

Get Started: Ag Practices for Climate Resilient Farming for Native Bees

Minimize tillage. Many of our best crop pollinators live in nests underground for most of the year. To protect them, turn soil over only when and where needed. Leave plenty of natural areas with both native grasses and bare soil. Appreciate some weeds like dandelions that provide early pollen and nectar for bees.

Reducing tillage not only keeps carbon in the soil, it reduces fuel use, expenses, and greenhouse gas emissions.

Grow flower-rich cover crops.

Examples of excellent cover crops for farmers in Oregon also favored by native bees include clover (*Trifolium* spp.), phacelia (*Phacelia* spp.), buckwheat (*Fagopyrum* spp.) and sunflowers (*Helianthus* spp.).

Cover crops provide improved soil health, reduced erosion, additional nutrients, and weed suppression. Plant hedgerows of native shrubs, trees, and perennials to support pollinators and beneficial predatory insects.

Plant permanent plantings that flower continually throughout the year.

This provides stable non-crop forage and habitat for bees while strengthening the natural enemies of crop pests. For example, Oregon grape flowers provide essential forage early in the year, elderberry stems provide the perfect nests for cavity-nesting native bees, and asters and sunflowers provide blooms that extend late in the year. See online resources for plant lists and tips.

Create and implement an Integrated Pest Management Plan.

Many producers find that a plan of action for reducing pesticide use increases populations of pollinators and beneficial predatory insects. These plans also reduce input costs and nitrous oxide emissions, a dangerous greenhouse gas that contributes to climate change.

Above: Joan Thorndike, LeMera Garden, Ashland, OR



Longhorn Bee on Sunflower

Dig Deeper > Next Steps

There is much more to explore on these topics. Programs designed specifically for agricultural producers provide both funding and technical assistance to support farmers and ranchers in finding the right tools for the job. We offer an extensive list of resources online to provide guidance for accessing the growing knowledge-base about climate- and bee-friendly agricultural practices. Go to www.OurFamilyFarms.org for resources and more information.

This publication was made possible by Western SARE. Thank you to Oregon Climate and Agriculture Network, and to Pollinator Project Rogue Valley for providing content.

Photography: Diane Choplin Photography. Mason bee and Longhorn bee photography by Kristina LeFever.

Background sources for this brochure include: The Xerces Society, Community Alliance for Family Farmers, American Farmland Trust, Western SARE, and USDA NRCS.

Resilient Farming in a Changing Climate

Oregon Agriculture Can Be Part of the Solution



www.OurFamilyFarms.org



FRONT COVER: Joy & Eric McEwen Family, Diggin' Livin', Takilma, OR. ABOVE, 1 to r: Fry Family Farm, Medford, OR; Valley View Orchard, Ashland, OR; Fry Family Farm, Medford, OR; Rogue Creamery, Grants Pass, OR

Oregon Agriculture Can Be Part of the Solution to a Changing Climate

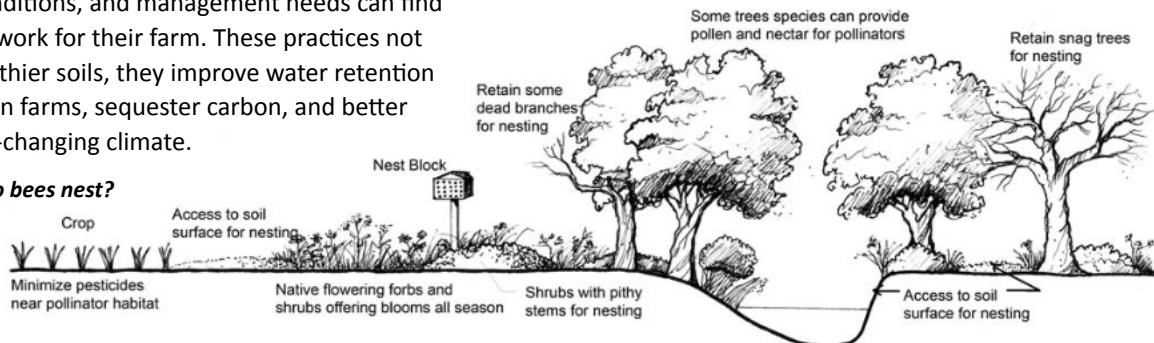
Farmers and ranchers are some of Oregon's most important land stewards.

Oregon's farmers and ranchers have an important role to play in solutions to our changing climate. From coastal dairy operators to eastern wheat farmers, from Hood River's Fruit Loop orchards to nurseries and diverse vegetable farms throughout the state – all of Oregon's farms and ranches can implement management practices that keep more carbon in the soil, reduce greenhouse gas emissions, and work for a farmer's bottom line. These actions will help provide a clear pathway for a future in Oregon with clean air, clean water, native pollinator habitat and communities resilient to a changing climate.

What is farming for climate resilience?

Farming for climate resilience is not a single practice or rigid methodology. It is a holistic farming and ranching approach that includes a diverse set of management practices. Each farm and ranch, with its own unique geography, conditions, and management needs can find solutions that work for their farm. These practices not only build healthier soils, they improve water retention and filtration on farms, sequester carbon, and better adapt to a fast-changing climate.

Where do bees nest?



Citation for image: Enhancing Nest Sites for Native Bee Crop Pollinators Agroforestry Note #34, General #8 [Agroforestry Notes, February 2007].

Economic benefits of farming for climate resilience.

Integrating best practices for climate resiliency on farms can create benefits to yields, income, and reduce inputs. American Farmland Trust has a series of soil health economic case studies looking at several different farms across the country who transitioned to climate resilient practices like reduced tillage and cover cropping. Across the case studies they found improved yields, increased income, reductions in fertilizer use, improvements to water quality, and reductions in greenhouse gas emissions.

One holistic approach to farming for climate resilience is to focus on the principles of soil health:

- Keep the soil covered
- Minimize soil disturbance and inputs
- Maximize biodiversity • Maintain living roots
- Integrate animals

Native Bees: Partners for production and profitability.

Oregon is home to over 500 native bee species. Native bees, both managed and wild, are actually better pollinators than the European honey bee for many crops because of the way they collect pollen and visit flowers. Solitary and often quite small, 70% of native bee species nest in the ground, emerging as adults at different times throughout the year. The installation of nesting boxes for cavity-nesting bees has proven to increase pollination of many crops, from fruit trees to squash.



Mason Bee on Coreopsis

Climate change is impacting Oregon farms and bees today.

From crops damaged by more frequent hailstorms and the impacts from earlier irrigation shut offs, to wild-fire smoke and higher temperatures harming our most vulnerable farmworkers, producers across the state are already feeling disruptions from climate change. Unpredictable weather patterns, fires, and higher temperatures also endanger populations of native bees causing plants to bloom earlier, or later, and encourage invasive plants that do not provide the nutrition that native bees need.

Climate resilient farming and the health of our native bee population are intertwined.

Climate resilient farming will help increase the biodiversity of our native bee species.

A diversity of native bee populations in turn will help farmers adapt to climate change.