

Agriculture statistics: Change since Bacteria TMDL

USDA National Agricultural Statistics Service, NASS

Item	Bedford County		
	2002	2022	% change
Farm Acres	199,244	183,200	-8%
Cattle/Calves	46,693	38,626	-17%
Beef Cattle	23,500	20,984	-11%
Dairy Cattle	1,838	230	-87%
Sheep	343	507	48%
Horses	2,104	1,542	-27%

DEQ

What changes have you seen in the watersheds?

1. What is the current growth trend for agriculture in the area? Do you expect to see significant changes in farming practices over the next 5-10 years?
2. Is there a trend or has there been a change in crop practices? What % of cropland is already implementing conservation (e.g., continuous no-till) practices?

DEQ

Residential Overview

Within the Beaverdam Creek watershed, estimated totals (US Census 2020):

Estimated Population	Total Septic Systems	Houses with Failing Septic Systems	Houses with Straight Pipes	Pets	
				Dogs	Cats
		10% of households	0.5% of households	1.7 per household	2.1 per household
3,582	1,665	166	8	2,831	3,497

DEQ

What changes have you seen in the watersheds?

1. What is the current trend in housing? Are new homes being built, or is the housing stock aging?
2. Is there plan for future expansion of sewer coverage in the watershed?
3. Is there any information regarding straight pipes in the watershed?

DEQ

Potential Sediment Practices:

Agricultural

Practice type	Practice description	Sediment reduction	Cost/Unit
Livestock exclusion	Livestock exclusion with narrow buffer and grazing mgmt. (SL-6N)	40%	\$75,000/system
	Livestock exclusion with wide buffer and grazing mgmt. (SL-6W)		
	Livestock exclusion with buffer, no off-stream water		
Pasture practices	Pasture Management (SL-9, SL-10)	30%	\$150/acre
	Streamside buffer: grass and shrub	48%, LU Change	Variable
	Streamside buffer: forested	48%, LU Change	Variable
	Permanent vegetative cover on critical areas (SL-11)	LU Change	\$2,000/acre
	Afforestation of erodible pasture (FR-1)	LU Change	\$570/acre
Cropland practices	Long term vegetative cover on cropland (SL-1)	LU Change	\$300/acre
	Continuous no-till (SL-15B)	70%	\$100/acre
	Cover crop (SL-8B, SL-8H)	20%	\$40/acre

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What needs to be done to address Agricultural sources of Sediment?

1. What is the level of interest in installing best management practices (BMPs)? What % are interested in 10-, 25-, 35-, 50-foot buffers? What types of practices do they prefer?
2. What are the BMPs on the list that are likely to generate the most interest? Least interest?
3. Are there any BMPs of interest that you are not seeing on our list?
4. Is there interest in rotational grazing systems? Other pasture management practices?
5. Is there interest in converting poor pasture or erodible cropland to forest?

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Potential Sediment Practices:

Urban/Residential

Practice description	Sediment reduction	Phosphorous reduction	Cost/Unit
Bioretention filters	55% - 95%*	55% - 90%*	\$10,000/treated acre
Bioswales	55% - 95%*	75%	\$42,000/treated impervious acre
Dry swales	0%	52% - 76%*	\$18,150/treated acre
Detention basin retrofit	Varies by nature of retrofit	Varies by nature of retrofit	Varies by nature of retrofit
Pervious pavement	55% - 80%*	20% - 85%*	\$240,000/treated acre
Streamside buffer: grass/shrub	48%, LU Change	36%, LU Change	Variable
Streamside buffer: forested	48%, LU Change	36%, LU Change	Variable
Streambank stabilization	44.88 lbs/ft/yr	0.068 lbs/ft/yr	\$750-\$1000 per linear foot

*- Efficiencies varies based upon design specifications

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What needs to be done to address Urban/Residential sources of Sediment?

1. What is the level of interest in installing best management practices (BMPs)?
2. What are the BMPs on the list that are likely to generate the most interest? Least interest?
3. Are there any BMPs of interest that you are not seeing on our list?

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Potential Bacteria Reduction Practices:

Agricultural

Practice Type	Practice Description	Bacteria Reduction	Units	Cost / Unit
Cropland Practices	Long Term Vegetative Cover on Cropland (SL-1)	75%	acres	\$300
	Cover Crop (SL-8B, SL-8H)	20%	acres	\$40
Livestock Waste Reduction Practices	Afforestation of Erodible Crop and Pastureland (FR-1)	Land Use Change	acres	\$570
	Small Acreage Grazing System – Equine (SL-6AT)	40%	acres	\$260
	Stream Exclusion with Grazing Land Management (SL-6N, SL-6W)	100%	system	\$75,000
	Pasture Management – Cattle (SL-9, SL-10T)	50%	acres	\$75
	Permanent Vegetative Cover on Critical Areas (SL-11)	75%	acres	\$2,000
	Water Control Structure (WP-1)	70%	acres treated	\$130
	Stream Protection (WP-2N, WP-2W)	100%	system	\$15,000
Animal Waste Control Facility (WP-4)	40%	system	\$90,000	

What needs to be done to address Agricultural sources of Bacteria?

1. What are the BMPs on the list that are likely to generate the most interest? Least interest?
2. Are there any BMPs of interest that you are not seeing on our list?
3. Is there interest in rotational grazing systems? Other pasture management practices?
4. Is there interest in practices to address manure spreading on crop or pasture fields?
5. Any barriers to implementing stream fencing and improving pasture management in this watershed?

Potential Bacteria Reduction Practices:

Residential Wastewater/ Pet Waste

Practice Type	Control Measures	Bacteria Reduction	Units	Cost/Unit
Residential Wastewater	Septic Tank Pump-Out (RB-1)	5%*	System	\$400
	Connection to Public Sewer (RB-2)	100%	System	\$11,000
	Connection to Public Sewer with Pump (RB-2P)		System	\$18,000
	Septic Tank System Repair (RB-3)	100%	System	\$5,000
	Septic Tank System Installation/Replacement (RB-4, RB-4P)	100%	System	\$8,000 - \$12,000
	Alternative On-site Waste Treatment System (RB-5)	100%	System	\$24,000
Pet Waste	Pet Waste Disposal Station (PW-1)	75%	number	\$600
	Pet Waste Treatment (PW-2)	100%	number	\$200
	Pet Waste Treatment for Confined Canine Facilities (PW-3)	100%	number	\$16,000
	Pet Waste Education Program	50%	program	\$5,000

*Phosphorus removal efficiency is also 5%

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What needs to be done to address Residential Wastewater/Pet Waste sources of bacteria?

1. Are there any particular BMPs that you would prefer to see implemented?
2. What % of failing septic systems need to be repaired vs. replaced?
3. Of the failing systems and straight pipes, what % would require a conventional system vs. an alternative system?
4. What's the possibility to hook up to sewer? Any new projects in future?
5. Is there interest in pet waste stations? Where? What watersheds are kennels located in?

DEQ