



# Buffer\$: Chesapeake Bay RFB CREP Calculator



Chesapeake RFB Networking Forum  
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United States Department of Agriculture  
National Agroforestry Center

# USDA National Agroforestry Center

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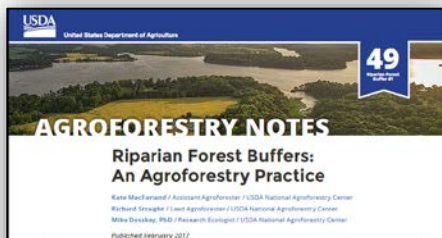
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# Tools & Resources



**Introduction**  
Located along streams, lakes, or wetlands, riparian forest buffers deliver water quality, habitat, recreation, and other benefits in agricultural, woodland, range, suburban, and urban settings. A wide variety of state and federal programs support the installation of riparian forest buffers on public and private lands.

**Definition**  
A riparian forest buffer is an area adjacent to a stream, lake, or wetland that contains a combination of trees, shrubs, and/or other perennial plants and is managed differently from the surrounding landscape, primarily to provide conservation benefits.

**Objectives**  
Riparian forest buffers can help meet a number of natural resource, economic, and social objectives, including:

- Filtering nutrients, pesticides, and animal waste from agricultural land runoff

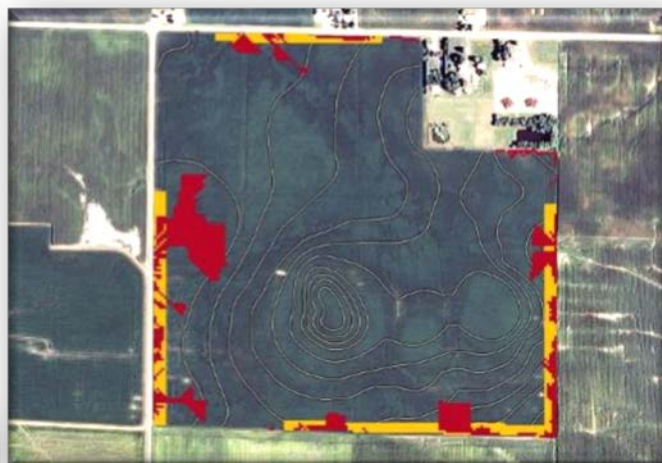
## Info Why add edible and floral plants to riparian forest buffers?

Multifunctional riparian forest buffers (MRFBs) offer the opportunity to produce perennial crops of native fruits and nuts, as well as floral trees and shrubs.

Many products can be harvested and sold or used on-site. These products can be added to riparian forest buffers in the Agricultural region. As their uses expand, MRFBs have a wide range of functions. They filter runoff and help stream banks stabilize, helping to improve water quality by reducing the amount of sediment and nutrients that flow into waterways. They also shade the stream, providing habitat for some cold-water-dependent fish species. MRFBs provide habitat for wildlife, including pollinators, and can serve as wildlife corridors, providing cover and food sources. Providing habitat for beneficial insects may reduce the need for pesticides, which may have an additional environmental benefit.



Edible products can be a component of multifunctional riparian forest buffers. Photo credit: Steve Kornacker/USDA Forest Service. Mulberry trees, for example, are widely found on riparian buffers, but have long been a favorite of many people. They are easy to grow and produce a crop of purple fruit in early spring. Native fruits, nuts, and shrubs are a great addition to riparian buffers. Each region has its own set of native plants, nuts, and shrubs with potential to be incorporated into MRFBs.



## Non-Timber Forest Product Calculator (NTFP) - Version 1.0

This tool provides general estimates of income potential from harvesting and selling non-timber forest products from a conservation planting. This tool only provides rough numbers for exploring this enterprise alternative. A more detailed enterprise budget will be necessary to determine the economic viability of the enterprise. Move the cursor over the small red triangles for more information.

### PLANT SELECTION

Select the types and number of plants to be grown. Product Price is a default value based on growers' experience. Initially, leave the prices on the default values. Alternatively, you can adjust product prices as you wish on overall profitability.

Species	# Plants	Area Required (sq ft)	Product Price	Product Unit
Pussy Willow	25	1800	\$0.40	price/unit
Osagewood	25	1800	\$0.40	price/unit
Prunepier	25	7700	\$1.00	price/unit
Elmberry	25	1200	\$1.00	price/unit
Hybrid Hazelnut	25	2250	\$0.00	price/unit
Sumac	25	10000	\$0.25	price/unit
<b>Totals</b>	<b>150</b>	<b>19700</b>		

### POTENTIAL INCOME COMPARISON

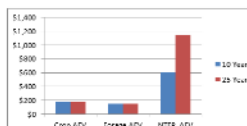
Potential income if a crop is produced under various scenarios is shown below for crop or forage production. Adjust values to reflect your operation.

Crop Alternative	Forage Alternative
Crop Type:	Corn
Expected Yield (bu/ac)	150
Expected Price (\$/bu)	\$4.00
Production Costs (\$/ac)	\$180
Annual Net (ac)	\$400
Annual Net (ac)	\$335

### FINANCIAL RESULTS

Select interest rate. This calculator only considers basic variable costs and not fixed costs such as land price and taxes. Select the Additional Information button for more detail on the tool and disclaimer.

NTFP Project area (ac):	0.45
Pick Interest Rate:	3%
Financial Indicators	10 Yr Period
Present Value of Revenues	\$24,564
Present Value of Costs	\$15,790
Net Present Value	\$8,774
Internal Rate of Return	26%
Years to Break Even	5
Annual Equivalent Value (AEV)	\$611
Alternative Comparison	
Crop Annual Equivalent Value	\$182
Forage Annual Equivalent Value	\$152



Additional Information  
Additional Resources & Tools

### SENSITIVITY ANALYSIS

Adjust the Interest Rate and Product Price to examine the impact on potential profitability. Actual Plant Survival Rate to determine impact of plant loss during the first year with no follow-up planting.

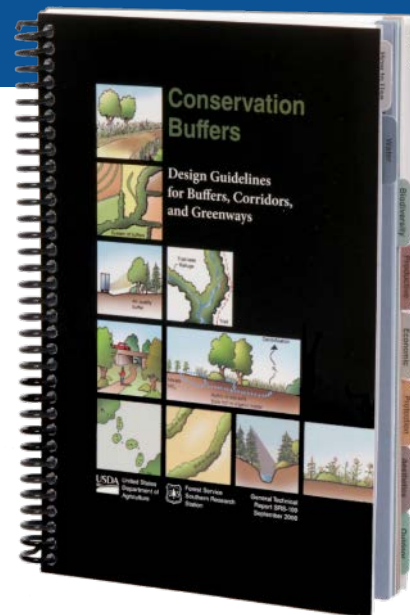
Adjust Plant Survival Rate	% Survival
Pussy Willow	100%
Osagewood	100%
Prunepier	100%
Elmberry	100%
Hazelnut	100%
Sumac	100%



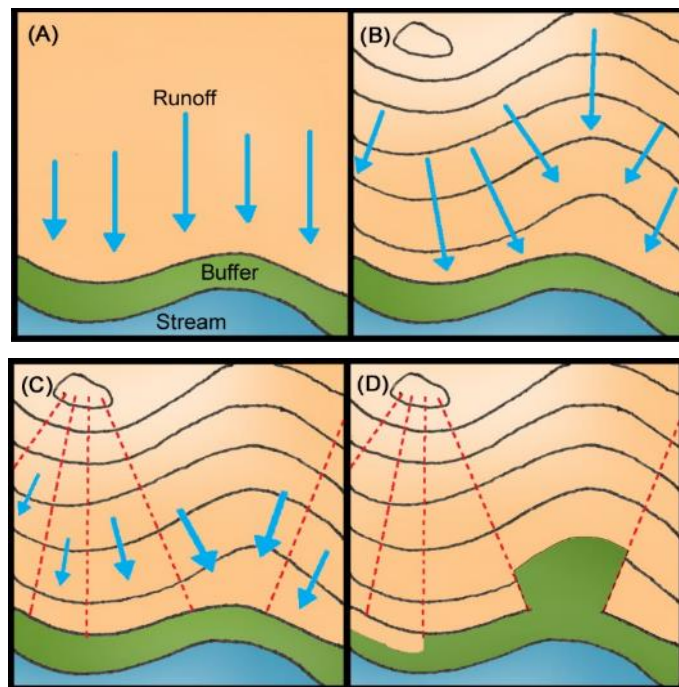
# Conservation Buffer Guide

Over 1,400 research publications

Illustrated design guidelines



- 🌿 Improve air & water quality
- 🌿 Protect soil
- 🌿 Enhance habitat
- 🌿 Enhance economic productivity
- 🌿 Provide recreational opportunities
- 🌿 Beautify the landscape





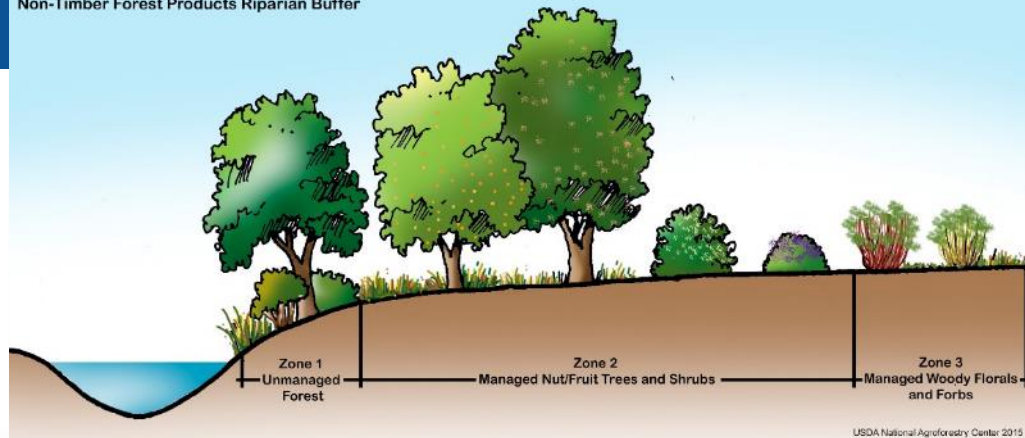
# AgBufferBuilder





# NTFP Calculator

Non-Timber Forest Products Riparian Buffer



USDA National Agroforestry Center 2015

## Non-Timber Forest Product Calculator (NTFP) - Version 1.0

This tool provides general estimates of income potential from harvesting and selling non-timber forest products from a conservation planting. This scoping tool only provides rough numbers for exploring this enterprise alternative. A more detailed enterprise budget will be necessary to determine the economic viability of the enterprise. Move the cursor over the small red triangles for more information.

### PLANT SELECTION

Select the types and number of plants to be grown. Product Price is a default value based on growers' experience. Initially, leave the prices on the default values. Afterwards, one can adjust product price to see effect on overall profitability.

Species	# Plants	Area Required (sq ft)	Product Price	Product Unit
Pussy Willow	25	1800	\$0.40	price/stem
Dogwood	25	1800	\$0.40	price/stem
Pawpaw	25	2700	\$1.50	price/lb
Elderberry	25	1200	\$1.00	price/lb
Hybrid Hazelnut	25	2250	\$3.00	price/lb
Persimmon	25	10000	\$2.75	price/lb
<b>Totals</b>	<b>150</b>	<b>19750</b>		

### POTENTIAL INCOME COMPARISON

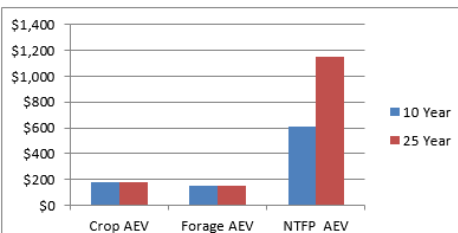
Potential income if area in proposed conservation planting is used instead for crop or forage production. Adjust values to reflect your operation.

Crop Alternative	Forage Alternative
Crop Type: Corn	Forage Type: Alfalfa
Expected Yield (bu/ac): 150	Production (tons/ac): 3
Expected Price (\$/bu): \$4.00	Forage Value (\$/ton): \$150
Production Costs (\$/ac): \$200	Production Costs (\$/ac): \$115
<b>Annual Net (ac): \$400</b>	<b>Annual Net (ac): \$335</b>

### FINANCIAL RESULTS

Select interest rate. This calculator only considers basic variable costs and not fixed costs such as land price and taxes. Select the Additional Information button for more detail on the tool and disclaimers.

NTFP Project area (ac):	0.45	
Pick Interest Rate:	3%	
<b>Financial Indicators</b>	<b>10 Yr Period</b>	<b>25 Yr Period</b>
Present Value of Revenues	\$24,564	\$77,766
Present Value of Costs	\$19,352	\$57,689
Net Present Value	\$5,211	\$20,077
Internal Rate of Return	28%	32%
Years to Break Even	5	5
Annual Equivalent Value (AEV)	\$611	\$1,153
<b><u>Alternative Comparison</u></b>		
Crop Annual Equivalent Value	\$182	\$182
Forage Annual Equivalent Value	\$152	\$152



Additional Information

Additional Resources & Tools

### SENSITIVITY ANALYSIS

Adjust the Interest Rate and Product Price to estimate the impact on potential profitability. Adjust Plant Survival Rate to determine impact of plant loss during the first year with no followup planting.

Adjust Plant Survival Rate	% Survival
Pussy Willow	100%
Dogwood	100%
Pawpaw	100%
Elderberry	100%
Hazelnut	100%
Persimmon	100%



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# Buffer\$

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Plant Schedule

Version 2.0 - April 2007

The first step in the cost-benefit process is to determine the areas to be seeded and the number of plants required. Enter the data in the white boxes in the Plant Schedule sheet, then select the Cost-Benefit Analysis button. A more detailed Plant Schedule sheet can be accessed by scrolling down below which allows selection of individual plant species.

Main Menu  
Cost-Benefit Analysis  
Print Page

**SIMPLE PLANT SCHEDULE**

	Seeded Area in acres (Ac)	Tree/Shrub Size	Tree/Shrub Quantity	Unit	Unit Cost	Subtotal
Seed Cost	1.80			Ac	\$75	\$135
Seed Cost	0.72			Ac	\$100	\$72
Seed Cost				Ac	\$120	\$287
Shrub Cost		Cone. Grade	1,620	Ea	\$0.40	\$408
Shrub Cost		2-3 feet		Ea	\$0.54	
Shrub Cost		3-4 feet		Ea	\$0.67	
Tree Cost		Cone. Grade	824	Ea	\$0.40	\$329
Tree Cost		2-3 feet		Ea	\$0.54	
Tree Cost		3-4 feet		Ea	\$0.67	
Tree Cost						\$210

Clear Plant Schedule

Main Menu Inst. Videos Plant Schedule Cost-Benefit Other Values Removal Payment Calculator Description Other Tools

Buffer\$ 2.0.xls [Read-Only] [Compatibility Mode] - Microsoft Excel

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Scroll down to input costs/benefits for the conservation buffer.

Clear Cost Benefit Sheet

**BUFFER COSTS**

COST DESCRIPTION	Quantity	Unit	Unit Cost	Total Dollar Value of Costs	Enter Years of Occurrence or A=Annual or 0 for Initial Year	Present Dollar Value of Costs	Annualized Dollar Value of Costs
<b>GRASS SEEDING &amp; MAINTENANCE</b>							
Temporary Cover Crop		Ac	\$29.30	\$0		\$0	\$0
Mechanical Seedbed Preparation	2.52	Ac	\$24.10	\$61	0	\$61	\$5
Chemical Seedbed Preparation		Ac	\$21.70	\$0		\$0	\$0
Seed Cost (From Plant Schedule)				\$207		\$207	\$17
Broadcast Seeding & Mechanical Covering		Ac	\$12.50	\$0		\$0	\$0
Grassland Drill Seeding	2.52	Ac	\$13.80	\$35	0	\$35	\$3
Low Tillage Drill Seeding		Ac	\$15.80	\$0		\$0	\$0
Standard Drill Seeding		Ac	\$14.60	\$0		\$0	\$0
Pre-emergent Chemical Weed Control	2.52	Ac	\$15.40	\$39	0	\$39	\$3
Post-emergent Chemical Weed Control		Ac	\$12.40	\$0		\$0	\$0
Post-emergent Mechanical Weed Control	2.52	Ac	\$12.20	\$31	1 2	\$59	\$5
Other				\$0		\$0	\$0
Other				\$0		\$0	\$0
<b>TREE-SHRUB PLANTING &amp; MAINTENANCE</b>							
Mechanical Site Preparation		Ac	\$10.00	\$0		\$0	\$0
Direct Seeding		Ac	\$0	\$0		\$0	\$0
Shrub Cost (From Plant Schedule)				\$408		\$408	\$34
Tree Cost (From Plant Schedule)				\$210		\$210	\$15
Tree/Shrub Hand Planting Cost		Per Plant	\$1.30	\$0		\$0	\$0
Mechanical Tree/Shrub Planting Cost	1644	Per Plant	\$0.90	\$1,480	0	\$1,480	\$124
Chemical Weed Control	1644	Per Plant	\$0.12	\$197	1 2 3	\$555	\$47
Mechanical Weed Control		Per Plant	\$0.00	\$0		\$0	\$0
Fabric Mulch		Per Plant	\$2.22	\$0		\$0	\$0
Other				\$0		\$0	\$0
Other				\$0		\$0	\$0
Other				\$0		\$0	\$0

Main Menu Inst. Videos Plant Schedule Cost-Benefit Other Values Removal Payment Calculator Description Other Tools Graphs PlantList Sol T





## Buffer\$

### Chesapeake Bay Riparian Buffer WV CREP Payment Calculator - V. 1.0

This tool provides estimates of payments that landowners could receive from the West Virginia CREP program if a riparian buffer project is installed in the Potomac River Watershed using a 14 to 15 year contract.

Conditions for using this tool include:

1. The project is a CP 22 Riparian Buffer.
2. The project is located with the Potomac River Watershed in West Virginia. This includes the following counties:

Berkeley	Hardy
Grant	Mineral
Jefferson	Morgan
Hampshire	Pendleton

3. The contract period is between 14 to 15 years.

If these conditions fit, then click on the button below to begin using the calculator.

[Payment Calculator](#)

If these conditions do not fit, then use the:  
[Original West Virginia CREP Payment Calculator](#)

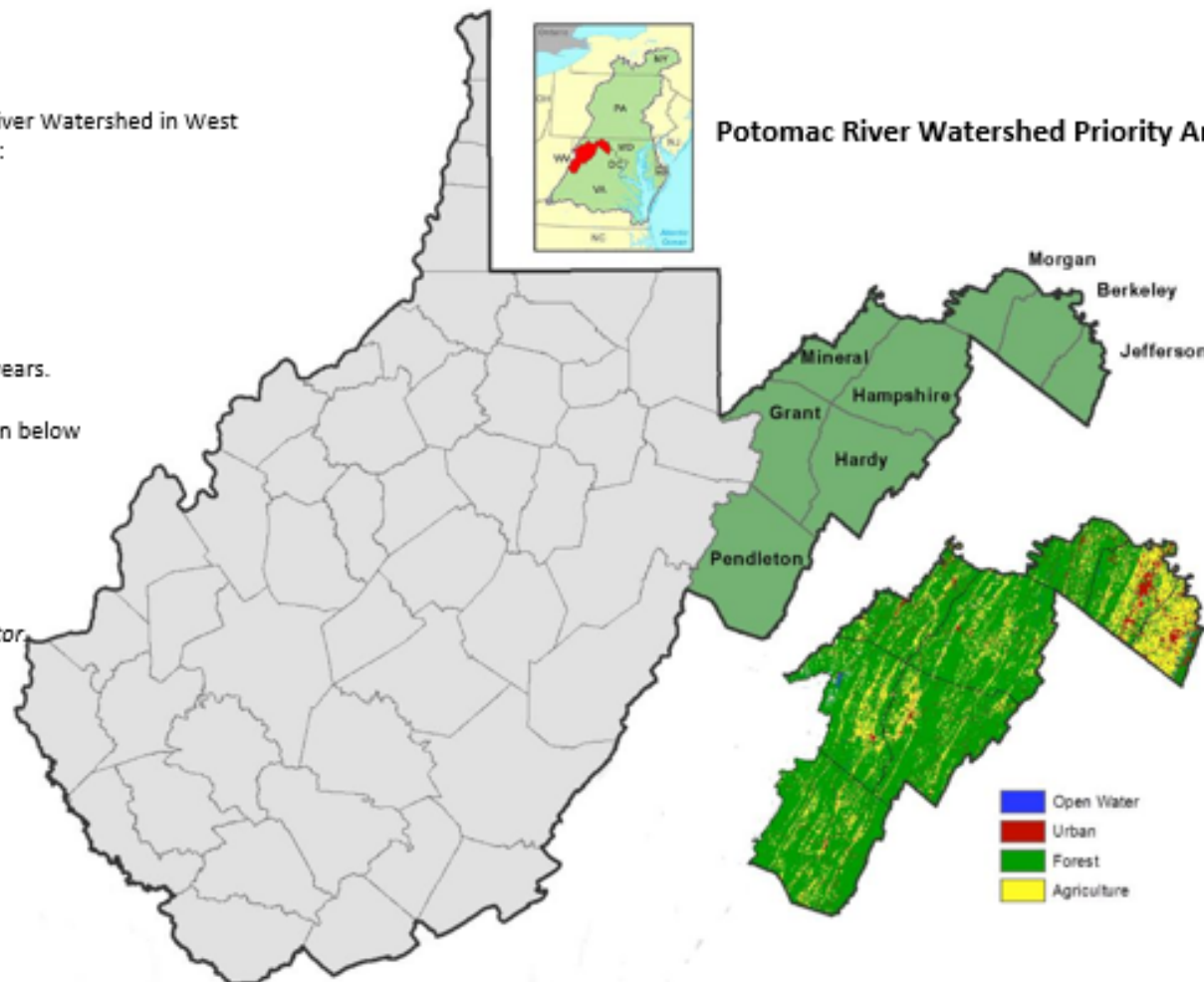


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Version Date: February 28, 2017



Potomac River Watershed Priority Area





United States Department of Agriculture  
National Agroforestry Center



National  
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