A Guide To.....

THE ORGANIC GARDEN MADE EASY

Tips, Tricks and Recipes for the Organic Garden
Steps you can take to grow your own organic food

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The Organic Garden Made Easy

By Lori McDonald

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INTRODUCTION

Gardening means different things to different people; for some, it's a passion, for some, it's a source of income while for others it is nothing more than hobby just to keep themselves busy. Well, you don't necessarily have to be from the South or be a woman, or even wear a funny hat to enjoy gardening. Sometimes, the excitement of seeing your first ripe green vegetable or your first flower stalk can be an unforgettable experience for most people.

Another thing about gardening is that it is also a great way to provide pure healthy food for you and your loved ones. There's nothing compared to the natural taste the food from your garden gives you especially one you worked on with your own hands.

Gardening is becoming popular because it eliminates the presence of preservatives in food which is common to foods that are grown commercially. This is because a lot of these foods are cultivated under controlled conditions with artificial growth enhancement and other chemicals in order to make it palatable.

Research has shown that these chemicals have unnerving side effects on the body with the possibility of causing lasting damages to the human body. This is why a lot of people are turning to organic sources of food produce just to try and extend their lives; after all, we are what we eat.

Embracing organic gardening might be the best thing to do since the embrace of technology as the risks from consuming chemically-prepared foods will reduce. This will even give you a feeling like never before and some sense of fresh hope considering you will be getting your produce fresh from the field.

It's actually easier than you think and it does not matter if you've been gardening for years

or are just beginning to grow your own food, there’s a feeling of peace and fulfillment that comes with organic gardening. Should it be that you are reading this book and have no idea how to start organic farming, then you are on the right track as this book will be teaching you everything that you need to be successful in organic farming. Basically, you will be taught how to control pests naturally without using chemicals as well as the principles of mulching, weed control, and composting.

CHAPTER 1
WHY GARDEN ORGANICALLY?

Over 20 years ago, gardening sounded strange to a lot of people as there was the feeling that there were too many external factors that could not be controlled which will make gardening difficult. Questions about weed control, bug extermination without the use of chemicals were raised because people were used to all kinds of farming with one form of artificial input or the other.

In reality, organic gardening is not so hard to wrap one's head around. I mean people have been growing things for years without using chemicals or some form of artificial additives. The early men never had any chemicals at their disposal and yet they cultivated crops successfully and produced their own food by themselves. So nothing stops us from doing the same; all we need to do is make use of the resources that nature has provided and steer clear of 'potions' straight out of a chemist's laboratory.

But the interest in organic gardening is not just because of the benefits it holds for us and our families, but also for the environment. A lot of the chemicals we use are hazardous to the environment and if the environment should become unbearable that we find it difficult to live in, then what's the point of existence. Hence, the reason for a rise in the study of ecology and concern about the environment and organic gardening is seen as a way out. All you need to do is to take advantage of natural predators, recycle garden waste and overall make use of natural minerals to produce what you need.

Organic gardening holds many advantages with the foremost one probably being that the food from it is healthier, safer and provides more nourishment due to the fact that it contains little or no amount of chemicals found in abundance in the produce of today's supermarkets.

A report released by a British organization known as the Soil Association in early August 2001, showed that there are definite and unmistakable differences between foods grown organically and those grown inorganically in terms of safety, primary nutrients, secondary nutrients and health outlook.

On the average, Vitamin C and dry matter contents are higher in organically grown crops then they are in non-organic crops. Mineral contents are also higher, and food grown organically is believed to contain 'significantly higher' concentrations of antioxidants and other health promoting compounds than crops produced with pesticides.

A lot of people feel that foods that are grown organically taste better. Also, it has been found that some of these organically-grown foods that contain no pesticides produce a higher amount of an anti-oxidant that has been found to reduce the risk of some cancers.

Overall, though, most people who enjoy organic gardening submit that the fulfillment they feel or derive from it all stems from veering from the artificial route and getting into the natural way of producing food.

There's an extra freshness that comes with organic gardening, either in the form of newly picked peas or freshly picked fruits. Just that feeling that you cultivated it yourself and then pick it fresh is an incredible one.

Apart from saving money as a result of growing your own food, you can also make some extra money from selling some of these natural foods that might be in excess after taking the one that you need. There's always the farmer's market where you can sell your organic foods to those who don't have the privilege of having their own garden. Trust me when I tell you that you will make sales because people are realizing the danger in chemically-grown foods and turning to naturally-grown ones.

If you are still skeptical about the need for an organic garden, then here are scientific facts to back up all that have been said and possibly change your mind. In March of 2001, the American Cancer Society published a report linking the use of the herbicide glyphosate (commonly sold as Round-up) with a 27% increased likelihood of contracting Non-Hodgkin's Lymphoma.

Furthermore, John Hopkins University also revealed that home gardeners use almost 10 times more pesticide per acre than the average farmer and that diseases caused by environmental illness, exposure to chemicals etc., is now the number one cause of death in the U.S. With the EPA's recent prohibition of common pesticides such as Dursban and Diazinon, it is now dawning on people that many of the chemicals that were thought to be "safe" were never actually tested to see their effect on children, women, and the elderly. This has then generated the awareness about a need to reassess our dependence on pesticides.

You may then have this question bothering you, 'if chemicals are so bad, then why have we been using them all this while?' Well, let's closely examine chemicals.

THE RISK OF CHEMICALS

Chemicals just seem to be everywhere now in our everyday lives; looks like it's one of the 'perks' of having technology. Chemicals are seen in the products we use regularly such as soap or detergents, toothpaste, shampoo, various foods, even our clothing contains one form of chemical or the other. Apart from polluting the environment, chemicals pose a real threat to human lives and with their use in food production, they have the perfect opportunity to cut short human lives. Fertilizers is one prominent form in which chemicals are used as they help to reduce the waiting period required for these crops to mature but they also have side effects which include the following:

1. Deterioration of soil friability creating hardpans soil

2. Destruction of beneficial soil life, including earthworms

3. Alteration of vitamin and protein content of certain crops

4. Making certain crops more vulnerable to diseases

5. Preventing plants from absorbing needed minerals.

The soil is a living organism and should be treated as such. Let's say you make use of an acid fertilizer on the soil, it will destroy soil organisms that hold soil particles together by dissolving these organisms. This then results in run-off and erosion because the water that is supposed to flow into the soil flows over the soil thus adversely affecting plant growth.

For example, a highly soluble fertilizer, such as 5-10-5, goes into solution in the soil water very fast that a lot of it ends up being leached away into ground water without benefiting the plants at all. This then causes the soil to become hard almost like cement and once they are present in large quantities, they interact with the clay part of the soil to form impervious layers of precipitates known as hardpan.

A lot of chemical fertilizers have been known to contain highly concentrated acids such as hydrochloric acid and sulfuric acid, which overall tend to increase soil acidity. Changes in the level of acidity in the soil commonly referred to as pH are followed by changes in the kind of organisms that live in the soil which subsequently affects plant growth. This is why it is recommended that people should add fertilizer with the capacity to increase the organic matter content of the soil and such an example is lime.

Furthermore, soil-benefiting organisms like earthworms which contribute immensely to soil growth are killed by artificial fertilizers thus reducing soil aeration. Subsequently, the

natural immunity that micro-organisms provide for plants is eliminated because the organisms are killed.

It has been found that for plants with roots in which the fungi or antibiotic-producing bacteria grows in have had diseases kept in check. When plants are supplied with excess amount of nitrogen and only a meagre amount of phosphate, plants will become highly susceptible to mosaic infections. However, on the other hand, using small amount of nitrogen with a large amount of phosphate, the plants can develop some form of resistance. This is because research has linked a lot of fungal and bacterial diseases to high nitrogen fertilization, and a corresponding lack of trace elements.

Plants grown with artificial chemical fertilizers tend to have less nutritional value than organically grown plants. For example, several tests have revealed that supplying citrus fruits with a large amount of soluble nitrogen will lower the vitamin C content of oranges. It has also been found, that these fertilizers that provide soluble nitrogen will lower the capacity of corn to produce high protein content.

Probably the most regularly observed deficiency in plants treated continually with chemical fertilizers is the deficiency in trace minerals. To explain this principle will mean delving into a little Physics and Chemistry, which will then allow you to see the unbalanced nutrition created in chemically fertilized plants.

The colloidal humus particles are the convoys that transfer most of the minerals from the soil solution to the root hairs. Each humus particle is negatively charged and will, attract the positive elements, such as potassium, sodium, calcium, magnesium, manganese, aluminum, boron, iron, copper and other metals. However, when a large amount of sodium nitrate is added to the soil on a regular basis, a drastic change occurs in the humus particles thus affecting nutrient availability to plants. This is because the sodium ions become numerous thus enveloping other ions and making it difficult for plants to access them. Furthermore, the humus itself becomes coated with sodium which extends to the root hairs and cover them up as well.

So, basically, with chemical fertilizers, you have short-term results on one hand, while on the other hand, there is long-term damage to the soil, ground water and our health.

Another reason to avoid the use of chemicals and pesticides is that the long term use of such chemicals can deplete the soil nutrients and leave the soil unable to sustain further plant growth. Chemicals that are applied to plants can sometimes get into the water supply and bring about one form of contamination or the other and while our drinking water is

put through a lot of filtration process, further tests have shown that the contaminants are not completely eliminated.

A lot of people worry about filthy slaughterhouses, e-Coli, salmonella and fecal contamination, and rightly so because the CDC estimates that around 76 million Americans suffer food poisoning every year. While on the other hand, there have been no cases recorded where organic meat, poultry or dairy products have brought about a food poisoning outbreak in the United States. There is also concern about toxic sewage used as a fertilizer on conventional farms but organic gardening eliminates that fear and concern.

Another advantage of going organic is that it greatly reduces the risk of poisoning from heavy metals contained in sewage sludge, hormone residues, genetically modified food, and the exposure to mutant bacteria strains as well as exposure to insecticide and pesticide residues.

Genetically-engineered food ingredients are common in the U.S supermarkets today and to make matters worse, a lot of them are not labeled but organic food production eliminates the need for any form of genetic engineering in food production.

According to a report in 1998, the FDA found pesticide residues in over 35 percent of the food tested which goes to show the level of these chemicals in our food. Also, quite a lot of products in the United States have been shown to be more toxic than those from other countries. To make matters more critical, the acceptable standard for the level of pesticides in foods does not provide protection in particular for young children or for those still in the womb despite the agitations for that to be done.

It then cannot be denied that avoiding or reducing chemicals in our food is in our own best interests as well as that of our environment as a whole. This is because the threat that chemicals pose cannot be understated and neither can it be over-emphasized. Apart from negatively affecting the soil, they also affect important parts of the natural eco-system adversely. Plants and animals are some of these important parts all with a specific purpose and taking them out of the equation holds unfathomable danger that might not seem immediate but could be devastating.

So now it’s clear that ensuring your food is grown naturally is the best step you can take for yourself and your family. So why don’t we examine in details, organic gardening.

CHAPTER 2
WHAT IS ORGANIC GARDENING?

Organic gardening is simply a mode of growing crops without using synthetic fertilizers or any other form of chemical on plants. However, organic gardening is a little more than that as it encompasses what you do rather than what you decide not to do.

When it comes to organic gardening, you need to consider the plants you are cultivating as part of a large system within nature and as such there has to be a synchronization between the elements in this large system. Apart from the plants, other elements of this system are water supply, soil, humans, insects and wildlife. So as an organic gardener, it should be your goal to work in line with all these elements and at the same time ensure to replenish any resources consumed by the garden.

Organic gardening is basically built around the concept of recycling because things like kitchen waste, vegetable waste and animal waste are used for mulching and composting which serve to increase soil fertility. Household items like vinegar and soap are then utilized for pest and weed control. Organic gardening aims to develop a healthy and fertile soil that can accommodate the growth of a variety of crops and all that to be done naturally.

This goes to show that there is no room for crops or planting ingredients that are genetically modified or any form of artificial techniques for that matter. Invariably, it is then safe to say that organic gardening is the integration of plants and soil in such a way that nature is allowed to influence the growth and production all by itself, given that the plants and soil work together to not only serve as source of food to man but also to animals and other organisms.

One thing is that organic gardening is not a new concept and it can bring so much peace, calmness, and fulfilment to an individual. So let’s delve deeper and learn more on how to get started.

CHAPTER 3
PLANNING YOUR GARDEN

The first thing to do here is deciding on where to plant your garden. Now in doing this, the following factors need to be considered:

- Good air circulation
- Protection from strong winds
- Access to daily dose of direct sunlight (at least six hours)
- Well-drained soil

Once you have a site that has met these conditions, next thing to decide on is the size of the garden and do not push yourself too far. It is recommended that you start small so that it does not become stressful and boring at some point. For example, an area of land that measures around 10 feet long by 10 feet wide is appropriate for some tomato plants, lettuce, and a bush variety of cucumber plant, radishes, an endlessly productive zucchini plant, herbs and some flowers. You can also use containers to grow plants if you don't have adequate outdoor space.

Next thing is to draw a plan as this will give the plants adequate spacing thus providing them with the much-needed room for growth to ensure maximum productivity. Take a measurement of the dimensions of the plot and draw a scale model on graph paper, using, for example, a one-inch square to represent one foot.

As you draw your plan, consider the space requirements of each plant at maturity and make allocations accordingly else you might find yourself. Consider blocks rather than the usual rows for laying out your garden design because with blocks, you don't have to allocate much space for paths compared to rows, thus, allowing to have more plants.

Blocks containing a variety of plants make it possible to have mini-gardens of various crops of different categories such as a combination of vegetables, herbs and flowers, thus promoting more diversity in the crops being cultivated as opposed to single rows that alternate just two plants. This way, you get to have healthier plants with reduced incidence of diseases due to the level of diversity but with single crops, it's a different story entirely. The crops are quite susceptible to diseases as well as at a higher degree of occurrence. The only thing with the block plan is to ensure that each block is just wide enough for you to comfortably reach the middle from each side.

Another important thing to consider in the layout of your garden is the set of crops you will be planting whether short-term, mid-term or long-term as that will determine the amount of space to allocate to each set of crops. Let's take a look at this: some crops, such as lettuce, radishes, and spinach, mature quickly and will only be there on a short-term basis unless you decide to plant and harvest them several times during the summer. Other plants, such as tomatoes, eggplant, and peppers, will grow over the course of the entire season and these are the medium-term plants. Long-term plants like perennial herbs and flowers will remain in the same spot year after year, requiring an increasing amount of space with each passing year.

It is advisable after implementing your garden plan to save it for future use as it will come in handy for crop rotation in successive years. Crop rotation is the way to go with gardening especially if you plan to make it a continuous process because cultivating the same set of crops on the same spot depletes soil nutrients and even allows diseases and pests to thrive especially those that are soil-borne. So when it comes to planting crops in an organic garden, then take this as an unwavering rule: *No annual plant should go in the same spot two years in a row.*

It is also good to put in the cultivation of "green manure" plants into your plan so as to fix the soil. Now these plants can be there from year to year due to the benefits they hold as they give back to the soil more than they take it from it. Crops like Cowpea, Clover, Alfalfa, and other such plants fix nutrients from the soil, which can be used by other plants, as well as adding bulk and organic matter to the soil when they are dug, or tilled directly into the soil.

Another key to growing organically is to choose plants best suited to your chosen site. This is because cultivation of crops best suited to your area's climatic conditions will ensure maximum growth with little input. This is because the major conditions needed to thrive have been met naturally but if you go for crops not suited for your environment, then prepare to slug it out in order to achieve maximum production.

Once you plan out your garden for this year, then ensure there is a plan in place for next year as well. This will allow you to effectively utilize crop rotation which is key to obtaining success in organic gardening. Also, it will help you to remember what was planted where and save you from unnecessary stress the following year.

So now you know where you'll put your garden and what you're going to put in it. Let's move on to the planting!

CHAPTER 4
GETTING THE SOIL READY

For any farming or agricultural activity, adequate soil preparation is required and for organic gardening, it's not different. Adequate soil preparation revolves around the concept that the soil should be fed which will in turn feed your plants. The first thing to do is to test your soil to know what it contains and what it does not, so that you can determine the appropriate farm practices that you might need to carry out. You can contact your local Cooperative Extension Service to help with that. Most counties and some universities have one; you can always consult the phone book under "Cooperative," "Extension" or you can just look for your county name to find out the requirements for a soil test. There are Home-test equipment available at garden-supply stores, but the results you will be getting will not give you the exact value of what your soil holds.

A soil test is expected to measure the soil pH, which is the level of acidity or alkalinity in the soil and this will determine the kind of plants that you can cultivate. For example, the recommended pH for a vegetable garden is 6.8. Now, unfavorable pH can be adjusted and the test results are expected to provide guidelines on how this can be done. Take for instance, how much lime needs to be added to acidic soils or how much sulfur to add to alkaline soils.

The test is also meant to provide analysis of the amounts of nitrogen, phosphorous, potassium, calcium and other elements in the soil that are needed for healthy growth of plants. Sometimes, it is possible that the testing agency might suggest nutriments to balance these elements, therefore, when you send them your soil sample, ensure to add a note clearly stating that you are going into organic gardening so that chemicals will not be suggested by the tester to you as nutriments.

Even at that, sometimes, the nitrogen sources the tester might suggest might not work as it might constitute a challenge particularly for vegetarians: Bone meal is a slaughterhouse byproduct, fish emulsion is a fish-processing byproduct, cottonseed meal is subject to heavy pesticide use and urea, or crystallized animal urine, is so processed it can no longer be considered natural, not in the slightest bit. So if this should happen and you really need nitrogen for your soil, and you are not comfortable with using animal byproducts, then the best thing to do is to plant nitrogen-fixing cover crops the first year and then start with your vegetables the next.

When gardeners talk about soil, they are referring to earth that looks, feels and smells pleasant. This means a soil that is fertile and fruitful with good structure depending on the level of bonding among the soil particles which include clay, silt, humus and sand. This goes to show you that irrespective of the soil at your disposal, it can be transformed such that your garden comes out great.

There is also a need to test for the percentage of organic matter in the soil as this will have a say on the amount of nutrients that will be available to plants. You should note that there are different levels of consideration that will determine if a soil is organic or not depending on your geographic location. Compost is recommended as the best organic matter to fertilize your garden. Now as a gardener just starting out, you may not have compost yet or an idea of how to prepare one, but we'll shed more light on that.

Composting involves recycling of waste products like vegetable peels, coffee grounds, and egg shells. All of these are guaranteed to provide nutrients to the soil and they will ensure successful organic gardening. It is recommended that you work in some loose topsoil along with natural organic matter into the existing soil while you are tilling your plot as it will help keep the soil receptive and fertile. A good example of natural matter that can be used for this is horse or cow manure which can be procured easily from a local farmer. But if it happens that you're unable to get any, then approach local garden centers as they will have some natural additives that you can till into the soil. On the alternative, you can also use leaves or grass clippings.

By tilling this organic matter into the soil, the organic material will form moisture-holding humus in the soil to give a loose structure that will permit good drainage. Also, this organic matter is a source of various nutrients that will contribute immensely to plant growth.

You can even make your own organic fertilizer as well; that will be taught in later sections.

Now you need to be careful when you are preparing for planting such that your plot does not get dug up too soon else it might affect the growth of your plants adversely. Cool spring soil holds moisture, and disturbing wet soil will damage its structure. We found one tip online that can help you determine whether or not your soil is ready for tilling. If the soil has the consistency of moist chocolate cake, it's safe to dig. If it's more like fudge, wait until the soil has dried out to cake consistency. Soil is structured in layers, and it's best not to interfere with those layers. Dig down just far enough to remove clods of grass, weeds and root masses, shaking and pounding out as much dirt as possible back into your

garden while you save the grass for composting.

CHAPTER 5
PLANTING YOUR GARDEN

This needs care and some careful decision making. You have the option of buying plants that are already growing and can be purchased from most garden centers, but if you do this, then you are likely to have received plants that have been ‘contaminated’ by chemicals and that’s not what we want. Your goal, as an organic gardener, is to avoid these chemicals, so we recommend starting your garden from seed.

If you want to simply plant the seeds directly in the ground, that’s fine, just remember that growing from seed takes a little more time than growing from plants, so that requires a great deal of patience!

Now, it’s the start of something new which means you cannot afford to be too anxious. A lot of gardeners just starting out simply taking a seed packet and dumping its contents into the ground hoping a few plants will spring up. What they don’t realize is that with care, they will probably ALL come up – or at least most of them. Therein lies the problem.

The problem here is that these plants will all strive for air and light which results in them developing tall, weak stems. As such, they will not thrive because they eventually choke each other out and they all die.

However, that’s not to say some plants cannot be planted in clumps; there are some that can be done this way and they include peas, parsnips, radishes and bush beans. It’s okay to plant these together as they will grow fine in clumps.

Seeds have been blessed with everything they need to grow, except two things which are moisture and warmth. Now, if in your efforts to provide them with that and then go ahead to pile 4-inches of soil over them, well, if you do that you have practically killed them because they are overwhelmed. One thing you need to understand is that the soil is heavy and cold and often damp enough to rot off the emerging leaf bud before it can break the surface. So, please don’t pile soil over the seeds trying to bury them; simply cover them with soil to a depth not more than twice their size. However, for seeds that are fine and small in size, don’t bother covering at all.

There are also some vegetables that prefer early planting and examples of such are radishes and leaf lettuce. They tend to germinate quickly and can be harvested before any of your other plants have even begun to bud.

For the early maturing vegetables, you can just plant a single row or small bed and then keep replanting every two or three weeks in small quantities. The amazing thing about this is that you will get to have a crop growing continuously throughout the season while at the same time maintaining the same amount of space and saving time spent on harvesting.

When planting your seeds, there's a need to have a small trench dug and then you can sprinkle the seeds evenly throughout the row. Ensure that the rows are at least an inch apart though preferably let it be more if possible as this provides you with walking space between rows as well as easier weeding.

As earlier mentioned, sprinkle them evenly as this help to reduce the potential of over-crowding. Basically, what we are trying to say is that you should not just dump the seed packet in the trench. You must at least earmark and provide space so that the plants can grow and have access to enough light and air circulation.

Once you've put them in the ground, mark each spot to know what you have planted where. We use a popsicle stick with the plant name written on the front and stick it in the ground at the beginning of the row. This will allow you to know where to look for the plants once they start to bud.

Water well after you've planted your seeds and then wait. You'll soon begin to notice small plants popping through the soil and reaching for the sun. Before you know it, accompanied with proper cultivation, you'll have beautiful plants!

Sometimes, it's preferable to start your seeds indoors particularly in the winter time so that by the time spring finally comes, you'll have your own organically grown starter plants ready to put into your garden plot. Let's examine how to start your seeds indoors.

CHAPTER 6
STARTING SEEDS INDOORS

Starting your seeds indoors will reduce the amount of time needed to see results in your garden, and quite a lot of people prefer to grow their plants indoors first to ready them for the growing season. It can really be a motivational and satisfying experience.

If space is available near a sunny window, then preferably, start planting your seeds four to eight weeks before the plant-out date in your area (average date of last killing frost). This is because starting too early usually results in spindly or excessively thin plants as a result of overcrowding and lack of sufficient light.

You can also start out planting in nursery by using containers such as paper milk cartons cut in half, tin cans, plastic trays and pots although almost any container with drainage holes in the bottom will work for planting. For convenience, however, you may wish to start plants in the plastic trays and pots available at garden supply centers.

Ensure to use a soil that is well-drained and has abundance of nutrients. Potting soils made for African violets and other house plants can be utilized for planting as they do not have weed seeds. However, they might turn out to be a little beyond your budget and as such, you might just turn to soil in your backyard. Now let me sound a note of warning here; the soil from the yard should be top soil with a low clay content and well drained.

To get the best soils, just check trees and shrubs that have been well established and you can take the soil around them. You can then add sphagnum peat and sharp sand to the soil in a ratio of about one-half volume of each, and mix everything together adequately.

After this, you can then place the soil mix in shallow trays or baking pans in an oven set to a temperature of 250^0C for 45 minutes in order to kill weed seeds and some damaging soil fungi present in your commercial soil; preferably, the soil should be moist in order to get the best results.

After the soil has cooled and the temperature has reduced, you can then fill the containers that you intend to use for planting but do not pack just yet. Allow about 3/4 inch of space from the soil surface to the rim of the container. Place seeds on the soil surface. Use a piece of window screen or old flour sifter to sift soil over the seeds to the depth indicated

on the seed packet.

If you use compartmentalized trays or individual peat pots, put around two or three seeds in each pot. Ensure that you do not cover too deeply, as this may reduce or prevent seed germination. Just like planting directly in the ground, a general rule is to cover no more than four times the diameter of the seed.

Next is the application of a fine spray of water to avoid washing the seed, as this might result in them floating to the soil surface. Household window sprayers are suitable but ensure that they are well cleaned.

Cover the containers with plastic sheets or panes of glass and place in a cool room (60 to 65 degrees) away from direct sunlight until germination. Doing this will almost eliminate the need for you to water the bed again before the seeds germinate. But that is not to say that you should not check on it regularly so that it doesn't dry out completely.

Period of germination can range from a few days to a couple of months, depending on what you are cultivating, therefore, patience is key here.

When seeds germinate, move them gradually (over two or three days) into more level of sunlight. When the seedlings have developed the first true leaves (the leaves above the cotyledons or "seed leaves"), next is to reduce to one plant per container if using partitioned trays or peat pots in a process referred to as thinning. Use tweezers to carefully remove unwanted seedlings rather than pulling them, to avoid disturbing the remaining seedling.

If on the other hand, the planting of the seeds was done in larger containers, then you can transplant into individual peat pots or other small containers. Another thing you can do is to thin the seedlings right in the large containers but this use of speed and space is not necessarily efficient.

Another point is to be careful when watering your seedlings because if the water is too much, seedling growth is inhibited which might lead to death of plants while if it is not enough, plants dry out quickly and die so ensure you watch that water level, it's really important.

Now, when it is about one week to the period of planting-out the crops, begin to expose the seedlings to more time outdoors. Then at this point, reduce watering to the barest minimum to avoid wilting of plants. The two afore mentioned actions will allow the plants to adapt easily when they are finally planted thus reducing the probability of shock.

Let’s talk about final planting in the ground; when doing that, you need to be cautious by removing the plants gently from the container ensuring that the roots with some of the soil is kept intact. You can then dig a small hole in the garden plot and place the plant inside. Cover up with soil up to almost the level of the plant’s bottom leaves and water.

Now, you are making progress on your way to becoming an organic gardener, but there’s still a lot left to learn. There are some snags that will want to discourage you from gardening and we will be starting with the stubborn weeds and garden pests.

CHAPTER 7
CONTROLLING THOSE WEEDS AND PESTS

Weeds can really constitute a big nuisance and problem to an organic gardener and while weeding can be a daunting task, it is absolutely necessary in order to ensure healthy growth of plants and good plant products on harvesting.

Controlling weeds is a general problem not just for gardeners alone and the thing is there is no straightforward solution to it. So, it really requires time and effort as well as commitment to control those weeds that you really detest in your garden. This is where mulching and composting come into play.

For starters, you should use the edge of a sharp hoe under the surface of the soil to eliminate weeds in their infant stage before they grow large enough to cause problems to your seedlings. Preferably, this should be done a couple of times a week.

Once the seedlings have grown and have a solid root establishment, such that the soil is now warm and the heavy rains have stopped, the next thing to do is to add mulch which will hold in moisture and ‘strangle’ weeds before they pose a threat to your plants.

In preparing mulch, make use of materials that give the soil room to breathe, let water in and keep light out. These can include dried—not fresh—grass clippings, chopped straw, lawn-mower- chopped leaves mixed with dried grass clippings or well-rotted sawdust (avoid fresh sawdust, as it causes nitrogen to leach from the soil), and pine needles are all good choices. Let the mulch be several inches thick when you add it to the plants.

Now, take note that if you intend to use fresh grass clippings or weeds, then ensure to compost them before using them as mulch. This is because if used without composting, there’s a probability that insects and diseases will be harbored within these ingredients, so watch out!

When it comes to thickness, you have to be careful because once it is too thick, it becomes difficult for light to reach the plants which will definitely affect their growth adversely. Consequently, the plants die off before you know what is happening; those that manage to survive are weak and easily get pulled out.

Organic mulches—straw, grass clippings, leaves, shredded bark—nourish the soil as they decompose. They are quite effective as weed barriers.

You can also apply a layer of compost to control weeds. Let me point out that if you

should use kitchen waste to make your compost, you could have some “volunteer” plants springing up. Let me share a practical experience with you; one of my neighbors happened to use kitchen waste as compost during one time and she was pleasantly surprised to find cherry tomatoes growing where she had composted. What she had done was she included discarded tomato seeds in her compost pile and these seeds germinated on their own making a really nice little surprise crop for her!

If you happen to reside in a location with wet climate, it is recommended that you steer clear of mulching and just continue with your cultivation as mulching in such climate can lead to waterlogged soil and fungal diseases. Conversely, in a dry climate which experiences dry periods from time to time, mulch can help to reduce plant stress by aiding the soil in conservation of moisture. If irrigation is carried out in this type of climate, ensure that you check under the mulch to be sure the water is getting through.

Mulching is an awesome practice but that’s not to say that it cannot be misused and there are two ways by which that can be done. The first one involves mulching heat-loving plants a little too early in the season, just before the soil warms up.

Another mistake is to apply just a little amount of mulch. At first, it looks all nice and effective for a couple of weeks, but then weeds poke through, and then they have to be pulled out with hand, thus making extra work for you in your gardening practices. This is because the mulch covering the ground is just about enough to make hoeing impossible.

How much is enough? Well, this will give you an idea: Sawdust- 2 to 3 inches; Shredded leaves- 8 to 10 inches; Straw- 5 to 7 inches; Newspaper- 4 to 7 inches and Grass Clippings- 5 inches.

Another way to control weeds is through various ground covers. This is often called “soil solarization.” It is carried out by placing thick plastic sheeting on top of the weeds and allowing the heat from the natural sun to “bake” the weeds until they die. With this however, patience is required as it can take some time for the process to be finally complete.

A lot of people prefer making use of newspaper for their ground cover due to the fact that the paper will naturally decompose, and it is also friendly to the environment.

All you need to do is to place 4-5 layers of newspaper in the space between your plants and then cover with a thin layer of dirt so that the papers do not get blown away. This way, you will be able to keep the weeds in check. Also consider Kraft paper – like grocery bags – or cardboard. By using Kraft paper and cardboard, even less light can reach the weeds

and the cover is made even more impenetrable.

Another way to control weeds is by spreading corn gluten meal over wherever they are growing but this should be done early in the season. Corn gluten meal, a by-product of corn processing that's often used to feed livestock, inhibits the germination of seeds— this means, once the corn gluten meal is not applied before the weeds sprout then it will have no effect.

Be careful though because corn gluten cannot differentiate between seeds of your plant and seeds of weeds so it's better to use it after your plants have been established so that they don't get killed along with the weed seeds. Make sure to use check the corn gluten meal so you are not inadvertently adding GMO products to your garden.

Well eventually, you will still need to make use of some old-fashioned weed control methods for your garden; remember, no chemicals!

Hoeing is a good example of those old-fashioned methods and it forms a huge part of having a successful garden. Usually, annual weeds die when you the stems are eliminated right from the roots just below the soil surface and this can be easily carried out using a sharp hoe. Preferably, use an oscillating hoe for this job rather than the traditional square-headed one.

To hoe your garden without picking up a backache on the way, simply hold the hoe as you would a broom—that is, with your thumbs pointing up. Skim the sharp sides of the hoe blade through the top inch of the soil.

You will also have to do some hand-pulling of those weeds and it doesn't necessarily have to be a stressful one. You just need to be dedicated and committed.

Finally, organic weed control can be done easily by making use of something as common as household vinegar and apply it to weeds. However, you should be careful when applying it because it is the organic equivalent of the commercial Round-up (a strong herbicide). This means you should be careful when applying it around plants that are just beginning to grow.

Now that we are through with weeds, let's examine pest control.

CHAPTER 8
CONTROLLING PESTS

For the natural gardener, pest control might seem like a difficult task to take on. After all, you have sworn off chemicals in your garden despite the fact that these chemicals have the ability to get rid of these pests easily. But actually, controlling of pests the natural way is quite easy.

It is certainly understandable that a lot of gardeners get worried when they see pests on their plants and might want to react in a definite manner when they see their plants damaged. However, at this point, let me remind you of the main principle of organic gardening: *growing plants in harmony with Nature*. And insects, even those that eat your plants, are a crucial part of that system.

When you see insects in your garden, first thing to do is try and observe what they are doing. Are they actually destroying the plant or just nibbling it a bit? Many plants can outgrow minor damage.

Also, in a lot of cases, insects focus their attack on plants that are stressed. The questions you can ask yourself at this point that will determine your next action are: Do you have enough healthy plants to replace the ones that are sick? Can you restore the sick plants to good health so they can resist insect attack?

The best defenses against insect attack are preventive measures. For starters, to prevent having stressed out plants, cultivate plants that are best suited to that environment. Don’t let them be too wet, too dry or too shaded. Design a garden with a great level of diversity as this will make it difficult for pests to destroy the garden as you would have ‘mixed things up’. Healthy soil will naturally produce plants that are resistant to insects and disease, but pests are a part of gardening. There are different ways you can control pests naturally.

SPRAYS AND POWDERS

There are a number of natural botanical sprays and powders available in garden centers. These are derived from plants and not made in a lab. We'll look at a few of the more common ones available to you.

Let's start with insecticidal soap which is sodium or potassium salts combined with fatty acids but if you are going to use soap, it has to come in direct contact with the insect and it must be wet because once it dries up, it is no longer effective.

The fatty acids in the soap go into the insect's outer covering causing the cells to collapse. It is considered to be one of the safest organic pesticides to use as it leaves no residue, it is non-toxic to animals, and you can use it on your vegetables all the way up to harvest. Be cautious, however because soap can burn or stress plants, so don't use it in full sun or high temperatures.

Bacteria spray is also commonly known as *Bacillus thuringiensis* (BT). There are more than 80 types of BT used as pesticides. It is a stomach poison that releases toxins in the stomachs of insects causing them to stop eating and starve to death.

It is generally available in powdered form which can be sprinkled or dusted on a plant. It must however be ingested by the targeted insect. The amazing thing about BT strains is that they are very host-specific and as such pose no threat whatsoever to people, pets, birds or bees, but their action can sometimes take several days for the insect to completely stop eating and die. Also some of the beneficial insects in your garden can be destroyed along the way.

Rotenone and Pyrethrum are most readily available pesticides and are often used in combination. They are derived from the roots of tropical legumes. They are usually available in powder form which is then applied to the plant. They function to disrupt the cellular process thus stopping the availability of oxygen to the insects in their tissue cells. It has a broad spectrum of action and as such can be used with various types of pests.

If you are using a spray, mix it with water to dilute it and use only as needed. Of course, follow the instructions on the label. The evening or early in the morning are the best times to apply sprays and powders is in the evening or in early morning. And ensure that you read the labels of anything you buy commercially. **Just because a pesticide is organic doesn't mean it isn't toxic.**

Important NOTE: You don't HAVE to use anything on your plants if you depend on other

animals to help you control pests.

ANIMALS AND BUGS

Birds, ladybugs and praying mantises are the gardener’s best friends in the matter of insect control.

To get birds to feed on those harmful insects, then you can provide a bird birth, a birdhouse or just plant that produce berries that they can feed on.

Ladybugs can be purchased in various amounts ranging from pint to quart to gallon. A quart of ladybugs contains about 25 to 30 thousand bugs and that should be enough to take care of pests in an average-sized garden. Furthermore, it is cheap as the cost is generally less than five dollars per quart. The ladybugs are quite effective too as an average adult ladybug consumes between 40 and 50 aphids a day. Impressive and effective right? Yes, I think so!

Cases containing praying mantis are also available and each one hatches up to 400 young. The cost is quite negligible for a case. There have been some reports of a rapid disappearance of this insect from the garden so it is recommended that you start with just a few to see how they work. However, one thing is guaranteed, any insect they can catch will be consumed.

Frogs and lizards can also control pests by eating them. You can make your garden conducive for your natural allies by keeping a water source – just a dish full - nearby for them and by not using pesticide to eliminate the whole pest population which might otherwise send them somewhere else in search of food. Also, grow plants with small blossoms like sweet alyssum and dill, which attract predatory insects that feed on the nectar of flowers while carrying out attacks on pests.

Organic pest control is a comprehensive approach rather being a chemical approach. The best thing is to do is creation of a healthy biodiversity so that the insects and microbes will control themselves. Using natural products and building healthy soil is the best long-term treatment for pests.

What are the pests you should be on the lookout for?

COMMON GARDEN PESTS

There are literally hundreds of common garden pests that can attack your plants and threaten the survival and thriving of your gardening efforts and plants. This book will be too small and congested to be able to address all of them. There are, however, some that occur a lot more than others.

Aphids are probably the most common problem in gardens. Aphids are soft, pear-shaped, and very tiny (1/16 to 3/8 inch long). Two short tubes project backward from the tip of their abdomen.

Aphids have long antennae. There are some with wings; the wings are usually transparent, longer than their body, and held like a roof over their back. Aphids exist in the following colors: green, pink, yellowish, black, or powdery gray. Their nymphal stage resembles adults but smaller and lack wings.

Their feeding is carried out in colonies, so wherever you see one, just know that there's definitely more. The consequences of aphids feeding on plants can cause leaves to curl and become deformed. Once this has occurred, the aphids are protected from any treatment you give to the plant, which means it's important that you tackle the problem at an early stage.

Many species prefer the underside of leaves, so it is advisable to check there first. Ants are usually present where aphids are, so that's a pointer to determine the presence of aphids in your garden. The ants are there to serve as protectors to the aphids because they are the source of food for ants.

For effective control of aphids, the first thing to do is to soak plants with strong sprays of water from a garden hose. Keep your plants as healthy as possible, and spray dormant oil to control over wintering eggs. You can also use insecticidal soap, summer oil, and homemade garlic sprays to spray the plants. Some recipes on how to make these products will be provided at the end of the book.

If you will be growing cabbage, broccoli, or cauliflower, you could have cabbage loopers. These pests are light green in color with white stripes running down their back. The larvae can reach approximately 1½ inches long and have three pairs of slender legs near the head and three pairs of larger legs at the rear end. The mid-section has no legs and is looped when the insect is moving, hence the name loopers.

The larva is the damaging stage of the cabbage looper. This is because the young larvae

feed between the veins on the undersides of leaves which is how the damage is caused. When the larvae get larger, they make more distinct holes in the leaves before moving to the center of the plant where feeding generally occurs at the base of the cabbage head. Large loopers can also burrow through three to six layers of tightly wrapped head leaves.

The best way to control cabbage loopers is to pick the larvae using your hand few times a week. Another thing you can do is to attract predatory and parasitic insects to the garden by making use of pollen and nectar plants.

Now, let's say you happen to find small holes in the leaves of your plants, you may have earwigs. Earwigs are generally dark brown, slender and elongated. They have a pair of "pincers" at the rear of their body and they run most times more than they fly. They have a curved up abdomen and release unpleasant odor when disturbed. Earwigs will cause holes in the leaves of plants causing them to wilt and die.

In general, earwigs can be beneficial to your garden, but they can get out of control, so you should use the general spray that will be discussed later in the book. There are quite a number of ways to control earwigs, but setting traps for them is possibly the best way to eliminate them from your garden.

One way to utilize trapping is to take a shallow dish and place beer in it and any kind of beer will do. The beer will attract them, they will get into it, drink and die. You can then sift out the dead ones and make use of the beer for trapping again. Other things they are attracted to include corn oil, fish oil, or water and vinegar and you can also place them in dishes just like the beer.

If the leaves of your plants are finely speckled with yellow spots or a silvery, metallic sheen, it could mean presence of thrips. Thrips are very small – about 1/16" - and difficult to see. There are different varieties of thrips and they and they all come in different colors. Thrips are best controlled with sprays as we've described. You can also spray the plants with soapy water. Lady bugs will eat thrips as well, so attract those lady bugs to your garden!

Tomato hornworms are about the largest caterpillars found in this region and can be as long as 4 inches. They have a prominent "horn" on the rear of both sides which gives them their name.

Hornworms are often difficult to see because of their green protective coloring. They do not take well to direct sunlight which is why they usually feed on the interior of the plant during the day and are more easily spotted when they move to the outside of the plant

early in the morning and late in the evening.

The destructive mission of hornworms normally occurs in midsummer and continues throughout the remaining part of the growing season. Because these garden pests are enormous in size, it allows them to swiftly defoliate tomatoes, potatoes, eggplants, and peppers. Occasionally, they may also feed on green fruit. Usually, the large areas of damage at the top of a plant are more easily spotted before locating the damaging insect.

The best way to control hornworms is to handpick them off your plants. Also, the BT bacterial spray earlier mentioned is highly effective against them, so you can make use of it.

Slugs are among the most troublesome pests in the garden. It is such that they feed on a various living plants and even decaying plant matter. On plants, they bore irregular holes with smooth edges in leaves and can clip succulent plant parts. They can also chew fruit and young plant bark.

Because of their preference for succulent foliage, they are majorly pests of seedlings, herbaceous plants, and ripening fruit such as strawberries, artichokes, and tomatoes that are close to the ground. In addition, they will also feed on the fruit of some trees, especially citrus.

Slugs are nocturnal and come out only at night. They however hide under rocks and leaves in the day. Major signs of slug feeding are chomped holes in leaves and fruits; furthermore, there is also a silvery trail of dried mucous that these pests leave behind and if you feel you need to confirm it, then just go out into the garden at night with a flashlight and surprise them.

Slug control is actually quite easy considering their large size, all you need to do is catch them with your hands and dispose of them. You can also use the beer trap to catch them.

To use the beer trap, place a plastic bag in the garden, put in two lettuce leaves that have decayed with 2 cups of bran cereal, and then pour beer over the whole mixture. Ensure that the bag is placed there before sundown. So just go there in the morning, and check to see if the slugs are in there and dispose them off.

Removal of dead and decaying leaves helps to prevent slug infestation as they serve as the main food source for slugs. You can also make use of coffee grounds and egg shells to keep out the slugs by simply placing them around the plants you want to protect at ground level.

CHAPTER 9
TAKING CARE OF YOUR GARDEN

Making Compost

Composting can either be a simple or complex process depending on what you are looking to achieve. The most interesting part about making compost is that it can be made using any organic material and there is access to a lot of that every single day because it is produced by the lawn, garden, and kitchen.

Compost is what you get when leaves, grass clippings, vegetable and fruit scraps, woodchips, straw, and small twigs are combined, then allowed to break down into a soil-like texture. Compost feeds and brings about a diversity of life in the soil, including bacteria, insects, worms, and more which support healthy plant growth.

Compost is multi-faceted but not intended as a fertilizer. Though the level of nutrients it provides for plants is low, it makes up for that in other ways that are incredible. Once it is completely processed into mulch, it reduces evaporation, reduces or prevents weed growth, and protects the soil from extreme temperature changes. Furthermore, mulch also keeps the upper inches of the soil cooler in daytime, warmer at night.

The materials needed for compost making are numerous but regardless of the particular ingredients, making compost is similar to making bread or beer; soil-digesting bacteria like yeasts need warmth, moisture, air and something to feed on to keep them alive and growing. So a lot of the practical problems associated with making compost is as a result of too much or too little of the important basic factors.

Compost is made mostly from layers of grass clippings, leaves, weeds, kitchen scraps and, if available, farm animal manure. If you have meat eaters in your home, don’t use their meat scraps, as this will only invite rodents. Also, do not use litter from your dog or cat because it harbors quite a number of pathogens and does not get broken down properly.

Over the years, there has been notion that composting consumes a lot of time which is not necessarily true. You don’t have to build a big box or turn the pile frequently. A barrel, a hole in the ground or a pile on top of the ground should get the job done.

The most important thing to do is to ensure that the waste material is covered with soil, to prevent rodents or flies from getting attracted to it. You can either build your layers directly on the ground without making use of any frame or make use of a container, but in

this case, ensure that it is well ventilated.

The most important thing to do when it comes to effective compost making is balancing ingredients high in nitrogen—fresh grass clippings, other fresh, green plant matter, most kitchen scraps—with those high in carbon—leaves, straw, dried grass, washed eggshells, wheat germ or other milled grains that have become too rancid or old to use, and any dried, brown plant matter. This is because too much nitrogenous matter yields an anaerobic, smelly pile while too much carbonaceous matter results in a non-heating pile. The recommended ratio is one-part nitrogen to three parts carbon.

Start with a layer of brush—small twigs, no large branches—a couple of inches deep; this will provide your pile with the needed room to breathe. Then, keeping in mind the 1 to 3 ratio of nitrogen to carbon, add a layer of mixed plant material. You may then add horse or cow dung to enrich the pile. These materials don't break down but rather contribute more nutrients to the final product.

Now slightly water the pile in such a way that there is an even distribution of the water so that the whole pile is evenly moist. This is because too much water will impede aeration while on the other hand, too little water will stop the pile from fermenting. If your pile happens to be out in the open, then use a tarp to cover it in case of a storm, and then remove the tarp after it passes so the pile can breathe. On the alternative though, you can make use of an 8-inch layer of straw mulch.

Alternate layers until the pile is 5 feet high by 5 feet wide by whatever length you choose. A properly made pile that is loosely packed and well aerated will reach an internal temperature of 160 degrees within a few days. It should smell like wet hay. However, if the pile fails to heat up, pull it apart and remake it by adding layers of fresh green matter. If the pile becomes anaerobic (is too wet to aerate), pull it apart, let it dry out, use it as mulch and start a new pile.

After three weeks, the pile will have reduced in size; don't panic, it's normal. Simply dig into the pile with a spading fork and completely turn it over until the contents are redistributed; the idea around this is to put unfermented particles in contact with those that are making progress with fermentation. You then allow the pile rest, so that the temperature will rise again. In about five weeks' time, go back and turn it again and then let it rest. Then hopefully, by then you will have a rich, crumbly pile of "black gold."

Also, air is important to any composting process. Without air (anaerobic condition), composting is possible but unpleasant with the pungent odor of rotting material that will

be welcoming you whenever you go there and check it. This usually happens because there is too much nitrogen and too little air in the mixture. If you have an abundance of trees on your property, autumn leaves can be plentiful and messy, but they are there for your use and can be easily gathered and stored in leaf bags.

Timing is crucial. Your pile is fully composted when it fails to heat up after being turned. Then it is ready to use. And use it with a good feeling, for it is your garden's natural fuel. Remember your objective, which is the main building block to having a very successful garden, is to achieve healthy soil.

Compost supplies the soil with a rich, friable source of humus and helps retain moisture in the garden, in addition to supplying valuable nutrients. By placing grass clippings, fallen leaves and unused plant parts in a compost pile, you are preparing them, through decomposition, to be put back to work for you.

Composting actually recycles garden waste and returns the nutrients that have been taken from the soil. By using organic composting agents, it is possible to speed-up the process of decomposition.

Now that you've gotten that garden in, how then should you take care of it?

CHAPTER 10
TENDING THE GARDEN

After putting in quite some time and effort into ensuring that your garden is laid out in the best way and also integrating in the best organic practices for the garden, now it's time to move on to your plot.

Plants need light and water to grow. The light has been taken care of by Mother Nature and all you have to do is to take care of the water requirement!

You have to be careful when watering because plants react differently to the amount of water they get. If most times, the soil is often sprinkled on top but never deeply soaked, it results in a dampening of plant roots, just upper few inches of soil where they are vulnerable to searing mid-summer heat and drought.

Vegetable plants need an average of 2-inches of water a week. Be sure to water thoroughly so the soil is soaked to a depth of 4 to 6-inches. This will favor deep growth of roots.

Germinating seeds and seedlings need to be kept uniformly moist without being washed away, which means they should be gently watered by spraying every 1-2 days. Developing plants need to be watered deeply, but it does not have to be so frequent. Just water to a depth of at least 6 inches and then let the surface inch or two completely dry out before watering again.

As a general guideline, garden plants that have been watered properly, and therefore have developed deep roots, need a thorough watering every 5 to 7 days in hot weather.

Hand watering delivers water directly to the plants, but it takes time. However, it ensures elimination of water wastage. With this however, spot check to make sure you are delivering enough water, and be careful to give all areas of the garden adequate coverage.

Sprinklers have the disadvantage of wasting water by watering paths and other open spots in the garden. They also lose water to evaporation and wind drift. Because they wet the foliage, sprinklers also can promote the development of leaf diseases.

However, sprinklers are easier and eliminate the need to stand outside holding a hose for 20 minutes – especially if your garden is in the large.

If you use oscillating sprinklers, elevate them above the tallest plants so the water streams

are not blocked. To make sure all of your plants are watered, place sprinklers so their patterns overlap. When you observe runoff, it’s an indication that you need to water at a slower rate.

You can also consider taking a simple garden hose and making your own irrigation system by poking holes in the top of it at uniform angles. Simply place this hose between the rows of plants and move when the watering is done in that particular section.

You should generally water your garden in the early evening when it is cooler. This will reduce the chance of evaporation from the hot sun and heat. Early morning watering is fine, but less effective.

Be careful so that you do not over-water your garden as this will lead to poor growth and low level of yield. Generally, the first few weeks after planting and transplanting and during the development of fruit or storage organs are times when plants may be adversely affected by shortages of water, so water the plants a lot during these periods.

Obviously, nature itself will supply you with some water in form of rainfall. So be sure to track the levels of rainfall so as to determine the level of moisture to know if it is enough or if need to add to it.

Healthy plants that produce a wealth of healthy food can get a well-needed boost from some type of fertilizer. Composting can provide this, but there are other ways to fertilize.

One of the best sources of organic fertilizer is animal manure. Cow, chicken, rabbit, horse and mink are among the most readily available in many parts of the world. However, the best time to use them is after they have become decayed for some years as then they provide plant with some nutrients, favorable bacteria, humus, better aeration and they help retain more moisture when they are mixed with your garden soil.

Manures are available from dairy farms, riding stables, and poultry farms. Most times, you might have to pick them up yourself or sometimes, you can rely companies that deliver soils or mulches to help you with the delivery of one or two types of fresh or well-rotted animal manures.

On the other hand, take care to apply fresh manures in the fall rather than in the spring in case you decide to go with that. This is because if used in the spring or growing season, they can burn or retard plants. However, once it’s spring, preferably make use of well-rotted manures and apply around the base of the plant.

You can use either fresh or rotted manure to make a liquid-tea to feed plants. The tea is

usually made of one part of manure and ten parts of water. Let it settle for several days before you use it by spraying it directly on the plant.

For the process-dried manures, you can find them available at garden shops and can be used for top-dressing or they may be mixed into the planting soil. Fish meal, blood meal, bone meal, animal manures, cottonseed meal and processed sewage sludge are organic sources for nitrogen fertilizer. Phosphate rock and bone meal are the two organic fertilizers used to supply phosphorus. Wood ashes and rock potash are the two main sources of organic potassium.

Your local garden department will usually have any of the above organic fertilizers in stock and you can also make your own fertilizer which you will find its processing in our recipe section!

When it comes to fertilizers, the most important ingredients are seed meals and different kinds of lime. These can single-handedly grow a garden successfully. Seed meals are byproducts of making vegetable oil. They are made from soybeans, flaxseed, sunflowers, cotton seeds, canola and other plants. Different regions of the country have different kinds more readily available. Seed meals are stable and they store well for quite a number of years if kept dry and protected from pests in a metal container with a tight lid.

Lime is ground, natural rock containing large amounts of calcium, and there are three types. Agricultural lime is relatively pure calcium carbonate. Gypsum is calcium sulfate and is included because sulfur is a vital plant nutrient. Dolomite, or dolomitic lime, contains both calcium and magnesium carbonates, usually in more or less equal amounts. If you have to choose one kind, it probably should be dolomite, but you'll get a better result using all three types. These substances are not expensive if bought in large quantities from agricultural suppliers.

Organic fertilizers are much more conducive to the environment and the health value of our foods than the traditional chemical fertilizers. Why? Well, when it comes to organic fertilizers, manures and composts, they tend to release their nutrient content only as they decompose — as they are slowly broken down by the complex ecology of living creatures in the soil. Complete decomposition of most organic fertilizers takes around two months in warm soil. During that time, they constantly release nutrients at a reliable rate.

With non-organic fertilizers though, overdosing can be a real problem. They are so strong that it's easy for inexperienced gardeners to cross the line between just enough and too much.

Yet, despite their strength, inexpensive blends are not complete. This is due to the fact that they supply only three major nutrients which are nitrogen, phosphorus and potassium. So unless the manufacturer intentionally adds other essential minerals, such minerals will not be supplied by the chemical mix. Chemical fertilizers rarely contain calcium or magnesium; which plants need in large amounts along with tiny amounts of several other minerals.

Furthermore, inexpensive chemical fertilizers dissolve quickly in the soil. This usually results in a rapid burst of plant growth, followed five or six weeks later by a big halt in progress which then calls for yet another application. Should it rain heavily on application of these chemicals, they become dissolved in the soil water and not only that, they become transported as deeply into the earth as the water penetrates (a process known as “leaching”) so deep that the plants’ roots can’t reach them. With one heavy rain or one too-heavy watering, your fertile topsoil becomes infertile. Apart from that, groundwater can also get polluted as a result of these chemicals. The risk of leaching is high particularly in soils that contain little or no clay.

Chemical fertilizers can be made to be “slow-release,” but these types are several times costlier than those that dissolve rapidly in water. The seed meals in an organic fertilizer mix are natural slow-release fertilizers, and they usually are less expensive than slow-release chemical products.

You should fertilize your plants once every three to four weeks. It is recommended that you pay attention to your plants in terms of their performance and add fertilizer accordingly because some plants might need more fertilization attention than others.

Beans, peas, and carrots are among the low demand vegetables for fertilizing. They need fewer requirements for additional nutrients than the medium demand plants.

Most garden plants are medium demand plants. These would include tomatoes, corn, squash, zucchini, cabbage and peppers. Be careful not to over-fertilize these plants. A good rule of thumb is 4-6 quarts of fertilizer per 100 square feet with a ¼ inch layer of compost.

Some high demand vegetables are artichokes, cauliflower, turnips, and spinach. These will require the same 4-6 quarts of fertilizer per 100 square feet, but you need to increase the compost layer to ½”.

High-demand vegetables are sensitive, delicate species and usually will not thrive unless grown in light, loose and always-moist soil that provides the highest level of nutrition.

Of course, you need to stay on top of the weeding to insure your plants have enough room to grow and that those weeds don’t steal away their food!

We suggest that you tend the garden at the same time every day. Morning would be best time since it is cooler during the summer and you won’t have to work in the oppressive heat. Don’t let the weeds take control which is why working in your garden every day is highly recommended.

Taking care of a garden might require you to get on your hands and knees to pull weeds from the middle of your bean plants or cabbage rows, so do this. It’ll save stress on your back and, of course, bring you closer to the natural environment that is your organic garden! Some garden knee pads work wonders!

Then just sit back and wait for the benefits of your garden – fresh produce! Of course, the successful gardener knows that once cold weather arrives, their job isn’t quite done.

CHAPTER 11
WINTERIZING YOUR GARDEN

Never leave your garden bare over the winter because it will lose organic matter through oxidation. Plant oats at the end of the harvest and let them die over the winter, or cover the garden with leaves and straw. As soon as the ground freezes, mulch perennial herbs and flowers heavily to keep frost from heaving them out of the ground. Pull the mulch off in early spring to let the ground become warm and dry.

Once you have harvested all the fruit you can and your plants have gone dormant, till all the plants underneath the soil by using a tiller. This will provide the soil with organic material to nurture it for next year.

Apply a thick layer of your compost and till again. It’s a good idea to till one more time prior to planting when the ground isn’t frozen, of course. By doing this, you’ll gain control of any possible weed problems, plus you’ll be working in more compost to make the soil prime for planting next spring.

CHAPTER 12
RECIPES FOR YOUR ORGANIC GARDEN

You don’t necessarily have to purchase commercially-produced organic products for your garden. Many can be made by you with just the application of a minimum effort. Of course, you’ll have to buy the ingredients, but we can assure you that in the long run, it’ll be much cheaper than buying those other products.

Organic Fertilizer

To concoct the fertilizer mix, measure out all materials by volume: that is, by the scoop, bucketful, jarful, etc. Proportions that vary by 10 percent either way will be close enough, but do not attempt to make this formula by weight. An old 5-gallon plastic bucket will allow you to stir up about 14 quarts.

Mix uniformly, in parts by volume:

4 parts seed meal

¼ part ordinary agricultural lime, best finely ground

¼ part gypsum (or double the agricultural lime)

½ part dolomitic lime

1-part bone meal, rock phosphate or manure

1/2 to 1-part kelp meal (or 1-part basalt dust)

Farm feed and grain dealers are the best sources for large bags of seed meals, which are typically used to feed livestock. The other ingredients usually can be found at garden shops, although they probably will be sold in smaller quantities at higher prices per pound. You may find the best prices by mail order or on the Internet.

Garlic Pest Control Spray

Many cultures around the world have used garlic as a natural antibiotic and anti- fungal remedy. When garlic is combined with mineral oil and soap, it becomes a very effective pest control product. However, when it is sprayed, it is not a selective insecticide. It can be used to control cabbageworm, leafhoppers, squash bugs, whitefly, but **will also affect beneficial insects so be careful where and when you apply this product.**

Here is what you will need:

3 ounces finely chopped garlic

2 tsp. mineral oil

1-pint water

¼ ounce liquid dish soap

Allow the garlic to soak in the mineral oil for 24 hours. Add water and liquid dish soap. Stir well and strain into a glass jar for storage. This is your concentrate.

To use: Combine 1-2 tablespoons of concentrate in 1 pint of water to make the spray. Do be careful not to make the solution too strong. While garlic is safe for humans, when combined with oil & soap, the mixture can cause leaf injury on sensitive plants. Always test the lower leaves of plants first to make sure they aren’t affected.

CONCLUSION

Most importantly, gardening is fun and is a skill that, once acquired, can be a lifelong companion. It is not a skill that has to be adequately mastered before you enjoy it, and it is extremely adaptable to diverse needs and abilities.

Organic gardening, however, is so much more satisfying. The soil that feeds us is something we should take time to think about each day. The way we treat that soil is something else we should consider – every single day.

The life cycle is a beautiful thing and all creatures were put here for a reason – even the garden pests! Natural people want that natural cycle to keep rotating.

The health benefits of organic gardening are many, but the emotional benefits are so much more. By going organic, you will know that you are doing everything you can not only for Mother Earth, but also for your family. We should all strive for the natural pleasures that we have been given.

And yes, growing things in the dirt is one of them! Happy gardening!

ABOUT THE AUTHOR

Lori McDonald grew up on a farm in a small town in southeastern Oklahoma. As a child, she spent her time playing with the animals and in the garden growing vegetables and flowers with her grandparents and great-grandparents. She left Oklahoma for Texas when she was 20 and attended art school in Houston. While in Texas, Lori met the love of her life and got married. The couple went on to have 2 beautiful children. Lori has lived in Texas for more than 20 years.

Lori is a small business owner, loving wife and strives to keep up with her two growing children. She has home-schooled both kids over the years. After being diagnosed with Melanoma many years ago and having other skin cancers over the past few years, Lori began learning about organic products and using natural items. She has dabbled in organic foods, making organic skin care and natural household cleaners. She has a passion for all things organic and is currently writing another book about organic living. Visit her family business at http://www.klmcosmetics.com and read more interesting blog articles and recipes for organic products.

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