

Growing Under Glass

Your Guide to Greenhouse Gardening Success

by Hilery Hixon

**Growing Under Glass:
Your Guide to Greenhouse Gardening Success**
www.growingunderglass.com

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BookSurge Publishing
Charleston, South Carolina
1-866-308-6235

Book Design by Graphic Web Design
A Division of Crazy Dog Publications

Library of Congress Control Number: 2009902636

ISBN: 1-4392-3315-2
EAN: 9781439233153

Printed in the United States of America

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Introduction

Most of us got hooked on gardening when we were kids. We experienced the wonder of nurturing a seed and watching it grow and change day by day. Growing up, I always had my own corner of the garden to plant whatever my heart desired and I took great pride in my okra plants.

When I was in first grade, our class conducted a science experiment. On a Monday, each of us was given a lima bean. We moistened a paper towel, folded the lima bean inside, sealed the paper towel in a plastic bag and pinned the bag on a bulletin board next to our each of our names. On Friday, we opened the bags and gasped in amazement when we found our lima beans had germinated! I still experience the same wonder every time I start new plants from seed in my greenhouse.

My greenhouse began as an experiment. As a hobby gardener, could I really pull off a greenhouse in the desert southwest? I am not a botanist, a horticulturist or a master gardener, but I was determined to find as much information as possible about growing under glass.

What I found is there is a lot of literature on gardening and on greenhouse construction, however not as much on the actual process of what goes on inside the greenhouse, and even less about greenhouse gardening in desert climates. This spawned the project of writing, compiling and sharing information about growing a productive garden indoors.

After your greenhouse is built, there are a multitude of decisions to make. This book is divided into four sections to help guide you along the way:

- The Greenhouse Structure
- Growing Guidelines
- Deciding What to Grow Under Glass
- Resources

Arm yourself with as much information as possible, take the process step-by-step and most of all have fun! Experience is the best teacher; learn to trust your instincts. Your plants will tell you when they need help or when they are happy. A greenhouse is a commitment, and with that commitment, your greenhouse will reward you with a year-round growing season.

Gardening is an adventure, so get out to your greenhouse and starting growing!

Greenhouse Maintenance

A greenhouse is an investment in money and time. Even though the primary focus of the greenhouse is the plants inside, it is important to keep the structure in the forefront of your mind. Maintaining your structure will ensure many years of indoor gardening enjoyment.



Polycarbonate Glazing



Polyethylene Damage

Glazing

Glazing is a fancy name for the material of the “windows” of the greenhouse. Light enters the greenhouse through the glazing. Keeping the glazing clean is important for your plants to get the sunlight they need. Make a habit of checking the glazing on a weekly basis to see if it needs to be cleaned.

If your glazing is polycarbonate or glass, check the edges once a year to see if it needs to be resealed. Sealing is easy with a tube of silicone, but before you lay down a new bead of silicone, peel up the damaged or dried out silicone first.

Glass will last a long time, however it is fragile when it comes to impact. Polycarbonate is more durable, yet tends to yellow over time and may need to be replaced after ten years.

With polyethylene (plastic film) glazing, check the surface once a week for tears and repair accordingly. Be prepared for the need to replace the polyethylene once a year as twelve months of wind, rain and possibly hail quickly takes its toll. Make sure the edges are secured so the wind cannot get underneath. If the wind can pick up the edges, you can be almost guaranteed that the wind will tear it up quickly. Visit your local nursery during the winter months to check out their temporary greenhouse setup and you will see exactly what I mean. Polyethylene is less expensive than glass and polycarbonate, but it is much less durable.

Green Thumb:

Check plastic sheeting daily during extreme temperatures as tears will let out regulated air. A hole could spell greenhouse disaster!

Framing

Framing is often overlooked during maintenance, yet it is the most important part of the maintenance process as the framing is what holds up the greenhouse!

Resin and aluminum require virtually no maintenance, just an occasional looking over to inspect for cracks or wear and tear. Aluminum does corrode quickly when in contact with high concentrations of copper. As a consequence, do not allow it to come into contact with pressure-treated wood.



Greenhouse with Wooden Structural Support

In the Greenhouse

For my wood structure greenhouse, I painted the exposed wood. Since my north wall is an insulated wall without glazing, the white paint reflects more light back into the space. At first, I wondered if it was going to make a difference with the light reflection. Before I painted the wall, there was light in the greenhouse. After I painted the wall, it was bright in the greenhouse!

Maintaining a wooden structure requires a little more work as exposure to high amounts of moisture promotes rot. The quandary here is that most moisture treatments contain chemicals harmful to plants. Should condensation from the treated wood drip on the plants, the plants could die. If you are growing food crops inside your greenhouse, make sure your lumber is not treated with arsenate. There are numerous organic treatments as alternatives to the traditional wood treatments.

How to Transplant



Step One: Prepare the soil that will be the seedling's new home.



Step Two: Gently lift the seedling by one of the leaves and loosen the soil around the base.



Step Three: Place the seedling in the prepared pot and gently press it into place.

Transplanting Seedlings

When a plant germinates, the first set of leaves is called the seed leaves or cotyledons. The seed leaves are what store the energy that the seed uses to germinate. They are usually round and not the same shape of the leaves that the plant will have. The next set to grow is the true leaves, and they are the true shape of the leaves of the plant.

When your seedling is large enough to handle, it is time to transplant. Depending on the size of the seedling, this can be when it has grown seed leaves, a first set of true leaves, or a second set of true leaves. Cucumber seedlings are very large and can usually be handled early on, however delphinium seedlings are delicate and need to grow a bit larger. Use your judgment and decide when you can handle the seedlings without damaging them.

If you use peat pellets to start your seeds, transplanting is easy. Pick up the pellet seedling and all to transplant it. What could be simpler?

If you have used a tray, a little more delicate measure is required. Prepare the pot you are moving the seedling to by moistening some potting mix and fill the container, leaving a hole for the seedling. When handling the seedling, hold it by one of the leaves and not the stem. At this stage of growth, the stem is very delicate. A plant can recover much easier from damage to the leaf than it can from damage to the stem. Grasp the seedling by the leaf and using a wooden skewer, lift the soil until the seedling easily pulls away. Do not yank as this will end up with your plant in pieces! Hold the seedling in the new container and fill the soil in around the tiny root. Now your plant will happily grow in its new home.

Ornamental Plants

Even if you use your greenhouse for edible plants, consider tucking in a few ornamental plants if only for the pleasure of looking at them. As gardeners, we love plants. Perhaps grow something special that does not grow outside in your region or a favorite plant near to your heart.

Cut Flowers



Sweet Violet
Viola odorata

For those in love with cut flowers, a greenhouse provides a fantastic venue for growing more delicate, frost-tender flowering plants. Many types of flowers can be “forced”, or manipulated to flower out of season. With many bulbs, simulating their cooling period and then planting in a greenhouse environment can cause spring flowering bulbs to flower out of season.

Get to know what your plants require to flower and then simulate those conditions. You could be enjoying flowers when others only dream of them. These plants make wonderful gifts for other garden lovers.

Plan your plants according to the conditions that make them bloom and enjoy!



Parry's Penstemon
Penstemon parryi

Green Thumb:

Cut your flowers when the bloom is at its best. If your flowers wilt during the heat of the day, cut them in the morning when blooms are full.

Lettuce, Greens and Spinach

Funny thing about plants, they really want to produce seeds! Warmer temperatures encourage lettuce, greens and spinach to bolt and produce seeds. Bolting is when the plant sends up a flower shoot to begin seed production. The downside is the leaves turn bitter and become unpalatable. Look for an area of the greenhouse that stays cooler and is partially shaded.

Grow your lettuce in the cooler months and look for varieties that are heat-tolerant and resist bolting. There are three types of lettuce: loose-leaf, head and Bibb (loose heads). Head lettuce such as iceberg can be difficult to grow in a greenhouse, as they can be very prone to bolting as soon as it gets warm. Some salad greens like radicchio are a bit more tolerant to the heat. I have had great success with Simpson Elite lettuce. It is a loose-leaf lettuce and is very tender with a mild taste.



Simpson Elite Lettuce

Green Thumb:

Keep lettuce under the bench in a cooler, semi-shaded area to stave off lettuce bolt as long as possible.

Another avenue to consider is to harvest while the plants are young for baby greens. This is why I prefer loose-leaf varieties because I can snip off leaves to make a salad at dinner without stopping the growth of the plant. Successively sowing your greens is a good idea. Should one batch bolt, move the younger greens into a cooler area of the greenhouse and start harvesting earlier if possible.

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