

A Guide to *Multifunctional Hedgerows* in Western Oregon

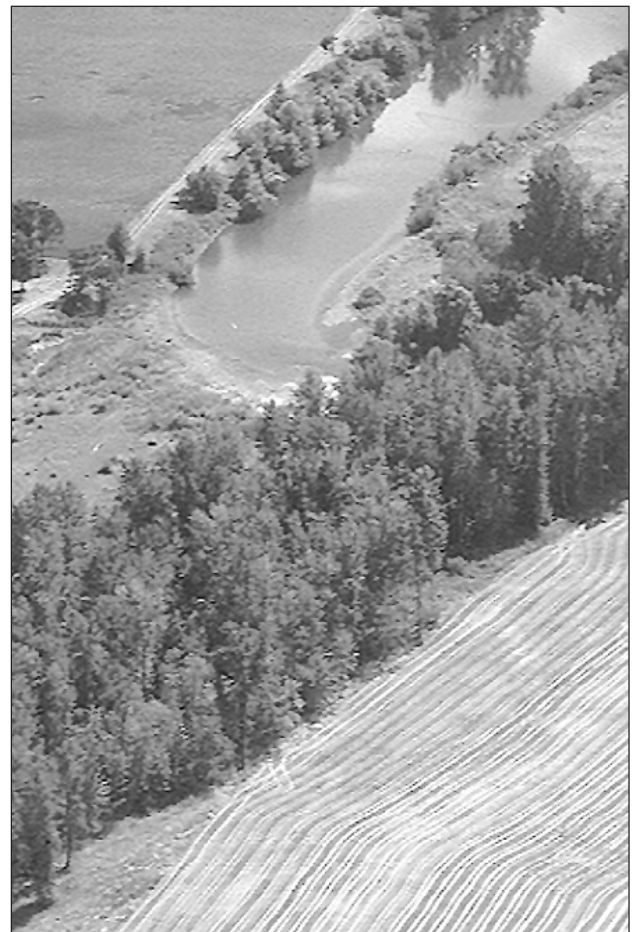
J. Hobbs and D. McGrath

Hedgerows, also known as shelterbelts or windbreaks, are rows of trees, shrubs, and low-growing plants that divide or border fields and/or suburban lots. In England, many farms are surrounded by ancient hedgerows that conserve soil and water, provide a home to wildlife, and serve as barriers. In the United States, a similar tradition never developed, although trees sometimes were left along field margins. In the 1930s, tree planting for windbreaks on the prairies was briefly supported by the U.S. Department of Agriculture's Shelterbelt Program.

In recent years, as people have become more interested in sustainable farming methods, the many benefits of hedgerows have been rediscovered. Hedgerows can enhance the beauty, productivity, and biodiversity of farms.

For example, they:

- Enhance wildlife habitat
- Diversify farm income
- Reduce soil erosion
- Decrease wind damage
- Conserve water
- Create borders and privacy screens



Hedgerows can enhance the beauty, productivity, and biodiversity of farms.

Enhance wildlife

Hedgerows provide habitat for a large variety of mammal, bird, reptile, and insect species, many of which are beneficial. Some examples of Northwest native plants that attract wildlife are oak, madrone, cedar, blue elderberry, hawthorn, Oregon ash, serviceberry, Oregon grape, salal, and kinnikinnick.

Diversify farm income

Trees, shrubs, and herbaceous plants can be selected for additional sources of income. Products that can be grown in hedgerows include nuts, fruits and berries, medicinal herbs (leaves, flowers, seeds, bark, and roots), seeds for collection, nursery stock, flowers, floral greenery, willows for craft material, and secondary wood products such as lumber, veneer, and firewood.

Many game birds such as quail, pheasant, and sage grouse are attracted to hedgerows. They can provide a potential source of revenue for landowners.

Reduce soil erosion

Rain, irrigation, clean cultivation, and vacant field borders can increase erosion potential. Hedgerows provide a barrier that can slow water flow and trap soil particles, thus reducing erosion, especially along waterways.

Decrease wind damage

Wind can disturb pollination and damage fruit and flowers when plant parts thrash against each other. Plants under wind stress put energy into growing stronger roots and stems. The results are smaller yields and delayed maturity. Strong winds also cause lodging of grain and grass crops, making harvest more difficult. Properly designed hedgerows can reduce wind speed by as much as 75 percent and improve crop performance.

Conserve water

Well-planned hedgerows retain water and reduce evaporation by blocking drying summer winds.

Create borders and privacy screens

Hedgerows are attractive borders. They can serve as privacy screens along roadsides and between properties. As they mature and become dense, they can reduce noise and dust and can function as barriers.

Establishing and maintaining hedgerows

Establishing hedgerows is a long-term commitment. With proper planning and care, it takes approximately 4 to 8 years to establish a hedgerow and 30 or more years for it to reach maturity.

A north-south planting direction is ideal, but not essential.

It is most efficient to orient hedgerows perpendicular to prevailing winds.

Hedgerow layout depends on the location, function, and plants selected. However, all hedgerows are longer than they are wide. Although a single line of trees will provide some benefits, four or

more rows of plants provide optimal windbreaks, water and soil conservation, and wildlife habitat. Place the plants that are tallest at maturity in the center row, with shorter ones interplanted between them and along the edges.

The location, function, and size of hedgerows are the most important factors influencing plant selection. A wide variety of plants is most beneficial. The plant lists on page 3 provide examples of plants available in western Oregon.

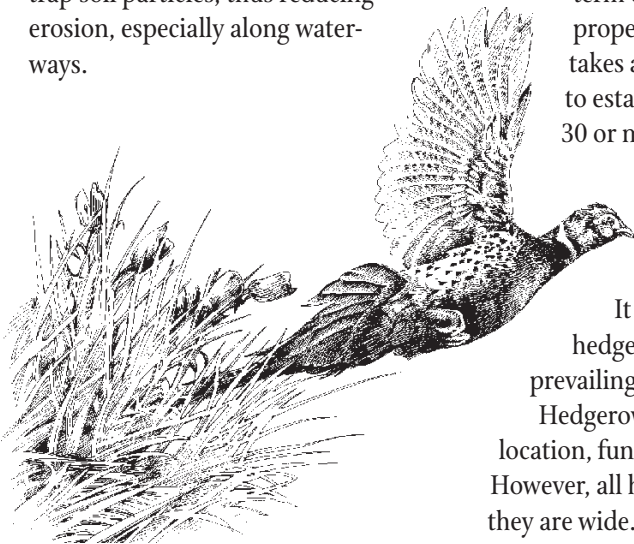
Avoid plants that are an alternate host for pests or diseases or that are invasive. Some perennial species such as blackberry, which are endemic, can provide excellent wildlife habitat and food crops but are highly invasive and require frequent maintenance.

Soil preparation is one of the keys to plant survival. An easy way to establish planting areas in existing grass or pasture is to apply a thin layer of compost or manure, followed by several layers of cardboard, and then a mulch such as straw or leaves. In large areas, this method may not be practical, so you can use cover crops instead. These crops improve soil fertility, reduce weeds, and attract beneficial insects.

When planting in heavy clay soil, you might till the ground in spring and plant an early cover crop such as crimson clover, followed by buckwheat. Till or disc in late summer and replant with an over-wintering cover crop such as crimson clover, field peas, or vetch. Till again in spring.

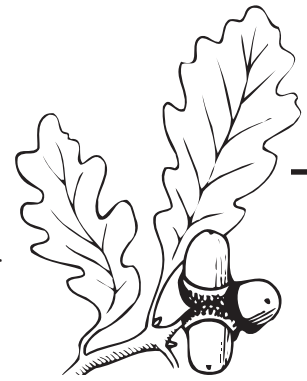
The ideal time for planting is March or April so that plants will have time to establish roots. You can apply amendments such as compost or manure as a top dressing.

Use seedlings in 2- to 4-inch planting tubes or 1-gallon containers. Some bareroot plants are more difficult to establish.



Plants for hedgerows

The list below provides *examples* of trees, shrubs, groundcovers, and perennial plants for hedgerows. These plants grow well to 600 feet above sea level. *Remember, proper site selection and plant requirements must be considered in hedgerow planning.*



Sun-tolerant plants that grow over 25'

Botanical name	Common name
<i>Abies grandis</i>	Grand fir
<i>Acer macropyllum</i>	Bigleaf maple
<i>Alnus rubra</i>	Red alder*
<i>Calocedrus decurrens</i>	Incense-cedar
<i>Castanea</i>	Chestnut
<i>Chrysolepis chrysophylla</i>	Golden chinkapin
<i>Fraxinus latifolia</i>	Oregon ash*
<i>Ilex species</i>	Holly
<i>Juglans regia</i>	English walnut
<i>Picea species</i>	Spruce
<i>Pinus ponderosa</i> 'Willamette Valley'	Ponderosa pine
<i>Populus trichocarpa</i>	Black cottonwood
<i>Prunus subcordata</i>	Klamath plum*
<i>Pseudotsuga menziesii</i>	Douglas-fir
<i>Quercus garryana</i>	Oregon white oak
<i>Robinia pseudoacacia</i>	Black locust
<i>Thuja plicata</i>	Western redcedar

Sun-tolerant plants that grow under 25'

Botanical name	Common name
<i>Malus spp.</i>	Apple
<i>Arbutus spp.</i>	
<i>Ceanothus velutinus</i>	Tobacco brush
<i>Crataegus douglasii</i>	Hawthorn
<i>Crataegus oxycantha</i>	English hawthorn
<i>Diospyros kaki</i>	Japanese persimmon
<i>Diospyros virginiana</i>	American persimmon
<i>Eleagnus umbellata</i>	Autumn olive
<i>Malus fusca</i>	West coast crabapple
<i>Myrica pennsylvanica</i>	Bayberry
<i>Ribes sanguineum</i>	Red flowering currant*•
<i>Ribes divariculatum</i>	Black gooseberry*•
<i>Ribes nigra</i>	Black currant*•
<i>Rosa nutkana</i>	Nootka rose•
<i>Salix fluviatilis</i>	Columbia River willow*
<i>Salix hookeriana</i>	Hooker's willow*
<i>Sambucus cerulea</i>	Blue elderberry*
<i>Spiraea douglasii</i>	Western spiraea*
<i>Vaccinium corybosum</i>	Blueberry*•

Plants for pond edges

Botanical name	Common name
<i>Typha latifolia</i>	Cattail*
<i>Ledum grandulosum</i>	Labrador tea*

Plants that tolerate shade

Botanical name	Common name
<i>Chrysolepis chrysophylla</i>	Golden chinkapin
<i>Cornus nuttallii</i>	Western flowering dogwood*
<i>Corylus cornuta</i>	Hazel*
<i>Physocarpus capitatus</i>	Ninebark
<i>Polystichum munitum</i>	Sword fern
<i>Sambucus racemosa</i>	Red elderberry*
<i>Prunus virginiana</i>	Chokecherry

Plants that tolerate partial shade to shade

Botanical name	Common name
<i>Acer circinatum</i>	Vine maple *
<i>Amelanchier alnifolia</i>	Serviceberry
<i>Berberis aquifolium</i>	Oregon grape•
<i>Gaultheria shallon</i>	Salal
<i>Cornus stolonifera</i>	Red-osier dogwood•
<i>Holodiscus discolor</i>	Ocean spray
<i>Lonicera involucrata</i>	Twinberry•
<i>Oemleria cerasiformis</i>	Indian plum
<i>Philadelphus lewisii</i>	Mock orange
<i>Rhamnus purshiana</i>	Cascara sagrada
<i>Taxus brevifolia</i>	Western yew*
<i>Vaccinium ovatum</i>	Evergreen huckleberry•

Edge plantings

Botanical name	Common name
<i>Achillea millefolium</i>	Yarrow•
<i>Berberis nervosa</i>	Cascade Oregon grape•
<i>Calendula officinalis</i>	Calendula•
<i>Cichorium intybus</i>	Chicory•
<i>Foeniculum vulgare</i>	Fennel•
<i>Frageria chiloensis</i>	Wild strawberry
<i>Gaultheria shallon</i>	Salal•
<i>Lavendula angustifolia</i>	English lavender•
<i>Medicago sativa</i>	Alfalfa•

Bamboo

Botanical name	Common name
<i>Phyllostachys aurea</i>	Yellow groove*
<i>Phyllostachys bambusoides</i>	Giant timber *
<i>Phyllostachys nigra</i>	Black bamboo*
<i>Phyllostachys bissetii</i>	Bisset bamboo*
<i>Phyllostachys congesta*</i>	
<i>Phyllostachys meyeri*</i>	

*Grows in wet soils •Easily maintained to 5 feet tall

A variety of techniques can inhibit unwanted plants within the hedgerow. The simplest method is to leave alleys between plant rows for mowing, cultivation, or mulching until plants are well established. As plants mature, they eventually will shade out most annual crop weeds.

Mulching heavily with leaves, straw, sawdust, or cardboard is effective. Ideally, an area 6 to 8 feet wide around the hedgerow can be mowed, flailed, or tilled for weed management, fire

protection, and rodent control. If necessary, protect young plants from animals with wire mesh, plastic-coated cardboard, or other materials. If you use chemicals, it is essential to protect riparian zones along rivers, creeks, and ponds from contamination.

Some plants may need supplemental water the first 3 years. Methods include swales, furrows, flood, and/or drip irrigation. You also can extend overhead crop irrigation to hedgerow plantings.

Costs of establishment

Planting hedgerows does not have to be expensive. Seedling plants are available at low cost, and propagating from existing plantings is feasible.

Government programs are available to assist landowners with hedgerow development. Many counties have riparian lands tax exemption programs and wildlife habitat conservation and management programs.

For more information

Agro-Ecology Northwest
Pacific Northwest Hedgerow Project
1161 Lincoln Street
Eugene, OR 97401
541-342-1160 (Jude Hobbs)

OSU Extension Service
Marion County office
3180 Center Street NE #1361
Salem, OR 97301
503-588-5301 (Daniel McGrath)

Oregon Department of Fish and Wildlife
170 NE Vandenberg Avenue
Corvallis, OR 97330-9446
541-757-4186 (Steve Smith)

Plant resources

Hortus Northwest
P.O. Box 379
Hubbard, OR 97032
503-570-0859 or 800-704-7927
A Pacific Northwest native plant directory and journal

Oregon Association of Nurserymen
2780 SE Harrison Street, Suite 102
Milwaukie, OR 97222
800-342-6401
List of nurseries

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