

# **UC Santa Cruz**

## **Teaching Organic Farming and Gardening**

### **Title**

Teaching Organic Farming and Gardening: Resources for Instructors, 3rd Edition. Unit 1.2: French Intensive  
Soil Cultivation Demonstration: Double Digging Sequence

### **Permalink**

<https://escholarship.org/uc/item/6tc3206h>

### **ISBN**

978-0-9828781-0-1

### **Author**

University of California, Santa Cruz

### **Publication Date**

2015-01-15

Peer reviewed

# Part 1 Organic Farming and Gardening Skills

## Unit 1.2 French Intensive Soil Cultivation Demonstration: Double Digging Sequence

Resources for instructors  
A Project for the Center of Agroecology and  
Sustainable Food Systems (CASFS)  
University of California, Santa Cruz





## **Skimming Cover Crops**

Use a sharp spade to skim off cover crops from the bed at soil level. Roots and other weedy debris can be removed during cultivation. Skimmed vegetation can be used in compost piles.



## **“Squeeze Test” – Squeeze a handful of soil to check for moisture level**

- Bottom left: Too dry
- Top left: Too wet
- Top right: Correct soil moisture, between 50–75% field capacity. Soil forms loose ball when squeezed.



## Lay Out Garden Bed

- Pound stakes in corners; 48" is a typical bed width
- String bed edges
- Apply amendments evenly across the bed surface, using the string edge as a guide



# Before You Start to Dig

- Wear close-toed shoes
- Warm up with movement and stretching
- Use tools of the proper length so that you keep your back straight when working
- Use tools to shift, not lift, soil
- When lifting, use your legs and not your back muscles

## Bed Preparation Tools

- Garden Spade
- Garden Fork
- Bow Rake
- Digging Board



## Articulate the Bed Edges with a Spade

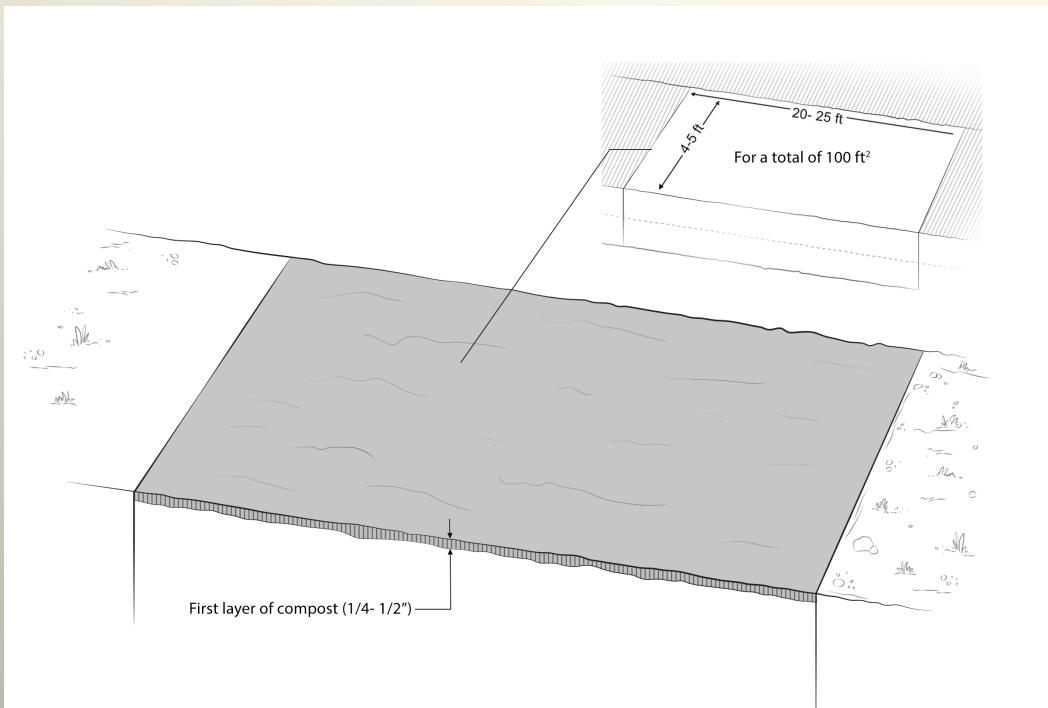
- Ensure that the spade enters the soil straight up and down to create a clean edge



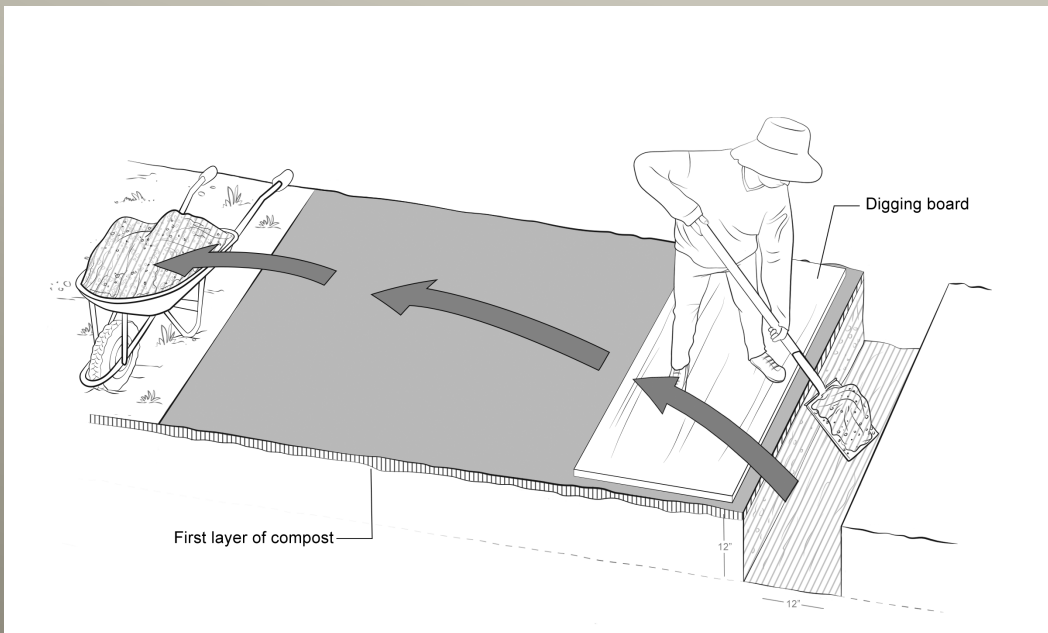
# Use a Spade to Dig a First Trench across the Bed

- Stand on a digging board as you work to spread your weight and prevent soil compaction
- Place soil from first trench in wheelbarrow to fill last trench





**As illustrated in the previous slides:  
Spread compost evenly across the bed in a layer ¼" to ½" deep**

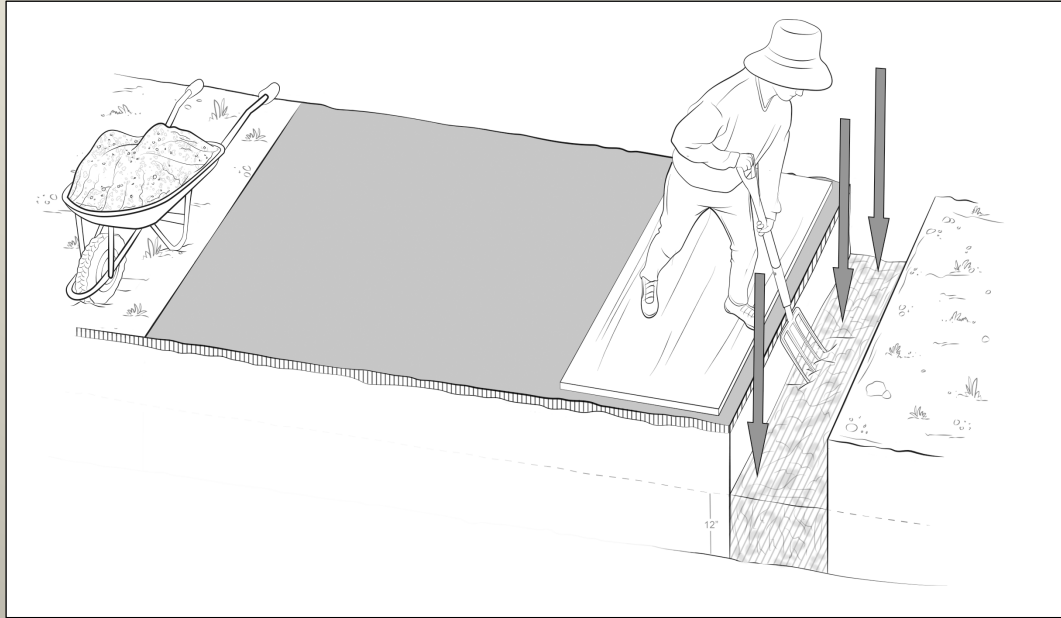


**Stand on a digging board, dig a first trench 12" x 12" across the width of the bed, and place soil in wheelbarrow to fill last trench**

# Add Compost to the Trench

- Spread an even layer of compost on the base of the trench
- Use a fork to fracture/loosen the subsoil in the bottom of the trench and incorporate the compost





**As illustrated on previous slide:  
Add compost to the trench, then use a digging fork to fracture the soil in the trench base and incorporate the compost.**

## Create Second Trench

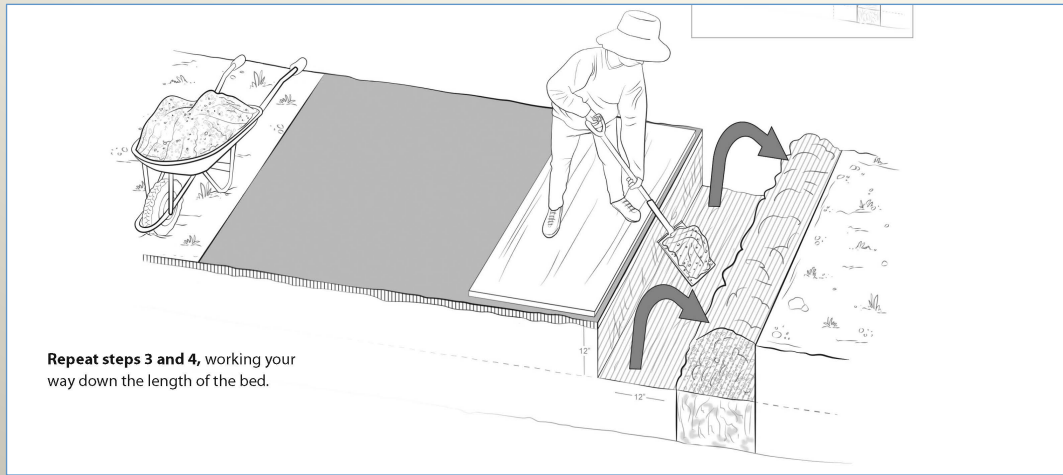
- Shift digging board back
- Use digging board as fulcrum to shift small “slices” of soil forward to create a new trench. The soil should mound higher than the surrounding path.



## Create Second Trench (cont'd)

- Continue until new trench ~12" across and depth of spade has been created across the width of the bed
- Add compost to trench and work in with fork



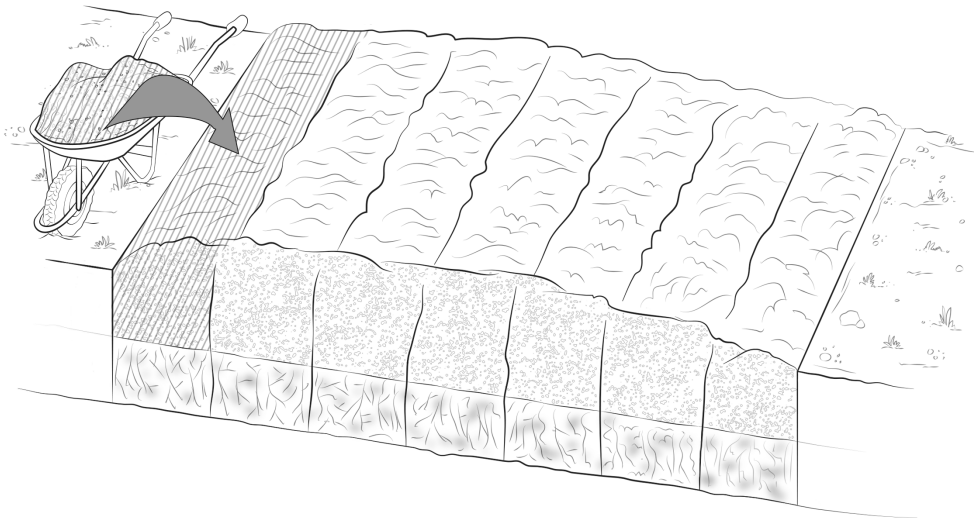


**As illustrated on previous slides:  
Use a fork to slice off sections of soil and lever it forward to create a new trench, moving the digging board back as you go, until the trench is approximately 12" across and spans the width of the bed .**

## Fill Last Trench

- Continue digging and filling trenches down the length of the bed. Note that as you lever the soil forward it will pile higher than the path edge as you introduce air and increase “loft.”
- Once you reach the end of the bed, fill the last trench you’ve created with the soil from the first trench that you placed in the wheelbarrow





**As illustrated on  
previous slide:  
Fill the last trench  
with the soil in the  
wheelbarrow from  
the first trench.**

# Incorporate Amendments and Shape Bed Surface

- Use a garden fork to incorporate any additional amendments
- Use a fork or rake to fracture large soil clusters
- Use the bow rake to shape the bed surface into a flat or slightly convex form
- Use the back of the rake to smooth the bed surface



# Advantages of Double Dug or “Raised” Beds, Well Amended with Compost

- Soil warms quickly
- Incorporated organic matter holds moisture
- Plant roots penetrate soil easily
- Soil aeration increases the rate of mineralization and release of plant-available nutrients
- Beds can be planted “intensively,” with plants placed close together

