



## Tree and Shrub Establishment (CPS 612)

Part of Fibershed's Carbon Farming Education program, learn more online at: [fibershed.org/carbon-farming](http://fibershed.org/carbon-farming)



### Selecting Appropriate Species

#### Choose the Right Plant for the Right Place!

Understanding the specific characteristics of your site is critical for selecting species that will thrive.

- ▶ What species are native to the area?
  - These are the best adapted to the region's climatic patterns.
  - Especially with a changing climate, consider species that are adaptable to hotter and drier conditions. Look to the ecosystems and species that thrive a few degrees of latitude south of your site.
  - Match plant species to their natural role and function within an ecosystem, for example planting oak trees to restore California oak savanna ecosystems.
- ▶ What are the soil characteristics and moisture levels: well drained, poorly draining?
- ▶ How much sun does the site get: full sun, part sun/part shade, full shade?
- ▶ Is there heavy pressure from animals such as deer, gophers, or voles, etc.?
  - Even 'deer resistant' trees are not immune, but can help thwart deer. Deer fencing or gopher baskets may be necessary.
- ▶ Are there nearby hazards such as a septic system or buried utility lines?
  - Plant a tree *at least* as far apart from a septic as the spread of the canopy, because the spread of the roots often mirror the size of the canopy. Don't plant water loving trees near septic tanks or drain fields!
  - Call 811 before digging and someone will come out and mark underground utilities for free.
- ▶ Pollination requirements for fruit and nut trees: some trees are self pollinating but many require another tree to be pollinated.



### Benefits and Functions of Planting Trees and Shrubs

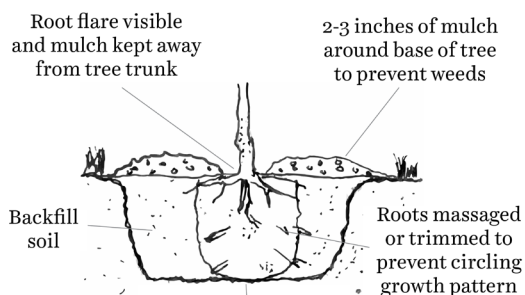
- ▶ Habitat and food for native wildlife species such as birds, mammals, and pollinators. Native species are best for this.
- ▶ Providing additional crops and yields
  - Food crops such as fruit, nuts, berries
  - Fodder for livestock (such as mulberry, olive, willow, or persimmon)
  - Building material and firewood
  - Medicinal value
- ▶ Providing shade for livestock or for buildings to reduce summer energy use
- ▶ Improving soil health and increasing soil carbon sequestration
- ▶ As windbreaks and hedgerows
- ▶ Nitrogen fixation in the soil (certain species)
- ▶ As part of greywater systems
- ▶ Aesthetic beauty



## Layout and Planting

A general rule of thumb is to space trees at least the distance that their canopy will spread, unless the function is for high density as in the case of a windbreak.

1. Plant in the fall as winter rains are starting to give the tree time to become established before summer drought. With proper irrigation trees can be planted throughout the year, although mid summer is not ideal.
2. Dig a hole the depth of the root ball. For trees, make the hole twice the width of the root mass. For smaller shrubs in containers the width can be slightly larger than the container.
3. If the plant is root bound, massage roots to open them up. Scoring the sides with a knife or hori hori may be necessary if it is especially root bound.
4. If a gopher basket is necessary, create one with mesh wire and place around root ball.
5. Plant the tree so root flare (where trunk/stem widens and becomes the roots) is level with the ground.
6. Backfill soil around it. Tamp down soil as you go so there are no air pockets, but not too much to compact it.
7. Apply 2-3" wood chips around the base of the tree as a mulch to help retain soil moisture and prevent weeds. \*Keep mulch 4-6" away from the root flare and trunk, as it can rot the trunk!
8. Water in thoroughly.
9. If a deer cage is necessary wrap one around the tree and stake in.



Planting hole can be twice the width of root mass and is of equal depth



## Complementary Practices

- ▶ Alley cropping (CPS 311)
- ▶ Hedgerows (CPS 422)
- ▶ Multistory cropping (CPS 379)
- ▶ Mulching (CPS 484)
- ▶ Riparian restoration
- ▶ Silvopasture (CPS 381)
- ▶ Windbreak/Shelterbelt Establishment (CPS 380)



## Establishment and Ongoing Maintenance Considerations

- ▶ In California, most plants and trees will need supplemental irrigation during the summer for the first few years to become established. Small trees need about 15-20 gallons per month, while larger trees need about 30-40 gallons. Water slowly and deeply 1-3 times per week depending on conditions.
- ▶ Annual pruning and thinning is often beneficial for fruit trees for plant vigor and accessibility of fruit. Timing depends on fruit type.
- ▶ Some fruit trees such as apples may benefit from an Integrated Pest Management strategy.



## Technical Support and Sourcing

For assistance with plant selection:

- ▶ Local nurseries
- ▶ Local Resource Conservation District ([carcd.org](http://carcd.org))
- ▶ Local groups and organizations such as California Native Plant Society ([cnps.org](http://cnps.org)), etc.
- ▶ [Calflora.org](http://Calflora.org) ▶ [Calscape.org](http://Calscape.org)

Many shrubs and trees can be propagated from cuttings and rooted. You can also organize or participate in seed and plant cutting exchanges.



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