

*Governor's Agricultural Land
Valuation Advisory Committee*



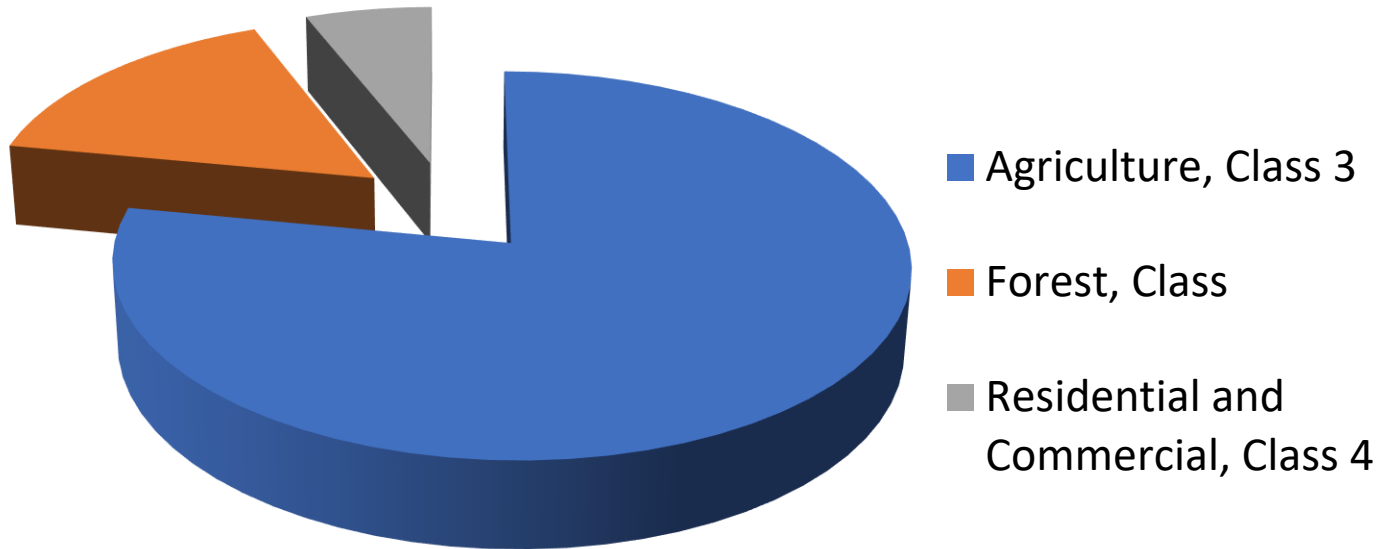
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Class 3 Statistics:

- Includes:
 - Agricultural land
 - Nonproductive Patented Mining Claims
 - Nonqualified Agricultural land
- Over 50 million acres
- Approximately 35,000 landowners

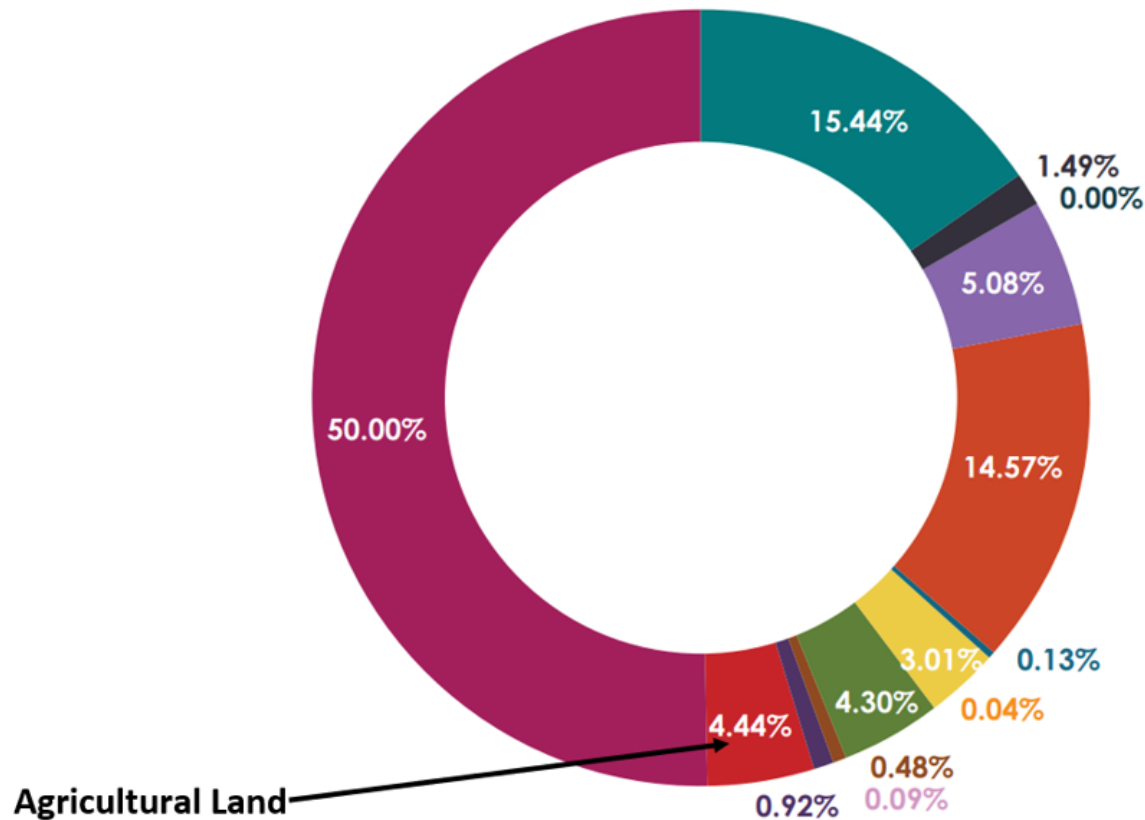
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Acreage Comparison of Lands Includes Tax Exempt and Non-Exempt Land



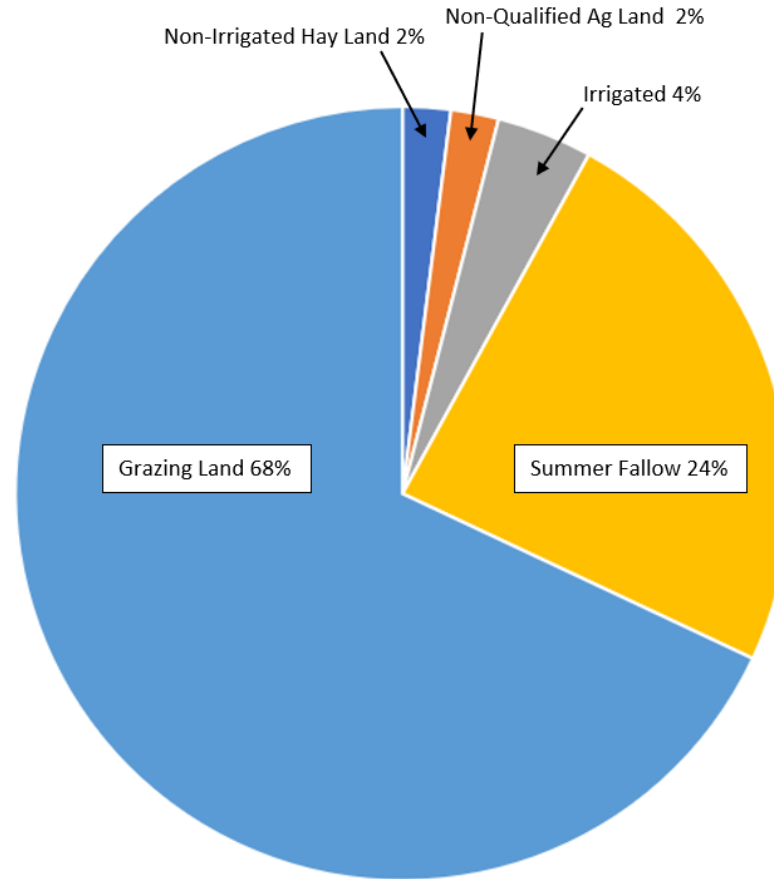
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Percent of Property Taxes Paid by Class Tax Year 2020



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Class 3
Acres by
Land Use



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Eligibility Basic Requirements:

- Contiguous ownerships 160 acres or greater
 - Automatic agricultural classification
- Contiguous ownerships less than 160 acres
 - Application required
 - Gross agricultural income of \$1500
 - Agricultural products
 - §15-1-101, MCA

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Eligibility by size:

- Contiguous parcels of land
 - 160 acres or more
 - automatic agricultural classification
 - 20 acres or more but less than 160 acres
 - classification
 - agricultural requires an application
 - non-qualified agricultural land
 - Less than 20 acres
 - market land unless ag application is approved
 - unallowed income sources: rental income or government payments

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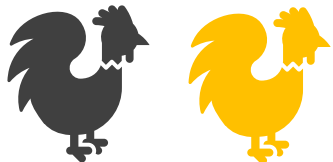
Grazing Land

- capable of sustaining a minimum number of animal unit months (AUMs)
 - Determined by Montana State University-Bozeman
 - 2021 cycle: 23 AUMs carrying capacity
 - based on the NRCS soil survey
- hobby horses or other hobby animals are not bona-fide agricultural use. §15-7-202 (4), MCA

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Specialty Crops

- Include:
 - fruit tree orchards, vineyards, cultivated Christmas trees, sod farms, nurseries, gardens, apiaries and poultry
- Classified as continuously cropped nonirrigated farmland
- Provisional classification period provided for start-up of 5 years



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- §15-7-201(1), MCA
- legislative intent
 - bona fide agricultural properties
 - classified and assessed at a value exclusive of urban influences or speculative purposes

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Valuation formula

- § 15-7-201, MCA

$$**V=I/R**$$

V= productive capacity value

I= net income

R= capitalization rate

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Valuation formula

- Basic formula for net income:

I = productivity x commodity price x crop share

Productivity

Commodity

Crop share or expense factor

- must reasonably approximate what the average Montana farmer and rancher could have attained,

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Valuation formula

I = productivity x commodity price x crop share

- Based on yield (§15-7-201, MCA)
- Measured in bushels, tons, or aums
- Natural Resource Conservation Service (NRCS) Soil Survey is the basis used by the department
- Adjustments when appropriate

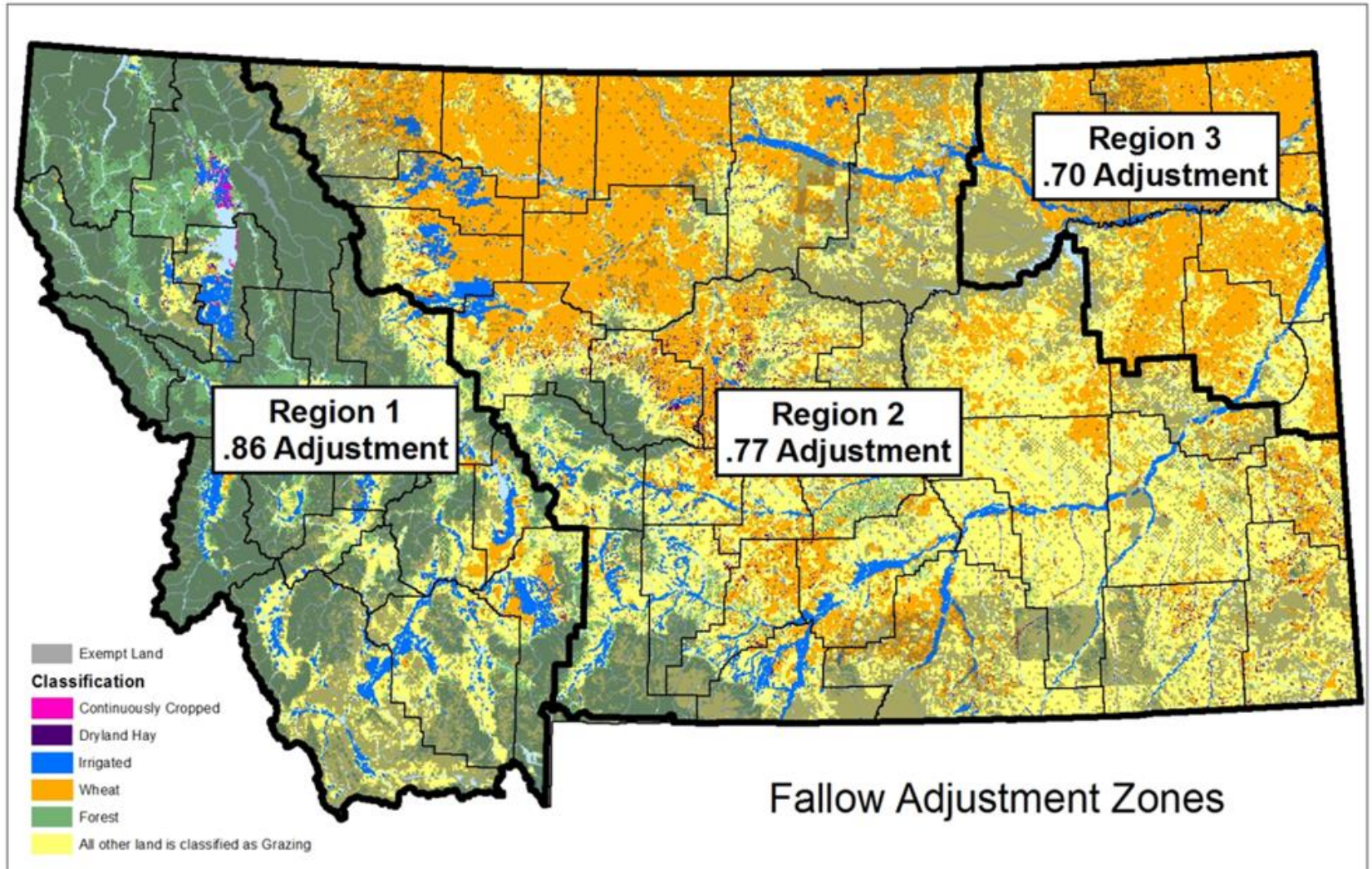
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Valuation formula

I = productivity x commodity price x crop share

- Adjustments when appropriate
 - Spring wheat adjustments
 - 3 regional adjustments (.86, .77, & .70)
 - Based on the weighted average of wheat productivity of all counties located within the region

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Valuation formula

$$I = \underline{\text{productivity}} \times \text{commodity price} \times \text{crop share}$$

Summer Fallow Average Productivity					
Region	DOR	DOR	DOR	DOR	DOR
	2009	2015	2017	2019	2021
1	27.99	28.68	28.71	28.65	28.71
2	22.75	22.49	22.56	22.71	22.80
3	24.20	24.12	24.44	24.35	24.37

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Valuation formula

$$I = \underline{\text{productivity}} \times \text{commodity price} \times \text{crop share}$$

- Adjustments when appropriate
 - Irrigated land adjustments
 - Originally based on landowner surveys
 - Generally, county-wide adjustment

Irrigated Land Productivity Adjustments-2021					
County Name	County #	Adjustment	County Name	County #	Adjustment
Flathead	7	0.6	Granite	46	
Lake	15	0.58	<i>Granite -north</i>		0.62
Sanders	35	0.58	<i>Granite-south</i>		0.48
Lincoln	56	1	Mineral	54	0.61
Cascade	2	0.61	Silver Bow	1	1
Fergus	8	0.65	Gallatin	6	0.76
Hill	12	0.72	Beaverhead	18	
Chouteau	19	0.63	<i>Majority of Beaverhead</i>		0.62
Toole	21	0.61	<i>West of Clark Reservoir</i>		0.35
Blaine	24	0.75	Madison	25	0.67
Pondera	26	0.61	Deer Lodge	30	0.65
Teton	31		Broadwater	43	0.56
<i>North</i>		0.51	Meagher	47	0.52
<i>South</i>		0.71	Park	49	0.68
Judith Basin	36	1	Jefferson	51	0.51
Glacier	38	0.58	Yellowstone	3	0.74
Liberty	48	0.63	Powder River	9	0.43
Phillips	11	0.49	Carbon	10	
Dawson	16	0.75	<i>Southeast</i>		0.65
Roosevelt	17	0.55	<i>Northern</i>		0.68
Valley	20	0.55	<i>West</i>		0.48
Richland	27	0.78	Custer	14	
Sheridan	34	0.7	<i>Y'stone & Tongue</i>		0.68
Daniels	37	0.51	<i>Powder River</i>		0.54
McCone	41	0.82	Big Horn	22	0.68
Prairie	45	0.8	Musselshell	23	0.68
Garfield	50	0.52	Rosebud	29	0.75
Wibaux	52	1	Stillwater	32	0.56
Petroleum	55	0.68	Sweet Grass	40	0.58
Missoula	4	0.62	Carter	42	1
Lewis And Clark	5	0.66	Wheatland	44	
Ravalli	13	0.78	<i>Northern</i>		0.48
Powell	28		<i>Central</i>		0.59
<i>North</i>		0.54	<i>Southern</i>		0.48
<i>East</i>		0.39	Golden Valley	53	
<i>Southwest</i>		0.63	<i>Northern</i>		0.56
Treasure	33	0.78	<i>Southern</i>		0.7
Fallon	39	1			

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Valuation formula

$$I = \text{productivity} \times \text{commodity price} \times \text{crop share}$$

STATEWIDE COMPARISON

Land Use	Unit	2015	2017	2019	2021	2019-2021
		Average	Average	Average	Average	Change
Summer fallow	Bu./Acre	23.07	23.21	23.36	23.41	0%
Grazing	AUMs/Acre	0.21	0.21	0.21	0.20	-5%
Irrigated	Tons/Acre	2.84	2.84	2.84	2.83	0%
Dryland Hay	Tons/Acre	0.71	0.71	0.71	0.71	0%
Continuously Cropped	Bu./Acre	32.64	48.71	30.7	30.71	0%

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Valuation formula

I = productivity x commodity price x crop share

- base commodities
 - alfalfa hay
 - for irrigated land (and nonirrigated hay land)
 - at 80% of the sales price
 - spring wheat
 - for nonirrigated farmland (and continuous crop farmland)
 - animal unit months
 - for grazing lands
 - average monthly requirement of pasture forage to support a 1,200 lb. cow with calf

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Valuation formula

$$I = \text{productivity} \times \underline{\text{commodity price}} \times \text{crop share}$$

Commodity Summary

Land Category	Base Crop	Base Unit
Non-irrigated farm land (Summer fallow)	Spring Wheat	bushels
Non-irrigated farm land (Continuous Crop)	Spring Wheat	bushels
Irrigated tillable land	Alfalfa	tons
Non-irrigated hay land	Alfalfa	tons
Grazing land	Private Grazing Fee	animal unit months

2023 Olympic Average	Indicates price not included in average			
	Commodity	Spring Wheat	Alfalfa price	Alfalfa @80%
2021	8.55	\$214.00	171.20	26.50
2020	5.30	\$132.00	105.60	23.50
2019	4.81	\$143.00	114.40	24.50
2018	5.37	\$148.00	118.40	24.50
2017	6.21	\$142.00	113.60	24.50
2016	4.76	\$134.00	107.20	24.00
2015	4.80	\$125.00	100.00	23.00
2014	6.08	\$127.00	101.60	23.00
2013	6.70	\$141.00	112.80	21.00
2012	8.39	\$146.00	116.80	20.50
2011	8.36	\$98.00	78.40	19.40
2010	6.87	\$79.00	63.20	18.40
2023 Estimated Average	5.96		111.30	23.50
2023 Average	\$5.96		\$111.30	\$23.50
% change from 2021	-3.25%		5.20%	4.49%
2021 Average	\$6.16		\$105.80	\$22.49
% change from 2019	-5.23%		7.74%	7.45%
2019 Average	\$6.50		\$98.20	\$20.93
% change from 2017	-2.55%		13.92%	7.17%
2017 Average	\$6.67		\$86.20	\$19.53
% change from 2015	4.9%		12.7%	8.0%
2015 Average	\$6.36		\$76.50	\$18.08
% change from 2009	5.1%		12.9%	8.0%

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Valuation formula

I = productivity x commodity price x crop share

- Assumes
 - landowner receives 25% of the crop
 - renter keeps the remaining 75% of the crop produced
 - Summer fallow crop share is 12.5%

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Valuation formula

I = productivity x commodity price x crop share

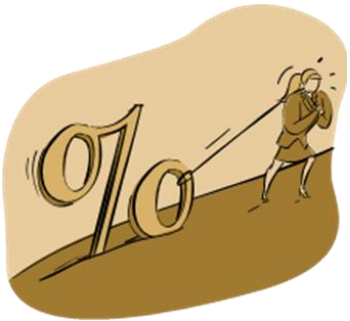
Grazing Expenses

- Used to estimate the net income
- Assumes:
 - landowner contributes 25% of rent received for expenses
 - fence upkeep and water development

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Capitalization Rate

- Set at 6.4%
- unless a different rate recommended by committee and adopted by the department
- *§ 15-7-201(4)(c), MCA*



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Capitalization Rate History

Prior to 1993 – calculation avg. interest rate + effective tax rate

1993 – set at 6.4% to allow ag tax rate to match residential tax rate

1996 – Defined the cap rate. Reaffirmed the 6.4% cap rate

2002 – Re-defined cap rate. Recommended basis as rent to value ratios, approx. 6.4% at the time

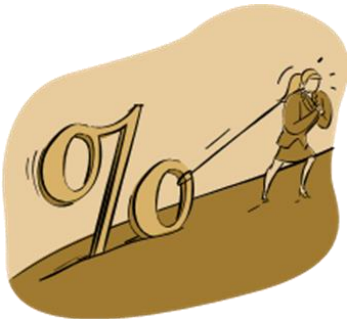
2006 – Rent-to-value ratios approx. 3.32%. Reaffirmed 6.4% cap rate

2014 to 2020 – Reviewed average interest rates. Reaffirmed 6.4% cap rate

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Capitalization Rate

Effective Interest Rate	ETR	Avg type	Past Calculated Agricultural Cap Rate		Effective Interest Rate	ETR	Avg type	Potential Agricultural Cap Rate
4.126%	1.201%	5 year (2014-2018)	5.327%		4.210%	1.197%	5 year (2016-2020)	5.407%
4.836%	1.262%	10 year (2009-2018)	6.098%		4.502%	1.237%	10 year (2011-2020)	5.739%



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Valuation

Valuation Example of Summer Fallow Farm Land		
	2021	est. 2023
Avg price for spring wheat/bu.	\$6.16	\$5.96
Productivity (bushels of spring wheat)	23	23
Gross Income/acre		
(Productivity x Commodity Price)	\$141.68	\$137.08
Crop Share	12.5%	12.5%
Net Income		
(Gross Income x Crop Share)	\$17.71	\$17.14
Capitalization Rate	6.4%	6.4%
Value/acre		
(Net Income/Capitalization Rate)	\$276.72	\$267.73

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Valuation

Valuation Example of Non-Irrigated Hay Land		
	2021	est. 2023
Avg price for alfalfa hay/ton	\$105.80	\$111.30
Productivity (tons of vegetation)	0.71	0.71
Gross Income/acre		
(Productivity x Commodity Price)	\$75.12	\$79.02
Crop Share	25%	25%
Net Income		
(Gross Income x Crop Share)	\$18.78	\$19.76
Capitalization Rate	6.4%	6.4%
Value/acre		
(Net Income/Capitalization Rate)	\$293.43	\$308.68

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Valuation

Valuation Example of Grazing Land		
	2021	est. 2023
Avg private grazing fee	\$22.49	\$23.50
Productivity (aum/acre)	0.21	0.21
Gross Income/acre		
(Productivity x Commodity Price)	\$4.72	\$4.94
Gross Income - Expenses	75%	75%
Net Income		
(Gross Income x expense factor)	\$3.54	\$3.70
Capitalization Rate	6.4%	6.4%
Value/acre		
(Net Income/Capitalization Rate)	\$55.35	\$57.83

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Valuation

Irrigated land exception

- § 15-7-201, MCA: irrigated minimum value
- Minimum value calculation (with commodities for 2023)

$$I = 23 \text{ bu/acre} \times \$5.96/\text{bu} \times .25$$

$$I = \$34.27 \text{ per acre}$$

$$V = \$34.27 \text{ per acre} / .064$$

$$V = \$535.47 \text{ per acre}$$

Compared with \$552.99 per acre for 2021

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Valuation

Valuation Example of Irrigated Hay Land		
	2021	est. 2023
Avg price for alfalfa hay/ton	\$105.80	\$111.30
Productivity (tons of alfalfa hay)	3	3
Gross Income/acre		
(Productivity x Commodity Price)	\$317.40	\$333.90
Crop Share	25%	25%
Water Cost	\$50	\$50
Net Income		
(Gross Income x Crop Share)- Water Cost	\$29.35	\$33.48
Capitalization Rate	6.4%	6.4%
Value/acre		
(Net Income/Capitalization Rate)	\$458.59	\$523.05
Minimum Value	\$552.99	\$535.47

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Valuation

Valuation Example of Continuous Crop Land		
	2021	est. 2023
Avg price for spring wheat/bu.	\$6.16	\$5.96
Productivity (bushels of spring wheat)	23	23
Gross Income/acre		
(Productivity x Commodity Price)	\$141.68	\$137.08
Crop Share	25%	25%
Net Income		
(Gross Income x Crop Share)	\$35.42	\$34.27
Capitalization Rate	6.4%	6.4%
Value/acre		
(Net Income/Capitalization Rate)	\$553.44	\$535.47

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Valuation

Specialty Crops

Valued at highest productivity of continuously cropped farmland

- 60 bushels per acre
- for 2023 estimated at \$1,396.88/acre



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Valuation

Valuation Example of Specialty Crop (CC) Land		
	2021	est. 2023
Avg price for spring wheat/bu.	\$6.16	\$5.96
Productivity (bushels of spring wheat)	60	60
Gross Income/acre		
(Productivity x Commodity Price)	\$369.60	\$357.60
Crop Share	25%	25%
Net Income		
(Gross Income x Crop Share)	\$92.40	\$89.40
Capitalization Rate	6.4%	6.4%
Value/acre		
(Net Income/Capitalization Rate)	\$1,443.75	\$1,396.88