



# Abundant Harvest

Your Guide to the Home Vegetable Garden

**Joe Lamp'1**

Host of DIY Network's *Fresh from the Garden*



[joegardener.com](http://joegardener.com)<sup>®</sup>  
growing a greener world

Joe Lamp'1 is a gardening expert, communicator, author and founder of The Joe Gardener Company. Joe hosted *Fresh from the Garden* on the DIY Network for three years where he developed, planted and nurtured two vegetable garden sets. The series premise took vegetables from seed to harvest in a single episode until finally running out of vegetables to profile.

Now you can benefit from Joe's years of experience with this simple but comprehensive guide for easily creating your own vegetable garden at home. Learn the most important considerations for an abundant and successful home vegetable garden.



Visit [www.joegardener.com/podcast](http://www.joegardener.com/podcast) to listen to Joe's interviews and views on gardening, sustainability and environmental stewardship. Sign up for Joe's newsletter at [www.joegardener.com](http://www.joegardener.com)

*It takes a lot of energy for a plant to produce fruit. The fuel for that energy comes from the sun. It starts the process and keeps it going. The reason leafy and non-fruit producing vegetables will do better in less light is that they don't need the extra light to make fruit.*

## Sun

The best vegetable gardens have a few things in common and one of the most important is plenty of direct sunlight. For a vegetable garden to really be at its best and produce the most abundant fruit, eight hours or more of full sun each day is essential. Although vegetable plants can produce fruit in less sun, the quality, quantity and overall productivity of the plants and fruit will be diminished.

If you really want to give yourself the best chance of success with your vegetable garden, find the sunniest spot in your yard and start there. But if the sunniest spot in your yard only gets a few hours of direct sun each day like mine, attempt it anyway. You won't get the results of a full sun garden but it's fun to try and you might be surprised.



***For the best results find a location that gets at least 8 hours of direct sunlight every day.***

In a site that does not get full sun, try leafy vegetables like spinach, lettuce, cabbage collards and kale. Quite often, the leaves of these leafy crops have large surfaces and are better able to capture enough of the sun's energy to keep growing. I've actually even grown tomatoes with about three hours of direct sun followed by dappled light the rest of the day.

## Water

Vegetable plants benefit from soil that is consistently moist but not wet. A general rule of thumb, in the absence of adequate rainfall, is to provide an inch of water per week. Realistically, providing all of this water only once per week would likely result in soil that dries out between watering. Therefore, I prefer using soaker hoses, set to turn on and off with automatic timers. Supplying water every 2-3 days, so that a total of an inch is delivered each week works well for me.

How you water is just as important as how much you water. Too little or too much irrigation can be equally damaging in the garden. Similarly, water that stays on the plant foliage too long can create problems of its own, such as the increased risk of plant disease.



For these reasons, I like to control as much as possible how, when and the quantity of water getting to my vegetable plants. My favorite method of irrigating the garden as mentioned above is to use soaker hoses. Soaker hoses are porous allowing water to seep out slowly. This is advantageous

*Soaker hoses are inexpensive, made from recycled rubber, readily available and easy to work with. If you find that the length you have is too long for your garden or bed, then cut it off at the proper length and bend the edge over by crimping it and secure it with a zip tie.*

for several reasons. First, because the water is delivered slowly, roots have time to absorb it. Secondly, a slow drip does an excellent job of saturating the soil, all around the plant, rather than quickly running through the bed before all of the roots have time to take in the moisture.

Soaker hoses also deliver the water right where it is needed, at the soil surface. There is little if any evaporation and the foliage stays dryer. Dry foliage is an important key to a disease free garden.

## Auto Pilot in the Garden

Adding a battery operated timer to control when the water comes on and off is an easy way to ensure your plants are being watered at the right time and getting the right amount of water. They are one of the greatest time savers in the garden! Imagine being able to go on vacation for a week or longer and not having to worry about your plants drying out. Conversely overwatering is eliminated as well.

In a large vegetable garden, individual soaker hoses may be impractical. In this case, an overhead irrigation head, such as an impulse sprinkler mounted on a tripod can do a great job of watering a large garden efficiently. In fact, this is often how I would water my large garden on the set of [Fresh from the Garden](#). But, I always made sure to water very early in the morning. I'd set the timer to go off around 4:00 am and end by 6:00 am. This way I'd be sure to give the foliage the best chance of drying out as early as possible. Wet foliage is a major contributor to plant disease.

*Water allows disease spores to germinate and spread. By watering at night or in early morning, you stay within the 'dew cycle' and you do not prolong the length of time the foliage remains moist or wet.*

Another favorite irrigation method of mine is to use a watering wand. These are great for delivering the water right at the soil level and are easy to control the flow of water. Although hand watering is more time consuming, using a wand can make this important task much more efficient.

*One of the biggest keys to keeping a vegetable garden healthy and productive is to stay proactive, keeping on top of any potential problems. The best way to do that is to visit it often and having the garden convenient makes that easier!*

## Convenience

No matter how perfect the garden site, if it is not conveniently located, you'll likely find many reasons not to make it into the garden. Frequent if not daily strolls in the garden are important for a number of reasons. First, it keeps you in touch with what's going on. Gardens are dynamic, especially vegetable gardens! Each day can bring new discoveries, including pests, diseases and ripening fruit. Frequent visits to the garden can contribute greatly to your overall experience and certainly prevent adverse conditions from getting out of hand.



***Peppers and tomatoes are members of the same family. If tomato hornworms are not controlled early, they could defoliate these pepper plants in a day.***

## Soil Preparation

I think in all of gardening, I love soil as much as what grows in it. That's because I know how important healthy soil is to growing robust, productive, pest and disease free plants. In real estate, the mantra of selling success is "location, location, location". Without a great location, you've got nothing! Well, in gardening, the manta should be "soil, soil, soil"! Without great soil, you'll have an uphill battle.



*Soil is the warehouse for all the components that allow plant roots to thrive.*

Soil is more than just dirt or a place where roots live. It's the warehouse for nutrients, minerals, oxygen and moisture. It's also habitat to billions of beneficial bacteria that not only improve plant health but fight off disease organisms as well. Soil is the home for earthworms and nematodes that do beneficial things underground including aerating the soil and adding back nutrient rich castings.

With healthy soil being so vital to growing healthy plants, we should do everything possible to ensure that it stays that way. If it is deficient at all, we should do everything possible to make sure we improve the conditions to provide an optimal environment for creating and sustaining life underground as well as above it.

## **Ideal soil for vegetables**

The best overall soil for growing vegetables is soil that retains moisture yet drains well enough so that water is never standing, no matter how much is applied. Ideal vegetable garden soil is rich in organic matter, such as compost and aged manure. It holds together when squeezed and breaks apart easily when disturbed.

*It is the incorporating of composted particles of different sizes and textures that create the air pockets which allows moisture to be retained and slowly released to plant's roots without saturating the soil.*

### ***Amending poor Soil***

Regardless of the soil structure, you can change what you already have. Call it a soil makeover. The ultimate goal for amending soil is for it to pass what I call the “squeeze test”. If you were to squeeze a handful of ideal garden soil, it would bind together and hold its shape. However, it would also be loose enough so that by running your fingers through it, the lump would crumble or break apart easily. Adding organic material like compost, humus, manure, leaf mulch, peat moss, etc. will greatly improve soil to where it will easily pass the test. The key is to know from which extreme you are starting.

### ***Improving sandy or loose soil***

Soil that is too loose or sandy will not bind together if you pick it up in your hand and try to squeeze it. Most likely, it will run through your fingers with very little effort, if any, on your part. For soils that are too loose or sandy, the goal is to increase its water holding capacity. Sphagnum peat moss has been the amendment of choice for improving sandy conditions but I prefer compost if you can acquire enough of it. An amendment that is becoming

more popular as an alternative to peat moss is coir. This is the husk of coconut shells and performs in much the same way as peat moss. Sandy soil also benefits from the addition of plenty of organic material as described below for improving compacted soil.

### ***Improving dense or compacted soil***

Soil that is too dense or compacted will easily bind together if you pick it up and squeeze it. It will look like a lump of clay, the kind of which you would use for making pottery. But, it will not crumble apart when the clump is disturbed with your fingers.

If a soil is too dense it drains poorly, retaining so much water and so little oxygen that the plant can actually drown. The soil particles are bonded together so tightly that there is little room for air and tiny openings for root growth.

*In either case, soil that is too compacted or too loose will benefit from the addition of organic matter. Keep in mind that all organic material continues to break down over time. Monitor your soil constantly, and amend it often with the appropriate material to maintain the best growing environment.*

Your job is to loosen it up by adding gritty organic material such as composted bark, wood chips, manure, shredded leaves or compost. However, this is a time that you would *not* add sphagnum peat moss or coir. These products are very good at retaining moisture but that is not the objective of amending heavy soil.

Conversely compacted, dense soil, when completely dry can keep water from penetrating the surface, causing run-off and keeping water from soaking down to plants' roots. In this case it's not a matter of the plant potentially drowning. Instead, the plant can die from lack of water.

### ***Understanding and Testing pH in the Edible Garden***

Another important component to ideal garden soil for vegetables is to have the proper pH. In gardening, pH is a relative measure of how acidic or how alkaline the soil is. It is measured on a scale from 0-14. A reading of 0 would be completely acidic while a reading of 14 would be completely alkaline. A reading of 7.0 is considered neutral. Most soils in the United States are somewhere between slightly acidic to slightly alkaline

(approximately 5.5 – 8.0). Certain parts of the country are characteristically acidic, while other parts of the country are on the alkaline side.

Knowing your soil pH level is important in order to create the ideal environment for plants to grow and for herbs and vegetables to taste their best. Every plant has a preferred pH for ideal nutrient uptake. At this optimal level, the plant can use the maximum amount of nutrients that are available in the soil. When the pH level is outside the ideal range, even if nutrients are present in the soil, they can be bound or locked up, unavailable for use by the plants. The further off the current reading is from the optimal level, fewer nutrients become available to the plants.

Most vegetables have a preferred pH range between 6.0 and 7.0. If the level in your soil is outside this range, adding more fertilizer is not the answer. That's why you may wonder when you see your plants looking stressed, that adding more fertilizer does little or nothing to improve their condition. It is not a nutrient deficiency necessarily but rather a pH imbalance that is making the nutrients in the soil unavailable to the plants.

In the home garden, concentrate on making your soil as healthy and organic as possible by adding plenty of compost and composted organic matter. The pH level will take care of itself.

There are several ways to test for your soil's pH level, from do-it-yourself kits to independent labs to your local county extension service. For the money, I feel the best value comes from the test provided by the extension service. It is inexpensive to do, the results are quick and thorough and it includes the steps necessary to bring your pH and other nutrients in line with appropriate levels.

## Garden Layout

When laying out your vegetable garden it's not as important to configure the beds so that they are all north and south, or east and west. In the United States, the sun is so overhead during the peak growing season, that direction of the garden rows is not all that important.

However, what does matter is how you position the plants within the beds for maximum exposure to the sun.



*Orientation is important to the success of your vegetable garden.*

The tallest plants should line the north or west side of the garden so that they do not shade out the shorter plants. Place medium sized plants in front of (to the south) of the tallest plants or to the east. The smallest plants would then go in front of the medium plants or to the east of them.

## Planting Environment

*It's not as important that the soil be contained within a physical boundary simply that the roots are provided with the best opportunity for expansion.*

When I talk about creating the best planting and growing environment for vegetables, soil preparation is paramount. Next in importance is in creating the best physical space for the roots to spread deep and wide. The biggest impediment to plants growing tall and wide is the physical limitations of the roots underground. Providing enough room for roots to expand down and out allows for the most vigorous plants possible. And that happens by providing deep and wide beds or rows.

Now I do have my preferred way of providing this environment in my own garden. I love a really deep bed. I also like the physical structure of raised beds. Therefore I make raised beds from wood that is typically 3 or 4 feet wide, 12 feet long and 12 inches tall. The length is not as important. It is more a factor of the physical limitations of the site and budget.



*Raised beds provide room for roots to expand down and out for the most vigorous plants possible.*

Width on the other hand I do consider very important. In a raised bed, it is not as much an issue for how well a plant will grow; rather, it has everything to do with convenience and getting the most planting options out of the available space. In a bed that is four feet wide; you can usually plant at least three rows of most crops and still comfortably reach in from either side of the bed to get to the center.

The height of the raised bed is one dimension I have become spoiled with and after having such success with beds that are 12 inches deep, I can't see going any less deep in the future. However, it is not necessary that your beds be this deep. Many vegetable plants will thrive in beds as shallow as six inches. I've simply become too spoiled with the results I've achieved over and over again with deeper beds.



*To create raised beds, it is possible to simply mound up the soil to the desired depth. It is important though to be sure to angle the sides out to reduce the effects of erosion.*

Raised beds contained within physical boundaries are more permanent and resistant to the effects of erosion. To me, they are much easier to maintain from season to season because the physical boundaries hold the soil in. All that is required of me between planting seasons is to add some natural amendments to freshen up the soil.



The choices in material used for building raised beds are many. They can be made of wood, wood composite, stone, bricks, timbers made from recycled milk containrs, concrete, cinder blocks or anything that will keep the soil from spilling out.

Wood is easy to work with, readily available and consistent in size. We encourage the use of recycled, or wood from sustainable sources. Some are more resistant to rot than others such as cedar. This should be taken into consideration as you think about how long you may be using these beds.

Other materials such as stone, bricks and concrete may be readily available but not so uniform in shape. They can also be heavy to work with and awkward to move. However it still may be the best choice for your situation and that is what matters.

## What to plant and when

Vegetable plants are considered annuals for the most part. They complete their life cycle in one growing season. And like most annuals, they have a preferred growing season. Vegetables are either classified as warm or cool season plants, depending on the time of year that they prefer to grow.

Warm season crops are typically planted after the last risk of frost has passed for your area. Examples include tomatoes, peppers, beans, squash, cucumbers and melons. Your county extension service will have information about the frost dates in your part of the country.

### *Planting Chart for Warm Season Vegetables*

<b>Crop</b>	<b>Days to Maturity</b>	<b>Start seed indoors</b>	<b>Plant out</b>
Bean, bush	50-60	3-4 weeks	After last frost
Bean, pole	65-75	3-4 weeks	After last frost
Bean, lima	65-75	3-4 weeks	1-2 weeks after last frost
Cantaloupe	80-90	3-4 weeks	2 weeks after last frost
Corn	80-100	2-4 weeks	0-2 weeks after last frost
Cucumber	60-65	3-4 weeks	1-2 weeks after last frost
Eggplant	75-90	8-10 weeks	2-3 weeks after last frost
Okra	55-60	4-6 weeks	2-3 weeks after last frost
Pepper	65-80	6-8 weeks	2-3 weeks after last frost
Pumpkin	75-100	3-4 weeks	2 weeks after last frost
Soybeans	75-100	NA	Sow directly after frost
Squash, bush	50-55	3-4 weeks	2 weeks after last frost
Squash, winter	85-90	3-4 weeks	2 weeks after last frost
Tomato	70-85	6-8 weeks	1-2 weeks after last frost
Watermelon	80-90	3-4 weeks	2 weeks after last frost

Cool season crops usually are planted in late winter to early spring and again in late summer for a harvest prior to a hard freeze. Examples include carrots, beets, peas, spinach, lettuce, cabbage, collards, kale and mustard. Many cool season crops, such as Brussels sprouts actually taste better after a chilling frost.

***Planting Chart for Cool Season Vegetables***

<b>Crop</b>	<b>Days to Maturity</b>	<b>Start seed indoors</b>	<b>Plant out</b>
Asparagus (seed)	2nd season	12-14 weeks	4 weeks after last frost
Beet	55-65	4-6 weeks	2 weeks before last frost
Broccoli	60-80	6-8 weeks	4 weeks before to 2 weeks after last frost date
Brussels Sprouts	85-95	6-8 weeks	4 weeks before to 3 weeks after last frost date
Cabbage	65-80	6-8 weeks	5 weeks before to 2 weeks after last frost
Carrot	70-80	NA	Sow outside 4-6 weeks before last frost
Cauliflower	55-60	6-8 weeks	4 weeks before to 2 weeks after last frost date
Collard	55-70	6-8 weeks	4 weeks before to 2 weeks after last frost date
Celery	120	10 weeks	3 weeks before to 4 weeks after last frost date
Kale	50-70	6-8 weeks	5 weeks before to 2 weeks after last frost date
Lettuce	60-85	4-6 weeks	2 weeks before to 3 weeks after last frost
Mustard	40-50	4-6 weeks	4 weeks before last frost
Onion	100-120	4-6 weeks	6 weeks before to 2 weeks after last frost
Parsnips	100-120	4-6 weeks	4 weeks before to 4 weeks after last frost date
Peas, garden	60-80	4 weeks	3 weeks before to 4 weeks after last frost
Potato, Irish	70-90	NA	2-4 weeks after last frost
Radish	25-30	NA	Sow outside 4-6 weeks after last frost
Spinach	40-45	4-6 weeks	3-6 weeks after last frost
Swiss Chard	50-60	4-6 weeks	3-4 weeks before last frost
Turnip	45-65	3-4 weeks	4 weeks after last frost

## Pests and Diseases in the Vegetable Garden

No matter how hard you try, sooner or later, pests and diseases will make their way into your vegetable garden. But, by maintaining a proactive approach, you can reduce and even eliminate many of the potential problems that could otherwise plague your garden.



*These Mexican bean beetles are best controlled at the “crawler” stage (upper right) when their bodies are soft and vulnerable.*

When problems from diseases and pests occur, it usually happens on the plants that are the least healthy or robust.

Plants that are stressed in whatever way tend to attract problems far more readily than vigorous, healthy plants. It is very much like you and I taking our vitamins, eating well and exercising. If we are healthy, we will be more resistant to getting sick. On the contrary, if we don't take care of ourselves, we tend to run down more quickly and are much more likely to get sick. Plants are a lot like this too!

If you do all that you can to ensure your plants are in the healthiest condition they can be, you will enjoy the added benefit of a garden that has little if any serious problems from pests and diseases. By starting with healthy, productive soil, putting the right plant in the right place, and spacing and watering your plants properly, they will do the rest of the work to reward you with a low maintenance garden.

In a well-maintained garden, you will seldom have to deal with serious problems brought about by pests and diseases. However, in the event you encounter a problem you feel needs aggressive control requiring insecticides or chemicals, be *extremely careful* when you apply them.

If you feel it is even necessary to use them, the best time to apply these products in your garden is very late in the afternoon or evening. By then, many of the beneficial pollinators have left the garden for the night and may not be directly affected. ***However, most insecticides and pesticides are non-selective. They will kill the beneficial insects and pollinators as readily as the pests you are trying to control.*** Therefore apply only what you need and only to the area needing relief. Avoid use on a windy day. Many of these products are lethal upon contact and drift can cause undue consequences to non-targeted insects.



***Remember that many organic products are non-selective as well.***

## Please, read the label

Above all, be sure to read the directions on any chemical that you are using. There is important safety and usage information that is designed to protect you, your family and pets and minimize the impact on the environment and non-targeted insects. Lastly, be very careful about using chemicals that are not designed for use on edible plants.



## Crop rotation

From season to season, move crops of the same family to a different location within the garden. There are many pests and diseases that lurk in the soil. Once they find food sources that they prefer, they will take up residence and stay indefinitely. Their food sources will be the plants of a particular family. For example, tomatoes, peppers, eggplants and potatoes are all members of the nightshade family and will attract the same pests and diseases.

If certain soil-borne diseases or pests find your tomato plants particularly attractive, they'll stick around as long as there is an available food source. That may come the next season when you again plant tomatoes in the same spot, or they may persist because you planted peppers, eggplant, or potatoes – all members of the same family.

Until you break the cycle, by planting unrelated crops of different families (a.k.a. rotating crops), you may be unable to eliminate the recurring problem residing in the soil. The best way to do this is to remove the food source for several seasons. This will either drive the offending pests away because their food source is gone, or kill off the pests and diseases that are dependant on that crop for survival.

After several seasons (and the more the better but four is great) it is perfectly fine to replant the original crop such as tomatoes in that same spot. The presumption is that whatever problem was occurring in the soil has long since been driven out assuming no other crops of the same family have been planted in its place in subsequent seasons.

## Clean up

Another way to reduce problems in any garden is to practice good sanitation. Weeds, rotting leaves of plants affected by diseases and the plants themselves should be removed from your garden and destroyed not composted. As you've learned by now, diseases and pests will be attracted to and over winter in many parts of your garden. Because weeds and rotting leaves are some of their favorite places, many problems can be greatly reduced by eliminating these food and shelter sources when possible.



*A clean garden is a healthy garden*

## Harvesting

After months of hard work and tender care, it's finally time to be rewarded for your patience and dedication. It's harvest time and you'll never have a better salad, ear of corn, or squash casserole than you will today. But in order to have the best tasting, freshest fruit, knowing when and how to pick it is just as important as knowing how to grow it.



***The more you harvest the more you increase fruit production***

As a rule of thumb, it is almost always better to harvest your fruits and vegetables a little early rather than a little late. Fruit that is overly mature can have a different flavor and texture than what you're used to. And many times, allowing a fruit to stay on a plant until the peak of ripeness can cause your plant to shutdown production of other buds. For the best results, read the back of your seed package or your seedling card and mark your calendar for the expected date of maturity. Then begin checking your plants about a

week before that date. And remember, the more you harvest, the more you'll have.

### *When to Harvest Vegetables*

<b>Vegetable</b>	<b>Optimum time to harvest</b>
Asparagus	When spear are 6-8" tall and pencil thin. Limit harvest period to 6-8 weeks
Beans, pole	Pick when the pods are turgid and the seeds are just visible
Beans, snap	Pick when the pods are turgid, before you see the seeds bulging.
Beets	Harvest when shoulders protrude from soil line, eat greens as you thin rows
Broccoli	While florets are dark green and not yet open
Brussels Sprouts	Harvest from the bottom up when sprouts are 1' diameter. Remove lowest leaves to improve sprout size. Frost improves flavor, but harvest before hard freeze
Cabbage	When heads are hard, leaves tight. Over maturing may cause splitting
Carrots	Harvest at 1-2" thickness. Light frost improves flavor. May be left in ground when mature
Cauliflower	Harvest when head are firm and curds are still smooth
Corn	When silks are dry and brown. Pierced kernel bleeds milky.
Cucumber	High glossy skin, harvest when slightly immature.
Eggplant	Firm, shiny and slightly immature. Dull color indicates over-ripeness
Kale	Leave should be dark green and firm. Flavor improves in cooler weather.
Kohlrabi	When bulb has reached 2-3" in diameter
Lettuce (Head)	Harvest entire plant when heads are firm and good sized.
Lettuce (Leaf)	Harvest outer leaves continuously once about 4" in height
Okra	When pods are 2-3" long and snap easily. They get tough quickly.
Onions	When tops are yellow and $\frac{3}{4}$ have fallen over.
Parsnips	Harvest in late fall after moderate freezes, or mulch heavily for winter harvest.

Peas, English	Peas are bright green, small to medium size. Taste to determine sweetness.
Pepper, Hot	Harvest when needed. Young peppers are hotter.
Pepper, Sweet	When fruits are firm and full sized. May be harvested when red.
Potato, Irish	Harvest new potatoes 2 weeks after flowering or when tops begin to die back.
Pumpkins	Fruit skin will be hard and impervious to scratching. Leave 1' of stem attached.
Radishes	When tops are 1/2 to 1" in diameter. Tough if left too long.
Soybeans	When pods are thick and bright green.
Spinach	When leaves reach attainable size.
Squash, Summer	Pick when young and skin can be easily penetrated with fingernail.
Squash, Winter	When skin is impervious to scratching. Leave 1" of stem attached.
Sweet Potato	Harvest in fall before frost and freezing temperatures.
Swiss Chard	Harvest continuously, breaking off outside leaves. Allow center to grow.
Tomato	When fully red but firm. Use immediately. Picked green, they will still ripen.
Watermelon	White spot on bottom will become deep yellow.



## Extending the Season

*Keeping frost off the leaves or keeping the temperature around the plants even a few degrees warmer, cold sensitive plants may survive and continue to produce a little longer.*

There is a season for everything. In life, as with gardens, we know this vividly and yet how often we try to defy the odds and accelerate the beginning of the gardening season, or attempt to push the limits on the back end. Yes, gardeners are some of the most tenacious people I know and I love that about us!

If you're not ready to give up on the gardening season yet, or you simply can't wait any longer to get started, there are a few tricks that will allow you to gain a few extra weeks on either side of the growing season.

An easy place to start is to look for varieties that are considered "cold hardy". Simply planting annuals or vegetables that have a higher tolerance to colder temperatures than some of their less hardy cousins may be all that is required to buy some extra time for your plants. This will require a small amount of research before you head to the garden center, but most seed companies list this information routinely in their catalogs and online.

Frost and freezing temperatures can make the difference between a plant surviving or not. By keeping frost off the leaves or keeping the temperature around the plants even a few degrees warmer, cold sensitive plants may survive and continue to produce a little longer.

One technique I often use includes applying a thick layer of organic mulch around the base of all my plants. Not only does it keep the roots warmer, it also helps to maintain the soil temperatures at a more even level and can reduce the chances of the ground freezing or heaving. In some cases, as with spinach or strawberries, I'll cover the entire plant in a layer of mulch to add an additional barrier of protection for the roots and foliage.

Physical barriers are another effective way to retain and capture a few extra degrees of heat while keeping season-ending frost off of the plants. Commonly referred to as floating row covers, the material is typically made of a lightweight spun bound or nylon material. In some cases, the

material is so light that it can actually be laid directly on the plants, so it appears to “float”.



In virtually all cases, I prefer to support my row cover with metal wire or PVC pipes stuck into the garden beds. The row cover material is placed over the frame supports, a few inches to a foot above the plants. It is then pulled tightly and secured around all the edges with bricks, soil or whatever you may have that is convenient and sturdy enough to hold.

The row cover material is designed to allow light, water and air in but provide a protective barrier from frost and pests. When the sides are secured around the bed completely, several extra degrees of warmth can be retained and could make the difference in survival for marginally hardy plants.

On the subject of insulation, blankets, plastic, buckets and the like can all serve to add critical protection on frosty nights. The two most important matters to consider are to be sure the covering protects the foliage by keeping frost off and that it extends all the way to the ground. This last step is very important because it ensures that warmth from the soil is trapped – an

essential component in attempting to protect your plants by adding a few extra degrees under cover.

*Direct sunlight and a covered plant can make for a deadly combination if you're not careful. Even on a cold day.*

However, with the exception of row covers, whenever an enclosure is placed over your plant(s) at night, be sure to remove it the next morning or at least provide a way for daytime heat to escape. Otherwise, efforts to save your plants may backfire once the sun comes out.

When time and energy permit, container-grown plants offer the maximum in portability in allowing you to maneuver plants away from “Jack Frost”. Having the ability to move plants from the frigid outdoors to a protected shelter and back again can buy you several weeks or more of extended growing time.

Another trick I often use is to look for the most protected, yet sunny area for planting annuals, vegetables and shrubs. Referred to as “microclimates” because of their small, unique growing environment, in this example, these are areas protected from wind, driving rain, frost or snow. This mini environment can potentially allow plants to survive outdoors when otherwise they might easily succumb to a killing frost or other harsh conditions.

Microclimates provide not only protection from the elements, but when planted near a brick or stone wall, for example, heat absorbed and retained during the day is released at night and plants in close proximity will benefit from this exchange.

In many parts of the country, simply planting into soil protected by black plastic will suffice at providing the growing environment plant roots need to remain viable and productive as temperatures drop. As a covered surface, black plastic is most effective at trapping and retaining heat. It is readily available in home improvement centers. It's inexpensive, easy to install and remove at the end of the growing season.

Cold frames are another technique for providing additional protection in the fall. Think of a cold frame as a mini greenhouse. The basic premise is a solid, insulating barrier around the plants and a glass or plastic top that allows sunlight and heat in.

However, they must provide a way for heat to escape during the day. Cold frames can be constructed from wood, cinder blocks, hay bales and more.

You can plant directly into the soil within the cold frame or place seed flats or containers inside. A sufficiently insulated cold frame can temporarily extend the growing season and it can even provide an environment warm enough to allow tender plants to thrive all the way until spring.



There is a season for everything, but it doesn't mean you have to stop gardening just because temperatures fall. Extending the season is an exciting and rewarding endeavor made easier by knowing a few easy-to-apply techniques mentioned above and it gives you even more time to hone your skills come next spring.