

THE COLD FRAME HANDBOOK



**How to Build and Maintain a Garden Cold
Frame Throughout the Year**

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I. Introduction

Cold frames are an effective four-season gardening technique. They can be adapted to work in an array of climate zones. The system is used primarily to grow salad greens; spinach, chard, mâche, claytonia, arugula, and a variety of lettuces grow well in cold frames. However, it can also be used to grow other vegetables such as scallions, radishes, carrots, and leeks. Cold frames create an isolated warm, humid, controlled environment for plants to grow in during the harsher times of the year. A translucent top is angled towards the south in order to capture as much solar radiation as possible throughout the day. An effective cold frame is planted in the ground, in order to insulate the ground in which the plants grow.



Salad greens and root vegetables are two traditional choices for growing in a cold frame because of their cold hardiness. {Lively, Ruth, and Eliot Coleman. "Cold Frame Gardening." - Vegetable Gardener. Aug. 1996. <<http://www.vegetablegardener.com/item/2504/cold-frame-gardening/page/all>>; {thegardenerseden.com}}

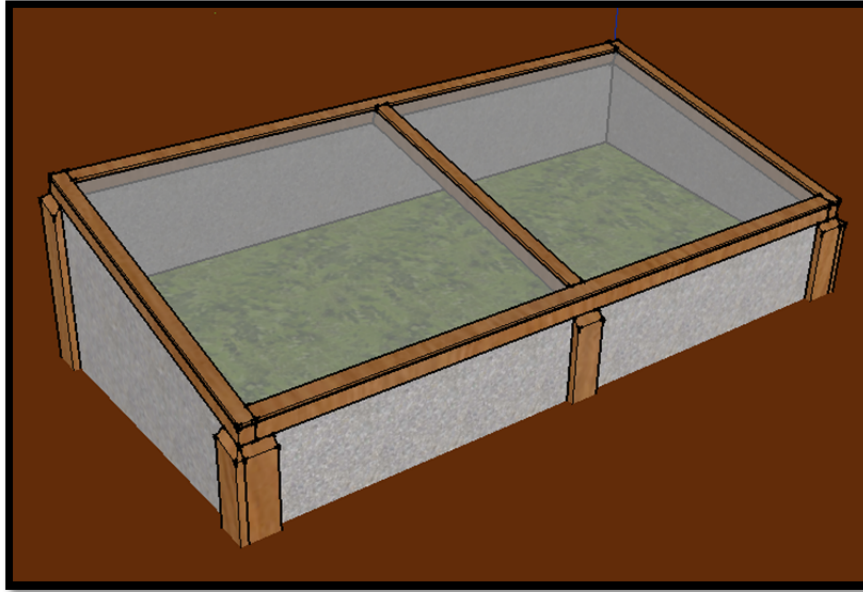
II. How to build a cold frame

Sourcing Materials:

One of the great things about cold frames is the simplicity of their concept; they can be built from a wide array of materials. Effective cold frames range anywhere from a hole in the ground covered with plastic, to a buried wooden structure made from re-used materials, to an insulated raised bed using recycled materials. Somewhere around 4' x 8' in size is good to maximize growing space and heat retention. No matter what you use to construct your cold frame, there are a few essential aspects that make growing in your cold frame happen.

Essential Aspects:

- Southern facing glazing to take in solar radiation
 - Can be achieved with clear plastic, an old window, an insulated double-panel polycarbonate, or anything in between
- Buried in the ground to insulate the earth
 - A hole in the ground, mounded earth, or a buried box.
 - Best to insulate beneath the frost line if possible
- Insulated, sealed environment
 - Sealing the top to the frame is vital
 - Provides warm air, increased humidity, and isolation from the elements



*Cold frame concept using more advanced materials (insulated glazing and walls).
Top glazing slopes towards the south to absorb solar radiation.*

Where to Build:

The location of the cold frame should be easily accessible so that you can check it regularly and keep a close eye on your plants. That being said, the system is fairly low maintenance. Somewhere with a clear southern exposure is ideal, as that will allow for the greatest acquisition of solar radiation. In addition to winter growing, cold frames can be used to sprout plants for growth in a regular summer vegetable garden, so building your cold frame near your summer garden is beneficial.

III. What to grow in your cold frame

Fall:

The fall is the time to grow your larger vegetables, such as carrots, leeks, radishes, etc., as this will be the warmest of the three off-seasons. Long days will allow for greater solar radiation absorption and higher growing temperatures within the cold frame. Salad greens will thrive in these conditions as well. This growing season typically goes from late August until around December.

Winter:

Winter is the harshest growing season, so the heartiest plants should be planted. Salad greens such as arugula, spinach, mâche, and lettuces will be the most successful. Spinach will continue to produce beyond the first harvest, but other salad greens will require a more intensive seed sowing rotation. Sowing seeds in January should yield a March harvest.

Spring:

Springtime can be used to plant another round of salad greens, or to start sprouting plants for a summer garden. Sowing seeds for summer gardens should happen about 5 weeks before the last frost.

Cold Frame Vegetables:

- Carrots
- Leeks
- Radishes
- Spinach
- Lettuces
- Arugula
- Mache
- Chard
- Beet greens
- Endive
- Escarole
- Turnips
- Claytonia



Some vegetables that can be grown in your cold frame. { Coleman, Eliot. Four-season Harvest: Organic Vegetables from Your Home Garden All Year around. White River Junction, VT: Chelsea Green Pub., 1999. Print }

IV. The Four-Season Harvest

Idealized Goal:

Growing in a cold frame will take time to perfect, but successful growing seasons are not hard to come by. The winter will be the most difficult season to produce a successful crop since the temperatures are the coldest, days are shortest, and the angle of the sun is the lowest, so solar radiation will be difficult to acquire. Good timing, careful practices, and learning from previous years can yield a successful harvest. In very harshly cold conditions, the addition of a heating coil to the soil will turn your cold frame into a heat box and allow more consistent success, but that requires electricity. While maintaining a warm environment is essential, an equal important task is making sure it doesn't get too warm. This can be achieved by manually venting your frame on warm and/or sunny days, or by the use of a solar-venting-arm, which automatically opens and vents the frame when the air gets too warm.

Fall will be the most bountiful cold frame season since the days are still fairly long, and the ground will still be warm from the summer. The spring is a good time for potted plants in the cold frame; the earth will still be cold from the winter, so sprouting summer plants in pots will be the most successful method.

Scale of Production:

Cold frames are traditionally used to produce salad greens, so that is the relative unit of production. Typically, two 4' x 8' cold frames can produce enough salad greens for one person throughout the calendar year. While cold frames aren't

quite enough to fully sustain yourself, they are a great source of freshness throughout the winter, and a great way to supplement your normal diet with some home-grown produce.

V. Implications of Cold Frame Growing

Cold frames are a great tool for many applications. At home, they are a great way to produce your own fresh food throughout the winter. At schools, they are a method to bring vegetable gardening to the academic year, and can serve as an excellent natural laboratory and experiential learning method for children and young adults alike. Having awareness about where food comes from and how it is produced is an invaluable thing in today's world. This awareness is lost on much of our society, and gardening is a great way to bring it back. It allows greater connection with your food, and greater connection with ourselves.

VI. References

- 1.) Kreiter, Ted. "Garden All Winter Long." *Saturday Evening Post* 282.1 (2010): 50-51. *Academic Search Premier*.
- 2.) Meyer, Scott. "Make Your Own Cold Frames." *Organic Gardening* (08973792) 41.8 (1994): 42. *Academic Search Premier*.
- 3.) Coleman, Eliot. *The Winter Harvest Handbook: Year-round Vegetable Production Using Deep-organic Techniques and Unheated Greenhouses*. White River Junction, VT: Chelsea Green Pub., 2009. Print.