

# Vegetable Gardening — Workbook

This workbook turns the course into a season's worth of garden tasks. Each section pairs with a course module and gives you site audits, soil tests, planting plans, watering math, and pest scouting routines to run in your own garden. Work through it with a tape measure, a soil probe, and a notebook in hand, and keep the templates open so your beds start from real numbers, dates, and spacings instead of guesses.

## Soil, Beds, and Site

Audit your site, test and amend your soil, and plan a raised bed you can build and fill in one weekend.

### Worksheet: Sun and Site Audit

Pick your prospective bed location and observe it across one clear day. Check it every hour and mark sun or shade, then total the direct-sun hours and decide which crop group it suits. Use the sun-and-site template to log the hourly readings.

Location / area name

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Total direct-sun hours (measured)

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Sun category (full / partial / shade)

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Drainage test: inches drained per hour

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Distance to nearest water source (ft)

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Crop group this site suits (fruiting / leafy / root)

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### Exercise: Run a Jar Test and pH Test

Fill a clear quart jar one-third with soil, add water and a teaspoon of dish soap, shake hard, and let it settle 24 hours. Measure the sand, silt, and clay layers and estimate your texture. Separately, test pH with a probe or a mail-in extension kit.

- What are your rough sand/silt/clay percentages, and how close is it to a 40/40/20 loam?
- What pH did you measure, and is it inside the 6.0 to 7.0 vegetable range?
- Based on the result, do you need lime to raise pH, sulfur to lower it, or just compost?

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## Worksheet: Raised Bed Build Plan

Plan your bed before buying materials. Fill in the dimensions, calculate the fill volume, and list the soil-mix components by ratio. Use the bed-fill-volume template to confirm how many cubic yards of mix to order.  
Bed length x width (ft)

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Bed depth (in)

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Frame material and expected lifespan

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Calculated fill volume (cubic feet)

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Topsoil / compost / aeration ratio (e.g. 50/30/20)

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Cubic yards of mix to order

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## Checklist: Bed-Ready Checklist

- Site has 6+ hours of measured sun for fruiting crops (or matched to a lower-light crop)
- Drainage test drained at least 1 inch per hour, or a raised bed is planned
- Soil pH measured and amendment (lime/sulfur/compost) decided
- Frame built from untreated cedar/fir, corners squared and fastened
- Cardboard or hardware cloth laid in the bottom before filling
- Bed filled, watered, settled, and topped up before planting

## Seeds and Transplants

Decide your sowing method per crop, start sturdy seedlings, and harden them off without losing any.

## Worksheet: Direct-Sow vs Transplant Decision Sheet

List every crop you plan to grow and decide its method from its family and days-to-maturity. Then count backward from your frost dates to set the sowing or transplanting date. Use the seed-starting-schedule template to generate the calendar.

Crop

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Method (direct-sow / transplant)

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Days to maturity (from packet)

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Weeks before last frost to start indoors

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Last frost date (your zone)

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Target sow or transplant date

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## Exercise: Start One Tray of Seedlings

Sow one tray of a transplant crop (tomato, pepper, or brassica) in sterile mix, on a heat mat at 70 to 80 F, then move to lights 1 to 2 inches above the seedlings for 14 to 16 hours a day the moment they sprout. Track germination and growth for two weeks.

- How many days to germination, and was your soil temperature in the 70 to 80 F range?

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- Are your seedlings short and stocky or leggy and pale, and what does that tell you about your light?

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- When did the first true leaves appear, and did you begin half-strength feeding then?

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## Checklist: Hardening-Off Checklist

- Day 1-2: seedlings outside 1 to 2 hours in shade, sheltered from wind
- Daily increase of 1 to 2 hours and a little more direct sun
- Watering reduced slightly to toughen the seedlings
- No hardening-off started when frost or storms are forecast
- By day 7+, seedlings spending a full day and night outdoors
- Transplanted on a cool/overcast evening and watered in immediately

## Layout, Companions, and Watering

Lay out the bed at proper spacing with good companions, then install and tune a watering system.

## Worksheet: Bed Layout and Spacing Map

Sketch your bed as a grid and assign crops to squares using square-foot densities. Place tall and trellised crops on the north side. Use the bed-layout template to record plants-per-square and companion pairings.

Crop

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Plants per square foot (1 / 4 / 9 / 16)

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Spacing in inches

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Position in bed (north / center / south)

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Companion plant interplanted with it

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Antagonist to keep away from it

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## Exercise: Plan a Companion Polyculture

Design one bed using at least one research-backed companion combination (Three Sisters, alliums with carrots, or flowers among vegetables) and avoid the known antagonists. List which beneficial insects each flower is meant to attract.

- Which companion combination did you choose, and what specific benefit do you expect from it?

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- Which flowering insectary plants did you include to attract hoverflies and parasitic wasps?

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- Which antagonist pairings (beans near alliums, fennel near crops) did you deliberately avoid?

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## Worksheet: Watering System and Weekly Water Math

Plan your drip or soaker setup and calculate how much water your bed needs. Remember the target is about 1 inch per week including rain (roughly 20 gallons per 32 sq ft bed). Record run times and the finger-test result each week so you can tune the timer to the weather.

Bed area (sq ft)

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Target water per week (gallons, ~0.62 gal per sq ft per inch)

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System type (drip / soaker / hand)

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Emitter spacing (in)

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Timer run time per session (min)

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Finger-test depth before watering (moist/dry at 2 in)

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### Checklist: Drip-System Setup Checklist

- Backflow preventer installed at the spigot
- Filter and pressure regulator (about 25 psi) fitted before the tubing
- Half-inch poly main line run down the bed with emitters 6 to 12 in apart
- Battery timer set to run in early morning
- Test hole dug to confirm water reaches 6 inches deep
- 2 to 3 inches of mulch laid over the lines, kept back from stems

## Succession, Rotation, and Pests

Schedule successions, map a multi-year rotation, and run an organic pest-scouting routine.

### Worksheet: Succession Planting Calendar

Plan staggered and replacement sowings so each bed always holds a growing crop. Schedule cut-and-come crops every 2 to 3 weeks, and map what follows each crop as it finishes. Use the succession-and-rotation template to lay out the season.

Bed / square

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Spring crop and finish date

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Summer replacement crop

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Fall replacement crop

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Re-sow interval for staggered crops (weeks)

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Last safe fall sowing date (from first frost)

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## Worksheet: Crop Rotation Map

Assign each bed a plant-family group this year, then plan where each group moves next year on a 3-to-4-year cycle. Sequence groups as legumes to leaves to fruits to roots. Use the succession-and-rotation template's rotation sheet to track multiple years.

Bed number

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Family group this year (nightshade / brassica / cucurbit / legume / allium-root)

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Family group next year

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Feeding role (heavy feeder / nitrogen fixer / light feeder)

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Years since this family was last in this bed

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Resistant varieties used (if any)

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### Exercise: Run a Weekly Pest Scout

Once a week, inspect leaf undersides and stems across the garden, identify any pests, and apply the gentlest effective control (water jet, hand-pick, row cover, Bt). Keep a running log of what you find and what you did. Do this at dusk for slugs and hornworms.

- Which pests did you find, and on which crops and plant families?
  - What barrier or hand method did you use before considering any spray?
  - Did you spot beneficial insects (ladybugs, parasitized hornworms, hoverflies) you should protect?
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### Checklist: Organic Pest-Defense Checklist

- Floating row cover on susceptible crops from planting day (removed for pollination)
- Cutworm collars on new transplants and slug barriers/traps set
- Flowering insectary plants (alyssum, dill, cosmos, marigold) planted throughout
- Weekly dusk scouting and hand-picking of hornworms and slugs done
- Squash-bug and cabbage-worm egg clusters removed from leaf undersides
- Sprays reserved for last, targeted (Bt for caterpillars), applied in the evening

## Your Action Plan

1. Audit a site for sun (count direct-sun hours) and drainage, and pick the best bed location.
2. Run a jar test and a pH test, then amend with compost plus lime or sulfur toward 6.0 to 7.0 pH.
3. Build a 4-by-8-foot raised bed, calculate the fill volume, and fill it with a 50/30/20 soil mix.
4. List every crop, decide direct-sow versus transplant, and set sowing dates from your frost dates.
5. Start one tray of transplants on a heat mat under lights, then harden them off over 7 to 10 days.
6. Lay out the bed at square-foot spacings with tall crops on the north side and flowers interplanted.
7. Plan one companion polyculture and avoid the known antagonist pairings.
8. Install a drip or soaker system, calculate the weekly water need, and mulch 2 to 3 inches deep.
9. Build a succession calendar (sow every 2 to 3 weeks; map spring/summer/fall replacements per bed).
10. Draw a crop-rotation map by plant family on a 3-to-4-year cycle and start a weekly pest-

scouting routine.











