

Herbs in the Dragoons

Guide 8 · Kitchen Garden

Annual & Perennial · Soil & Hydroponic

Version 2026.05 · Revised 2026-05-16

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RELATED GUIDES

This guide is one of seventeen in the Dragoon Mountains Growing Guides Library: - **Guide 1 — Hydroponic Primer & Library Map** · the front door + master multi-crop calendar - **Guide 2 — Peppers in the Dragoons** · soil + hydroponic + variety-specific staking - **Guide 3 — Bato Bucket Hydroponic Systems** · system build, water treatment, operations - **Guide 4 — Hydroponic Nutrients** · Masterblend + DIY + pH + Indoor/LED - **Guide 5 — Grapes in the Dragoons** · Cochise County viticulture - **Guide 6 — Cool-Season Crops** · brassicas + alliums + greens + roots - **Guide 7 — Warm-Season Companions** · tomatoes, cucurbits, beans, corn, sweet potatoes - **Guide 8 — Herbs in the Dragoons** (this guide) · annual + perennial · soil & hydroponic - **Guide 9 — Backyard Orchard in the Dragoons** · figs, pomegranates, jujubes, stone fruits - **Guide 10 — Pest, Disease & Wildlife** · IPM + Cochise wildlife exclusion - **Guide 11 — Foundations: Soil & Seed** · soil-building, composting, seed-starting, propagation - **Guide 12 — Harvest, Preservation & Storage** · canning, fermenting, drying, cellaring - **Guide 13 — Water in Cochise County** · sourcing, testing, treatment, rainwater, conservation - **Guide 14 — Season Extension Structures** · cold frames, low tunnels, hoop houses, high tunnels - **Guide 15 — Native Food Crops of the Sonoran-Madrean Region** · the indigenous food complex of the Dragoons and the wider sky-island region - **Guide 16 — Companion Plantings & Polycultures** · the design layer — companion matrix, anti-companions, cover crops, 9 Dragoons-specific guild designs - **Guide 17 — Recipes & Kitchen Integration** · what to cook with what came out of the garden this morning · by-crop recipes + seasonal menus

This guide is the kitchen-garden companion to Guides 1, 6, and 7. Where it touches water treatment, EC/pH chemistry, or hydroponic recipes, it points back to Guides 2 and 3 rather than restating them. Water-chemistry baseline is in Guide 3 §4; Masterblend and DIY nutrient recipes are in Guide 4 Part 1; pH-up / pH-down replacements for alkaline Cochise County water are in Guide 4 Part 3.

About this guide

Herbs are the easiest thing to grow well in the Dragoons, and the easiest to grow badly. The easy part is the perennial half of the kitchen — rosemary, thyme, sage, oregano. These come from Mediterranean hill country and they read Cochise County as home. The hard part is the annual half — basil, cilantro, dill, parsley — where the same dry sunshine and 30°F diurnal swing that ripens peppers and concentrates capsaicin works against tender soft-leaved annuals. Cilantro bolts in six weeks; basil sulks under 60°F nights; parsley straddles both worlds and resents being asked to choose.

This guide is organized around that split. Annual herbs need a timing strategy and shade discipline; perennial herbs need a one-time bed-prep investment and then very little else. Mint gets its own short chapter because mint cannot be planted in the ground in the Dragoons without consequences, and that warning deserves more than a footnote.

The guide is in ten chapters:

1. **About this guide** — what's in it, the annual-vs-perennial framing.
2. **The kitchen garden in the Dragoons** — why this climate is exceptional for herbs.
3. **The bolt problem and the window strategy** — the central tension for annual herbs here, and how to work around it.
4. **Annual herbs** — basil, cilantro, dill, parsley · variety tables, timing, harvest technique.
5. **Mediterranean perennials** — rosemary, thyme, sage, oregano · bed prep, varieties, calendar.
6. **Mint — the container caveat** — why mint is a problem and how to contain it.
7. **Hydroponic herbs** — basil in NFT, DWC for cilantro and parsley, Bato for hardy perennials.
8. **Drying & preserving** — the Dragoons low humidity advantage; bunches, oil cubes, pesto.
9. **Companion planting & IPM** — herbs as the kitchen garden's secret weapon.
10. **Closing** — sense of place.

The guide assumes you've read Guide 1 once and at least flipped through Guides 2 and 3 if you're going to run anything in hydroponics. Soil-only growers can read this guide straight through and ignore the hydroponic sections.

If you're new here. Plant rosemary, thyme, sage, and oregano this fall. Get them established in one well-drained sunny bed and they will be there in ten years. Worry about the basil-and-cilantro window in spring. The perennials are the easy win; everything else builds on them.

1 · The kitchen garden in the Dragoons

Why this place is exceptional for herbs · the perennial advantage · what to plant where

The Dragoon Mountains sit at roughly 4,700 ft in USDA zone 8a. Summers are hot and dry with monsoon humidity in July and August; winters are mild with 3–6 nights of hard frost clustered around mid-January. Daytime sun is intense, relative humidity is low for most of the year (15–30% outside monsoon), and the native soil is sandy loam over caliche, alkaline (pH 7.5–8.5), and very well-drained on slope.

For Mediterranean perennial herbs, this combination is close to perfect. Rosemary, thyme, sage, oregano, and lavender all evolved on rocky alkaline hillsides under intense sun with sharp drainage and dry summers. Cochise County is not their native range, but it reads to them the way the Aegean reads to a Greek thyme. They want what we have in abundance.

For annual herbs the picture is more mixed. Basil wants heat and humidity, which is fine in June and excellent in July–September, but is a problem in May and October when nights drop below 55°F. Cilantro wants 55–70°F days and cool nights, which is exactly the Dragoons cool season — and exactly when you don't think to plant herbs. Dill and parsley are middle-of-the-road but both bolt in summer if pushed.

The right mental model is that the Dragoons supports a kitchen garden of two layers:

- A **perennial bed** anchored by four or five Mediterranean herbs that go in once and produce for years. Site it once, prepare the soil once, plant in the fall, and walk away.
- A **rotating annual bed** that runs basil through the summer, cilantro and parsley through the fall and spring, and dill in the shoulder seasons.

A modest frost wrap against a sun-facing wall — pictured below — extends the perennial bed through the 3–6 hard nights each January and lets you keep borderline-hardy varieties (Tuscan Blue rosemary, young sage, first-year lavender) that wouldn't survive open ground at 16°F. Optional, but the easiest insurance the kitchen garden can buy.

Crop family overview — who fits which slot

Family	Bed occupancy	Habit	Frost tolerance	Best fit in the Dragoons
Mediterranean perennials	Multi-year	Woody / semi-woody shrub	Variable — hardy varieties survive 15°F	Plant October, harvest forever
Mint (perennial)	Multi-year	Vigorous rhizomatous	Bulletproof to 0°F	Container only

Family	Bed occupancy	Habit	Frost tolerance	Best fit in the Dragoons
Basil	90–120 days	Tender annual	Killed at 40°F	Plant May 1 with peppers
Cilantro	40–60 days	Cool-season annual that bolts	Survives light frost	Sep–Mar succession
Dill	50–70 days	Cool-season annual	Survives light frost	Sept and again February
Parsley	75–90 days; biennial	Cool-season; mild winter survivor	Survives to 20°F	Plant fall, hold over to spring

LOCAL TIP

The single best site for a Dragoons perennial herb bed is a south-facing slope or a south-facing wall about 6–8 ft out. That wall stores heat through winter nights and radiates it back at the plants, which extends the harvest window on rosemary and thyme well into December and gets them growing again in February. The same wall can save a borderline-hardy Tuscan Blue rosemary in a 15°F night that would kill an open-ground plant.

What this guide assumes

- **Some bed space** — even 8 sq ft is enough for a working perennial herb collection.
- **A container or two** for mint, regardless of how much in-ground space you have.
- **Access to drip irrigation** for the perennial bed (1 GPH emitters; once or twice a week is plenty).
- **A sunny window or a small NFT system** if you want fresh basil through winter.

The deeper-end equipment (Bato buckets, NFT channels, EC meters, LED grow lights) is optional and is covered in Guides 2, 3, and the hydroponic chapter of this guide.



Figure 1: An outdoor wintering shelter for perennial herbs — rosemary, thyme, and mint potted on a bench against a stucco wall, behind a clear frost wrap that turns the wall's stored heat into a frost-free microclimate. This is how the Dragoons perennial bed gets through its hardest January nights: the wrap doesn't have to be elegant, but it does have to come down again by March so the plants don't cook in the spring sun.

2 · The bolt problem and the window strategy

The central tension for annual herbs in the Dragoons · timing windows · succession sowing · shade discipline

Bolting — the premature flowering of a leaf crop in response to heat, day length, or stress — is when an herb plant stops producing leaves and rushes to flower and set seed. For an annual herb grown for its leaves — cilantro, dill, basil to a lesser extent, parsley if pushed — bolt is the end of the useful harvest. Stems elongate, leaves shrink, flavor changes from culinary to floral, and the plant’s energy goes into seed production. A bolted cilantro plant has not died; it has simply stopped being cilantro.

In a mild humid climate (the Pacific Northwest, coastal England, much of the Midwest in June) cilantro and dill can run for 8-12 weeks of useful harvest before bolting. In the Dragoons they run for 4-6 weeks if you’re lucky. The cause is heat: the soil warms quickly under our intense sun, daytime air temperatures spike past 75°F on a single bright March afternoon, and the long photoperiod accelerates flowering. Add the low humidity that stresses every soft-leaved plant, and the bolt clock runs fast.

The strategy is built on three ideas.

Strategy one — plant in the right windows, not the right season

Cilantro, dill, and parsley belong to the cool-season palette, not the warm-season palette. Plant them when you would plant lettuce and spinach (Guide 6 §4), not when you would plant peppers. Basil is the opposite: plant it when peppers go out, not when the calendar says “spring herbs.”

Herb	First sowing	Last fall sowing	First spring sowing	Last spring sowing
Cilantro	Sep 1	Nov 1	Jan 15 (under row cover)	Mar 15
Dill (leaf)	Sep 1	Oct 15	Feb 15	Apr 15
Parsley	Aug 15 (transplant Sep)	—	Feb 1 (transplant Mar)	Apr 1
Basil (transplant)	—	—	Late April — May 15	—

Cilantro and dill in May is a mistake repeated every year by every Dragoons gardener; the seeds germinate, the seedlings push two true leaves, and the plants bolt before they’re useful. Plant them in September and forget what the seed packets say about “spring herbs.”

Strategy two — succession sowing

For cilantro and dill, the operational unit is the **two-week succession**. Plant a 3-ft row every 2 weeks through the planting window. A 30-ft row planted all at once gives

you a 4-week glut followed by 10 weeks of empty bed; the same 30 ft planted in fifteen 2-ft installments gives you continuous cilantro from October through April.

Crop	Succession interval	Total runs through the window	Useful harvest per row
Cilantro (Slow Bolt)	2 weeks	14-16 runs Sep-Mar	4-5 weeks per row
Dill (leaf, Bouquet)	3 weeks	8-10 runs Sep-Apr	4-6 weeks per row
Parsley	6 months	2 runs per year	8-10 months per plant
Basil (replacement)	4-6 weeks	2-3 runs May-Sep	6-8 weeks per row

The succession rule for the Dragoons is “plant the next row before you cut the current one.” If the previous run is yielding harvestable leaves, the next run should already be in the ground.

Strategy three — shade-protect the shoulder seasons

A 30% shade cloth over a cilantro bed in late March buys two to three extra weeks of harvest. In the Dragoons, what kills a cilantro stand is not high air temperature on its own — it is the combination of bright direct sun, low humidity, and warm soil. Cutting one of those three (the easiest is shade) extends the window meaningfully.

Tool	Purpose	When to deploy
30% shade cloth	Extend cilantro and dill into late March	Mid-March through bolt, or once daytime highs exceed 75°F
50% shade cloth	Hold lettuce-friendly conditions over a parsley bed in May	Once daytime highs exceed 85°F
Floating row cover (0.5 oz)	Frost protection on overwintered parsley	Below 25°F

The bolt rule for the Dragoons. Cilantro and dill measure their useful life in weeks of warmth, not weeks on the calendar. Six cumulative weeks of daytime highs above 75°F and the plant bolts, regardless of when you planted it. The window strategy works because most of those weeks happen in May-August, and a cool-season sowing finishes its useful run before those weeks accumulate.

Strategy four — let some bolt

A bolted cilantro plant is not waste. The flowering umbels feed parasitic wasps and hoverflies (see Chapter 9), and the green seeds are *coriander* — fresh coriander seed is one of the more interesting culinary products in the Dragoon kitchen, with a sharper citrus flavor than the dried seed you buy. Bolted dill produces the seed-head harvest (for pickling, for bread, for spice) that is half of dill's reason to exist. Plan to let the last fall sowing and the first spring sowing of each go all the way to seed.

3 · Annual herbs

Basil · Cilantro · Dill · Parsley — variety, timing, spacing, harvest technique, failure modes

3.1 Basil

Ocimum basilicum. Tender warm-season annual. Native to tropical Asia; in the Dragoons treat it exactly like a pepper — same start date, same transplant window, same soil bed, same pest spectrum. Basil hates cold soil and cold nights; below 50°F it stops growing and below 40°F it dies.

Basil variety reference

Variety · profile	Days to harvest	Plant size	Dragoon notes
Genovese · <i>O. basilicum</i> · classic Italian sweet basil · large pointed leaves	60–75 d	18–24 in	The workhorse. Pesto, caprese, tomato sauce. Grows beautifully here once nights stay above 55°F.
Italian Large Leaf · selection of Genovese · larger leaves, fewer per stem	65–80 d	20–24 in	The pesto-pile choice — fewer leaves to wash for the same pesto volume. Slightly less aromatic than Genovese.
Thai · <i>O. basilicum</i> var. <i>thyrsiflora</i> · purple stems, narrower leaves, anise-clove flavor	60–70 d	18–24 in	Excellent here. Loves the Dragoons monsoon humidity. Holds in heat better than Genovese.
Lemon · <i>O. × citriodorum</i> · small leaves, citrus aroma	55–70 d	12–18 in	Tender, faster to bolt. Plant a fresh row every 6 weeks. The most fragrant basil in the lineup.
Purple Opal · <i>O. basilicum</i> · ornamental, dark purple leaves, milder flavor	75–85 d	18–24 in	Stunning in a bed; flavor is a bit less complex than Genovese. Excellent for vinegars and visual interest.

Variety · profile	Days to harvest	Plant size	Dragoon notes
Greek (Spicy Globe) · <i>O. basilicum</i> var. <i>minimum</i> · small dense round plant	60-75 d	6-10 in	Heat-tolerant, slow to bolt, gorgeous in a container or as a border. Smaller leaves; flavor is sharper.

Basil timing and spacing

Stage	Timing in the Dragoons
Start indoors	March 15 - April 15
Transplant out	May 1 - May 20 (after last frost, soil $\geq 60^{\circ}\text{F}$)
First useful harvest	Mid-June
Peak production	July–September (monsoon weeks especially)
End of season	First frost — October 15 to November 10

Space basil 12 in apart, 18 in between rows. In hot dry June, mulch heavily (2 in shredded straw) to hold soil moisture. Drip-line at 1 GPH per plant, every 3 days outside monsoon; every 5-7 days in monsoon weeks.

The pinch-to-bush technique

A single basil plant left alone will grow as one tall stem topped with a flowering umbel — useless. The correct shape is a low broad bush with many growing tips. To get there, pinch the central growing tip once the plant has 4-6 true leaves, just above a pair of side shoots. Each pinched tip produces two new side branches. Pinch again 2-3 weeks later, above another pair of side shoots. By the third pinch the plant is a wide low canopy with 8-16 growing tips, each producing useful leaf flushes.

A bolted basil plant (flowering) is recoverable — pinch the flowers off the moment they appear, and the plant returns to leaf production within 7-10 days. Flowering basil makes inferior pesto; pinch aggressively all season.

Pesto-pile harvest mode

The most efficient way to harvest a working basil patch for pesto: every 2-3 weeks, cut all stems back to the lowest pair of side shoots (above the lowest two leaf nodes). This is a hard cut — it looks like you've ruined the plant — but the bush re-flushes within 10-14 days at higher density. Six Genovese plants on this regime produce 4-6 batches of pesto across June through October.

Failure modes

Symptom	Cause	Fix
Yellowing lower leaves, slow growth in early June	Cold soil (under 60°F)	Wait. Plant after May 10. Mulch with black plastic for 10 days pre-transplant.
Downy mildew — gray underleaf fuzz, yellow upperleaf patches	Wet leaves at night during monsoon	Avoid overhead watering. Increase plant spacing. Resistant varieties (Rutgers Devotion, Prospera) are widely available — use them after the first outbreak.
Flowering at small size in May	Stress from cold + transplant shock	Pinch flowers; wait for warmth; plant warms up.
Bitter leaves	Flowering too long, or under-watering	Pinch flowers; check soil moisture at 6-in depth.
Holes in leaves	Grasshoppers (peak summer) or Japanese beetles (rare)	See Chapter 9 for handling.

Basil's cold floor. Soil temperature, not air temperature, is what matters. A 50°F night doesn't kill basil; an unmulched bed with 50°F soil for a week stops the plant cold. Use a soil thermometer at 4-in depth before transplant. Below 60°F, the plant sulks. Below 50°F, it dies back. Wait.

3.2 Cilantro

Coriandrum sativum. Cool-season annual. The leaves are cilantro; the seeds are coriander. The same plant produces both, at different stages of its life. In the Dragoons it is fundamentally a fall-to-spring crop and a poor summer crop.

Cilantro variety reference

Variety · profile	Days to leaf harvest	Bolt tendency	Dragoon notes
Slow Bolt · OP · classic broad-leaf · the standard for leaf production	50–55 d	Late-bolting (slowest)	The right cilantro for the Dragoons. Buy it in bulk; sow every 2 weeks Sep–Mar.

Variety · profile	Days to leaf harvest	Bolt tendency	Dragoon notes
Calypso · F1 · 3 weeks slower to bolt than Slow Bolt · cut-and-come-again behavior	50-55 d	Latest-bolting commercial type	Premium choice. Pricier seed but the long picking window is worth it.
Santo · OP · vigorous, broad-leaf · standard market type	45-50 d	Moderate	Good. Bolts faster than Slow Bolt in warm weather.
Long Standing · OP · British selection · holds in heat	50-60 d	Late-bolting	Comparable to Slow Bolt. Sometimes easier to source.
Confetti · OP · finely-divided fern-like leaves · sweeter, milder	50-60 d	Moderate	The variety to grow for the ornamental and unusual; sweeter flavor without the soapy edge some palates pick up.

Cilantro timing and spacing

The window strategy in §2 is the timing recipe. Direct-sow, do not transplant — cilantro hates root disturbance and a transplanted seedling bolts faster than a direct-sown one.

Sowing	Window
Fall main sowings	Sep 1 – Nov 1, every 2 weeks
Winter sowings (under row cover)	Nov 15 – Jan 15
Spring sowings	Jan 15 – Mar 15, every 2 weeks
Last spring sowing	Mar 15 (let bolt for coriander seed)

Space final plants 4–6 in apart, 6–8 in between rows. Sow 4 seeds per inch and thin once after germination. Cilantro doesn't compete much with itself at high density and tolerates close spacing well.

Harvest technique

Two options, depending on planting density:

- **Cut-and-come-again** (looser spacing, slower harvest) — at 4 in tall, cut individual

outer stems with scissors at the base, leaving the central growing tip and 4–6 inner stems. Comes back in 10–14 days for a second and third cut.

- **Whole-plant cut** (denser spacing, succession-dependent) — at 4–5 in tall, scissor-cut the entire row to $\frac{3}{4}$ in above the soil. Plant doesn't regrow usefully; the next sowing is ready in 2 weeks if you've been succession-planting.

The whole-plant cut works better in the Dragoons because it removes the entire plant before bolt pressure builds, and it forces you to be honest about succession discipline.

The trick of letting some bolt for coriander seed

Cilantro bolts. Let the last sowing of fall and the last sowing of spring run all the way through flowering and seed set. The flowers (small white umbels in April or November) are excellent forage for parasitic wasps — see Chapter 9. The green seeds, harvested in May or June from the spring sowings, are the freshest coriander you'll ever taste. Snip the entire seed-head into a paper bag, hang upside down in a dry shaded place for two weeks, then thresh by rubbing between palms. A 10-ft cilantro row at bolt produces about 1 cup of dried coriander seed — a year's supply for a serious cook.

LOCAL TIP

The Dragoons cilantro window stretches further than most reference books suggest because our winter is mild enough that an October sowing keeps producing into March under a single layer of row cover. The trick: sow heavily in early October, harvest hard through January, and let the surviving plants bolt in March for the coriander harvest. You get leaf, then seed, from the same row.

Freezing cilantro for year-round use

The Dragoons summer is too hot for fresh cilantro and the salsa demands are highest. The solution is to freeze the spring glut. Pack washed dried cilantro leaves into ice-cube trays, fill with water or olive oil, and freeze. Each cube is roughly 2 tbsp of chopped cilantro — drop directly into stew, soup, or salsa. Frozen cilantro loses the texture for garnish but holds the flavor for cooking. A 10-ft row at peak produces 60–80 cubes — enough for a serious cook through summer.

3.3 Dill

Anethum graveolens. Cool-season annual. Both the leaves (fresh fronds for salads, fish, dips) and the seed heads (pickles, breads, spice) are useful. Dill plants grow 2–4 ft tall and topple in wind unless planted in a sheltered row.

Dill variety reference

Variety · profile	Habit	Use	Dragoon notes
Bouquet · OP · the standard market dill · 3-4 ft tall, abundant seed heads	Tall, fast to flower	Both leaf and seed	The right choice if you want pickling dill. Plant August through September for monsoon-season pickle crops.
Fernleaf · F1 · dwarf, 18-24 in · slow to bolt · all-leaf type	Short, slow-flowering	Leaf only	The dill to grow if you want a long fresh-leaf window. Container-suitable. Most cilantro-friendly companion in raised beds.
Dukat · OP · Danish selection · larger leaves, stronger flavor	Medium, slow-flowering	Leaf primary	Excellent flavor. Holds in heat better than Bouquet.
Mammoth · OP · giant heads · seed-focused	Tall, fast-flowering	Seed primary	Plant if you want seed heads first and leaves as a bonus.
Hera · F1 · slow-bolt, uniform · commercial leaf type	Medium, slow-flowering	Leaf primary	Premium leaf production. Pricey seed.

Dill timing and spacing

Dill is fundamentally a cool-season crop in the Dragoons. Spring sowings race the heat; fall sowings are the better bet for pickling dill, sized to coincide with the cucumber harvest.

Sowing	Window	Notes
Late summer sowing for pickling	Aug 1 – Aug 25	Plants size up Sept-Oct alongside cucumber harvest
Fall leaf sowing	Sep 1 – Oct 15	Useful into December; light frost is fine
Spring leaf sowing	Feb 15 – Apr 1	First sowing under row cover; second uncovered

Sowing	Window	Notes
Late spring sowing for seed	Apr 1 – Apr 20	Bolt-runs through May for a seed harvest

Direct-sow only — like cilantro, dill resents transplanting. Space final plants 8–12 in apart, 18 in between rows. Sow at ¼ in depth in a fine seedbed; germination is 7–14 days.

Dual use — leaf vs seed head

The same plant produces both, but you can't have a long leaf harvest and a heavy seed harvest from the same row. Choose:

- **For leaf:** pick Fernleaf or Dukat, cut outer fronds at 6 in tall, keep cutting through bolt, prevent flowering by pinching flower buds. Useful leaf harvest runs 6–10 weeks.
- **For seed:** pick Bouquet or Mammoth, let plants flower freely, harvest entire seed-head when seeds turn from green to tan-brown (mid-summer for spring sowings, very early winter for fall sowings).
- **For both:** plant two rows, treat differently. The pickle harvest needs seed heads timed to cucumber harvest, which means an August sowing of Bouquet that flowers in late September and produces ripe seed heads by mid-October.

Companion planting — dill loves carrots and brings wasps

Dill is one of the highest-value companion plants in the Dragoons garden. The flowering umbels are forage for parasitic wasps (Braconidae, Ichneumonidae) that attack tomato hornworms, aphids, and brassica caterpillars. Plant a row of bolting dill near tomatoes and brassicas and the wasps come.

Dill grows well alongside carrots (different root depths, different nutrient demands, no allelopathy) but should not be planted near fennel — they cross-pollinate and the resulting hybrid is inferior to either parent. Keep dill and fennel separated by at least 50 ft.

3.4 Parsley

Petroselinum crispum. Biennial — produces leaves in year 1, flowers and sets seed in year 2, then dies. In the Dragoons it is grown as a 6–9 month crop, sometimes held over winter for a second year. The most cold-hardy of the annual herbs.

Parsley variety reference

Variety · profile	Leaf type	Days to harvest	Dragoon notes
Italian flat-leaf (Giant of Italy) · OP · large dark green flat leaves · classic culinary	Flat	75–80 d	The standard cooking parsley. Stronger flavor than curly. Grows beautifully here.
Plain Leaf (Single Italian) · OP · medium flat leaves · the heritage flat type	Flat	75–80 d	Comparable to Giant of Italy. Slightly smaller plant.
Triple Curled (Moss Curled) · OP · tight ruffled curly leaves · the garnish standard	Curly	75–80 d	More cold-hardy than flat-leaf; holds through 15°F. Mild flavor; classic garnish.
Forest Green · OP · improved curly · darker color	Curly	75 d	Slightly more vigorous than Moss Curled. Productive.
Hamburg (Hamburg Rooted) · OP · grown for the taproot, not the leaves · winter root crop	Flat	90 d to root	Niche but useful — a parsley with an edible parsnip-like root. Plant in deep bed in September.

Parsley timing and spacing

Parsley straddles the seasons. Fall sowings hold over the winter and produce heavily in early spring; spring sowings produce through summer and resent the heat. The Dragoons favor fall sowings.

Sowing	Window	Notes
Late summer (transplant)	Sow indoors Aug 15 – Sep 1; transplant Sep 15 – Oct 1	Bed-anchor for fall, winter, spring. Holds 10+ months.
Spring (transplant)	Sow indoors Feb 1 – Feb 15; transplant Mar 15 – Apr 1	Useful through July, then heat-stressed.
Direct sow	Sept 1 – Oct 15	Slow germination (14–21 days). Soak seed 24 hrs before sowing.

Space plants 8–10 in apart, 12 in between rows. Soil should be fine-tilled, slightly

acidic to neutral, with steady moisture. Drip-line at 0.5 GPH per plant; every 3-4 days outside monsoon.

WARNING

Parsley seed is famously slow to germinate. Folklore says it visits the devil seven times before emerging. The reality is dormancy compounds — fresh seed buried in dry soil takes 21 days. Speed it up by soaking seed in warm water for 24 hours before sowing, and keeping the seedbed continuously moist (a single layer of cotton burlap or sieved compost over the row works). If you give up after a week and replant, you'll end up with a double crop when both finally sprout.

Harvest technique — outer stems first

Parsley grows from a central crown. Harvest by cutting the outermost (largest, oldest) stems at the base with scissors, leaving the central 6-8 inner stems and the growing tip undisturbed. Done weekly, this keeps the plant producing for 8-10 months. Cutting from the top inward, the way most people do, stalls the plant — it has to regrow the central crown before producing new outer leaves.

A well-tended fall-planted parsley produces 1-2 oz of useful leaf per plant per week from October through May.

Biennial behavior — the second-year flower harvest

Parsley left in the ground from October of year 1 through July of year 2 will flower in May or June of year 2, then set seed in July. The flowers are excellent parasitic wasp forage (similar to dill and cilantro); the seed is useful in spice mixes and resows itself freely. Let one or two plants of each fall planting go through the second-year flower cycle — they pay back in beneficial-insect activity through summer, when the rest of the kitchen garden is at peak pest pressure.

4 · Mediterranean perennials

The section that should make you fall in love with the Dragoons · rosemary · thyme · sage · oregano · variety reference · bed prep · pruning calendar

This is the chapter that distinguishes a Dragoons kitchen garden from a Pacific Northwest one. Rosemary, thyme, sage, and oregano are difficult crops in humid climates — they rot, they get powdery mildew, they decline after 3 or 4 years, they sulk in heavy soil. None of that is true here. The native conditions of these plants — sandy alkaline hillsides, sharp drainage, intense sun, hot dry summers, mild winters — are very nearly the native conditions of Cochise County.

If you're new to the Dragoons. Plant the Mediterranean perennials this fall. A *Salem* rosemary, two *German Winter* thymes, a *Berggarten* sage, and a clump of Greek oregano, set in a sunny gravel-mulched bed in October, will give you fresh herb in the kitchen for ten years with almost no input. This is the single most rewarding entry point into a Dragoons kitchen garden — easier than basil, easier than tomatoes, and almost impossible to fail.

4.1 Why these crops are exceptional here

Mediterranean Requirement	Dragoon Condition	Match
Sharp drainage	Sandy loam over caliche	●●●●● Perfect
Full sun (6+ hrs)	280+ sunny days/yr at elevation	●●●●● Perfect
Low summer humidity	15–30% RH most of the year	●●●●● Perfect (except monsoon weeks)
Alkaline soil pH 7.0–8.0	Native 7.5–8.5	●●●●● Perfect (these plants want it)
Mild winter (zone 8 or warmer)	USDA 8a · brief hard freezes only	●●●● Good (cold-hardy varieties)
Lean soil — low fertility	Native low-OM sandy	●●●●● Perfect (rich soil makes them floppy)
Hot dry summer	85–95°F afternoons, low RH	●●●●● Perfect

The two cautions: (1) the monsoon humidity weeks in July–August can briefly stress some of these plants, particularly Greek oregano in heavy-mulched beds; (2) the deepest winter cold pockets (16°F and below) damage less-hardy rosemary varieties like Tuscan Blue. Both are manageable.

4.2 Bed prep for perennials

This is a one-time investment. Done right, a perennial herb bed in the Dragoons is productive for 10+ years with minimal annual maintenance.

Site selection

- **South-facing** if available — most heat exposure, fastest spring regrowth.
- **Near a wall, rock outcrop, or hardscape** that stores heat and radiates back at night. A 2-ft strip along the south side of the house is one of the best sites in any Dragoons garden.
- **Full sun, 6+ hours minimum, 8 hours preferred.**
- **Above the surrounding grade** — even 4 in of mound on a sloping site improves drainage. Caliche pockets in low spots will rot rosemary roots; avoid them.

Soil amendments — less than you think

These plants want lean, sharp, alkaline soil. The native Dragoons soil is closer to right than the soil in most American gardens, and you can ruin a perennial herb bed by over-amending it. The rule for Mediterranean perennials is “fix drainage and texture, not fertility.”

Amendment	Rate	Why
Coarse sand or gravel grit	25–30% by volume in the top 12 in	Drainage. Critical.
Compost (well-finished, not fresh)	1 in spread, worked in	A modest organic-matter bump; do not exceed
Crushed oyster shell or dolomitic lime	1 cup per 10 sq ft	Calcium + maintains pH; Mediterranean herbs want it
Bone meal	½ cup per 10 sq ft	Slow-release phosphorus for root establishment
Mulch — gravel or crushed rock, NOT bark or wood chips	2 in surface layer	Prevents weed germination, reflects heat, keeps stems dry

Do not add: peat moss, fresh manure, heavy compost (>1 in), wood chip or bark mulch, or nitrogen fertilizer of any kind. Rich soil makes rosemary, thyme, and sage floppy, lush, and short-lived. Wood mulch holds moisture against the crown and invites rot.

When to plant

Fall is the right window in the Dragoons. Cool nights and warm days from mid-September through mid-November give roots two months to establish before winter

dormancy, and the plants enter spring already anchored. Spring-planted perennials (March–April) survive but spend their first summer fighting heat with a small root system and often skip a year of useful growth.

Window	Suitability
September 15 – November 15	●●●●● Best · roots establish through fall, plant explodes in March
March 1 – April 15	●●●● Good · acceptable for container plants from a nursery
April 15 – June 1	●●● Marginal · plants stress in their first summer
June – August	● Poor · don't plant Mediterranean perennials in Dragoons summer heat

4.3 Rosemary — *Rosmarinus officinalis*

The signature Mediterranean perennial. In favored sites in the Dragoons, rosemary grows into a 4–6 ft shrub that lives for 15+ years. The species is hardy to about 15°F; below that, individual varieties differ significantly. Site against a south-facing wall in cold pockets.

Rosemary variety reference

Variety · profile	Habit	Cold hardiness	Dragoon fit
Tuscan Blue · upright, intense flavor, large needles · classic culinary	4–6 ft upright	15°F	●●●●○ Excellent · the cook's choice but plant against a wall in cold pockets
Arp · the cold-hardy standard · 0°F survival recorded · slightly milder flavor	3–4 ft semi-upright	0–5°F	●●●●● Best Dragoon all-rounder · survives anywhere here
Salem · selection of Arp · slightly more refined growth	3–4 ft upright	5°F	●●●●● Excellent · the Arp upgrade
Hill Hardy · cold-hardy upright · vigorous · good flavor	4–5 ft upright	5°F	●●●●● Excellent

Variety · profile	Habit	Cold hardiness	Dragoon fit
Madeline Hill · upright, dense, classic rosemary form	4-5 ft upright	5°F	●●●●○ Excellent
Prostrate (Huntington Carpet, Irene) · trailing, 6-12 in tall · spills over walls	1 ft trailing, 4 ft wide	20°F (less hardy)	●●● Good in protected sites only · cascades beautifully over caliche outcrops
Blue Boy · dwarf, container-suitable · small needles	12-18 in compact	20°F	●●● Good for containers; less useful in-ground here

For most Dragoons growers, Arp or Salem are the right starting point. They handle the deepest January cold without protection and produce abundant culinary harvests. Plant Tuscan Blue only in a sheltered south-wall site.

Rosemary spacing and maintenance

- **Spacing** — 3-4 ft apart for upright varieties; 4-5 ft for prostrate varieties (they spread).
- **Water** — drip emitter at 1 GPH per plant, every 7-10 days in dry weather. Less in monsoon. Established plants (year 3+) need almost no supplemental water.
- **Pruning** — once per year in early spring, after the last hard freeze. Cut back the previous year's growth by 1/3, never into old leafless wood (rosemary doesn't re-sprout from bare wood). Light tip-pruning through the summer to encourage bushiness.
- **Fertilizing** — never. A handful of crushed oyster shell every other spring is the maximum input.
- **Lifespan** — 12-20 years in the Dragoons. Replace when growth slows and woody stems dominate.

4.4 Thyme

Thymus vulgaris (common thyme), *T. citriodorus* (lemon thyme), *T. serpyllum* (creeping thyme). Low woody perennial. The single best-suited herb to the Dragoons — sharp drainage, low water, full sun, alkaline soil are all exactly what thyme wants.

Thyme variety reference

Variety · profile	Habit	Cold hardiness	Dragoon fit
Common thyme · <i>T. vulgaris</i> · the culinary standard · grey-green narrow leaves	8–12 in upright clump	0°F	●●●●● Best · plant once, harvest forever
German Winter · selected <i>T. vulgaris</i> · more cold-hardy, bigger leaves	10–12 in upright	-10°F	●●●●● Best · the choice for the coldest Dragoons sites
English thyme · <i>T. vulgaris</i> · slightly milder flavor · classic kitchen type	10 in upright	0°F	●●●●● Best
Lemon thyme · <i>T. citriodorus</i> (sometimes <i>T. × citriodorus</i>) · citrus-scented	8–10 in upright	5°F	●●●●○ Excellent · the most underused thyme; pairs with fish
Lime thyme · <i>T. × citriodorus</i> var. · subtler citrus	8 in upright	5°F	●●●●● Good
Variegated thyme · <i>T. vulgaris</i> ‘Silver Posie’ · green-and-white leaves	8 in upright	5°F	●●●●● Good · culinary + ornamental
Creeping thyme · <i>T. serpyllum</i> · prostrate, 2–4 in tall · groundcover	Mat-forming	0°F	●●●●● Excellent · gravel-path edges, between flagstones
Wooly thyme · <i>T. pseudolanuginosus</i> · fuzzy gray groundcover · ornamental only	Mat-forming, 1 in	0°F	●●●●○ Excellent groundcover; flavor is poor — don’t cook with it

Thyme spacing and maintenance

- **Spacing** — 12–15 in apart for upright varieties; 8 in for creeping (they fill in).
- **Water** — once every 10–14 days outside monsoon. Established plants tolerate weeks of dry weather.
- **Pruning** — light shearing in late spring after first flush, to remove woody flower

stems and encourage new leaf growth. Heavier shearing every 3rd year, cutting back to 4 in tall in March.

- **Fertilizing** — never.
- **Lifespan** — 5-7 years before the plant gets woody and unproductive. Replace by layering (pin a low branch into adjacent soil, sever after rooting) — easier than starting from seed.

4.5 Sage — *Salvia officinalis*

A vigorous perennial that grows into a 2-3 ft mound in the Dragoons. Native to Mediterranean hillsides; loves alkaline drained soil, hates wet roots. Hardy to 0°F. Tends to get woody and split open after 5-7 years — plan to replace.

Sage variety reference

Variety · profile	Habit	Dragoon notes
Common sage · <i>S. officinalis</i> · grey-green narrow leaves · the culinary standard	24-30 in mound	The right starting point. Excellent flavor. Replace every 5-7 years.
Berggarten · <i>S. officinalis</i> selection · broader rounder leaves · sweeter flavor, doesn't flower	18-24 in mound	●●●●● Best for the Dragoons. The largest leaves of the lineup, slowest to get woody, doesn't put energy into flowers. The cook's first choice.
Purple sage · <i>S. officinalis</i> 'Purpurascens' · purple-green leaves, milder	20-24 in mound	●●●●○ Excellent ornamental + culinary. Slightly less cold-hardy than common.
Tricolor · <i>S. officinalis</i> 'Tricolor' · green/white/pink-purple variegation	18 in mound	●●● Good · less cold-hardy (15°F); plant in protected sites. Stunning in a bed.
Golden sage · <i>S. officinalis</i> 'Aurea' · yellow-green leaves	18 in mound	●●● Good · ornamental priority
Pineapple sage · <i>S. elegans</i> · NOT culinary sage · fruity scent, red flowers	3 ft loose · tender	Tender perennial (kills below 25°F) · plant for hummingbirds; not for cooking

Sage spacing and maintenance

- **Spacing** — 24–30 in apart. They get bigger than people expect.
- **Water** — every 10 days outside monsoon. Excess water in winter kills sage faster than cold does.
- **Pruning** — cut back by 1/3 in early spring before new growth pushes; remove flower stalks after bloom (for common sage). Berggarten doesn't need flower removal.
- **Fertilizing** — none.
- **Lifespan** — 5–8 years before the plant gets woody, sprawls, and splits in the center. Replace by layering or fresh transplant.

4.6 Oregano

Origanum vulgare (common oregano) and *O. vulgare* subsp. *hirtum* / *O. heracleoticum* (true Greek oregano). The flavor varies enormously between selections; what you want for cooking is Greek oregano. The garden-center “oregano” sold without species is often common oregano (*O. vulgare*) which has mild flavor and is not what you want on pizza.

Oregano variety reference

Variety · profile	Flavor	Habit	Dragoon notes
Greek oregano · <i>O. vulgare</i> subsp. <i>hirtum</i> (or <i>O. heracleoticum</i>) · pungent, classic pizza-and-tomato flavor	Strong, hot, classic	18–24 in spreading clump	●●●●● Best · the only culinary oregano worth growing. Verify the species name on the tag.
Italian oregano · <i>O. × majoricum</i> (oregano × marjoram hybrid) · milder, more aromatic	Mild, sweet	18–24 in clump	●●●●○ Excellent · between oregano and marjoram in flavor
Common oregano · <i>O. vulgare</i> · the basic species · pretty pink flowers · mild	Weak, almost no flavor	24–30 in spreading	●● Use as ornamental only · not culinary-grade. Beware: this is what most nurseries sell as “oregano.”

Variety · profile	Flavor	Habit	Dragoon notes
Hot & Spicy oregano · <i>O. vulgare</i> selection · stronger than common · OK substitute for Greek	Medium	18-24 in clump	●●● Adequate · use if you can't find Greek
Marjoram · <i>O.</i> <i>majorana</i> · sweet, mild oregano-marjoram flavor · tender perennial	Sweet, delicate	12-18 in clump	●●● Good · less cold-hardy than oregano (15°F). Treat as a tender perennial; mulch heavily in winter.
Syrian oregano · <i>Origanum syriacum</i> · za'atar ingredient · powerful, unique flavor	Very strong, distinct	18-24 in clump	●●●● Excellent · the za'atar herb. Tender — protect below 20°F.

Oregano spacing and maintenance

- **Spacing** — 18-24 in apart; oregano spreads by underground runners and fills in over 2-3 seasons.
- **Water** — every 7-10 days outside monsoon. Slightly thirstier than rosemary or thyme.
- **Pruning** — cut back by half in early spring before new growth. Cut flower stems after bloom (the leaf flavor weakens during flowering).
- **Fertilizing** — none. Oregano gets aggressive and floppy with fertilizer.
- **Lifespan** — 4-6 years before the patch needs dividing. Lift the clump in early spring, split into 3-4 sections with a sharp spade, replant immediately.

LOCAL TIP

Look at the species name on the nursery tag before you buy oregano. *Origanum vulgare* alone is the bland one. What you want is *O. vulgare* subsp. *hirtum*, *O. heracleoticum*, or any cultivar specifically labeled "Greek oregano." Crush a leaf at the nursery and taste — culinary Greek oregano is so strong it numbs the tongue; common oregano tastes like nothing. The Dragoons will grow whichever one you bring home equally well; the choice is yours to make at purchase, not in the bed.

4.7 Annual maintenance calendar for the perennial bed

Month	Activity
January	Walk-through after hard freezes; note frost damage on rosemary tips
February	Prune sage and oregano hard (down by 1/3 to 1/2) before bud break
March	Prune rosemary and thyme; shear creeping thyme; layer sage and oregano for replacements
April	Side-dress with crushed oyster shell (½ cup per plant); resume drip irrigation
May	First major culinary harvest; oregano and thyme at peak flavor pre-flower
June	Light tip-pruning to remove flower stalks (except in plants you let bloom for bees)
July	Monsoon care — pull mulch back from crowns to allow airflow; check for root rot
August	Last meaningful harvest before fall flush; cut for drying
September	Plant new perennials this month — the optimal window opens
October	Continue planting; mulch new transplants 2 in deep with gravel grit
November	Final harvest of fresh material; rosemary tip-prune if needed
December	Dormant — leave alone. Don't water established plants below 50°F unless drought

4.8 Winter care

Most Mediterranean perennials in the Dragoons need nothing in winter. The exceptions:

- **Tuscan Blue rosemary** in cold pockets (below 4,800 ft, or low spots, or north-facing slopes) — wrap with frost cloth on nights below 18°F, or plant against a south-facing wall and skip the cloth.
- **Tricolor sage** and **pineapple sage** — protect below 25°F; pineapple sage is a tender perennial that often dies back to roots and resprouts.
- **Marjoram** and **Syrian oregano** — mulch 3 in deep with gravel grit around the crown for winter; do not use straw or bark, which holds moisture.

Do not water established perennials during winter dry weeks unless there has been

zero precipitation for 6+ weeks. The plants are dormant; wet cold roots are the failure mode, not dry cold roots.

5 · Mint — the container caveat

Mentha spp. · spearmint, peppermint, apple mint, chocolate mint · invasive habit · containment strategies

Mint deserves its own chapter for one reason: planted in the ground without containment in the Dragoons, it does not stay in the ground. Mint is a vigorous rhizomatous perennial that spreads aggressively by underground runners. A single mint plant in a well-watered bed will, within three seasons, fill the bed, jump beds along irrigation lines, follow soil moisture down to caliche, and become essentially permanent. Removing established mint requires excavating to 18 in depth across the entire affected area and starting over.

If you’re new here, the rule is simple. Never plant mint directly in a bed. A 5-gallon nursery pot on a hard surface — patio, gravel, concrete pad — is the right home for every mint variety you grow. Spend one weekend afternoon planting four pots (spearmint, peppermint, apple mint, chocolate mint) and you have all the mint a household needs for a decade. Skip this rule once and the bed reconstruction work is a multi-year regret.

WARNING

Mint as garden invader. In wetter climates mint sometimes self-limits because of pest pressure or competition. In the Dragoons, with sun, alkaline soil that mint tolerates well, and drip irrigation that delivers exactly the moisture mint wants, there is nothing to stop it. Treat mint the way you would treat bermudagrass: never let it touch open soil. The mistake is reversible only by major bed reconstruction.

Mint variety reference

Variety · profile	Flavor	Habit	Dragoon notes
Spearmint · <i>Mentha spicata</i> · classic culinary mint · the kitchen standard	Bright, sweet, classic mint	Aggressive runner	●●●●○ Excellent for cooking. Container-only.
Peppermint · <i>M. × piperita</i> · stronger, more menthol	Intense, cool, menthol	Aggressive runner	●●●●○ Excellent for tea. Container-only.

Variety · profile	Flavor	Habit	Dragoon notes
Apple mint · <i>M. suaveolens</i> · fuzzy round leaves, sweet apple-mint flavor	Sweet, mild, fruity	Aggressive runner	●●●● Good for cocktails and infusions. Container-only.
Chocolate mint · <i>M. × piperita</i> · 'Chocolate' · faint cocoa note in peppermint base	Peppermint with chocolate undertone	Aggressive runner	●●●● Good novelty. Container-only.
Pineapple mint · <i>M. suaveolens</i> · 'Variegata' · variegated, mild	Mild, pineapple-y	Aggressive but slower	●●● Good ornamental + occasional culinary. Container-only.
Mojito mint · <i>M. × villosa</i> · Cuban yerba buena · subtler than spearmint	Mild, slightly citrus	Aggressive runner	●●●● Good for cocktails. Container-only.
Corsican mint · <i>M. requienii</i> · tiny creeping groundcover · NOT culinary	Strong mint aroma underfoot	Mat-forming, fragile	●●● Good as paving groundcover only; doesn't survive foot traffic

All true mints (*Mentha* species and hybrids) cross with each other freely and revert toward generic mint flavor when seed-grown. Buy named cultivars as transplants or cuttings, never as seed.

Containment strategies

In order of preference:

1. **True container** — a 5-gallon or larger pot on a hard surface (patio, gravel, concrete pad). The container must be elevated on pot feet or stand legs so mint can't escape through the drain hole into adjacent soil. This is the safest option.
2. **Buried pot to the rim** — sink a 5-gallon nursery pot into the ground to its rim (rim above grade by ½ in). Plant mint inside. Watch the rim quarterly — mint will eventually send a runner over the rim if given the chance. Cut runners back to the pot interior. This option blends into a perennial bed visually while containing the rhizomes.
3. **Mint bed with metal barrier** — frame in a dedicated bed with 18 in deep galva-

nized sheet metal or HDPE pond liner driven into the soil. Plant only mints inside. This option is overkill for one household; useful for a market grower with multiple mint varieties.

4. **In-ground without barrier** — the failure mode. Do not do this in the Dragoons.

LOCAL TIP

The places mint will escape if you let it: along the drip line of a raised bed (following the moisture), into the irrigation valve box (where it stays cool and damp), under the edge of a sidewalk into the next bed, and downslope along any contour with retained soil moisture. The first three are not theoretical — they are the standard failure pattern in Dragoons gardens with uncontained mint.

Mint maintenance

- **Spacing** — one variety per container. Mints cross and revert, so a spearmint and a peppermint in the same pot becomes generic-mint within two years.
- **Water** — daily light watering in summer; mints in containers dry out faster than in-ground plants. A 5-gallon container needs about 1 quart of water per day in July.
- **Pruning** — cut hard (back to 2–3 in) every 6 weeks through the growing season. This keeps flavor strong and prevents flowering, which drops leaf quality.
- **Fertilizing** — light feeding (compost tea, dilute fish emulsion) once a month in summer. Container mints exhaust quickly; replace the potting mix every 2 years.
- **Winter** — most mints die back to the crown in December and resprout in March. Move container indoors if you want continuous fresh leaf, or accept the 3-month gap.

6 · Hydroponic herbs

Why basil is the NFT champion · DWC for cilantro and parsley · Bato for hardy perennials · EC and pH targets · light requirements

Herbs are the single highest-value hydroponic crop category for most home growers — high price per pound, fast turnover, continuous harvest, and they tolerate (or actively prefer) the lower EC (electrical conductivity, in mS/cm — the standard measure of dissolved nutrient strength) and gentler conditions of a leafy-greens hydroponic system. This chapter is the operational layer for running them. The build details for Bato buckets live in Guide 3; the nutrient recipes live in Guide 4. Three system shorthands appear repeatedly: **NFT** (Nutrient Film Technique — a thin film of solution flows down a sloped channel past bare roots), **DWC** (Deep Water Culture — roots dangle in an oxygenated reservoir), and **Bato** (a drip-and-drain bucket system covered in Guide 3).

6.1 Which herbs run well in hydroponics, and which don't

Herb	Best system	Hydroponic suitability	Notes
Basil	NFT, DWC, Bato	●●●●● Best · the highest-yielding hydroponic herb	
Cilantro	DWC, NFT	●●●● Excellent · continuous succession in DWC outperforms soil for indoor growers	
Parsley	DWC, NFT	●●●● Excellent · year-round harvest	
Dill	DWC, NFT (Fernleaf only)	●●● Good · tall types topple in NFT	
Mint	DWC, Bato	●●●●● Best · runners are contained by the system itself	
Oregano	Bato, DWC	●●● Good · slower than soil; flavor stays strong	
Thyme	DWC	●● Marginal · woody habit doesn't take to soft systems	

Herb	Best system	Hydroponic suitability	Notes
Sage	Bato	●● Marginal · root mass doesn't fit small systems	
Rosemary	(not recommended)	● Poor · woody root structure doesn't translate; flavor is weaker	
Lavender	(not recommended)	● Poor · same as rosemary	

The summary: leaf-driven herbs (basil, cilantro, parsley, dill, mint) thrive hydroponically. Woody Mediterranean perennials (rosemary, lavender, sage, thyme) are better in soil — the soil track is also dramatically cheaper for these crops because they need so little input.

6.2 Basil — the NFT champion

Basil is the hydroponic crop most people meet first, and the one that runs more cleanly in NFT (the thin-flowing-film system noted above) than any other crop in the library — hence the shorthand “NFT champion.” Roots get oxygen, EC stays moderate, light demand is high and easily met indoors, and a single plant produces 6-10 oz of leaf over 8-10 weeks before exhaustion. Production rates of 3-4× soil are realistic in a well-tuned system.

Basil hydroponic targets

Parameter	Setting
System	NFT or DWC (Bato also works, oversized for the plant)
EC	1.4-2.0 mS/cm
pH	5.8-6.2
Light (PPFD — photosynthetic photon flux density, $\mu\text{mol}/\text{m}^2/\text{s}$, the rate of usable light reaching the canopy)	300-500 $\mu\text{mol}/\text{m}^2/\text{s}$
DLI (daily light integral, $\text{mol}/\text{m}^2/\text{day}$ — total photons accumulated per day)	15-20 $\text{mol}/\text{m}^2/\text{day}$
Air temp	70-85°F — basil loves heat
Photoperiod	16-18 hrs

Parameter	Setting
VPD (vapor pressure deficit, kPa — the dryness of the air relative to leaf moisture)	1.0–1.4 kPa

This matches the Guide 4 §1.4.3 basil entry. Use the Guide 4 Masterblend recipe at full vegetative strength (2.0 g/gal Masterblend, 1.0 g/gal Epsom, 2.0 g/gal Cal-Nitrate).

Basil hydroponic operation

- **Seed-to-channel** — start in 1-in rockwool cubes or coco plugs; transplant to NFT at 4 true leaves (3 weeks from sow).
- **Spacing** — 8 in between plants in the channel; 12 in between channels. NFT slope at 1:30 to 1:50.
- **Reservoir** — keep below 72°F. Above that, *Pythium* (a root-rot pathogen common in warm hydroponic reservoirs) is the failure mode (see Guide 3 §4 for the broader hydroponic *Pythium* discussion).
- **Pinching** — pinch growing tips at 6 leaf pairs, same as soil. Harvest hard every 2–3 weeks.
- **Lifespan in channel** — 8–10 weeks before the plant exhausts. Pull, sanitize, restart from a fresh seedling.

Basil in NFT outperforms soil basil in two specific ways: (1) production density is 3–4× higher per square foot, and (2) winter availability is total. A small 4-channel NFT setup in a sunroom produces fresh Genovese basil through February while the outdoor garden is dormant. This is the strongest argument for hydroponics in a Dragoons kitchen garden.

6.3 Cilantro and parsley — DWC works best

Both crops are bolt-sensitive in warm weather, and an indoor DWC (Deep Water Culture) system in a cool room is one of the few ways to get continuous cilantro through June and July in the Dragoons.

Cilantro & parsley hydroponic targets

Parameter	Cilantro	Parsley
System	DWC or NFT	DWC or NFT
EC	1.2–1.6 mS/cm	1.2–1.6 mS/cm
pH	6.0–6.5	6.0–6.5
Light (PPFD)	250–400 $\mu\text{mol}/\text{m}^2/\text{s}$	250–400 $\mu\text{mol}/\text{m}^2/\text{s}$

Parameter	Cilantro	Parsley
DLI	12-17 mol/m ² /day	12-17 mol/m ² /day
Air temp	60-72°F (cool is better)	60-72°F
Reservoir temp	60-65°F (critical for bolt prevention)	60-65°F
Photoperiod	14-16 hrs	14-16 hrs

These align with Guide 4 §1.4.3. Use the leafy-greens base recipe.

Cilantro hydroponic operation

- **Direct-sow** into 1-in rockwool or net pots with grow plugs. Three seeds per plug; thin to two. Cilantro hates transplant, but rockwool-to-DWC counts as gentle.
- **DWC bucket** — 5-gallon bucket with a 10-in net pot lid, air stone on a small pump. Two plants per bucket.
- **Spacing** — 6 in between plants if using a large raft system.
- **Harvest** — at 5 in tall, whole-plant cut at $\frac{3}{4}$ in; plant doesn't usefully regrow. Replace from the next sowing.
- **Succession** — start a new tray every 10 days; the system runs continuous if you stay disciplined.

Parsley hydroponic operation

- **Transplant** from a soil-started seedling at 6 weeks (parsley is too slow from seed direct in DWC). Wash roots clean before placing in the net pot.
- **Spacing** — 8 in apart in large rafts; one plant per 5-gallon DWC bucket.
- **Lifespan in DWC** — 4-6 months before the plant exhausts. Replace cycle.
- **Harvest** — outer-stem cut weekly, same technique as soil.

6.4 Bato bucket for the perennials? Mostly no

Bato bucket systems (Guide 3) are sized for fruiting crops — peppers, tomatoes, cucumbers. For most herbs they are massively oversized and the maintenance overhead doesn't pay back. The exceptions:

- **Mint** — a Bato bucket with coco/perlite is actually the cleanest way to grow culinary mint indoors or on a patio. The bucket contains the rhizomes; the constant moisture suits mint perfectly; production is heavy. A single bucket produces more mint than a household can use.
- **Greek oregano** — adequate in Bato, slightly slower than soil-grown but not by much. Useful for a year-round indoor herb collection.

Rosemary, lavender, sage, and woody thyme do not perform well in Bato buckets in the Dragoons. The root systems want sharp drainage, not constant moisture, and the

foliage is less aromatic in hydro than in dry-stressed soil. Plant these in the perennial bed and skip the bucket.

6.5 EC, pH, light — quick reference for hydroponic herbs

Herb	EC (mS/cm)	pH	PPFD ($\mu\text{mol}/\text{m}^2/\text{s}$)	DLI ($\text{mol}/\text{m}^2/\text{day}$)	Notes
Basil	1.4–2.0	5.8–6.2	300–500	15–20	Loves heat; runs hot
Cilantro	1.2–1.6	6.0–6.5	250–400	12–17	Cool reservoir critical
Parsley	1.2–1.6	6.0–6.5	250–400	12–17	Steady; long-running
Dill (Fernleaf)	1.4–1.8	6.0–6.5	300–450	14–18	Tall varieties topple
Mint	1.2–1.6	5.8–6.2	250–400	12–16	Bulletproof; production h
Oregano	1.4–1.8	5.8–6.2	350–500	15–18	Slower than soil
Thyme	1.2–1.6	5.8–6.2	350–500	15–18	Marginal; not worth the t

All values are lower than fruiting crops. Herbs are leafy crops; treat them as a gentle hydroponic profile.

6.6 Continuous harvest strategy in hydro

The point of hydroponic herbs is continuous production. A working continuous-harvest setup for a single household:

System	Capacity	Yield	Pace
4-channel NFT (8 ft, 32 plants)	16 basil + 16 cilantro/parsley	8–12 oz/week basil + 6–8 oz/week cilantro	New seedlings every 2 weeks
1 DWC bucket × 4 (16-gal total)	8 cilantro + parsley plants	4–6 oz/week cilantro	Replace 2 plants every 10 days
1 Bato bucket of mint	One plant, continuous	6–10 oz/week leaf	Cut hard every 4–5 weeks

Total reservoir burden across this setup is one large reservoir (40 gal) or two smaller ones (20 gal each). Daily attention is a 10-minute EC/pH/level check; weekly is a 30-minute deep-clean of the seedling tray and a fresh seed sowing.

6.7 Failure modes specific to hydroponic herbs

Symptom	Cause	Fix
Brown slimy roots, sour smell	Pythium root rot — reservoir above 72°F	Drop reservoir temp (insulate, shade, ice bottles); flush system; H ₂ O ₂ at 3 ml/gal of 3% solution. See Guide 3 §4 for the full Pythium response.
Pale leaves, slow growth	EC too low, or N deficient	Bump EC by 0.2 mS/cm; verify Cal-N dose
Tipburn on basil	Calcium uptake failure; usually too-high EC + low humidity	Drop EC to 1.4; increase humidity (a small humidifier in winter)
Cilantro bolts in DWC	Reservoir temp too high; air temp too high; photoperiod too long	Drop reservoir to 60°F; reduce photoperiod to 12 hrs; switch to Calypso
Fungus gnats around rockwool	Wet rockwool surface	Top-dress with sand or perlite; BTi (Gnatrol) drench
Algae on reservoir	Light reaching the solution	Cover reservoir completely; opaque tub

For the full hydroponic troubleshooting framework, see Guide 3 §4 and Guide 4 Part 3.

7 · Drying and preserving

The Dragoons humidity advantage · bunches · oil cubes · pesto freezing · powder

The Dragoons low humidity makes air-drying herbs trivially easy. Most of the techniques in commercial herb-drying manuals — dehydrators, oven drying, silica gel desiccants — exist for humid climates where air-drying produces mildew. In Cochise County, hanging a bunch of oregano in a covered porch in October produces brittle, deeply-aromatic dried herb within 7-10 days with no equipment.

7.1 Air-drying — the default method

This is the right method for rosemary, thyme, oregano, sage, mint, parsley, and dill. It works for basil too but basil discolors more than the others.

Procedure

1. **Cut in late morning** after the dew has burned off but before the heat of the afternoon. Aromatic compounds are highest in the leaves at this point.
2. **Rinse only if needed** — most Dragoons herbs come off the plant clean. If you must rinse, dry completely with a salad spinner before bunching.
3. **Bundle 6-10 stems** per bunch, secured at the base with rubber band (not twine — stems shrink as they dry and twine slips).
4. **Hang upside down** in a dark, dry, well-ventilated space. A covered porch out of direct sun works perfectly in the Dragoons. So does a garage with the door cracked. So does an interior closet with a small fan.
5. **Wait 7-14 days.** The herbs are done when leaves crumble between fingers and stems snap rather than bend.
6. **Strip leaves off stems** by running fingers down the stem from tip to base, into a bowl. Store in airtight jars away from direct light.
7. **Crumble at use, not before** — whole dried leaves keep flavor 18+ months; crumbled leaves lose flavor in 3-4 months. Crush in a mortar or between palms when the dish needs it.

7.2 What to dry, when

Herb	Best harvest for drying	Air-dry time in Dragoons
Rosemary	Spring or fall, before flowering	7-10 days
Thyme	Late spring, just before flowering	5-7 days
Oregano	Late spring/early summer, just before flowering	7-10 days
Sage	Early summer, before flowering	10-14 days (thick leaves)
Mint	Mid-summer, before flowering	7-10 days
Parsley	Anytime; flavor weakens dried more than others	7-10 days

Herb	Best harvest for drying	Air-dry time in Dragoons
Basil	Marginal — freezing is better	5–7 days (discolors)
Cilantro	Don't — freeze instead	(poor results dried)
Dill leaf	Just before flowering	5–7 days
Dill seed	When seed heads turn from green to tan	14 days (seed heads)

7.3 Freezing — for the soft annuals

Basil, cilantro, parsley, dill leaf — all freeze better than they dry. The technique:

Oil cubes (the gold standard for basil and cilantro)

1. Wash and dry herbs completely.
2. Chop coarsely (or pulse in a food processor).
3. Pack into ice-cube trays, filling each cube about $\frac{3}{4}$ full.
4. Top off with olive oil (basil), neutral oil (cilantro), or water (parsley, dill).
5. Freeze overnight; pop out cubes; transfer to a zip-top bag in the freezer.
6. Drop directly into stew, soup, pasta sauce, salsa. Each cube is roughly 2 tbsp chopped herb.

Olive oil cubes hold flavor and color for 6–12 months in a deep freezer. The oil also protects the herb from freezer burn.

Pesto freezing

Make a full pesto recipe (basil, olive oil, garlic, pine nuts or walnut, Parmesan) but freeze it as portions:

- Ice cube tray for sauce-sized portions (good for one serving of pasta).
- 4-oz jars with $\frac{1}{2}$ in headspace for larger portions (good for a meal for 4).
- Pour a thin layer of olive oil over the surface to seal against air.

Pesto holds 9–12 months in a deep freezer with no flavor loss. A pesto-pile basil patch (Chapter 3) producing 4–6 batches across the summer fills the freezer with enough pesto to run a household through the next year.

7.4 Salt-curing

A traditional and underused preservation method, especially for the woody perennials. Pack alternating layers of fresh leaves and kosher salt into a glass jar; seal; refrigerate. The salt draws moisture out of the leaves; the leaves flavor the salt. After 4 weeks, the leaves can be used as a strong seasoning, and the salt itself is a finishing salt. Excellent for rosemary, sage, and thyme.

7.5 Herb powder

Once dried, leaves of rosemary, sage, oregano, and thyme can be ground to fine powder in a coffee grinder dedicated to herbs (don't use the coffee grinder you grind coffee in — flavors persist). Powder loses flavor faster than whole dried leaves; grind in small batches as needed.

LOCAL TIP

The Dragoons summer air, with daytime relative humidity often below 20%, is the only reason herb-drying here is so easy. In a humid climate, an air-drying batch can mold before it dries. Here, the typical failure mode is over-drying — leaves get so brittle they shatter when handled. Bring bunches inside once they're crisp but still hold shape; finish them in jars rather than on the porch.

8 · Companion planting and IPM

Herbs as the kitchen garden's secret weapon · attracting beneficials · repelling pests · the herb-vegetable interface

The most underused function of a kitchen herb garden is as the pest-management infrastructure for the rest of the garden. Three categories of effect:

1. **Beneficial-insect forage.** Flowering herbs (cilantro, dill, parsley in year 2, oregano, thyme) feed the parasitic wasps, hoverflies, and lacewings that handle most caterpillar and aphid control invisibly.
2. **Repellent effects.** Strong-scented herbs (basil, mint, rosemary, thyme, oregano, sage) interfere with the host-finding cues of several specialist pests.
3. **Trap-cropping.** Some pests prefer herbs to vegetables; planted nearby, the herb pulls pressure off the cash crop.

8.1 The beneficial-insect table

The flowers of plants in the carrot family (Apiaceae — cilantro, dill, parsley, fennel, anise, lovage) and the mint family (Lamiaceae — basil, thyme, oregano, sage, mint, rosemary) are the two highest-value plant families for beneficial insects in the Dragoons garden. Let some bolt every season.

Beneficial	Targets	Best plants to attract them	Activity window
Parasitic wasps (Braconidae, Ichneumonidae)	Tomato hornworm, brassica caterpillars, aphids	Flowering cilantro, dill, parsley · alyssum	March–November
Hoverflies (Syrphidae)	Aphids (larvae are voracious)	Cilantro flowers, dill flowers, mustard flowers	Sept–November, March–May
Lacewings (Chrysopidae)	Aphids, mealybugs, scale	Flowering thyme, oregano, basil	April–October
Ladybugs (Coccinellidae)	Aphids, spider mite eggs	Established perennial herb beds (overwintering habitat)	Year-round
Predatory mites	Spider mites	Diverse herb bed; insectary plantings	Summer
Honeybees and native bees	(Pollinators of the rest of the garden)	Flowering oregano (bees love it), thyme, sage, mint	March–October

The single most effective IPM intervention in a Dragoons garden is letting some herbs flower. The wasps and flies that feed on the umbels handle aphid and caterpillar pressure on tomatoes, peppers, and brassicas at a level that spray programs struggle to match — and they cost nothing.

8.2 Specific repellent effects

Pest	Herb that repels	Mechanism	Effective deployment
Aphids on peppers and tomatoes	Basil interplanted	Aromatic interference with host-finding	Plant 1 basil per 3 peppers
Tomato hornworm	Basil; bolting dill (for wasps)	Repellence + wasp parasitism	Basil under tomatoes; dill in a flowering row nearby
Cabbage moth (cabbage white)	Mint, thyme, sage, oregano	Aromatic interference	Plant a row of perennial herbs along brassica beds
Carrot rust fly	Rosemary, sage	Aromatic interference (limited evidence; rust fly is rare here anyway)	Inter-row planting
Squash bug	Mint (in containers); nasturtium	Aromatic interference	A pot of mint at each end of the squash row
Flea beetles	Mint, basil	Aromatic interference	Inter-plant in young brassica beds
Whitefly	Basil, mint	Aromatic interference	Worth doing in greenhouse and protected sites
Spider mites	Mint (in containers)	Limited; mostly habitat for predatory mites	Containers near pepper rows

The effects are real but modest in most cases. None of these herbs replaces a proper monitoring-and-intervention program. They reduce baseline pressure and let beneficials handle the rest.

8.3 Crop interfaces — what to plant next to what

Vegetable	Recommended herb companions	Avoid
Tomatoes	Basil (classic, real effect), parsley, oregano · cilantro flowering nearby	Fennel (allelopathic)
Peppers	Basil, oregano, marjoram	Fennel
Brassicas (broccoli, cabbage, kale)	Rosemary, thyme, sage, mint (containers), dill flowering	None significant
Carrots	Rosemary, sage, chives (alliums), parsley	Dill (cross-pollinates if both go to seed)
Cucumbers	Dill (for pickle pairing), oregano, basil	Sage (some reports of reduced cucumber yield)
Squash	Mint (in containers), oregano, basil	Sage
Lettuce and greens	Cilantro, parsley, dill	None significant
Strawberries	Borage, thyme	Brassica family members
Beans	Rosemary, summer savory	None significant

LOCAL TIP

The clearest beneficial-insect demonstration in a Dragoons garden: let one row of cilantro flower in April. Within 7–10 days, the white umbels are covered with tiny black wasps. Walk over to the tomato bed nearby. Hornworm pressure that year will be a fraction of the year without flowering cilantro. The same effect works with bolting dill in October near brassicas. The herb bed pays for itself in skipped insecticide applications.

8.4 Pest pressure on the herbs themselves

Herbs are remarkably pest-free in the Dragoons. The main problems:

Pest	Affected herbs	Severity	Control
Aphids	Cilantro, parsley, basil in spring	Low-moderate	Hard water spray; insecticidal soap; tolerate moderate populations
Spider mites	Basil, rosemary in hot dry weeks	Low	Mist morning; insecticidal soap if severe

Pest	Affected herbs	Severity	Control
Whitefly	Basil indoors/greenhouse	Low	Yellow sticky traps; insecticidal soap
Slugs and snails	Basil, parsley after monsoon	Low	Beer traps; iron phosphate bait
Grasshoppers	All herbs in drought summers	Moderate-high in drought years	Nosema locustae bait; row cover on young plants; chickens nearby
Cutworms	Basil at transplant	Moderate	Cardboard collar 2 in into soil; same protocol as peppers (Guide 2 §8)
Downy mildew	Basil during humid monsoon	Moderate	Resistant varieties (Rutgers Devotion, Prospera); wider spacing; no overhead water
Root rot (Pythium)	Hydroponic herbs	High in warm reservoirs	See Guide 3 §4 — drop reservoir below 72°F
Root rot (Phytophthora)	Rosemary, sage in over-watered or poorly-drained beds	Moderate	Better drainage; gravel mulch; cut irrigation in winter

WARNING

Pythium in herb hydro. A reservoir above 72°F running cilantro or basil is the standard route to Pythium root rot. The signs are brown slimy roots and sudden wilting despite full water. The fix is reservoir temperature — bury the reservoir, insulate it, or shade it. This is the same warning as in Guide 2 §8 and Guide 3 §4, and it matters as much in herbs as in peppers.

8.5 Diseases of perennial herbs

Mostly fungal and mostly preventable through drainage and airflow:

- **Root rot** (sage, rosemary, thyme) — caused by over-watering or poor drainage. The fix is the bed prep in §4.2; don't add wood mulch; don't run drip in winter.
- **Powdery mildew** (sage, oregano) — rare in the Dragoons; can appear in monsoon if plants are crowded. Cut back to improve airflow; spray with potassium bicarbonate (1 tsp per gallon).

- **Rust** (mint) — orange pustules on undersides of leaves. Cut hard back to 1 in tall; let regrow. Replace plant if it returns the next year.

Sources & references

Reference material consulted, suggested for further reading, and where to verify or extend the claims in this guide.

Local resources

- **UA Cooperative Extension — Cochise County office (Sierra Vista)** — soil testing, herb-specific pest and disease identification, the Master Gardener help desk. Phone 520-458-8278.
- **Native Seeds/SEARCH (Tucson)** — Sonoran-adapted basil and cilantro lines; the regional source for heat-tolerant annual herb selections.
- **Mountain Valley Growers (California — mail order)** — the deepest catalog of culinary-quality herb plants and rooted cuttings; the reliable source for *Berggarten* sage, *Salem* rosemary, and Greek oregano with verified species names.
- **Richters Herbs (Canada — mail order)** — the encyclopedic source for unusual herb varieties (Syrian oregano, *Mojito* mint, true Italian oregano), seed and plant.
- **Sulphur Springs Valley feed and farm supply** — gravel grit, oyster shell, drip irrigation parts.

Books & references

- *Jekka's Complete Herb Book* by Jekka McVicar — the encyclopedic culinary-herb reference; species identification, variety notes, and culture details.
- *The Herbal Kitchen* by Jerry Traunfeld — culinary technique and preservation logic for nearly every herb in this guide.
- *Wildcrafted Herbs* by Joe Hollis — regional foraging and propagation traditions that translate cleanly to Southwest perennial herbs.
- *Growing Food in a Hotter, Drier Land* by Gary Paul Nabhan — Sonoran-context background on the Mediterranean perennials and the heat-stress strategies for annual herbs.
- *Hydroponic Food Production* by Howard Resh — the NFT and DWC system logic underlying Chapter 6.

Online resources

- **UA Cooperative Extension publications** (extension.arizona.edu) — Cochise County herb-growing bulletins and the SE Arizona IPM series.
- **The Herb Society of America** (herbsociety.org) — variety histories, culinary uses, and regional grower notes.
- **Johnny's Selected Seeds growing guides** (johnnyseeds.com) — variety-specific cultivation notes for basil, cilantro, dill, and parsley, and the source of the *Prospera* and *Devotion* downy-mildew-resistant basil lines.
- **OMRI (Organic Materials Review Institute)** (omri.org) — verify potassium bicarbonate, BTi, neem, and other inputs before applying.

- **The Plant List** (theplantlist.org) — species name verification when buying named herb cultivars from nurseries.

9 · Closing

The Dragoons are kind to a kitchen garden. The perennial herbs read this place as home and ask almost nothing in return; the annual herbs reward a small amount of timing discipline with continuous harvests through most of the year; and the low summer humidity makes preserving the year's surplus easier than it is in nearly any other American climate.

A working kitchen-garden plan for a Dragoons household looks something like this. In one 4 × 8 ft bed, anchored on a south-facing wall, plant an Arp rosemary, a Berggarten sage, three German Winter thyme plants, two Greek oregano clumps. Plant them in October; mulch with gravel grit. They will be there in ten years, producing fresh herb for the kitchen on demand, every month of the year. The investment is one weekend of bed prep and one trip to a quality nursery.

In a separate annual bed (or in the corners of the vegetable beds), run cilantro on a 2-week succession from September through March; transplant parsley in September and let it run through July; run dill in shoulder seasons matched to your pickle and seed-head needs; transplant basil after Mother's Day and pinch hard all summer. Plant a 5-gallon pot of spearmint somewhere it can never escape.

In a small hydroponic corner — even four NFT channels in a sunroom — you can run fresh basil year-round and bridge the cilantro and parsley gaps in deep winter and high summer. The same hardware that runs cool-season brassicas (Guide 6) and warm-season peppers (Guide 2) runs herbs with minor nutrient adjustments.

In late summer, harvest hard. Hang bunches in the covered porch in the dry afternoon air. Freeze pesto in jars. Pack olive-oil ice cubes of basil and cilantro into the freezer against the heat of the next August. Let some cilantro and dill bolt; collect the seeds; let the wasps come.

The Mediterranean herbs that built Western cooking grew on sunny rocky alkaline hillsides under intense sun and dry summers. Cochise County is one of the few places in the United States where you can grow them with the same casual ease that they grow at home. A kitchen garden anchored by perennials, refreshed each season with annuals, is one of the easiest wins available in a Dragoons garden — and one of the highest-return per square foot of any crop in this library.

RELATED GUIDES

The 14 guides: - **Guide 1 — Hydroponic Primer & Library Map** · the front door + master multi-crop calendar - **Guide 2 — Peppers in the Dragoons** · soil + hydroponic + variety-specific staking - **Guide 3 — Bato Bucket Hydroponic Systems** · system build, water treatment, operations - **Guide 4 —**

Hydroponic Nutrients · Masterblend + DIY + pH + Indoor/LED - **Guide 5 — Grapes in the Dragoons** · Cochise County viticulture - **Guide 6 — Cool-Season Crops** · brassicas + alliums + greens + roots - **Guide 7 — Warm-Season Companions** · tomatoes, cucurbits, beans, corn, sweet potatoes - **Guide 8 — Herbs in the Dragoons** (this guide) · annual + perennial · soil & hydroponic - **Guide 9 — Backyard Orchard in the Dragoons** · figs, pomegranates, jujubes, stone fruits - **Guide 10 — Pest, Disease & Wildlife** · IPM + Cochise wildlife exclusion - **Guide 11 — Foundations: Soil & Seed** · soil-building, composting, seed-starting, propagation - **Guide 12 — Harvest, Preservation & Storage** · canning, fermenting, drying, cellaring - **Guide 13 — Water in Cochise County** · sourcing, testing, treatment, rainwater, conservation - **Guide 14 — Season Extension Structures** · cold frames, low tunnels, hoop houses, high tunnels - **Guide 15 — Native Food Crops of the Sonoran-Madrean Region** · the indigenous food complex of the Dragoons and the wider sky-island region - **Guide 16 — Companion Plantings & Polycultures** · the design layer — companion matrix, anti-companions, cover crops, 9 Dragoons-specific guild designs - **Guide 17 — Recipes & Kitchen Integration** · what to cook with what came out of the garden this morning · by-crop recipes + seasonal menus

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