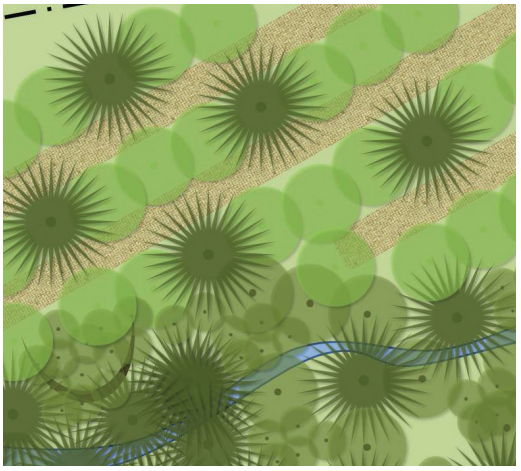
Working Buffers

Forested buffers along streams help keep water clean and cool – important for fish, wildlife, and humans. 'Working buffers' is a program that allows farmers to widen this forested buffer without losing farmable ground by combining agriculture and trees together. Tree crops such as fruits, nuts, and timber are combined with understory crops such as berries, floral industry greens, mushrooms, and livestock forage. The farmer benefits in many ways including diversification of products, increased soil health, pollinator habitat, and protection against flood damage. Our environment benefits through better water quality, improved wildlife habitat, and added carbon sequestration.

Here are four 'working buffer' techniques that may fit the goals of your farm: forest farming, alley cropping, short rotation biomass, and silvopasture. Where to use and how to manage these alternative farming methods is specific to each site's conditions and each landowner's needs. None of these techniques are to be used in an existing forested buffer. Rather, these are ways to expand a newly planted or existing buffer to increase its functions while at the same time earning more income for your farm.

Forest Farming

Forest farming is a multi-story cropping system where taller trees form the overstory and the understory plants are grown for a variety of niche markets. Instead of shade from the tall tree canopy being a negative, it's used to help grow marketable plants that need part- or full-shade such as salal, mushrooms and ferns. The overstory may incorporate fruit, nut and other crop trees or be thinned for timber.



Top view of multi-cropped forest buffer.

Forest farming can include Shiitake mushrooms grown on logs.

The multitude of products and crops that can be harvested from a forest farming system are unlimited and can include things like syrup, boughs for wreaths, native plant starts, spices, and medicinal herbs. While the taller trees are growing and haven't developed their full shade canopy, sun-loving plants such as berries can also be grown.

Forest Farming Options

- Shiitake Mushrooms
- Pine Nuts
- Salal
- Elderberry
- Goldenseal

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Alley Cropping

Alley cropping involves planting short or ground level crops in the 'alleys' between rows of trees. Rows of highly productive tree or shrub species can be managed for fruits, nuts, livestock feed and timber. 'Alley crops' in-between rows can produce hay, small grains, vegetables, ground cover fruits and even vines such as berries and grapes. Combining these two production methods can help farmers cope with market fluctuations and crop failures by diversifying outputs. Alley cropping can either be a long- or short-term approach to maximizing farm production while establishing a forest canopy in a streamside buffer area.

Alley Cropping Tree Options

- Serviceberry
- Cider Apples
- Walnuts
- Christmas and Ornamental Trees

Short Rotation Biomass

This method involves densely planting fast-growing woody tree or shrub species and then harvesting parts of the plants every few years to consistently provide biomass. Plants are harvested by periodically cutting them back to the ground to stimulate growth. This method is ideally suited for marginal areas — drained or disturbed wetlands, low elevation depressions within a floodplain, saturated soils or barely productive farmland. Since trees don't grow tall, it's best along smaller streams that fish don't use, or with permanent buffers already established along fish-bearing waters (so stream temperatures remain cool after biomass crops are harvested).

Plant material harvested from these fast-growing species can be used for livestock feed and bedding, biofuels, paper pulp or in biomass combustion, among other emerging markets. Several native willow, dogwood, and cottonwood species can also be grown to harvest live stakes that are sold to the nursery market or for habitat restoration projects.

Short Rotation Biomass Plant Options

- Shrub Willows
- Hybrid Poplar/Cottonwood Trees

In recent years, much research has been conducted using shrub willows and hybrid poplars to produce hardwood biomass for the renewable energy sector (heat, power, and biofuels). Currently there are no biorefineries in Washington State, making biofuels a speculative emerging product. Landowners interested in producing biomass for renewable energy markets or paper production are strongly encouraged to partner with other producers, researchers, and buyers before starting to ensure success.

Silvopasture

Silvopasture is the deliberate joining of forestry and livestock grazing on the same land. Livestock (pigs, cattle, sheep, goats, horses) can benefit from cooler temperatures and a longer forage growing season which has been shown to increase livestock health and growth rates. Best soil practices are applied, such as using introduced or native pasture grasses, nitrogen-fixing legumes, and intensively-managed grazing periods to maximize plant growth and harvest.

The trees are managed for fruit/nut production, timber or any combination of forest products. Silvopasture methods are most successful on well-drained upland areas free from seasonal flooding. Spacing trees to provide even shade coverage (for livestock and forage) maximizes tree growth and improves the ripening of fruit and nut crops. Fences are used to exclude livestock from the streamside buffer and to help the farmer manage for shorter rotational grazing periods.

Silvopasture Tree Options

- Chestnuts
- Alder
- Black Walnut
- Filberts

The beauty of working buffers is that the economic risk for farmers is reduced (if not turned into a profit) by managing different enterprises on the same land at the same time. Funding may be available to help you get started on your new working buffer!

To learn more...

Contact a farm planner at 425-335-5634 ext. 4 or farmplanners@snohomishcd.org.