

Vegetated Filter Strips

What is a filter strip?

A filter strip is an area of grass or other vegetation used to “filter” sediment, organic matter, nutrients, and pesticides from irrigation and stormwater runoff to improve water quality.

Filter strips are located between crop fields and streams, drainage canals, or other waterways.

How does it work?

Filter strip vegetation slows the flow of runoff water. This allows suspended sediments to settle out and enables runoff water and soluble pollutants to infiltrate the ground. The plants, decomposing plant matter, and associated microorganisms also help trap sediments and take up dissolved nutrients and other chemicals.

What are the benefits of filter strips?

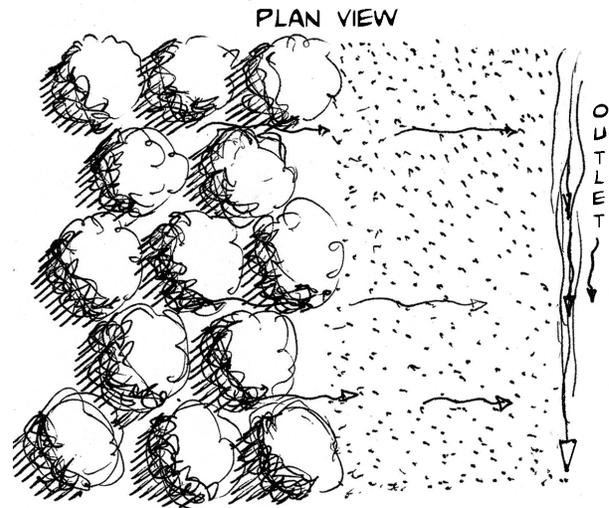
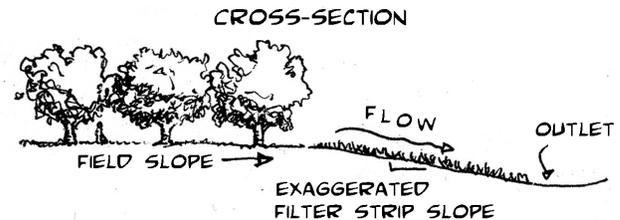
- Prevent soil erosion and stabilize field border soils.
- Protect against invasion by weeds.
- Improve water quality. Filter strips can remove 50% – 80% of pesticides and nutrients.
- Vegetated filter strip areas can be used as turnrows or for field access.
- Enhance habitat for wildlife and beneficial insects.
- Filter strip grasses and other vegetation can be used for forage hay or bedding mulch.

How do you install a filter strip?

What does it cost?

Filter strips should be located along the downslope edge of a field, where sediments, pesticides, or nutrients may move off cropland.

Filter strips are usually at least 12 feet wide and often 30 to 40 feet wide. Wider strips provide more filtering benefits.



Filter strips work best if runoff flows across the strip as shallow sheet flow, rather than as concentrated flow.

In the mid-west, where filter strips are most commonly used, they are installed along contours with a cross-slope between 1% - 10%. In the flat fields of California’s Central Valley, gentle slopes may have to be created with a scraper or road grader.

One possible design is an asymmetrical “V” ditch at the field end, with a flatter slope being the 12 – 20 foot wide filter strip and a steep slope completing the “V.”

Light discing or another form of tillage and smoothing are used to prepare the seedbed. Seed can be broadcast or drilled in. Seed should be sown in the fall so that the filter will be established for spring crop planting, or planted in the spring and lightly irrigated to germinate.

A variety of plants can be used for filter strips. Grasses or legumes are often planted. The type of plant will depend on the goals and planned lifespan of the filter strip.

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Based on soil test results and the nutrient needs of the filter strip species, fertilizer may aid establishment. Avoid over-fertilization, which can favor weeds and contribute to nutrient runoff. For legumes, inoculation with rhizobial bacteria may be needed.

The cost of a vegetated filter strip is determined by the price of perennial grass seed and any grading necessary due to field end topography. In 2006, average costs of a filter strip run about \$750 per acre, depending on seed choice and seeding rate. A more expensive installation would utilize plant plugs.

Maintenance

Filter strips require some ongoing maintenance. This may include:

- Mowing and harvesting. For grasses, mowing several times a year encourages dense growth.
- Controlling weeds.
- Supplemental seeding every 2 – 5 years and re-seeding disturbed areas.
- Removing debris, repairing gullies, and removing sediment deposits.
- Periodically re-grading the filter strip and reestablishing vegetation when sediment deposition jeopardizes its function.

Filter strip planning and available financial support

Advice on planning and installing filter strips is available through NRCS and Dixon and Solano RCDs.

Staff is available to answer questions about the optimum width, location, and vegetation type for a filter strip given individual site conditions.

Financial assistance is available through NRCS's Environmental Quality Incentive Program (EQIP).



A filter strip in Yolo County

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