



## FACT SHEET 6.1

# VEGETATED BUFFERS

A vegetated buffer is a planted or naturally vegetated area of land that can slow down, spread out and infiltrate stormwater flow to help filter out pollutants such as sediment, nutrients and bacteria before reaching a waterbody. They should be located between your hobby farm and a surface water or wetland, generally running the length of the waterbody.

## WHAT IS INFILTRATION?

Infiltration is when water or stormwater soaks into the ground.

**WITH MOST VEGETATED BUFFERS, WIDER IS OFTEN BETTER, BUT EVEN A NARROW STRIP OF VEGETATION BETWEEN YOUR HOBBY FARM AND SURFACE WATER CAN OFFER WATER QUALITY BENEFITS.**

The size of your buffer will be largely dependent on the area of land you have to work with and the area you are able to dedicate as a buffer. Farm activities should always be placed as far away from wetlands and surface water as possible.



## BENEFITS

- ✓ Interception, infiltration and absorption of precipitation and stormwater runoff
- ✓ Filtration of suspended and water soluble pollutants like sediment, fertilizers and pesticides
- ✓ Bank stabilization and erosion control for slopes and disturbed areas
- ✓ Flood control during heavy rain and high-water levels
- ✓ Trees and shrubs provide shade and shelter for aquatic organisms
- ✓ Enhanced habitat for wildlife and pollinators
- ✓ Helps contain animals and prevent direct contact with surface water
- ✓ May help reduce nuisance complaints from adjacent neighbors from odor, dust and noise
- ✓ Can act as a fence line to keep unwanted wildlife such as Canada geese off of your property

## DID YOU KNOW?

Although vegetated buffers are typically used along waterways, they can also be used to buffer your hobby farm activities from other areas such as adjacent properties, road shoulders and stormwater drainage systems.

# DESIGN CONSIDERATIONS

Consider the following when planning your vegetated buffer:

## Length

Your vegetated buffer should extend the length of the waterbody or shoreline on your property. If you need access to the water, consider meandering paths rather than straight paths through the buffer. Winding routes can help slow polluted runoff and reduce erosion. Remember that farm animals should never have a direct route or access to waterways. Fencing, protected waterway crossings and alternative water sources should be used so that animals are kept out of waterways.

## Width

Wider is better, preferably 50-feet or more. Recognizing this is not always possible, particularly in more urban settings, any size buffer can be beneficial. Even a narrow buffer with healthy vegetation can provide benefits and is a worthwhile endeavor. Generally, steeper slopes warrant wider buffers to provide enough time to slow the flow of water and remove pollutants.

## Slope

Slope is how flat or steep your land is. Since water flows faster going downhill, steep slopes are more susceptible to erosion and cannot filter as effectively as flat lands. If possible, make vegetated buffers wider in sloped areas.

## Vegetation

All types of native plants can create an effective buffer. Keep in mind that different types of plants provide different benefits. Ideally, the most effective buffers will include a mix of trees, shrubs and plants that are native to the area. Buffer trees, shrubs, grasses and even the leaf litter or the ground layer each provide a unique function.

## Trees

A tree leaf canopy can intercept thousands of gallons of precipitation per year; trap airborne pollutants; provide noise and odor control; protect against damaging winds; and provide temperature control. Fallen limbs can help create topographic features that can slow and detain runoff, filtering pollutants. Tree roots improve soil porosity encouraging infiltration of runoff; aid in flood management; provide streambank stabilization and erosion control; and help filter pollutants.

## Shrubs

Shrubs intercept water that passes through the tree canopy. They provide streambank stability and erosion control. Shrub roots and leaf litter can slow runoff and improve soil infiltration, help filter sediment and attached pollutants; and be a physical barrier to some larger animals preventing access to waterways (no farm animals should have direct access to waterways due to water quality impacts).

## Grasses

The high stem density of herbaceous plants can slow water and disperse runoff helping to remove sediment and water soluble pollutants like fertilizers and pesticides.

## Ground Layer

The ground or leaf layer made up of accumulated plant material like leaves, pine needles and seeds such as acorns help protect the soil against erosion and keep it in place. It also helps slow down runoff, encouraging infiltration into the ground and the filtration of pollutants.



## REGULATORY CHECK

In most communities, any activity within 100' of a surface water (or within 200' of a perennial stream) may require approval - see your local Conservation Commission for assistance.

## STRATEGIES

Buffers can be created naturally or through the planting and seeding of new areas. The most effective buffers are not only wide but contain a mix of different species of trees, shrubs and grasses. You can establish your buffer using one of three basic approaches: 1) stop maintaining an area to allow for natural revegetation; 2) create a landscaped buffer through planting; 3) enhancing the natural growth process through planting select vegetation (a combination of 1 and 2).

<b>NATURAL REVEGETATION</b>	Natural revegetation allows the existing plants and seeds in the area to grow naturally. This is ideal for areas that have been mowed or disturbed. Simply leave the area alone and it will progress through its natural succession of plant growth. Monitor the area periodically to remove any invasive or non-native plant species. Any bare areas that appear can always be seeded or planted. This approach is the easiest and least costly but will take some time for everything to grow in and mature.
<b>ACTIVE REVEGETATION</b>	Active revegetation is ideal if you don't want to wait for your buffer to grow in naturally or if you would like to select the specific types of vegetation to grow. This approach involves: 1) staking out your proposed buffer area and measuring the space - maybe sketch out a simple plan; 2) selecting your plant species and determining how many you need based on the total area and how much space each plant will require; 3) preparing your planting area; and 4) planting, mulching and watering your plants. Remember that you may need temporary sediment controls until the area has been stabilized by plant growth. This approach is more labor intensive and costly, but the advantage is that your buffer will fill in quicker and with native species you personally selected. Proper species selection, coupled with an early maintenance effort, can also help prevent invasive species growth.
<b>BUFFER ENHANCEMENT</b>	Can't decide if you should do natural or active revegetation? Do a little of both! This approach will allow you to select and plant species in certain areas while letting other spaces revegetate naturally. This method gives you flexibility when it comes to labor, budget, plant type and growing time.

## MAINTENANCE AND MANAGEMENT

Some of the best buffer management strategies are to simply leave them alone. Undisturbed buffers generally work the best; however, periodic inspections should take place to identify any problems or corrective actions. The following is a simple inspection checklist and a few reminders to help you get the most out of your vegetated buffer.

- ✓ Seed or plant any bare spots and ensure new plantings are growing and existing plants are healthy
- ✓ Remove invasive species and any hazard trees that pose a safety risk
- ✓ Do not use fertilizer or pesticides within your buffer
- ✓ Keep farm animals out of your buffer
- ✓ Do not store heavy equipment or anything else in your buffer
- ✓ Avoid tracking through your buffer with your vehicles and equipment



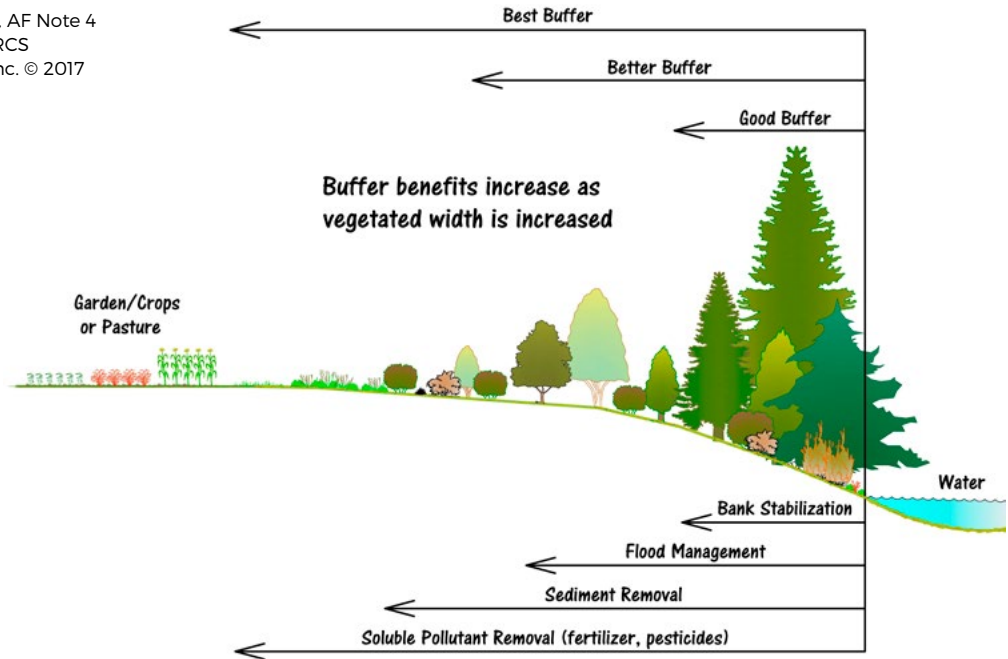
### DID YOU KNOW?

Massachusetts has a Prohibited Plant List. Never purchase, plant or propagate any plants on the prohibited plant list: [www.mass.gov/eea/agencies/agr/farm-products/plants/massachusetts-prohibited-plant-list.html](http://www.mass.gov/eea/agencies/agr/farm-products/plants/massachusetts-prohibited-plant-list.html)

**CAUTION!**

if you plan on purchasing or transplanting your plants to create your vegetated buffer, make sure you are planting species that are non-invasive and native to your area.

Adapted from Agroforestry Notes, AF Note 4  
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Vegetated Buffers

VEGETATED BUFFER BENEFITS	VEGETATION TYPE		
	Grass	Shrubs	Trees
STREAMBANK STABILIZATION AND EROSION CONTROL	●	●●●	●●●
FILTER SEDIMENT CONTAINING NUTRIENTS, PESTICIDES AND PATHOGENS	●●●	●●	●●●
FILTER WATER SOLUBLE FERTILIZER AND PESTICIDES	●●	●	●●
IMPROVE AQUATIC HABITAT	●	●●	●●●
IMPROVE WILDLIFE HABITAT FOR FOREST ANIMALS	●	●●	●●●
FLOOD PROTECTION	●	●●	●●●

NOTES: Good Benefit ● Better Benefit ●● Best Benefit ●●●

**HELPFUL LINKS**

- [www.soaknh.org/wp-content/uploads/2016/06/Vegetated-Buffer.pdf](http://www.soaknh.org/wp-content/uploads/2016/06/Vegetated-Buffer.pdf)
- [www.mass.gov/eea/docs/dep/water/bufman.pdf](http://www.mass.gov/eea/docs/dep/water/bufman.pdf)

