SKILL GUIDE · WATER & FOOD

What to Grow: Crop Selection & Seed Saving

The Water & Food chapter's Tier 3 names Agriculture and Seed Saving in one line each. This guide is the actual how-to: which crops are worth the garden space, why open-pollinated seed is the one choice that actually matters for going indefinitely without resupply, real isolation distances for saving seed that grows true, how long saved seed actually stays viable, and what a legitimate starter seed collection looks like versus a marketing pitch.

Why this is a health question, not just a calorie one

A Tier 1–2 food storage plan built around grains, dry beans, and canned goods, the standard advice this site's own Water & Food chapter gives, covers calories well and vitamin C and vitamin A barely at all. Neither vitamin is present in any meaningful amount in basic grain-and-bean storage, and a deficiency in either doesn't show up quickly, it shows up months in, which is exactly the timeframe Tier 3 is built for. A garden isn't a backup calorie source in that scenario, stored staples already cover calories, it's what actually prevents a real, documented, easily-avoided deficiency disease over a long enough horizon.

Scurvy, vitamin C deficiency, is the textbook example: real, well-documented, and entirely preventable with a small, steady amount of the right food. Potatoes are the historically important case here, not because they're vitamin-C-dense per bite, but because they're one of the only real vitamin C sources that also stores for months; potatoes contributed roughly 20% of dietary vitamin C intake across Europe historically for exactly that reason. Cabbage carries the same advantage: genuinely storable, genuinely a real vitamin C source, unlike most vitamin-C-rich produce (citrus, berries) which doesn't keep.

What to actually plant

Split garden space roughly 70–80% toward calorie-dense staples and 20–30% toward the vitamin-completeness crops storage alone doesn't cover. Most fresh vegetables are mostly water and fiber, real nutrition, but not a meaningful calorie source; beans, grains, and potatoes are what actually get a household through a shortage calorie-wise.

Role	Crop	Why this one
Calorie staple	Potatoes	A well-tended patch realistically produces 20–50 lbs per 100 sq ft, roughly 7,000–18,000 calories; also the vitamin C crop above
Calorie staple	Dry beans	Store for years as dry seed, fix their own nitrogen in the soil, and are a real protein source stored grains alone don't fully cover
Calorie staple	Dent or flint corn (not sweet corn)	Grown for dry kernels, not fresh eating; stores as a grain, but see the seed-viability table below before counting on it as a static seed bank
Calorie staple	Winter squash	Long-storing varieties (butternut, hubbard) hold for months without any processing at all
Vitamin completeness	Cabbage and other brassicas	Stores for months in a root cellar and is a real, storable vitamin C source

Northern Utah note: pick varieties for the season you actually have

The Wasatch Front runs roughly 120–140 frost-free days, average last frost mid-to-late May, first frost late September to early October. Most seed catalogs are written for a national audience with a much longer season by default; check "days to maturity" on every variety against your own frost dates before buying, not just the crop name. USU Extension publishes region-specific planting calendars built for exactly this.

Potatoes are the one exception here: save tubers, not seed

Every other crop on this page is saved and replanted as true botanical seed. Potatoes aren't grown that way in practice, they're propagated from "seed potatoes," pieces of the tuber itself with an eye intact, because true potato seed produces genetically variable, unpredictable offspring rather than a copy of the parent plant. Set aside healthy, disease-free tubers from your own harvest for next year's planting instead of looking for potato seed packets.

Secondary crops: closing the rest of the nutritional gap

The five crops above cover calories and vitamin C. A few real gaps remain even with those solid, and a garden can close most of them, though not all.

Gap	Crop	Why this one
Vitamin A	Carrots	A real, storable vitamin A source; stores for months in a root cellar the same as the crops above
Vitamin A, calcium, iron	Kale and chard	Cold-hardy leafy greens that cover ground the cabbage above doesn't, and the same crops already worth knowing for a walipini's extended season
Storage variety, minor nutrition	Onions and garlic	Real storage crops in their own right, and the flavor variety that keeps a long-term diet from becoming the "menu monotony" problem that undermines an otherwise sound plan
Dietary fat	Sunflowers	The one real gap none of the crops above touch at all: a roughly 400-ft row presses into a few gallons of oil, enough for a household for a year
Fresh vitamin C, variety	Tomatoes and peppers	Don't store anywhere near as well as cabbage, but add real variety and are worth the space once the calorie staples above are solid
Variety, medicine	Culinary and medicinal herbs	Flavor variety for the same monotony problem, plus a direct line into Herbal Medicine & the Home Apothecary for the medicinal side

WARNING

The one gap a garden genuinely can't close: vitamin B12

No plant crop, none, provides a reliable source of vitamin B12. This isn't a matter of picking the right vegetable; B12 is produced by microorganisms, not plants, and the handful of plant foods sometimes claimed as sources (mushrooms, fermented foods like sauerkraut) have inconsistent, unreliable amounts that don't hold up as a real dietary plan. This gap closes through animal products (eggs, meat, dairy) or a stored, shelf-stable B12 supplement, not through anything grown in a garden. See Backyard Poultry & Small Livestock Basics for the real, sourced case for keeping laying hens specifically for this gap.

Heirloom, open-pollinated, and hybrid: why the difference matters here

Open-pollinated seed comes from plants pollinated naturally, by wind, insects, or gravity, between the same or a genetically similar variety; a seed saved from an open-pollinated plant grows true to type next season. **Heirloom** seed is a subset of open-pollinated with a documented history, generally in circulation before

1945 or at least 50 years, but the meaningful distinction for this guide is open-pollinated versus hybrid, not heirloom versus modern.

Hybrid (F1) seed is the deliberate first-generation cross of two specific parent lines, bred for a specific trait: disease resistance, uniformity, size, shelf life. Seed saved from a hybrid plant won't grow true next year, it reverts toward the traits of one or both grandparent lines, is less vigorous, and is far more variable. That's a real tradeoff for a normal garden, where you can just buy fresh hybrid seed every year. For a Tier 3 plan built specifically around *not* depending on outside resupply, it's disqualifying: hybrid seed is a dead end after one generation. Open-pollinated is the only choice that actually closes the loop this tier is built around.

Saving seed that actually grows true next year

How hard this is depends entirely on how the crop pollinates, not on the crop itself.

Pollination	Examples	Realistic isolation to keep varieties pure
Self-pollinating (easiest)	Beans, peas, tomatoes, lettuce	10–20 ft between different varieties of the same crop is enough; the flower pollinates itself before it even opens
Wind-pollinating	Corn, spinach, beets	Pollen travels far on wind; grow only one variety per season, or separate varieties by a few hundred feet to a mile depending on how strict you need to be
Insect-pollinating	Squash, cucumbers, melons	Bees carry pollen long distances; full commercial isolation runs up to roughly 1,500 meters (~0.9 mile). Hand-pollinating a flower yourself and bagging it before bees reach it is the realistic home-garden alternative to that much land

This is exactly why beans, peas, and tomatoes are the standard starting point for anyone new to seed saving, and why corn and squash are usually the last crops a household adds to its own seed-saving practice, not the first.

Harvesting seed: wet-processing versus dry-processing

Harvesting is a separate, physical step from the isolation work above: actually getting clean seed out of the plant once that variety is confirmed pure. Which method applies depends on whether the seed sits in wet flesh or dries down on the plant itself.

Tomatoes need fermentation, not just scooping

A tomato seed carries a gel coating with a built-in germination inhibitor, the same mechanism that stops seed from sprouting inside a still-attached, still-ripening fruit. Scoop the seeds and gel into a jar, cover with about an inch of water, and leave it loosely covered (not sealed) for 2 to 4 days at room temperature. A frothy, slightly sour-smelling film forming across the surface means fermentation has done its job, breaking down the gel and destroying the inhibitor; rinse the seeds clean in a strainer once it covers the whole surface. Spread the rinsed seeds in a single, non-touching layer on a coffee filter, paper plate, or fine mesh screen, not a paper towel, which the seeds stick to tenaciously once dry and are hard to remove from, and let them air-dry somewhere shaded with good airflow for 5 to 7 days, stirring gently once a day so the layer doesn't clump. They're ready for storage once they no longer feel tacky and snap rather than bend. Skipping this step doesn't ruin the seed outright, but germination rates come in lower and less even.

Beans, corn, and grains are dry-processed instead: leave pods or ears on the plant until they're fully dry and brittle, past the point most people think to harvest, then thresh and winnow to separate the seed from the hull and plant debris.

Step	Home method	What it's doing
Threshing	Put dried pods or ears in a sturdy bag and beat it against a hard surface, or stomp them inside a shallow box	Physically breaks the seed free of the pod, hull, or cob it's attached to
Winnowing	Pour the threshed mix between two containers in a light breeze or in front of a fan	The heavier seed falls straight down; the lighter chaff blows aside, separating the two
Screening	Pass the mix through a screen with holes just larger than the seed, then a second screen with holes just smaller	Removes debris too big or too small to be seed, a useful second pass after winnowing rather than a replacement for it

None of this requires special equipment: a bag, a fan, and a kitchen sieve or two cover most home-scale needs. The real mistake is harvesting too early, pods and ears that still have any give or green color haven't finished transferring the plant's stored energy into the seed, and seed pulled then stores and germinates worse than seed left to fully dry down first.

Storing seed so it's still viable when you need it

Store seed dry, cool, and dark: a sealed jar or bag with a silica gel packet, kept in a refrigerator or freezer, meaningfully extends viability beyond room-temperature storage in a drawer. Moisture and temperature are the two variables that actually matter, drier and colder both extend shelf life, and the two effects stack.

Typical viable storage life	Crops
1–2 years	Onions, corn
2–4 years	Peppers
3 years	Beans, carrots
4–5+ years	Lettuce, squash, tomatoes

This is the real reason this site's own "5+ year seed bank" framing needs a caveat: wheat and beans genuinely hold up that long under good storage, but corn and onion seed don't, no matter how well they're stored, and need to be regrown and re-saved on a shorter cycle to keep a viable stock on hand. A seed bank someone doesn't rotate is a seed bank that quietly stops working for exactly the crops it was counted on for.

Test old seed before you need it, not during planting season

Wrap 10 seeds in a damp paper towel, seal it in a plastic bag, and keep it somewhere warm (on top of a refrigerator works). Check germination after the timeframe listed on the seed packet, typically 5–10 days for most vegetables. If 7 or more of 10 sprout, plant normally; if 4–6 sprout, plant more thickly than usual to compensate; below that, the seed lot isn't reliable enough to depend on and should be replaced or replanted for fresh seed as soon as possible, not stored longer.

WARNING

What to avoid: the commercial 'survival seed vault' pattern

A real, honest starter seed collection exists, sold by companies that name their actual varieties, source real open-pollinated or heirloom seed, and package it appropriately for storage. What to watch for in the ones that aren't: inflated total seed counts padded with cheap, small, largely decorative seeds rather than useful food-producing varieties; vague marketing claims like "grow $2,000 of food" with no real basis; and documented cases of mislabeled packets, tomato seed that's actually sunflower, radish that's actually fennel. Buy from a source that names specific varieties and sources real seed, not a count and a dollar figure.

Keeping the soil productive indefinitely

None of the above stays true if the same soil is planted with the same heavy-feeding crop year after year; yields decline as specific nutrients deplete. A simple rotation, legumes one year to fix nitrogen, then a heavy feeder like corn or brassicas, then a lighter root crop, then back to legumes, keeps soil productive across seasons without external fertilizer. Beans and peas are doing double duty here: a calorie crop and a soil-fertility crop at the same time. The full practice, composting, cover cropping, and closed-loop nutrient cycling at a scale meant to last decades, is covered in The Act of Thriving's Long-Run Sustainability chapter rather than repeated here; for how much land a household or community actually needs to feed itself this way, see Physical Foundation. A perennial food forest sidesteps annual rotation entirely, at the cost of years to establish instead of one growing season.

Sources

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- Seed viability by crop and storage conditions: Illinois Extension; Iowa State University Extension
- Germination testing method: Illinois Extension
- Commercial survival seed vault marketing issues, inflated counts and mislabeling: Humbly Rooted Home

- Seed Savers Exchange, a real nonprofit seed-preservation organization (founded 1975, ~20,000 varieties): Wikipedia; Seed Savers Exchange
- Crop rotation and nitrogen-fixing legumes for long-term soil fertility: SARE
- Wasatch Front frost dates and growing season: USU Extension regional planting calendars (this site)