



# Quick Start Guide

## The 5 Fastest Ways to Improve Your Organic Garden



Special Note:

*We are still accepting students at 50% off for 2020 streaming classes*  
**Click here**

If you integrate the methods from this guide into your food garden, you can **double your yields** and **cut your work in half**. It really is possible.

Scroll Down for 46 pages of TIPS





The following information will give you an introduction to organic, bio-intensive methods I've used in my home food garden for over 16 years.

Following this natural systems approach is the key reason I get consistently high yields of nutrient-dense food. The methods save water, labor, and build soil each year, and allow me to take off during the growing season for weeks at a time due to a simple timer and drip irrigation.

My growing season in Colorado is only around 120 days, so timing is tight, but because these methods create such robust growth with living soil, I produce over 1000 pounds of organic food in my yard during those 120 days. This happens year after year. Just integrating these methods into your own gardening efforts can double your yields, while cutting your labor in half. Come join the fun!

*-Tom Bartels, [GrowFoodWell.com](http://GrowFoodWell.com)*

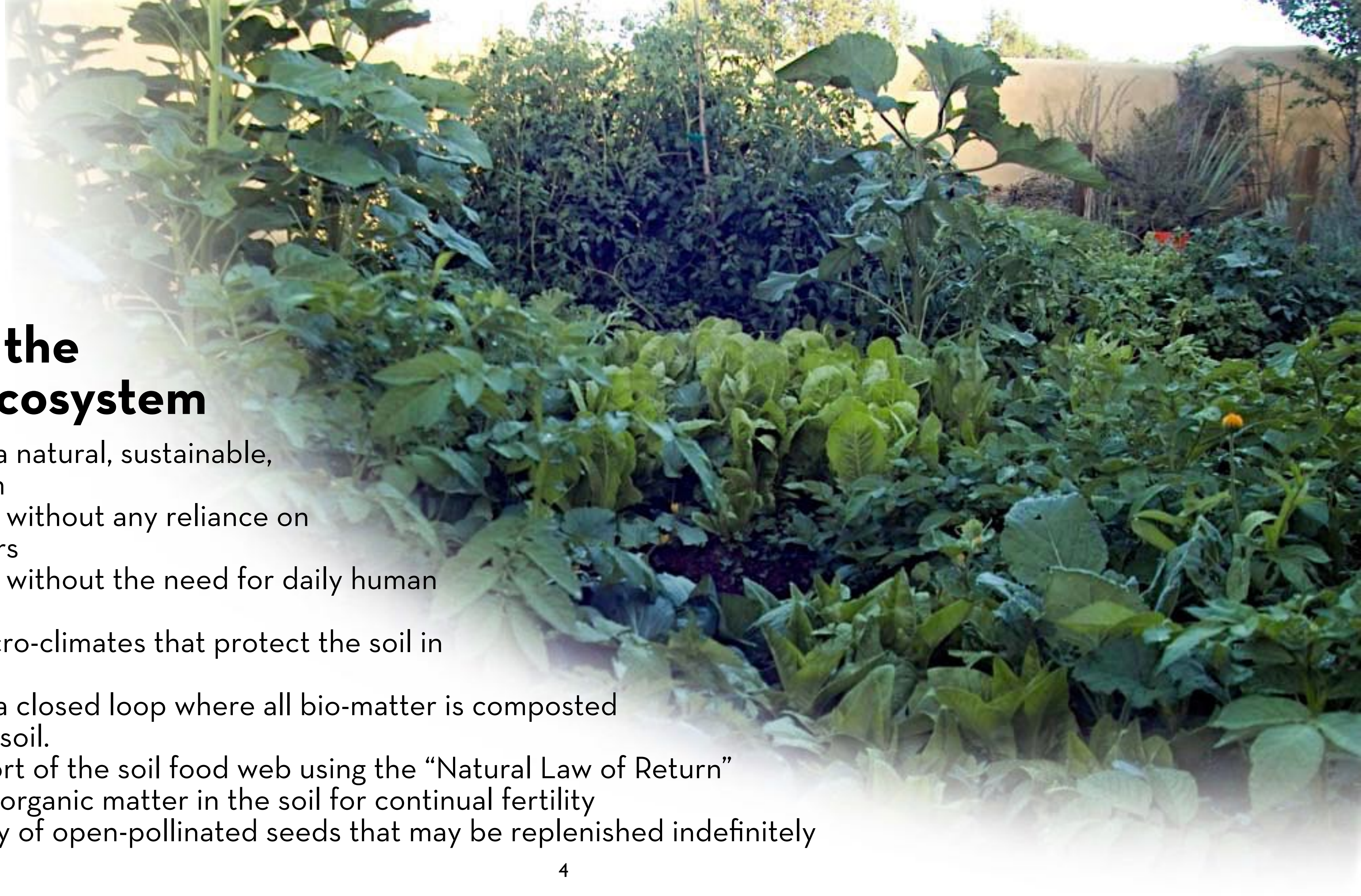


## Goals for the Garden Plants



- They need an uninterrupted growth cycle from germination to harvest.
- They need ideal growing conditions, with deep beds, aerated soil, compost, and intensive spacing.
- They need access to nutrient-rich living soil.
- They need to be planted on time so the entire growing season can be used.
- They need access to the benefits of microorganisms in the soil.
- If cared for, they should reach their full genetic potential in your backyard.





## Goals for the Garden Ecosystem

- The creation of a natural, sustainable, living ecosystem
- Plants that grow without any reliance on artificial fertilizers
- Plants that grow without the need for daily human intervention
- Living mulch micro-climates that protect the soil in each bed
- The creation of a closed loop where all bio-matter is composted and returned to soil.
- Continual support of the soil food web using the “Natural Law of Return”
- A density of 6% organic matter in the soil for continual fertility
- An annual supply of open-pollinated seeds that may be replenished indefinitely



*To be interested in food but not in food production is clearly absurd.*  
-Wendell Berry





## Initial Garden Priorities

- Avoid the use of synthetic chemicals.
- Garden location should be as close to house as possible with 6 hours of sun exposure during growing season.
- Locate in flat area with good drainage, with beds aligned from north to south.
- Fence the garden from unwanted pets and pests.
- If you want a baseline soil test, contact your county extension office. But it isn't



# Where is Your Main Focus?



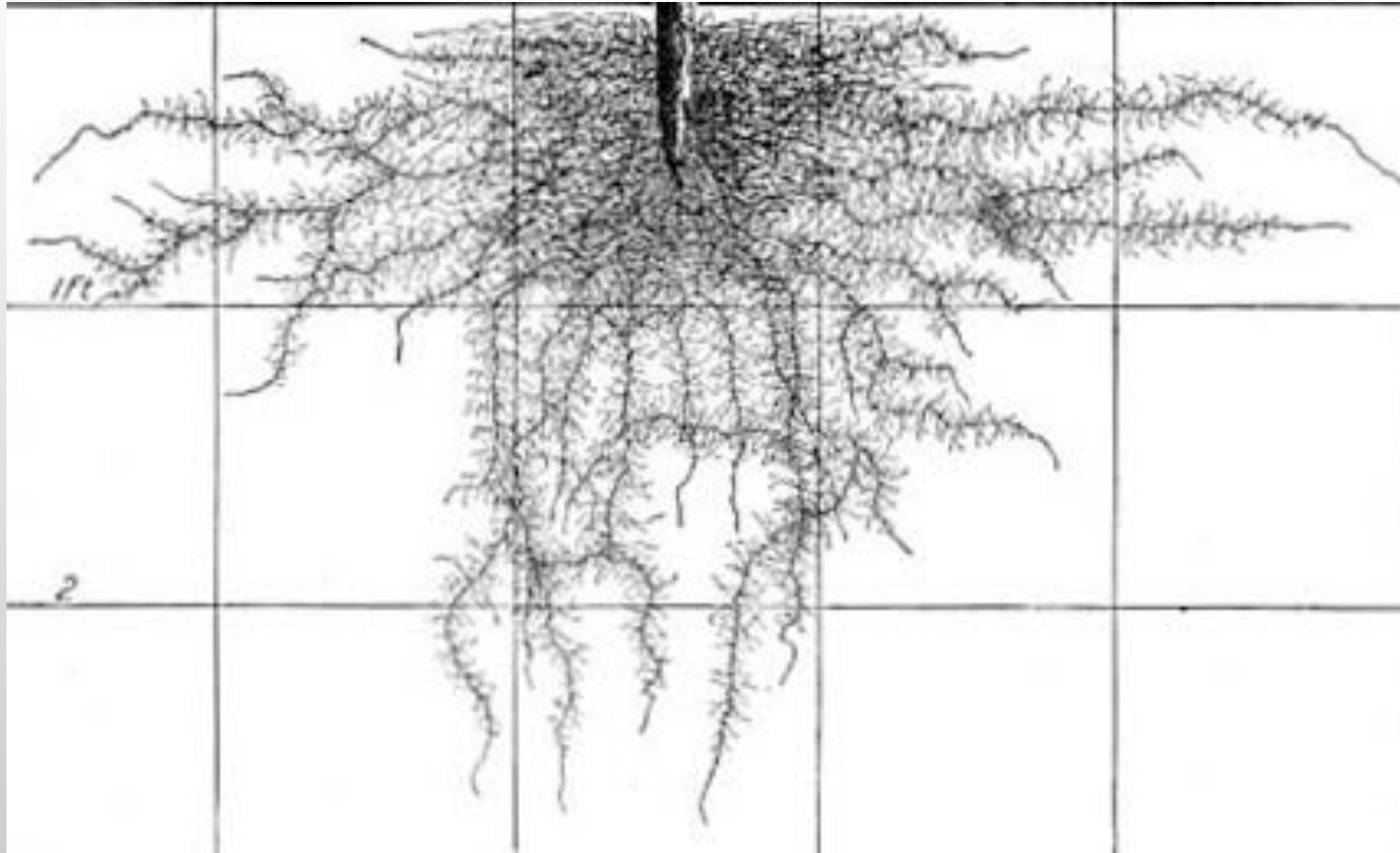
## When there is a problem... Are You Looking Deeper?

Many food gardeners focus on what's going on above the soil in their gardens, and react to it above ground, with regard to pests, leaves, top growth, etc... And that makes sense, because it's the part of the growth cycle we can SEE, so we react to it. But that's usually just a symptom...

...What happens below the ground is the biggest key to success.



3'



**Cabbage Root Profile**

# Roots...

have relationships with:

- Bacteria**
- Fungi**
- Protozoa**
- Nematodes**
- Micro-arthropods**

**Magic happens  
down there.**

**Notice the “Root Hairs.”  
This is key to healthy  
plants.**

**Roots need:**

- Loose, living soil**
- Minerals and Nutrients**
- Water**
- Oxygen**

# The Five Fastest Ways to Improve Your Organic Garden

## #1: Stop Planting Your Garden in **ROWS**



Rows Lead to:

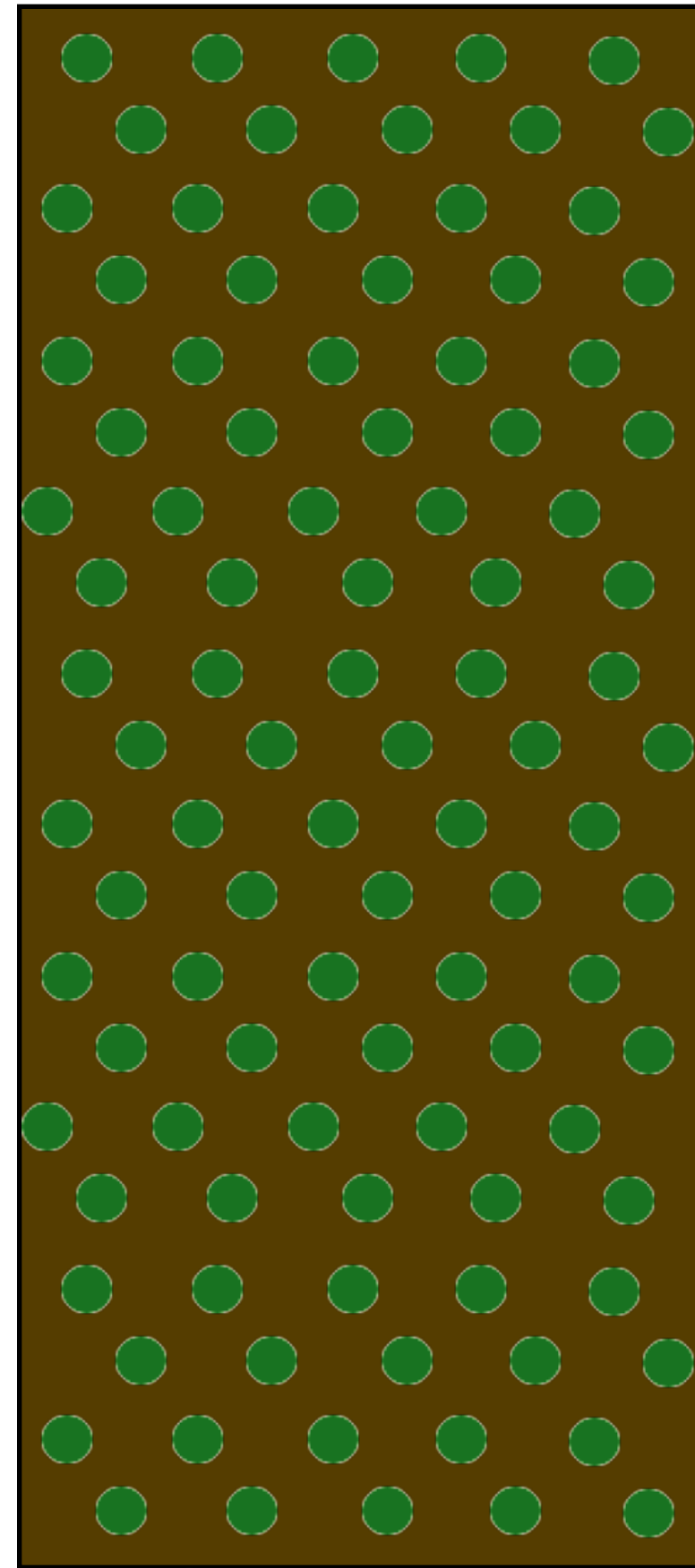
- Compacted soil
- Weeds
- Less plantable space
- Temperature swings
- Increased evaporation



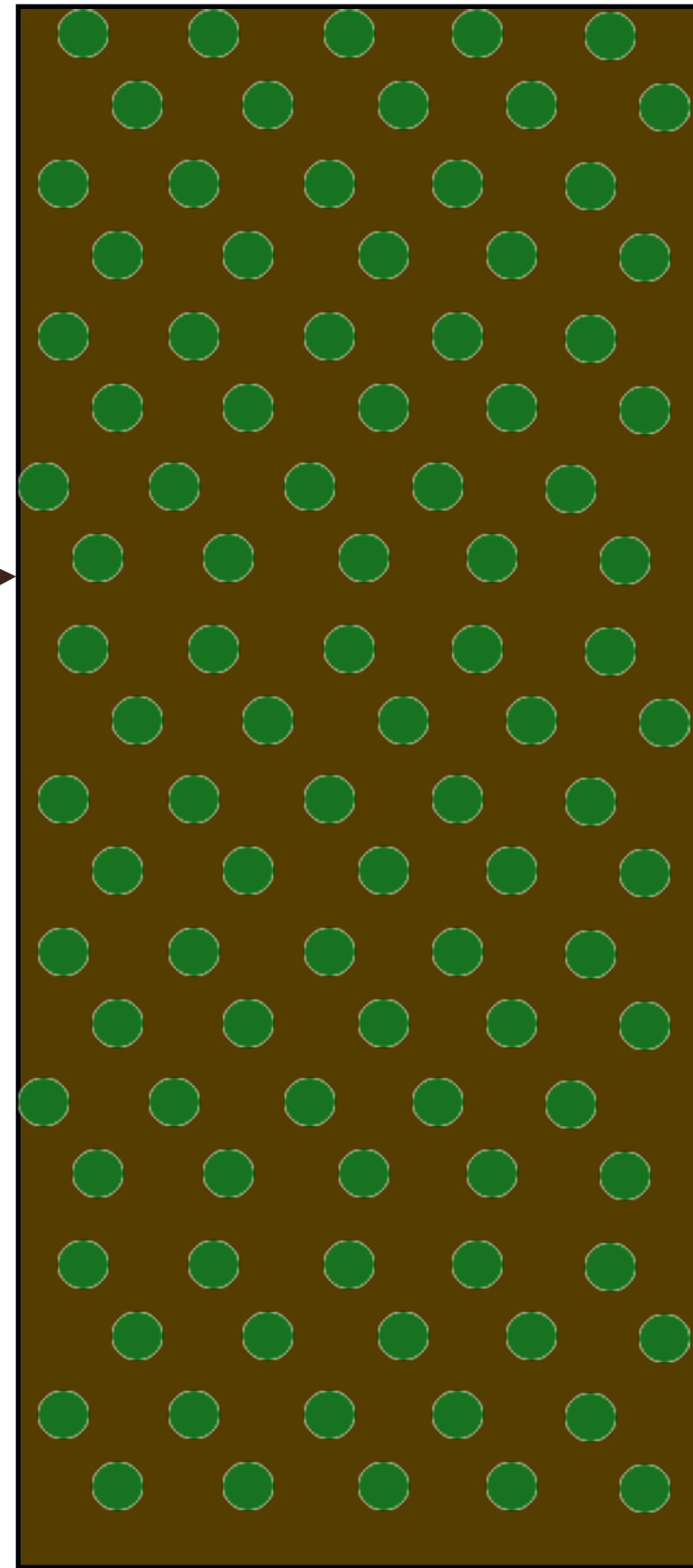
5'  
wide

... Instead, plant in blocks using wide beds shaded by dense plantings.

20'  
long



1'  
path



No walking  
on beds,  
only pathways.

In this example, each  
bed is 100 square feet.

Beds are  
planted in  
blocks

Top view of two bed system, 24" deep



18"  
Between Beds



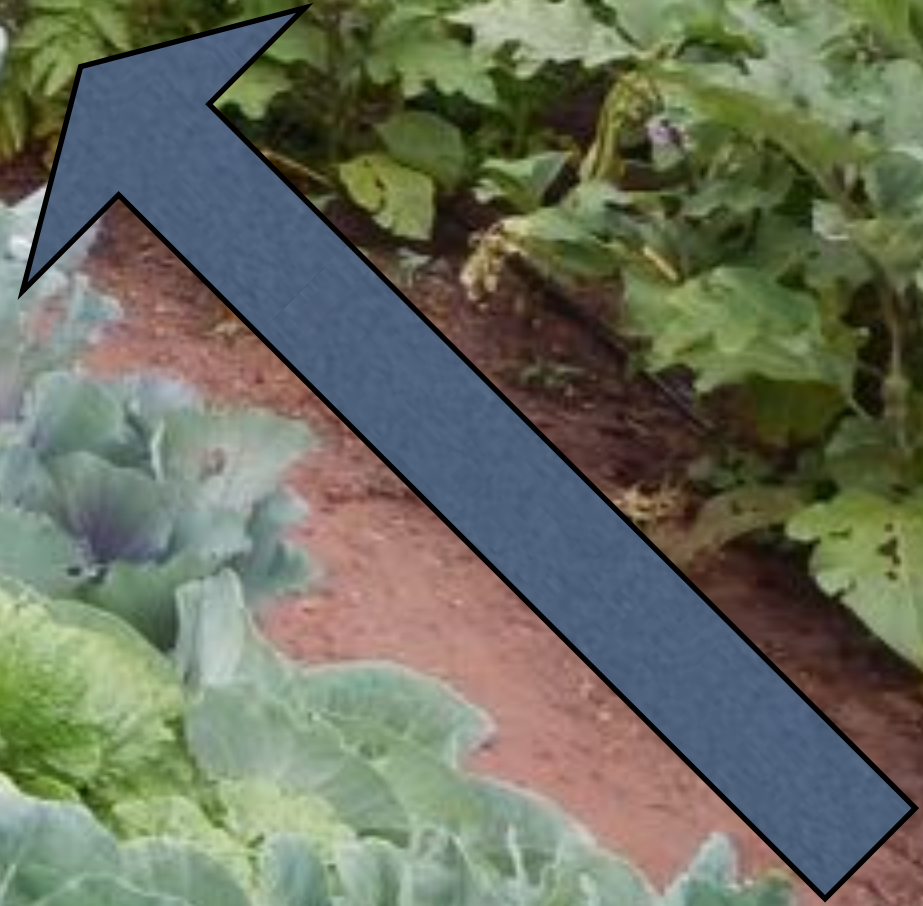
Example of  
in-ground raised  
beds planted in  
blocks

Plant canopy  
covers entire bed.  
This creates a  
micro-climate that  
protects the soil.



Notice how little soil is exposed inside each bed.

Rows between beds only need to be 18" wide.



You can get the same  
“living mulch” effect  
in framed beds.

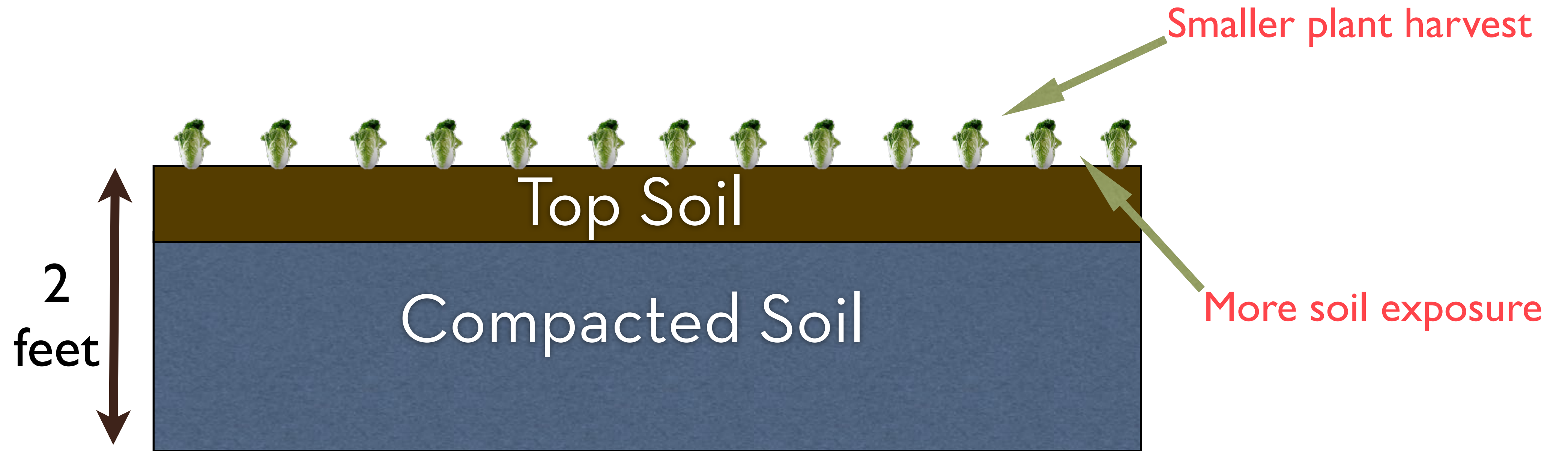


# The Five Fastest Ways to Improve Your Organic Garden

## #2: Fix Compacted, Sterile Soil

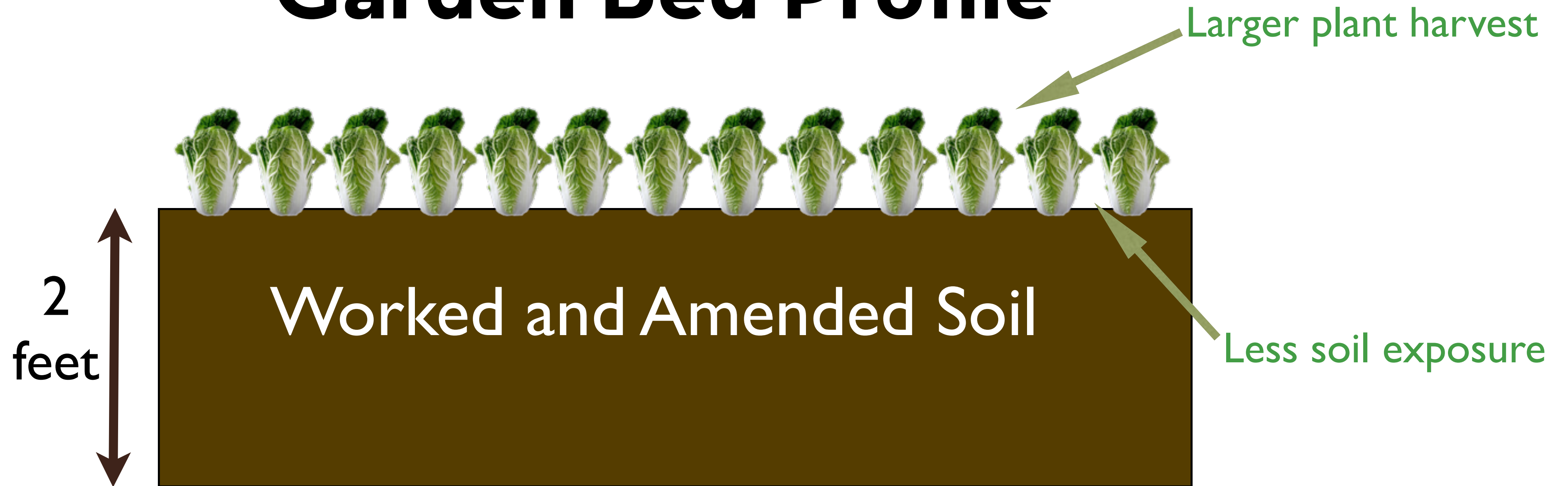


# Garden Bed Profile



**Compacted soil** leads to poor plant growth.

# Garden Bed Profile



**Deeply worked and amended soil lead to vibrant growth.**

# Plants struggle in compacted, exposed soil.

Roots are forced to grow laterally in search of food and water.

Compacted Soil blocks potential root growth

1 Foot

2 Feet

3 Feet

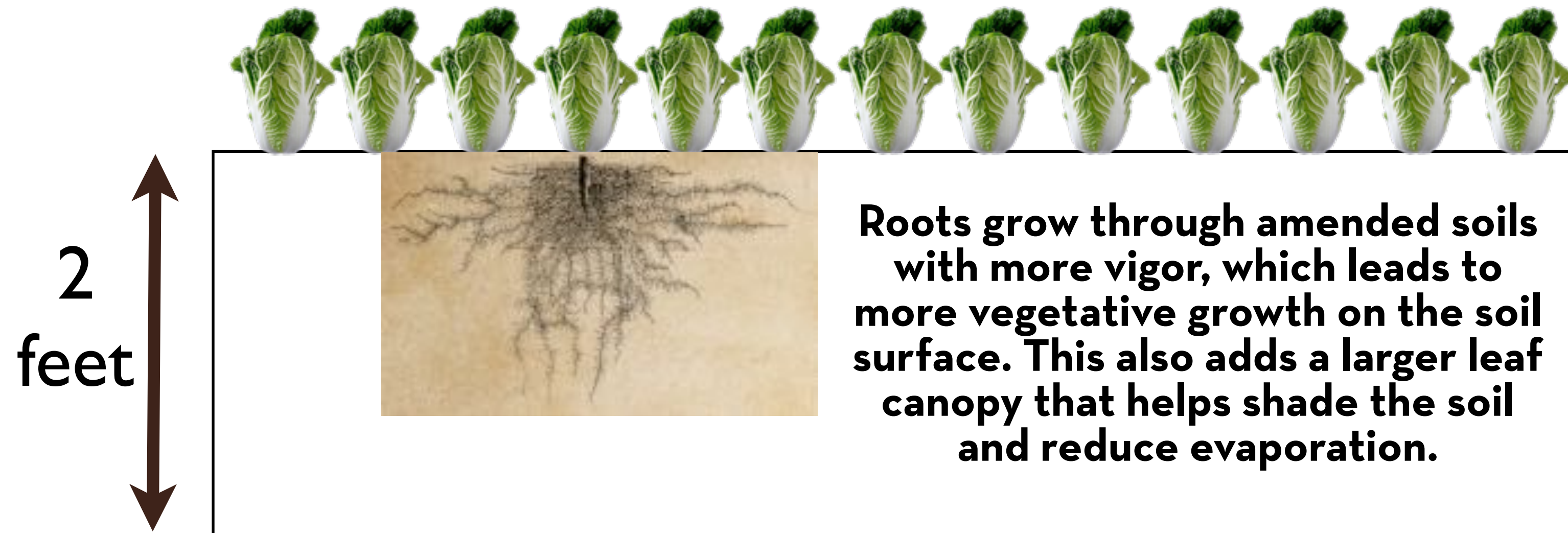
Deep Beds

Double Dig 2'

Double digging allows for aerated soil down two feet, which opens up more growth opportunity for plants and less competition with their neighbors.

Cabbage Root Profile

# Garden Bed Profile





You don't need to become a soil scientist to bring soil back to life... But if you don't take steps to reinvigorate your soil, the plants will continually struggle.

And plants under stress:

- attract disease and pests
- go to seed early, with listless growth
- allow for more weeds in exposed soil
- require more frequent watering
- make unnecessary work for YOU.

**To Fix Dry Compacted Soils: Add Organic Matter & Deeply work the material into the bed with a garden fork (double dig) and Never walk on Beds**



# Soil is alive.

(with microorganisms)



You need to feed it,  
water it, give it cover...

And preferably  
not crush it.





## Healthy Soil Needs

- Food (organic matter)
- Trace Minerals (rock flour)
- Oxygen (aeration)
- Water
- Cover (mulch)
- Microorganisms





# Building the Soil Food Web

**1 Billion Bacteria**

In a teaspoon of healthy garden soil, there can be a billion bacteria. And within that population, there can be over ten thousand different species of bacteria—in the same teaspoon, along with tens of thousands of other microorganisms like fungi, mycorrhizae, protozoa, nematodes and microarthropods.

These are your partners in the garden.

Treat them well.

They run the show.

**Ten Thousand Species**



# Building the Soil Food Web (continued)

Your **main job** is to increase and sustain the diversity of microorganisms in your soil.

You do this by:

- Adding organic matter to the soil**
- Composting**
- Worm castings**
- Mulching**



**Start planning your compost bins today!**



**Diversity leads to resilience, higher yields, and less work!**



# The Five Fastest Ways to Improve Your Organic Garden

## #3: Start a Compost Bin and Worm Bin

Healthy soil relies on relationships with micro organisms. So to get them into your soil, you need to feed them first. The best way to do this is by using an aerobic compost pile. Worm bins work incredibly well too, even in the winter.

You may not have access to a compost pile at first, so you can get by with purchasing quality Organic compost. But just remember that a main priority for you should be to start setting aside some space for your composting efforts. You may think at first that you don't really need one, but it will inevitably become the most valuable thing you do for your garden.



# Buying Compost (until you can make your own)



Commercially available compost is an unregulated product. Read the labels.

Here are some of the things to look for:

- Buy organic** compost in bulk for quantity discount
- On bags, look for “OMRI” seal for organic ingredients



## Appearance:

The compost you are buying in bulk or bags shouldn't look like its source materials. If it looks like wood chips, it probably is wood chips. Good compost will be dark in color and crumbly like chocolate cake.



## Aroma:

It should smell “earthy” but not distasteful. Like a forest soil in spring, not a barnyard in July.



## Compost Ingredients:

Good compost is made up of a number of organic source materials. The more diversity, the better the diversity of soil microbes, which makes for stronger compost.

### Questionable Ingredients

**Sludge:** a byproduct of municipal sewage plants. I would steer away from the bilge.

**Pesticides:** Some compost that is derived from grass clippings, straw, and hay can have herbicide residue that can be very persistent and can negatively affect plant growth in your garden.



**Priority One** is to **START MAKING YOUR OWN COMPOST** as you get into gardening.





# Raised Bed Styles : Overview

**In-the-ground** raised beds: need “double digging”  
-No need for any wood or structure.  
-Works in perpetuity, no frame replacement, etc.



**Framed** raised beds  
-More expense and setup at first.  
Need to use materials that have no chemicals and won't break down too easily in the weather: cedar planks, bricks, rocks, logs, etc.  
-Structure needs to be replaced eventually, if weathered.  
-Allows for higher bed height (less bending over).  
-4 x 8 feet good for starters.  
-At least 12 inches deep; 24 is better.





# Acquiring Soil for new Raised Beds

If you can't use your own soil, because it's too shallow or concrete hardpan or it is too far gone for whatever reason, and you have nothing else to start with...

**Buy topsoil by the truckload** (cheaper)  
Buy organic compost in bulk or shovel a truckload yourself from a friend's land.  
Mix at 80/20% (soil to compost) for new beds.

## 2 Options for beds:

### Framed Raised Bed

Make a frame above ground with wood, brick or other materials, then fill with soil mix.

### In-Ground Raised Bed

Clear out or amend the soil that's in place in the shape of the bed, double dig & add new material to make an in-ground raised bed.



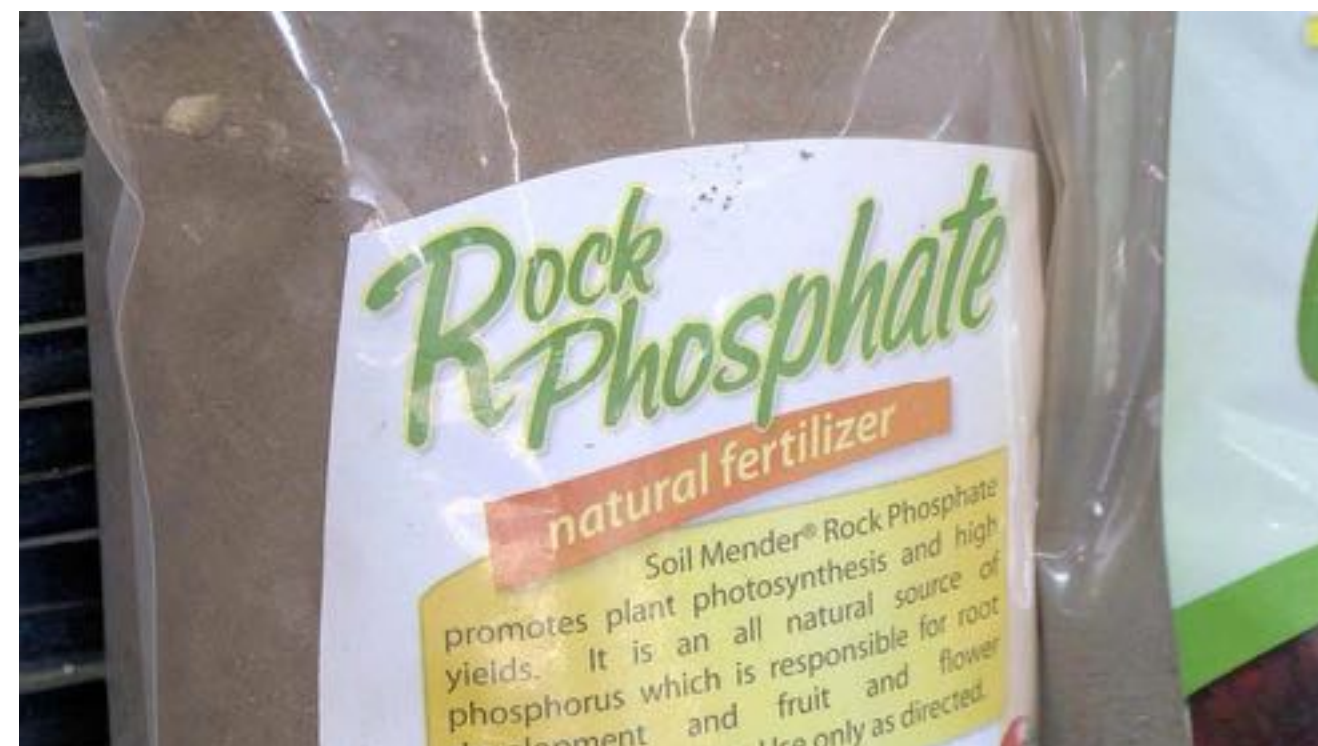


## Amending soil to start a garden

If you're starting from scratch, you will need to amend the soil with copious amounts of organic compost to start. Apply at the rate of 5-10 cubic feet per 100 sq. ft. of garden bed. That's about 6-8 five-gallon buckets of compost for a 100 sq. ft. bed. It will amount to about a 2" layer of compost on the bed to be worked into the top 6" of soil.

It's also a good idea to amend the original soil with greensand and rock flour (also called "rock phosphate"). They will both help add phosphorus, potassium and trace minerals to the soil for the long term. Apply at 10 pounds per 100 sq. ft. of bed.

Add this after the compost and work into top 6" of soil.



# Framed Raised Beds: The basics for starting out



Mark bed outline with flour.  
4' x 8' is a good bed size for building frame.  
Use 2" x 10" or 2" x 12" boards (two layers).  
Short boards are 4' long. Other side is 8' long.  
Don't use treated lumber.  
Screw the frame together on concrete first.  
Set corner 4" x 4" posts into soil 4" deeper than frame.  
Set frame and loosen native soil underneath with fork.



Amend lower foot with compost and rock flour.  
Bring in new bed soil with 20% compost mixed in.  
Fill first layer of frame with new soil and compost.



Add second layer of frame.  
Add soil compost mix to top of second frame layer.  
Amend top 6" with mature compost and rock flour.  
Plant the "Super Seven" Food plants in these two beds  
for Nutrient-Dense deep greens!  
(Chard, Collards, Beets, Spinach, Arugula, Kale, &  
Mustard Greens)

# Easy Bed Design for larger areas

These are in-the-ground raised beds with double-dug soil amended with compost. This is the easiest no-frame option.

-4-5 feet wide by 8-20 feet long, depending on size of space, and your reach, halfway across.

-Rows should be laid out with long side running north to south.  
(true for all beds)

-Keep paths to 1 foot wide between beds





# Double Digging: The basics

Keep your back straight while digging. Bend at the knees to use legs for lifting.

Dig and remove soil from one-foot trench cut to full width of bed.

Put soil from first trench aside to fill last trench later. Successive soil from top of trenches will fill top of previous trench.

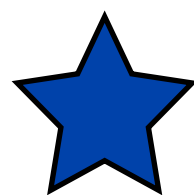
Use garden fork to loosen soil at second foot of depth.

Add compost to this lower foot and amend with fork.

Replace top foot of soil and amend with compost.

Repeat process, moving backward down bed until entire bed has been worked to two-foot depth.

Add any soil amendments and rock flour to finished bed. Work amendments into top 6 inches of soil with twist fork.



Rototillers should only be used as a last resort. They create problems in the soil profile, and throttle the microorganisms in the Soil Food Web more than necessary.

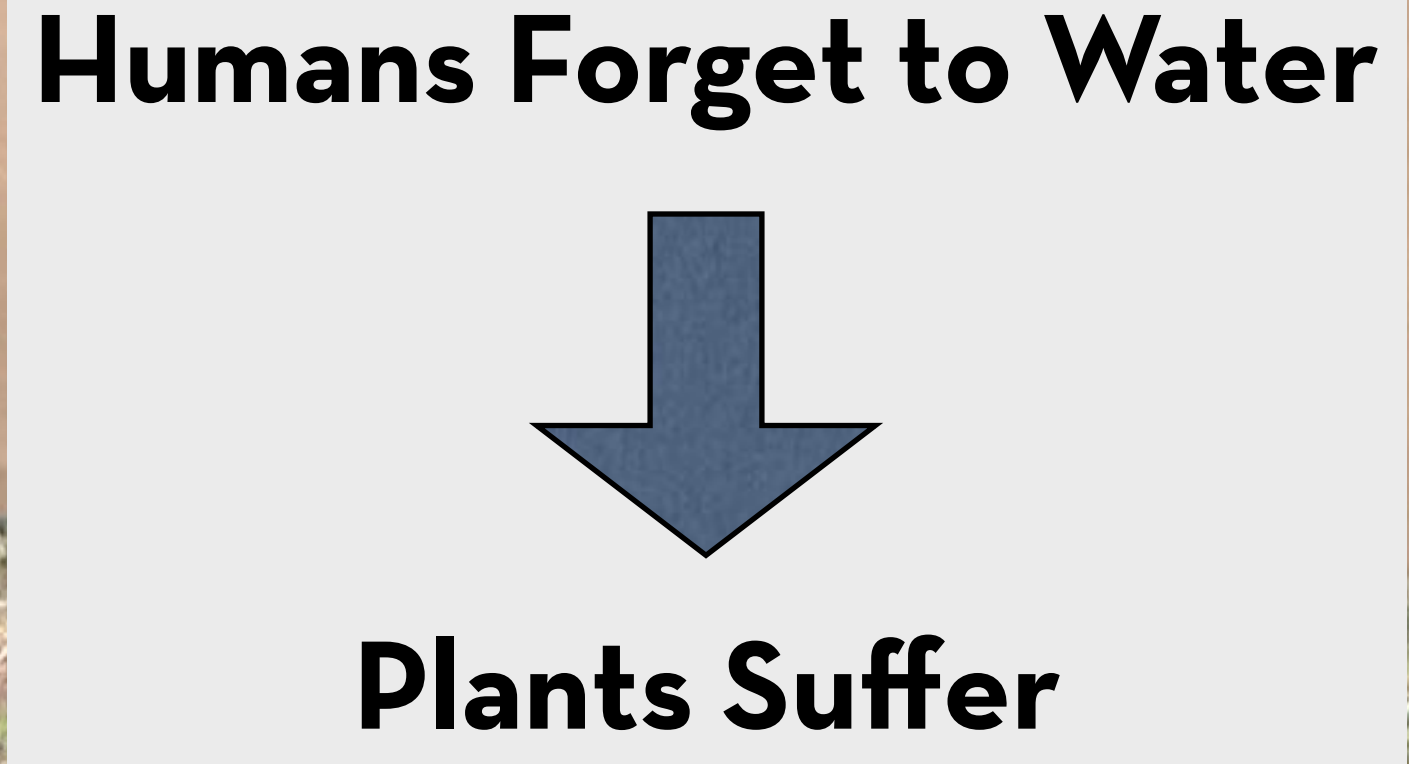


# The Five Fastest Ways to Improve Your Organic Garden

## #4: Automate Your Watering

Irregular watering can cause a host of problems for garden plants:

- Heat stress
- Nutrient deficiencies
- Waterborne diseases
- Irregular growth
- Stunting
- Early bolting
- Pests



**Don't be a "hose-dragger" all summer. Hand watering early seedlings is fine, but once they sprout and break through the soil, set your drip irrigation. I'll show you how to automate it next.**



# Drip Irrigation setup

Drip irrigation is one of the best ways to help yourself save time and water while delivering enough water to your garden throughout the growing season at the best times for the plants. Drip irrigation systems slowly release water into the soil around plants where they get most of their water, and avoid exposure to evaporation unlike overhead sprinklers. Using drip irrigation can also lessen diseases that can become a problem with overly wet conditions on plants.

The physical parts of the drip system:

- **Main Supply line:** 3/4" or 1" diameter
- **The secondary lines** (drip irrigation tubing)  
Choices:
  - 1/4 inch tubing
  - 1/2 inch tubing
  - T-tape
- Elbows and accessories**



The drip irrigation, on a \$30 timer is what allows me to leave for weeks at a time during the growing season. **It ROCKS !**



# At the hose spigot

## -Pressure Regulator

This will take your house water pressure, which is usually around 60psi (pounds per square inch), and drop it to 20psi so that the higher pressure won't blow out your delicate emitters.

## -Timer

This battery-operated valve will turn water on and off on a schedule you choose. The cheaper ones are around \$35 and well worth it.

## -Screen filter

This will filter out any sediment that could clog your emitter openings.

## -Female hose start, or coupler to attach to hose.

(Repeat this lineup for each zone you create.)

## Four-way (optional)



Purchase drip system parts here:

<http://www.dripworks.com>

You can find similar systems at “big box” hardware stores.

Water Supply line out to Garden



# The Five Fastest Ways to Improve Your Organic Garden

## #5: Dial in the right planting schedule for your area.

Sowing seeds or transplanting seedlings at the wrong time can set you up for failure.

Plants need good timing.

This mistake happens because frost dates are unknown or ignored.

Do you have your local planting calendar yet?

The first thing you will need are your **“frost dates.”**

2017

June						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1 ✓	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17 ✓	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

December 2016      February 2017



**Every gardener needs to know their local climate information.  
Step one is to find your seasonal frost dates  
(Last spring freeze and first fall freeze)**

## **How to find your frost dates**

**Click the button below to get to the web page to find your frost dates, or simply copy and paste the url below the button into your web browser.**

**Find Your Frost Dates**

<http://growfoodwell.com/get-started-now2>

**This will bring up a list of frost dates broken down by town in your state.**

**Find the town closest to you and look at the frost dates.  
See next page for screen shot...**



50% chance it will hit 32 degrees this date in Spring

50% chance it will hit 32 degrees this date in Fall

### Freeze / Frost Occurrence Data

All probabilities in whole percent. See notes for probability level description.

- Indicates the probability of occurrence of threshold temperature is less than indicated probability.

State And Station Name	T r e s h o l d (F)	Spring (Date)			Fall (Date)			Freeze Free Period (Days)			P r o b a b i l i t y (4)
		Probability Level (1)			Probability Level (2)			Probability Level (3)			
		90	50	10	10	50	90	10	50	90	
Colorado											
AKRON 4 E	36 32 28	May01 Apr29 Apr19	May20 May11 May01	Jun07 May23 May13	Sep09 Sep15 Sep23	Sep21 Sep27 Oct08	Oct02 Oct08 Oct24	144 157 182	123 138 160	102 120 138	54 47 38
ALAMOSA BERGMAN FIELD	36 32 28	Jun11 May26 May12	Jun28 Jun09 May28	Jul14 Jun23 Jun14	Aug13 Sep01 Sep10	Aug31 Sep14 Sep21	Sep17 Sep28 Oct02	85 114 130	63 97 115	41 80 101	69 62 56
<b>ALTENBERN</b>	36 32 28	May25 May08 Apr25	Jun18 May30 May13	Jul12 Jun20 May30	Aug23 Sep10 Sep13	Sep11 Sep23 Oct01	Sep30 Oct06 Oct19	119 144 166	84 116 140	48 88 115	61 53 43
ANTERO RESERVOIR	36 32 28	Jul12 Jun20 Jun01	Jul24 Jul07 Jun16	Aug04 Jul23 Jul02	Jul29 Aug05 Aug23	Aug08 Aug22 Sep08	Aug19 Sep09 Sep24	32 74 104	15 46 83	0 18 62	83 73 64
BAILEY	36 32 28	Jun22 Jun05 May15	Jul06 Jun24 May31	Jul21 Jul13 Jun16	Aug01 Aug20 Aug30	Aug21 Sep06 Sep15	Sep09 Sep23 Sep30	59 99 127	45 73 106	20 47 84	75 66 57

Your Town →

Total Growing Season Length: 116 days

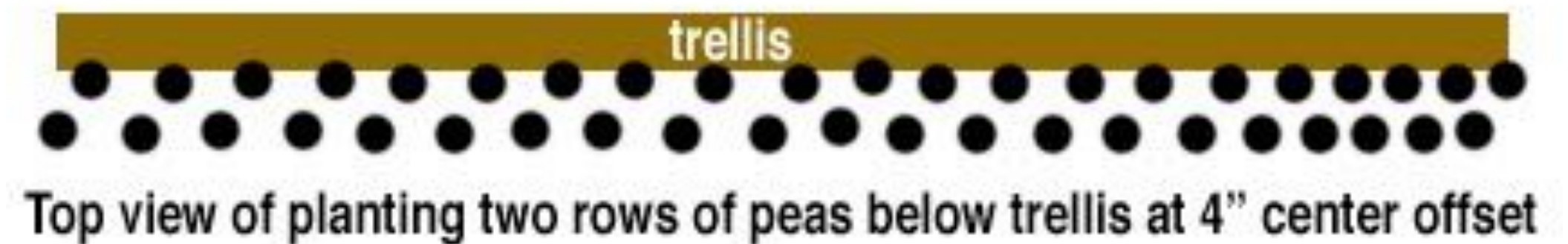
Bonus Steps to Improve the garden  
(if the first 5 weren't enough)





# Go vertical with a trellis!

Think about where you can install a vertical trellis in your garden. Usually the north side of a bed is a good place, or along an unused wall space. You don't need much area on the soil. Just a space the width of the trellis and about a foot in the other direction will work fine. Plant any climbing veggie there and save space in the main garden for less sprawling plants. Good starters: Peas, Pole beans, Squash, Cukes, melons, and vining cherry tomato plants.





# Buying seeds from Catalogs

\*Always buy GOOD SEED.  
Here are the main four I use:

<http://www.seedsofchange.com>

Rancho Dominguez, CA

<http://www.territorial-seed.com/>

Cottage Grove, OR

<http://www.johnnyseeds.com/>

Waterville, Maine

<http://www.groworganic.com>

(Peaceful Valley Farm Supply) Grass Valley, CA



## Open-pollinated vs. Hybrid seeds

Try to use open-pollinated seeds if you can. The seeds from these plants can be saved and used year after year, as opposed to “Hybrids” which cannot.

However, it’s okay to have some hybrid and some open-pollinated is fine in organic gardens. (This is different than “GMO” seed, which should be avoided.)



**-Deep, aerated beds**

**-Soil amended with organic compost**

**-Intensive block-style plant spacing**

**-Correct Planting Times**

If you combine all four of the above, you will increase your yields from **50-100%**.

Adding drip-fed irrigation on a timer will cut your workload in half by greatly reducing hand-watering and weed growth.



When vegetable plants get consistent, baseline access to water and living soil, they can avoid stress and grow to their full potential with more strength to ward off pest attacks.

# Resilience

And resilience leads to better harvests!





Learn more about growing a resilient food garden!

**\*Join the streaming class now at 50% off!  
(Click link below)**

## Topics We Cover

- Mulching
- Companion planting
- Compost piles
- Composting with worms
- Compost tea
- Worm bins

- Planting structures and strategies
- Season extension
- Cold frames
- Hoop houses
- Vertical gardening
- Succession planting
- Crop rotation
- Food preservation
- Solar driers

[GrowFoodWell.com](https://www.growfoodwell.com)

**We still have room for 2020 students with 50% off pricing!**

