

Self-Guided Tour of the F · A · R · M



Center for Agroecology &
Sustainable Food Systems

University of California,
Santa Cruz



Start with the Soil: The Organic Gardener's Guide to Improving Soil for Higher Yields, More Beautiful Flowers, and a Healthy, Easy-Care Garden, by Grace Gershuny. Emmaus, PA: Rodale Press, 1997.

Teaching Organic Farming and Gardening: Resources for Instructors, edited by Martha Brown, Jan Perez, and Albie Miles. Santa Cruz, CA: CASFS, 2015. Available for free download from casfs.ucsc.edu/about/publications.

The Soul of Soil: A Soil-Building Guide for Master Gardeners and Farmers, by Joe Smillie and Grace Gershuny. White River Junction, VT: Chelsea Green Publishing, 1999.

The Center produces a variety of publications, including a series of free 2- to 6-page “**For the Gardener**” handouts on organic gardening topics, and a series of organic Grower Guides for specialty crop growers. Many of our publications are available free at casfs.ucsc.edu/about/publications, or by calling 831.459-3240 or emailing casfs@ucsc.edu.

The CASFS YouTube channel includes a variety of instructional videos on farming and gardening techniques, and information on teaching organic farming and gardening. See

Agroecology and the Sustainable Food and Agriculture Movement

Agroecology: Ecological Processes in Sustainable Agriculture, 3rd edition. by Stephen R. Gliessman. Boca Raton, FL: CRC, 2014.

Cultivating Food Justice: Race, Class, and Sustainability, by Alison Hope Alkon. Boston, MA: MIT Press, 2011.

Food Justice, by Robert Gottlieb and Anupama Joshi. Boston, MA: MIT Press, 2010.

Stuffed and Starved: Markets, Power, and the Hidden Battle for the World Food Systems, by Raj Patel. Portobello Books Ltd. 2012.

The Farm as Natural Habitat: Reconnecting Food Systems with Ecosystems, edited by Dana L. Jackson and Laura L. Jackson. Covelo: Island Press, 2002.

Together at the Table: Sustainability and Sustenance in the American Agrifood System, by Patricia Allen. University Park, PA: Penn State University Press, 2004.

Welcome to the UCSC Farm. Whether you came to learn about the farming and gardening techniques practiced here or simply because the Farm caught your interest, we hope to share with you the history, purpose, and beauty of this unique campus and community resource.

Farm History

The Farm's garden beds, orchards, and row crops cover 30 acres of former grasslands that were part of the original Cowell Ranch. UC Santa Cruz students working with English master gardener Alan Chadwick founded the Farm in 1971 as an outgrowth of the Student Garden Project (now the Alan Chadwick Garden, located on upper campus). Chadwick began the Student Garden in 1967; there he developed “French intensive” organic gardening techniques that have since been widely adopted by both home gardeners and commercial growers.

French intensive refers to methods such as spacing plants close together in well-fertilized raised beds, a practice used by 19th century French market gardeners to maximize yields from small plots of land. In the UCSC Student Garden, Chadwick combined these methods with organic practices such as recycling garden nutrients through composting, building soil with organic fertilizers, and encouraging biological pest control in the garden by growing a diversity of plants. The Farm was created as an experiment in translating these and other organic management techniques from a garden to a larger-scale setting.

Today both the UCSC Farm and the Alan Chadwick Garden are part of UCSC's Center for Agroecology & Sustainable Food Systems (the Center, or CASFS). Through teaching, research, and community outreach efforts, members of the Center work toward developing and advancing sustainable food and agriculture systems. Such systems promote agricultural practices that conserve resources and maintain soil fertility; control pests with biological and ecological measures; provide socially just conditions for farmers and farm workers working at many scales; and provide equitable access to food.

The Need for Agricultural Alternatives

The current conventional agriculture and food systems are extraordinarily productive, but in the long run may not be sustainable. They have created tremendous pressure on natural resources and surrounding natural habitats, as well as compromising the health of rural communities, the food security of economically disadvantaged citizens, and the well being of many of those who grow and harvest our food.

The diversity of plants you see at the Farm has been produced using organic management techniques (sometimes called “alternative agriculture”). Both the Farm and the Chadwick Garden are inspected each year by the California Certified Organic Farmers (CCOF, an independent certification group) to ensure that our practices adhere to rules established by the U.S. Department of Agriculture's National Organic Program.

A Place for Learning

The UCSC Farm is a unique site for developing and demonstrating sustainable practices and agroecological principles that maintain soil fertility and crop yields while protecting natural resources. UCSC faculty and students use the Farm as an outdoor classroom for undergraduate courses and research projects. Children, high school students, and their teachers also use the Farm through the Life Lab program's tours, camps, teacher training workshops, and the "Food, What?!" program (see page 3). Public gardening workshops, community events, and group tours hosted by the Center and the Friends of the UCSC Farm & Garden take place at the Farm throughout the year.

From April through October, the Farm is also home to students from around the world who come here to learn organic farming and gardening skills through the six-month, full-time Apprenticeship training program. Many Apprenticeship program graduates go on to run their own farms, and to teach what they've learned to others through community development and school-based programs.

Visitors like you are an important part of our efforts to share information on the Center's work. We hope you enjoy your time here.

A Few Guidelines While You Walk

- Please stay on the paths. Vegetable and flower beds are carefully cultivated to provide proper aeration and drainage for plants – stepping on the beds compacts the soil. You are welcome to walk through the greenhouses, but please don't handle any of the plants or equipment and make sure to leave the doors as you found them.
- Please don't harvest anything. Sales of the vegetables, fruit and flowers grown here support our education programs and the facilities. Information on produce and flower sales is available on page 15 of this guide.
- You need not confine your visit to the tour stops. Feel free to wander where your interests lead you, except for residential areas (the tent cabins and Farm Center), the Agroecology Laboratory and Soil Laboratory, and the equipment barns. These areas are closed to visitors unless other arrangements have been made.
- The tour is approximately one half-mile long, and portions of it can be damp in the winter and spring, or when we are irrigating – be prepared to get your shoes muddy during those times. Comfortable walking shoes will make your visit more enjoyable.
- A public restroom is located on the south (ocean-facing) side of the Louise Cain Gatehouse, the wood and stone structure just inside the Farm's front wooden gate (to your left as you enter the Farm).
- More information about the Center and upcoming events is available at the CASFS Farm office, open Monday–Friday, 9 am–5 pm, or by contacting us at 831.459-3240 or casfs@ucsc.edu. You can also visit our website for information, casfs.ucsc.edu.

Community Supported Agriculture (CSA) & Market Cart

You can also support the Center by becoming a CSA member or shopping at our twice-weekly Market Cart. Our CSA project offers members a diverse supply of freshly harvested organic fruits and vegetables, balanced between berries, apples, pears, leafy greens, root crops, fresh herbs and summer veggies (tomatoes, corn, peppers, cucumbers, zucchini, etc.). Pick-up days for the CSA are Tuesday and Fridays.

On Tuesdays and Fridays from noon–6 pm you can also purchase organic produce and flowers from our Market Cart stand at the corner of Bay and High Streets at the base of the UCSC campus. The Market Cart runs from early June through October. More information on the CSA and Market Cart is available at <http://casfs.ucsc.edu> (see the *Community* link), or contact us at casfs@ucsc.edu, 831.459-3240.

The Apprenticeship in Ecological Horticulture

The Farm & Garden Apprenticeship, a six-month training program in organic farming and gardening, is offered by the Center each year and runs from mid April to mid October. Find details and an application at casfs.ucsc.edu (see the *Apprenticeship / Training* link), send email to casfs@ucsc.edu, or call 831.459-3240.

The Friends of the UCSC Farm & Garden

The *Friends of the UCSC Farm & Garden* support the Farm & Garden facilities and the Apprenticeship program with funds and volunteer energy. Working with the Center, the Friends also organize a year-round calendar of public gardening workshops and other community events. Learn more about our community support group and how you can become a member at casfs.ucsc.edu (see the *Community* link), or contact us at casfs@ucsc.edu, 831.459-3240.

Recommended Reading

Gardening and Pest Control Techniques

Golden Gate Gardening: The Complete Guide to Year-Round Food Gardening in the San Francisco Bay Area and Coastal California, by Pam Peirce.

Seattle, WA: Sasquatch Books, 2010. An excellent regional guide for those gardening in or near the "fog zone."

How to Grow More Vegetables Than You Ever Thought Possible on Less Land Than You Can Imagine, Eighth Edition, by John Jeavons. Berkeley, CA:

Ten Speed Press, 2012. Describes the double-digging technique and other practices used at the UCSC Farm & Garden.

Pests of the Garden and Small Farm: A Grower's Guide to Using Less Pesticide, by Mary Louise Flint. Oakland, CA: University of California, Division of Agriculture and Natural Resources, 1999. Publication #3332.

About the Cowell Ranch Hay Barn

Built in the late 1860s when this land was part of the Cowell Ranch, the historic Hay Barn was completely deconstructed and rebuilt between 2013–2016. The Barn was once part of the resource extractive industry performed here, with timber and limestone removed from the local landscape and transformed into lumber and lime for construction. This activity was fueled by animal power, and the Hay Barn helped to store hay and manage livestock. The renovated Hay Barn now serves as administrative quarters for the Center, an event space, and a site for information on various South Campus programs.

Learn More about Our Work

You can learn more about the Center’s research, education, and public service activities, upcoming events, Apprenticeship course, and other information at our website: casfs.ucsc.edu. You can also follow us on Facebook – type in Center for Agroecology and Sustainable Food Systems, and on Instagram – .

For additional questions, contact us at –

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Feel free to keep this guide or recycle it by placing it back in the dispenser box. We welcome donations to help cover printing costs and support our public education activities. Donations may be placed in the “iron ranger” just inside the entrance gate near the Louise Cain Gatehouse.

Become a Partner

Whether you’ve enjoyed a visit to the UCSC Farm or Chadwick Garden, purchased plants at our plant sales, taken one of our gardening classes, or shopped at our Market Cart, you’ve benefited from the programs of the Center for Agroecology & Sustainable Food Systems (CASFS or the Center) and the Friends of the UCSC Farm & Garden.

You can help us continue our history of high quality Apprenticeship training, education, research, and public service. These efforts enrich both the community and UCSC’s core mission of providing a comprehensive, interdisciplinary education for undergraduate and graduate students.

We invite you to be an ongoing partner with us in this vital regional, national and international resource. Your support is particularly important during this time of reduced public funding. Please make a tax-deductible gift today to fortify these critical programs and to partner with us to maintain their excellence in the future. Donate online easily and securely at casfs.ucsc.edu/Support, or you are welcome to send a check to the Center (see address, above) made out to the UCSC Foundation (attention: CASFS Program support).

Louise Cain Gatehouse

To the left of the visitor’s entrance is the Louise Cain Gatehouse, which serves as a classroom and meeting space. The Gatehouse, a reconstruction of the Farm’s first building, is named in honor of Louise Cain, a long-time champion of the Farm and the Apprenticeship, and a founding member of the *Friends of the UCSC Farm & Garden*. The Friends raise funds, help plan and staff public education events, and promote organic gardening and farming in the community. Read more about our community support group on page 15.

Hay Barn & Quarry Fields

Beyond the fence near the Gatehouse lie 2.5 acres of cropland dubbed the Hay Barn field. This field was added to the Farm’s original 25 acres in the fall of 2012, along with the 3 acre Quarry Field, which borders Hagar Drive. These fields are used for teaching, research, and growing crops for the campus cafeterias.

The path next to the Gatehouse leads to the Life Lab Garden Classroom.

Life Lab, the Garden Classroom, & FoodWhat?!

The Life Lab Garden Classroom opened in 2002 and serves as a model school garden and learning center for teachers and students. It was created by Life Lab, a non-profit organization and Center affiliate founded in 1979. Life Lab develops and promotes garden-based science curricula and nutrition education efforts for students from pre-school through high school. Life Lab programs use the gardens, farm fields, orchards, and the outdoor kitchen as “living laboratories” where students learn hands-on lessons on topics ranging from basic botany, soil structure, and the importance of pollinators, to the connection between their food choices and their health.

The Garden Classroom hosts a year-round schedule of school tours, day camps, teacher training workshops, youth programs, and community events. Here you can explore compost piles and worm composting in the “Rot Zone,” view bees at work at the observation hive, follow the “track trail,” and visit the plant petting zoo. UCSC student interns developed many of the garden’s features and activities, and serve as school tour guides.

The non-profit “Food, What?!” program serves high school students through internships, summer jobs, and community events. Staff members partner with local teens to grow, cook, eat and distribute healthy, organic food to the community. Along with learning how to grow crops, “Food, What?!” students develop critical life, leadership, and job skills through this award-winning program.

For more information on Garden Classroom programs, teacher trainings, and Life Lab publications, or to schedule a school tour, see www.lifelab.org, call 831.459-2001, or drop by their office in the trailer near the garden. For more information on “Food, What?!” see www.foodwhat.org.

Retrace your steps to the main path and continue past the Life Lab/CASFS office trailer to the solar greenhouses; turn left to reach the greenhouse entrances.

Solar Greenhouses

Many of the Farm's seedlings are raised here, where the warmth promotes germination and development. Once they are more mature, most seedlings are moved to outdoor tables where they can adjust to outdoor conditions (a process called "hardening off") before being planted in the gardens and fields.

These greenhouses use a passive solar energy system, capturing sunlight for heating rather than using gas or electricity (some power is used to open and close the automatic vents and run fans). Farm staff and apprentices monitor temperatures inside the greenhouses each day. To prevent plants from overheating in warm months they spray the inside of the greenhouse with water or place shade cloth over the plants. Vents also promote air flow as cool air enters through the lower vents and exits through the upper vents, creating circulation even when the greenhouse doors are closed.

Unlike most commercial greenhouse operations that rely on synthetic chemical pesticides and fertilizers, Farm staff use organic techniques such as "sticky traps" to control whiteflies and other pests, and compost "tea" or fish emulsion to promote seedling growth.

Feel free to step inside for a closer look; please leave doors and vents the way you find them, and do not disturb the plants and plant labels.

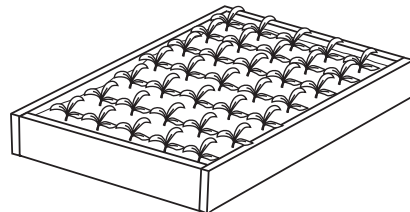
The tour continues up the path to the wooden lath house.

Lath House

This lattice-sided shed provides a dry, shaded space for mixing potting soil, sowing seeds, and transplanting seedlings. Bins along the floor of the east wall hold compost, soil, sand, and other ingredients used in a variety of potting soil recipes designed for specific seed and plant diets.

Most conventionally produced seedlings are grown in sterilized potting soils. Here we use "living" soil media of renewable ingredients that don't rely on extractive industries, such as peat mining. These ingredients include compost, leaf mold, sand, coir fiber (made from coconut husks), grape seed, and garden soil. Seedlings are also periodically watered with fish emulsion and kelp solutions for additional fertility.

After you visit the lath house, continue up the path; the Agroecology Laboratory is on your left.



Wooden flat used for seed sowing

© Cathy Genetti Reinhard

(Please note that the tent cabins are not open to the public.)

The tour continues to the CSA Barn and CSA Garden. If you'd like to see the orchards and the kiwi plantings, follow the path west between the row crops (see map) and rejoin the tour here later.

To see the CSA Barn and Garden, continue east to the main road and turn left. Walk past the persimmons and small pond to the historic barn and adjacent garden on the right side of the road.

Community Supported Agriculture – CSA Pick Up Site and CSA Garden

Community Supported Agriculture (CSA) is a unique partnership between farmers and consumers. In a CSA project, consumers buy a share of the farm's annual production and receive a weekly box of fresh produce. By paying for their shares up front, CSA project members give the grower a guaranteed market and capital to start the season. The CSA partnership provides more than fresh produce to its members – shareholders also learn about seasonal eating, local food systems, and what it's like to run a small farm operation. By connecting consumers directly with farms, the CSA movement raises awareness of the important role farms and farmers play and helps keep small-scale growers in business.

Our CSA draws many shareholders from the campus community. CSA members pick up their produce in the small building next to this historic barn, built in the early 1900s as part of the original Cowell Ranch operation. Adjacent to the barn is a cutting garden where shareholders can harvest flowers and herbs to supplement their weekly box of produce. If you're interested in learning more about the Center's CSA project, call 831.459-3240 or send email to farmcsa@ucsc.edu.

*Retrace your steps down the road toward the entrance gate.
The Farm Center is the two-story wooden building on your left.*

Farm Center

Students helped design and build the Farm Center in 1974 as part of a class project. The building serves as a meeting place, kitchen, and dining hall for apprentices and staff.

This concludes the Farm's self-guided tour. If you haven't yet seen the Alan Chadwick Garden, located on upper campus between Merrill and Stevenson Colleges, we encourage you to visit. The Chadwick Garden features an array of vegetable and landscape plantings, and more than 150 varieties of apple and other fruit trees tailored for home garden planting. There's also an extensive collection of citrus, roses, and California native plants. Parking is available in the Stevenson College lots, across the street from the Chadwick Garden.

particle size and structure, for crop growth. Studies conducted on the Farm examine the effect of various cover crop types and strategies.

Variety Trials – One way to limit pesticide inputs is to identify crop varieties that are naturally resistant to pest damage. Center members conduct variety trials to pinpoint those crops that perform best in systems in which no synthetic pesticides or fertilizers are used, that do well in the Central Coast climate, and that appeal to consumers.

To reach the apple orchards, continue north along the dirt road between the row crops and the hedgerow.

Apple Varieties

Local farmers and gardeners are always looking for disease- and pest-resistant fruit and vegetable varieties that will perform well in the Monterey Bay region. Here, Farm staff members are working to identify apple varieties well suited to local conditions. The oldest trees were planted in 1972; since 1990, new varieties have been added to the collection by grafting scions onto existing rootstock. Current favorites include Jonagold, Gala, and Fuji (for fresh eating); Mutsu (good fresh and for cooking); and Newtown Pippin (a late-ripening good keeper, great for cooking).

Beginning in 2002, staff began expanding the orchard (younger trees are to the east). New plantings include the varieties Valstar, Honeycrisp, Molly's Delicious, Hudson's Golden Gem, Chehalis, Ginger Gold, Jonagold DeCoster, Gale Gala, Auvil Fuji, and an unnamed Red Fuji. Half of the new trees are on dwarfing rootstock (M7 or M26) that will limit their height to about half the size of standard trees. This allows us to plant more trees per acre and makes pruning and harvesting easier. In the fall, Farm staff plant bell beans around the base of the trees to provide a nitrogen source.

Controlling codling moth damage in apples can be a challenge for organic growers. Left unchecked, codling moth larvae – the “worm” you sometimes find in your apple – can damage up to 80 percent of an apple crop in a season. Here, moth populations are monitored using traps baited with a synthetic copy of the pheromone, or “sex scent,” that female moths emit to attract males. Once the weather is warm enough for the overwintered moths to hatch and begin mating, Farm staff use current weather data to determine the best date to apply granulosin virus, an organically acceptable control for codling moth larvae. In larger orchards, growers use a technique known as “male confusion,” releasing large amounts of pheromone that mask the scent of female moths, making it difficult for males to locate a mate.

Tent Cabins

To the northwest of the apple orchard you can see a set of nine wooden tent cabins. Built in 2010 with support from grants, foundations, and many generous donors, the tent cabins house participants in our annual six-month Apprenticeship training program in organic farming and gardening.

Agroecology Laboratory

Classes based at the Farm use the laboratory for lectures and lab sessions. Across from the agroecology lab is the soil lab, where soil and root samples are processed for analysis. (*Reminder: The lab buildings are not open to visitors unless special arrangements have been made.*)

Surrounding the lab building is a border of California native plant species. Among them are black sage, California bush anemone, coast silk tassel, California flannel bush, pitcher sage, and Western sword fern. These plants require less water and are less vulnerable to pests and diseases than many of the non-native species often used in landscaping.

Social Issues Display

Just outside the lab is a display board that discusses some of the food system's social issues. The Center conducts research and works with community groups on a variety of social issues related to food and agriculture, including labor movements, food system policies, school food systems, and meeting UCSC students' basic food needs.

Continue up the path to the perennial border, which runs along the rose trellis to the right of the small wooden vegetable shed.

Perennial Border

This border of flowers and shrubs features perennials, plants that grow and flower year after year. Using a mix of perennials that bloom in different seasons, gardeners can create year-round displays of colors, scents, and textures that require minimal maintenance once they're established. The gardeners chose plants both for their aesthetic qualities of beauty, fragrance, and form, as well as their use as cut flowers (both fresh and dried).

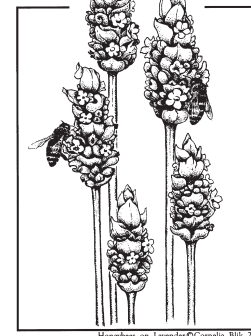
As with most perennial plantings in this climate, much of the border's maintenance takes place in late winter, when plants are pruned and fertilized with compost.

The path between the vegetable shed and the perennial border leads to the main garden.

Main Farm Garden

This hand-worked garden of vegetables, herbs, and flowers measures 200 by 350 feet with the beds oriented north-south for maximum sun exposure. The native soil is sandy loam with average fertility and drainage qualities.

Here in the garden, apprentices and students learn market garden production skills, including soil care, bed preparation, irrigation, and pest control, as they plant, care for, and harvest a wide variety of crops. Some of the gardening techniques used here include –



Double-dug Beds – Compare the loose, aerated soil of the beds to the compacted soil of the paths. Reach down and feel a bed’s light, crumbly soil texture. Gardeners created this plant-friendly environment by initially double digging the bed (see diagram at right) and adding compost that will nourish soil organisms and release nutrients throughout the growing season. Once beds have been double dug they can be maintained by “deep forking,” loosening the top layer to the depth of a digging fork’s tines and adding compost each year. We also plant a cover crop in the winter to protect the soil from erosion. This garden’s system of permanent beds and paths produces abundant yields year after year.

High-Density Planting –The rich soil conditions created by double digging and adding compost can support a high density of plants. In many beds, seedlings are spaced so that the leaves of the mature plants will touch those of adjacent plants. The canopy they create reduces evaporation and inhibits weed growth.

Intercropping – Another way to increase yield in a limited space is to grow several different crops in the same bed. This planting strategy requires careful planning, so that all the plants’ needs are met. For example, shade-tolerant vegetables, such as lettuce and radishes, can be grown beneath trellised cucumbers or peas, which prefer full sun.

Diverse Plantings – In natural ecosystems, many different plants and animals live together, each with its own ecological “niche.” This diversity helps maintain a balance of predators and prey, and inhibits the outbreak of pests and diseases. The garden mimics nature’s diversity by including many different types of vegetables, fruits, flowers, and herbs. Many of these plants provide habitat for birds and beneficial insects – insects that prey on or parasitize plant pests. In contrast, large areas planted with only one type of crop, known as monocrops, can be a magnet for pests but often support fewer beneficial insects.

In the summer of 2010, staff and apprentices added a “high tunnel” to the garden. The greenhouse-like structure covers several garden beds and acts as a “season extender,” making it possible to start crops earlier in the growing season and providing warmer conditions as the weather cools.

The tour continues to compost row at the back of the garden.

Compost Row

You can think of the compost piles that border the garden as a combination recycling center/fertilizer factory. Inside the piles, bacteria, fungi, and insects are at work breaking down layers of weeds, cover crops, straw, and stable bedding (horse manure mixed with straw). Temperatures rise to as high as 160°F within the piles as the bacteria and other organisms breathe and move around, generating heat that destroys harmful microorganisms and weed seeds. Farm apprentices speed the decomposition process by turning and watering the piles to keep them aerated and moist.

The end result of the composting process is a dark brown, earthy-smelling humus that looks like rich, crumbly soil. When added to the garden

Cover crops grow during the winter and are worked into the soil in the spring to decompose before edible crops are planted. Each year, Farm staff members also take a portion of the fields out of normal summer production (a practice known as fallowing) and plant a summer cover crop such as cereal rye, annual buckwheat, or sorghum-sudangrass in order to build soil organic matter and prevent loss of organic matter from a “dry fallow” in the summer sun. Preserving and protecting organic matter is a foundation of the farm’s fertility management plan. Crops are also “rotated” from place to place in the fields so that the same crop isn’t grown in the same area year after year. This practice of crop rotation helps limit pest and disease outbreaks.

Herbicides account for more than two-thirds of the chemical pesticides used in farming operations each year; controlling weeds without herbicides can be a challenge for organic growers. Here, timely, careful cultivation using various implements pulled behind a small tractor saves hours of hand hoeing. This type of weed control can be adapted to a variety of row crops. Drip irrigation also limits weed growth, and crop rotations are designed to help break cycles of perennial weed growth.

Beyond the fields and orchards grows a row of dark green trees. These are Monterey cypresses, planted to protect the row crops from wind damage. Windbreaks and other perennial plantings provide food, fuel, erosion control, and wildlife habitat – they play an important role in a diverse farm ecosystem.

Research on the Farm

Portions of the Farm’s fields, gardens, and orchards are used for research projects and agroecology class experiments. Over the years, Center researchers, UCSC faculty affiliates, cooperating scientists, and students have investigated a variety of topics, including –

Soil fertility and nutrient management – One of a farmer’s biggest challenges is to maintain a balance of nutrients in the soil – providing enough so plants will thrive, but avoiding an excess that can pollute waterways and wells. Studies at the Farm have included research on the impacts of different types and levels of organic fertilizers and cover cropping systems on soil and crop nutrient levels and yields. Other research has monitored nutrient levels in rain and irrigation water as it moves through the cropping system to determine the amount of nutrients being leached from the soil.

Intercropping – Growing more than one type of crop in the same plot, or growing crop and non-crop plants together may limit pest problems and in some cases increase yield from each crop. Class experiments and other studies examine the differences between monocropped and intercropped plots to see whether intercropping might hold promise for growers interested in these systems.

Cover Crops and Crop Rotations – Cover crops can boost soil fertility, protect the soil from erosion, and improve soil conditions, such as

beds, finished compost replenishes nutrients and organic matter removed when crops are harvested. Humus also improves soil structure and creates a spongy texture that helps hold moisture in the soil.

Bordering the compost piles on either side of the path are hedgerows of fruit trees, alder and locust trees, and various shrubs. These plants shelter the main garden from westerly winds and protect the compost from wind and sun. Through their roots, the hedgerow plants take up nutrients leached from the compost piles by the rain, and return these nutrients in the fall in the form of fallen leaves. The hedgerow's trees and shrubs also attract beneficial insects and pollinators.

To see the blueberry variety trial, turn left and walk to the end of the hedgerow and turn left at the next path. Continue to the blueberry plants ahead of you (on the right).

Blueberry Variety Trial

Farm staff worked with researchers from UC Cooperative Extension to establish this blueberry variety trial. The goal of this project is to develop recommendations for small-scale organic growers on which types of blueberries perform best under Central Coast growing conditions, and on the management techniques involved in growing and maintaining the plants.

Fifteen varieties of blueberries were planted in 2004. Of those, 'Southmoon', 'Jubilee', 'Jewel', and 'Millenia' have performed especially well, although staff note that keeping the soil acidity level high enough for blueberries to thrive – and protecting the plants from birds – can pose challenges. Prior to planting the trial, Farm staff amended the soil with sulfur to raise its acidity. Each year plants are mulched with wood chips and during the season vinegar is applied through the irrigation system to keep the soil's pH level (a measure of its acidity) at approximately 5.

To see the row crops, walk back past the hedgerow and turn right.

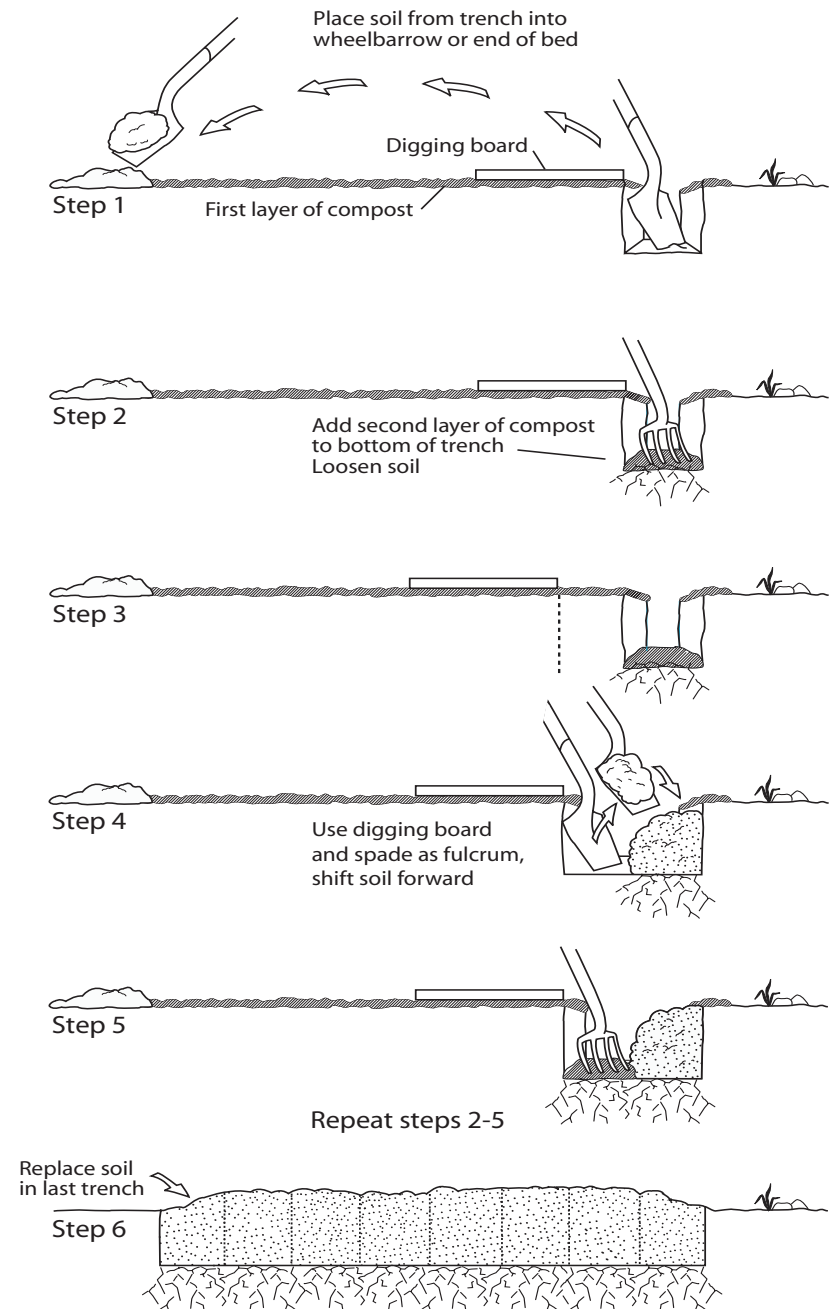
Field Crops

The row crop fields and other fields and orchards surrounding this site supply our Community Supported Agriculture project (*see more on page 13*) along with the twice-weekly Market Cart and direct sales to campus cafeterias and restaurants. Many of the crops grown here are planted in a carefully timed sequence to provide successive harvests from early spring through late fall.

Depending on the time of your visit, crops may include broccoli, bush beans, salad greens, summer and winter squashes, corn, melons, onions, garlic, peppers, tomatoes and potatoes. Farm managers use a small tractor to prepare the fields and to plant and cultivate the row crops, supplemented by hand labor. This area of the Farm demonstrates the way organic practices can work on a scale larger than that of the hand-worked garden beds.

To maintain soil fertility and limit erosion from winter rains, cover crops such as bell beans, rye, and vetch are planted after the fall harvest.

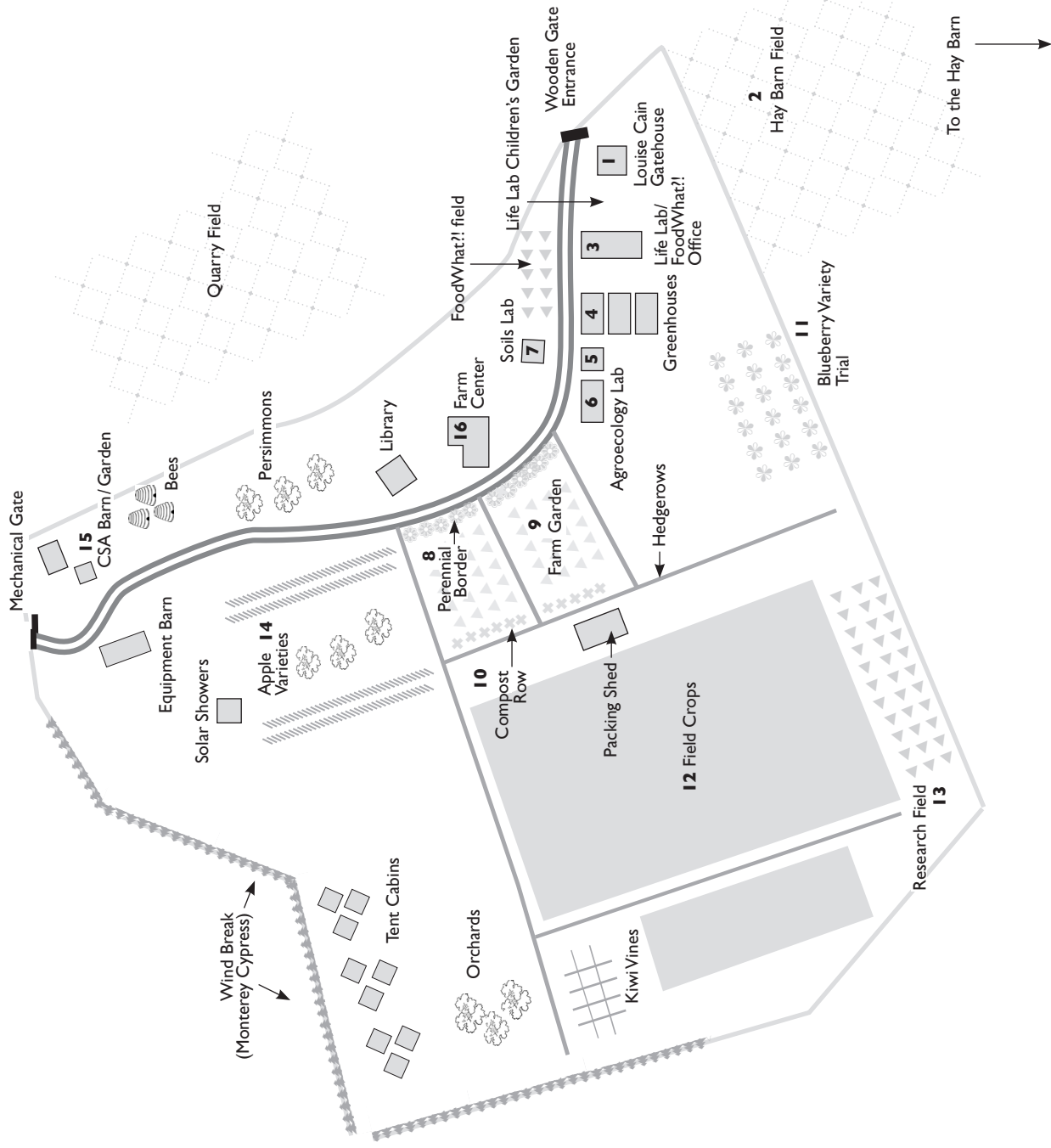
Making Double Dug (Raised) Beds



Self-Guided Tour of the UCSC Farm

Center for Agroecology & Sustainable Food Systems

University of California, Santa Cruz



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