

# Cotton, Corn and Soybean Net Return Comparison Decision Aid

A Farm Planning/Decision Tool for Louisiana Growers

#### Michael E. Salassi and Michael A. Deliberto

Department of Agricultural Economics and Agribusiness Louisiana State University Agricultural Center Baton Rouge, Louisiana

The Cotton, Corn and Soybean Net Return Comparison Decision Aid is a spreadsheet-based decision tool developed to assist row crop producers in Louisiana in making production decisions based on expected net return comparisons between production of cotton, corn and soybeans, using alternative expectations related to variable production costs, expected crop yields and expected crop market prices. The decision tool contains five Excel worksheets which compares net returns above variable production costs for three alternative sets of crop production choices: (1) cotton versus corn, (2) cotton versus soybeans, and (3) corn versus soybeans.

Net returns above variable production costs are the appropriate values to use in making production decision comparisons among crops in the short run period of one crop year. For a given crop production year, fixed production expenses, including primarily equipment depreciation and interest, would not change as a result of which crops are produced in that year. Variable production costs are defined as those production expenses which would change based upon which crops are planted for production in that year. Land rent, if applicable, would also be included as a production cost in the net return calculation, due to the fact the many of the cropland leases are on a crop share basis and would change in value based upon the level of crop yield and market price. Therefore, net returns above variable production costs and land rent charges are calculated and the differences between these values gives an estimate of the net return advantage of one crop over the other at assumed levels of cost, yield and price.

Information required to be entered by the user for each crop includes: (a) variable production cost per acre, (b) expected crop yield per acre, and (c) crop share rent percentage or cash rent payment per acre. Data values which can be entered/changed by the user are in blue text. In addition, the user can change the range of cotton prices, cotton yields, corn prices and soybean prices evaluated by changing the first value (highlighted in blue) listed for each crop in the worksheet. The worksheet calculates net returns above variable costs and land rent for each crop and shows the difference between the two net returns in the table. Therefore, the values shown in the table can be interpreted as the advantage in net returns per acre for one crop (whose market prices are listed along the left side of the table) compared to the other crop (whose market prices are listed along the top of the table. For the range of market price combinations for which the crop on the left has a net return advantage over the other crop, those cell values with positive net return differences will be shaded in yellow. As values for variable cost, yield and rent are changed, the corresponding net return differences and highlighted cells with a net return advantage will change accordingly.

This spreadsheet decision tool can be downloaded from the LSU AgCenter web page, under Cotton Publications, and saved on any desktop or laptop personal computer for use. The web address for the LSU AgCenter is: <a href="www.lsuagcenter.com">www.lsuagcenter.com</a>. A copy of this user's guide along with the spreadsheet decision aid file can also be obtained by contacting the authors by email at <a href="msalassi@agcenter.lsu.edu">msalassi@agcenter.lsu.edu</a> or <a href="msalassi@agcenter.lsu.edu">mdeliberto@agcenter.lsu.edu</a>.

## <u>Worksheet 1</u> – <u>Cotton versus Corn Net Return Comparison - 1</u>

	В	C D	E	F	G	Н	1	J	K	L	M	N	0	Р
		Cell values in blue for	r costs, yie	ld, rent and	price can l	be changed	by the use	r.				11/	13/2013	
		Values in the table re	present th	ne difference	e between	cotton net	returns and	corn net r	eturns abo	ve variable	cost and r	ent.		
		Positive values highli	ghted in y	ellow indica	te that cot	ton has a n	et return ac	lvantage o	ver corn at	that price, y	ield and d	ost lev	el.	
Г				Cotton N	let Returr	n Advanta	ge Compa	red to Co	rn Net Re	turns				
							•	Cor	n Price =	\$6.00 pe	er bushel			
		Cotton Variable	e Costs =	\$536 pe	er acre		(	Corn Variabl	e Costs =	\$507 pe	er acre			
							C	orn Expecte	ed Yield =	160 bu	ushels per a	acre		
		Cotton Shar	re Rent =	<b>20</b> % cr	op share			Corn Shar	re Rent =	20% cr	op share			
		Cotton Cas	sh Rent =	\$0 pe	er acre			Corn Cas	sh Rent =	<b>\$0</b> pe	er acre			
						Co	otton Yield	(lbs/acre)						
		Cotton Price (\$/lb)												
			1,000	1,050	1,100	1,150	1,200	1,250	1,300	1,350	1,400			
		\$0.70	-237	-209	-181	-153	-125	-97	-69	-41	-13			
		\$0.72	-221	-192	-163	-135	-106	-77	-48	-19	\$9			
L		\$0.74	-205	-175	-146	-116	-87	-57	-27	\$2	\$32			
L		\$0.76	-189	-159	-128	-98	-67	-37	-7	\$24	\$54			
L		\$0.78	-173	-142	-111	-79	-48	-17	\$14	\$45	\$77			
L		\$0.80	-157	-125	-93	-61	-29	\$3	\$35	\$67	\$99			
L		\$0.82	-141	-108	-75	-43	-10	\$23	\$56	\$89	\$121			
L		\$0.84	-125	-91	-58	-24	\$9	\$43	\$77	\$110	\$144			
		\$0.86	-109	-75	-40	-6	\$29	\$63	\$97	\$132	\$166			
L		\$0.88	-93	-58	-23	\$13	\$48	\$83	\$118	\$153	\$189			
L		\$0.90	-77	-41	-5	\$31	\$67	\$103	\$139	\$175	\$211			
		\$0.92	-61	-24	\$13	\$49	\$86	\$123	\$160	\$197	\$233			<u> </u>
		\$0.94	-45	-7	\$30	\$68	\$105	\$143	\$181	\$218	\$256			_
H		\$0.96	-29	\$9 \$26	\$48	\$86	\$125	\$163	\$201	\$240	\$278			
H		\$0.98	-13	\$26	\$65	\$105	\$144	\$183	\$222	\$261	\$301			
H		\$1.00	\$3	\$43	\$83	\$123	\$163	\$203	\$243	\$283	\$323			-
H			Values in to	able equal to	cotton net	returns mir	ius corn net	returns abo	ove variable	costs				
		Developed by Michael										-5		
		Department of Agricult		_	ibusiness							4oC	enter	
		Louisiana State Univer	rsity Agricul	tural Center							R	esearch &	Extension	
L														

Cell F8	Cotton variable cost, in dollars per acre
Cell F10	Cotton share rent, in percent of crop share (if owned or cash rented, enter zero)
Cell F11	Cotton cash rent, in dollars per acre (if owned or share rented, enter zero)
Cell L7	Corn price, in dollars per bushel
Cell L8	Corn variable cost, in dollars per acre
Cell L9	Corn expected yield, in bushels per acre
Cell L10	Corn share rent, in percent of crop share (if owned or cash rented, enter zero)
Cell L11	Corn cash rent, in dollars per acre (if owned or share rented, enter zero)
Cell D18	Minimum range of cotton price, in dollars per pound of lint
Cell E17	Minimum range of cotton yield, in pounds of lint per acre

## Worksheet 2 – Cotton versus Corn Net Return Comparison - 2

4 A	В	C D	E	F	G	Н	1	J	K	L	М	N O	Р
		College has do by						-				44 /42 /2552	
		Cell values in blue for			•	_	•					11/13/2013	
		Values in the table re	•										
		Positive values highli	gntea in y	ellow indica	te that cott	on nas a n	et return ac	ivantage o	ver corn at	tnat price, y	leid and cos	it level.	
				C-11 N	B	0.1	0	0-	N . D				
				Cotton N	let Keturn	Advanta	ge Compa	red to Co	rn Net Ke	turns			
		Cattan Vaniabl	- 04-	érac			_		l- Ct-	ÅE07			
		Cotton Variable Cotton Expecte		\$536 pe	er acre ounds per ac			orn Variab orn Expecte		\$507 pe	er acre Ishels per aci		
		Cotton Shar			op share	ile.	C		re Rent =		op share	e	
		Cotton Cas			er acre				sh Rent =		er acre		
		Cotton Cas	iii Neiit =	Ş0 þ€	- dure			comica	on Nent =	30 he	. acre		
						CC	orn Price (\$/	'hu\					
		Cotton Price (\$/lb)				<u></u>	om mee (9)	<u>Duj</u>					
		COLLON FILE (V) III)	\$5.00	\$5.25	\$5.50	\$5.75	\$6.00	\$6.25	\$6.50	\$6.75	\$7.00		
		\$0.70	-109	-141	-173	-205	-237	-269	-301	-333	-365		
		\$0.72	-93	-125	-157	-189	-221	-253	-285	-317	-349		
		\$0.74	-77	-109	-141	-173	-205	-237	-269	-301	-333		
		\$0.76	-61	-93	-125	-157	-189	-221	-253	-285	-317		
		\$0.78	-45	-77	-109	-141	-173	-205	-237	-269	-301		
		\$0.80	-29	-61	-93	-125	-157	-189	-221	-253	-285		
		\$0.82	-13	-45	-77	-109	-141	-173	-205	-237	-269		
		\$0.84	\$3	-29	-61	-93	-125	-157	-189	-221	-253		
		\$0.86	\$19	-13	-45	-77	-109	-141	-173	-205	-237		
		\$0.88	\$35	\$3	-29	-61	-93	-125	-157	-189	-221		
		\$0.90	\$51	\$19	-13	-45	-77	-109	-141	-173	-205		
		\$0.92	\$67	\$35	\$3	-29	-61	-93	-125	-157	-189		
		\$0.94	\$83	\$51	\$19	-13	-45	-77	-109	-141	-173		
		\$0.96	\$99	\$67	\$35	\$3	-29	-61	-93	-125	-157		
		\$0.98	\$115	\$83	\$51	\$19	-13	-45	-77	-109	-141		
		\$1.00	\$131	\$99	\$67	\$35	\$3	-29	-61	-93	-125		
		1	Values in to	ible equal to	cotton net	returns mir	nus corn net	returns ab	ove variable	costs			
		Developed by Michael										SU	
		Department of Agricult			ibusiness						Δ.	o Center	
		Louisiana State Univer	rsity Agricul	tural Center							Resi	Sarch & Extension	

Cell F8	Cotton variable cost, in dollars per acre
Cell F9	Cotton expected yield, in pounds of lint per acre
Cell F10	Cotton share rent, in percent of crop share (if owned or cash rented, enter zero)
Cell F11	Cotton cash rent, in dollars per acre (if owned or share rented, enter zero)
Cell L8	Corn variable cost, in dollars per acre
Cell L9	Corn expected yield, in bushels per acre
Cell L10	Corn share rent, in percent of crop share (if owned or cash rented, enter zero)
Cell L11	Corn cash rent, in dollars per acre (if owned or share rented, enter zero)
Cell D18	Minimum range of cotton price, in dollars per pound of lint
Cell E17	Minimum range of corn price, in dollars per bushel

## <u>Worksheet 4 – Cotton versus Soybean Net Return Comparison - 1</u>

Α	В	C D	E	F	G	Н	1	J	K	L	M	N O	Р
-									15				
		Cell values in blue for	r costs, viel	ld, rent and	price can b	e changed	by the user					11/13/20	13
		Values in the table re		•			•		et returns	above varia	ble cost an		
		Positive values highli	•										l.
				otton Net	t Return A	dvantage	Compare	d to Soyb	ean Net	Returns			
						· ·			n Price =	\$13.00 pe	r bushel		
		Cotton Variabl	le Costs =	\$536 pe	er acre		Soyb	ean Variabl	e Costs =	\$346 pe	r acre		
							Soybe	an Expecte	d Yield =	<b>40</b> bu	shels per a	cre	
		Cotton Shar	re Rent =	20% cr	op share		Sc	ybean Shar	e Rent =	20% cr	op share		
		Cotton Cas	sh Rent =	<b>\$0</b> pe	er acre		9	oybean Cas	h Rent =	<b>\$0</b> pe	r acre		
						Co	otton Yield	lbs/acre)					
		Cotton Price (\$/lb)											
			1,000	1,050	1,100	1,150	1,200	1,250	1,300	1,350	1,400		
		\$0.70	-46	-18	\$10	\$38	\$66	\$94	\$122	\$150	\$178		
		\$0.72	-30	-1	\$28	\$56	\$85	\$114	\$143	\$172	\$200		
		\$0.74	-14	\$16	\$45	\$75	\$104	\$134	\$164	\$193	\$223		
		\$0.76	\$2	\$32	\$63	\$93	\$124	\$154	\$184	\$215	\$245		
		\$0.78	\$18	\$49	\$80	\$112	\$143	\$174	\$205	\$236	\$268		
		\$0.80 \$0.82	\$34 ¢50	\$66	\$98	\$130	\$162	\$194	\$226	\$258	\$290		
		\$0.82	\$50 \$66	\$83 \$100	\$116 \$133	\$148 \$167	\$181 \$200	\$214 \$234	\$247 \$268	\$280 \$301	\$312 \$335		
		\$0.84	\$00 \$82	\$100 \$116	\$133 \$151	\$187 \$185	\$200 \$220	\$234 \$254	\$268 \$288	\$301	\$355		
		\$0.88	\$98	\$110 \$133	\$151 \$168	\$204	\$239	\$254	\$309	\$344	\$380		
		\$0.90	\$114	\$155 \$150	\$186	\$204	\$259	\$274	\$330	\$366	\$402		
		\$0.92	\$130	\$167	\$204	\$240	\$277	\$314	\$351	\$388	\$402		
		\$0.94	\$146	\$184	\$221	\$259	\$296	\$334	\$372	\$409	\$447		
		\$0.96	\$162	\$200	\$239	\$277	\$316	\$354	\$392	\$431	\$469		
		\$0.98	\$178	\$217	\$256	\$296	\$335	\$374	\$413	\$452	\$492		
		\$1.00	\$194	\$234	\$274	\$314	\$354	\$394	\$434	\$474	\$514		
		· -	Values in ta	ıble equal to	cotton net	returns mir	us soybean	net returns	above var	iable costs			
		Developed by Michael	Salassi and	d Michael De	eliberto							SI	
		Department of Agricult	tural Econor	nics and Agr	ibusiness						٨	~ Court	
		Louisiana State Univer	rsity Agricult	tural Center							A	<b>g</b> Centa	

Cell F8 Cell F10	Cotton variable cost, in dollars per acre Cotton share rent, in percent of crop share (if owned or cash rented, enter zero)
Cell F11	Cotton cash rent, in dollars per acre (if owned or share rented, enter zero)
Cell L7	Soybean price, in dollars per bushel
Cell L8	Soybean variable cost, in dollars per acre
Cell L9	Soybean expected yield, in bushels per acre
Cell L10	Soybean share rent, in percent of crop share (if owned or cash rented, enter zero)
Cell L11	Soybean cash rent, in dollars per acre (if owned or share rented, enter zero)
Cell D18	Minimum range of cotton price, in dollars per pound of lint
Cell E17	Minimum range of cotton yield, in pounds of lint per acre

## <u>Worksheet 4 – Cotton versus Soybean Net Return Comparison - 2</u>

Α	В	C D	E	F	G	Н	1	J	K	L	M	N O	Р
A	В	L D	E		G	Н		,	K	L	IVI	N 0	P
		Cell values in blue for	or costs, vie	ld, rent and	d price can	be changed	by the use	r.				11/13/2013	
		Values in the table			•				net returns	above varia	able cost an		
		Positive values high	•										
		r contro values ing.		Cilott illuici		.com mas a m	- Cercum a	avanta <sub>D</sub> e e		no at that p	rice, field di	ila cost ic reii	
				Cotton Ne	t Return	Advantage	e Compare	ed to Sov	hean Net	Returns			
					.c nccuiii i	-availtag.	- compare	.u to soy.	beam iver				
		Cotton Varial	hle Costs =	\$536 n	er acre		Sovh	ean Variab	le Costs =	\$346 p	er acre		
		Cotton Expect			ounds per a	cre		ean Expect			ushels per ac	re	
			are Rent =		rop share			oybean Sha			rop share		
			ash Rent =		er acre			Soybean Ca			er acre		
						S	oybean Pric	e (\$/bu)					
		Cotton Price (\$/lb)											
			\$11.00	\$11.25	\$11.50	\$11.75	\$12.00	\$12.25	\$12.50	\$12.75	\$13.00		
		\$0.70	\$18	\$10	\$2	-6	-14	-22	-30	-38	-46		
		\$0.72	\$34	\$26	\$18	\$10	\$2	-6	-14	-22	-30		
		\$0.74	\$50	\$42	\$34	\$26	\$18	\$10	\$2	-6	-14		
		\$0.76	-	\$58	\$50	\$42	\$34	\$26	\$18	\$10	\$2		
		\$0.78		\$74	\$66	\$58	\$50	\$42	\$34	\$26	\$18		
		\$0.80		\$90	\$82	\$74	\$66	\$58	\$50	\$42	\$34		
		\$0.82		\$106	\$98	\$90	\$82	\$74	\$66	\$58	\$50		
		\$0.84		\$122	\$114	\$106	\$98	\$90	\$82	\$74	\$66		
		\$0.86		\$138	\$130	\$122	\$114	\$106	\$98	\$90	\$82		
		\$0.88		\$154	\$146	\$138	\$130	\$122	\$114	\$106	\$98		
		\$0.90		\$170	\$162	\$154	\$146	\$138	\$130	\$122	\$114		
		\$0.92		\$186	\$178	\$170	\$162	\$154	\$146	\$138	\$130		
		\$0.94		\$202	\$194	\$186	\$178	\$170	\$162	\$154	\$146		
		\$0.96		\$218	\$210	\$202	\$194	\$186	\$178	\$170	\$162		_
		\$0.98		\$234	\$226	\$218	\$210	\$202	\$194	\$186	\$178		-
		\$1.00		\$250	\$242	\$234	\$226	\$218	\$210	\$202	\$194		
			Values in to	able equal to	o cotton net	returns mi	nus soybear	net return	is above vai	iable costs			
		Developed by Michae										SU	
		Department of Agricu									A	σCenter	
		Louisiana State Univ	ersity Agricul	tural Center							Res	earch & Extension	

Cell F8	Cotton variable cost, in dollars per acre
Cell F9	Cotton expected yield, in pounds of lints per acre
Cell F10	Cotton share rent, in percent of crop share (if owned or cash rented, enter zero)
Cell F11	Cotton cash rent, in dollars per acre (if owned or share rented, enter zero)
Cell L8	Soybean variable cost, in dollars per acre
Cell L9	Soybean expected yield, in bushels per acre
Cell L10	Soybean share rent, in percent of crop share (if owned or cash rented, enter zero)
Cell L11	Soybean cash rent, in dollars per acre (if owned or share rented, enter zero)
Cell D18	Minimum range of cotton price, in dollars per pound of lint
Cell E17	Minimum range of soybean price, in dollars per bushel

### Worksheet 5 - Corn versus Soybean Net Return Comparison

4	В	C D	Е	F	G	Н	1	J	К	L	М	N	0	Р
Н		Cell values in blue fo	or costs via	old ront and	l price can	ho changos	l by the use	r				11/	13/2013	
H		Values in the table		•	•		•		t returns a	hove variah	le cost an		13/2013	
H		Positive values high											evel	
Н		- Commercial Commercia									, ,			
Н				Corn Net	Return A	dvantage	Compare	d to Sovb	ean Net R	eturns				
H					neturn A	avantage	compare	,						
Н		Corn Varial	ble Costs =	\$507 p	er acre		Soyl	ean Variab	le Costs =	\$346 p	er acre			
		Corn Expect	ted Yield =		ushels per a	cre		ean Expect			ushels per	acre		
Г		Corn Sha	are Rent =	20% c	rop share		S	oybean Sha	re Rent =	20% c	rop share			
Г		Corn Ca	ash Rent =	<b>\$0</b> p	er acre			Soybean Ca	sh Rent =	<b>\$0</b> p	er acre			
L						<u>s</u>	oybean Pric	e (\$/bu)						
L		Corn Price (\$/bu)	1											
L			\$11.00	\$11.25	\$11.50	\$11.75	\$12.00	\$12.25	\$12.50	\$12.75	\$13.00			
L		\$4.00		-9	-17	-25	-33	-41	-49	-57	-65			
L		\$4.25		\$23	\$15	\$7	-1	-9	-17	-25	-33			
L		\$4.50		\$55	\$47	\$39	\$31	\$23	\$15	\$7	-1			
H		\$4.75		\$87	\$79	\$71	\$63	\$55	\$47	\$39	\$31			
H		\$5.00		\$119	\$111	\$103	\$95	\$87	\$79	\$71	\$63			
H		\$5.25 \$5.50		\$151 \$183	\$143 \$175	\$135 \$167	\$127 \$159	\$119 \$151	\$111 \$143	\$103 \$135	\$95 \$127			
H		\$5.75		\$215	\$207	\$107	\$191	\$183	\$145 \$175	\$167	\$127 \$159			
H		\$6.00		\$213	\$239	\$231	\$223	\$215	\$207	\$107	\$191			
H		\$6.25		\$279	\$271	\$263	\$255	\$247	\$239	\$231	\$223			
Н		\$6.50		\$311	\$303	\$295	\$287	\$279	\$271	\$263	\$255			
r		\$6.75		\$343	\$335	\$327	\$319	\$311	\$303	\$295	\$287			
		\$7.00	-	\$375	\$367	\$359	\$351	\$343	\$335	\$327	\$319			
		\$7.25	\$415	\$407	\$399	\$391	\$383	\$375	\$367	\$359	\$351			
		\$7.50	\$447	\$439	\$431	\$423	\$415	\$407	\$399	\$391	\$383			
		\$7.75	\$479	\$471	\$463	\$455	\$447	\$439	\$431	\$423	\$415			
			Values in t	able equal to	o corn net re	eturns minu	s soybean n	et returns d	above varia	ble costs				
		Developed by Michae	el Salassi an	nd Michael D	eliberto							LS		
		Department of Agricu										$A\sigma C$	enter	
		Louisiana State Univ	ersity Agricu	Itural Center							E	Research &	Extension	

#### Data to be Entered:

Cell F8	Corn variable cost, in dollars per acre
Cell F9	Corn expected yield, in pounds of lints per acre
Cell F10	Corn share rent, in percent of crop share (if owned or cash rented, enter zero)
Cell F11	Corn cash rent, in dollars per acre (if owned or share rented, enter zero)
Cell L8	Soybean variable cost, in dollars per acre
Cell L9	Soybean expected yield, in bushels per acre
Cell L10	Soybean share rent, in percent of crop share (if owned or cash rented, enter zero)
Cell L11	Soybean cash rent, in dollars per acre (if owned or share rented, enter zero)
Cell D18 Cell E17	Minimum range of corn price, in dollars per bushel Minimum range of soybean price, in dollars per bushel



**Louisiana State University Agricultural Center** 

Louisiana Cooperative Extension Service / Louisiana Agricultural Experiment Station
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