

## Storage of Produce

### Winter Storage of Fruits & Vegetables

#### The Basics

- ▶ **Basic idea:** To keep them alive, by slowing their metabolisms so they're in a resting state. <sup>1</sup>
- ▶ **Key message:** If conditions aren't just right, it's OK -- your produce will still store, just not as long. <sup>1</sup>
- ▶ **Key discipline:** Every 2-3 weeks: monitor, adjust, and sort. <sup>1</sup>

#### Root Veggies and Tubers

While these can be left in place to over-winter for spring harvest (mulched heavily, at least 6 inches deep, to prevent ground beneath from freezing), or covered with waterproof cover to dig up as needed, <sup>2, 4</sup> these options are not recommended for the Flathead. Instead:

- ✓ Have them mature as late as possible by planting as late as possible. Leave your last planting in the ground until the roots are fully mature; they'll store better if they're protected by a thicker skin. <sup>3</sup>
- ✓ Harvest as close to the time you plan to use as possible, for best flavor and nutrition. If possible, dig from fall garden after 2 - 3 days of dry weather. Leave out for a few hours in the sun right after you pull them: kills root hairs, making the plant dormant; dries soil on roots so it falls off easily. <sup>3</sup>

#### Cold Storage:

- ✓ Best at 32° - 40°F with 90-95% humidity (80-90% for potatoes)<sup>1,7</sup> (See "Cold Storage Options" below).
- ✓ Select good-keeping varieties for storage, and only store the best roots. Check carefully for insect or harvesting damage; never peel or clip off the bottom end of the root - leaves opportunity for rot. <sup>3</sup>
- ✓ Keep well insulated in cold corner of detached garage or shed; experiment with locations. A little frost can actually make them sweeter, as starches convert to sugar, but don't let them freeze completely. <sup>2</sup>
- ✓ Freeze/thaw cycles are the hardest on your stored produce. If they freeze in storage, don't panic. You can still use them. But once they've thawed they won't keep for more than a day or so. <sup>3</sup>
- ✓ Never wash root veggies before storing; wash roots just before using them. Cut off the tops right in the garden, leaving a bit of stem to prevent exposure of root flesh to rot. For beets, about 1" stem to prevent bleeding in cooking; for other root crops, cut tops close, with about 1/4" stem remaining. <sup>3,5</sup>
- ✓ Give roots some space--don't pack tightly in the pail or box. For example, arrange a loose layer of parallel carrots, then run the second row the opposite direction. <sup>1</sup>

## Apples & Pears

- ✓ Keep these cold, like root veggies (32° - 50°F) but not so humid (60-70% humidity).<sup>1,7</sup>
- ✓ Wrap each fruit in tissue or newspaper (no colored ink)

## Brussels Sprouts

- ✓ Remove leaves, store like cabbage. Good for a month or so.<sup>1</sup>
- ✓ For longer keeping, retain the roots and stand up the plants in 5-gal pails with some soil in the bottom. Sprinkle soil to keep it moist.<sup>1</sup> A loose fabric row cover over the top may slow drying.<sup>1</sup>

## Cabbage

- ✓ Cold and humid, like root veggies. (32° - 40°F with 80-90% humidity)<sup>1,7</sup>
- ✓ Best in root cellar, loose or in boxes. Sprinkle or mist insides of the container weekly to keep humidity up (a bit on the heads is OK).<sup>1</sup>
- ✓ Or pile heads in cold corner of the porch or detached garage and cover with hay, leaves, etc..<sup>1</sup>
- ✓ If a cabbage head is a bit frozen, allow it to thaw slowly, over a day or two, and the leaves will be undamaged.<sup>1</sup>

## Citrus Fruits (Oranges, Grapefruits, etc.)

- ✓ Keep these cold, like root veggies (32° - 50°F) but not so humid (60-70% humidity).<sup>1,7</sup>

## Eggplant

- ✓ Store as for ripe tomatoes & sweet peppers: cool (40° - 50°F), and humid (80-90% humidity).<sup>1,7</sup>

## Leeks

- ✓ Lift leeks from soil with a fork and trim leaves (optional) to a foot long.<sup>1</sup>
- ✓ Pack upright in 5-gallon plastic pails with 1 inch (2 cm) moist soil at bottom.<sup>1</sup>
- ✓ Keep humid and cold like root veggies; add water as needed to keep soil moist.<sup>1</sup>

## Onions, Shallots, Garlic

- ✓ Keep these cold, like root veggies (32° - 50°F) but not so humid (60-70% humidity).<sup>1,7</sup>
- ✓ Ensure they are thoroughly dried by leaving them on ground after picking, about 2 weeks. If it is wet, cover them to shield them from rain, but allow wind to reach them. Two bricks and a length of board on top works well.
- ✓ Use onion bags or airy boxes (check with your grocer).<sup>1</sup> Or hang them: Take 4 dry onions and knot together by twisting around a piece of string. Then add one onion at a time to the string by twisting its stalk around the string. Then plait the knotted stalks around another bit of string. Tie top of the string in a cool place where there is plenty of air.<sup>4</sup>

## Peppers

- ✓ Sweet peppers: Store cool (40° - 50°F), and humid (80-90% humidity). <sup>1,7</sup>
- ✓ Dry hot peppers: Moderately warm (50° - 60°F) and dry (60 - 70% humidity). <sup>7</sup>

## Potatoes

- ✓ Store cold (32° - 40°F) with 80-90% humidity. <sup>1,7</sup>
- ✓ Cure before storage: expose them to warm temps, away from light and the elements.
- ✓ Hang in burlap bags. Or pack in sand or sawdust, as root veggies. Or build a potato clamp. <sup>4</sup>

## Squash/Pumpkin

- ✓ Store moderately warm (50° - 60°F) and dry (50 % relative humidity). <sup>1</sup>
- ✓ Hang in nets in a cool place. Or store on shelves and turn occasionally.

## Sweet Potatoes

- ✓ Store moderately warm (50° - 60°F) and dry (50 % relative humidity). <sup>1</sup>
- ✓ Cure before storage: expose them to warm temps (80° - 90°F) for 10 - 14 days.
- ✓ Wrap in newspaper (no colored ink) and stack in baskets. Or bury in sawdust, like carrots.

## Tomatoes

- ✓ Ripe tomatoes: Store cool (40° - 50°F) and moist (ideally, 80%+ relative humidity). <sup>1,7</sup>
- ✓ Green tomatoes: Moderately warm (50° - 60°F) and dry (60 - 70% humidity). <sup>7</sup>

## Storing Grains Year-Round

### Storage Tips <sup>7</sup>

- ✓ Ensure grains are completely dry before storing; hang in cloth sacks and turn frequently to ventilate the grain. Consider adding a freshness packet to absorb moisture.
- ✓ Keep in dry, food grade pails with sealable lids, and store in cool, dry place (not a root cellar). Metal cans can be used, but keep several inches off concrete floor, to avoid sweating in the can.
- ✓ Cardboard boxes and plastic bags are not recommended, as they are vulnerable to rodents & insects.
- ✓ Clean up spilled grain right away, as it attracts rodents & insects.
- ✓ Stored properly, will keep 2 - 3 years. Best to store grains whole, and grind as needed.

### Insect or larvae infestations <sup>7</sup>

Use heat or cold to attack the bugs.

- ▶ Heat infested grain in oven at 135° F for 30 minutes. Turn off heat, keep in closed oven for one hour.
- ▶ Place in freezer for 3 - 4 days at 0° F.

## Cold Storage Options (for Root Veggies)

A root cellar is not necessary, just cool, moist, dark surroundings. Strive for even, cold temps; fluctuations of even 5 degrees can initiate sprouting or rotting. Allow room for air to circulate between veggies in a layer. <sup>3</sup>

- **In-ground** storage (root cellar) is least expensive and least trouble. <sup>3</sup>
- **Unheated, insulated basement:** Construct a root cellar in a corner by adding insulation and a good, sound door. Coolest near the floor - best spot for root veggies, but not directly on the floor, to avoid dampness -- raise up on a few boards. <sup>3</sup>
- **Cool but not insulated basement:** Construct a "root box" from a large, sturdy cardboard or wooden box. Place 2 - 3 inches of insulating material (sawdust, moist peat moss, or sand) on bottom and sides. Place a layer of roots on top of the sawdust, leaving two to three inches of space near the sides. Cover the roots lightly with sawdust--1/4 inch is fine. Alternate layers (and directions) of roots with sawdust, filling-in around the edges with sawdust. Add a final 2 - 3 inches of sawdust on top, and store in cool basement area. In older homes, the cellar steps leading outside make handy storage areas. <sup>3</sup>
- **Other cool cellar options:** Put roots in plastic trash bag, punch a few small holes in it, tie up the top and store bag. Or, put roots into a trash barrel with a plastic liner, close lid and store the whole thing. <sup>3</sup> Build an insulated cold box in a basement window, adding struts or angle irons for support where box extends into room. <sup>7</sup>
- **No cellar: use a root box** (see above), using a really large box (such as what paper towels come in - check with your grocer), to allow space for more insulation. Line bottom, sides and top with 4 - 5 inches of sawdust or peat moss. Pack the roots in the sawdust and store the box in a cold place--your garage, back porch or an unheated spare room. Whenever you need some vegetables, just take them out and repack the sawdust around the rest.
- **Alternative to a box:** Use plastic pails or perforated poly bags. Monitor moisture weekly, regulating with lid position, more or less ajar. You don't want drying out, nor do you want root surfaces to have visible water droplets. <sup>1</sup> Check with a local restaurant for food-grade plastic pails with lids.  
5-gallon plastic pails work well for storing carrots in sand: <sup>5</sup> Put a little sand in bottom of pail; layer carrots in alternating directions, adding sand and shaking bucket to settle sand around the carrots. Keep top-most carrots completely covered with sand, removing only excess sand as you remove carrots. Avoid really damp sand - it promotes rot - but a bit of damp is good. In spring, they may begin to sprout albino shoots, but this only very slowly begins to diminish or soften the carrot.
- **Bury a root box:** A picnic cooler, old refrigerator or freezer make excellent root boxes, and are already insulated. Remove motor and shelves. Dig a hole in the ground to accommodate the box, about a foot larger all around than the box. Put some rocks into the pit for drainage, then set box in the pit, with lid/door on top and at or slightly below grade. Fill around the box with loose soil. Pile hay bales or bags of leaves on top to insulate against freezing weather. Also a good idea to cover with scrap wood or sheet metal to keep rain off the lid, that could seep in around the door lid. You may also need to run a small vent pipe into the buried box, to admit air. <sup>7</sup>
- **Burlap bags:** This is the preferred way to keep potatoes. Hang bag in a cold, humid place, away from the light.

## Veggie Keeping - Time in Cold Storage <sup>5</sup>

Veggie	Storage Time	Veggie	Storage Time
Beets	4 - 5 months	Leeks	(info not available)
Broccoli	1 - 2 weeks	Onions	good keeper
Cabbage (Red or green heads)	long keeper	Parsnips	1 - 2 months
Chinese Cabbage	1 - 2 months	Pepper	good keeper
Carrots	4 - 6 months	Sweet Potatoes	long keeper
Cauliflower	2 - 4 weeks	Potatoes	4 - 6 months
Celery	long keeper	Pumpkin	good keeper
Chives	not a root cellar crop	Radishes	2 - 3 months
Collard Greens	1 - 2 weeks	Rutabagas	2 - 4 months
Cucumbers	2 - 3 weeks	Salsify	good keeper
Eggplant	1 - 2 weeks	Soybeans	long keepers
Horse radish	long keeper	Squash	4 - 6 months
Jerusalem artichokes	1 - 2 months	Tomatoes	1 - 2 months
Kohlrabi	long keeper	Turnips	long keepers

### Sources

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