



# **Winter Harvest Secrets: How to Extend Your Growing Season**

# OVERVIEW:

---

1. **C** - Our simple formula to know what grows best in the winter vs. the summer
2. **T** - The #1 critical factor for a successful winter garden
3. **P** - The key to keeping plants alive in the cold and why wind is one of your worst enemies
4. **BONUS:** How to build your own winter “quick hoops” and why they are so effective



**C – OUR SIMPLE FORMULA TO KNOW WHAT GROWS BEST IN THE WINTER VS. THE SUMMER**



# C - COLD TOLERANT

---

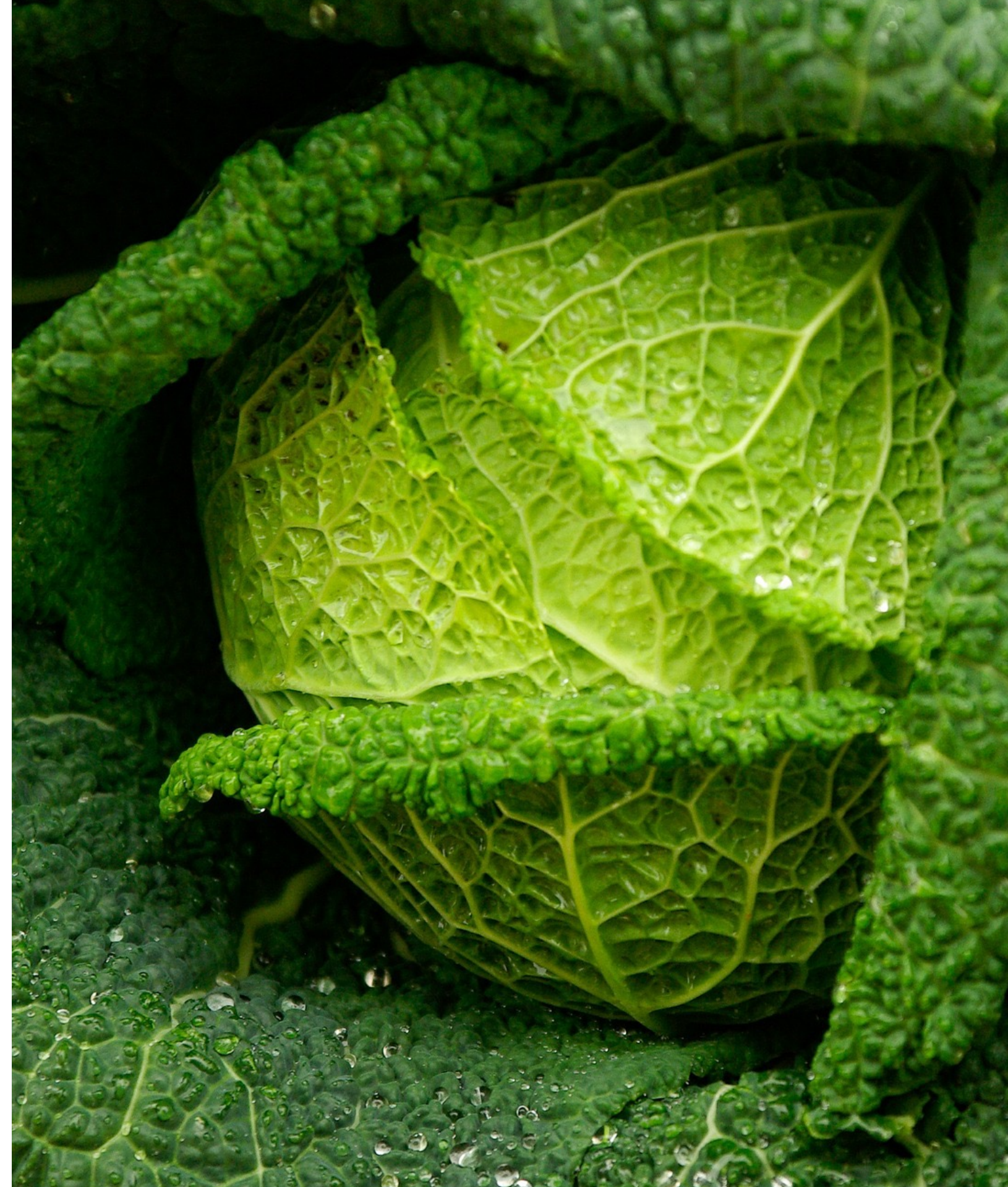
1. C stands for COLD TOLERANT
2. Imagine climbing up a mountain...
3. Each plant has its own environment where it thrives the best



# C – COLD TOLERANT

---

1. It is important when thinking about growing veggies in the cold of winter to choose veggies that do well in the cold
2. Instead of fighting nature – let's work with it



# C - COLD TOLERANT

---

1. As Eliot Coleman says: “The secret to success in lengthening the season without problems or failures is to find the point at which the extent of climate modification is in balance with the extra amount of time, money, and management skill involved in attaining it.” — *NOG* p. 204



# C - COLD TOLERANT

---

1. In short – we want to know how to grow veggies over the winter in a way that is as easy and cost effective as possible – otherwise, what are we really gaining?
2. And the first aspect of that is to grow veggies that naturally like the cold





## C - COLD TOLERANT

---

- And not everyone knows what those veggies are... listen to this story about Bountiful Blessings Farm's CSA customer
- Maybe that's you? Or, even if you do know most of the cold weather veggies – there may be a few new ones here that you might never have heard of before



**WINTER  
LEAVES AND ROOTS**



**SUMMER  
SEEDS AND FRUITS**





## C - COLD TOLERANT

---

- So let's look at a list of cold tolerant veggies you can extend your season with
- We've divided them into three sections here: Low freeze tolerance, medium freeze tolerance, high freeze tolerance

**Low Freeze Tolerance**

Lettuce  
Chicory (radicchio,  
endive, escarole)  
Broccoli  
Cauliflower  
Cilantro  
Parsley  
Radishes  
Celery  
Bok Choi

**Medium Freeze Tolerance**

Chinese Cabbage  
Sorrel  
Rutabaga  
Kohlrabi  
Collards  
Kale  
Maché  
Spinach  
Beets  
Carrots  
Parsnips  
Dandelion Greens  
Baby Greens

**High Freeze Tolerance**

Turnips (hakurei - low)  
Brussels Sprouts  
Cabbage  
Yukina Savoy

# C - COLD TOLERANT

---

1. These are all great veggies to grow in the early spring, fall, or even straight through the winter
2. Remember that your winter veggies are pretty much all leaf and root veggies while your summer ones are mainly fruits and seeds





**T - THE #1 CRITICAL FACTOR FOR A  
SUCCESSFUL WINTER GARDEN**

# T- \_\_\_\_\_

1. So, what is the single most critical factor for extending your season?
2. Great question and I think most of our minds would turn to heat or protection
3. T is for TIMING



# T - TIMING

---

1. We want to protect our veggies from the cold and wind
2. That's all true, but before we get there – we need the veggies themselves to protect – and perhaps one of the easiest things to get wrong is timing



# T - TIMING

---

1. The first critical factor when it comes to season extension is the timing of when you plant your veggies
2. Timing can make all the difference from having a harvest – to no harvest at all





# T - TIMING

---

1. So, what happens is as the weather gets cooler and even more importantly as the day length decreases – plants growth also slows down and will eventually come to a stop
2. As a general rule, plant growth slows down the most when days become 10 hours or shorter





## T - TIMING

---

- During this period in the winter your plants won't actually be growing and hence our purpose in season extension isn't so much to grow plants in the winter as it is to keep them alive through the winter
- The critical factor then is to know when to plant your plants during the summer or fall so that they will be mature by the time winter sets in



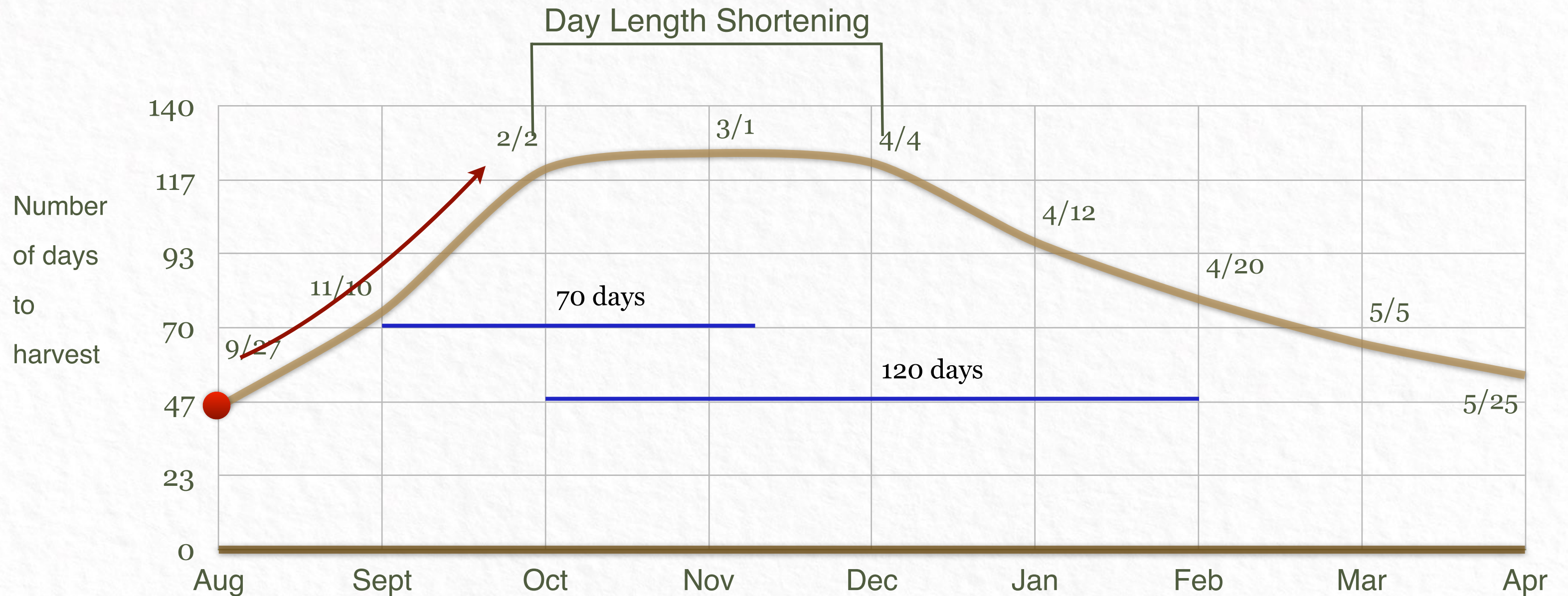
## T - TIMING

---

- Or if you are wanting early crops in the spring then you're simply dealing with the reverse (plants growth starts to speed up again like a bell curve) and you'll want to know when to plant them in the winter so that they will be at the right stage to harvest in the spring

# PLANTING FOR A CONTINUAL HARVEST

*Adapted from The New Organic Grower p. 260*



# T - TIMING

---

1. Visual demonstration of planting for a continual harvest of lettuce



# T - TIMING

---

1. Timing is perhaps the #1 thing that causes most winter gardens to fail
2. So, what if you do get your plants planted late? Can you save them?





## T - TIMING

---

- Truth is, that the day length factor with your days getting shorter is a big factor when it comes to your plants growth slowing down – but heat does play its role as well



## T - TIMING

---

- Think of protection and warmth as a little buffer to encourage your plants to grow a little faster before the days get too short
- But definitely don't rely on heat to grow your veggies during the cold – it's much better and will save you time and energy to start your plants at the right time so that they will be mature as the winter sets in





**P – THE KEY TO KEEPING PLANTS ALIVE IN THE COLD  
AND WHY WIND IS ONE OF YOUR WORST ENEMIES**

# P - PROTECTION

---

1. P is for PROTECTION
2. All in all when you boil it down – any kind of protection is simply changing or modifying the existing climate in some way
3. This happens in a totally natural way in nature all the time



# P - PROTECTION

---

1. For instance, a south facing slope warms up much faster in the winter and spring because the sun is shining more directly on it (in the northern hemisphere that is)
2. Valleys tend to collect cold air creating frost pockets while hill tops tend to stay warmer



# P – PROTECTION

---

1. All of these little environmental changes create little microclimates where different plants can thrive
2. Our goal in protection is to do this as simply and as economically as possible
3. Simplicity and economics then have to be balanced with reality when it comes to actually keeping your plants alive
4. Then the question is – how much protection do I need?

# P – PROTECTION

---

1. But first, let's note that protection has more to do with protection from the elements than it does from the cold itself
2. Yes, warmth is a key factor and some plants need more of it than others – but at times wind may actually cause the greater damage through desiccation of plant leaves or causing wind burn
3. The more still the air is around a plant – the lower temperatures that plant will be able to handle

# P - PROTECTION

---

1. It's a lot like the wind chill we feel when we go out on a cold day
2. So practically, when it comes to creating a microclimate in your garden for growing through the winter – there are a couple things to consider
  1. The microclimate where you are growing
  2. Protection from the wind and elements

# P – PROTECTION

---

1. In the end you may want to look at protecting your veggies from wind before worrying as much about keeping them warm





**PRACTICAL WAYS TO PROTECT**



# PROTECTION

---

1. Protection can take on many forms and can range from being as simple as growing next to a wind break all the way up to building a full fledged greenhouse
2. We'll go ahead and cover several different ways to protect your veggies here





# PROTECTION

---

- A Wind Break or Hedge
- Wind breaks or hedges can not only protect your veggies but can even raise the air temperature in the protected area by a couple degrees

# COLD FRAMES

---

1. Cold frames are pretty traditional and could be a great option for the home garden
2. The basic idea is creating a raised bed or placing a box over your bed that uses sheets of glass or plastic as a roof

Picture credit - by Ofer El-Hashahar on Flickr (<http://www.flickr.com/photos/best4garden/9016651638/>) under Creative Commons License - (<http://creativecommons.org/licenses/by-sa/2.0/deed.en>)



# COLD FRAMES

---

1. The glass or plastic can then be tilted up for ventilation
2. This can be effective if you are only wanting to grow a small amount – but due to the labor and cost involved in making a cold frame it might not be the best first choice

Picture credit - by Michael Cornelius on Flickr (<http://www.flickr.com/photos/cornelii/8466319705/>) under Creative Commons License – (<http://creativecommons.org/licenses/by-sa/2.0/deed.en>)



# ROW COVERS

---

1. Row covers are perhaps the overall best way to protect veggies from the cold because they are very effective for the amount of cost and labor involved
2. It is a simple, light weight fabric cover that you can spread out like a blanket over your veggies



# ROW COVERS

---

1. Some benefits of row covers are:

1. They are light weight
2. They allow light to pass through
3. They are breathable
4. They protect from wind
5. They increase the temperature
6. They are cost effective



# ROW COVERS

---

1. So to use a row cover for protection in your garden you could just throw it over your crops like a blanket
2. But it would be better to keep it up off of the plants somehow
3. A great way is to use wire hoops
4. Another way is to build quick hoops which are like miniature little hoop houses



# ROW COVERS

---

1. If you choose to purchase a row cover here is what we suggest
2. There are different thicknesses and we suggest getting a 1 oz. thickness – its probably the best compromise
3. This offers a good balance of light (about 70%) to come through while offering a good amount of protection at the same time
4. In zone 7 where we are in Tennessee – one row cover can effectively protect most of the medium cold tolerant crops



# ROW COVERS

---

1. Row covers can be doubled to add even more protection but should be taken off to allow light and heat during the day
2. Row covers can also be used inside a greenhouse or hoop house to add a double layer of protection
3. In fact, John Dysinger used several layers of row covers to protect his tomato plants one spring from a hard frost resulting in outside temperatures being in the 20°s while under the covers (around 3 maybe 4) it was in the low 40°s F



# ROW COVERS

---

- All in all, row covers probably give the best balance between cost efficiency, protection, and labor
- The next step up is to make a quick hoop, high tunnel, or caterpillar tunnel



# HOW TO BUILD YOUR OWN WINTER "QUICK HOOPS" AND WHY THEY ARE SO EFFECTIVE

# QUICK HOOPS

---

1. Quick hoops use 10 foot long 1/2" PVC electrical conduit pipe (or 1/2" metal conduit pipe) bent over to make a hoop structure
2. A quick hoop should end up covering 5-6 feet
3. The structure can then be covered with row cover (or even plastic) and sand bagged in place





## OTHER OPTIONS

---

- The next step up is to make a high tunnel or caterpillar tunnel
- A caterpillar tunnel is basically a larger quick hoop that you can walk under but is much smaller and simpler to construct than a full size hoop house



## OTHER OPTIONS

---

- Caterpillar tunnels can be constructed yourself. See Johnny's Seeds for demos and a pipe bender to do that
- Or you can purchase kits from Farmer's Friend LLC

# OTHER OPTIONS

---

1. Hoop house or Greenhouse
2. The difference between a hoop house and a greenhouse is simply a technical one:
3. Hoop houses are unheated while greenhouses usually have some source of heat



# OTHER OPTIONS

---

1. A hoop house or greenhouse is really the ultimate way to take your garden to the next level in winter growing and can even be very helpful in the spring for starting new starts
2. They are much more expensive than the previously mentioned options – but they are often larger, can easily be purchased in kits, and have the nice benefit of being more accessible in that they have doors for entering and exiting



# OTHER OPTIONS

---

1. You can also grow more tall crops effectively in a hoop house than in a caterpillar tunnel
2. Choosing a hoop house or a greenhouse over a caterpillar tunnel may be a challenge depending on what you want to do and how much you want to spend
3. For most people, I'd suggest going with a caterpillar tunnel
4. Overall, a caterpillar tunnel can be as low as 1/6 or so the cost of a hoop house for the same growing space

# OTHER OPTIONS

---

1. Otherwise, if you have the capital to invest – it can be very nice to have the much more spacious area to work in, that a hoop house will give you
2. Plus, part of the hoop house can be easily transformed into a place for starting plants – which can be very handy
3. Cost wise here's a little comparison
  1. Hoop house: \$5,000 - \$10k
  2. Caterpillar Tunnel: \$1,200+



# PROTECTION

---

- So there are many different ways that you can practically expand your season from using something as simple as a hedge all the way up to a full scale greenhouse
- Look at details about double or triple covering



# AGRIGRO

---

Organic Prebiotic Soil, Seed &  
Foliage Treatment



# AGRIGRO

---

## Liquid Calcium



**FREE SEEDS!**

AgriGro

Microgreens Kits

Discount Memberships