



June 2, 2016
Final Values- 2016

2016 CURRENT AGRICULTURAL USE VALUE OF LAND TABLES

EXPLANATION OF THE CALCULATION OF VALUES
FOR VARIOUS SOIL MAPPING UNITS FOR TAX YEAR 2016

The annual current agricultural use values of land are calculated by the capitalization of net income from agricultural products assuming typical management, cropping and land use patterns, and yields for given types of soils. The necessary information is available for approximately 3,500 map units, which are the soils with slopes of 25 percent or less. The information used for a capitalized net income approach is as follows:

- YIELD INFORMATION
CROPPING PATTERN
CROP PRICES
NON-LAND PRODUCTION COSTS
CAPITALIZATION RATE

Each of these factors is explained below.

A. YIELD INFORMATION

For each of the soil mapping units, data regarding typical yields of each of the major field crops (corn, soybeans and wheat) were last published in 1984. In order to reflect more accurate yields, those yields of record have been updated annually since 2006. The yields are updated by a factor based on ten years of statewide yield information published by the Ohio Department of Agriculture. For 2016, yield data from calendar years 2006-2015 were averaged and divided by the 1984 yield for each crop (Exhibit A, page 5). This factor is applied to the 1984 crop yield of record for each soil. The table below shows the average yields used to develop the factor for each of the crops.

Table with 6 columns: Crop, 1984 Base, TY 2013 (2002-2011), TY 2014 (2003-2012), TY 2015 (2005-2014), TY 2016 (2006-2015). Rows include Corn, Soybeans, and Wheat with their respective yields in bushels.

B. CROPPING PATTERNS

The cropping pattern for each map unit is assigned a rotation based on the most recent five-year average of crop acres harvested in Ohio: 40.2% corn, 53.0% beans, and 6.8% wheat. This rotation is based on data from 2011-2015 and closely reflects current agricultural production in Ohio. The acres harvested in each year are shown in Exhibit B (page 6).

There are two exceptions as follows:

- 1.) Soil map units with a productivity index of 55 or less are assumed to be most profitably used as pasture; in 2016, a minimum value of \$350 is used for these soils. In 2012, the minimum value was increased from \$300 to \$350 per acre.
- 2.) A pattern of 50% corn and 50% soybeans is used for organic soils.

C. CROP PRICES

The crop prices used for the field crops are five-year weighted average prices. Crop price data is collected for seven years with the highest and lowest prices eliminated, and the average calculated using the remaining five years' data. The prices are weighted based on the statewide production for each year. For this calculation, the seven-year period is 2009 through 2015. The annual production and price per unit for each of these crops for the 2009 through 2015 period are shown in Exhibit C (page 7).

The table shows average weighted prices for this period as well as prices for the three previous years. Each weighted price is reduced by 5% to allow for management.

		TY 2013	TY 2014	TY 2015	TY 2016
Crop	Unit	2005-2011	2006-2012	2008-2014	2009-2015
Corn	Bushel	\$3.91	\$4.48	\$4.55	\$4.49
Soybeans	Bushel	\$8.98	\$10.13	\$11.09	\$10.91
Wheat	Bushel	\$4.54	\$5.16	\$5.67	\$5.53

D. NON-LAND PRODUCTION COSTS

Data on crop production costs are used to estimate average non-land production costs. The data are taken from the Ohio Crop Enterprise Budgets prepared by The Ohio State University Department of Agricultural, Environmental, and Development Economics for 2010-2016, inclusive. Again, data are collected for the seven-year period and the highest and lowest costs for each category are eliminated from the array. Five-year average costs per unit of specific non-land production cost items are computed from the remaining data as shown in Exhibit D (pages 8-9).

The budgets are computed for each crop at a base yield equal to the lowest yield reported and for each additional unit above the base yield based on information from the Ohio Crop Budgets (Exhibits D-1 through Exhibit D-3, pages 10-12). The five year average non-land production costs for tax year 2016 are summarized below and compared with the costs used for tax years 2013 and 2015:

NON-LAND PRODUCTION COSTS				
Crop Base Cost	Base Yld/2016	TY 2013	TY 2015	TY 2016
Corn	125 bu	\$391.90	\$516.99	\$524.47
Soybeans	37 bu	\$248.69	\$325.42	\$336.33
Wheat	55 bu	\$230.62	\$296.98	\$323.52
Additional Cost per Unit				
Corn	1 bu	\$ 1.04	\$ 1.36	\$ 1.38
Soybeans	1 bu	\$ 1.12	\$ 1.24	\$ 1.07
Wheat	1 bu	\$ 1.61	\$ 1.77	\$ 1.64

E. CAPITALIZATION RATE

Five-year averaging is used to derive the Farm Credit Service interest rate of 5.76% assuming an 80% loan for a 25-year term, payable annually, and an interest rate of 5.25% for the 20 percent equity portion (Exhibit E, page 13). A five percent appreciation over a period of 5 years is included to address the increase in farmland values due to the demand for additional land in an increasingly efficient operation.

The capitalization rate for typical Ohio farmland is computed by the Akerson mortgage-equity method:

80% loan x annual debt service of 0.076452	=	0.061162
20% equity x equity yield rate of .0525	=	0.010500
Subtotal		0.071662
<u>Less: equity buildup for 5 years</u>		
% loan x % mortgage paid off x sinking fund factor at equity rate for 5 years (0.80) [1- (11.6968/13.0801)] (0.180073)	=	(0.01524)
<u>Less: 5% appreciation times sinking fund factor</u>		
@ equity yield rate of .0525 .05 x 0.180073	=	(0.0090)
Capitalization Rate before Taxes	=	0.0474 or 4.7%

For tax year 2015 the statewide average effective tax rate after application of the reduction factors, (Section 319.301 Ohio Revised Code), levied on agricultural property is 49.56 mills. The 9.5 percent non-business credit rollback authorized by section 319.302 of the Revised Code reduces this rate further to 44.86 mills. As a percent of market value the effective tax rate to be used in this year's capitalization formula is 1.6%, (.35 x 44.86)/1000.

The capitalization rate, including R.E. taxes, is 6.3% for typical Ohio farmland.

F. CROPLAND VALUES

The current agricultural use cropland value equals the rotational net return per acre of the soil map unit divided by the capitalization rate. However, the minimum value for cropland is \$350 per acre for soils with 25 percent slope or less regardless of this calculated amount. In tax year 2012, the minimum value was increased from \$300 to \$350 per acre.

G. WOODLAND VALUE

1. The woodland value, with slopes of 25% or less, equals the cropland value less the costs to convert the woodland to cropland. The conversion costs used in the formula are as follows:

a. Clearing - \$1,000 per acre for all soils

b. Drainage

a.) Excessively drained, well drained, moderately well drained, (E, W, MW) - No Conversion Cost

b.) Somewhat poorly drained, poorly drained, very poorly drained, saturated (SWP, P, VP) - \$770 for Tile Drainage

c.) For the following soil series, a \$380 adjustment for surface drainage was used: Allis, Atkins, Blanchester, Bono, Canadice, Clermont, Condit, Conneaut, Darien, Delmar, Frenchtown, Fries, Ginat, Ilion, Latty, Lorain, McGuffey, Mill, Miner, Montgomery, Muskego, Pauling, Peoga, Piopolis, Purdy, Roselms, Sheffield, Swanton, Toledo, Trumbull, Valley, Wabash, Wabasha, Warners, Wayland, Willette, and Zipp.

2. The minimum value for woodland with slopes of 25% or less is \$230.

H. PASTURELAND VALUE

Where soil map units listed in these tables or comparable soils are used for permanent pasture, the land should be valued as cropland.

I. MINIMUM VALUES

Slopes of 25% or less:

Cropland & pasture	\$350
Woodland	\$230

Slopes greater than 25%:

Woodland & pasture	\$230
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Exhibit A - Average Crop Yields by Year in Ohio

USDA, National Agricultural Statistics Service
 Crop Production 2015 Summary, January 2016

<u>Year</u>	<u>Corn</u>	<u>Soybeans</u>	<u>Wheat</u>
1984	118	36.5	44
1985	127	41.5	62
1986	128	40.5	46
1987	120	37	58
1988	85	27	50
1989	118	31.5	51
1990	121	39	59
1991	96	36	49
1992	143	40	53
1993	110	38	52
1994	139	44	58
1995	121	38	61
1996	111	35	39
1997	134	44	63
1998	141	44	64
1999	126	36	70
2000	147	42	72
2001	138	41	67
2002	89	32	62
2003	156	38.5	68
2004	158	47	62
2005	143	45	71
2006	159	47	68
2007	150	47	61
2008	135	36	68
2009	174	49	72
2010	163	48	61
2011	158	47.5	58
2012	120	45	68
2013	174	49.5	70
2014	176	52.5	74
2015	153	50	67
Average 2006-2015	156.2	47.2	66.7
1984 Base	118	36.5	44
Average/1984 Base	1.323729	1.293151	1.515909
% increase	32.37%	29.32%	51.59%

1/12/2016

USDA/National Agricultural Statistics Service

**Exhibit B - Acres Harvested, 2011-2015
TY 2016 Crop Rotation**

<u>Year</u>	<u>Corn</u>	<u>% of Total</u>	<u>Soybeans</u>	<u>% of Total</u>	<u>Wheat</u>	<u>% of Total</u>	<u>Corn, Beans & Wheat Totals</u>
2011	3,400,000	38.7%	4,540,000	51.6%	850,000	9.7%	8,790,000
2012	3,650,000	42.0%	4,590,000	52.8%	450,000	5.2%	8,690,000
2013	3,730,000	42.1%	4,490,000	50.7%	640,000	7.2%	8,860,000
2014	3,470,000	39.9%	4,690,000	53.9%	545,000	6.3%	8,705,000
2015	3,260,000	38.4%	4,740,000	55.9%	480,000	5.7%	8,480,000
Five Year Average	3,502,000	40.2%	4,610,000	53.0%	593,000	6.8%	8,705,000

USDA, National Agricultural Statistics Service
Crop Production, 2015 Summary, January 2016
1/12/2016

Exhibit C, FIVE YEAR AVERAGE CROP PRICES, TAX YEAR 2016

USDA, National Agricultural Statistics Service

2015 Summary, Crop Values, February 2016

2015 Summary, Crop Production, January 2016

	<u>Year</u>	<u>Production (1,000 bu)</u>	<u>Price</u>	<u>Value (1,000 dollars)</u>
CORN	2009	546,360	\$ 3.55	1,939,578
	2010	533,010	\$ 5.45	2,904,905
	2011	508,760	\$ 6.44	3,276,414
	2012	438,000	\$ 7.09	3,105,420
	2013	649,020	\$ 4.41	2,862,178
	2014	610,720	\$ 3.78	2,308,522
	2015	498,780	\$ 3.80	1,895,364
Totals		2,800,290		\$ 13,247,383
Weighted Avg. Price			\$ 4.73	
After Management Allowance of 5%			\$ 4.49	
SOYBEANS	2009	221,970	\$ 9.78	2,170,867
	2010	220,320	\$ 11.50	2,533,680
	2011	217,920	\$ 13.00	2,832,960
	2012	206,550	\$ 14.60	3,015,630
	2013	222,255	\$ 13.00	2,889,315
	2014	246,225	\$ 10.30	2,536,118
	2015	237,000	\$ 8.85	2,097,450
Totals		1,128,690		\$ 12,962,939
Weighted Avg. Price			\$ 11.48	
After Management Allowance of 5%			\$ 10.91	
WHEAT	2009	70,560	\$ 4.41	311,170
	2010	45,750	\$ 5.21	238,358
	2011	49,300	\$ 6.73	331,789
	2012	30,600	\$ 7.94	242,964
	2013	44,800	\$ 6.54	292,992
	2014	40,330	\$ 5.60	225,848
	2015	32,160	\$ 4.60	147,936
Totals		212,340		\$ 1,236,923
Weighted Avg. Price			\$ 5.83	
After Management Allowance of 5%			\$ 5.53	

Exhibit D, Production Costs, Tax Year 2016
Determination of Five Year Average Costs for the Projected Crop Budgets

ITEM		<u>Units</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>5 yr. Avg.</u>
VARIABLE COSTS		2016								
Seed	CORN	1000k	\$2.84	\$2.88	\$3.13	\$3.28	\$3.44	\$3.44	\$3.44	\$3.23
	SOYBEANS	1000s	\$0.32	\$0.33	\$0.36	\$0.41	\$0.41	\$0.43	\$0.43	\$0.39
	WHEAT	1000s	\$0.02	\$0.02	\$0.03	\$0.03	\$0.03	\$0.03	\$0.03	\$0.03
Fertilizer	N Corn		\$0.27	\$0.50	\$0.53	\$0.56	\$0.46	\$0.46	\$0.37	\$0.46
	N Wheat		\$0.47	\$0.63	\$0.74	\$0.71	\$0.64	\$0.57	\$0.52	\$0.61
	P2O5, Corn/Soybeans		\$0.43	\$0.70	\$0.66	\$0.63	\$0.60	\$0.57	\$0.46	\$0.58
	P2O5 Wheat		\$0.43	\$0.70	\$0.66	\$0.63	\$0.43	\$0.53	\$0.53	\$0.56
	K2O, Corn/Soybeans		\$0.35	\$0.50	\$0.53	\$0.48	\$0.38	\$0.40	\$0.28	\$0.42
	K2O Wheat		\$0.35	\$0.50	\$0.53	\$0.48	\$0.35	\$0.34	\$0.33	\$0.41
	LIME		\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00
Chemicals	CORN		\$35.00	\$35.00	\$44.28	\$50.98	\$55.93	\$56.08	\$56.08	\$48.45
	SOYBEANS		\$30.00	\$30.00	\$33.55	\$31.40	\$32.92	\$33.84	\$33.84	\$32.34
	WHEAT		\$13.00	\$13.00	\$21.34	\$13.00	\$13.00	\$13.00	\$9.50	\$13.00
Fuel, Oil, Grease	CORN	130	\$17.08	\$19.77	\$22.59	\$19.33	\$20.14	\$13.52	\$40.07	\$17.97
		162	\$17.08	\$19.77	\$22.59	\$19.33	\$20.14	\$13.52	\$40.07	\$17.97
		195	\$17.08	\$19.77	\$22.59	\$19.33	\$20.14	\$13.52	\$40.07	\$17.97
	SOYBEANS	39	\$9.12	\$12.27	\$14.02	\$12.27	\$11.42	\$7.67	\$5.74	\$10.55
		49	\$9.12	\$12.27	\$14.02	\$12.27	\$11.42	\$7.67	\$5.74	\$10.55
		59	\$9.12	\$12.27	\$14.02	\$12.27	\$11.42	\$7.67	\$5.74	\$10.55
	WHEAT	58	\$10.37	\$10.37	\$16.64	\$16.64	\$15.76	\$14.63	\$10.13	\$13.55
		73	\$10.37	\$10.37	\$16.64	\$16.64	\$15.76	\$14.63	\$10.13	\$13.55
		88	\$10.37	\$10.37	\$16.64	\$16.64	\$15.76	\$14.63	\$10.13	\$13.55
Repairs	CORN	130	\$21.11	\$21.18	\$21.18	\$22.66	\$26.78	\$26.78	\$26.78	\$23.72
		162	\$21.11	\$21.18	\$21.18	\$22.66	\$26.78	\$26.78	\$26.78	\$23.72
		195	\$21.11	\$21.18	\$21.18	\$22.66	\$26.78	\$26.78	\$26.78	\$23.72
	SOYBEANS	39	\$11.70	\$14.47	\$14.47	\$14.47	\$20.61	\$20.61	\$20.61	\$16.93
		49	\$11.70	\$14.47	\$14.47	\$14.47	\$20.61	\$20.61	\$20.61	\$16.93
		59	\$11.70	\$14.47	\$14.47	\$14.47	\$20.61	\$20.61	\$20.61	\$16.93
	WHEAT	58	\$9.15	\$10.85	\$14.39	\$14.39	\$20.32	\$20.32	\$20.32	\$16.05
		73	\$9.15	\$10.85	\$14.39	\$14.39	\$20.32	\$20.32	\$20.32	\$16.05
		88	\$9.15	\$10.85	\$14.39	\$14.39	\$20.32	\$20.32	\$20.32	\$16.05
Crop Insurance	CORN	130	\$19.50	\$19.50	\$25.00	\$29.35	\$20.00	\$16.30	\$15.00	\$20.06
		162	\$19.00	\$19.00	\$25.00	\$29.35	\$21.00	\$17.00	\$16.00	\$20.20
		195	\$20.00	\$20.00	\$24.00	\$29.35	\$21.00	\$17.80	\$15.00	\$20.56
	SOYBEANS	39	\$8.00	\$8.00	\$16.00	\$24.00	\$14.00	\$9.50	\$9.00	\$11.30
		49	\$8.00	\$8.00	\$19.00	\$24.00	\$15.00	\$8.50	\$8.50	\$11.80
		59	\$8.00	\$8.00	\$19.00	\$24.00	\$15.00	\$10.00	\$8.50	\$12.10
	WHEAT	58	\$5.50	\$5.50	\$14.00	\$14.00	\$14.00	\$14.00	\$10.00	\$11.50
		73	\$6.00	\$5.50	\$14.00	\$14.00	\$14.00	\$14.00	\$10.00	\$11.60
		88	\$6.00	\$6.00	\$14.00	\$14.00	\$14.00	\$14.00	\$10.00	\$11.60

Exhibit D, Production Costs, Tax Year 2016

ITEM		Units	2010	2011	2012	2013	2014	2015	2016	5 yr. Avg.
Variable Miscellaneous	CORN	130	\$7.00	\$8.00	\$8.00	\$12.00	\$12.00	\$5.00	\$5.00	\$8.00
		162	\$8.00	\$9.00	\$9.00	\$12.00	\$12.00	\$5.00	\$5.00	\$8.60
		195	\$9.00	\$10.00	\$10.00	\$12.00	\$12.00	\$12.00	\$5.00	\$10.60
	SOYBEANS	39	\$8.00	\$9.00	\$9.00	\$10.00	\$10.00	\$4.50	\$3.50	\$8.10
		49	\$8.00	\$9.00	\$9.00	\$10.00	\$10.00	\$4.50	\$3.50	\$8.10
		59	\$8.00	\$9.00	\$9.00	\$10.00	\$10.00	\$4.50	\$3.50	\$8.10
	WHEAT	58	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00	\$1.50	\$6.00
		73	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00	\$1.50	\$6.00
		88	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00	\$1.50	\$6.00
Drying: Fuel & Electric	CORN		\$0.11	\$0.11	\$0.11	\$0.24	\$0.21	\$0.16	\$0.14	\$0.14
Trucking: Fuel Only	CORN		\$0.02	\$0.02	\$0.03	\$0.02	\$0.02	\$0.02	\$0.04	\$0.02
	SOYBEANS		\$0.02	\$0.02	\$0.03	\$0.02	\$0.02	\$0.02	\$0.04	\$0.02
	WHEAT		\$0.04	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02	\$0.02
Interest on variable costs		6.00%	6.00%	6.00%	4.00%	4.00%	5.00%	4.50%	5.10%	
FIXED COSTS										
Labor Charge	CORN		\$40.50	\$40.50	\$40.50	\$45.00	\$45.00	\$45.00	\$45.00	\$43.20
	SOYBEANS		\$27.00	\$27.00	\$27.00	\$30.00	\$30.00	\$30.00	\$30.00	\$28.80
	WHEAT		\$27.00	\$27.00	\$27.00	\$22.50	\$22.50	\$22.50	\$22.50	\$24.30
Machinery & Equipment	CORN		\$77.45	\$92.09	\$107.46	\$115.92	\$123.57	\$130.45	\$130.45	\$113.90
	SOYBEANS		\$53.42	\$71.83	\$85.10	\$85.10	\$107.89	\$107.89	\$107.89	\$91.56
	WHEAT		\$55.53	\$68.61	\$99.08	\$99.08	\$125.86	\$125.86	\$125.86	\$103.70
Fixed Miscellaneous*	CORN	130	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.00	\$24.00	\$24.00
		162	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.00	\$24.00	\$24.00
		195	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.00	\$24.00	\$24.00
	SOYBEANS	39	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$16.50	\$15.60	\$16.05
		49	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$16.50	\$15.60	\$16.05
		59	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$16.50	\$15.60	\$16.05
	WHEAT	58	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$14.00	\$14.00
		73	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$14.00	\$14.00
		88	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$14.00	\$14.00

*Ohio State University revised budgets to show fixed and variable miscellaneous costs. Since there is no recent history, there is no Olympic averaging for this line item.

Source: Updated with Crop Enterprise Budgets 2016, OSU Extension, Dept. of Agricultural, Environmental, and Development Economics.

5/10/2016

**2016 CORN BUDGET
Conservation Tillage**

VARIABLE COSTS	Inputs - 5 Yr. Average			5 YR. AVG. COST Exhibit D	Costs per Acre		
	UNITS	BASE 125 BUSHEL	@ ADD. BUSHEL		BASE 125 BUSHEL	@ ADD. BUSHEL	
SEED	KERNELS (1000's)	28	0.12	\$3.23	\$89.15	\$0.40	
FERTILIZER							
	N	LB.	127.3	0.94	\$0.46	\$58.56	\$0.43
	P2O5	LB.	46.4	0.37	\$0.58	\$26.91	\$0.21
	K2O	LB.	33.9	0.27	\$0.42	\$14.24	\$0.11
	LIME	TON	0.25	0	\$25.00	\$6.25	\$0.00
CHEMICALS				\$48.45	\$48.45	\$0.00	
FUEL, OIL, GREASE				\$17.97	\$17.97	\$0.00	
REPAIRS				\$23.72	\$23.72	\$0.00	
CROP INSURANCE				\$20.20	\$20.20	\$0.00	
VARIABLE MISCELLANEOUS				\$8.00	\$8.00	\$0.02	
DRYING: FUEL & ELECTRIC ONLY				\$0.14	\$17.50	\$0.14	
TRUCKING: FUEL ONLY				\$0.02	\$2.50	\$0.02	
	SUBTOTAL				\$333.45	\$1.34	
INTEREST: on Subtotal			5.1%/12 X 7 MOS 3.0% int x subtotal		\$9.92	\$0.04	
FIXED COSTS							
LABOR CHARGE				\$43.20	\$43.20	\$0.00	
MACHINERY & EQUIPMENT CHARGE				\$113.90	\$113.90	\$0.00	
MISCELLANEOUS				\$24.00	\$24.00	\$0.00	
	TOTAL COSTS				\$524.47	\$1.38	

Source: The Ohio State University College of Food, Agricultural & Environmental Sciences,
Corn Production Budget 2016, 5/05/2016

DTE, 5/12/2016

2016 SOYBEAN BUDGET

VARIABLE COSTS	Inputs - 5 Yr. Average			5 YR. AVG. COST Exhibit D	Costs per Acre	
	UNITS	BASE 37 <u>BUSHEL</u>	@ ADD. <u>BUSHEL</u>		BASE 37 <u>BUSHEL</u>	@ ADD. <u>BUSHEL</u>
SEED	seeds (1000s)	179.0	0	\$0.39	\$69.81	\$0.00
FERTILIZER						
	N LB.	0	0	\$0.00	\$0.00	\$0.00
	P2O5 LB.	30	0.78	\$0.58	\$17.40	\$0.45
	K2O LB.	52	1.36	\$0.42	\$21.84	\$0.57
	LIME TON	0.25	0	\$25.00	\$6.25	\$0.00
CHEMICALS				\$32.34	\$32.34	\$0.00
FUEL, OIL, GREASE				\$10.55	\$10.55	\$0.00
REPAIRS				\$16.93	\$16.93	\$0.00
CROP INSURANCE				\$11.80	\$11.80	\$0.00
VARIABLE MISCELLANEOUS				\$8.10	\$8.10	\$0.00
TRUCKING: FUEL ONLY				\$0.02	\$0.74	\$0.02
	SUBTOTAL				\$195.76	\$1.04
INTEREST: ON SUBTOTAL COST		5.1%/12 X 5 MOS 2.1%	int x subtotal		\$4.16	\$0.02
FIXED COSTS						
LABOR CHARGE				\$28.80	\$28.80	\$0.00
MACHINERY & EQUIPMENT CHARGE				\$91.56	\$91.56	\$0.00
MISCELLANEOUS				\$16.05	\$16.05	\$0.00
	TOTAL COSTS				\$336.33	\$1.07

Source: The Ohio State University College of Food, Agricultural & Environmental Sciences,
Soybean Production Budget 2016, Updated 5/05/2016

DTE, 5/12/2016

2016 WHEAT BUDGET

VARIABLE COSTS				5 YR. AVG. COST Exhibit D	Costs per Acre		
ITEM	UNITS	Inputs - 5 Yr. Average BASE 55 <u>BUSHELS</u>	@ ADD. <u>BUSHEL</u>		BASE 55 BUSHELS	@ ADD. BUSHEL	
SEED	seeds (1000s)	1,400	0	\$0.03	\$42.00	\$0.00	
FERTILIZER							
	N LB.	49	1.74	\$0.61	\$29.89	\$1.06	
	P2O5 LB.	35	0.63	\$0.56	\$19.60	\$0.35	
	K2O LB.	40	0.37	\$0.41	\$16.40	\$0.15	
	LIME TON	0.25	0	\$25.00	\$6.25	\$0.00	
CHEMICALS				\$13.00	\$13.00	\$0.00	
FUEL, OIL, GREASE				\$13.55	\$13.55	\$0.00	
REPAIRS				\$16.05	\$16.05	\$0.00	
CROP INSURANCE				\$11.60	\$11.60	\$0.00	
VARIABLE MISCELLANEOUS				\$6.00	\$6.00	\$0.00	
TRUCKING: FUEL ONLY				\$0.02	\$1.10	\$0.02	
SUBTOTAL (Variable Costs)						\$175.44	\$1.59
		5.2%/12 X 8 MOS					
INTEREST: ON SUBTOTALLED COST		3.5%	int x subtotal		\$6.08	\$0.05	
FIXED COSTS							
LABOR CHARGE				\$24.30	\$24.30	\$0.00	
MACHINERY & EQUIPMENT CHARGE				\$103.70	\$103.70	\$0.00	
MISCELLANEOUS				\$14.00	\$14.00	\$0.00	
TOTAL COSTS						\$323.52	\$1.64

OSU Crop Enterprise Budget, 10/31/2015
5/12/2016

5/10/2016

**INTEREST RATES USED IN CAPITALIZATION RATE
2010-2016**

TAX YEAR	INTEREST RATE*	EQUITY RATE**
2010	7.40	5.25
2011	6.70	5.25
2012	5.15	5.25
2013	4.95	5.25
2014	6.20	5.25
2015	5.60	5.25
2016	5.15	5.50
	5.76	5.25

* Fixed multi-flex rate for a 25-year term on a loan \$25,000 and over, Farm Credit Services of Mid-America.

** Equity rate is the prime rate plus 2% at www.bankrate.com from the Wall Street Journal's bank survey.

**CAPITALIZATION RATES USED IN CALCULATION
2010-2016**

TAX YEAR	CAPITALIZATION RATE
2010	7.8%
2011	7.6%
2012	7.5%
2013	6.7%
2014	6.2%
2015	6.6%
2016	6.3%

2016 CAUV SAMPLE CALCULATION

SOIL:	Millgrove, Silt Loam
SLOPE:	0-2
EROSION:	Slight
DRAINAGE:	Very poorly
PROD. INDEX:	100

	<u>CORN</u>	<u>BEANS</u>	<u>WHEAT</u>
PI DAT yield/acre (1984)	144	52	64
% increased yield	1.323729	1.293151	1.515909
adjusted yield/acre	191	67	97
X Crop Price/Unit	\$4.49	\$10.91	\$5.53
= GROSS INCOME / ACRE	\$857.59	\$730.97	\$536.41
YIELD / ACRE	191	67	97
BASE YIELD	125	37	55
= YIELD ABOVE BASE	66	30	42
X ADDED UNIT COST	\$1.38	\$1.07	\$1.64
ADDED UNIT COST / ACRE	\$91.08	\$32.10	\$68.88
BASE YIELD COST	\$524.47	\$336.33	\$323.52
= TOTAL NON-LAND PROD. COSTS	\$615.55	\$368.43	\$392.40
NET RETURN / ACRE	\$242.04	\$362.54	\$144.01
X CROPPING PATTERN	0.402	0.53	0.068
= ROTATIONAL NET RETURN / ACRE	\$97.30	\$192.15	\$9.79
TOTAL ROTATIONAL NET RETURN	\$299.24		
BASE CAP RATE	0.063		
CAUV LAND VALUE	\$4,749.82	SAY	\$4,750

5/12/2016

2013 CAUV SAMPLE CALCULATION

SOIL:	Millgrove, Silt Loam
SLOPE:	0-2
EROSION:	Slight
DRAINAGE:	Very poorly
PROD. INDEX:	100

	<u>CORN</u>	<u>BEANS</u>	<u>WHEAT</u>
PI DAT yield/acre (1984)	144	52	64
% increased yield	1.258475	1.19726	1.484091
adjusted yield/acre	181	62	95
X Crop Price/Unit	\$3.91	\$8.98	\$4.54
= GROSS INCOME / ACRE	\$707.71	\$556.76	\$431.30
YIELD / ACRE	181	62	95
BASE YIELD	118	36	52
= YIELD ABOVE BASE	63	26	43
X ADDED UNIT COST	\$1.04	\$1.12	\$1.61
ADDED UNIT COST / ACRE	\$65.52	\$29.12	\$69.23
BASE YIELD COST	\$391.90	\$248.69	\$230.62
= TOTAL NON-LAND PROD. COST	\$457.42	\$277.81	\$299.85
NET RETURN / ACRE	\$250.29	\$278.95	\$131.45
X CROPPING PATTERN	0.387	0.512	0.101
= ROTATIONAL NET RETURN / ACRE	\$96.86	\$142.82	\$13.28
TOTAL ROTATIONAL NET RETURN	\$252.96		
BASE CAP RATE	0.067		
CAUV LAND VALUE	\$3,775.54	SAY	\$3,780

2/21/2013

2016 CAUV SAMPLE CALCULATION

SOIL:	Miami Silt Loam
SLOPE:	2-6
EROSION:	Slight
DRAINAGE:	Well
PROD. INDEX:	76

	<u>CORN</u>	<u>BEANS</u>	<u>WHEAT</u>
PI DAT yield/acre (1984)	108	38	50
% increased yield	1.323729	1.293151	1.515909
adjusted yield/acre	143	49	76
X Crop Price/Unit	\$4.49	\$10.91	\$5.53
= GROSS INCOME / ACRE	\$642.07	\$534.59	\$420.28
YIELD / ACRE	143	49	76
BASE YIELD	125	37	55
= YIELD ABOVE BASE	18	12	21
X ADDED UNIT COST	\$1.38	\$1.07	\$1.64
ADDED UNIT COST / ACRE	\$24.84	\$12.84	\$34.44
BASE YIELD COST	\$524.47	\$336.33	\$323.52
= TOTAL NON-LAND PROD. COSTS	\$549.31	\$349.17	\$357.96
NET RETURN / ACRE	\$92.76	\$185.42	\$62.32
X CROPPING PATTERN	0.402	0.53	0.068
= ROTATIONAL NET RETURN / ACRE	\$37.29	\$98.27	\$4.24
TOTAL ROTATIONAL NET RETURN	\$139.80		
BASE CAP RATE	0.063		
CAUV LAND VALUE	\$2,219.05	SAY	\$2,220

5/12/2016

2013 CAUV SAMPLE CALCULATION

SOIL:	Miami Silt Loam
SLOPE:	2-6
EROSION:	Slight
DRAINAGE:	Well
PROD. INDEX:	76

	<u>CORN</u>	<u>BEANS</u>	<u>WHEAT</u>
PI DAT yield/acre (1984)	108	38	50
% increased yield	1.258475	1.19726	1.484091
adjusted yield/acre	136	45	74
X Crop Price/Unit	\$3.91	\$8.98	\$4.54
= GROSS INCOME / ACRE	\$531.76	\$404.10	\$335.96
YIELD / ACRE	136	45	74
BASE YIELD	118	36	52
= YIELD ABOVE BASE	18	9	22
X ADDED UNIT COST	\$1.04	\$1.12	\$1.61
ADDED UNIT COST / ACRE	\$18.72	\$10.08	\$35.42
BASE YIELD COST	\$391.90	\$248.69	\$230.62
= TOTAL NON-LAND PROD. COST	\$410.62	\$258.77	\$266.04
NET RETURN / ACRE	\$121.14	\$145.33	\$69.92
X CROPPING PATTERN	0.387	0.512	0.101
= ROTATIONAL NET RETURN / ACRE	\$46.88	\$74.41	\$7.06
TOTAL ROTATIONAL NET RETURN	\$128.35		
BASE CAP RATE	0.067		
CAUV LAND VALUE	\$1,915.70	SAY	\$1,920

2/21/2013

CAUV Summary Values

6/2/2016

TY 2016 Final Values

Productivity Index	No. of Units	Net Return/Acre			Cropland Value/Acre		
		Low	High	Average	Low	High	Average
0-49	601	0	45	0	350	350	350
50-59	749	0	93	19	350	1,480	466
60-69	1,114	0	159	77	350	2,530	1,235
70-79	798	70	223	142	1,110	3,540	2,255
80-89	211	146	268	208	2,320	4,250	3,302
90-99	35	237	298	256	3,760	4,730	4,074
100+	6	299	299	299	4,750	4,750	4,750
All Regions	3,514	\$0	\$299	\$76	\$350	\$4,750	\$1,310

TY 2013 Final - 2/22/2013

Productivity Index	No. of Units	Net Return/Acre			Cropland Value/Acre		
		Low	High	Average	Low	High	Average
0-49	601	0	60	0	350	350	350
50-59	749	0	98	29	350	1,470	516
60-69	1,114	0	143	81	350	2,130	1,218
70-79	798	77	196	131	1,140	2,920	1,958
80-89	211	134	232	183	2,000	3,460	2,743
90-99	35	207	251	221	3,080	3,750	3,310
100+	6	253	253	253	3,780	3,780	3,780
all regions	3,514	\$0	\$253	\$75	\$350	\$3,780	\$1,205

CAUV Summary Values

6/2/2016

TY 2016 Final Values

Productivity Index	No. of Units	Net Return/Acre			Cropland Value/Acre		
		Low	High	Average	Low	High	Average
0-49	601	0	45	0	350	350	350
50-59	749	0	93	19	350	1,480	466
60-69	1,114	0	159	77	350	2,530	1,235
70-79	798	70	223	142	1,110	3,540	2,255
80-89	211	146	268	208	2,320	4,250	3,302
90-99	35	237	298	256	3,760	4,730	4,074
100+	6	299	299	299	4,750	4,750	4,750
All Regions	3,514	\$0	\$299	\$76	\$350	\$4,750	\$1,310

TY 2015 Final - 5/28/2015

Productivity Index	No. of Units	Net Return/Acre			Cropland Value/Acre		
		Low	High	Average	Low	High	Average
0-49	601	0	54	0	350	350	350
50-59	749	0	106	27	350	1,610	518
60-69	1,114	0	169	90	350	2,560	1,371
70-79	798	81	239	154	1,230	3,620	2,347
80-89	211	157	284	221	2,370	4,300	3,354
90-99	35	247	314	270	3,740	4,760	4,104
100+	6	315	315	315	4,770	4,770	4,770
All Regions	3,514	\$0	\$315	\$86	\$350	\$4,770	\$1,388

Average CAUV Value Per Acre 1999-2016

Productivity		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Index		100	100	100	100	100	100	108	100	100	176	200	300	350	350	350	350	350
0-49		100	100	100	100	100	100	108	100	100	176	200	300	350	350	350	350	350
50-59		107	104	102	101	114	106	134	100	100	200	214	328	362	516	700	518	466
60-69		200	181	125	113	104	101	125	123	188	435	436	632	610	1218	1778	1371	1235
70-79		417	394	285	244	157	124	241	283	431	746	845	1126	1147	1958	2728	2347	2255
80-89		666	640	516	467	342	293	465	521	708	1059	1278	1641	1717	2743	3718	3354	3302
90-99		869	842	713	663	533	492	675	747	973	1368	1601	2017	2128	3310	4428	4104	4074
100+		1030	1000	870	820	690	650	880	970	1200	1620	1900	2380	2490	3780	5030	4770	4750
Total		242	231	180	163	135	123	177	181	249	459	505	700	719	1205	1668	1388	1310
No. of																		
Soils		3371	3279	3307	3313	3313	3358	3482	3510	3511	3511	3514	3514	3514	3514	3514	3514	3514

Average CAUV Value Per Acre by Reappraisal/Update Year

Productivity		2001	2004	2007	2010	2013	2016
Index		100	100	100	200	350	350
0-49		100	100	100	200	350	350
50-59		104	114	100	214	516	466
60-69		181	104	123	436	1218	1235
70-79		394	157	283	845	1958	2255
80-89		640	342	521	1278	2743	3302
90-99		842	533	747	1601	3310	4074
100+		1000	690	970	1900	3780	4750
Total		231	135	181	505	1205	1310
No. of							
Soils		3279	3313	3510	3514	3514	3514

Comparison of Inputs, Tax Years 2013-2016

Crop Prices

	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>Difference</u>	
					<u>2013-16</u>	<u>2015-16</u>
Corn	\$3.91	\$4.48	\$4.55	\$4.49	\$0.58	(\$0.06)
Soybeans	\$8.98	\$10.13	\$11.09	\$10.91	\$1.93	(\$0.18)
Wheat	\$4.54	\$5.16	\$5.67	\$5.53	\$0.99	(\$0.14)

Non-land Production Costs

Base Cost

Corn	\$391.90	\$437.85	\$516.99	\$524.47	\$132.57	\$7.48
Soybeans	\$248.69	\$275.21	\$325.42	\$336.33	\$87.64	\$10.91
Wheat	\$230.62	\$255.48	\$296.98	\$323.52	\$92.90	\$26.54

Additional Unit Cost

Corn	\$1.04	\$1.18	\$1.36	\$1.38	\$0.34	\$0.02
Soybeans	\$1.12	\$1.27	\$1.24	\$1.07	(\$0.05)	(\$0.17)
Wheat	\$1.61	\$1.80	\$1.77	\$1.64	\$0.03	(\$0.13)

Capitalization Rate

Mortgage/Equity Ratio	60/40	60/40	80/20	80/20		
Years	15	15	25	25		
Interest Rate	6.19	5.89	6.15	5.8		
Equity Rate	6.05	5.25	5.25	5.25		
Tax Additur	1.5	1.5	1.6	1.6		
Capitalization Rate	6.7	6.2	6.6	6.3	(0.40)	(0.30)