Ohio | Department of Taxation

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Final values – 2021

2021 CURRENT AGRICULTURAL USE VALUE OF LAND TABLES
EXPLANATION OF THE CALCULATION OF VALUES FOR TAX YEAR 2021

Formula Changes

Am. Sub. H.B. 49, of the 132nd General Assembly, prescribes the factors that must be considered in computing the Current Agricultural Use Value (CAUV) of land effective for tax year 2021. The lower values were phased-in using a two-step process over each county's next two revaluations, beginning with the counties undergoing reappraisal or update in 2017.The counties scheduled in 2021 will receive the lower values prescribed by law. The final values are all the new formula values for 2021 pursuant to R.C. 5715.01.

Explanation of the Calculation

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 USDA. For 2021, yield data from calendar years 2011-2020 were averaged and divided by the 1984 yield for each crop (Exhibit A, page 6). 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.

		TY 2018	TY 2019	TY 2020	TY 2021
Crop	**1984 Base**	**2008-2017**	**2009-2018**	**2010-2019**	**2011-2020**
Corn	118.0 bu	158.9 bu	164.1 bu	162.3 bu	163.4 bu
Soybeans	36.5 bu	48.2 bu	50.4 bu	50.2 bu	50.8 bu
Wheat	44.0 bu	69.2 bu	69.9 bu	68.2 bu	69.2 bu

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: 37.1% corn, 57.3% beans, and 5.6% wheat. This rotation is based on data from 2016-2020 and closely reflects current agricultural production in Ohio. The acres harvested in each year are shown in Exhibit B (page 7).
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 2021, 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 2014 through 2020. The annual production and price per unit for each of these crops for the period are shown in Exhibit C (page 8).

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 2018	TY 2019	TY 2020	TY 2021
Crop	**Unit**	**2011-2017**	**2012-2018**	**2013-2019**	**2014-2020**
Corn	Bushel	$4.18	$3.68	$3.63	$3.59
Soybeans	Bushel	$10.43	$9.78	$9.12	$9.10
Wheat	Bushel	$5.52	$5.15	$4.84	$4.76

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 Production Budgets prepared by The Ohio State University College

of Food, Agricultural and Environmental Sciences for 2015-2021, 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 9-10).

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 11-13). The five-year average non-land production costs for tax year 2021 are summarized in the following table and compared to the costs used for tax years 2018 and 2020.

NON-LAND PRODUCTION COSTS				
Crop Base Cost	**Base Yld/2021**	**TY 2018**	**TY 2020**	**TY 2021**
Corn	134 bu	$529.28	$503.44	$491.35
Soybeans	41 bu	$346.26	$331.48	$322.85
Wheat	58 bu	$330.53	$303.88	$284.91
Additional Cost per Unit				
Corn	1 bu	$ 1.44	$ 1.38	$1.34
Soybeans	1 bu	$ 0.94	$ 0.89	$0.89
Wheat	1 bu	$ 1.49	$ 1.33	$1.29

E. CAPITALIZATION RATE

Five-year averaging is used to derive the Farm Credit Service interest rate of 5.46% (Exhibit E, page 14). Interest rate data is collected for seven years with the highest and lowest rates eliminated, and the average calculated using the remaining five years' data. The interest rate of 7.21% for the 20 percent equity portion is based on the 25-year average of the "total rate of return on farm equity" published by USDA (1995-2019, inclusive). (R.C. 5715.01)

The capitalization rate for typical Ohio farmland is computed by the mortgage-equity method. The statewide average effective tax rate after application of the reduction factors levied on agricultural property is 49.11 mills for tax year 2020 (R.C. 319.301). The 8.8 percent non-business credit rollback authorized by R.C. 319.302 reduces this rate further to 44.80 mills. As a percent of market value, the effective tax rate to be used in this year's capitalization formula is 1.6%, (0.35 x 44.80)/1000.

80% loan x annual debt service of 0.74259*		0.0594
20% equity x equity yield rate of 0.721	+	0.0144
Subtotal		0.0738
Less: equity buildup for 25 years		
% loan x 100% mortgage paid off x sinking fund factor**		
(0.80) (1.00) (0.015343)		(0.0123)
Subtotal		0.0616
Tax Additur Adjustment	+	0.0160
Capitalization Rate		0.0780 or **7.8%**

*Mortgage constant assumes 25-year loan, 5.46% interest rate.
**Sinking fund factor assumes 25-year term, 7.21% equity rate.

The capitalization rate, including R.E. taxes, is **7.8%** 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) - *$890 for Tile Drainage*

c.) For the following soil series, a $440 adjustment for surface drainage was used: Blanchester, Bono, Clermont, Condit, Conneaut, Darien, Fries, Ginat, Ilion, Latty, Lorain, McGuffey, Mill, Miner, Montgomery, Muskego, Paulding, Peoga, Piopolis, Purdy, Roselms, Sheffield, Toledo, Trumbull, Wabash, Wabasha, Warners, and Wayland.

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

J. CONSERVATION LAND

Farmland in a federal land retirement or conservation program is eligible for CAUV. Additionally, land used for conservation practices is eligible if it comprises 25% or less of the landowner's total CAUV land. As defined by R.C. 5713.30(E), conservation practices are farm management practices used to abate soil erosion as required in the management of the farming operation, including the installation, construction, development, planting, or use of grass waterways, terraces, diversions, filter strips, field borders, windbreaks, riparian buffers, wetlands, ponds, and cover crops for those purposes. The lowest CAUV value of all soil types is applied to farmland used for conservation practices or enrolled in a federal land retirement or conservation program under an agreement with an agency of the federal government. The land must be enrolled as of the first day of January of the applicable year as detailed on the initial or renewal application.

Exhibit A - Average Crop Yields by Year in Ohio

Year	Corn	Soybeans	Wheat
1984	**118**	**36.5**	**44**
1985	127	41.5	62
1986	128	40.5	46
1987	120	37	58
1988	85	27	50
1989	117	31.5	51
1990	121	39	60
1991	96	36	49
1992	143	40	53
1993	110	38	52
1994	139	43.5	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	131	36	67
2009	171	49	71
2010	160	48	61
2011	153	48	57
2012	120	45	68
2013	174	49.5	70
2014	176	52.5	74
2015	153	50	67
2016	159	54.5	80
2017	177	49.5	74
2018	187	56	75
2019	164	49	56
2020	171	54	71
Average 2011-2020	163.4	50.8	69.2
1984 Base	**118**	**36.5**	**44**
Average/1984 base	1.384746	1.391781	1.572727
% Increase	38.47%	39.18%	57.27%

Source: United States Department of Agriculture, National Agricultural Statistics Service, Crop Production 2020 Summary, January 2021. Corn Area Planted for All Purposes and Harvested for Grain, Yield, and Production - States and United States: 2018-2020; Winter Wheat Area Planted and Harvested, Yield, and Production - States and United States: 2018-2020; Soybeans for Beans Area Planted and Harvested, Yield, and Production - States and United States: 2018-2020. 1/12/2021

Exhibit B - Acres Harvested, 2016-2020
TY 2021 Crop Rotation

Year	Corn	% of Total	Soybeans	% of Total	Wheat	% of Total	Corn, Beans & Wheat Totals
2016	3,300,000	**37.9%**	4,840,000	**55.6%**	560,000	**6.4%**	8,700,000
2017	3,150,000	**36.2%**	5,090,000	**58.5%**	460,000	**5.3%**	8,700,000
2018	3,300,000	**37.6%**	5,020,000	**57.2%**	450,000	**5.1%**	8,770,000
2019	2,570,000	**35.6%**	4,270,000	**59.1%**	385,000	**5.3%**	7,225,000
2020	3,300,000	**38.1%**	4,870,000	**56.2%**	490,000	**5.7%**	8,660,000
Five Year Average	3,124,000	**37.1%**	4,818,000	**57.3%**	469,000	**5.6%**	8,411,000

Source: United States Department of Agriculture, National Agricultural Statistics Service, Crop Production 2020 Summary, January 2021. Corn Area Planted for All Purposes and Harvested for Grain, Yield, and Production - States and United States: 2018-2020; Winter Wheat Area Planted and Harvested, Yield, and Production - States and United States: 2018-2020; Soybeans for Beans Area Planted and Harvested, Yield, and Production - States and United States: 2018-2020. 1/12/2021.

Exhibit C, FIVE YEAR AVERAGE CROP PRICES, TAX YEAR 2021

CORN	Year	Production (1,000 bu)	Price	Value (1,000 dollars)
	2014	610,720	$3.78	2,308,522
	2015	498,780	$3.89	1,940,254
	2016	524,700	~~$3.61~~	1,894,167
	2017	557,550	$3.61	2,012,756
	2018	617,100	$3.74	2,307,954
	2019	421,480	$3.91	1,647,987
	2020	564,300	~~$4.50~~	2,539,350
Totals		2,705,630		10,217,472
Weighted Avg. Price			$3.78	
After Management Allowance of 5%			$3.59	

SOYBEANS	Year	Production (1,000 bu)	Price	Value (1,000 dollars)
	2014	246,225	$10.30	2,536,118
	2015	237,000	$9.16	2,170,920
	2016	263,780	$9.66	2,548,115
	2017	251,955	$9.62	2,423,807
	2018	281,120	~~$8.69~~	2,442,933
	2019	209,230	$9.04	1,891,439
	2020	262,980	~~$11.60~~	3,050,568
Totals		1,208,190		11,570,399
Weighted Avg. Price			$9.58	
After Management Allowance of 5%			$9.10	

WHEAT	Year	Production (1,000 bu)	Price	Value (1,000 dollars)
	2014	40,330	~~$5.60~~	225,848
	2015	32,160	$4.57	146,971
	2016	44,800	~~$4.25~~	190,400
	2017	34,040	$4.90	166,796
	2018	33,750	$5.08	171,450
	2019	21,560	$5.22	112,543
	2020	34,790	$5.35	186,127
Totals		156,300		783,887
Weighted Avg. Price			$5.02	
After Management Allowance of 5%			$4.76	

Source: United States Department of Agriculture, National Agricultural Statistics Service, Crop Production 2020 Summary, January 2021. Corn Area Planted for All Purposes and Harvested for Grain, Yield, and Production - States and United States: 2018-2020; Winter Wheat Area Planted and Harvested, Yield, and Production - States and United States: 2018-2020; Soybeans for Beans Area Planted and Harvested, Yield, and Production - States and United States: 2018-2020. United States Department of Agriculture, National Agricultural Statistics Service, Crop Values 2020 Summary, February 2021. Corn for Grain Price per Bushel and Value of Production- States and United States: 2018-2020; Soybeans for Beans Price Per Bushel and Value of Production - United States: 2018-2020; United States: 2018-2020. 2/21/2021.

Exhibit D, Production Costs, Tax Year 2021
Determination of Five Year Average Costs for the Projected Crop Budgets

ITEM VARIABLE COSTS		Units	2015	2016	2017	2018	2019	2020	2021	MAXIMUM	MINIMUM	5 Year Avg.
Seed	CORN	1000k	$3.44	$3.44	$3.44	~~$3.50~~	$3.38	$3.25	~~$3.25~~	$3.50	$3.25	$3.39
	SOYBEANS	1000s	~~$0.43~~	$0.43	~~$0.37~~	$0.43	$0.43	$0.39	$0.39	$0.43	$0.37	$0.41
	WHEAT	1000s	~~$0.03~~	~~$0.03~~	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03
Fertilizer	N Corn		~~$0.46~~	$0.37	$0.34	$0.31	$0.37	~~$0.30~~	$0.38	$0.46	$0.30	$0.35
	N Wheat		~~$0.57~~	$0.52	~~$0.36~~	$0.41	$0.45	$0.43	$0.48	$0.57	$0.36	$0.46
	P2O5, Corn/Soybeans		$0.57	$0.46	$0.44	$0.47	$0.50	~~$0.38~~	~~$0.59~~	$0.59	$0.38	$0.49
	P2O5 Wheat		~~$0.53~~	$0.53	$0.43	$0.44	$0.52	~~$0.39~~	$0.43	$0.53	$0.39	$0.47
	K2O, Corn/Soybeans		~~$0.40~~	$0.28	~~$0.26~~	$0.28	$0.32	$0.28	$0.32	$0.40	$0.26	$0.30
	K2O Wheat		~~$0.34~~	$0.33	~~$0.24~~	$0.26	$0.30	$0.28	$0.26	$0.34	$0.24	$0.29
	LIME		~~$25.00~~	~~$25.00~~	$25.00	$25.00	$25.00	$25.00	$25.00	$25.00	$25.00	$25.00
Chemicals	CORN		$56.08	$56.08	~~$60.42~~	~~$43.93~~	$46.22	$46.22	$46.22	$60.42	$43.93	$50.16
	SOYBEANS		~~$33.84~~	$33.84	$45.70	$39.30	$41.99	$41.99	~~$47.76~~	$47.76	$33.84	$40.56
	WHEAT		$13.00	~~$9.50~~	$13.25	$13.25	~~$14.65~~	$14.65	$14.65	$14.65	$9.50	$13.76
Fuel, Oil, Grease	CORN	142	$13.52	~~$10.07~~	$12.66	$13.64	$13.56	~~$13.75~~	$13.75	$13.75	$10.07	$13.43
		178	$13.52	~~$10.07~~	$12.66	$13.64	$13.56	~~$13.75~~	$13.75	$13.75	$10.07	$13.43
		213	$13.52	~~$10.07~~	$12.66	$13.64	$13.56	~~$13.75~~	$13.75	$13.75	$10.07	$13.43
	SOYBEANS	44	$7.67	~~$5.71~~	$7.18	~~$12.57~~	$11.58	$11.58	$11.58	$12.57	$5.71	$9.92
		55	$7.67	~~$5.71~~	$7.18	~~$12.57~~	$11.58	$11.58	$11.58	$12.57	$5.71	$9.92
		66	$7.67	~~$5.71~~	$7.18	~~$12.57~~	$11.58	$11.58	$11.58	$12.57	$5.71	$9.92
	WHEAT	56	~~$14.63~~	$10.13	$9.90	$7.62	$12.05	$8.33	~~$7.50~~	$14.63	$7.50	$9.61
		71	~~$14.63~~	$10.13	$9.90	$7.62	$12.05	$8.33	~~$7.50~~	$14.63	$7.50	$9.61
		85	~~$14.63~~	$10.13	$9.90	$7.62	$12.05	$8.33	~~$7.50~~	$14.63	$7.50	$9.61
Repairs	CORN	142	$26.78	$26.78	$26.78	~~$19.91~~	$20.48	$25.54	~~$28.12~~	$28.12	$19.91	$25.27
		178	$26.78	$26.78	$26.78	~~$19.91~~	$20.48	$25.54	~~$28.12~~	$28.12	$19.91	$25.27
		213	$26.78	$26.78	$26.78	~~$19.91~~	$20.48	$25.54	~~$28.12~~	$28.12	$19.91	$25.27
	SOYBEANS	44	$20.61	$20.61	$20.61	~~$17.22~~	$17.57	$21.60	~~$23.98~~	$23.98	$17.22	$20.20
		55	$20.61	$20.61	$20.61	~~$17.22~~	$17.57	$21.60	~~$23.98~~	$23.98	$17.22	$20.20
		66	$20.61	$20.61	$20.61	~~$17.22~~	$17.57	$21.60	~~$23.98~~	$23.98	$17.22	$20.20
	WHEAT	56	~~$20.32~~	$20.32	$20.32	$16.33	$16.72	~~$13.81~~	$15.47	$20.32	$13.81	$17.83
		71	~~$20.32~~	$20.32	$20.32	$16.33	$16.72	~~$13.81~~	$15.47	$20.32	$13.81	$17.83
		85	~~$20.32~~	$20.32	$20.32	$16.33	$16.72	~~$13.81~~	$15.47	$20.32	$13.81	$17.83
Crop Insurance	CORN	142	$16.30	$15.00	$13.00	$13.00	~~$12.00~~	$14.70	~~$19.00~~	$19.00	$12.00	$14.40
		178	$17.00	$16.00	~~$14.00~~	$14.00	$14.00	$16.70	~~$21.00~~	$21.00	$14.00	$15.54
		213	$17.80	$15.00	$16.00	~~$14.50~~	$15.00	$18.70	~~$26.00~~	$26.00	$14.50	$16.50
	SOYBEANS	44	$9.50	$9.00	$12.00	$9.50	~~$7.00~~	$8.60	~~$16.00~~	$16.00	$7.00	$9.72
		55	$8.50	$8.50	$12.00	$10.00	~~$7.50~~	$10.60	~~$17.00~~	$17.00	$7.50	$9.92
		66	$10.00	$8.50	$13.00	$10.50	~~$8.00~~	$12.60	~~$20.00~~	$20.00	$8.00	$10.92
	WHEAT	56	~~$14.00~~	$10.00	$13.00	~~$6.00~~	$6.00	$6.00	$9.00	$14.00	$6.00	$8.80
		71	~~$14.00~~	$10.00	$13.00	~~$6.50~~	$6.50	$6.50	$10.00	$14.00	$6.50	$9.20

Exhibit D, Production Costs, Tax Year 2021
Determination of Five Year Average Costs for the Projected Crop Budgets

ITEM VARIABLE COSTS		Units	2015	2016	2017	2018	2019	2020	2021	MAXIMUM	MINIMUM	5 Year Avg.
Variable Miscellaneous	CORN	85	~~$14.00~~	$10.00	$13.00	~~$7.00~~	$7.00	$7.00	$11.00	$14.00	$7.00	$9.60
		142	$5.00	$5.00	$5.00	~~$4.80~~	$5.10	$5.10	~~$5.50~~	$5.50	$4.80	$5.04
		178	$5.00	$5.00	$5.00	~~$4.80~~	$5.10	$5.10	~~$5.50~~	$5.50	$4.80	$5.04
		213	~~$12.00~~	$5.00	$5.00	~~$4.80~~	$5.10	$5.10	$5.50	$12.00	$4.80	$5.14
	SOYBEANS	44	~~$4.50~~	$3.50	$3.50	~~$3.25~~	$3.40	$3.40	$3.75	$4.50	$3.25	$3.51
		55	~~$4.50~~	$3.50	$3.50	~~$3.25~~	$3.40	$3.40	$3.75	$4.50	$3.25	$3.51
		66	~~$4.50~~	$3.50	$3.50	~~$3.25~~	$3.40	$3.40	$3.75	$4.50	$3.25	$3.51
	WHEAT	56	$6.00	$3.20	~~$13.00~~	~~$3.00~~	$3.00	$3.00	$3.50	$13.00	$3.00	$3.74
		71	$6.00	$3.20	~~$13.00~~	~~$3.00~~	$3.00	$3.00	$3.50	$13.00	$3.00	$3.74
		85	$6.00	$3.20	~~$13.00~~	~~$3.00~~	$3.00	$3.00	$3.50	$13.00	$3.00	$3.74
Drying: Fuel & Electric	CORN		~~$0.16~~	$0.11	$0.11	$0.06	~~$0.04~~	$0.04	$0.04	$0.16	$0.04	$0.07
Hauling Farm to Market	CORN		$0.02	~~$0.01~~	$0.02	~~$0.18~~	$0.17	$0.17	$0.16	$0.18	$0.01	$0.11
	SOYBEANS		$0.02	~~$0.01~~	$0.02	~~$0.18~~	$0.17	$0.17	$0.16	$0.18	$0.01	$0.11
	WHEAT		~~$0.02~~	$0.02	$0.02	~~$0.18~~	$0.17	$0.17	$0.16	$0.18	$0.02	$0.11
Interest - variable costs			5.00%	4.50%	5.00%	5.00%	~~5.50%~~	5.00%	~~4.00%~~	5.50%	4.00%	4.90%
FIXED COSTS												$0.00
Labor Charge	CORN		~~$45.00~~	$45.00	$45.00	~~$37.50~~	$37.50	$37.50	$38.25	$45.00	$37.50	$40.65
	SOYBEANS		~~$30.00~~	$30.00	$30.00	$22.50	$22.50	$22.50	~~$18.70~~	$30.00	$18.70	$25.50
	WHEAT		~~$22.50~~	$22.50	$22.50	$22.50	$22.50	$22.50	~~$22.95~~	$22.95	$22.50	$22.50
Machinery & Equipment	CORN		~~$130.45~~	$130.45	$130.45	~~$84.61~~	$86.07	$95.22	$99.87	$130.45	$84.61	$108.41
	SOYBEANS		~~$107.89~~	$107.89	$107.89	~~$56.43~~	$57.90	$65.50	$69.16	$107.89	$56.43	$81.67
	WHEAT		~~$125.86~~	$125.86	$125.86	$64.49	$65.28	~~$47.29~~	$50.57	$125.86	$47.29	$86.41
Fixed Miscellaneous	CORN	142	~~$24.00~~	$24.00	$22.00	$23.10	$22.80	~~$20.50~~	$20.50	$24.00	$20.50	$22.48
		178	~~$24.00~~	$24.00	$22.00	$23.10	$22.80	~~$20.50~~	$20.50	$24.00	$20.50	$22.48
		213	~~$24.00~~	$24.00	$22.00	$23.10	$22.80	~~$20.50~~	$20.50	$24.00	$20.50	$22.48
	SOYBEANS	44	~~$16.50~~	$15.60	$14.50	$14.90	$14.70	~~$13.40~~	$13.70	$16.50	$13.40	$14.68
		55	~~$16.50~~	$15.60	$14.50	$14.90	$14.70	~~$13.40~~	$13.70	$16.50	$13.40	$14.68
		66	~~$16.50~~	$15.60	$14.50	$14.90	$14.70	~~$13.40~~	$13.70	$16.50	$13.40	$14.68
	WHEAT*	56		$12.60	$13.00	$12.75	$12.10	$10.70	$12.70	NA	NA	$12.31
		71		$12.60	$13.00	$12.75	$12.10	$10.70	$12.70	NA	NA	$12.31
		85		$12.60	$13.00	$12.75	$12.10	$10.70	$12.70	NA	NA	$12.31

*In 2016, Ohio State University revised budgets to show fixed and variable miscellaneous costs, a straight average is used for this budget item.

Source: The Ohio State University; College of Food, Agricultural, and Environmental Sciences; Crop production budgets. Updated with 2021 data as of 5/26/2021. *https://farmoffice.osu.edu/farm-mgt-tools/farm-budgets.*

2021 CORN BUDGET

Conservation Tillage

VARIABLE COSTS	Inputs - 5 Yr. Olympic Average				5 YR. AVG. COST Exhibit D	Costs per Acre	
		UNITS	BASE 134 BUSHEL	@ ADD. BUSHEL		BASE 134 BUSHEL	@ ADD. BUSHEL
SEED		**Kernels (1000s)**	28	0.12	$3.39	$94.92	$0.41
FERTILIZER							
	N	LB.	125.55	1.36	$0.35	$43.94	$0.48
	P2O5	LB.	48.37	0.36	$0.49	$23.70	$0.18
	K2O	LB.	32.16	0.24	$0.30	$9.65	$0.07
	LIME	TON	0.25	0.00	$25.00	$6.25	$0.00
CHEMICALS					$50.16	$50.16	$0.00
FUEL, OIL, GREASE					$13.43	$13.43	$0.00
REPAIRS					$25.27	$25.27	$0.00
CROP INSURANCE (Middle yield)					$15.54	$15.54	$0.00
VARIABLE MISCELLANEOUS					$5.04	$5.04	$0.00
DRYING: FUEL & ELECTRIC ONLY					$0.07	$9.38	$0.07
HAULING/TRUCKING					$0.11	$14.74	$0.11
	Rate	Months	(Rate/12)*Months				
INTEREST on OPER. CAP. *	4.90%	7	2.9%			$7.79	$0.03
TOTAL VARIABLE COSTS						***$319.81***	***$1.34***
FIXED COSTS							
LABOR CHARGE					$40.65	$40.65	$0.00
MACHINERY & EQUIPMENT CHARGE					$108.41	$108.41	$0.00
MISCELLANEOUS					$22.48	$22.48	$0.00
TOTAL FIXED COSTS						***$171.54***	***$0.00***
TOTAL COSTS						***$491.35***	***$1.34***

*Interest on all variable costs except hauling and crop insurance.

Source: The Ohio State University; College of Food, Agricultural, and Environmental Sciences; Crop production budgets. Updated with 2021 data as of 5/26/2021. https://farmoffice.osu.edu/farm-mgt-tools/farm-budgets.

2021 SOYBEAN BUDGET

No-Tillage Practices

VARIABLE COSTS		Inputs - 5 Yr. Olympic Average			5 YR. AVG. COST Exhibit D	Costs per Acre	
		UNITS	BASE 41 BUSHEL	@ ADD. BUSHEL		BASE 41 BUSHEL	@ ADD. BUSHEL
SEED		**Seeds (1000s)**	170.0	0	$0.41	$70.38	$0.00
FERTILIZER							
	N	LB.	0.00	0.00	$0.00	$0.00	$0.00
	P2O5	LB.	32.57	0.79	$0.49	$15.89	$0.39
	K2O	LB.	52.27	1.26	$0.30	$15.47	$0.37
	LIME	TON	0.25	0.00	$25.00	$6.25	$0.00
CHEMICALS					$40.56	$40.56	$0.00
FUEL, OIL, GREASE					$9.92	$9.92	$0.00
REPAIRS					$20.20	$20.20	$0.00
CROP INSURANCE (Middle yield)					$9.92	$9.92	$0.00
VARIABLE MISCELLANEOUS					$3.51	$3.51	$0.00
HAULING/TRUCKING					$0.11	$4.43	$0.11
		Rate	Months	(Rate/12)*Months			
INTEREST on OPER. CAP. *		4.90%	6	2.5%		$4.46	$0.02
TOTAL VARIABLE COSTS						***$201.00***	***$0.89***
FIXED COSTS							
LABOR CHARGE					$25.50	$25.50	$0.00
MACHINERY & EQUIPMENT CHARGE					$81.67	$81.67	$0.00
MISCELLANEOUS					$14.68	$14.68	$0.00
TOTAL FIXED COSTS						***$121.85***	***$0.00***
TOTAL COSTS						***$322.85***	***$0.89***

*Interest on all variable costs except hauling and crop insurance.

Source: The Ohio State University; College of Food, Agricultural, and Environmental Sciences; Crop production budgets. Updated with 2021 data as of 5/26/2021. https://farmoffice.osu.edu/farm-mgt-tools/farm-budgets.

2021 WHEAT BUDGET
Conservation till

VARIABLE COSTS	Inputs - 5 Yr. Olympic Average				5 YR. AVG. COST Exhibit D	Costs per Acre	
		UNITS	BASE 58 BUSHEL	@ ADD. BUSHEL		BASE 58 BUSHEL	@ ADD. BUSHEL
SEED		**Seeds (1000s)**	1,400	0	$0.03	$42.00	$0.00
FERTILIZER							
	N	LB.	55.61	1.72	$0.46	$25.47	$0.79
	P2O5	LB.	33.57	0.57	$0.47	$15.78	$0.27
	K2O	LB.	30.65	0.31	$0.29	$8.77	$0.09
	LIME	TON	0.25	0	$25.00	$6.25	$0.00
CHEMICALS					$13.76	$13.76	$0.00
FUEL, OIL, GREASE					$9.61	$9.61	$0.00
REPAIRS					$17.83	$17.83	$0.00
CROP INSURANCE (Middle yield)					$9.20	$9.20	$0.00
VARIABLE MISCELLANEOUS					$3.74	$3.74	$0.00
HAULING/TRUCKING					$0.11	$6.26	$0.11
		Rate	Months	(Rate/12)*Months			
INTEREST on OPER. CAP.*		4.90%	9	3.5%		$5.03	$0.04
TOTAL VARIABLE COSTS						***$163.69***	***$1.29***
FIXED COSTS							
LABOR CHARGE					$22.50	$22.50	$0.00
MACHINERY & EQUIPMENT CHARGE					$86.41	$86.41	$0.00
MISCELLANEOUS					$12.31	$12.31	$0.00
TOTAL FIXED COSTS						***$121.22***	***$0.00***
TOTAL COSTS						***$284.91***	***$1.29***

*Interest on all variable costs except hauling and crop insurance.

Source: The Ohio State University; College of Food, Agricultural, and Environmental Sciences; Crop production budgets. Updated with 2021 data as of 5/26/2021. https://farmoffice.osu.edu/farm-mgt-tools/farm-budgets.

Exhibit E: INTEREST RATES - CAPITALIZATION RATE

Year	INTEREST RATE*
2015	5.60
2016	5.15
2017	5.65
2018	~~6.04~~
2019	6.00
2020	4.90
2021	~~4.42~~
Average	**5.46**

CAPITALIZATION RATES 2015-2021	
TAX YEAR	**CAP RATE**
2015	6.6%
2016	6.3%
2017	8.0%
2018	8.0%
2019	8.0%
2020	7.9%
2021	7.8%

Year	EQUITY RATE**
2019	2.68
2018	1.77
2017	4.47
2016	1.71
2015	-0.78
2014	8.08
2013	8.37
2012	17.04
2011	11.04
2010	12.46
2009	-0.71
2008	4.30
2007	4.60
2006	13.30
2005	18.18
2004	17.32
2003	8.17
2002	-0.57
2001	6.13
2000	8.74
1999	8.12
1998	6.12
1997	7.36
1996	7.59
1995	4.73
Average	**7.21**

*** Fixed multi-flex rate for a 25-year term on a loan $75,000 and over, Farm Credit Services.**

****Equity rate is the USDA rate of return on farm equity averaged for most recent 25 years.**

USDA Farm sector financial ratios, February 26, 2021

6/4/2021

2018 CAUV SAMPLE CALCULATION

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

	CORN	BEANS	WHEAT	
PI DAT yield/acre (1984)	144	52	64	
% increased yield	1.34661	1.320548	1.572727	
adjusted yield/acre	194	69	101	
X Crop Price/Unit	$4.18	$10.43	$5.52	
= GROSS INCOME / ACRE	$810.92	$719.67	$557.52	
YIELD / ACRE	194	69	101	
BASE YIELD	129	38	58	
= YIELD ABOVE BASE	65	31	43	
X ADDED UNIT COST	$1.44	$0.94	$1.49	
ADDED UNIT COST / ACRE	$93.60	$29.14	$64.07	
BASE YIELD COST	$529.28	$346.26	$330.53	
= TOTAL NON-LAND PROD. COSTS	$622.88	$375.40	$394.60	
NET RETURN / ACRE	$188.04	$344.27	$162.92	
X CROPPING PATTERN	0.39	0.55	0.06	
= ROTATIONAL NET RETURN / ACRE	$73.34	$189.35	$9.78	
TOTAL ROTATIONAL NET RETURN	$272.46			
BASE CAP RATE	0.08			
UNADJUSTED VALUE	$3,405.74	SAY	**$3,410**	
2017 Value			**$4,205**	
ADJUSTED CAUV VALUE			**$3,810**	

5/11/2018

2021 CAUV SAMPLE CALCULATION

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

	CORN	BEANS	WHEAT
PI DAT yield/acre (1984)	144	52	64
% increased yield	1.384746	1.391781	1.572727
adjusted yield/acre	199	72	101
X Crop Price/Unit	$3.590	$9.100	$4.760
= GROSS INCOME / ACRE	$714.41	$655.20	$480.76
YIELD / ACRE	199	72	101
BASE YIELD	134	41	58
= YIELD ABOVE BASE	65	31	43
X ADDED UNIT COST	$1.34	$0.89	$1.29
ADDED UNIT COST / ACRE	$87.10	$27.59	$55.47
BASE YIELD COST	$491.35	$322.85	$284.91
= TOTAL NON-LAND PROD. COSTS	$578.45	$350.44	$340.38
NET RETURN / ACRE	$135.96	$304.76	$140.38
X CROPPING PATTERN	0.371	0.573	0.056
= ROTATIONAL NET RETURN / ACRE	$50.44	$174.63	$7.86
TOTAL ROTATIONAL NET RETURN	$232.93		
BASE CAP RATE	0.078		
UNADJUSTED VALUE	$2,986.28	*Rounded*	***$2,990***

6/4/2021

2018 CAUV SAMPLE CALCULATION

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

	CORN	BEANS	WHEAT
PI DAT yield/acre (1984)	108	38	50
% increased yield	1.34661	1.320548	1.572727
adjusted yield/acre	145	50	79
X Crop Price/Unit	$4.18	$10.43	$5.52
= GROSS INCOME / ACRE	$606.10	$521.50	$436.08
YIELD / ACRE	145	50	79
BASE YIELD	129	38	58
= YIELD ABOVE BASE	16	12	21
X ADDED UNIT COST	$1.44	$0.94	$1.49
ADDED UNIT COST / ACRE	$23.04	$11.28	$31.29
BASE YIELD COST	$529.28	$346.26	$330.53
= TOTAL NON-LAND PROD. COSTS	$552.32	$357.54	$361.82
NET RETURN / ACRE	$53.78	$163.96	$74.26
X CROPPING PATTERN	0.39	0.55	0.06
= ROTATIONAL NET RETURN / ACRE	$20.97	$90.18	$4.46
TOTAL ROTATIONAL NET RETURN	$115.61		
BASE CAP RATE	0.08		
UNADJUSTED VALUE	$1,445.10	SAY	**$1,440**
2017 Value			**$1,950**
ADJUSTED CAUV VALUE			**$1,700**

5/11/2018

2021 CAUV SAMPLE CALCULATION

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

	CORN	BEANS	WHEAT
PI DAT yield/acre (1984)	108	38	50
% increased yield	1.384746	1.391781	1.572727
adjusted yield/acre	150	53	79
X Crop Price/Unit	$3.59	$9.10	$4.76
= GROSS INCOME / ACRE	$538.50	$482.30	$376.04
YIELD / ACRE	150	53	79
BASE YIELD	134	41	58
= YIELD ABOVE BASE	16	12	21
X ADDED UNIT COST	$1.34	$0.89	$1.29
ADDED UNIT COST / ACRE	$21.44	$10.68	$27.09
BASE YIELD COST	$491.35	$322.85	$284.91
= TOTAL NON-LAND PROD. COSTS	$512.79	$333.53	$312.00
NET RETURN / ACRE	$25.71	$148.77	$64.04
X CROPPING PATTERN	0.371	0.573	0.056
= ROTATIONAL NET RETURN / ACRE	$9.54	$85.25	$3.59
TOTAL ROTATIONAL NET RETURN	$98.37		
BASE CAP RATE	0.078		
UNADJUSTED VALUE	$1,261.15	*Rounded*	***$1,260***

6/4/2021

CAUV Summary Values

6/9/2021

TY 2021 Final Values

Productivity Index	No. of Units	Net Return/Acre			Cropland Value/Acre		
		Low	High	Average	Low	High	Average
0-49	602	$0	$2	$0	$350	$350	$350
50-59	749	$0	$60	$5	$350	$770	$358
60-69	1,114	$0	$114	$43	$350	$1,460	$598
70-79	800	$33	$170	$97	$430	$2,190	$1,253
80-89	211	$94	$207	$153	$1,200	$2,660	$1,969
90-99	35	$174	$233	$196	$2,230	$2,980	$2,512
100+	6	$233	$233	$233	$2,990	$2,990	$2,990
All Regions	3,517	$0	$233	$48	$350	$2,990	**$759**

6/26/2018

TY 2018 Final Values (Adjusted)

Productivity Index	No. of Units	Net Return/Acre			Cropland Value/Acre		
		Low	High	Average	Low	High	Average
0-49	601	$0	$15	$0	$350	$350	$350
50-59	749	$0	$71	$9	$350	$1,070	$400
60-69	1,114	$0	$134	$56	$350	$1,940	$896
70-79	798	$49	$195	$118	$770	$2,780	$1,723
80-89	211	$120	$243	$180	$1,780	$3,400	$2,586
90-99	35	$206	$271	$227	$2,950	$3,790	$3,226
100+	6	$272	$272	$272	$3,810	$3,810	$3,810
All Regions	3,514	$0	$272	$60	$350	$3,810	**$1,015**

CAUV Summary Values

6/9/2021

TY 2021 Final Values

Productivity Index	No. of Units	Net Return/Acre			Cropland Value/Acre		
		Low	High	Average	Low	High	Average
0-49	602	$0	$2	$0	$350	$350	$350
50-59	749	$0	$60	$5	$350	$770	$358
60-69	1,114	$0	$114	$43	$350	$1,460	$598
70-79	800	$33	$170	$97	$430	$2,190	$1,253
80-89	211	$94	$207	$153	$1,200	$2,660	$1,969
90-99	35	$174	$233	$196	$2,230	$2,980	$2,512
100+	6	$233	$233	$233	$2,990	$2,990	$2,990
All Regions	3,517	$0	$233	$48	$350	$2,990	**$759**

6/11/2020

TY 2020 Final Values

Productivity Index	No. of Units	Net Return/Acre			Cropland Value/Acre		
		Low	High	Average	Low	High	Average
0-49	601	$0	$0	$0	$350	$350	$350
50-59	749	$0	$45	$2	$350	$570	$351
60-69	1,114	$0	$99	$31	$350	$1,260	$488
70-79	798	$19	$156	$84	$350	$1,970	$1,073
80-89	211	$84	$193	$140	$1,060	$2,440	$1,783
90-99	35	$164	$222	$182	$2,070	$2,810	$2,303
100+	6	$223	$223	$223	$2,820	$2,820	$2,820
All Regions	3,514	$0	$223	$40	$350	$2,820	**$668**

Average CAUV Values by Year, 2004-2021

Productivity Index	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
0-49	100	100	108	100	100	176	200	300	350	350	350	350	350	350	350	350	350	350
50-59	114	106	134	100	100	200	214	328	362	516	700	518	466	430	400	378	351	358
60-69	104	101	125	123	188	435	436	632	610	1,218	1,778	1,371	1,235	1,061	896	731	488	598
70-79	157	124	241	283	431	746	845	1,126	1,147	1,958	2,728	2,347	2,255	1,969	1,723	1,469	1,073	1,253
80-89	342	293	465	521	708	1,059	1,278	1,641	1,717	2,743	3,718	3,354	3,302	2,909	2,586	2,270	1,783	1,969
90-99	533	492	675	747	973	1,368	1,601	2,017	2,128	3,310	4,428	4,104	4,074	3,602	3,226	2,863	2,303	2,512
100+	690	650	880	970	1,200	1,620	1,900	2,380	2,490	3,780	5,030	4,770	4,750	4,205	3,810	3,420	2,820	2,990
Total	135	123	177	181	249	459	505	700	719	1,205	1,668	1,388	1,310	1,153	1,015	876	668	759
No. of Soils	3,313	3,358	3,482	3,510	3,511	3,511	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,514	3,517

Average CAUV Values by Reappraisal/UpdateYear

Productivity Index	2006	2009	2012	2015	2018	2021
0-49	108	176	350	350	350	350
50-59	134	200	362	518	400	358
60-69	125	435	610	1,371	896	596
70-79	241	746	1,147	2,347	1,723	1,251
80-89	465	1,059	1,717	3,354	2,586	1,967
90-99	675	1,368	2,128	4,104	3,226	2,508
100+	880	1,620	2,490	4,770	3,810	2,980
Total	177	459	719	1,388	1,015	758
No. of Soils	3,482	3,511	3,514	3,514	3,514	3,517

6/9/2021

Comparison of Inputs, Tax Years 2018-2021

Crop Prices	2018	2019	2020	2021	Difference 2018-21	Difference 2020-21
Corn	$4.18	$3.68	$3.63	$3.59	**($0.59)**	($0.04)
Soybeans	$10.43	$9.78	$9.12	$9.10	**($1.33)**	($0.02)
Wheat	$5.52	$5.15	$4.84	$4.76	**($0.76)**	($0.08)
Non-land Production Costs						
Base Cost						
Corn	$529.28	$519.04	$503.44	$491.35	**($37.93)**	($12.09)
Soybeans	$346.26	$338.54	$331.48	$322.85	**($23.41)**	($8.63)
Wheat	$330.53	$319.08	$303.88	$284.91	**($45.62)**	($18.97)
Additional Unit Cost						
Corn	$1.44	$1.43	$1.38	$1.34	**($0.10)**	($0.04)
Soybeans	$0.94	$0.90	$0.89	$0.89	**($0.05)**	$0.00
Wheat	$1.49	$1.41	$1.33	$1.29	**($0.20)**	($0.04)
Capitalization Rate						
Mortgage/Equity Ratio	80/20	80/20	80/20	80/20		
Years	25	25	25	25		
Interest Rate	5.55	5.69	5.69	5.46		
Equity Rate	7.73	7.55	7.36	7.21		
Tax Additur	1.6	1.6	1.6	1.6		
Capitalization Rate	8.0	8.0	7.9	7.8	(0.20)	(0.10)

Tax Analysis, 6/4/2021