# HOW TO BUILD A SELF-SUSTAINING EDIBLE & MEDICINAL FOOD FOREST

## INFORMATION & WORKSHEETS TO HELP GET YOU STARTED



for more free printables visit

**FEFFYLANE.COM**

## Q WHY SHOULD SOMEONE BUILD AN ECOSYSTEM USING CAREFULLY SELECTED COMPANION PLANTS AND FOREST LAYERS WITHIN THEIR LANDSCAPE INSTEAD OF JUST RANDOMLY PLANTING WHAT LOOKS GOOD?

Because companion plants and forest layers work together to build soil, attract beneficial insects, retain moisture, suppress weeds, and reduce pests, creating a self-sustaining, low-maintenance ecosystem—unlike random decorative planting, which often requires more water, fertilizer, and effort to maintain.
WHY BUILD AN ECOSYSTEM INSTEAD OF A GARDEN?

## Q HOW IMPORTANT IS IT TO USE NATIVE PLANTS WITHIN THE ECOSYSTEM YOU'RE INSTALLING?

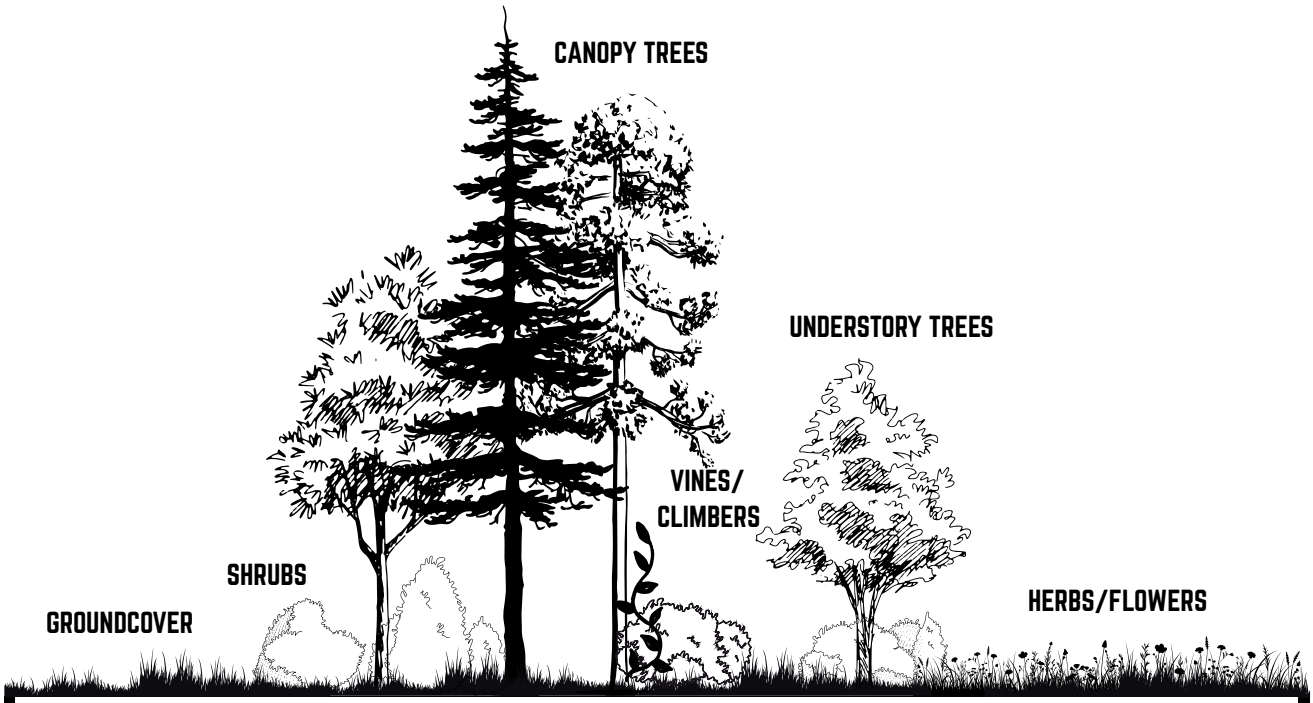
Very important. Native plants are adapted to local soils, climate, and wildlife. They require less water, no synthetic fertilizers, and provide critical habitat and food for local pollinators and birds, strengthening biodiversity and resilience in the landscape.

## Q IS IT OK TO PLANT NON-NATIVE PLANTS WITHIN AN ECOSYSTEM-BASED LANDSCAPE?

Absolutely! So long as they are non-invasive and well-adapted to the local climate. Fruit trees, nuts, berries, and blooms of all kinds can provide food, shade, and habitat, and when planted with the right companion plants, they can thrive without harming the ecosystem. Just be sure to balance them with natives that support local wildlife and pollinators.

**Every forest ecosystem has layers. Each layer supports the others by creating a diverse, stable, and resilient ecosystem, from tall trees hosting owls to tiny ground covers protecting the soil. Together, they form a self-sustaining web of life.**

| TYPE | FUNCTION |
|---|---|
| **CANOPY TREES** | • Form the roof of the forest and provide shelter for birds, insects, and mammals.<br>• Offer habitat for predatory birds (like hawks and owls) that help control rodent populations.<br>• Their leaves create shade, which cools the forest floor and helps retain soil moisture.<br>• Drop leaves that become rich mulch, feeding the soil below. |
| **UNDERSTORY TREES** | • Grow in the filtered light below the canopy.<br>• Provide habitat and food (fruits, nuts, nesting spots) for smaller birds, mammals, and insects.<br>• Act as a middle layer, buffering wind and adding diversity to the forest.<br>• Help fill in gaps if canopy trees die. |
| **SHRUBS** | • Offer berries, seeds, and shelter for birds and small animals.<br>• Provide nectar for pollinators like bees and butterflies.<br>• Create a windbreak and slow water runoff, protecting the soil.<br>• Often act as nurse plants for young trees by shading and protecting them. |
| **HERBACEOUS LAYER** (*Includes grasses, wildflowers, ferns, and leafy herbs*) | • Attract and support pollinators and beneficial insects.<br>• Feed herbivores, which in turn support beneficial predators.<br>• Add beauty and biodiversity to the forest floor.<br>• Their decaying leaves build humus and improve soil fertility. |
| **VINES/CLIMBERS** | • Use trees and shrubs to reach sunlight without needing thick trunks.<br>• Provide nectar and shelter for insects, birds, and small mammals.<br>• Help connect layers of the forest vertically, acting like bridges for some animals.<br>• Increases growing space and adds another food producing layer for humans and wildlife. |
| **GROUNDCOVER** | • Blankets the soil to prevent erosion, reduce evaporation, and suppress weeds.<br>• Offer habitat for insects, fungi, and decomposers.<br>• Help build healthy soil by trapping organic matter and cycling nutrients.<br>• Some fix nitrogen or deter pests. |




# FOREST LAYER PLANTS

DESIGN A FOREST ECOSYSTEM BY SELECTING PLANT SPECIES FOR EACH LAYER THAT FLOURISH IN YOUR GROW ZONE. WRITE DOWN SEVERAL OPTIONS FOR EACH LAYER.

| CANOPY TREES | UNDERSTORY TREES *(INCLUDES FRUIT TREES)* | SHRUBS/BUSHES | VINES/CLIMBERS | HERBS/FLOWERS | GROUNDCOVER |
|---|---|---|---|---|---|
| | | | | | |

A fruit/nut tree guild is a group of plants that are intentionally planted around a fruit or nut tree to support its health, growth, and productivity. Each plant in the guild serves a specific function to create a self-sustaining mini-ecosystem.

| GUILD TYPE | FUNCTION |
|---|---|
| **NITROGEN FIXERS** | Nitrogen Fixers (like clover or peas) add nitrogen to the soil, which helps feed the fruit tree and nearby plants. This reduces the need for fertilizer. |
| **POLLINATOR ATTRACTANTS** | Pollinator Attractants like yarrow or bee balm attract bees and butterflies, helping with fruit tree pollination. |
| **REPELLANTS** | Pest Repellants like garlic, mint, or marigold repel harmful insects and reduce the need for chemical pest control. |
| **GROUND COVERS** | Ground Covers are low-growing plants like strawberries or thyme which cover the soil, keeping in moisture, preventing weeds, and reducing erosion. |
| **DYNAMIC ACCUMULATORS** | Dynamic Accumulators are deep-rooted plants like comfrey which pull up nutrients from deep in the soil, making them available to the fruit tree. |

| **GUILD PLANT EXAMPLES FROM EACH TYPE**<br>*(Use AI or Google to discover more types for your climate)* | | | | |
|---|---|---|---|---|
| **NITROGEN FIXERS** | **POLLINATOR ATTRACTANTS** | **REPELLANTS/ SUPPRESSANTS** | **GROUND COVERS** | **DYNAMIC ACCUMULATORS** |
| 1. Indigo | 1. Bee Balm | 1. Garlic Chives | 1. Clover | 1. Comfrey |
| 2. Beans | 2. Hyssop | 2. Onions | 2. Strawberries | 2. Nettle |
| 3. Peanuts | 3. Echinacea | 3. Sage | 3. Creeping Thyme | 3. Dandelion |
| 4. Sweet Pea | 4. Lavender | 4. Oregano | 4. Creeping Jenny | 4. Plantain |
| 5. Chickpea | 5. Yarrow | 5. Thyme | 5. Grasses | 5. Yarrow |
| 6. Lupine | 6. Rosemary | 6. Nasturtium | 6. Seedums | 6. Sunflowers |
| 7. Clover | 7. Borage | 7. Red clover | 7. Chamomile | 7. Burdock |
| 8. Alfalfa | 8. Calendula | 8. Marigolds | 8. Violets | 8. Mullein |
| 9. Vetch | 9. Goldenrod | 9. Daffodils | 9. Perennial Rye | 9. Borage |
| 10. Fava Beans | 10. Salvia | 10. Tulips | 10. Yarrow | 10. Alfalfa |

| NITROGEN FIXERS | POLLINATOR ATTRACTANTS | REPELLANT/ SUPPRESSANTS | DYNAMIC ACCUMULATORS | GROUNDCOVERS |
|---|---|---|---|---|
| | | | | |

# TREE GUILD BUILDER

*A tree guild is a combination of plants that support each other's growth & health by creating a mini self-sustaining ecosystem. Each tree should have plants around it that collectively work together to create the functions listed in each sector. Many plants have more than one function such as sunflowers which are pollinator attractants, suppressants, & dynamic accumulators.*

CREATE A LIST OF PLANTS THAT FLOURISH IN YOUR GROW ZONE THAT YOU CAN PLANT AROUND YOUR TREES TO CREATE A SELF-SUSTAINING ECOSYSTEM. NATIVE PLANTS FUNCTION BEST

# WHAT GOES WHERE?

### NORTH SIDE (SHADY, COOL, PROTECTED)
### BEST FOR: SHADE-LOVERS, WINDBREAKS, STORAGE, COOL-WEATHER NEEDS

Mushrooms (e.g. wine caps, shiitake on logs)
Compost bins (slower breakdown, but protected)
Water storage tanks (less evaporation)
Firewood storage (keeps dry and shaded)
Animal shelters (protected from harsh summer sun)
Cool-season greens (e.g. lettuce, spinach in summer)
Shade-tolerant herbs (e.g. mint, lemon balm, chives)
Cold storage/root cellar entrance
Beehives (placed facing southeast, but protected from harsh afternoon sun)
Windbreak trees (if prevailing winds are from the north in your region)

### WEST SIDE (HOT AFTERNOON SUN, INTENSE LIGHT)
### BEST FOR: HEAT-TOLERANT, SUN-LOVING PLANTS AND PROTECTIVE FEATURES

Sunflowers, corn, squash, melons (love strong afternoon sun)
Trellised plants as shade screens (e.g. cucumbers, gourds)
Solar dehydrators (strong sun for drying)
Heat-loving herbs (e.g. sage, thyme, lavender)
Barns or sheds (block late-day heat from house or gardens)
Thermal mass features (rock walls, water barrels to absorb heat)
Privacy hedges/windbreaks (slow drying winds, summer sun buffer)


### EAST SIDE (MORNING SUN, AFTERNOON SHADE)
### BEST FOR: DELICATE PLANTS, EARLY WARMTH WITHOUT SCORCHING HEAT

Berries (e.g. raspberries, strawberries, blueberries)
Fruit trees that bloom early (e.g. apricots, cherries—less heat stress)
Children's play area (morning play before it gets too hot)
Medicinal & culinary herbs (e.g. chamomile, calendula, lemon balm)
Pollinator gardens (bees are active earlier in morning sun)
Bees and poultry (morning warmth, afternoon rest)
Garden benches, meditation spots (comfortable morning light)

### SOUTH SIDE (WARMEST, FULL SUN ALL DAY)
### BEST FOR: SUN-LOVERS, HIGH-PRODUCTION AREAS, SOLAR GAIN

Orchards & fruit trees (e.g. apples, peaches, figs)
Vegetable gardens (main production area)
Herb spirals or beds (rosemary, basil, oregano, etc.)
Chicken coops/animal pens (winter sun access)
Solar panels or solar water heaters
Greenhouses & cold frames
Drying racks (herbs, clotheslines)
Grapevines & trellises
Washing stations (dry fast in sun)
Open gathering areas for humans (sunny patios, outdoor kitchens)