this Tensas parish farm possess over 900 acres of generic base, the farm has considerable flexibility in its planting decisions. Producers should evaluate their program choice relative to their risk management strategy. Results are not shown for the remaining 2016 to 2018 crop years, as plantings to generic acre are most likely to vary considerably.

Note: Information presented in this report is intended for educational purposes. No endorsement is made for one farm program or insurance product over another. The LSU Agricultural Center's Department of Agricultural Economics and Agribusiness farm bill webpage can be accessed through:

http://www.lsuagcenter.com/en/our_offices/departments/Ag_Economics_Agribusiness/extension_outreach/2014-Farm-Bill-Information/



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