

# Hedgerows and Other Habitat Plantings: Techniques and Benefits

**Napa Valley Wine Technical Group**

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# Conservation Practices: Ways Farmers are Using Vegetation

- Hedgerows
- Grassed Waterways
- Filter Strips
- Riparian Plantings
- Windbreaks

# Native Plant Hedgerow



# Perennial Grasses In Ditch for Erosion and Weed Control



# Grass Filter Strip between Field and Hedge



# Riparian Planting



# Windbreak, using Redwood, Incense Cedar, Pepper Tree, Giant Sequoia, Soapbark Tree, Strawberry Madrone



# Functions of Conservation Plantings

- Soil erosion control
- Weed control
- Wildlife habitat
- Sequester carbon
- Barriers
- Beneficial insect and pollinator habitat
- Non-point source water pollution reduction
- Air quality and dust control
- Windbreak and climate modification
- Riparian stabilization
- Aesthetic value
- Economic returns
- Increase in local and regional biodiversity



# Questions for Planning a Hedgerow

- What is your goal?
- Why do you want this hedgerow?
- What crops are adjacent to the hedgerow?
- What is the description of the site: length, height, width, limitations?
- Other considerations: irrigation; soils; pests; weeds; compost, mulch
- Labor to install and maintain
- Planting date, preceded by site preparation (rip, make berm, install irrigation, acquire materials: plants, compost, mulch, gopher baskets, deer protection)



# Steps for Planting

- Set planting date
- Site preparation (clear weeds, rip, make berm, install irrigation, acquire materials: compost, mulch, gopher baskets, deer/rabbit protection)
- Make a plant list – grower input on the list
- Source plants at multiple nurseries-Strategies
- Arrange pick-up/delivery
- Coordinate planting, compost and mulching
- Monitoring and Maintenance schedule-  
think of it as a crop



# Planting on a Berm or High Bed



# Drip Irrigation with Emitters or Drip Line, Filter and Solar Timer



# COMPARATIVE WATER USAGES

Hedgerow 1000' – 0.1 ac-ft/yr

Apples 0.5 ac-ft/yr

Strawberries 2.0 ac-ft/yr

Lettuce 2.0 ac-ft/yr

One Household – 0.4 to 0.9 ac-ft/yr

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**HEDGEROWS AND FARMSCAPING  
FOR CALIFORNIA AGRICULTURE**

**A RESOURCE GUIDE FOR FARMERS  
2ND EDITION**



## California's native plant destination



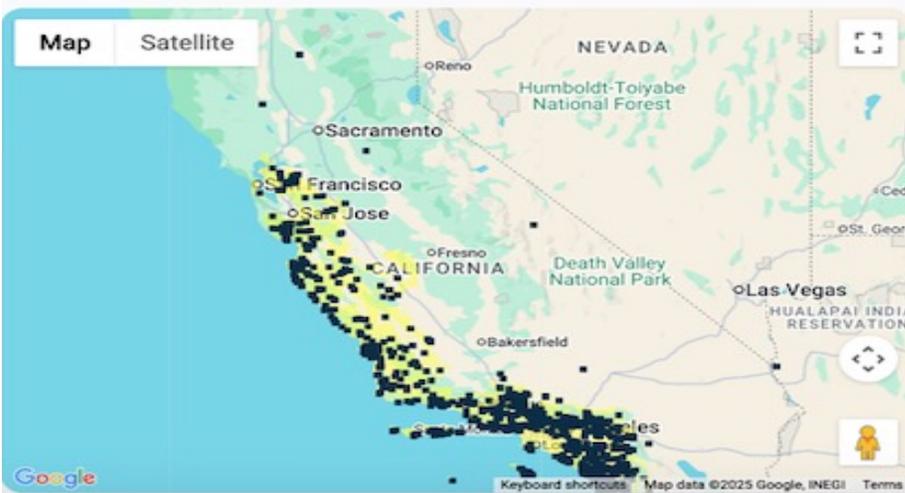
### Black Sage

*Salvia mellifera*

Carried by 75 nurseries

[View Availability at Nursery](#)

#### Estimated plant range



#### Plant description

Black sage is the most common sage in California. Though less showy than other salvia species and cultivars, it is an important food source for bees, butterflies, and hummingbirds. The flowers are small and pale blue-lavender in color. After blooming, black sage seeds provide food for birds, including quail and towhees.

A black sage shrub can grow up to 6 feet tall and 10 feet wide. In the garden, this aromatic plant prefers full sun and well-draining soil. It is a low-moisture plant, requiring no supplemental water once established. It is usual for the small, dark green leaves to curl during summer drought.

# NRCS/Calflora

<http://www.calflora.org/nrcs/index.html>

**NRCS California eVegGuide**

**Report** **Help** **Data** December 18, 2025

**Plant or Seed Mix Report**

**MAP** [Search Criteria](#)

[BACKGROUND](#) Click on the map to select a location.

**MLRA** Sacramento and San Joaquin Valleys 17 CLIMATE & SOIL PROFILE

**Map** **Satellite**

**CALIFORNIA**

Map labels include: Sacramento, San Francisco, Modesto, Fresno, Bakersfield, Los Angeles, and various National Forests and Parks like Stanislaus, Yosemite, Sierra, Sequoia, and Kings Canyon.

# Xerces Society

<https://xerces.org>

## Recommended Plants for Pollinators & Beneficial Insects

### California Central Coast Region



Central Coast wildflower pollinator planting blooming in late summer; sweat bee on California poppy<sup>®</sup>. (Photographs by the Xerces Society / Jessa Kay Cruz<sup>2</sup> & Matthew Shepherd<sup>®</sup>.)

### Plant Selection

The plants on this list are recommended for use in pollinator habitat restoration and enhancement projects in agricultural landscapes. These species have been selected because they are attractive to a diversity of different bee species, and provide pollen and nectar resources throughout the season, provided that a minimum of three different plant species from each blooming period (early, mid, and late season) are selected. A majority of plants recommended are native, drought tolerant, easy to establish, and don't serve as alternate hosts to crop pests or diseases.

### Native Species for Pollinators and Beneficial Insects

SCIENTIFIC NAME	COMMON NAME	BLOOM	LIFE	FORM	SUN	WATER	SOIL TEXTURE	ADDITIONAL DETAILS
<i>Achillea millefolium</i>	Common yarrow	MID	P	F	☀	L	ANY	🦋🐝🌿🚫🚫
<i>Agastache urticifolia</i>	Nettleleaf giant hyssop	MID	P	F	☀	M	MEDIUM-COARSE	🦋🌿🚫
<i>Arctostaphylos densiflora</i> 'McMinn'	McMinn manzanita	EARLY	P	W	☀	L	MEDIUM	🦋🐝🌿🚫
<i>Arctostaphylos glauca</i>	Bigberry manzanita	EARLY	P	W	☀	L	ANY	🦋🐝🌿🚫
<i>Asclepias fascicularis</i>	Narrowleaf milkweed	MID	P	F	☀	M	ANY	🦋🐝🌿🚫
<i>Baccharis pilularis</i>	Coyotebrush	LATE	P	W	☀	L	ANY	🦋🐝🌿🚫
<i>Baccharis pilularis</i> 'Pigeon Point'	Dwarf coyotebrush	LATE	P	W	☀	L	ANY	🦋🐝🌿🚫
<i>Berberis aquifolium</i>	Oregon grape	EARLY	P	W	☀	L	ANY	🦋🐝🌿🚫
<i>Ceanothus</i> 'Julia Phelps'	California lilac 'Julia Phelps'	EARLY	P	W	☀	L	MEDIUM-COARSE	🦋🌿🚫
<i>Clarkia amoena</i>	Farewell-to-spring	EARLY-MID	A	F	☀	M	FINE-MEDIUM	🐝🚫
<i>Collinsia heterophylla</i>	Chinese houses	EARLY	A	F	☀	M	ANY	🐝



# Chart Showing Percentage of Biodiversity Supported by Native Plant Species

Percentage of Native Hedgerow Plants Supporting Beneficial Insects, Birds and Pollinators,\* and Their Flowering Periods at Rancho Corralitos Farm

Number of Species	Number of Plants	Common Name	Species	Growth Habit	Beneficial Insect Food & Shelter Support	Bird Insect Food (Butterflies and Moths)	Bird General Habitat	Bird Plant Food Support	Bird Nesting Support	Pollinator Nesting and Overwinter Plants Only*	Spring Flowering Period	Summer Flowering Period	Fall Flowering Period	Winter Flowering Period
1	10	Deergrass	Muhlenbergia rigens	Medium Grass	1	0	0	0	0	1	1	0	0	0
1	7	Howard McMinn Manzanita	Arctostaphylos 'Howard McMinn'	Medium Shrub	0	1	1	1	1	0	1	0	0	1
1	14	Sagebrush, California	Artemisia californica	Medium Shrub	0	0	1	0	1	1	1	1	1	0
1	20	Coyote Brush	Baccharis pilularis ssp. consanguinea	Medium Shrub	1	0	1	0	0	0	0	0	1	1
1	12	Ceanothus, 'Concha'	Ceanothus 'Concha'	Medium Shrub	1	1	1	0	1	0	1	0	0	1
1	18	Ceanothus, Yankee Point	Ceanothus griseus horizontalis	Short Shrub	1	1	1	0	1	0	1	0	0	0
1	12	Buckwheat, California	Eriogonum fasciculatum	Medium Shrub	1	1	0	0	0	0	1	1	1	0
1	12	Sunflower, Woolly	Eriophyllum staechadifolium	Medium Shrub	0	0	0	0	0	0	1	1	0	0
1	18	Coffeeberry, Eve Case	Frangula californica	Medium Shrub	1	0	0	1	1	0	1	1	0	0
1	12	Coastal Bush Lupine	Lupinus arboreus	Medium Shrub	0	1	0	0	0	0	1	0	0	0
1	10	Sage, White	Salvia apiana	Medium Shrub	1	0	1	1	0	0	1	1	0	1
1	11	Sage, Cleveland	Salvia clevelandii	Medium Shrub	1	0	1	1	0	0	1	1	0	0
1	6	Sage, Black	Salvia mellifera	Short Shrub	1	0	1	1	0	0	1	1	0	1
1	6	Sage, Purple	Salvia leucophylla	Short Shrub	1	0	1	1	0	0	1	1	0	1
1	6	Yarrow, Common	Achillea millefolium	Forb	1	0	0	0	0	1	1	1	0	0
1	4	Milkweed, Showy	Asclepias speciosa	Forb	0	0	0	0	0	0	0	1	0	0
1	4	Monkeyflower, Sticky	Diplacus aurantiacus	Short Shrub	0	0	0	0	0	0	1	1	0	1
1	20	Fuschia, California	Epilobium canum	Forb	0	0	0	0	0	0	0	1	1	0
1	10	Gumplant, Great Valley	Grindelia camporum	Forb	0	0	0	0	0	0	1	1	1	0
19	212			<b>Actual # of Plants</b>	<b>123</b>	<b>61</b>	<b>98</b>	<b>52</b>	<b>69</b>	<b>30</b>	<b>162</b>	<b>127</b>	<b>76</b>	<b>59</b>
				<b>Actual: % of Plants</b>	<b>58%</b>	<b>29%</b>	<b>46%</b>	<b>25%</b>	<b>33%</b>	<b>14%</b>	<b>76%</b>	<b>60%</b>	<b>36%</b>	<b>28%</b>
					<b>Beneficial Insect Food &amp; Shelter Support</b>	<b>Bird Insect Food (Butterflies and Moths)</b>	<b>Bird General Habitat</b>	<b>Bird Plant Food Support</b>	<b>Bird Nesting Support</b>	<b>Pollinator Nesting and Overwinter Plants</b>	<b>Spring Flowering Period</b>	<b>Summer Flowering Period</b>	<b>Fall Flowering Period</b>	<b>Winter Flowering Period</b>



# Compost:

Approx. ONE Shovelful per hole  
1 cubic yard = 270 shovel-fulls (i.e. 270 plants)



# Watering in every hole



# Plants in the Ground



# Mulch:

For 100 feet (3 feet wide by 6 inches deep),  
use 6 cubic yards.

A tree-trimmers dump truck holds 20 to 23 cubic yards of mulch. So, one load would cover about 300 feet of hedgerow.



# Using Mulch to Control Weeds And Regulate Moisture



# Cardboard and Mulch



# Deer, Rabbit Protection; Gopher Cages



# Estimated Costs

## Activity

Farmer meetings and planning

Planning with foreman

Tractor work-labor

Other site preparation-labor

Picking up materials

Irrigation system installation-labor

Pre-irrigation-labor

Planting-labor

Spreading mulch, compost

Post-planting monitoring and maintenance

Irrigation-labor



# Estimated Costs

## Materials \$2-\$4+/ft

Tractor work-fuel

Irrigation system-parts

Plant materials

Other site preparation-materials (compost, etc.)

Pre-irrigation-water

Irrigation-water cost, PGE, fuel

Compost, Mulch, cardboard, weedcloth

Other (fencing, gopher cages, vehicle use, etc.)

## Other

Mileage to pick up compost, irrigation supplies, mulch

Annual Costs

Estimated yearly water cost

Estimated yearly maintenance\*

Land Rent

\*Monitoring, weeding/mowing, fixing irrigation leaks, replanting



# Cost Share and Financial Support

- NRCS – EQIP
- RCD'S
- CDFA-Healthy Soils Program
- Pollinator Partnership Program
- Community Alliance with Family Farmers
- Xerces Society
- Wild Farm Alliance



# Selected Hedgerow References

Pest Control and Pollination Cost–Benefit Analysis of Hedgerow Restoration in a Simplified Agricultural Landscape

Morandin et al. 2015

Hedgerow Benefits Align with Food Production and Sustainability Goals

Long et al. 2017

Beneficial Insects Move from Flowering Plants to Nearby Crops

Long et al. 1998



# RESOURCES

Wild Farm Alliance

<https://www.wildfarmalliance.org/>



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Cultivating biodiversity.  
Growing the movement.

[Barn Swallows Provide Pest Control at Keewaydin Farms](#)

[Read More](#)



[Barn Swallows Video](#)



# INSTALLING HABITAT TO INCREASE FARM DIVERSITY

Timeline & Steps for Hedgerows, Windbreaks and Riparian Areas



*Farmscaping is not just about planting the habitat—the more upfront planning and afterward maintenance and*

## Introduction

Planning and installing a new native plant conservation area on the farm is a major management decision that, from start to finish, can be pleasurable and exciting. Besides adding biodiversity and beauty to the farm, climate benefits accrue—shrubs and trees can store significant amounts of carbon in their tissues and the soil.

Growers often plant hedgerows for their support of pollinators and natural enemy insects. These plantings also support beneficial birds and other wildlife, and can function as a living fence. With tall trees, windbreaks protect crops, livestock, and soil from wind ten times the height of the planting. Riparian vegetation strengthens areas under the influence of water; it can protect water quality, diminish water temperature, and reduce stream bank erosion. These linear plantings also serve as wildlife corridors, fostering wildlife movement best when they are connected to other habitat on and off the farm.

It is estimated that it would take 16 years of pesticide cost savings to recoup a \$4,000 investment of installing 1,000' hedgerow, based on pest control benefits, and only 7 years when pollination benefits are included (Morandin et al. 2016). This means a grower is banking \$571/year (\$4,000/7 years) for both benefits. If growers obtain financial support (see resources), pay-back is even sooner.

[https://www.wildfarmalliance.org/installing\\_habitat](https://www.wildfarmalliance.org/installing_habitat)

[https://www.wildfarmalliance.org/instalacion\\_de\\_habitat](https://www.wildfarmalliance.org/instalacion_de_habitat)

[https://www.wildfarmalliance.org/video\\_library](https://www.wildfarmalliance.org/video_library)

The image shows a YouTube video player interface. At the top left is a circular profile picture of a bird. To its right is the video title 'Hedgerows: Living Fences to the Moon a...'. Further right are icons for 'Watch later' and 'Share'. Below the title is a dark grey banner with the text 'Climate change • Climate change refers to long-term shif...' and a right-pointing arrow. The banner also features the 'WILD FARM ALLIANCE' logo, which includes a stylized bird and foliage. The main video area shows a landscape with green and yellow plants. A large red play button is centered over the video. Below the play button, the title 'Hedgerows: Living Fences to the Moon and Back' is displayed in large white text, followed by the subtitle 'DESIGN, TECHNIQUE AND ISSUES' in smaller white text. In the bottom right corner of the video area is the YouTube logo. At the very bottom of the player is a dark grey bar with the title 'Hedgerows: Living Fences to the Moon and Back' in green text.

Hedgerows: Living Fences to the Moon a...

Watch later Share

Climate change • Climate change refers to long-term shif...

WILD FARM ALLIANCE

Hedgerows: Living Fences to the Moon and Back

DESIGN, TECHNIQUE AND ISSUES

YouTube

**Hedgerows: Living Fences to the Moon and Back**

# Hedgerows and Farmscaping Resource Guides

## HEDGEROWS AND FARMSCAPING FOR CALIFORNIA AGRICULTURE

A RESOURCE GUIDE FOR FARMERS  
2ND EDITION



## Supporting Beneficial Birds and Managing Pest Birds



Download at: [www.HedgerowsUnlimited.com/resources](http://www.HedgerowsUnlimited.com/resources)  
and [www.wildfarmalliance.org/bird\\_resource](http://www.wildfarmalliance.org/bird_resource)

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**HEDGEROW PLANTING**

(Ft.)

**CODE 422**

**DEFINITION**

Establishment of dense vegetation in a linear design to achieve a natural resource conservation purpose.

**PURPOSE**

Providing at least one of the following conservation functions:

- Habitat, including food, cover, and corridors for terrestrial wildlife.
- To enhance pollen, nectar, and nesting habitat for pollinators.
- Food, cover, and shade for aquatic organisms that live in adjacent streams or watercourses.
- To provide substrate for predaceous and beneficial invertebrates as a component of integrated pest management.
- To intercept airborne particulate matter.
- To reduce chemical drift and odor movement.
- Screens and barriers to noise and dust
- To increase carbon storage in biomass and soils.
- Living fences
- Boundary delineation and contour guidelines

**CONDITIONS WHERE PRACTICE APPLIES:**

This practice applies wherever it will accomplish at least one of the purposes stated above.

**CRITERIA**

**General Criteria Applicable to All Purposes**

Hedgerows shall be established using woody plants or perennial bunch grasses producing erect stems attaining average heights of at least 3 feet persisting over winter.

Plants selected must be suited and adapted to soil and site conditions, climate, and conservation purpose.

No plant listed by the state as a noxious weed shall be established in a hedgerow.

Species shall be selected that do not host pests or diseases that could pose a risk to nearby crops.

The practice shall be protected from livestock grazing and trampling to the extent necessary to ensure that it will perform the intended purpose(s).

Competing vegetation shall be controlled until the hedgerow becomes established. Control shall continue beyond the establishment period, if necessary.

All planned work shall comply with federal, state and local laws and regulations.

No minimum width beyond a single row is required except where wildlife food and cover is an objective.

**Additional Criteria for Wildlife Food, Cover and Corridors**

Establish at least two compatible species of native vegetation. Multiple species increase food and habitat diversity while reducing pest and disease risk.

Selected plants shall provide cover and/or food to support the landowner's wildlife objectives.

# Xerces Society

<https://xerces.org/>



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## Resources

### *Powerpoint Presentations*

- [EcoFarm Presentation 2026](#)
  - [EcoFarm 2026 Hedgerow Handouts-Black & White](#)
  - [Estimated Farmer Costs Worksheet](#)

### Recent Posts

[Snake eating squirrel](#)

[Elderberry](#)

[Flannelbush in flower](#)

# Handouts of This Presentation Available on [www.HedgerowsUnlimited.com/resources](http://www.HedgerowsUnlimited.com/resources)

1/12/26

Handouts from Hedgerow Workshop  
EcoFarm 2026

**Hedgerows and Other Habitat Plantings:  
Techniques and Benefits**

EcoFarm Conference  
January 23, 2026

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**Functions of Conservation Plantings**

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Tom Grant (aka Shraman)

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# Questions?



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