How it Works: Virginia's Use-value Assessment Program

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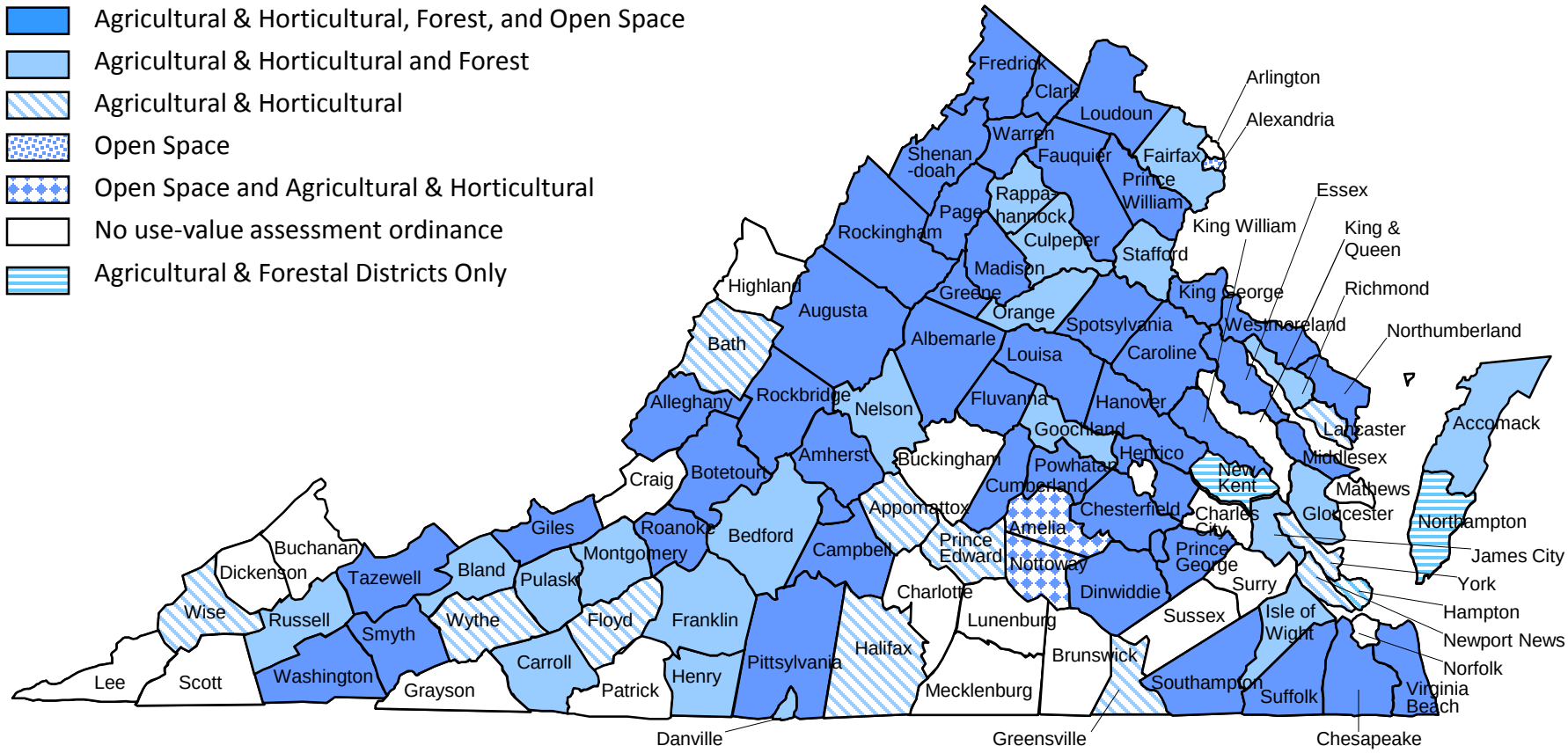
Outline

- Brief History
- Why Use-value Assessment?
- Approaches to estimating land values
  - Income approach
  - Rental rate approach
- Discussion

TY2016: Counties/Cities* with use-value assessment ordinances



* Counties/Cities are identified from annual use-value reports and may differ from actual implementation. Contact government officials in each county/city for the current use-value implementation. Not all participating cities are identified on this map.

Use-Value Assessment in Virginia

- Virginia use-value taxation legislation was passed in 1972, effective for the tax year 1974.
- *Code of Virginia,* Title 58.1 §58.1-3229 through §58.1-3244), enacted in 1971, authorized use-value taxation with the stated purposes of:
  - Encouraging the **preservation** and **proper use** of such **real estate** …source of… **agricultural**, **horticultural**, and **forest** products and **open spaces** within the reach of concentrations of population;
  - **Conserving** natural resources**,…** prevent **erosion**,…**safe water** supplies;

(continued…)

Use-Value Assessment in Virginia

(continued…)

- ***Preserving*** *scenic natural beauty and open spaces*;
- *Promoting proper* ***land-use planning*** *and the orderly development*
- ***Promoting a balanced economy and ameliorating pressures*** that force conversion of such real estate ….preservation for **agricultural**, **horticultural**, **forestal**, or **open space** purposes.

- State Land Evaluation and Advisory Council (**SLEAC**) was created in 1973 with the mandate to estimate the use value of eligible land for each jurisdiction participating in the use-value taxation program.

Virginia's Use-Value Assessment Program

- Virginia law allows for the preferential taxation of **agricultural**, **horticultural**, **forest**, and **open space** land
- **Eligible land** in any of these categories can be assessed at the land's **value in use** (use-value) as opposed to the land's **market value**

Eligible Land?

- Agricultural and horticultural defined by VA Department of Agriculture and Consumer Services (VDACS)
- Forest defined by Department of Forestry (DOF)
- Open space defined by Department Conservation and Recreation (DCR)
- *See State Land Evaluation and Advisory Council (SLEAC) manual for details*

Value in Use?

4.6.5 Agricultural Property - The Standard on Mass Appraisal of Real Property International Association of Assessing Officers (IAAO 2012)

…. to use the income approach for agricultural land… Land rents ….

And the Code of VA allows for income and rental rate approaches

Value in use, How?

Identify components of farmland value?

Market Value of 1.0 acre of farmland	**$7,000**
minus	
Proximity to amenities	$2,000
minus	
Accessibility/distance to the city center	$1,000
minus	
Cost of conversion or development to non Ag use	$2,000
minus	
Growth premium – population increase	$1,000
leaves	
Capitalized annual stream of net income (rents) from farming	**$1,000**

Capozza, Dennis R. and Robert W. Helsley. 1989. "The Fundamentals of Land Prices and Urban Growth." *Journal of Urban Economics*. 26 (3): 295–306.

Procedures for Estimating Agricultural and Horticultural Values in Use

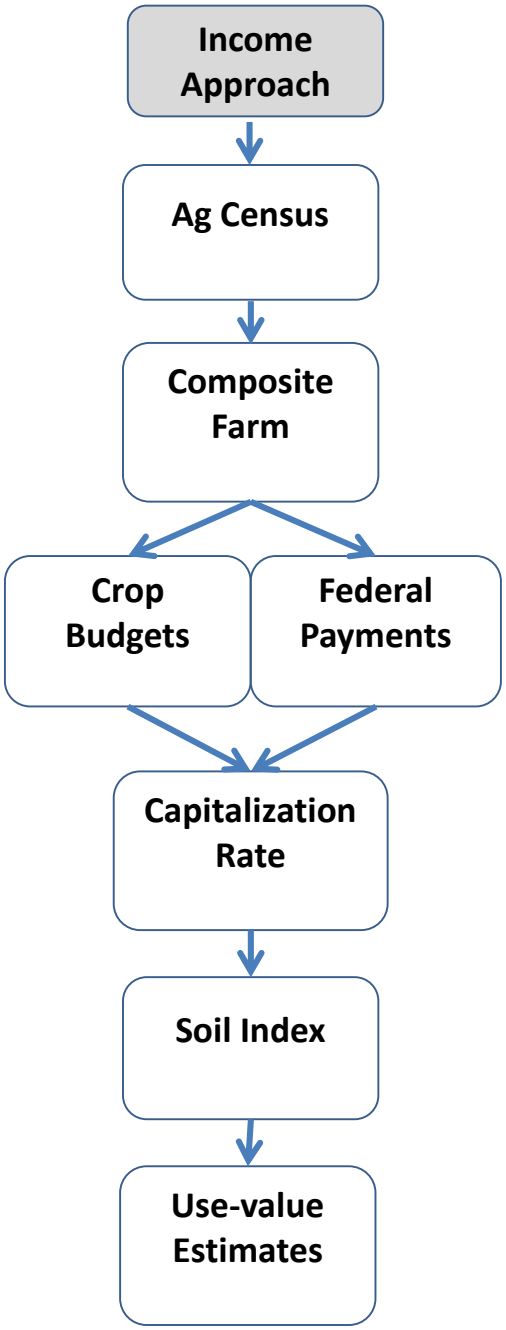
Two Approaches

1. **Net income** Capitalized (Income Approach)

   Original model developed by Marshal (VT), Fraher, (TAX), Seward (VDACS), Poole (VT Grad Student) ~ 1974-1975.

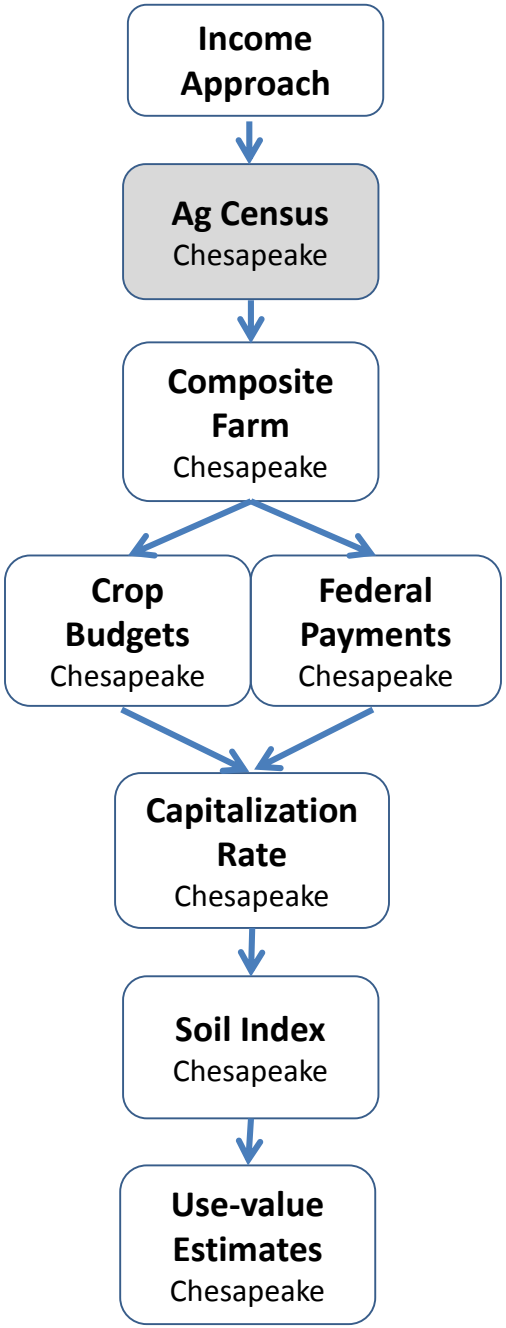
2. **Rental rates** Capitalized (Rental Rate Approach)

   Implemented in 2010 by Groover and Bruce



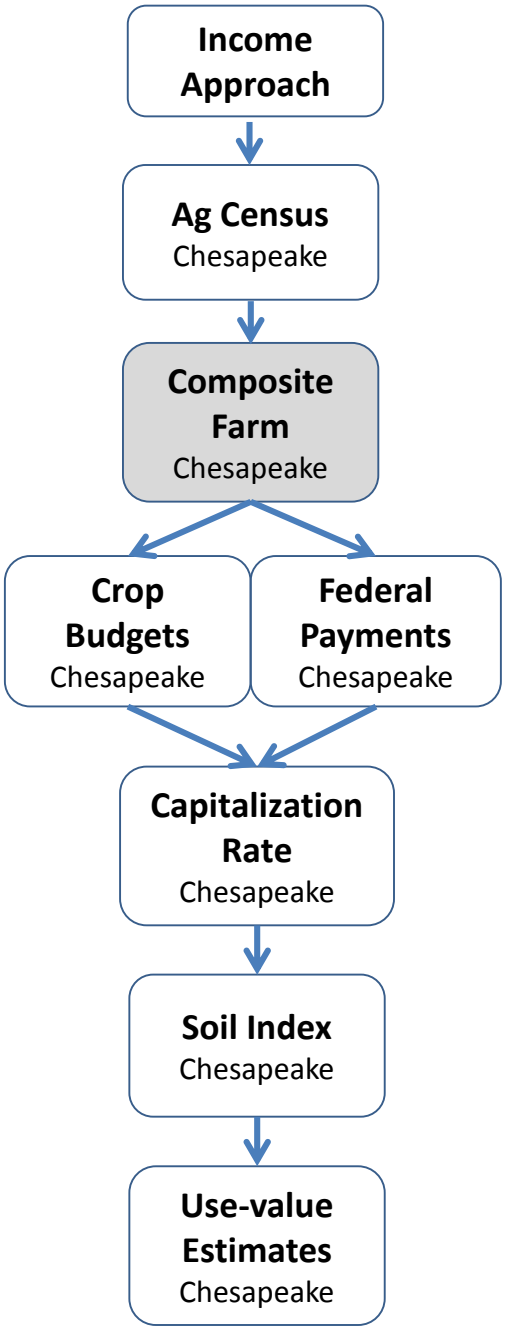
Income approach for each County

- Task: How to create an annual stream of net income that will be capitalized?
- How?
- **Build** on secondary/published data
- Use **Net Returns = Income - Costs**
- **How?** Define a representative farm (composite farm) – based on current Ag Census for each county
- **Create** an enterprise budget for each crop to yield **Net Returns (NR)**
- **Identify** crop-based federal payments
- **Define** Capitalization Rate
- **Apply** soil index
- Final Estimates



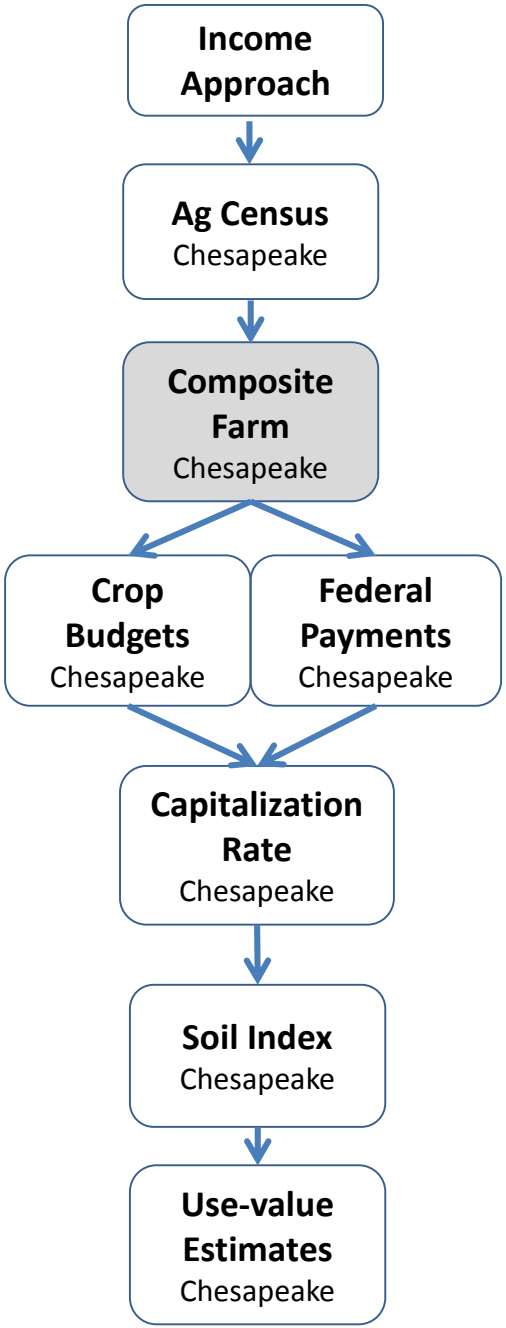
Baseline Data - Ag Census

- Conducted and published by National Agricultural Statistics Service (USDA/NASS)
  - Published every 5 years
  - Current Ag Census 2012 (released in 2014)
- Use the following for each county
  - Number of **farms reported**
  - Individual crops grown e.g., corn, wheat, pasture…
  - **Acres** reported for each crop grown



Composite Farm

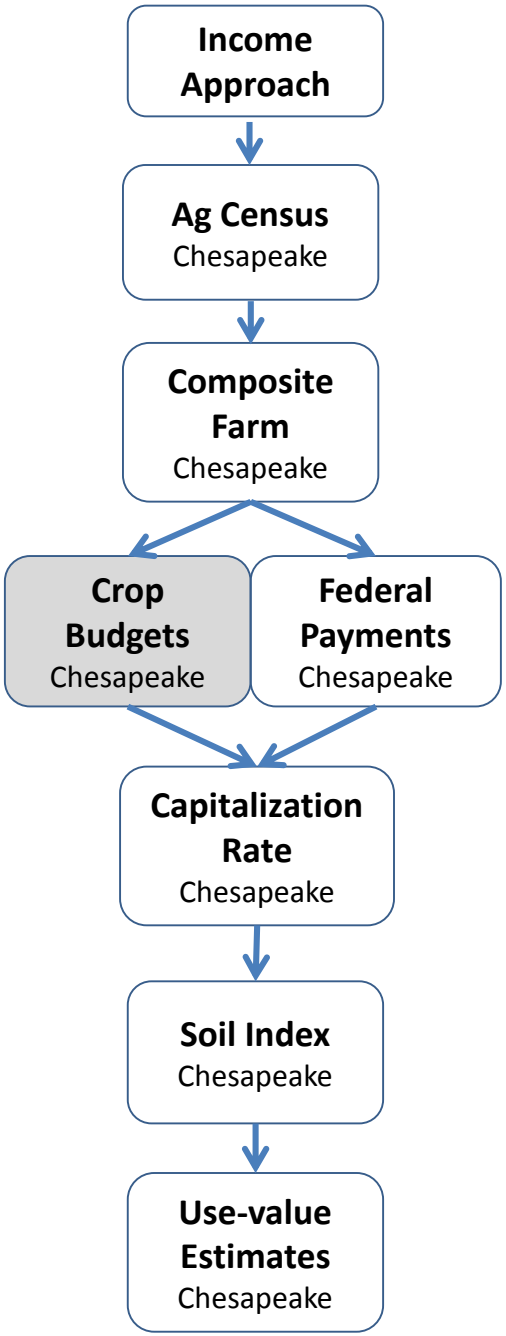
- **Define** - **Composite Farm** (CF) A.K.A. Average Farm
  - For each reported crop: Divide acres by number of farms (Acres ÷ Farms)
  - If the values is **>0.50** ac, included in the CF
  - If **≤ 0.50** ac, excluded from CF
  - Statewide there are **16 crops** that are included in at least one county
- **Chesapeake - 2012**
  - **253** reported farms => more land owners
  - **Five** CF crops, e.g., corn+sliage, soybeans, wheat, hay+haylage, and pasture



Composite Farm - Chesapeake

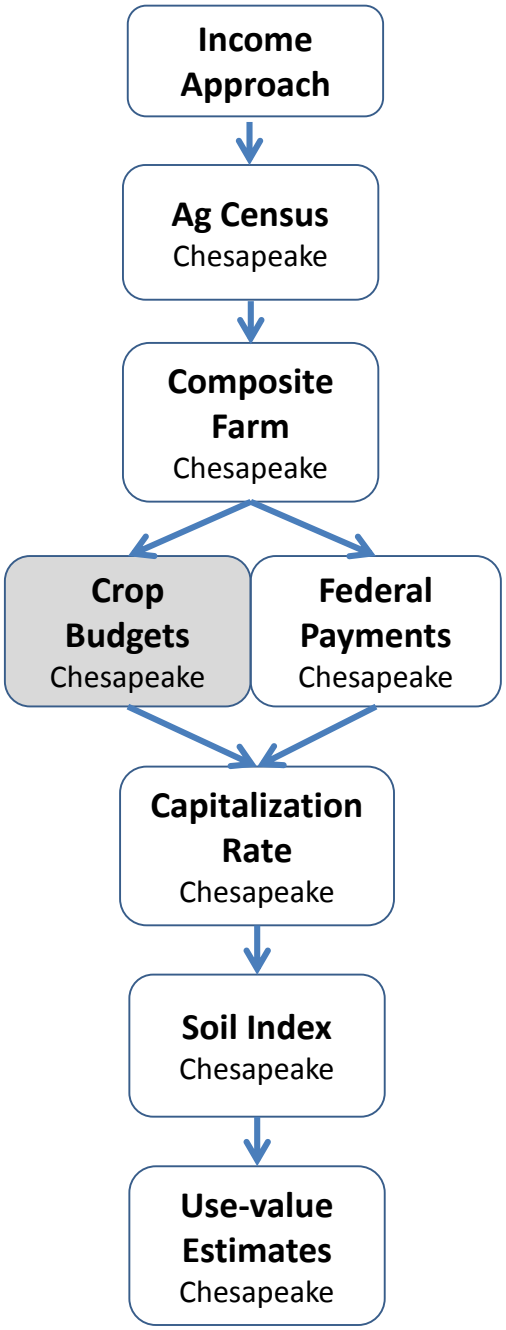
2012 Ag Census Chesapeake		Based on 253 farms
Crop	**Reported Acres**	**Composite Farm Acres**
Alfalfa	0	
Corn	8,317	**33**
Barley	0	
Potatoes	1	**0**
Pumpkins	10	**0**
Snap Beans	8	**0**
Soybeans	25,307	**100**
Sweet Corn	25	**0**
Tobacco	0	
Tomatoes	7	**0**
Watermelons	(D)	
Wheat	7,350	**29**
Double-cropped	**(-) 7,350**	**(-) 29**
Total Cropland Harvested	36,794	**146**

Example for Corn = 8,317 ac / 253 farms = 33 acres of corn in the Composite Farm (CF)



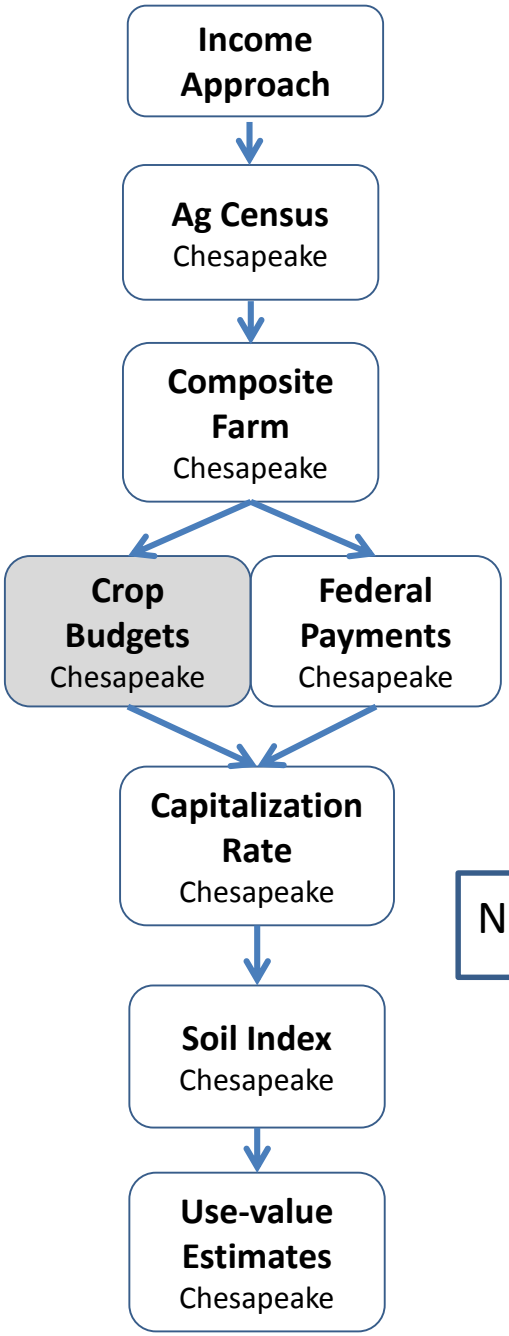
Crop Budgets

- Created for all CF crops
- Based on VCE enterprise budget format
- Yields and Prices -> NASS
- Seeding and lime rates –> VCE recommendation
- N,P, & K inputs are based on yield-driven nutrient removal rates (International Plant Nutrition Institute)
- AgFrist -> short-term interest



Crop Budgets

- Pesticides -> Pest Management Guidelines (PMG)
- Application costs –> custom rates
- Machinery usage and costs -> A. Society of Ag and Biological Engineers' equations
- Fuel prices -> U.S. Dept of Energy
- Crop insurance -> USDA-RMA
- Labor hours function of machinery hours
- Labor rate -> NASS
- **Note**: Budgeted Net Returns **lag 2 years**, e.g., Tax Year 2016 reflects 2014 data



Example Budget

Chesapeake Corn Grain no-till TY2016

Corn: Yield = 168.80 bu * Price = $3.90/bu = $658.32
Net Crop Insurance = $11.72

Total Income = $670

Net Returns = Income - Costs

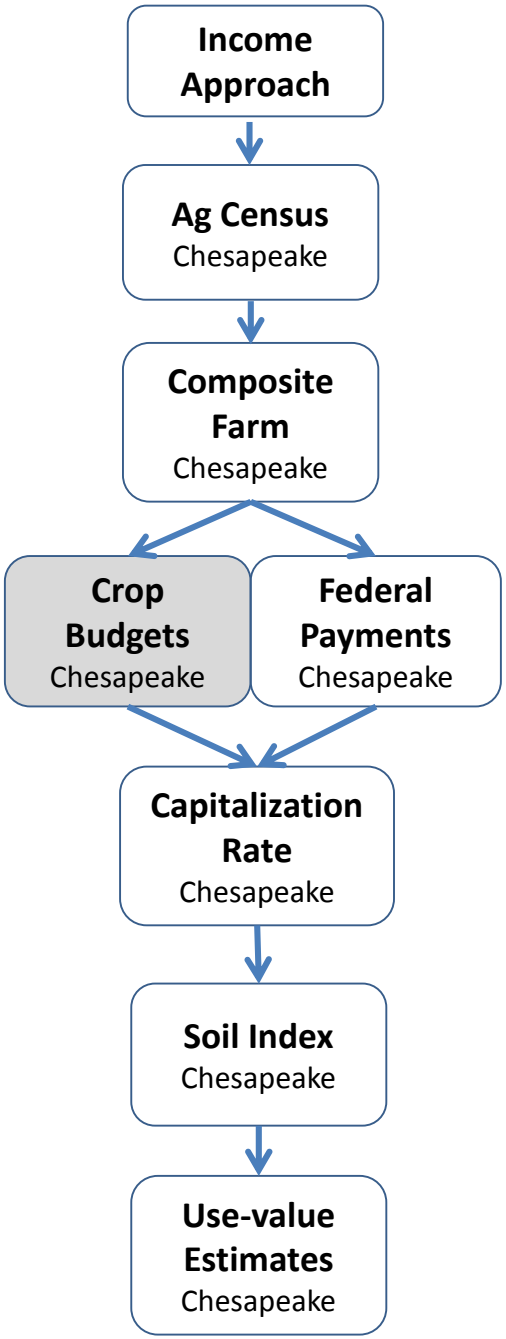
NR = $670 - $604 = **$66/ac**

Pre-Harvest Costs: N 165 lbs Price = $0.59/lbs = $97/ac

Harvest Costs: Labor, fuel & oil, drying, hauling = $105/ac

Fixed Costs: Machinery and Overhead = $122/ac

Total Costs = $604/ac



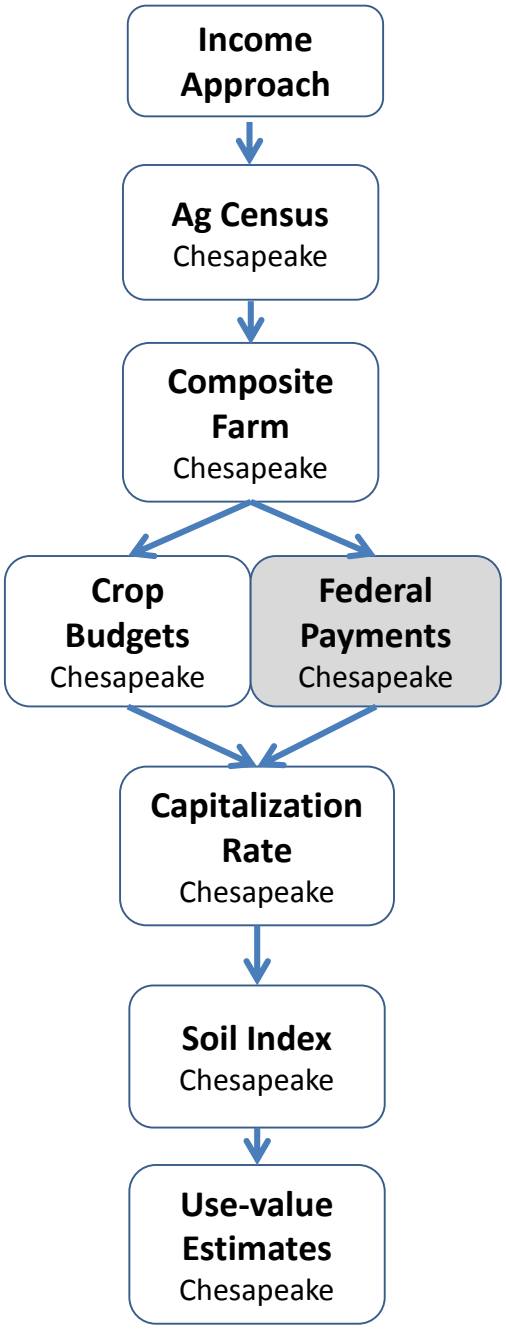
Olympic Averaging

- The Net Return for each CF crop requires 7 - years of crop budgets
- 7-year Olympic Averaging drops the highest and lowest values and then straight averages the remaining 5 values
- Chesapeake Corn Grain example 2010-2016

Chesapeake: Corn	Crop Budget
TY2010	$96.47
TY2011	($1.53)
TY2012	$293.06
TY2013	$298.48
TY2014	$515.52
TY2015	$98.66
TY2016	$65.64
Olympic AVG	**$170.46**

Lowest

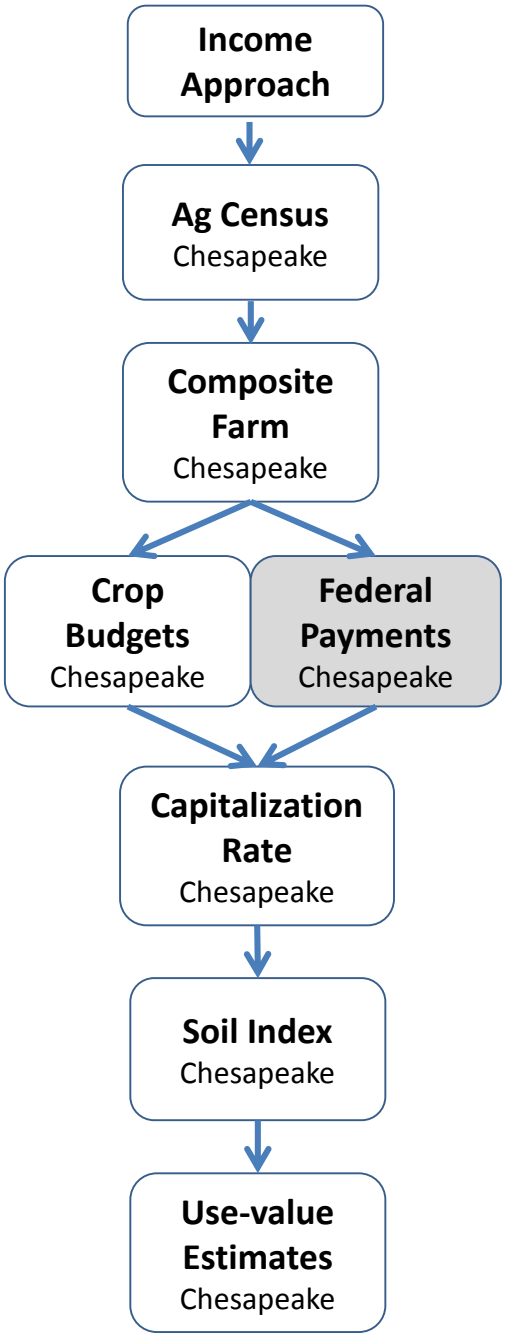
Highest



Federal Payments

- **USDA-FSA** provides data for program crops by county
- Chesapeake receives payments for **corn, wheat, and soybeans**
- Annual payments = Payment/crop acreage
- For example in TY2015, Chesapeake received **$282,536 in federal payments for corn.** TY2016 = $0

  $282,536/8,317 ac = **$33.97/ac**

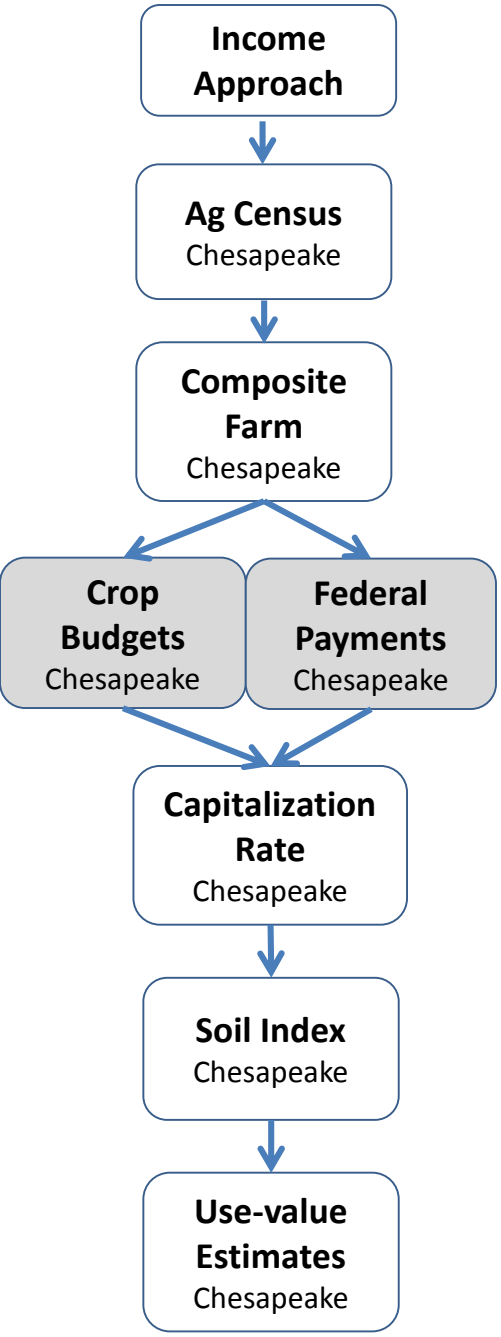


Olympic Averaging

- Chesapeake Corn Grain example 2010-2016

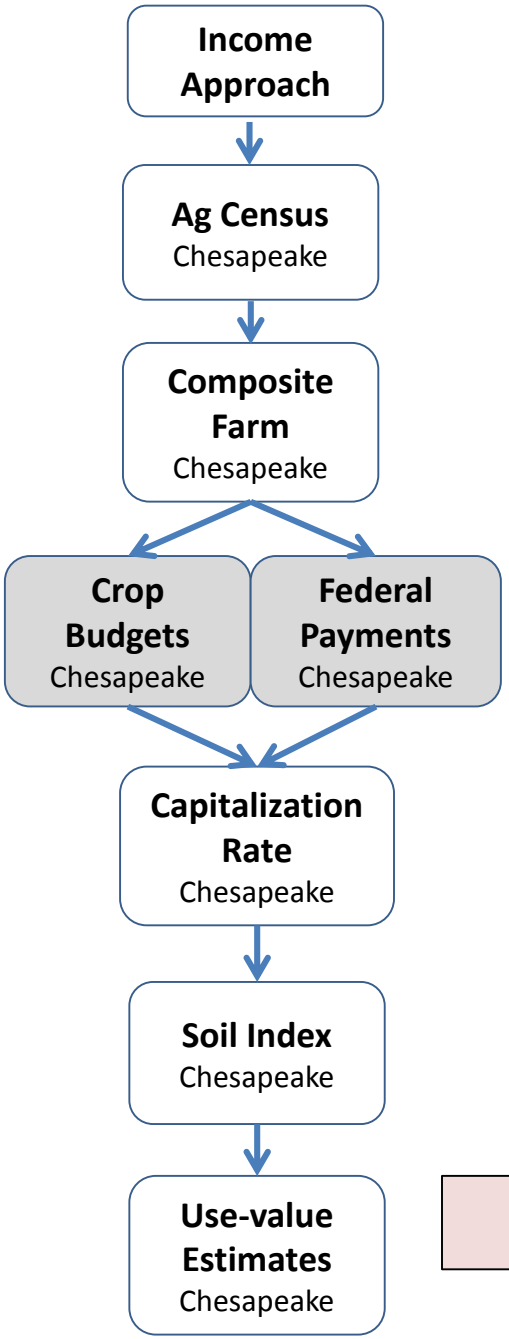
Chesapeake: Corn	Federal Payment		Corn Budget	
TY2010	$26.77		$96.47	Lowest
TY2011	$11.31		($1.53)	
TY2012	$21.55		$293.06	
TY2013	$27.16		$298.48	
TY2014	$28.39		$515.52	Highest
TY2015	$33.97	Highest	$98.66	
TY2016	$0.00	Lowest	$65.64	
Olympic AVG	**$23.04**		**$170.46**	

- Corn Net Return for TY2016
  - Oly AVG Fed Pay + Oly AVG Budget
  - $23.04 + $170.46 = **$193.50**



Chesapeake Crop Budgets and Federal Payments Tax Years 2010-2016

	2010	2011	2012	2013	2014	2015	2016	OLY AVG
Corn	$96.47	$0.00 L	$293.06	$298.48	$515.52 H	$98.66	$65.64	$170.46
Fed Pay	$26.77	$11.31	$21.55	$27.16	$28.39	$33.97 H	$0.00 L	$23.04
							Total	**$193.50**
Hay	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00 H	$0.00 L	**$0.00**
Wheat	$125.15	$0.00	$31.34	$152.54 H	$135.89	$19.23	$0.00 L	$62.32
Fed Pay	$23.01	$11.31	$18.03	$22.37	$23.43 H	$22.28	$0.00 L	$19.40
							Total	**$81.72**
Soybeans	$23.86 L	$63.42	$291.59 H	$211.30	$237.92	$194.93	$122.33	$165.98
Fed Pay	$5.29	$11.31 H	$4.43	$5.52	$5.53	$5.24	$0.00 L	$5.20
							Total	**$171.18**
Pasture	$43.93	$3.48	$0.00	$30.57	$54.05 H	$0.00	$0.00 L	**$15.60**



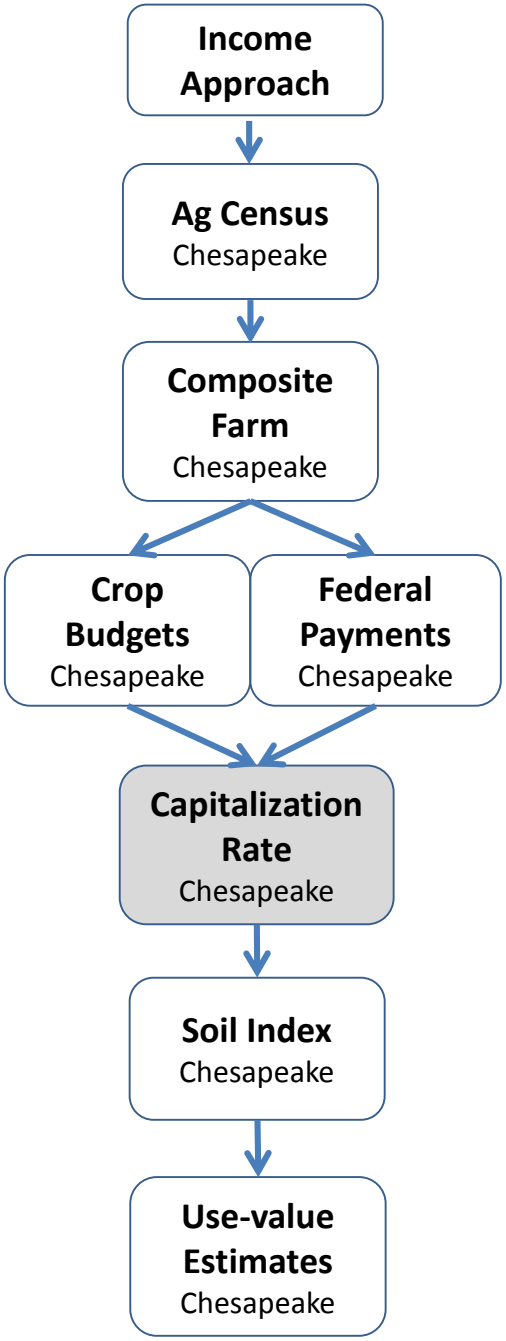
Final Net Returns
Chesapeake County TY2016

- Composite Farm weighted NR by crop acreage

Crop	Estimated Net Return
Corn	$193.50
Hay	$0.00
Wheat	$81.72
Soybeans	$171.18
Pasture	$15.60
Final Net Return (per acre)	

CF acres	weight (e.g. corn 33/146 =0.23)	Final$
33	0.23	$43.74
6	0.04	$0.00
29	0.20	$16.32
100	0.69	$117.74
7	0.05	$0.72
146		**$178.52**

Reflects double-cropped wheat (29 ac)



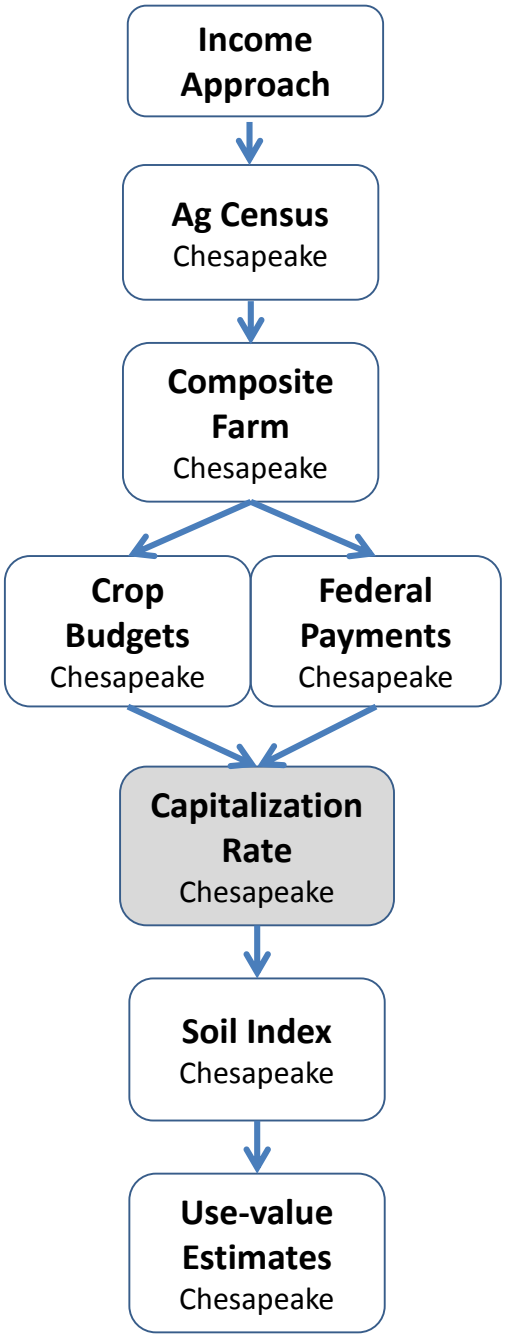
Capitalization Rate

Why use Capitalization Rate?

- *Cap Rate = Net Return ÷ Value Farmland*
- *Farmland Value = NR ÷ Cap Rate*
- *$100 per year ÷ 10% = $1,000*
- **Cap Rate = Interest Rate + Property Tax**

Federal Land Bank long term interest rate - AgFirst (10 year average)

Effective Tax Rates for all counties - VA Department of Taxation (10 year average)



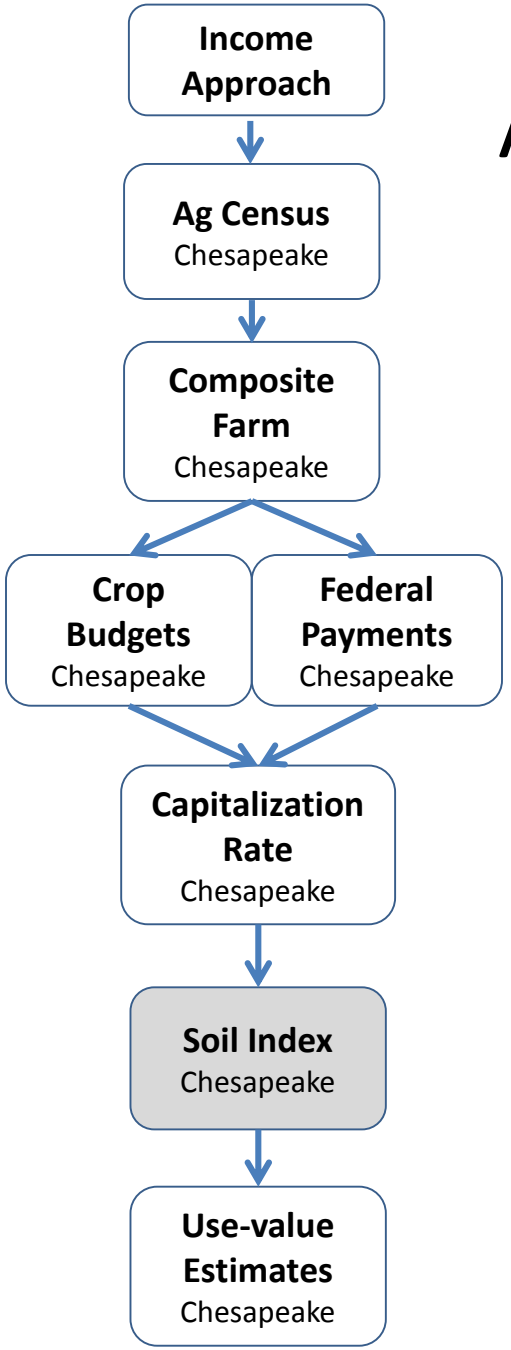
Chesapeake TY2016

Cap Rate Components

Interest Rate – statewide (10yr Avg)	0.0626
Property Tax – Chesapeake (10yr Avg)	0.0106
Total without risk	**0.0731**
Crop loss due to Flooding 5%	0.0037
Total With risk	**0.0768**

Use Value Chesapeake TY2016

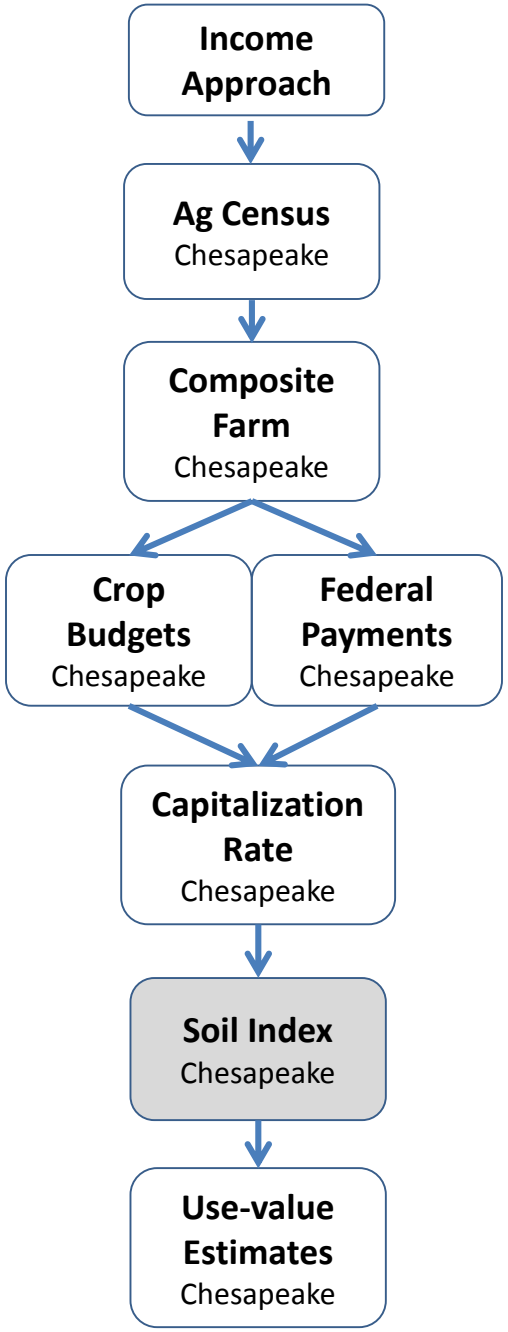
Use Value =	**Net Returns**	**÷**	**Cap Rate**
Use Value without risk =	$178.52	÷	0.0731
Use Value without risk =	**$2,440.62**		
Use Value with risk =	$178.52	÷	0.0768
Use Value with risk =	**$2,324.40**		



Adjustments for Soil Capabilities

USDA Land Classes for Ag use

Land Capability Classes	Productivity Index
Class I - Excellent cropland	1.50
Class II - Good cropland	1.35
Class III - Average cropland	**1.00**
Class IV - Below average cropland – strip cropping only, hay	0.80
Class V – Good Pasture, hay	0.60
Class VI – Pasture	0.50
Class VII – Very limiting - Pasture only	0.30
Class VIII – Not suitable to agriculture – steep or wet	0.10



Indexing for Soil Productivity

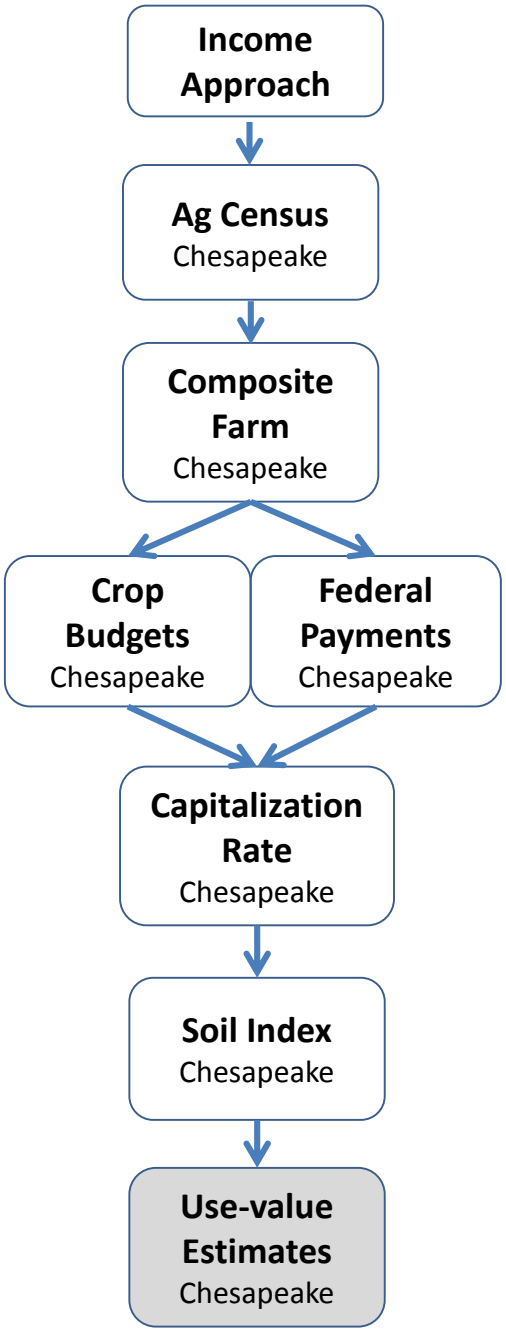
Chesapeake

Land Class	Reported Acreage	Productivity Index	Weighted Acreage
I	300	1.50	450.00
II	4,919	1.35	6,640.65
III	45,077	1.00	45,077.00
IV	10,498	0.80	8,398.40
Total	60,794		60,566.05
Soil Index Factor 60,566.05 ÷ 60,794 = **0.996**			

Virginia Beach = 1.202

Southampton = 1.273

Suffolk = 1.299



Adjusting to Class III land

Why?

- Data reflects average soil productivity for each county
- Values are adjusted to reflect Class III productivity

Use Value Chesapeake TY2016

Use Value =	**Use Value**	÷	**Soil index**
Without risk =	$2,440.62	÷	0.996
Without Risk Class III =	**$2,450**		
With risk	$2,324.40	÷	0.996
With Risk Class III =	**$2,330**		

Final Estimates Chesapeake TY2016

	Cropland				*Weighted Cropland AVG*	Pastureland			*Weighted Pasture land AVG*	*Weighted Ag. Land AVG*	
	I	II	III	IV	***I-IV***	V	VI	VII	***V-VII***	***I-VII***	VIII
w/out Risk	3,670	3,310	2,450	1,960	***2,440***	1,470	1,220	730	***730***	***2,390***	240
w/ Risk	3,500	3,250	2,330	1,870	***2,320***	1,400	1,170	700	***700***	***2,280***	230

- Note: Final estimated values are rounded to the nearest $10
- The Class III w/out risk estimate of $2,449 is reported as $2,450

Rental Rate Approach Chesapeake TY2016

- Starting 2009 NASS published rental rate data annually* for
  - Cropland
  - Irrigated cropland
  - Pasture land
- Chesapeake County rental rates for 2014 TY2016 (NASS)
  - Cropland = $73
  - Pastureland = $20.50

*Sometimes biennially based on NASS funding

Rental Rate Use Value Chesapeake TY2016

	Rental Rate	÷	Cap Rate	=	Value
Cropland	$73	÷	0.0731	=	**$880**
Pasture	$20.50*	÷	0.0731	=	**$280**

*Southeastern District Pasture combined county

Rental Rate Estimates are published annually

– not averaged over time

Income Approach and Rental Rate Approach: Compared

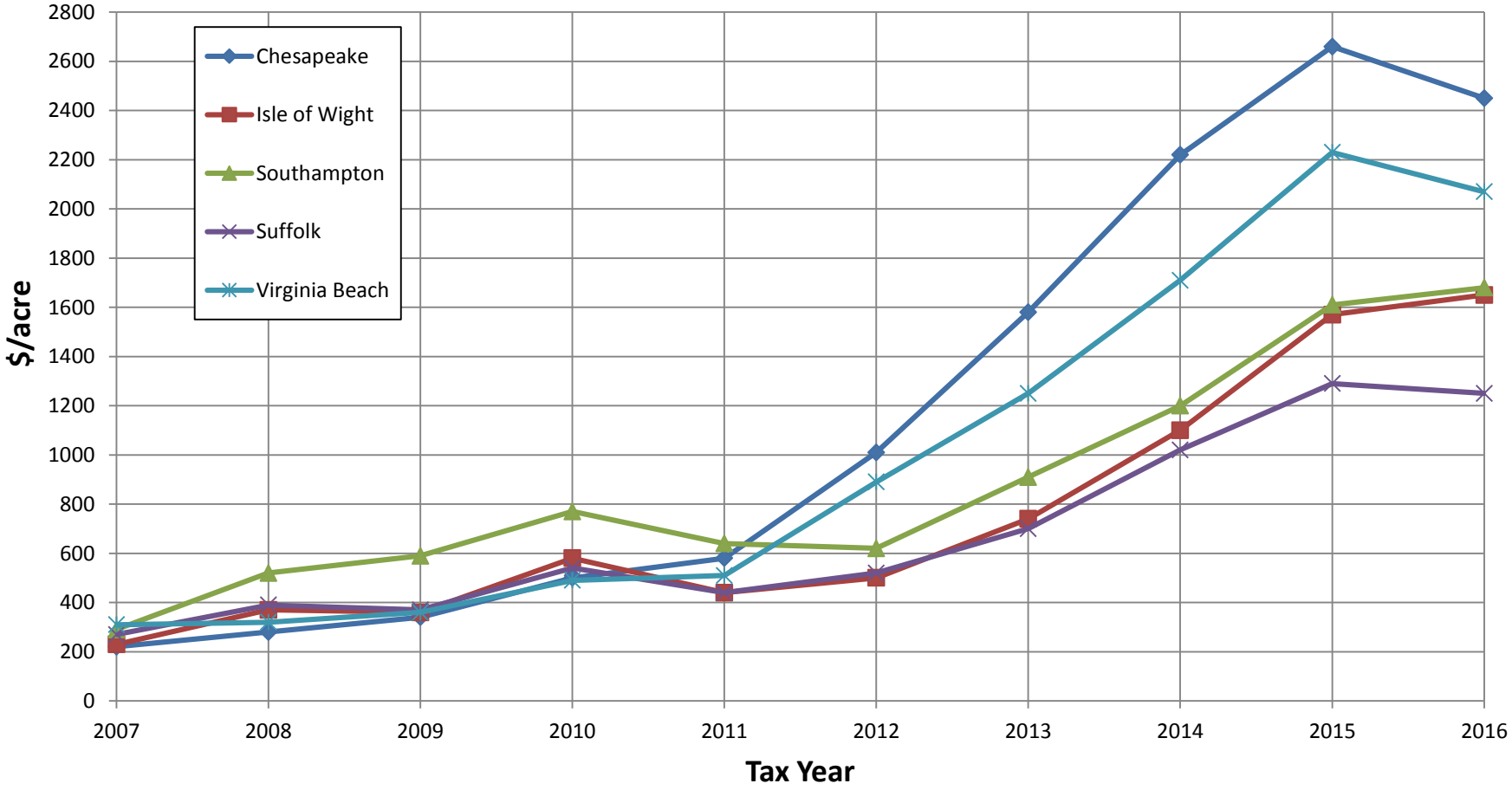
Chesapeake	Income Approach		Rental Rate Approach	
TY2016	Cropland (**I-IV AVG**)	**$2,440**	Cropland	**$880**
	Pastureland (**V-VII AVG**)	**$730**	Pastureland	**$280**

Reassessment Cycle?

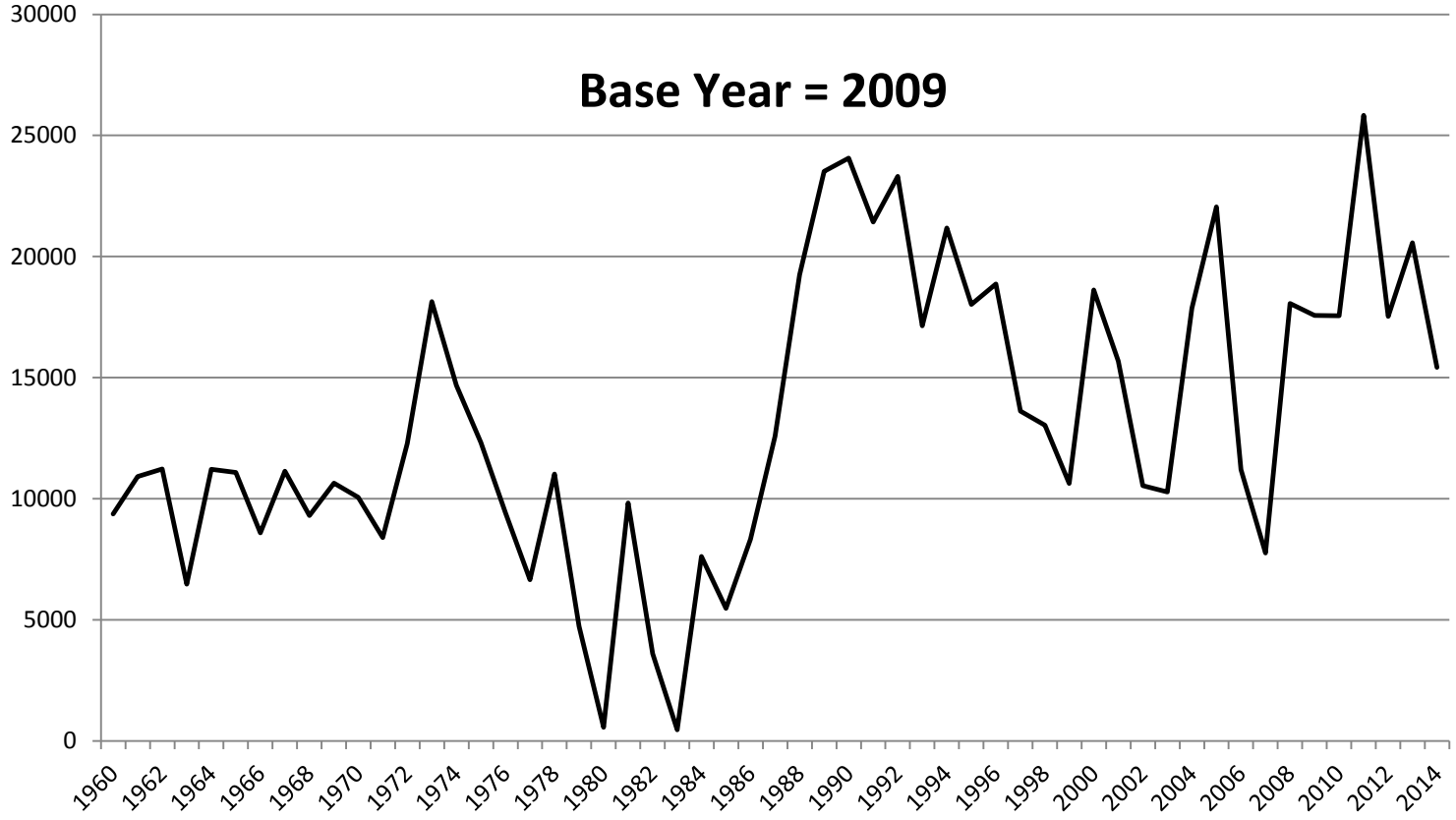
- Frequency of real property reassessment by a county/city can result in significant “sticker shock” for land owners
- Virginia Code requires that
  - Cities reassess at a minimum of every 4 years
  - Counties reassess at a minimum of every 6 years
- Use-values can only be changed during a general reassessment year

Use-value Estimates: Type III Land (w/out risk)

Selected Jurisdiction Comparison (Tax Years 2007 to 2016)



Real Net Farm Income
All Virginia $/farm



Source: USDA/ERS Farms and Land in Farms and USDA/ERS Farm Income and Wealth Statistics

Summary

- Data Lag
- Record profits over 3-5 year period
- 7 - Olympic averaging
- Reassessment Cycle

Thanks!

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Discussion & Questions?

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