

# Carbon Farming for Pollinators

## Sequester carbon while bolstering bees and butterflies on your farm or ranch

Farmers and ranchers can help mitigate climate change while addressing the pollinator crisis by using carbon farming techniques. Carbon farming is a suite of agricultural practices that reduce greenhouse gas emissions and/or increase carbon sequestration. Small modifications to a number of common carbon farm practices can translate into big benefits to pollinators, including honey bees.



1. Field border with wildflowers and hedgerow; Photo: Rachel Long. 2. Cover crop between vineyard rows; Photo: Houston Wilson. 3. Herbaceous pollinator-friendly riparian habitat in the foreground with riparian forest buffer in the background. Photo: Kelly Gill, Xerces Society.

### Adaptations to Carbon Farm Practices that Promote Pollinators

#### 1. Provide abundant flowering plants

- Ensure blooms are available all year, especially in the early spring and late fall.
- Use native and/or regionally appropriate species adapted to the local climate.
- Integrate plants of different heights to create habitat structure.
- Incorporate variation in flower shape and color to attract different pollinators.
- Provide host plants like milkweed, native bunch grasses, or oak trees for butterflies and specialist bees.
- For temporary habitat like cover crops, allow to bloom before mowing or reincorporating into soil.

#### 2. Manage for nesting sites

- Include pithy-stemmed plants like elderberry or goldenrod.
- Preserve areas of partially vegetated or bare soil outside crop fields.
- Leave areas of mulch or leaf litter undisturbed over the winter months.
- Reduce or eliminate tillage.

#### 3. Protect habitat from pesticides

- Develop drift barriers of non-attractive plant species like conifers.
- Adopt Integrated Pest Management (IPM) approaches.

### Why Adapt Carbon Farm Practices to Benefit Pollinators?

- 1/3 of crops are pollinator-dependent.
- 75% of fruits and vegetables produce higher yields when pollinated.
- Bees and other insects are undergoing an “insect apocalypse” and need flowering plants to survive in order to continue providing pollination services to crops.



Monarch on showy milkweed, their host plant. Photo: Emily Reinhart.



Bee flying to its nest in a pithy stem. Photo: Emily May, Xerces Society.



Newly planted coniferous drift barrier. Photo: Deedee Soto, Xerces Society.

# Common Pollinator-beneficial Carbon Farm Practices

Practice	CPS	Description	How to adapt to benefit pollinators	C-sequestration potential*	Crop	Orchard/Vineyard	Range
Conservation cover	327	Permanent vegetative cover of forbs, grasses, and/or legumes.	1 (a-e), 2 (a-c), 3 (a-b)	0.6	x	x	
Cover crops	340	Temporary crops planted in summer or winter fallow periods.	1 (f), 3 (b)	0.4	x	x	x
Field Border	390	A strip of permanent vegetation established at the edge or around the perimeter of a field.	1 (a-e), 2 (a-c), 3 (a-b)	0.9	x		
Hedgerow Planting	422	Establishment of woody vegetation in a linear strip along field edges.	1 (a-e), 2 (a-c), 3 (a-b)	0.9	x	x	x
Prescribed Grazing	528	Managing harvest of vegetation with grazing animals to achieve specific management objectives.	Graze in a way that ensures 1 (a) & protects butterfly host plants	< 0.1			x
Range Planting	550	Establishment of vegetation such as grasses, forbs, and legumes on rangelands.	1 (a-e), 3 (b)	0.3			x
Reside and Tillage Management— No Till	329	Eliminating soil disturbance and managing plant reside.	2 (d)	0.2	x		
Reside and Tillage Management— Reduced Till	345	Limiting soil disturbance and managing plant reside.	2 (d)	0.1	x		
Riparian Forest Buffer	391	Permanent woody vegetation along riparian areas.	1 (a-e), 2 (a-c), 3 (a-b)	2	x	x	x
Riparian Herbaceous Cover	390	Permanent herbaceous vegetative cover along riparian areas.	1 (a-e), 2 (a-c), 3 (a-b)	0.2	x	x	
Tree/Shrub Establishment	612	Tree or shrub establishment by seeding, planting, or natural regeneration.	1 (a-e), 2 (a-c), 3 (a-b)	19	x		x
Windbreak/ Shelterbelt Establishment	380	Single or multiple rows of trees or shrubs in linear configurations.	Use as a strategy for 3 (a)	0.9	x	x	x

\*Carbon sequestration potential is measured in metric tonnes CO<sub>2</sub> per year per unit, calculated as either 1 acre or 500 linear feet depending on the practice using CDFA's version of COMET planner

## Why is Habitat in Working Lands Important?

Both croplands and rangelands provide habitat for pollinators. Rangelands, like natural areas, can function as source habitat for pollinators that end up in crop fields. Once pollinators are in agricultural landscapes, they have limited flight capacity only pollinating within range of their nests or hives. Creating attractive habitat around and within agricultural landscapes ensures pollinators are present everywhere they are needed.

## Incentive Programs Supporting Carbon Farm and Pollinator-friendly Practices

California Department of Food and Agriculture's [Healthy Soils Incentives Program](#)

USDA Natural Resources Conservation Service [Environmental Quality Incentives Program](#)



Native CA wildflowers provide pollinator forage near a farm field.  
Photo: Amy Williams.

## How to Get Started

Contact your local NRCS office or Resource Conservation District.  
Go to "Find Your RCD" on [www.carcd.org](http://www.carcd.org).

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