A Crop Rotation Booklet

Section 1: The Basics of Crop Rotation

What is Crop Rotation?

Crop rotation is the practice of changing what you grow in a particular garden bed from season to season or year to year. Rather than planting tomatoes in the same spot year after year, you'd move them to a different bed and replace them with something like beans or leafy greens. This cycle continues year after year, keeping your soil healthy and your plants thriving.

Why It's Important: Especially in Small Gardens

In small garden spaces, the temptation to plant your favorite crops in the same spot every season is strong, but this can quickly deplete soil nutrients and invite pests and diseases.

Rotation breaks these cycles. By changing what grows where, you naturally disrupt harmful pathogens and insect patterns, and allow the soil to recover. This is especially helpful if you're growing intensively or using raised beds.

While there is a method to crop rotation, there is also trial and error much like companion planting. I always keep an eye on pest issues (like with my potato plants) and my heavy feeders and create a rotation plan from here. I've found that these are the most important crops for me to rotate.

How Crops Affect Soil Differently

Not all crops take the same things from the soil—or give the same things back. For example:

- **Legumes (beans and peas)** add nitrogen to the soil.
- **Leafy greens** tend to use up lots of nitrogen.
- **Root crops** often benefit from less nitrogen and looser soil.
- **Heavy feeders** like tomatoes and squash deplete many nutrients and need replenishment.

Understanding these differences helps you rotate with purpose and build a sustainable growing system over time.

Section 2: Crop Families Explained

Grouping your crops by **plant family** is key to effective rotation. Plants in the same family tend to share similar soil needs, pest issues, and diseases, so rotating by family, not individual plant, is the best approach.

Common Crop Families:

- **Solanaceae (Nightshades):** Tomatoes, peppers, eggplants, potatoes
  Heavy feeders, prone to soil-borne diseases

- **Brassicaceae (Cole Crops):** Broccoli, cabbage, kale, cauliflower
  Attract similar pests like cabbage worms and flea beetles

- **Fabaceae (Legumes):** Beans, peas, clover
  Fix nitrogen in the soil, great for restoring fertility

- **Cucurbitaceae (Gourds):** Cucumbers, squash, pumpkins, melons
  Need rich soil and space; prone to powdery mildew

- **Alliaceae (Alliums):** Onions, garlic, leeks
  Benefit from loose soil; help deter some pests

- **Amaranthaceae:** Beets, spinach, Swiss chard
  Light feeders but may need boron-rich soil

- **Asteraceae (Daisy Family):** Lettuce, sunflowers, artichokes
  Shallow-rooted; often good for quick turnover

Why Rotate by Family?

Diseases and pests can linger in the soil, targeting specific families. For example, if you grow tomatoes (Solanaceae) in the same bed each year, blight spores can build up and devastate your crop. But if you follow tomatoes with beans (Fabaceae), you break the cycle and improve soil nitrogen while you're at it.

For me, the biggest reason to rotate by family is that it is easier to keep track of families versus individual crops.

Section 3: Building a Crop Rotation Plan

How to Plan a Simple 3- or 4-Year Rotation

A classic method is to divide your garden into 3 or 4 main sections and rotate crops each year:

- **Year 1:** Legumes (nitrogen fixers)
- **Year 2:** Leafy greens (nitrogen lovers)
- **Year 3:** Fruits (like tomatoes, peppers, squash—heavy feeders)
- **Year 4:** Roots (carrots, beets—lighter feeders)

Then repeat the cycle. Adjust based on what you like to grow most.

Sample Rotation Cycle

Year	Bed A	Bed B	Bed C	Bed D
1	Beans	Kale	Tomatoes	Carrots
2	Carrots	Beans	Kale	Tomatoes
3	Tomatoes	Carrots	Beans	Kale
4	Kale	Tomatoes	Carrots	Beans

Using the Planner

Use the **Crop Rotation Planner** (included) to sketch out your garden beds, assign each one a crop family, and rotate year by year. You can use color coding or symbols for each family, and even add notes about problems, amendments, and yield.

What About Perennials?

Some crops stay put, like strawberries, rhubarb, and asparagus. Designate permanent beds for these and keep them out of your rotation cycle. Just be sure to maintain soil health in those beds with compost, mulch, and careful weeding.

Section 4: Common Crop Rotation Strategies

Classic 4-Bed System

This simple rotation is ideal for most backyard gardens:

1. **Legumes (🌱)** → Add nitrogen
2. **Leafy Greens (🥬)** → Use nitrogen
3. **Fruiting Crops (🍅)** → Heavy feeders
4. **Root Crops (🥕)** → Lighter feeders

This keeps your soil balanced and pest cycles broken.

High-Yield Mini-Rotation for Small Spaces

Even if you only have 2 beds or a few containers, alternate heavy feeders and legumes, and mix in light feeders. Use **vertical space** and succession planting to get the most out of every square foot.

No-Dig Garden Rotation

If you use no-dig or deep mulch beds, you can still rotate crops—just disturb the soil as little as possible and layer compost on top each year. Keep a log of what was grown in each space.

Companion Planting + Crop Rotation

These two systems work beautifully together. For example:

- Pair carrots with onions to deter pests.
- Follow heavy feeders with legumes.
- Use herbs and flowers like marigolds and basil to confuse pests while rotating your main crops.

Section 5: Challenges and Solutions

Limited Space? Rotate Smart

If you're working with just one or two beds, try rotating **crop families across time**—such as spring kale, then fall carrots, then cover crops. You can also rotate **containers** or **move soil between planters**.

Volunteers and Self-Seeders

Tomatoes and squash love to self-seed, but they can throw off your rotation. If they pop up where they don't belong, move or remove them to preserve the plan.

Cover Crops in Rotation

Use quick-growing cover crops between plantings to:

- Build organic matter
- Suppress weeds
- Add nutrients

For example, grow oats or buckwheat in a bed you won't plant until mid-summer.

Skipping a Season?

No problem! If life gets busy and a bed goes fallow, treat it with compost or mulch, or plant a cover crop to keep the soil in good shape until next season.

Section 6: Extras That Support Rotation

Soil Testing Basics

Test your soil every couple of years to know what nutrients are depleted. Your local extension office or a simple DIY kit can help. Look for nitrogen, phosphorus, potassium, and pH.

Amending Between Seasons

Add compost, aged manure, or specific amendments (like bone meal or rock dust) depending on what your soil needs. Rotate **soil care** just like your crops.

Composting and Mulching Tips

Healthy soil loves compost and mulch. Add a layer of finished compost at least once per season and keep beds mulched to retain moisture, suppress weeds, and feed the soil life.

Succession Planting and Interplanting

- **Succession planting**: Follow one crop with another in the same season.
- **Interplanting**: Mix different crops together to maximize space and confuse pests (like lettuce under tall tomatoes).

Just keep track of **which family dominates** the space so you can rotate effectively next season.