Ohio | Department of Taxation

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July 19, 2022
FINAL VALUES – 2022

2022 CURRENT AGRICULTURAL USE VALUE OF LAND TABLES
EXPLANATION OF THE CALCULATION OF FINAL VALUES FOR TAX YEAR 2022

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 2022. 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 for revaluation in 2022 will receive the second step of the phase-in prescribed by law, i.e., the final values are all the fully-implemented new formula values for 2022 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 2022, yield data from calendar years 2012-2021 were averaged and divided by the 1984 yield for each crop (Exhibit A). 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 2019	TY 2020	TY 2021	TY 2022
Crop	**1984 Base**	**2009-2018**	**2010-2019**	**2011-2020**	**2012-2021**
Corn	118.0 bu	164.1 bu	162.3 bu	163.4 bu	167.4 bu
Soybeans	36.5 bu	50.4 bu	50.2 bu	50.8 bu	51.8 bu
Wheat	44.0 bu	69.9 bu	68.2 bu	69.2 bu	72.0 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, 57.4% beans, and 5.5% wheat. This rotation is based on data from 2017-2021 and closely reflects current agricultural production in Ohio. The acres harvested in each year are shown in Exhibit B.

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 2022, a minimum value of $350 is used for these soils.

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 2015 through 2021. The annual production and price per unit for each of these crops for the period are shown in Exhibit C.

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 2019	TY 2020	TY 2021	TY 2022
Crop	**Unit**	**2012-2018**	**2013-2019**	**2014-2020**	**2015-2021**
Corn	Bushel	$3.68	$3.63	$3.59	$3.77
Soybeans	Bushel	$9.78	$9.12	$9.10	$9.32
Wheat	Bushel	$5.15	$4.84	$4.76	$4.75

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.

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). The five-year average non-land production costs for tax year 2022 are summarized in the following table and compared to the costs used for tax years 2019 and 2022:

NON-LAND PRODUCTION COSTS					
Crop Base Cost	**2022 Base Yld.**	**TY 2019**	**TY 2020**	**TY 2021**	**TY 2022**
Corn	137 bu	$519.04	$504.73	$491.35	$491.16
Soybeans	42 bu	$338.54	$331.32	$323.11	$317.57
Wheat	59 bu	$319.08	$307.93	$284.98	$269.72
Additional Cost per Unit					
Corn	1 bu	$1.43	$1.40	$1.34	$1.30
Soybeans	1 bu	$0.90	$0.88	$0.89	$0.91
Wheat	1 bu	$1.41	$1.33	$1.29	$1.27

E. CAPITALIZATION RATE

Five-year averaging is used to derive the Farm Credit Service interest rate of 5.55% (Exhibit E). 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 7.20% 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 (1996-2020, 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 48.54 mills for tax year 2021 (R.C. 319.301). The 8.7 percent non-business credit rollback authorized by R.C. 319.302 reduces this rate further to 44.33 mills. As a percent of market value, the effective tax rate to be used in this year's capitalization formula is 1.5516%, (0.35 x 44.33)/1000.

80% loan x annual debt service of 0.074914*		0.0599
20% equity x equity yield rate of 0.0720	+	0.0144
Subtotal		0.0743
Less: equity buildup for 25 years		
% loan x 100% mortgage paid off x sinking fund factor**		
(0.80) (1.00) (0.015355)		(0.0123)
Subtotal		0.0621
Tax Additur Adjustment	+	0.015516
Capitalization Rate		0.0780 or **7.8%**

*Mortgage constant assumes 25-year loan, 5.55% interest rate.
**Sinking fund factor assumes 25-year term, 7.20% 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.

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 $445 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	55	71
2021	193	56.5	85
Average 2012-2021	167.4	51.8	72.0
1984 Base	**118**	**36.5**	**44**
Average/1984 base	1.418644	1.419178	1.636364
% Increase	41.86%	41.92%	63.64%

Source: United States Department of Agriculture, National Agricultural Statistics Service, Crop Production 2021 Summary, January 2022. Corn Area Planted for All Purposes and Harvested for Grain, Yield, and Production - States and United States: 2019-2021; Winter Wheat Area Planted and Harvested, Yield, and Production - States and United States: 2019-2021; Soybeans for Beans Area Planted and Harvested, Yield, and Production - States and United States: 2019-2021. 1/12/2022

Exhibit B - Acres Harvested, 2017-2021
TY 2022 Crop Rotation

Year	Corn	% of Total	Soybeans	% of Total	Wheat	% of Total	Corn, Beans & Wheat Totals
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	**37.9%**	4,920,000	**56.5%**	490,000	**5.6%**	8,710,000
2021	3,340,000	**38.2%**	4,880,000	**55.9%**	515,000	**5.9%**	8,735,000
Five Year Average	3,132,000	37.1%	4,836,000	57.4%	460,000	5.5%	8,428,000

Source: United States Department of Agriculture, National Agricultural Statistics Service, Crop Production 2021 Summary, January 2022. Corn Area Planted for All Purposes and Harvested for Grain, Yield, and Production - States and United States: 2019-2021; Winter Wheat Area Planted and Harvested, Yield, and Production - States and United States: 2019-2021; Soybeans for Beans Area Planted and Harvested, Yield, and Production - States and United States: 2019-2021. 1/12/2022.

Exhibit C, FIVE YEAR AVERAGE CROP PRICES, TAX YEAR 2022

CORN	Year	Production (1,000 bu)	Price	Value (1,000 dollars)
	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	$ 4.69	2,646,567
	2021	~~644,620~~	~~$ 5.45~~	~~3,513,179~~
Totals		2,659,210		10,555,518
Weighted Avg. Price			$ 3.97	
After Management Allowance of 5%			**$ 3.77**	

SOYBEANS	Year	Production (1,000 bu)	Price	Value (1,000 dollars)
	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	270,600	$ 11.30	3,057,780
	2021	~~275,720~~	~~$ 13.10~~	~~3,611,932~~
Totals		1,232,565		12,092,061
Weighted Avg. Price			$ 9.81	
After Management Allowance of 5%			**$ 9.32**	

(Winter) WHEAT	Year	Production (1,000 bu)	Price	Value (1,000 dollars)
	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	$ 5.27	183,343
	2021	~~43,775~~	~~$ 6.35~~	~~277,971~~
Totals		156,300		781,104
Weighted Avg. Price			$ 5.00	
After Management Allowance of 5%			**$ 4.75**	

Source: United States Department of Agriculture, National Agricultural Statistics Service, Crop Production 2021 Summary, January 2022. Corn Area Planted for All Purposes and Harvested for Grain, Yield, and Production - States and United States: 2019-2021; Winter Wheat Area Planted and Harvested, Yield, and Production - States and United States: 2019-2021; Soybeans for Beans Area Planted and Harvested, Yield, and Production - States and United States: 2019-2021. United States Department of Agriculture, National Agricultural Statistics Service, Crop Values 2021 Summary, February 2022. 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: 2019-2021. 2/24/2022.

Exhibit D, Production Costs, Tax Year 2022
Determination of Five Year Average Costs for the Projected Crop Budgets

ITEM VARIABLE COSTS		Units	2016	2017	2018	2019	2020	2021	2022	MAXIMUM	MINIMUM	5 Year Avg.
Seed	CORN	1000k	$3.44	$3.44	~~$3.50~~	$3.38	~~$3.25~~	$3.25	$3.44	$3.50	$3.25	$3.39
	SOYBEANS	1000s	~~$0.43~~	~~$0.37~~	$0.43	$0.43	$0.39	$0.39	$0.41	$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		$0.37	$0.34	$0.31	$0.37	~~$0.30~~	$0.38	~~$0.91~~	$0.91	$0.30	$0.35
	N Wheat		$0.52	~~$0.36~~	$0.41	$0.45	$0.43	$0.48	~~$1.07~~	$1.07	$0.36	$0.46
	P2O5, Corn/Soybeans		$0.46	$0.44	$0.47	$0.50	~~$0.38~~	$0.59	~~$0.91~~	$0.91	$0.38	$0.49
	P2O5 Wheat		$0.53	$0.43	$0.44	$0.52	~~$0.39~~	$0.43	~~$0.83~~	$0.83	$0.39	$0.47
	K2O, Corn/Soybeans		$0.28	~~$0.26~~	$0.28	$0.32	$0.28	$0.32	~~$0.69~~	$0.69	$0.26	$0.30
	K2O Wheat		$0.33	~~$0.24~~	$0.26	$0.30	$0.28	$0.26	~~$0.60~~	$0.60	$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	~~$60.42~~	~~$43.93~~	$46.22	$46.22	$46.22	$51.03	$60.42	$43.93	$49.15
	SOYBEANS		~~$33.84~~	$45.70	$39.30	$41.99	$41.99	$47.76	~~$78.07~~	$78.07	$33.84	$43.35
	WHEAT		~~$9.50~~	$13.25	$13.25	$14.65	$14.65	~~$14.65~~	$13.18	$14.65	$9.50	$13.80
Fuel, Oil, Grease	CORN	147.0	~~$10.07~~	$12.66	$13.64	$13.56	$13.75	$13.75	~~$26.13~~	$26.13	$10.07	$13.47
		183.7	~~$10.07~~	$12.66	$13.64	$13.56	$13.75	$13.75	~~$26.13~~	$26.13	$10.07	$13.47
		220.4	~~$10.07~~	$12.66	$13.64	$13.56	$13.75	$13.75	~~$26.13~~	$26.13	$10.07	$13.47

Exhibit D, Production Costs, Tax Year 2022
Determination of Five Year Average Costs for the Projected Crop Budgets

ITEM VARIABLE COSTS		Units	2016	2017	2018	2019	2020	2021	2022	MAXIMUM	MINIMUM	5 Year Avg.
	SOYBEANS	45.2	~~$5.71~~	$7.18	$12.57	$11.58	$11.58	$11.58	~~$22.00~~	$22.00	$5.71	$10.90
		56.5	~~$5.71~~	$7.18	$12.57	$11.58	$11.58	$11.58	~~$22.00~~	$22.00	$5.71	$10.90
		67.8	~~$5.71~~	$7.18	$12.57	$11.58	$11.58	$11.58	~~$22.00~~	$22.00	$5.71	$10.90
	WHEAT	59.2	$10.13	$9.90	$7.62	$12.05	$8.33	~~$7.50~~	~~$15.83~~	$15.83	$7.50	$9.61
		74.0	$10.13	$9.90	$7.62	$12.05	$8.33	~~$7.50~~	~~$15.83~~	$15.83	$7.50	$9.61
		88.8	$10.13	$9.90	$7.62	$12.05	$8.33	~~$7.50~~	~~$15.83~~	$15.83	$7.50	$9.61
Repairs	CORN	147.0	$26.78	$26.78	~~$19.91~~	$20.48	$25.54	$28.12	~~$28.12~~	$28.12	$19.91	$25.54
		183.7	$26.78	$26.78	~~$19.91~~	$20.48	$25.54	$28.12	~~$28.12~~	$28.12	$19.91	$25.54
		220.4	$26.78	$26.78	~~$19.91~~	$20.48	$25.54	$28.12	~~$28.12~~	$28.12	$19.91	$25.54
	SOYBEANS	45.2	$20.61	$20.61	~~$17.22~~	$17.57	$21.60	$23.98	~~$23.98~~	$23.98	$17.22	$20.87
		56.5	$20.61	$20.61	~~$17.22~~	$17.57	$21.60	$23.98	~~$23.98~~	$23.98	$17.22	$20.87
		67.8	$20.61	$20.61	~~$17.22~~	$17.57	$21.60	$23.98	~~$23.98~~	$23.98	$17.22	$20.87
	WHEAT	59.2	~~$20.32~~	$20.32	$16.33	$16.72	~~$13.81~~	$15.47	$15.47	$20.32	$13.81	$16.86
		74.0	~~$20.32~~	$20.32	$16.33	$16.72	~~$13.81~~	$15.47	$15.47	$20.32	$13.81	$16.86
		88.8	~~$20.32~~	$20.32	$16.33	$16.72	~~$13.81~~	$15.47	$15.47	$20.32	$13.81	$16.86
Crop Insurance	CORN	147.0	$15.00	$13.00	$13.00	~~$12.00~~	$14.70	$19.00	~~$27.00~~	$27.00	$12.00	$14.94

Exhibit D, Production Costs, Tax Year 2022
Determination of Five Year Average Costs for the Projected Crop Budgets

ITEM VARIABLE COSTS		Units	2016	2017	2018	2019	2020	2021	2022	MAXIMUM	MINIMUM	5 Year Avg.
		183.7	$16.00	~~$14.00~~	$14.00	$14.00	$16.70	$21.00	~~$30.00~~	$30.00	$14.00	$16.34
		220.4	$15.00	$16.00	~~$14.50~~	$15.00	$18.70	$26.00	~~$40.00~~	$40.00	$14.50	$18.14
	SOYBEANS	45.2	$9.00	$12.00	$9.50	~~$7.00~~	$8.60	$16.00	~~$20.00~~	$20.00	$7.00	$11.02
		56.5	$8.50	$12.00	$10.00	~~$7.50~~	$10.60	$17.00	~~$24.00~~	$24.00	$7.50	$11.62
		67.8	$8.50	$13.00	$10.50	~~$8.00~~	$12.60	$20.00	~~$29.00~~	$29.00	$8.00	$12.92
	WHEAT	59.2	$10.00	~~$13.00~~	~~$6.00~~	$6.00	$6.00	$9.00	$12.00	$13.00	$6.00	$8.60
		74.0	$10.00	$13.00	~~$6.50~~	$6.50	$6.50	$10.00	~~$15.00~~	$15.00	$6.50	$9.20
		88.8	$10.00	$13.00	~~$7.00~~	$7.00	$7.00	$11.00	~~$18.00~~	$18.00	$7.00	$9.60
Variable Miscellaneous	**CORN**	147.0	$5.00	$5.00	~~$4.80~~	$5.10	$5.10	$5.50	~~$5.69~~	$5.69	$4.80	$5.14
		183.7	$5.00	$5.00	~~$4.80~~	$5.10	$5.10	$5.50	~~$5.69~~	$5.69	$4.80	$5.14
		220.4	$5.00	$5.00	~~$4.80~~	$5.10	$5.10	$5.50	~~$5.69~~	$5.69	$4.80	$5.14
	SOYBEANS	45.2	$3.50	$3.50	~~$3.25~~	$3.40	$3.40	$3.75	~~$3.87~~	$3.87	$3.25	$3.51
		56.5	$3.50	$3.50	~~$3.25~~	$3.40	$3.40	$3.75	~~$3.87~~	$3.87	$3.25	$3.51
		67.8	$3.50	$3.50	~~$3.25~~	$3.40	$3.40	$3.75	~~$3.87~~	$3.87	$3.25	$3.51
	WHEAT	59.2	$3.20	~~$13.00~~	~~$3.00~~	$3.00	$3.00	$3.50	$4.46	$13.00	$3.00	$3.43
		74.0	$3.20	~~$13.00~~	~~$3.00~~	$3.00	$3.00	$3.50	$4.46	$13.00	$3.00	$3.43

Exhibit D, Production Costs, Tax Year 2022
Determination of Five Year Average Costs for the Projected Crop Budgets

ITEM VARIABLE COSTS		Units	2016	2017	2018	2019	2020	2021	2022	MAXIMUM	MINIMUM	5 Year Avg.
		88.8	$3.20	~~$13.00~~	~~$3.00~~	$3.00	$3.00	$3.50	$4.46	$13.00	$3.00	$3.43
Drying: Fuel & Electric	CORN		~~$0.11~~	$0.11	$0.06	~~$0.04~~	$0.04	$0.04	$0.05	$0.11	$0.04	$0.06
Hauling Farm to Market	CORN	183.7	~~$0.01~~	$0.02	$0.18	$0.17	$0.17	$0.16	~~$0.19~~	$0.19	$0.01	$0.14
	SOYBEANS	220.4	~~$0.01~~	$0.02	$0.18	$0.17	$0.17	$0.16	~~$0.19~~	$0.19	$0.01	$0.14
	WHEAT	45.2	~~$0.02~~	$0.02	$0.18	$0.17	$0.17	$0.16	~~$0.19~~	$0.19	$0.02	$0.14
Interest - variable costs			4.50%	5.00%	5.00%	~~5.50%~~	5.00%	~~4.00%~~	5.00%	5.50%	4.00%	4.90%
FIXED COSTS												
Labor Charge	CORN		~~$45.00~~	$45.00	~~$37.50~~	$37.50	$37.50	$38.25	$40.50	$45.00	$37.50	$39.75
	SOYBEANS		~~$30.00~~	$30.00	$22.50	$22.50	$22.50	~~$18.70~~	$19.80	$30.00	$18.70	$23.46
	WHEAT		~~$22.50~~	$22.50	$22.50	$22.50	$22.50	$22.95	~~$24.30~~	$24.30	$22.50	$22.59
Machinery & Equipment	CORN		~~$130.45~~	$130.45	~~$84.61~~	$86.07	$95.22	$99.87	$99.87	$130.45	$84.61	$102.30
	SOYBEANS		~~$107.89~~	$107.89	~~$56.43~~	$57.90	$65.50	$69.16	$62.16	$107.89	$56.43	$72.52
	WHEAT		~~$125.86~~	$125.86	$64.49	$65.28	~~$47.29~~	$50.57	$50.57	$125.86	$47.29	$71.35
Fixed Miscellaneous	CORN	147.0	~~$24.00~~	$22.00	$23.10	$22.80	~~$20.50~~	$20.50	$21.17	$24.00	$20.50	$21.91
		183.7	~~$24.00~~	$22.00	$23.10	$22.80	~~$20.50~~	$20.50	$21.17	$24.00	$20.50	$21.91
		220.4	~~$24.00~~	$22.00	$23.10	$22.80	~~$20.50~~	$20.50	$21.17	$24.00	$20.50	$21.91

Exhibit D, Production Costs, Tax Year 2022
Determination of Five Year Average Costs for the Projected Crop Budgets

ITEM VARIABLE COSTS		Units	2016	2017	2018	2019	2020	2021	2022	MAXIMUM	MINIMUM	5 Year Avg.
	SOYBEANS	45.2	~~$15.60~~	$14.50	$14.90	$14.70	~~$13.40~~	$13.70	$14.06	$15.60	$13.40	$14.37
		56.5	~~$15.60~~	$14.50	$14.90	$14.70	~~$13.40~~	$13.70	$14.06	$15.60	$13.40	$14.37
		67.8	~~$15.60~~	$14.50	$14.90	$14.70	~~$13.40~~	$13.70	$14.06	$15.60	$13.40	$14.37
	WHEAT	59.2	$12.60	~~$13.00~~	$12.75	$12.10	~~$10.70~~	$12.70	$12.99	$13.00	$10.70	$12.63
		74.0	$12.60	~~$13.00~~	$12.75	$12.10	~~$10.70~~	$12.70	$12.99	$13.00	$10.70	$12.63
		88.8	$12.60	~~$13.00~~	$12.75	$12.10	~~$10.70~~	$12.70	$12.99	$13.00	$10.70	$12.63

Source: The Ohio State University; College of Food, Agricultural, and Environmental Sciences; Crop production budgets. Updated with 2022 data as of 6/15/2022. *https://farmoffice.osu.edu/farm-management/enterprise-budgets#2022*

2022 CORN BUDGET (Final)

Conservation Tillage

VARIABLE COSTS	Inputs - 5 Yr. Olympic Average				5 YR. AVG. COST Exhibit D	Costs per Acre	
		UNITS	BASE 137 BUSHEL	@ ADD. BUSHEL		BASE 137 BUSHEL	@ ADD. BUSHEL
SEED		**Kernels (1000s)**	28	0.12	$3.39	$94.92	$0.41
FERTILIZER							
	N	LB.	137.05	1.18	$0.35	$47.97	$0.41
	P2O5	LB.	48.67	0.36	$0.49	$23.85	$0.18
	K2O	LB.	30.99	0.23	$0.30	$9.30	$0.07
	LIME	TON	0.25	0.00	$25.00	$6.25	$0.00
CHEMICALS					$49.15	$49.15	$0.00
FUEL, OIL, GREASE					$13.47	$13.47	$0.00
REPAIRS					$25.54	$25.54	$0.00
CROP INSURANCE					$16.34	$16.34	$0.00
VARIABLE MISCELLANEOUS					$5.14	$5.14	$0.00
DRYING: FUEL & ELECTRIC ONLY					$0.06	$8.22	$0.06
HAULING/TRUCKING					$0.14	$19.18	$0.14
	Rate	Months	(Rate/12)*Months				
INTEREST on OPER. CAP. *	4.90%	7	2.9%			$7.88	$0.03
TOTAL VARIABLE COSTS						***$327.20***	***$1.30***
FIXED COSTS							
LABOR CHARGE					$39.75	$39.75	$0.00
MACHINERY & EQUIPMENT CHARGE					$102.30	$102.30	$0.00
MISCELLANEOUS					$21.91	$21.91	$0.00
TOTAL FIXED COSTS						***$163.96***	***$0.00***
TOTAL COSTS						***$491.16***	***$1.30***

*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 2022 data as of 6/15/2022. https://farmoffice.osu.edu/farm-management/enterprise-budgets#2022

2022 SOYBEAN BUDGET (Final)

No-Tillage Practices

VARIABLE COSTS	Inputs - 5 Yr. Olympic Average				5 YR. AVG. COST Exhibit D	Costs per Acre	
		UNITS	BASE 42 BUSHEL	@ ADD. BUSHEL		BASE 42 BUSHEL	@ ADD. BUSHEL
SEED		**Seeds (1000s)**	167.0	0	$0.41	$68.47	$0.00
FERTILIZER							
	N	LB.	0.00	0.00	$0.00	$0.00	$0.00
	P2O5	LB.	33.41	0.80	$0.49	$16.44	$0.39
	K2O	LB.	52.00	1.22	$0.30	$15.39	$0.36
	LIME	TON	0.25	0.00	$25.00	$6.25	$0.00
CHEMICALS					$43.35	$43.35	$0.00
FUEL, OIL, GREASE					$10.90	$10.90	$0.00
REPAIRS					$20.87	$20.87	$0.00
CROP INSURANCE (Middle yield)					$11.62	$11.62	$0.00
VARIABLE MISCELLANEOUS					$3.51	$3.51	$0.00
HAULING/TRUCKING					$0.14	$5.88	$0.14
		Rate	Months	(Rate/12)*Months			
INTEREST on OPER. CAP. *		4.90%	6	2.5%		$4.54	$0.02
TOTAL VARIABLE COSTS						***$207.22***	***$0.91***
FIXED COSTS							
LABOR CHARGE					$23.46	$23.46	$0.00
MACHINERY & EQUIPMENT CHARGE					$72.52	$72.52	$0.00
MISCELLANEOUS					$14.37	$14.37	$0.00
TOTAL FIXED COSTS						***$110.35***	***$0.00***
TOTAL COSTS						***$317.57***	***$0.91***

*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 2022 data as of 6/15/2022. https://farmoffice.osu.edu/farm-management/enterprise-budgets#2022

2022 WHEAT BUDGET (Final)

Conservation Tillage

VARIABLE COSTS	Inputs - 5 Yr. Olympic Average				5 YR. AVG. COST Exhibit D	Costs per Acre	
		UNITS	BASE 59 BUSHEL	@ ADD. BUSHEL		BASE 59 BUSHEL	@ ADD. BUSHEL
SEED		**Seeds (1000s)**	1,400	0	$0.03	$42.00	$0.00
FERTILIZER							
	N	LB.	57.23	1.65	$0.46	$26.21	$0.76
	P2O5	LB.	32.19	0.54	$0.47	$15.13	$0.26
	K2O	LB.	25.31	0.29	$0.29	$7.24	$0.08
	LIME	TON	0.25	0	$25.00	$6.25	$0.00
CHEMICALS					$13.80	$13.80	$0.00
FUEL, OIL, GREASE					$9.61	$9.61	$0.00
REPAIRS					$16.86	$16.86	$0.00
CROP INSURANCE (MIDDLE YIELD)					$9.20	$9.20	$0.00
VARIABLE MISCELLANEOUS					$3.43	$3.43	$0.00
HAULING/TRUCKING					$0.14	$8.26	$0.14
	Rate		Months	(Rate/12)*Months			
INTEREST on OPER. CAP.*	4.90%		9	3.7%		$5.16	$0.04
TOTAL VARIABLE COSTS						***$163.15***	***$1.27***
FIXED COSTS							
LABOR CHARGE					$22.59	$22.59	$0.00
MACHINERY & EQUIPMENT CHARGE					$71.35	$71.35	$0.00
MISCELLANEOUS					$12.63	$12.63	$0.00
TOTAL FIXED COSTS						***$106.57***	***$0.00***
TOTAL COSTS						***$269.72***	***$1.27***

*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 2022 data as of 05/25/2022. https://farmoffice.osu.edu/farm-management/enterprise-budgets#2022.

Exhibit E: INTEREST RATES - CAPITALIZATION RATE

INTEREST RATE*	
Year	
2016	5.15
2017	5.65
2018	6.04
2019	6.00
2020	4.90
2021	~~4.27~~
2022	~~6.19~~
Average	**5.55**

USED IN CALCULATION 2016-2022	
TAX YEAR	**CAP RATE**
2016	6.3%
2017	8.0%
2018	8.0%
2019	8.0%
2020	7.9%
2021	7.8%
2022	7.8%

EQUITY RATE**	
Year	
2020	4.75
2019	2.53
2018	1.76
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
Average	**7.20**

* 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, 2022

2022 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	1.42	1.42	1.64
adjusted yield/acre	204	74	105
X Crop Price/Unit	$3.77	$9.32	$4.75
= GROSS INCOME / ACRE	$769.08	$689.68	$498.75
YIELD / ACRE	204	74	105
BASE YIELD	137	42	59
= YIELD ABOVE BASE	67	32	46
X ADDED UNIT COST	$1.30	$0.91	$1.27
ADDED UNIT COST / ACRE	$87.10	$29.12	$58.42
BASE YIELD COST	$491.16	$317.57	$269.72
= TOTAL NON-LAND PROD. COSTS	$578.26	$346.69	$328.14
NET RETURN / ACRE	$190.82	$342.99	$170.61
X CROPPING PATTERN	37.10%	57.40%	5.50%
= ROTATIONAL NET RETURN / ACRE	$70.79	$196.88	$9.38
TOTAL ROTATIONAL NET RETURN	$277.05		
BASE CAP RATE	7.80%		
VALUE AFTER FULL HB 49 PHASE-IN	$3,551.97	*Rounded*	**$3,550**

6/30/2022

2022 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	1.42	1.42	1.64
adjusted yield/acre	153	54	82
X Crop Price/Unit	$3.77	$9.32	$4.75
= GROSS INCOME / ACRE	$576.95	$503.28	$389.50
YIELD / ACRE	153	54	82
BASE YIELD	137	42	59
= YIELD ABOVE BASE	16	12	23
X ADDED UNIT COST	$1.30	$0.91	$1.27
ADDED UNIT COST / ACRE	$21.27	$11.15	$26.75
BASE YIELD COST	$491.16	$317.57	$269.72
= TOTAL NON-LAND PROD. COSTS	$512.43	$328.72	$296.47
NET RETURN / ACRE	$64.52	$174.56	$93.03
X CROPPING PATTERN	37.1%	57.4%	5.5%
= ROTATIONAL NET RETURN / ACRE	$23.94	$100.20	$5.12
TOTAL ROTATIONAL NET RETURN	$129.25		
BASE CAP RATE	7.80%		
VALUE AFTER FULL HB 49 PHASE-IN	$1,657.07	*Rounded*	**$1,660**

6/20/2022

2019 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	1.39	1.38	1.59
adjusted yield/acre	200	72	102
X Crop Price/Unit	$3.68	$9.78	$5.15
= GROSS INCOME / ACRE	$736.00	$704.16	$525.30
YIELD / ACRE	200	72	102
BASE YIELD	131	39	58
= YIELD ABOVE BASE	69	33	44
X ADDED UNIT COST	$1.43	$0.90	$1.41
ADDED UNIT COST / ACRE	$98.67	$29.70	$62.04
BASE YIELD COST	$519.04	$338.54	$319.08
= TOTAL NON-LAND PROD. COSTS	$617.71	$368.24	$381.12
NET RETURN / ACRE	$118.29	$335.92	$144.18
X CROPPING PATTERN	38.0%	56.0%	6%
= ROTATIONAL NET RETURN / ACRE	$44.95	$188.12	$8.65
TOTAL ROTATIONAL NET RETURN	$241.72		
BASE CAP RATE	8.00%		
UNADJUSTED VALUE	$3,021.45	*Rounded*	**$3,020**
2018 Value			**$3,810**
ADJUSTED CAUV VALUE (HB 49 PHASE-IN)			**$3,420**

5/23/2019

2019 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	1.39	1.38	1.59	
adjusted yield/acre	150	52	79	
X Crop Price/Unit	$3.68	$9.78	$5.15	
= GROSS INCOME / ACRE	$552.00	$508.56	$406.85	
YIELD / ACRE	150	52	79	
BASE YIELD	131	39	58	
= YIELD ABOVE BASE	19	13	21	
X ADDED UNIT COST	$1.43	$0.90	$1.41	
ADDED UNIT COST / ACRE	$27.17	$11.70	$29.61	
BASE YIELD COST	$519.04	$338.54	$319.08	
= TOTAL NON-LAND PROD. COSTS	$546.21	$350.24	$348.69	
NET RETURN / ACRE	$5.79	$158.32	$58.16	
X CROPPING PATTERN	38.0%	56.0%	6.0%	
= ROTATIONAL NET RETURN / ACRE	$2.20	$88.66	$3.49	
TOTAL ROTATIONAL NET RETURN	$94.35			
BASE CAP RATE	8.00%			
UNADJUSTED VALUE	$1,179.36	Rounded	**$1,180**	
2018 Value			**$1,700**	
ADJUSTED CAUV VALUE (HB 49 PHASE-IN)			**$1,440**	

5/23/2019

6/20/2022							
TY 2022 Proposed Values							
Productivity	**No. of**	**Net Return/Acre**			**Cropland Value/Acre**		
Index	**Units**	**Low**	**High**	**Average**	**Low**	**High**	**Average**
0-49	602	$0	$31	$0	$350	$350	$350
50-59	749	$0	$89	$17	$350	$1,140	$409
60-69	1,114	$0	$147	$70	$350	$1,880	$915
70-79	800	$63	$206	$130	$810	$2,640	$1,672
80-89	211	$127	$251	$190	$1,630	$3,210	$2,439
90-99	35	$211	$277	$234	$2,710	$3,550	$3,007
100+	6	$277	$277	$277	$3,550	$3,550	$3,550
ALL	3,517	$0	$277	$70	$350	$3,550	**$999**

6/9/2021							
TY 2021 Final Values							
Productivity	**No. of**	**Net Return/Acre**			**Cropland Value/Acre**		
Index	**Units**	**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**

6/20/2022							
TY 2022 Proposed Values							
Productivity	**No. of**	**Net Return/Acre**			**Cropland Value/Acre**		
Index	**Units**	**Low**	**High**	**Average**	**Low**	**High**	**Average**
0-49	602	$0	$31	$0	$350	$350	$350
50-59	749	$0	$89	$17	$350	$1,140	$409
60-69	1,114	$0	$147	$70	$350	$1,880	$915
70-79	800	$63	$206	$130	$810	$2,640	$1,672
80-89	211	$127	$251	$190	$1,630	$3,210	$2,439
90-99	35	$211	$277	$234	$2,710	$3,550	$3,007
100+	6	$277	$277	$277	$3,550	$3,550	$3,550
ALL	3,517	$0	$277	$70	$350	$3,550	**$999**

5/23/2019							
TY 2019 Final Values (Adjusted)							
Productivity	**No. of**	**Net Return/Acre**			**Cropland Value/Acre**		
Index	**Units**	**Low**	**High**	**Average**	**Low**	**High**	**Average**
0-49	601	$0	$0	$0	$350	$350	$350
50-59	749	$0	$54	$3	$350	$870	$378
60-69	1,114	$0	$112	$39	$350	$1,670	$731
70-79	798	$27	$171	$96	$560	$2,460	$1,469
80-89	211	$95	$215	$156	$1,480	$3,040	$2,270
90-99	35	$179	$241	$199	$2,600	$3,400	$2,863
100+	6	$242	$242	$242	$3,420	$3,420	$3,420
All Regions	3,514	$0	$242	$47	$350	$3,420	**$876**

Average CAUV Values by Year, 2005-2022																		
Productivity Index	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**Prop. 2022**
0-49	100	108	100	100	176	200	300	350	350	350	350	350	350	350	350	350	350	350
50-59	106	134	100	100	200	214	328	362	516	700	518	466	430	400	378	351	358	409
60-69	101	125	123	188	435	436	632	610	1218	1778	1371	1235	1061	896	731	488	598	915
70-79	124	241	283	431	746	845	1126	1147	1958	2728	2347	2255	1969	1723	1469	1073	1253	1672
80-89	293	465	521	708	1059	1278	1641	1717	2743	3718	3354	3302	2909	2586	2270	1783	1969	2439
90-99	492	675	747	973	1368	1601	2017	2128	3310	4428	4104	4074	3602	3226	2863	2303	2512	3007
100+	650	880	970	1200	1620	1900	2380	2490	3780	5030	4770	4750	4205	3810	3420	2820	2990	3550
Average	123	177	181	249	459	505	700	719	1205	1668	1388	1310	1153	1015	876	668	759	999
No. of Soils	3358	3482	3510	3511	3511	3514	3514	3514	3514	3514	3514	3514	3514	3514	3514	3514	3517	3517

Average CAUV Values by Reappraisal/UpdateYear																		
Productivity Index			**2007**			**2010**			**2013**			**2016**			**2019**			**Prop. 2022**
0-49			100			200			350			350			350			350
50-59			100			214			516			466			378			409
60-69			123			436			1,218			1,235			731			915
70-79			283			845			1958			2255			1469			1672
80-89			521			1278			2743			3302			2270			2439
90-99			747			1601			3310			4074			2863			3007
100+			970			1900			3780			4750			3420			3550
Average			181			505			1,205			1,310			876			999
No. of Soils			3510			3514			3514			3514			3514			3517

6/20/2022

Comparison of Inputs, Tax Years 2019-2022

Crop Prices

	2019	2020	2021	2022	Difference 2019-2022	Difference 2021-2022
Corn	$3.68	$3.63	$3.59	$ 3.77	**$ 0.09**	$0.18
Soybeans	$9.78	$9.12	$9.10	$ 9.32	**$ (0.46)**	$0.22
Wheat	$5.15	$4.84	$4.76	$ 4.75	**$ (0.40)**	($0.01)

Non-land Production Costs

Base Cost	2019	2020	2021	2022	2019-2022	2021-2022
Corn	$519.04	$503.44	$491.35	$491.16	**($27.88)**	($0.19)
Soybeans	$338.54	$331.48	$323.17	$317.57	**($20.97)**	($5.60)
Wheat	$319.08	$303.88	$284.91	$269.72	**($49.36)**	($15.19)

Additional Unit Cost	2019	2020	2021	2022	2019-2022	2021-2022
Corn	$1.43	$1.38	$1.34	$1.30	**($0.13)**	($0.04)
Soybeans	$0.90	$0.89	$0.89	$0.91	**$0.01**	$0.02
Wheat	$1.41	$1.33	$1.29	$1.27	**($0.14)**	($0.02)

Capitalization Rate

	2019	2020	2021	2022	2019-2022	2021-2022
Mortgage/Equity Ratio	80/20	80/20	80/20	80/20		
Years	25	25	25	25		
Interest Rate	5.69	5.69	5.46	5.55%		
Equity Rate	7.55	7.36	7.21	7.20%		
Tax Additur	1.6	1.6	1.6	1.6%		
Capitalization Rate	8.0	7.9	7.8	7.8%	**(0.02)**	0.00

6/20/2022