

Low Cost Secrets to growing a

10 year veteran of the
organic lawncare industry
shares lawn maintenance
tips regarding:

weed control	pest control
fertilization	dethatching
watering	seeding
mowing	aerating

Healthy Non-Toxic

Learn what chemical fertilizer companies
absolutely do NOT want you to know!

Minimal Maintenance Lawn

by Michael Kaufman, an Organic Lawncare Professional

Be Honest

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We've Been Brainwashed

Every year millions of pounds of chemicals are sprayed, sprinkled or otherwise spread on residential and business lawns all across the United States. Somehow, as a country of generally "well-off" individuals, we have become obsessed with a picture perfect, weed-free lawn, and we've become willing to do just about anything to achieve it.

In fact, most of us have allowed ourselves to be brainwashed into believing that chemical fertilizers are actually safe (or at least safe enough), but nothing could be further from the truth.

No matter what we're told or how much we may try to delude ourselves, intuitively, we all know that chemical fertilizers, pesticides and herbicides must be harmful. Why else would chemical fertilization companies be required to put those little signs in everyones' lawns that say "STAY OFF THE GRASS" for X days after application? Why do they wear boots and gloves and masks (the smart ones anyway)? Because it isn't safe!!

So, do you think it is really safe once they remove the signs? No. It is simply safer. The question is, how many exposures to a safer lawn will it take to equal the toxic results of being exposed to an unsafe

lawn that has one of those little signs on it?

How many times each week do your children and pets go out and run around and roll in the grass, rubbing those chemicals all over their body and ingesting the dust and/or fumes?

"But," you say, "I don't have a fertilizer company doing my lawn. I do it myself." Do you really think that the fertilizer you apply yourself, that you bought at the local nursery or hardware store, is any safer than the fertilizer applied by fertilization companies? Of course it's not. Let's be real.

In fact, let's talk cold hard facts. A study done by the California Public Interest Research Group (CALPIRG) Charitable Trust and Washington's Safe Food and Fertilizer tested 29 fertilizers from 12 states for 22 toxic metals. Their report "WASTE LANDS: THE THREAT OF TOXIC FERTILIZER" documents the results of these fertilizer samples and demonstrates that the problem of toxic fertilizers is widespread.

Their testing showed that the 29 fertilizers tested contained all 22 toxic heavy metals, many of which are known carcinogens or are considered possible cancer causing agents. Four of these fertilizers were brand name fertilizers marketed to unknowing consumers who generally apply these products in even greater amounts than recommended by the manufacturer. At least one of the fertilizers tested is a MAJOR brand used by a large percentage of commercial lawncare and landscape companies.

Is this really what we want our children and our pets playing on? Toxic waste that is so bad the EPA restricts manufacturing companies from disposing of it directly, but provides a virtual open door if they give it to chemical fertilizer companies as filler material for their so-called "fertilizers"?

Read the report for yourself at their website: [Waste Lands: The Threat Of Toxic Fertilizer](#). Then, come back to this ebook for some sure-fire, low cost secrets to having a beautiful, healthy, NON-TOXIC lawn.

About the Author:

Mike Kaufman

First of all, before I tell you anything else about myself, understand that I sell organic fertilizer. So, there are those that may believe I am biased (and, I suppose, I am). But, having a bias doesn't necessarily mean that what you believe isn't true. I'm not going to use this book to sell you on my fertilizer. Later you MAY decide that I'm offering a product that will benefit you, but, whether you do or don't, this book is going to help you get the most out of whatever natural fertilizer you choose.

My Own Search for the “Right” Product

Before I began selling fertilizer I owned a lawncare company. In the course of maintaining my customers' lawns, I performed organic fertilization for a number of years. Since I didn't really want to use chemicals anyway, and since I was not enthralled with the idea of having to get certified to spray chemicals, I went in search of an organic fertilizer that I could use on my customers' lawns.

That was not an easy task. First, just as it is now, most organic fertilizers were incredibly expensive. Since I was just starting out

and had a small company, I could not afford to purchase large quantities of fertilizer in order to get a decent price. I needed to get a good price on even small volumes, so that I could offer a decent price to my customers. At the same time, I knew that whatever I used had to be effective, or I wouldn't be doing fertilizations for long.

The Embarrassing “Failure”

Luckily, for myself and my customers, my research did yield a product that seemed to be well proven and incredibly well priced, even in very small quantities. So, I got an account setup and started applying fertilizer.

Much to my chagrin, numerous of my customer's lawns (most of which had been chemically fertilized for years) began a downward spiral, and I had no idea why. After all, I was using this terrific organic fertilizer, right?

Well, I very quickly realized that in order to transition a lawn from high analysis chemical fertilizers to low analysis (NPK) organic fertilizers, knowledge was going to be necessary - at least some BASIC knowledge of organic lawncare practices - which I did not have.

Knowledge was “The Key” to Success

So, I started doing a lot of reading about organic lawncare in general and about the ingredients in the fertilizer I was using. I wanted to know as much as possible, so that I could make sure my customers' lawns looked as good or better than they did with chemicals.

So, to make a long story short, I spent a number of years doing lawn mowing and organic fertilization, and, upon recognizing the value and versatility of the fertilizer I was using in my lawncare business, I decided I could make a better living simply selling the fertilizer than by applying it.

A Decade and a Half Later ...

I've spent the last 15 years marketing organic fertilizer to homeowners, lawncare and landscape companies, farmers, golf courses and the like, which has given me a great deal of opportunity to talk with thousands of customers and turf managers regarding their personal experiences with other products and with our products.

Between my own trial and error as a lawncare professional and the information I've received from customers, I've been able to put together a pretty comprehensive outline for a straight-forward organic lawncare program that pretty much anyone can implement, with just about any organic fertilizer.

The rest of this ebook will be spent outlining that program, so that you can implement it yourself. It is my sincere desire that you find the information useful and can one day soon point to your own lawn as a perfect example of the effectiveness of organic lawncare maintenance practices.

Sincerely,

Mike Kaufman

Chemical vs. Natural Lawncare

In today's fast-paced world, instant gratification is an integral part of all of our lives. Even those of us who try to be disciplined have a hard time overcoming the overwhelming urge for immediate satisfaction. Of course, this "give it to me now!" mentality has caused a BOOM in chemical fertilizer and pesticide / herbicide / fungicide use.

The reason is clear to anyone who has ever attempted organic growing methods. In general, chemical methods often show results much more quickly than organic methods do. The problem is, these results are achieved with short-cut techniques that will, in the end, cause much more harm than good.

The Problem(s) with Chemical Use

Not only is the water table contaminated by chemical use over time, but many other problems are becoming evident from the widespread chemical use within the farming and landscaping industries.

For instance, the chemicals used DO cause health problems.

Repeated exposure to these chemicals over time can be very costly for children, pets and adults. Short-term accidental exposure to these chemicals can be just as hazardous, if not more so, if it is in large amounts.

A New Chemical for Every New Problem

Long term chemical use on any lawn, crop or garden will eventually lead to more problems than you started with. To be sure, most farmers and landscape professionals are much more judicious in their use of chemicals these days, but, in most cases, the introduction of some chemical to alleviate one problem causes one or more other problems to arise. Of course, if you are a proponent of chemical use, you simply prescribe some other chemical(s) to manage the new problem(s), and so on, and so on, and so on.

More & More = Less & Less

Moreover, because chemical fertilizers do not contribute any significant micro-nutrients, micro-organisms, trace elements or organic matter to the soil, every year that chemical fertilizer is used further depletion of the soil is the result. Consequently, whether it is a lawn, landscaping, garden or crop application, the plants or grass being grown will be getting less and less nutrition from the soil itself. Thus, more fertilizer is needed to produce the same result as the year before.

My experience talking with customers bares witness to this fact. More and more I am contacted by people who tell me each year it takes increasing amounts of fertilizer to produce the same result.

This is more commonly stated by farmers and gardeners because they are generally so focused on crop yield, but also holds true for lawns. Chemical fertilization practices put you and your lawn, garden or crop on a never ending downward spiral that requires more and more work and more and more money to continue to see the same result. Eventually, virtually nothing will grow, no matter how much fertilizer you apply. At that point the soil is “dead” and

useless.

The Natural / Organic Alternative

Organic growing methods, on the other hand, are much less hazardous to water sources, family and pets than chemicals while providing results that are as good or better than chemical methods, and results that get better and better, year after year, rather than worse and worse. The "problem" is, organic methods can sometimes take a little longer, and sometimes require a little more effort at the start.

Proper growing takes time and patience, things that most people in this day and age have little of. Therefore, they reach for the quick fix. Over time this quick fix can turn into a nightmare, but because it is a gradual deterioration, most people don't associate it with chemical use.

Here are a few guidelines for weighing the pros and cons of chemical and chemical-free growing methods:

A Comparison: Chemical vs. Natural

Chemical Lawncare/Plantcare

This grouping would consist of any method which primarily utilizes products that are chemically synthesized from petroleum sources and are not derived from natural/organic sources.

POSITIVE ASPECTS:

- Heavy nitrogen gives quick spring green-up and fast growth
- "icides" offer quick pest, weed & disease control

NEGATIVE ASPECTS:

- Quick nitrogen release. Much wasted fertilizer.
- Quick growth spurt causes depletion of carbohydrate reserves
- Lawn grows short roots & relies upon fertilizer to sustain itself.
- Lower soil pH forces emigration of earthworms & microbes
- No earthworms/microbes = no aeration & thatch decomp.
- Thatch accumulation strangles grass, promotes weeds
- Grass grows poorly in low pH (high acidity) soils
- EPA registration of a chemical doesn't mean it is safe
- Many fertilizer chemicals are known or possible carcinogens
- Many could also cause nervous system damage.

Chemical-FREE Lawncare/Plantcare

Of course this grouping would refer to any and all products/methods which rely on only natural and organic products that are derived from plant or animal sources and have undergone the least amount of processing necessary.

These would generally NOT contain any chemically synthesized ingredients or chemical by-products from manufacturing.

NEGATIVE ASPECTS:

- Can take a bit longer to achieve the lush, green lawn
- Difficult to completely eradicate weeds and pests

POSITIVE ASPECTS:

- Water INsolubility provides for slow release
- Lawn benefits FULLY from each fertilizer application
- No rapid growth spurt to deplete carbohydrate reserves
- Lawn remains more independent with strong root system
- Rate of aeration & decomp enhanced by adding beneficial micro-organisms.
- Little or no drop in pH (no acidity increase)

- Earthworms and micro-organisms remain to maintain soil
- Grasses thrive at neutral pH levels
- No health hazard to you, your family, friends, pets, or lawn

As I'm sure you can see, the benefits in favor of organic lawncare and plant-care measures are tremendous in comparison to the relatively dismal outlook for chemically fertilized lawns.

There is plenty of research out there supporting these claims, and my 15 years in the business have brought me nothing but further evidence for the importance of utilizing natural/organic methods for not only lawncare and plant-care, but also agriculture and health and nutrition in general.

Please continue reading and find out just how to make natural/organic lawncare/plant-care methods work for you.

Saving You Time and Money

Having an organically maintained lawn can save you both time and money. You may find that in the short run, organic methods can be more time consuming and more expensive (especially if you've used a fair amount of chemicals in the past). But, after a year or two of diligence, organic methods prove to be relatively easy, far LESS time consuming and more cost effective than chemical methods.

Here are a few basic tips that will hopefully assist you in both of these areas. The chapters that follow will go into more detail regarding these issues.

Fertilizing Your Lawn

A healthy lawn growing in well balanced soil with good levels of organic matter probably will need very little, if any, fertilizer. However, most of us do not have that kind of lawn. Most of us either inherited a lawn which was driven into the ground by a previous owner or we've inherited land that has very little going for it, and would have a hard time supporting ANY plant, much less a really nice lawn.

Of course, some of us CREATED this type of situation ourself before learning of the many hazards and problems associated with chemical lawncare practices.

More detail regarding fertilization practices will be found later in this book, but here are some basic tips to get your started:

- 1. Consider using a liquid based organic fertilizer**
- 2. Hose, sprinkler or irrigation system application means less time manually applying fertilizers**
- 3. Application directly to the leaf speeds plant response by MANY times**
- 4. Liquid organics are typically more water INSoluble - no soil leaching**
- 5. Organics have much lower nitrogen content than chemical fertilizers**
- 6. Less time and money fixing spots where nitrogen "burn" occurred.**
- 7. Slower lawn growth rate = less mowing, fewer clippings.**
- 8. Look for a "universal" all-purpose organic fertilizer for everything**
 - Save time & effort by fertilizing everything at the same time
 - Save money by only having to purchase 1 product
- 9. Pay close attention to price vs. square foot coverage**
 - Many organics are expensive and cover minimal area
 - Well priced organics with good coverage ARE available

10. Check soil pH and adjust if necessary

- Most grass grows best in a soil pH of 6.0-6.5
- Grass makes most efficient use of soil nutrients with balanced pH
- Most lawns are very acidic (low pH) from long-term chemical usage
- Consider liming to raise pH can improve fertilization results
 - **Liquid lime is faster acting than bagged**
 - **Bagged lime is longer lasting than liquid**
 - **Use both for short AND long term approach**

Cutting the Grass

A person can spend a great deal of time mowing their lawn. Although some find it enjoyable, there are many who would much rather spend that time with family or on other, more important tasks.

Utilizing some of the tips below could save you a great deal of time and money, and will make it easier to have a good looking lawn.

1. Mow your lawn in a circular or elliptical pattern spiraling inward skipping corners-get 'em later (not for those who are infatuated with straight lines - like me). The key benefits of this mowing method are:

- Never have to turn the mower around.
- Clippings are blown "inward" for better mulching.

2. Put shredded bark, mulch or ground cover around

trees, obstacles, house, etc.

- Reduces time spent weed whipping (if done right)

3. Mow lawn when it's needed, NOT when it's "Saturday"

4. Never cut of more than 40% of grass blade.

- Less stress to lawn = less disease, pests = less time and money fixing it
- Fewer clippings eliminates need to rake or catch.

5. Never cut with dull blades or when wet

- Won't tear grass - less chance for disease
- Won't take as long to cut the lawn
- Looks better

6. Let the grass grow long (2 to 3 inches)

- Long grass blades lead to deeper and stronger root systems
- Stronger root systems provide better drought resistance
- Longer grass tends to have fewer weeds

7. Get a bigger mowing deck

- A bigger deck means less time mowing

8. Get a bigger engine

- A bigger engine often means a better and faster cut

Watering the Grass

Obviously, watering your lawn can be an important step in having a good looking yard. However, you might be surprised to know that most people are "doing it wrong".

The truth is, those people who DO water their lawn, often water it far too frequently and are creating weak, irrigation dependent lawns. Here are a few tips to help you create a hearty, green, drought tolerant lawn:

1. Water your lawn infrequently - only when necessary

2. Water your lawn deeply - 20 to 30 min. or more (if drainage is good)

- Root systems will grow much deeper
- Lawn will become extremely drought tolerant

3. Never water at night - water in the morning

- Moisture won't sit overnight on grass and cause **disease**

4. Don't water in the heat of the day - water in the morning

- Mid-day heat will cause water to evaporate too quickly

Controlling Weeds

Organic weed control is actually much, much simpler than most people think. Many people mistakenly believe that the only way to keep weeds out of a lawn is to use chemical weed killers and pre-emergents. It's simply not true.

Physics Holds the Answer

You see, what many people don't understand is that true weed control is actually a very simple lesson in physics.

Now, before you are completely traumatized by vivid flashbacks of your high school physics class, you only need to remember one simple principle from physics (and if you don't remember it, I'm going to tell it to you anyway, so don't worry too much).

Physics tells us that two things cannot occupy the same space at the same time. For instance, if your dad is sitting in his favorite Lazy Boy chair watching Monday Night Football, there is NO WAY you are going to occupy that same space in that same chair at the same time as your dad. Ain't gonna happen.

The same is true of grass and weeds. If you have weeds in your lawn, that is a clear indication that you have bare spots in your lawn where there is no grass growing. You may not be able to easily see them by just looking at your lawn, but they are there. Physics tells you it's true. There's just no way to get around it. If it were not true, you would have no weeds.

What to Do About It

You've got four options. Either you let the weeds take over your lawn, you pull them all manually, you put down some sort of weed killer or pre-emergent (EVERY SEASON) to keep the weeds down OR you take the smart road and deal with your weed problem once and for all.

Well, for most of us, allowing the weeds to take over is NOT an option. We like our nice green, picture perfect lawns. Victory for the weeds? Not even a consideration.

But, pulling or raking weeds out of your lawn manually can be very tiring and time consuming. Chemical or organic weed killer or pre-emergent applications can be very costly over time.

Chemical applications are even worse because while fixing one problem they normally cause many more, not to mention being an environmental and health hazard.

So, maybe high school physics is going to come in handy after all. In fact, do me a favor. Once you utilize the methods I outline in this book to create a beautiful, healthy, non-toxic and generally weed free lawn, go back to your high school physics teacher and thank them for helping you get rid of your weeds. :-)

Some Tips to Get You Started

The following tips should help reduce the time and money you spend trying to get rid of your weeds and help you cut out the chemicals. Remember that an hour spent today is most likely 3 hours and a bundle of money saved next year.

1. Take time to overseed your lawn in the FALL

- Weeds can't grow where grass is growing
- Fall seeding avoids grass vs. weed competition of spring.
- Next spring new grass will crowd out the weeds

2. Fertilize in the fall

- Provides for a spring "boost" so grass beats the weeds

3. Mow the grass high (2 to 3 inches)

- Less sunlight reaches weed seeds so fewer will germinate
- Grass forms thicker root system - less room for weeds

4. Bag grass clippings when weeds are going to seed.

- Less weed seeds to germinate next year or later this year.

5. Keep thatch levels in check (no more than 3/8")

- Weeds grow better in heavy thatch than grass does

A healthy, full, dense lawn leaves no room for weeds. So, if you'll do what's necessary now to secure that thick, dense lawn, you won't have to worry about weeds later, saving you hundreds to thousands of dollars over the coming years.

Controlling Pests

A person could spend a great deal of money purchasing chemical insecticides to kill all of the pests in their lawn. In fact, you can even do it organically. There are plenty of organic insecticides that are very effective, non-toxic and, generally, incredibly expensive.

However, the answer to a good lawn is not to kill every insect in sight. Here are a few things to keep in mind:

1. Make sure the "pests" are really causing a problem

2. Many insects are beneficial, don't kill the "good guys"

3. Plant insecticidal flowers/plants

- Many plant flowers/leaves contain natural insecticides
- Insecticidal plants are a lasting "free" insecticide supply

4. Plant trees and shrubs for a natural bird habitat

- Birds will keep your insect populations in check

Why Bother?

You may be thinking to yourself, "I don't have time to overseed my lawn, plant flowers, put mulch around trees, etc." But, what you need to realize is that a lawn, which is cared for correctly and naturally, will eventually begin to take care of itself in many ways.

Good soil requires less fertilization, which saves time and money. Organic maintenance practices eliminate imbalances in the soil, which are the initial causes of disease, pest and stress problems in your lawn. By eliminating these causation factors, you eliminate the time and money spent dealing with these types of problems.

In the end, you have to look at the big picture. A little extra time and money spent this year will save you a great deal of time and money down the road. It's all in your perspective.

Do you NEED to have that picture perfect lawn this year, or can you wait a season or two and have it be healthy, thick, virtually weed free and safe for your kids and pets?

You can even make this a family event where everyone helps. After all, since you're using all natural, organic methods, it's completely safe for your kids to be involved. Let your kids help you protect the environment and still make your lawn look nice. It can be fun if done right. It can also be a good educational experience for your kids.

Switching Your Lawn to Organic

When switching from chemical lawncare maintenance over to organic, you should remember that problems are going to be exposed which normally would have been masked by the high nitrogen fertilizers that force major growth and dark green color.

Your lawn may not look as green and lush as it did before the switch (at least temporarily). Over a short time this will be corrected but be aware that it is a possibility.

Season One

One of the things that will be happening as you go through your first season on organics is that your lawn MAY go through "withdrawal" symptoms because of the lack of nitrogen (the intensity of withdrawal symptoms will be directly affected by the number of years you've applied chemicals, the frequency of previous chemical applications and the typical application rate and nitrogen percentage of those fertilizers).

Chemical fertilizers typically contain about 20 to 35 percent nitrogen. Organic fertilizers will be more like 4 to 10 percent. That is

a HUGE drop in nitrogen, and your lawn could go into shock if you don't compensate.

Therefore, I would suggest that for your first year of organic fertilization applications, either double the standard application rate for your chosen organic fertilizer or put down a half dose of whatever chemical fertilizer you were previously using along with one full dose of whatever organic you are switching to.

I know, you're probably saying, "I thought you were the ORGANIC guy. Now you're telling me to use chemicals?"

Well, sort of. The truth is what I'm really saying is that you need to find an alternate source of extra nitrogen for your lawn for a little while. Chemicals just happen to be an easy source.

Another easy source would be standard liquid ammonia that you can purchase down at the local grocery store (start low and work your way up, if more is needed - start at about 1/2 cup ammonia per 5,000 square feet mixed with at least a gallon of water). This is most useful if the organic fertilizer you're switching to is a liquid product (so that you can just mix the ammonia into your fertilizer mix).

If you're applying bagged organic fertilizer, then using liquid ammonia may just be a pain, since it will require a separate application.

If you don't care what your lawn looks like while you convert, don't apply any chemicals at all. As I mentioned earlier, you might get enough nitro by simply increasing the dose of your organic fertilizer or adding some liquid ammonia. Do what works for you.

Season Two

Over the next season or two, simply start cutting back on the amount of nitrogen you're applying. As the soil is built up by use of organic fertilizers and possible soil amendments, the lawn will require less and less nitrogen.

So, whether you're using chemical fertilizer, liquid ammonia or additional organic fertilizer as your source for extra nitrogen, slowly decrease the amount over a couple of seasons, until you're down to a standard organic fertilizer dose by season three.

Depending upon how long you've been using chemical fertilizer and how much you've been using, this process may take longer or may go much more quickly than is outlined above. I often recommend trying to go cold turkey and just switch the lawn directly over to a standard organic dose and just see what happens.

If all goes well and you think the lawn looks good, then you've avoided the hassle of even worrying about the additional nitrogen. If not, then you can always apply the additional nitrogen the lawn needs, if you care to. But, at least you won't be wasting your time and money applying all of that additional nitrogen if it is unnecessary.

Potential Problems

Just remember, as you go through this process of switching from chemical to natural/organic lawncare methods, there may be other problems that will need to be corrected before you will have your lawn looking its best. Fertilizer can only do so much, and organic methods tend to expose imbalances in the soil and other detrimental situations that chemical fertilizers hide (and generally make worse).

One of the main problems that may need to be dealt with is thatch. For information on identifying and solving thatch problems take a look at that chapter later on within this Book. Also, if you have thatch, it is likely that you also have soil compaction and possibly low soil pH (high acidity).

To determine if you have a compaction problem check out the aeration chapter later in this book. I show you an easy way to find out if you need to aerate to alleviate soil compaction.

As far as the soil pH is concerned, a simple soil test kit from your local hardware store or nursery will give you pH readings for your soil. Take readings from a few different locations on your property. Some areas may be more acidic than others.

For turf, anything below 6.0 is too low for good growth and greatest fertilizer effectiveness. A **lime application** can correct a low pH problem.

By following the above tips and making sure to implement a solid natural/organic lawncare program, you should be looking at a very healthy, chemical free lawn within about a season or two, maybe three if your lawn is in REALLY bad shape.

Don't get discouraged. It can take time, but it will be worth it. Feel free to e-mail me if you run into any snags along the way. I will be more than willing to make suggestions or help you through any issues you might run into - REGARDLESS of whether you choose to purchase fertilizer from me or not.

Seeding a Lawn

For lawns that are just starting out or old lawns that are looking mighty bare and/or have large numbers of weeds, seeding or overseeding the lawn is likely part of the answer. However, you have to do it right. Otherwise, you're simply wasting your time and money (which very few of us can afford to do). Follow the recommendations below for an effective and efficient seeding/overseeding procedure.

Renovation of an Already Existing Lawn:

The first thing to ask yourself when considering renovation of an already existing lawn is whether to overseed the lawn or till it all under and start fresh. That might sound extreme, but sometimes it's actually easier and much quicker to get a good looking lawn if you just start from scratch.

So, how do you decide which is the appropriate measure? Use the following as a guide:

Overseeding is appropriate if:

- 1. The lawn is very thin or has numerous bare patches.**
- 2. You have heavy weed cover, but not over 30-40%**

Start from scratch if:

- 1. There is weed infestation (50% or more weeds)**
- 2. You are not happy with the current grass type**

What is My Percentage of Weeds?

So, how do you know what the percentage of weeds is in your lawn? Here's a simple method you can use to estimate. First, put a stake in the center of a large area of your lawn. Then, use a garden hose or very long rope and make a long straight line across your lawn, that passes through/by that stake.

Then, use another garden hose or long rope to make a another long line perpendicular to the first, passing through that same point at the stake. In other words, make a big "+" sign in the middle of a large area of your lawn. Try and make the two lines about equal length.

Next, start with the toe of your right foot at the end of one of the ropes/hoses. Have a pad of paper in hand. Put two columns on the paper, one titled "weeds" and one titled "grass". At the very end of the rope (where your right toe is currently, you will see either a weed or grass. If the end of your toe is actually ON a weed, put some sort of mark in the "weed" column. If your toe is touching only grass, put a tick in the "grass" column.

Now, start walking along your rope or garden hose (try to keep all your strides pretty similar in length) and about every 3 steps take a look at the end of your toe. Again, if your toe is touching a weed, put a mark in your "weed" column. If it's touching only grass, put a mark in the "grass" column.

Continue doing this every three steps till you get to the end of your rope. If your rope isn't that long, consider making a mark after every 2 steps, or even every step. Just be consistent.

Once you've done one line, then go to the end of the other line and do it again. When you've finished, tally up how many marks you have in each column. If the two numbers are the same or your weed count is higher than your grass count, that means your weed percentage is 50% or higher, and I would consider tilling the whole thing under and starting from scratch (if that is feasible).

If your weed count is less than your grass count, then simply overseeding is probably appropriate. However, if your weed count is less, but awfully close to your grass count, you might still want to consider starting from scratch. Your call.

If you want to know the "exact" weed percentage, based upon your tally above, count up the number of weeds and the number of grass blades you came across. Add the two numbers together and divide the number of weeds by this total. Multiplying the answer by 100 will give a good estimate of the percentage of weeds in your lawn (although certain areas may, obviously, be in worse shape than others).

Other Factors to Consider in Your Decision

Bear in mind that the path you choose to take must take into account not only the condition of your lawn, but also your available funding and whatever time constraints are placed upon you.

If you do not have the time or inclination to till the lawn under, rake it out, level it off, seed it, cover it and keep it watered, and you don't have the funding to pay someone else to do it, then complete renovation of your lawn isn't really an option, even if your weed population is 75%. It just isn't going to happen.

So, be realistic. If the likelihood of you actually completing the job is really slim, don't start. Instead of completely tilling in your present lawn, just go with the overseeding procedure. It WILL work, it just

might take 3 or 4 seasons to really get you to the point where you have a nice looking lawn. But, even your short term results will be pretty impressive.

Consider that, by simply overseeding once per season and mowing and fertilizing properly, you can reduce your weed population by about 50% or more in just one season. That means, if your lawn is currently 60% weeds, by this time next year, it could be only 30% weeds.

If you choose to overseed in both the fall AND spring, then you might reduce that by another 50% or more, bringing you down to just 15% weeds in just one season. So, as you can see, you can make some VERY fast gains in weed control, if you simply remain diligent and follow the steps outlined in this book. You CAN do it. It's not that tough.

The last thought I want to leave you with is that the above weed counting procedure, as well as the seeding procedures listed below, can be utilized on your entire lawn or any part of your lawn. It makes no difference. All of the same rules apply. So, for instance, if you have a great lawn, but a particular area that has a TON of weeds, then you might consider the complete renovation option only for that area. I think you get the idea.

Keep in mind, though, that if you have one particular area that seems to be doing poorly, while the rest of your lawn looks pretty good, there is probably a reason. Try and figure out the cause of the problem and make sure this problem is addressed either before seeding or during the process in some way. Otherwise, you'll waste a lot of time and money only to end up with the same problem again in a season or two.

Overseeding Your Lawn Properly

If overseeding is appropriate and you have a high percentage of weeds and/or considerable bare area, use the procedure below at the standard amounts recommended for a NEW lawn (even though the bag will say to use less seed for an existing lawn).

In my opinion, you are wasting your time if you go with a lesser application amount (unless that's all you can afford - any overseeding is better than none). It is likely that a good portion of your seed will NOT germinate. That is simply the nature of overseeding. So, to maximize the results for your effort, I recommend using a greater amount of seed.

Overseeding is best done in the fall, when the temperatures and rainfall are moderate and there is little or no competition with weeds (most have died off by this time). If you follow the procedure recommended below, you'll get good results, and the grass will have time to grow deep enough roots to make it through the winter.

Try to do your fall overseeding once you're fairly certain that the mid/late summer "dry spell" has broken and temps have moderated a bit. However, if you wait too long, the grass may not have time to establish itself well before winter cold sets in.

If you would like to speed the process of filling in your lawn, you can also overseed in the spring. Climate conditions are normally good, but you can run into more weed competition during this period. Results for spring overseeding may not be quite as good as results from fall overseeding, but if you follow the overseeding procedure, you'll still see good results.

As with the fall application, timing is important. Too early and you might get some heavy frosts that could cause problems with germination and early growth (or the ground could still be frozen, making root development difficult). Overseed too late in the spring and weeds could have already gotten a foot-hold, stealing valuable nutrients and soil space from the new grass.

Regardless of when you seed or how much seed you end up needing to use, follow the procedure below to maximize the results of your efforts:

1. Check for low pH & apply liquid and/or bagged lime as appropriate

- Watch for stabilization of pH levels to 6.0 - 6.5

2. Mow lawn short (1/2 to 1 inch)

3. Remove as much thatch as possible

4. Pull or dig up as many weeds as possible

5. Sow seed mixture using a spreader or slit-seeder

- Make one pass with half of seed necessary
- Make a perpendicular pass with last half of seed

6. Top dress with thin layer of compost or good topsoil

7. Fertilize with low nitrogen, organic starter fertilizer

8. Water regularly but lightly (multiple times per day is

best)

9. Do not mow the lawn for 2-3 weeks if possible

A Few Notes:

Often a patchy or weedy lawn is at least partly the result of overly acidic soil. Grass does not grow well in low pH soil, but weeds will grow fine. So, you'll have spots that die out due to the poor soil conditions and then you'll have weeds begin to invade those areas. Hence, if you're overseeding to fill in those problem bare spots, it's a good idea to address the underlying cause(s) as well.

Be Sure to Address Soil pH

Since low pH is a very common cause, you should be sure to check and adjust soil pH as necessary as briefly outlined in steps 1 and 2 above. If you do not, your overseeding efforts will be much less fruitful and will only be a very temporary fix. Your new seed will not germinate and establish itself very well in this low pH soil.

That seed which **does** germinate and establish roots will have a tough time and may quickly die out, again leaving bare spots for weeds to infiltrate your lawn. Address the pH first. Then plant your seed, and you will have MUCH better results.

Seed Quality & Weed Seeds

Also, when it does come time to actually begin the overseeding process, be sure to purchase a high quality seed with very little weed seed. I would stay away from any bagged seed which lists a weed or "unknown" content over 1 to 2% (0% would be better). Also, the bag should list a percentage of noxious weed seed. If there is any percentage there besides ZERO do not buy it. Find another

brand. Noxious weed types are those that will take over your lawn, and there doesn't need to be much in there at all.

Cutting Short

The reason for cutting the lawn short is to clear the way for your seeds to reach the soil and for sunlight to reach your new seeds. If they don't get any sunlight, they will not germinate. So, cut the lawn as short as possible without completely stunting its growth or scalping the heck out of your yard. Be sure to collect the clippings, so that they do not remain lying on the grass. If you leave the clippings behind, you'll defeat the purpose of this step.

Step 3 in the list above says to remove thatch. Thatch can hinder new seeds from being able to reach the soil with their new roots. Read our detailed section on thatch later in this book to help you learn to identify true "thatch", determine how much is too much (SOME thatch is actually a good thing) and establish the best methods for thatch removal.

If pulling/digging up weeds (step 4) is simply not feasible, simply skip this step.

The Actual Seeding Process

In step 5 I recommend a spreader or split seeder for laying the seed. If you go with a "spreader", you've got the option of a drop spreader or broadcast spreader. In the past, between the two, I've recommended a drop spreader for more even distribution, but, I've since changed my mind regarding this recommendation.

Drop or Broadcast Spreader

A drop spreader will help you get a pretty even distribution of seeds. However, because they only drop seeds in a path as wide as the drop spreader, it can take a long time to seed a lawn, especially a larger lawn. In addition, in most cases, drop spreaders are "cheaper" units, not only in price, but also in quality. As a result,

they don't always “drop” seed in a uniform manner as they should.

Broadcast spreaders, on the other hand, will “fling” your seed in all directions, covering a much wider swath on each pass, making for a much quicker process, especially on larger lawns. This is a huge plus. In addition, because they “fling” the seed, the spread is very good.

In either case, if you only do one pass over the lawn, in one direction, I recommend overlapping your passes by about 50% for good, even coverage. However, if you do as I suggest and go across the lawn in parallel passes in one direction, then go over it again in passes that are perpendicular to the first time over, you shouldn't need to overlap. The second “cross-pass” should make your application very uniform. Personally, I believe this is a better option to overlapping, and will provide a final result that is more uniform.

Break the Soil

Either way, whether you use a drop spreader or broadcast spreader, you'll want to make sure that you have broken up the surface of the soil just a bit to make sure the seeds can actually reach into the soil profile a bit. Depending upon how you choose to dethatch your lawn, this might be accomplished in the dethatching process. If not, then you'll have to make sure that it's done before you seed.

Slit-Seeding

A slit-seeder is actually a better method than either a drop spreader or broadcast spreader, but will cost more since you'll likely have to rent a machine, and will take longer than a broadcast spreader.

What's nice about a slit-seeder is that it assures that your seed makes very good contact with the soil. Basically, a slit-seeder has vertical spinning blades that break through any remaining thatch and loosen the very top layer of soil. Then, it deposits the new seed at the appropriate rate directly into the newly broken up top-soil. You will likely see better germination when using a slit-seeder, so you'll have to decide if the cost of renting the seeder and the additional time necessary for application might be justified

considering the savings from higher germination rates.

Improving Seed Germination Rates

Seed germination doesn't require much nitrogen, but phosphorus and potassium can both be helpful with germination and early root growth. So, find an organic starter fertilizer that is low in nitrogen, but higher potassium and phosphorus (as is available in a bonemeal product).

Plant hormones and a good micro-nutrient balance such as is found in [kelp fertilizers](#) will also be very helpful for seed germination and early root development. Don't fertilize too heavily or frequently. Basically, ONE light fertilization when the seed is put out is all you really need until it gets established.

Seeds MUST be kept moist (but not soaked) for the best germination results. If they are allowed to dry out for too long, germination will be hampered significantly. If seeds are watered too heavily, they will either end up bunching up as water collects in low spots or they will end up molding. So, seeds should generally be watered lightly (only 3-5 minutes or so, 10 minutes at the VERY most, IF you have good draining soil).

Do this multiple times each day, maybe up to 5 or 6 times, if possible, to make sure the seeds don't dry out. Obviously, an irrigation system with a timer makes this easiest, but it can certainly be done with a hose and sprinkler, if necessary.

Avoid mowing the lawn while the new seeds are germinating and establishing themselves. Mowing the lawn will only put undue stress on the new seedlings. It won't kill you to let your lawn grow long for once.

Of course, if the lawn gets too long, you'll have to mow it, otherwise no sunlight will reach the new seedlings. So, wait 2-3 weeks, or cut once the grass gets over about 6 inches or so. If you MUST cut the grass early, try to stick to a small push mower and not a big rider lawn mower. And, again, when you DO cut that first time after

seeding, make sure you collect the clippings again.

Seeding Bare Soil

If your soil seems to be primarily made up of highly compacted clay or is a loose sandy texture, mix in a 2 in. layer of organic matter such as compost or peat moss. If you can afford to do this, it will REALLY be a help to your lawn. Use a tiller if possible to really mix this layer into the top 6 inches or so of your current soil base.

Then (do this for normal soils also):

- 1. Check for low pH & apply liquid and/or bagged lime as appropriate**
 - Watch for stabilization of pH levels to 6.0-6.5
- 2. Grade appropriately, away from house**
- 3. Sow seeds in amounts listed on the bag**
- 4. Apply appropriate amount of natural/organic "seed-starter" fertilizer.**
- 5. Lightly cover with topsoil or rake seeds into soil if already good**
- 6. Cover LIGHTLY with mulch or straw - holds in moisture**

A Couple Notes of Importance:

Many of the tips and suggestions from the "Overseeding" section apply here as well, so take a look at them and apply any that seem appropriate.

As mentioned in the overseeding section above, the use of phosphorus, potassium and plant hormones as a starter fertilizer will give much better germination results and faster root growth to your new grass. Consider **bonemeal** for phosphorus and **kelp** to supply plant hormones and micro-nutrients.

Steps 5 and 6 (the top-dressing and mulching steps) can be interchanged or combined. They both serve somewhat the same purpose. However, if you're going to do one or the other, I'd choose the mulching step over the top-dressing step. Mulching will do a better job of keeping seeds in place if there is heavy rainfall. Simple top-dressing without mulching will tend to just run off along with the seeds if you receive heavy rainfall or accidentally irrigate too heavily. That being said, for best results from your seed, I highly recommend performing BOTH steps.

Choosing the Right Grass Type

When seeding a lawn, choosing the right grass type is of critical importance. Choose the wrong type and you could easily end up with a grass that is not well suited to the conditions of your lawn or possibly requires much more maintenance than you are willing to contribute.

Another potential problem arises if you already have an established lawn and choose to overseed it. In this case, you must choose a grass type that will match up with what you already have or that will at least be compatible with it.

Choosing the wrong type in this instance could easily result in a lawn that looks blotchy and mix and match. You want a nice uniform looking lawn where individual grass types cannot easily be seen. That won't be the case if you mix two incompatible grass species. So, let's talk for a bit about how to choose the right grass seed for your lawn.

New Lawns

First, when seeding a new lawn you have the luxury of using the

exact grass types you want that will accomplish all of what you'd like to accomplish. So, do your homework and make sure that you get what you want. If you don't want to mow much, get a dwarf or semi-dwarf type grass with slow growing habits. If you have a lawn that has considerable sun AND shade, then make sure you primarily use a species that will do well in both areas. If you want a grass that doesn't require alot of irrigation, make sure you get a drought tolerant variety.

Another issue to consider is the speed of germination. If you choose all varieties that take a long time to germinate (like a Kentucky Bluegrass which can easily take 2-3 weeks to germinate), you risk the possibility that your grass seed and topsoil may wash away in a rainstorm before ever taking root. Of course, you should cover the seed with something to minimize this issue, but it's still a possibility. You really want at least one of the grass types in your mix to be one that will germinate quickly.

However, if you have one species that germinates quickly and another that germinates very slowly, make sure that your fast germinating species is an annual of some sort (especially if the quick germinating species is one that is not quite as desirable). This way, the slow germinating species gets itself established in season one and then, in season two, when the annual doesn't come back, it makes room for the slow germinating species to then fill in those areas.

This is commonly done when you want a bluegrass lawn but you're starting from seed. Since Kentucky Bluegrass takes so long to germinate, often an Annual Rye grass is added to the seed mix. Even though the Annual Rye is not a nice turfgrass species, it germinates quickly, within about a week and gives you a quick green lawn. The nicer Bluegrass takes about 3 weeks or so to really begin germinating. By then, the Annual Rye has given you a decent looking starter lawn. Next season the Annual Rye does not come back, but the Kentucky Blue spreads and fills in the bare areas left by the Annual Rye.

Overseeding an Established Lawn

In the case of overseeding, most of the same questions apply as with a new lawn, but you have some further issues to contend with. Primarily, you want to make sure that the grass type(s) you choose for the overseeding will mix well with the current grass, so that it is not obvious that you've overseeded.

Identifying Your Current Grass Type

The lawn should be uniform so that one grass type is not easily distinguishable from another. Thus, the first thing is to figure out what grass species is currently in your lawn. However, I could easily spend 20 pages or more talking about the different characteristics of the various grasses you might have in your lawn, and you still might not have all that easy of a time identifying what you've got. So, I'm going to point you to an awesome online tool for identifying turfgrass.

Purdue University has the best turfgrass identification tool I think I've ever seen. Very easy to use with excellent, detailed pictures and notes. It takes you through a series of questions where you identify what the different portions of your grass blades look like. As you answer the questions, the tool shows you a running tally at the right hand side of all the grass types that you MIGHT have. But, it ranks them in order of most likely to least likely.

In fact, it even gives you a percentage likelihood that any of those particular species are the right one. So, for instance, if you've answered all nine of your questions and 8 of your answers matched up with a Kentucky Bluegrass species, then Kentucky Bluegrass would likely show up at the top of the list along with an 89% next it, indicating that 89% (8 out of 9) of your answers match Kentucky Blue. If the next grass species in the list shows that it's only a 50% match, then there is a pretty good bet that you're dealing with Kentucky Bluegrass.

Anyway, to use the tool, go to the following link:

[Purdue University Turfgrass Identification Tool.](#)

Then, click the link at the top of the page that says "Turfgrass Identification" and start answering the questions. You might have to go out in your yard and pull some grass samples. You might even want to pull a "patch". This way, if you have multiple grass types (which most people do), you can find and identify all of them instead of just one species.

[Finding Compatible Species for Overseeding](#)

Once you've identified your grass type, you have to establish what grass type(s) are a good match for the type(s) that you already have (color and thickness of grass blade are the primary issues). Click the "List of Turfgrasses" link at the top-right of the Purdue site. Then, scroll through the list and read the brief description of each.

Those grass species that are listed near the top of the list with the highest percentages (based on your answers to the identification questions) will likely be grasses that may be compatible with what you already have, since they clearly have a lot of similar characteristics. Again, look for color and blade type to be similar for best "blending" of your lawn.

[Which Types Will Thrive In Your Environment?](#)

Once you've determined which grass types offer the right appearance characteristics, you should determine which of them will perform well considering the conditions within your lawn (sun, shade, irrigation or not, heavy traffic, etc.). Of those that are left, determine which of them possess characteristics that you find appealing (growth height, level of maintenance necessary, turf density, disease tolerance, water needs, blade thickness, tolerance for foot traffic, etc.).

Generally speaking, you don't want to mix "fat" bladed grasses with fine bladed grasses. Don't mix grasses that are very dark in color with those that are very light in color. Try not to mix grasses that

spread aggressively with those that do not (unless the aggressive species is more desirable than the less aggressive one). Eventually, the more aggressive grass will overtake the lesser and crowd it out.

Do try and mix grass species that offer differing features and drawbacks in regards to drought tolerance, foot traffic, sun, shade and fungus problems. For instance, by blending a species that does better in full sun, with one that does better in full shade, one type will be dominant in sunny areas while the other will dominate the shady areas, but neither will be completely absent from either area, making for smooth transitions between areas.

Better yet, choose a grass that handles both sun and shade well, like a turf-type tall fescue.

Try to use species that are fairly resistant to disease and fungus problems. However, if you must blend in some species that are not so resistant (in order to gain some other benefit you're looking for), then at least make sure that **some** of the species are resistant. This will slow the spread of any disease or fungus problem you might end up with in the future.

I think you see what I'm getting at. Just remember the end goal is to have a good looking, uniform lawn, with basically similar coloring and grass blade thickness throughout, a certain level of disease and drought resistance and whatever other characteristics you personally find desirable.

Don't get too wrapped up in this process. There are SOOOOOOO many different grass types out there (when you consider all of the new hybrid cultivars - which I'll discuss below) you could drive yourself crazy trying to decide.

Just do the best you can and find grasses that seem to meet as many of your criteria as possible.

Hybrid Cultivars

OK, so, as if it wasn't tough enough simply to decide upon which species of grass you want in your lawn, I'm about to tell you that

within species there can be dozens of different hybrids available, each with its own benefits and drawbacks. One species might have better drought tolerance. One might hold up to heavy foot traffic better, etc.

Hybrids are a good thing. By looking at different hybrids you will find BETTER grasses that have been designed to minimize the typical drawbacks of a particular grass species while improving upon the positive aspects of the species. However, some cultivars will be better than others for your particular area or desires for your lawn.

I suggest you check out the NTEP ([National Turfgrass Evaluation Program](#)) website to help you determine which cultivars may be best suited for what you're trying to accomplish. In fact, I'd specifically recommend that you go directly to the page which asks you where you are located geographically. By doing so, you'll get the most pertinent data to YOUR location, instead of generalized information for the entire US. Here's the link:

[NTEP Website](#)

Fertilizing a Lawn

Obviously, if you're reading this book, you are most likely trying to move away from chemicals, so some form of natural/organic fertilizer will be best. And, don't be fooled. There are products out there claiming to be organic or natural, but if you knew what was in it, you'd wonder how it was ever labeled as such.

Try to stick to products that give you a very clear idea of what is in the bag or bottle. Stay away from fertilizers that have high percentages of "inactive/inert ingredients". This is often where the deadliest chemical ingredients are found, but fertilizer manufacturers are able to hide behind the "inert ingredients" section of the label to avoid actually publishing what they put in there.

Truly natural/organic fertilizers will have little, if any, "inert ingredients". Everything in the bag or bottle will be for the purpose of building up the soil and/or improving the health of the plant you're applying it to.

How Do You Choose?

Of course, there are hundreds of natural and/or organic fertilizers on the market - maybe thousands. Fish, kelp, manure of all kinds, bat guano (which is also essentially manure), humic acid, plant meals of all kinds and many other types. Their effectiveness will vary quite a bit from one product to another. Most all of them will help you in the

LONG RUN. Nearly all of them will build up your soil profile to some extent. Question is, how long will it take and how long will it be before you actually start SEEING results in your plants and lawn.

If you perform your lawn fertilization yourself, a **liquid organic fertilizer** such as kelp (seaweed) extract, fish emulsion, or a mix of the two can save you a great deal of time and money. Other products may work as well, but much research has shown that kelp and fish fertilizers are incredibly effective for a number of reasons. The list below will give you a good indication of some of the specific benefits of fish and kelp that have been documented in numerous different studies:

- **Significantly improved drought tolerance**
- **Significantly improved frost tolerance**
- **Better resistance to fungus, disease and insect pests**
- **Increased size, number and longevity of blooms**
- **Significantly increased produce yields**
- **Sweeter fruits (higher BRIX values)**
- **Higher seed germination rates**
- **Incredible improvements in root development**
- **Increased absorption of trace elements in soil**
- **Longer shelf life for fruits & vegetables**
- **Lengthens the production season for many crops**

Of course, fish and kelp aren't a cure-all for everything, but they're probably the combination that comes closest to being the "magic fertilizer elixir". I know of far too many personal stories, both my own and from customers, of amazing results from the use of fish

and kelp. Incredible increases in crop yields. Essentially dead plants and trees revived to flourishing growth. Major reductions in pesticide and fungicide use. It's just a wonderful all-around fertilizer.

How to Reduce Organic Fertilizer Expenses

No matter what fertilizer you choose to use, it still costs money. Moreover, most organic fertilizers are more expensive than chemical fertilizers (although those price gaps are closing as petroleum [from which many chemical fertilizers are derived] prices remain quite high and are likely to go higher). Either way, any method that will reduce the amount of fertilizer you use, without causing any detrimental effects to your lawn and landscaping, will reduce your costs and is a good thing.

So, in order to help you save as much time and money as possible, here are a couple of ways to help reduce the necessity of fertilization of your lawn. One of the primary ways to reduce the necessity of fertilization is to find alternate sources of nitrogen for the lawn.

Alternative Nitrogen Sources

Leaving the clippings on the lawn (never in excessive amounts) will lessen the necessity for fertilizer. Grass clippings are a very good source of nitrogen and other nutrients for the soil as long as they break down and are recycled by the lawn.

Chemically fertilized lawns will NOT recycle clippings very effectively. Organically fertilized lawns will have much greater populations of soil microbes and earthworms which will recycle clippings and thatch (dead roots and rhizomes) and turn them into nitrogen and other nutrients for the lawn.

Clover mixed into your grass can also be a GREAT nitrogen source for your lawn. You see, since clover is a legume, it obtains nitrogen from the atmosphere and fixes it into the soil in organic forms, not only for its own use, but also for the grass growing around it. In fact,

a lawn which was just 10% clover could fix about 40 pounds of nitrogen per acre per season. That would put a pretty good dent in the amount of nitrogen your lawn would need to get from your fertilizer applications.

However, clover can be very invasive. It spreads quickly and can take over your lawn in no time. So, this can be a tough balance. Make sure your lawn is VERY full before attempting to incorporate clover as a nitrogen source. If you follow this advice, so that you don't end up with a clover lawn, this can be a very effective means of reducing nitrogen inputs that have to be purchased in the form of fertilizer.

Lime Applications ***(pH Adjustment)***

The most common use for lime applications is to raise the pH of overly acidic soil. Basically, the way the process works is that as the lime is mixed with the soil, the particles come into contact with each other. When the surface of the lime particles contacts the MOIST acidic soil particles, some of the acidity is consumed in a chemical reaction.

Of course, in order for this reaction to take place, the lime particles actually have to make contact with the acidic soil particles. Therefore, if you were to spread a dry bagged lime on an acidic soil, it would accomplish very little except to neutralize the acidity of the very top layer of soil. Only if the lime is tilled in or washed in will the acid neutralization go any deeper.

So, if you're using a bagged lime product and you're looking for quick pH adjustment, it is absolutely necessary that it be tilled into the soil.

Why is pH So Critically Important?

Low pH soil generally makes it VERY difficult for the roots of your

lawn to draw in nutrients. So, in order for your lawn to take up the maximum amount of nutrition from your soil and from the fertilizers you put down, you **MUST** neutralize your soil pH at least to the depth of your root system. Not only will this create a much better lawn, it will reduce your fertilizer expenses, since each application will be that much more effective.

Slow to Act

Most lawns have a very shallow root system of 6-8 inches or less (which is normally the result of shallow watering and chemical fertilization). But, even at this shallow depth, it can still take an entire season or more for bagged lime to wash far enough into the soil through rainfall and irrigation alone (even if heavy) to do any significant good.

So, if the only other feasible solution for getting the lime down into the soil is via rototiller (which is not really an option for most lawns), you can expect to wait at least a season or more for your liming efforts to really begin to bear fruit.

Thus, if you have low pH soil, using a bagged or granulated lime product will not likely do much for you for at least a season, meaning your efforts **THIS** season will continue to be hampered by the acidic nature of your soil. In other words, the time and money you spend on fertilizations will be somewhat wasted.

Moisture is Necessary

Remember that I said the surface of the lime particles must make contact with **MOIST** acidic soil particles. This is because the reaction that needs to take place in order to raise the pH of your soil must take place in the presence of water. Therefore, if your soil remains dry, even the soil that **IS** in contact with the lime will not be affected. The pH will remain basically the same.

So, if you're going to lime, make sure you keep the area well irrigated. Not only will this encourage the lime particles to migrate

down into the soil, it will also keep the soil moist enough for the pH reduction reaction to actually take place.

Liquid Lime - A Possible Alternative

More recently, a somewhat more convenient and much more fast acting solution has arisen. Liquid lime is basically the same as bagged (dry) lime, with two key differences. One is that the lime particles are MUCH more finely ground in a liquid lime formulation.

In fact, liquid lime particle sizes are typically about 50 microns or smaller. In contrast, about 50% of standard aglime particles will be greater than 250 microns, with approximately 10% being larger than 2000 microns.

On the whole, that means that the particles within a standard aglime product are probably, on average, about 10 times larger than those in a good quality liquid lime product. That's a HUGE difference.

The other key difference, of course, is probably obvious: it's in liquid, rather than dry form. This is why liquid lime particles have to be incredibly small - because larger lime particles would not remain in suspension with water to be applied as a liquid and because larger particles would clog and be very abrasive to spray equipment.

Benefits of LIQUID Lime vs Dry Lime

There are a number of important benefits that arise from this finely ground lime applied in a liquid format. First of all, since the particles are so much smaller, they penetrate the soil profile much more easily, so there is no need to till in a liquid lime application (making it an ideal choice for an established lawn).

Understand that soil particle sizes range from less than 2 microns (clay) all the way up to 2000 microns (very coarse sand). Silt/Loam (the "good" soil) falls in the range of 2-50 microns. Clay particles

are smaller than silt and sand particles are larger than silt (as much as 100 times larger or more!).

So, you can see that, if your soil contains any significant amount of clay, silt or fine sand, standard dry lime particles will have an incredibly hard time penetrating the soil profile without tilling because they are so much larger in size than the soil particles. On the other hand, liquid lime particles are much closer in size to the actual soil particles which allows them to very easily penetrate the soil profile.

Smaller Than They First Appear

Most liquid lime particle sizes will actually be even smaller than it might first appear. Remember that I said that the particles within a liquid lime are ALL smaller than 50 microns. This is because, often, 90-100% of liquid lime particles are ground small enough to pass through a 300 mesh screen, which requires them to be no larger than 44 microns. However, in the process of grinding the particles down to such a small size, in order to get ALL particles under the 50 micron limit, many of the particles will actually be ground much smaller than that.

As an example, consider the grinding of coffee or flour. If you've ever done this or seen it done, you'll know that very quickly SOME of the particles will achieve the size you're looking for, while most will still be too large. So, you keep grinding.

In that process, as you grind down the larger particles to the size you're looking for, the smaller particles get even smaller. This continues until you get all of the particles UNDER the size limit you're looking to achieve. Of course, in the course of all of this grinding, many of the particles in your mix will actually end up being MUCH smaller than you really need.

The same is going to be true with a liquid lime product. In order to get ALL particles small enough to pass through a 300 mesh sieve, many of them will actually end up being much, much smaller than 50 microns.

And all of that lengthy explanation was simply to point out that many of the particles in a liquid lime might actually begin approaching the size of large clay particles. Hence, without ever hauling out the rototiller, the liquid lime particles you spray on your lawn will rapidly penetrate that first 3-6 inches of soil to begin modifying the pH.

Increased Surface Area = Fast Action

In addition, for those of you who remember any of your high school mathematics, when one large object is broken into a bunch of smaller objects, the total surface area of the smaller objects is much greater than the surface area of the original, larger object.

In light of that fact, consider how I indicated that lime functions. The surface of a lime particle must make contact with the soil particles in order to neutralize the acidity. So, since a liquid lime is made up of much smaller particles, there is a much greater surface area to come into contact with soil particles and neutralize pH. Thus, the overall pH of your soil will rise quickly after the application of liquid lime.

As an example: take one of those Rubik's cubes that used to be so popular (and are making a come back). If you were to measure the actual TOTAL surface area of one of those cubes it would have been about 54 square inches (give or take a little bit).

However, when you couldn't solve the puzzle and took the thing apart (so you could put it back together in perfect order and pretend that you had solved it) you had 26 little 6 sided cubes (no actual cube in the center made it 26 instead of 27 cubes). Each cube individually had a TOTAL surface area of a bout 6 square inches. Multiply that by 26 cubes and you've got nearly 156 square inches of total surface area, compared to only 54 on the original cube.

Same principle here. With particles on average 10 times larger, the particles in an aglime will have approximately 1/3 the surface area of the particles in our liquid lime product. That fact alone accounts for a significant increase in the speed of pH adjustment as well as a

corresponding decrease in the amount of product needed.

Testing Proves the Point

In fact, testing has shown that smaller particle size does, in fact, affect a much faster pH change than larger particles can. In comparing two lime products, one in which only 20-30% of the particles passed through a 60 mesh screen and one in which 50-60% passed through, nearly double the amount of the coarser lime was required to achieve the desired pH change.

Likewise, an even courser grain lime (where only 8-20% passed through a 60 mesh screen) showed virtually no pH adjustment at all over the course of a full 18 months. So, clearly the size of the particle in the lime product makes a difference. Therefore, whether you choose a liquid or a dry lime product, try and get the finest ground particles you can.

Mesh Ratings - What Do They Mean?

The "mesh" rating, which should be listed on the bag, is what will tell you the size of the lime particles. Basically, the lime is poured through a mesh screen which has X number of holes per linear inch. The higher the number of holes per linear inch, the smaller those holes are and the smaller the lime particles must be to pass through.

So, you're looking for a high mesh number. For instance, a 60 mesh screen has 60 holes per linear inch (3600 per SQUARE inch), and a particle will generally need to be approximately 250 microns or smaller to pass through.

As I mentioned a moment ago, most liquid lime products will FULLY pass through a 300 mesh screen. In contrast, most conventional dry lime will be of a medium grind where only about 30-50% will pass through 100 mesh screen and about 50-60% will pass through a 60 mesh screen (I keep listing a "range" of percentages because the requirements in each state are different).

To pass through a 100 mesh screen, particles must be in the 150

micron range or smaller. And, as I noted a moment ago, in order to pass through a 60 mesh screen particles will be in the 250 micron range or smaller. You can purchase a more finely ground dry lime product, in which nearly all of it would pass through a 100 mesh screen, but the price will increase considerably and the amount of dust generated at application time will be much greater than the "medium" ground products (unless you purchase a "pelletized version" which is even more costly).

A Summary of Benefits

Liquid lime offers the smallest particle size with NO DUST and NO TILLING. And, since a liquid lime is applied WITH WATER, the reaction time is improved just that much more, since the soil is already moist. KEEP the soil moist and the pH adjustment you're looking for will be VERY quick.

In fact, you can expect a significant change in the pH of the first 3-6 inches of soil within just 2 weeks or so, instead of an entire season or more with most bagged lime products. That can mean the difference between having a nice, lush, good looking lawn THIS season and just starting the process by NEXT season.

Are There Any Drawbacks?

Of course, everything is not sunshine and roses. Although liquid lime products are fast acting, they are not generally as long lasting. Once the neutralization reaction occurs, the lime's value is used up. It cannot cause the reaction again. So, if something is done to the soil which will lower the pH, you would have to add more liquid lime to counteract the drop in pH.

Nevertheless, since the premise of this book is to move to more organic methods, the likelihood is that you won't be using lawncare methods that raise soil acidity (lower soil pH). Therefore, if your liquid lime application addresses your pH problem, you shouldn't have to worry about it again. Your new organic lawncare methods will maintain your neutral pH and alleviate the need to apply much, if any, more lime.

However, if there are characteristics of your lawn or soil profile which seem to cause the pH to drop continually (such as having a large concentration of pine trees in your yard or the CEC - Cation Exchange Capacity - of your soil is high, indicating it has a tendency toward low pH), the best approach may be a combined approach. Apply the liquid lime to get yourself a quick pH change. Then apply a bagged lime product to keep the pH adjusted in the long term. Or, just simply apply a liquid lime once or twice per season. After all, the application is much easier, there's no dust, no tilling and the cost is likely to be similar to dry lime anyway.

Ancillary Benefits of Liming & Alternatives

Liming can also be a good way to increase calcium and/or magnesium levels in the soil. Both nutrients are important for good crop yields and proper lawn health and color. Levels that are too low will have a negative impact on lawn/plant health. So, if soil testing indicates a deficiency of both of these nutrients, use of dolomitic lime is a good way to address the problem and increase both calcium AND magnesium levels (unless your soil pH is greater than 6.5 - 7.0, in which case lime will raise your pH too high for optimal lawn health/growth).

Because magnesium promotes chlorophyll formation and is vital to the photosynthetic process necessary to produce dark green foliage, liming your lawn in the spring (with a **dolomitic** lime) can give you a good dark green-up. However, if liming is not an option because of high pH soil, Epsom salts (hydrated magnesium sulfate) may be a good way to increase your magnesium levels and lower pH at the same time - thereby giving you that deeper green color and a more well balanced pH.

Since magnesium leaches from soil so quickly, it may be more effective, at least in the short term, to apply the Epsom Salts in a liquid solution foliarly (1-2 Tbsp per gallon of water), rather than in it's granular form. By applying foliarly, the plant can take the magnesium up directly through the leaves (or grass blade, in the case of a lawn). Thus, the plant will be able to benefit from the

magnesium application before it has an opportunity to leach from the soil. Another option for improving magnesium content in your soil without changing soil pH is a natural product called K-Mag (www.kmagnatural.com).

If your soil could use an increase in pH, but you have plenty of magnesium in the soil, you could use a calcitic lime instead of dolomitic. In this way, you increase soil pH but are only adding calcium to the soil. If your soil is low in calcium but already has a pH of 6.5 or higher, again, lime is not really an appropriate choice. You could apply gypsum or bonemeal which will provide calcium to the soil without really affecting pH much at all.

Pros/Cons of Liquid vs Bagged

I discussed the relative benefits of bagged vs liquid lime products earlier, but I'd like to offer up here a Reader's Digest version to help you decide which will serve you best in your particular situation. First, liquid lime will affect a much greater pH change in a much shorter period of time than a bagged lime can offer. Moreover, liquid lime is typically less messy to apply than a bagged lime, which generates ALOT of lime dust.

Liquid lime applications require no tilling to penetrate the soil profile. Lastly, the calcium and/or magnesium applied via a liquid lime product will be immediately available to your lawn through the grass blades themselves. If you have any calcium/magnesium deficiencies, this could be a big benefit and can provide for very quick greening of your lawn.

Liquid lime is not always the best or only choice, though. A bagged lime product, although slower to change pH and harder to apply and penetrate the soil profile, will offer a much longer term solution to pH problems. If you are utilizing a fertilizer which continually is lowering the pH of your soil (such as high nitrogen chemical fertilizers), having a dry aglime applied will help keep those pH changes in check (as long as you can get it mixed with the top 6 inches or so of your soil).

Likewise, if you have certain conditions in your yard/soil which seem to cause your pH to drop continually, a long lasting bagged lime product may be a good solution.

Cutting Your Grass the “Right” Way

Most homeowners (and many "professional" lawncare services) either don't realize or just don't care just how much damage is done to a lawn via improper mowing methods. I constantly see lawncare companies mowing lawns in the rain, or just after a rain, when the grass is still wet. What a terrible thing to do to a lawn. That's just asking for disease and fungus problems.

Or consider when the last time was that you sharpened (or had someone else sharpen) your mower blades. For many homeowners it has been years. This too is an excellent way to breed fungus and disease problems in your lawn.

Blades should be as sharp as possible. Ideally, have 2 or 3 sets of mower blades and always have at least one or two of them sharpened and ready to swap out with the blades that are currently on the mower. That way you can take the blades in to the hardware store to be sharpened and won't have to worry about when you'll get them back to do the next mowing.

Selecting a Mower

Another consideration when mowing the lawn is what type of mower to use. If you have a small lawn, consider a reel mower. The newer reel mowers are actually quite nice and will give an excellent cut. The blades on a reel mower are self-sharpening, so you never have to take them in for sharpening.

Since the blades on a reel mower turn as a result of pushing the mower forward, no gas, oil or electricity is needed. That means no extra money spent on these items. You'll never have to work on the engine on a reel mower, since it won't have one. That also means no exhaust fumes to contaminate the air you breath. Moreover, use of a reel mower is good exercise, since it won't be self propelled.

Now, if you have a larger lawn, use of a reel mower that requires manual pushing is really not going to be feasible. In addition, gas powered reel mowers are typically only available as a large rider as used by golf courses. Not financially feasible. So, you're left with a standard type mower with the single or multiple, rotating blades, like most of us are used to.

Push, Walk, Tow, Sit ...

The question then becomes: push mower or rider, rider or commercial walk-behind, walk-behind or zero-turn rider? These are all valid questions, best answered by determining your financial budget and what you want out of your mower.

Push Mower

Obviously, a push mower will have the smallest deck and the smallest engine. That means it will take longest to mow your lawn as compared to the other options. But, it will also cost considerably less.

I do, at least, recommend that, if you're going to get a push mower, purchase one with a minimum 4 hp engine. Also, get a mower that will truly mulch the grass. If you're following the organic methods

laid out in this book, leaving the grass clippings on the lawn as mulch will be a very positive thing for the lawn and WILL NOT cause thatch build-up.

Riding Lawn Mower

The rider, of course, is a nice option if your lawn is very large and you don't have the inclination to walk the entire time you're mowing. It will have a larger deck than the push mower, which means the mowing will go much quicker.

The obvious drawback is the price. Expect to pay AT LEAST 3-4 times what you'd pay for a **really good** push mower to purchase even a minimal rider mower. Consider a used model, but be careful. Homeowners often don't care for their lawncare equipment very well, and riding lawn mowers designed for homeowner use are not always built all that well.

Walk-behind

A walk-behind is nice because the deck is typically as large or larger than your standard homeowner rider, so mowing goes much more quickly. Most walk behinds these days offer a hydrostatic drive, which simply means that the wheels are run completely independent of each other. One can run forward while the other is running in reverse. This allows for VERY tight turns and easy maneuvering.

Also, walk-behinds are designed so that you can attach a little "wagon" behind that you can either stand or sit on, if you like. So, you don't have to walk behind a walk-behind mower, you can let it "tow" you around the yard.

One thing to think about when considering purchasing a walk-behind mower is the size of the deck. Most range from 36" to 60 or 62". That's a HUGE difference and can cut lawn mowing times basically in half. Consider what your time is worth and whether you can afford the upgrade to the larger deck.

However, if you DO go to a larger deck, make sure you also get a larger engine. Most smaller deck models will have a 12 or 14 hp

engine. That's enough for a small deck mower (36" to 48" at the most), but possibly not enough if you attach a pull behind wagon (called a velke or sulky). Quite certainly an engine of that size is not large enough for a 50" or 60" mower deck, especially if you plan on getting a velke or sulky for it. Opt for at least a 16, if not an 18 hp engine.

Zero-Turn Rider

Of course, the last alternative I mentioned was a zero-turn rider. This is basically a walk behind mower that is designed with a seat ON the mower. These are incredibly fun to drive and can really "move out" so you can cut ALOT of grass with these in a hurry.

They have the same type of hydrostatic drive as the more expensive walk-behind models do, so they turn on a dime. The largest drawback is price. These mowers will cost you as much as a small car. So, for most homeowners, these would not be a feasible choice. However, you can sometimes find a good deal on a used model.

With both the walk-behinds and zero-turn riders, look for the commercial grade models designed for lawn professionals. They'll last you the rest of your life and then some. You get what you pay for.

The best bet is to look for a used model being sold by a lawncare company but still in decent shape. Since these mowers are designed to take some major abuse, most of the time there is still considerable life left in the unit when it is sold by a lawncare company. You'll probably save at least half the price of the mower by purchasing a used commercial mower as opposed to new.

Useful Mowing Tips

No matter what type of mower you decide on, the following tips will make sure that you're lawn is getting the best treatment possible, for the best possible result:

1. Start cutting early in the season. By cutting the lawn before it actually turns green and begins growing you clip off the old dead tips and give the lawn its cue to start growing. The sooner you get the lawn growing the better you can crowd out the weeds before they start.
2. Cut on a consistent basis. Normally weekly mowing is the rule, but some lawns need cutting more often. Other lawns will grow more slowly and might need cutting only once every ten days or two weeks.

Generally, don't cut off more than one third of a blade of grass. Any more than that may harm the grass. So, if you like your lawn at 2 inches, make sure that you cut it when it gets to about 3 inches. Let the length of the lawn be the judge, NOT when the last mowing was.

3. Always have sharp blades. Dull mower blades tend to rip the blades of grass as opposed to cutting them. Every torn blade is an opening for disease and causes stress to the lawn. Mowing a lawn when it is wet tends to cause the same problem, so try to avoid it if possible.
4. Never mow in the same direction for more than three weeks straight (preferably no more than two). If you do, you can end up with ruts, and the grass will begin to lean over (making it difficult to get a good cut). Try cutting perpendicularly or diagonally occasionally.
5. Let it grow! The longer you let your lawn grow (speaking in terms of length, not necessarily time) the longer your lawn's root system will grow. The longer the root system, the healthier and more stress resistant your lawn will be. AND, the more stress and drought resistant your lawn, the less watering that has to be done.

In addition, tests have shown that letting the lawn grow to lengths of 2" or better reduce the number of weeds in the lawn by reducing the amount of sunlight that reaches weed seeds. This is especially true of crabgrass. Longer blades also have more surface area available for

photosynthesis, which produces life-giving food and energy for the lawn.

6. To save some time and effort you may want to consider planting groundcover or putting in some mulched beds around trees and in areas that would otherwise have to be weed whipped.
7. As long as you have a healthy lawn already and no problems with thatch, feel free to leave the clippings when you mow. Mulching is good, but it is not a necessity. As long as the clippings are not excessive, they will not harm your lawn.

If your soil is well balanced and has plenty of earthworms and microorganisms, the clippings will break down within a short period of time and will provide nitrogen to your lawn.

NOTE: If you are currently using chemicals or have within the not so distant past, it is likely that your soil is very acidic and has few of the aerobes and earthworms that are necessary for the break down of dead roots and clippings.

8. For the last cut of the season, make it a short one. Cut it to about 1". Also, make certain to collect the clippings on the last mowing. These clippings most likely would not be broken down before cold weather moves in.

Long grass and old clippings in the lawn can be the perfect breeding ground for disease and fungus at the start of the next season-especially snow mold.

Proper Watering Techniques

If you don't water your lawn correctly, everything else you do will be less effective. Proper moisture is critical to good lawn health. Improper watering is many times the cause of numerous diseases in peoples' lawns and/or an incredibly shallow root system which makes a lawn very weak and susceptible to stress. However, it's easy to make sure you don't fall into that trap. Just follow these simple rules.

1. Whenever possible, water in the morning as opposed to watering at night. Watering at night can create a perfect breeding ground for disease and fungus by way of standing water.

Watering in the middle of the day (especially on hot, sunny days) will do little good because the water begins to burn off before it really gets a chance to soak in. Also, for broadleaf plants in a garden or flowerbed, watering under excessive sunshine can cause the leaves to "burn" as result of sunlight being intensified by water drops.

By watering in the early morning, the water has plenty of time to soak into the soil before burning off. Then,

standing water and the water droplets on the actual grass blades will evaporate as temperatures begin to rise.

2. Water deeply! This is probably one of the most important tips in regard to watering. It doesn't matter whether you are watering your lawn, your vegetable garden or your landscaping. Always water deeply.

By watering for as long as possible at each watering and then extending the periods between waterings, you are allowing the water to soak more deeply into the soil which encourages deep root growth. This, in turn, helps the plant sustain itself through times of drought and gives it a better chance to absorb more of the nutrients that it needs for survival.

I would suggest watering for as long as you can without causing standing water or erosion of any soil. The longer you are able to water each time, the longer you can extend the interval between waterings. You're actually best off waiting to water until the lawn actually begins to show signs that it NEEDS water. Don't wait until it actually starts turning brown, but wait until you just begin to notice that grass blades aren't feeling quite as soft as usual.

Of course, with landscaping and fruit/vegetable gardens it is probably preferable to water a little more often. From gardens, you're looking for good production from all of your plants, so optimum water levels will be important. If you allow the plant to begin to LOOK like it needs water, you'll likely be stunting produce production. So, use good judgment here.

But, for a lawn, if you will follow this regimen of waiting as long as possible between waterings and then watering for as long as possible without creating standing water, you'll be amazed at how much you can improve your lawn's drought tolerance capability for future seasons.

3. If you have just planted new seed and there is much bare

soil, water less deeply and much more often (especially if you planted in the heat of summer - which I don't recommend). You might wish to water for only 5 minutes each time, but 3 to 6 times per day. You must keep the soil and the seeds moist without causing run-off or standing water. Again, use good judgment.

Thatch Control

Methods

Thatch build-up can be a serious problem in a lawn, but, unfortunately, most people, even many lawncare "professionals" don't know what thatch really is and/or don't know where it really comes from. Let's establish the basics first.

What IS Thatch?

Thatch is a layer of dead organic mater at the surface of the soil and at the base of the grass plant. This layer is made up of dead roots, rhizomes, tillers and "some" lawn clippings, which have not been broken down.

How Thick Should It Be?

A thatch layer, which is greater than about 1/4" to 3/8", is too much and should be dealt with appropriately. However, thatch can be beneficial if it less than a 3/8" as it holds moisture in the soil. However, once the thatch later reaches about 3/8" or more, it begins to be a problem.

This thick layer of dead material keeps valuable water and nutrients from ever reaching the soil. In addition, it is the perfect breeding ground for disease and pests that will harm the lawn even further.

How to Check for Thatch?

You can check your thatch layer thickness by pulling up a section of sod or taking a core sample. Look right at the base of the grass blades where they come to meet the soil.

You will see a brown matted section of dead organic mater. This is thatch. You will know that you have a serious problem if you see very few live roots extending beyond this layer and if the sod pulls up fairly easily in a nice uniform strip.

Or course, if the thatch layer is over 3/8" thick but the roots are decent, be happy - but take care of the thatch problem.

Dead “Clippings” Are NOT Thatch

Contrary to what some may tell you, thatch is not directly caused by leaving clippings on the lawn. As I mentioned earlier, thatch is primarily made up of dead roots and rhizomes/tillers (side shoots that run along the surface or just below the surface of the soil and send up new grass shoots).

Grass clippings can become a problem, but this is really not thatch. Either way, though, if you have a healthy lawn and well-balanced soil, with plenty of earthworms and microbes to break down all of this dead matter, dead roots, rhizomes and grass clippings will not be a problem.

When does it become a problem? When you begin using chemical fertilizers and pesticides, herbicides, fungicides ... well, you get the picture. These products, although they *may* provide a quick fix to aesthetic problems in your lawn, will certainly cause even greater "behind the scenes" damage that will lead to even more damaging problems in the future.

Why Do Chemicals Encourage Thatch Build-up?

One problem caused by chemical applications is a rise in soil acidity. Even if the chemicals themselves don't directly kill off or push out any beneficial insects, micro-organisms and/or earthworms (and most of them do), the high acidity levels of the soil will push them out anyway.

Most of these little helpers like pH levels near neutral. Without these helpers, dead roots, rhizomes and clippings cannot break down efficiently, and thatch and dead grass buildup occurs.

Moreover, without earthworms and soil aerobes, aeration of the soil comes to a halt, resulting in compaction of the soil. Most plants - besides weeds - do not grow well in compacted soils.

In addition, without the breakdown of the dead organic materials, many of the nutrients that the lawn needs are not being returned to the soil. In short, the lawn is slowly dying. The soil is being depleted. The beneficial organisms that keep things running smoothly are being crowded out.

How to Fix a Thatch Problem

So, now that you're completely depressed, how do you fix it? Well, there are a couple of methods you can use:

1. The old fashioned way to eliminate thatch is to rake it out or use a dethatching machine or verticutter to slash it out and rip it up. This is still a viable solution, but keep in mind that this causes a certain amount of stress to a lawn that may not be completely necessary.

Also, the factors that caused the thatch build-up in the first place must be taken care of. This means eliminating chemical applications and probably adding a lime application to raise the pH levels back to normal. If this is not done, the thatch will simply return, necessitating the very same procedure all over again.

2. You could instead use a liquid dethatching application which is easy to apply and may even be cheaper than renting a dethatching machine or hiring someone to do it for you. It also causes much less stress to the lawn. Basically, it works by adding back those helpful micro-organisms that were missing in the first place (but in EXTREMELY high numbers).

The idea, of course, is that these "little helpers" will breakdown the excess thatch and hopefully remain in the soil to make sure you don't have this problem all over again. Of course, if you continue to use chemicals, and don't address underlying pH problems and such, this will do you very little good.

There is a product sold by Outsidepride.com called LazyMan which is said to remove thatch from your lawn. There are also many others. The LazyMan product can be had from the following website address: www.OutsidePride.com. I should be clear to indicate that I have not utilized this particular product, but the principle behind it is sound, and there are many who indicate excellent results with such products.

If you do choose to utilize a liquid dethatching solution, first you should try and rake out any LOOSE, dead clippings from the lawn. Don't break your back doing it. You're not trying to rake out everything, just what comes up really easily. If you have a really large area, you could use a pull behind tine rake or a walk behind type tine rake from a rental place. In this way, you allow the dethatching solution to focus on only the dead stuff that you can't easily remove manually.

You might also choose to aerate beforehand since this really should be done with either method to alleviate soil compaction concerns (I highly recommend this approach). Once this is done, just apply the liquid dethatcher at the recommended dosage and intervals and let it go to work. You can read more about soil aeration in the following chapter.

Proper Aeration Methods

Compacted soil is a problem which can have a significant effect on the health of your lawn. Grass simply doesn't grow well in compacted soil. Grass roots do not penetrate into heavily compacted soil very well, so roots remain shallow and spreading (filling-in) of the lawn doesn't occur either, so grass will remain thin and patchy. Water and fertilizer do not penetrate compacted soils very well, so critical moisture and nutrients do not make it to grass root systems.

Typically, soil compaction occurs as a result of chemical fertilizer and pesticide applications which kill off beneficial microbes and earthworms due to their chemical toxicity. Moreover, because these lawncare products raise soil acidity, they make the soil inhospitable to these beneficial little guys - meaning the populations that were killed off will not be replenished until soil acidity levels drop back to neutral.

Of course, there are times and situations in which a person can be doing everything right, but aeration is still necessary. The most common case would be when those people happen to have soil with very high clay content. Since clay is made up of MUCH smaller soil particles, it is a heavily compacted type soil which must be aerated

if an individual hopes to have any chance of growing a decent lawn.

So, as you can see, anyone can have compacted soil and addressing soil compaction can be a huge step toward improving the results of most anything else you do to improve your lawn. One way to accomplish this is via core aeration. But, before going that route, save yourself some time and/or money and make sure that aeration is needed before you hire someone in or go rent a core aerating machine.

The easiest way to check for soil compaction (and, therefore, the need for core aeration) is to get a medium size screwdriver (with about a 6" metal shaft - not including the handle). Take it out to a few different areas in your lawn. Then, try pushing the screwdriver into the ground up to the handle. If this can be done without significant pressure, you probably don't need to aerate. However, if it takes considerable effort to get the screwdriver into the soil up to the handle or you simply can't do it, there is a pretty good chance that core aeration would be helpful.

Core Aeration

If you find that lawn aeration is necessary, core aeration is the best method. There are other options, I'm not sure I would recommend them. Spike aeration is a popular method. Many people will purchase special shoes with long spikes on them and walk around their lawn putting a bunch of little holes in the ground.

This method really won't accomplish much. First, it won't take long for those holes to simply fill back in. Second, the soil around the newly created holes simply becomes more compact to make room for the soil that was displaced in the creation of each of those little holes.

Another reason you might want to consider core aeration is that it can be helpful before top-dressing a lawn. When top-dressing, the main objective is to get a good topsoil (or maybe some compost or sand) mixed into the top 3-6" of soil so as to break things up and possibly provide some of the beneficial nutrients and organisms

which the soil may be lacking.

In light of this, it seems obvious that aerating beforehand would provide much better conditions for this soil mixing to take place since there will be holes for the top-dressing material to drop into. In this case, as well as when compaction is severe, it may be beneficial to aerate in two directions (perpendicular to one another) for the greatest effect.

NOTE: When performing core aeration, don't worry about raking up the cores. Let them sit on the lawn and dry out (unless you absolutely can't stand the mess). When you mow the next time, you'll break up most of it, and nature will do the rest over a short period of time.

Slitting/Verticutting

Slitting or verticutting is OK too. It has the side benefit of dethatching the lawn as well. And, since thatch accumulation is common on compacted lawns, you can sort of kill two birds with one stone, so to speak. However, keep in mind that slitting also causes stress to a lawn by ripping through the sod. It can take awhile for the lawn to begin looking good again afterward, but it will do a good job of aerating and dethatching the lawn.

Liquid Solutions

Another option if you need aerate AND dethatch is to use a core aerator or verticutter and then apply a good liquid organic dethatching solution as mentioned in the thatch chapter. The core aeration or verticutting offer the side benefit of helping the dethatching solution to penetrate the thatch layer better so that it is even more effective.

In fact, there is actually a company that offers both products and a great deal of test study data to show it's efficacy. The brand name is "LazyMan" which is an appropriate name considering the ease with which the products are applied. OutsidePride is the company that

markets these two impressive products as well as others.

Their liquid aerator has been proven via a number of different testing procedures to significantly increase soil aeration properties and it is not all that incredibly expensive - considering the cost of renting a core aerator.

One gallon treats approximately an acre and the price is about \$60. Not bad considering that you'd probably have to rent a core aerator for an entire day to do a full acre (at a cost probably double that of the LazyMan product) not to mention having to find a family member willing to actually spend the whole day walking behind the thing.

Better yet, nobody will even know that you've applied the LazyMan product to your lawn (until they start seeing the positive effects of the soil aeration, that is). But, if you were to use a core aerator or verticutter, then you've got all the mess to contend with (fairly labor intensive). For me, the LazyMan liquid aerator sounds like a MUCH better deal.

And that's not all!! If you act within the next ... (sorry, couldn't resist). Anyway, I mentioned that they also offer a liquid dethatching solution. They indicate that research has shown that this product reduces thatch by 50% in as little as three applications - spaced about 4 weeks apart.

Of course, the first thing I noticed was there were no links to research data for this product, whereas there was substantial research data listed for the aeration product. So, do with that what you will.

In addition, that means 3 months to reduce thatch by 50%. Of course, that also means minimal effort to reduce thatch by 50%, so I guess you can look at it both ways. Mechanical dethatching will be more of a quick fix. The liquid dethatching will be more of an easy fix. My best suggestion would actually be to perform mechanical dethatching and then spray on the liquid dethatching solution as more of a long term fix.

Since the liquid dethatching solution works by adding a super concentrated solution of beneficial micro-organisms that feed on thatch, as long as you are sure to avoid chemical applications afterward and maintain neutral pH, those micro-organisms should remain to keep thatch in check long after you've completed the mechanical dethatching procedure.

One other note of importance regarding these two liquid solutions is that I cannot guarantee you of just how natural the liquid aeration product is. Based upon the description of the product, I would expect it to have significantly less negative effect on soil chemistry and soil organisms than chemical fertilizers and such, but I cannot guarantee that. Of course, as long as you are moving to organic methods, you shouldn't have to do it again. It should be a one time process.

In the end, you've got numerous different methods available to you for aeration and dethatching. If you really want to stick with a method that is certain not to introduce any chemicals to the soil, mechanical aeration and dethatching methods are probably the way to go. If you're looking to expend the least amount of effort, the liquid products are probably the way to go. You'll have to decide what is most important to you and how much time and money you can afford to spend on the project.

Pest Control Methods

For gardeners, farmers and landscapers alike, pest control can be a very troublesome issue. Many times the only alternatives seem to be to spray hazardous chemicals everywhere you see the little buggers in the hopes that you will kill them off.

Unfortunately, in the process, you end up hurting not only the pests, but also the beneficial organisms that you should be encouraging. Moreover - and I am happy to say this till I'm blue in the face - many chemical pesticides can cause serious medical problems for family members and pets if used on a continuous basis or in large enough quantities.

Why take chances? By utilizing organic plant/lawncare methods, you can maintain a comparable level of pest control, while achieving better plant/lawn health and, just as importantly, a much lower level of health risk.

With a solid understanding of basic organic growing methods, anyone can grow a healthy, organic lawn or garden. The recommendations below are for some of the more common pests that almost everyone seems to face in their lawn at one time or another. But, there are certainly many others that you may end up

dealing with which are not discussed here.

Primarily, there are four methods of controlling any of these insect pests:

- 1. Encourage natural predators for the pests you're dealing with by creating a positive habitat for those predators.**
- 2. Plant flowers, shrubs and herbs that have natural insecticidal properties or that act as a natural deterrent to insect pests.**
- 3. Raise the Brix value of the grass or plant.**
- 4. Apply natural (and, hopefully, selective) pesticides to kill the undesirable insects.**

Method #1 often comes down to planting certain plants, trees and/or shrubs in your yard in order to encourage the presence of birds (which eat a lot of insects) and certain predatory insects that will eat the insect pests you might be dealing with.

Method #2 recognizes that there are certain plants which act as a natural insecticidal or at the very least a strong deterrent to many insect pests. Purposely locating these plants in strategic locations around your yard can do wonders to alleviate insect pest problems.

However, an entire book could be devoted to this subject. I suggest that if you have particular insect pests in your yard, do a little online research or ask your local nursery if they know of any plants that might be of benefit in this area.

Methods 3 and 4 are the simplest, although many people don't know what Brix is and those who do often don't realize how easily it can be increased. Moreover, even those who have a basic understanding of the importance of Brix tend to focus on the value of Brix for fruit and vegetable production while ignoring its value in

measuring the health of other types of plants such as grasses, flowers, shrubs, herbs and trees. In truth, Brix is as important to lawncare as to the growing of strawberries.

In fact, this section of this ebook is probably the most important information you will read in this entire book, although it may not seem so on the surface. I encourage you to read this entire section, even though it may at first seem like a diversion from our primary topic of organic lawncare. I assure you that by the time you get to the end of this section, you'll wonder why nobody else has ever given you this critically important information.

So, What Exactly IS Brix?

Well, often Brix is referred to as the "sugar" or sucrose content of a plant or the produce from it, but this is a very simplistic and incomplete view of Brix. In actuality, Brix refers to the total soluble solids (TSS) in the juice of the produce or sap of the plant. Total soluble solids refers not only to sucrose (sugar) but also to fructose, vitamins, minerals, amino acids, proteins, hormones, and other solids found in the plant, fruit or vegetable.

The higher the TSS or Brix value, the healthier and more nutrient/mineral rich the plant is. Thus, as relates to farming and gardening, the produce from high Brix plants will also be high Brix and will offer the greatest nutritional and "energy" value to the one eating that produce. Thus, animals and humans will receive the greatest health benefit from fruits and vegetables having the highest Brix values (and from the meat of animals that have eaten grasses of the highest Brix value).

How Does a High Brix Help Me With My Lawn?

Why should you care about Brix values, outside of the fact that this information might be useful in making decisions regarding your eating habits? Why does this have any relevance to your organic lawncare practices? Well, bear with me for just a moment longer, and I think you'll see how this relates to insect control in your lawn

and landscaping.

God's Design

You see, although God might not be up there "scoring" the nutritional value of plants and produce with a Brix value, He certainly understands that we will receive the greatest health benefit from plants and produce that contain the greatest concentration of nutrients. After all, that IS the way He designed it.

As a result, since He has our best interests in mind, He would want us eating those plants and produce with the highest Brix value and not those of questionable nutritional value (low Brix). Consequently, He built into this whole process an interesting mechanism: Insect Infestation.

Anatomy of an Insect

Now, I'm going to digress for just a short moment to talk about an insect's digestive system, but we'll get back to our primary discussion VERY quickly. You see, in order to properly digest sugar, one must have a liver. God did not design most insects with a liver or similar sugar processing mechanism, and, although there may be other reasons that He chose to leave this little item out of the anatomy of most bugs, one that is particularly helpful to those of us humans is that a liver is necessary to digest sugar.

So, if an insect, which does not have a liver, ingests sugar, that sugar will eventually turn to alcohol and kill the insect. Interestingly enough, insects "know" this, and plants with high Brix value (and, as a result, high sugar content) will emit different UV light patterns and electrical charges which communicate to insects that they should stay away.

Don't Eat the "Infested" Food

This SHOULD be helpful to us because, IF we paid attention, the presence of an insect infestation would be a clear indication that eating of that particular plant (or the produce of it) would be of

minimal nutritional value. Therefore, simple self-preservation would cause us to either fortify that plant with what it is lacking (good nutrition) or look elsewhere for NON-bug infested (high Brix) plants and produce that would fulfill our nutritional needs.

Unfortunately, it has become the norm to ignore those warning signs and simply kill off all the bugs - either with some toxic chemical or with some natural alternative. Of course, of those two options, the natural insecticide is certainly the better option, but it still does not address the central problem of this situation. The bugs are there for a reason. The plant is not healthy.

Make the plant healthy and the sugar content of the plant will rise, the insects will move on to a more attractive food source, and we will have a nutritious and tasty little treat to snack on (high Brix fruits and vegetables actually DO have much better taste than those of lower Brix value).

So, again you might ask (possibly in a somewhat irritated tone at this point), "Why on earth do I care about the eating habits of insects and the nutritional value of produce when I got this book to help me take care of my lawn?"

I'm glad you asked because everything is about to become crystal clear (assuming you haven't figured it out already).

Grass Has a Brix Value Too

As I mentioned earlier, we can measure the Brix value of ANY plant and it provides the same information to us regardless of what plant it is. The higher the Brix value, the healthier the plant. The higher the Brix value, the higher the sugar content. So, the higher the Brix value of your grass, the more likely it is that insects will not be feasting on your blue ribbon lawn (or, if they do, they'll die trying).

In fact, a Brix value of 12 or higher is all it takes to nearly eliminate insect infestation of any plant, including a lawn. The higher the better. Brix values for many plants can actually reach values well over 20 or 30. Some suggest that REALLY good nutrition of a plant

can actually raise Brix values into the hundreds, although most people wouldn't consider this realistic, at least with soil depletion being what it is today.

How to Raise Brix Values

Most grasses and plants have such low Brix value (typically no greater than about 6 or 8 and often much lower) that insects will feed on them all day long (not to mention that, if they are edible plants, their nutritional value to us is about nil). Fortunately, raising the Brix of a plant is really quite simple. Provide good nutrition, including a balanced diet of macro and micro-nutrients and trace elements.

How do you do that? Well, organic lawncare and gardening are a great start since truly natural, organic fertilizers and soil amendments will provide much better nutrition to any plant than chemical fertilizers will.

Some fertilizers will raise Brix values more effectively than others. For instance, kelp fertilizers are probably the most effective means to improving the overall nutrition of any plant (and, therefore, the Brix value) because most kelp fertilizers are made from Kelp grown in VERY cold, virtually toxin free and nutrient dense waters, such as the North Atlantic.

Since kelp is a plant itself, the macro and micro nutrients it provides are completely balanced and easily available to a plant. Thus, the addition of kelp to any fertilization program is probably the easiest way to increase the Brix value of that plant, which includes grass.

So, adding regular doses of kelp to your lawncare and landscaping fertilization program will increase the Brix of your grass and plants. The higher that Brix value gets, the less insect problems you will have.

Accordingly, I am recommending to you that, if you have any sort of insect problem, it is a FACT that your lawn (or flower or tree or shrub or garden) is receiving very poor nutrition, and is, therefore,

very sickly, even if it doesn't necessarily LOOK sick at this particular moment. Improve the nutrition the plant is receiving and the bugs will move elsewhere. I promise.

The Last Resort

Of course, if your lawn or garden is already infested with bugs of one type or another, you may not have time to wait for a rise in Brix. Waiting could mean dire consequences for your lawn. You've got to get rid of the bugs quickly.

One option would be to put down a liquid kelp type product, which can raise Brix very quickly, because the plant gains the well balanced nutrition it needs directly through the leaves of the plant. In fact, studies have shown that when natural fertilizers are applied foliarly, internal plant tissues show an appreciable rise in nutrient levels within just minutes. Now, that doesn't necessarily mean you're going to be able to raise the Brix value 10 points in 10 minutes, but it DOES mean that plant health can be improved considerably in a very short period of time.

Alternatively, you could try method #4 and put down a natural insecticide of some sort. Of course, one of the nice things about natural insecticides is that they are typically non-toxic to animals and people. Moreover, most of them are designed to be pretty selective, meaning they will only kill the bug(s) you are actually trying to kill, and not the beneficial insects that may be keeping other pest populations in check.

So, if you end up having to use a natural insecticide, at least you can be pretty sure there will be no toxic side effects and you'll maintain your beneficial insect populations (like ladybugs and such).

However, the biggest drawback to natural insecticides/pesticides is that they are typically incredibly expensive. So, if you don't need to kill the pests immediately, consider pest control methods 1 through 3 before resorting to method 4. Or, at least try and combine the approaches. Maybe choose a natural insecticide for a short-term,

immediate fix this season and then try and utilize some strategic planting and nutritional supplementation for a more long-term correction of the problem.

Controls for Common Pests

The previous discussion is a generalized one which can and should be applied to any insect problem you run into. Of course, make sure the insect you're dealing with is actually a problem. Some insects can actually be beneficial in your lawn or garden. Killing them could end up causing you far more trouble than you bargained for. So, make sure that the bug is actually a pest.

Beyond that, once you've established that you actually have a problem, the methods outlined in the previous section should help you get just about any insect problem under control. The sections below are designed to be a supplement to the above methods, either because they discuss NON-insect pests or because they are VERY common pests and there are some pretty standard solutions available for dealing with them.

Controlling MOLES

Moles and grubs go somewhat hand in hand. Therefore, sometimes getting rid of the grubs will eventually end your mole problem. Keep in mind, however, that more recently it is being said that earthworms are also a major food source for moles. Thus, in lawns

with very good soil (and, hence, many earthworms), getting rid of the grubs may not do the trick, and you certainly don't want to try to rid yourself of those precious earthworms that do so much for your soil.

Castor Oil

So, you may want to try a particular castor oil remedy if the little buggers are making a mess of your lawn. Mix 6 ounces of castor oil, 2 tablespoons of dishwashing liquid and 1 gallon of water. This will be your concentrated solution. Take this and mix it at a rate of 1 ounce to 1 gallon of water. This amount should treat about 300 square feet.

Water your lawn or garden really well before applying the solution. After applying the solution water it again, very heavily. What this does is help the solution penetrate the soil profile so that it will actually reach the moles where they are. If it remains on the surface, the moles won't even notice.

This treatment should be very effective and should last for about one to three months - maybe longer. It will probably be most effective on soil plots that are organically maintained, but will also be useful in soils which have previously been chemically maintained.

It is best to do this method one section of your lawn at a time. Push the moles out of one area, then push them further, then further until, eventually, there is nowhere left in the lawn that is "safe" from the castor oil solution.

This is best because, if you spray the entire plot at once, you basically just make them crazy. They don't know where to go and just make a mess of the lawn trying to find "a way out". Instead, push them to the "way out" one section at a time.

If and when you notice the moles returning, simply apply the solution again. It is completely non-toxic, so you don't have to worry about using too much over too short of a time frame. And, if you're

concerned about getting the mix ratio wrong or would like a dry product to put down which will accomplish the same goal, you can purchase the commercial product from Gardener's Supply Company.

Poison Worms

Another, more recent, option for killing moles is a little poison, fake worm that you place in an active mole tunnel. Once placed in the tunnel, moles have a very difficult time distinguishing between this fake worm and a real one. So, they eat it. Of course, then the poison does it's thing and kills the mole. All reports I've heard in regard to this product are very positive.

Is this an organic solution? Definitely not. Is it a pretty well contained chemical solution? Yes. At least you're not broadcast spraying some chemical solution that is going to contaminate the water supply and toxify your entire lawn so that you're afraid to let your kids and pets play out there.

However, you do have to be very careful not to leave these worms anywhere that your kids or pets could get a hold of them. They look like a gummy worm, so a child could easily mistake it for one. Be smart if you go this route. The brand name is Talpirid and you can purchase it from many online retailers, nurseries and hardware stores.

Possible Home Remedies

You might also want to put one of these other home remedies in as many of the entrances you can find: used cat litter, dog manure, human hair or bubble gum. No guarantees on these, but many people have reported success with them (just as many have reported failure).

I provide them here only for completeness. Haven't tried any of these remedies myself. Personally, I think you'll do better taking care of the food source(s) and then using a selective mole killer like a trap or one of the above mentioned commercial products or castor

oil.

Controlling GRUBS

When dealing with grubs, you should first determine if they are really causing a problem. Pull up a 1-ft. square section of sod and turn over the soil below. If you see more than 6 or 8 grubs, then you may have a problem; any less than that is probably not enough to worry about. If you're in the trouble range you should do one or more of the following:

1. Try using a product called Margosan-O. Margosan- O is an organic grubicide made from Neem oil.
2. Another option is to apply a solution of beneficial nematodes, which search out and kill grubs within a few days. Scanmask and Grub Guard from Gardener's Supply Company are a couple of available nematode products, but there are many more out there.

Generally, these products are quite expensive and should be applied in a targeted manner. You wouldn't want to pay the price to apply these products to an entire 15,000 square foot lawn. But, most times, if you catch the problem early, grub infestations are somewhat localized. So, you won't need to broadcast this stuff across your entire lawn.

Please keep in mind that both of these are only solutions for dire situations. If the grubs are not causing any immediate damage (brown patches, loose sod, etc.), there is really no need to use these methods. Although they are much better than chemicals and completely non-toxic to humans and animals, they could still upset the natural balance of the soil to some degree (although unlikely). Besides, like I said, they'll cost you an arm and a leg.

3. Another available long-term option is to apply the milky-spore fungus to your lawn. This is completely safe for humans, pets

and plants, but fatal to grubs. Treatment can last up to 10 years or more. Again, though, this is a pretty pricey product, pretty much no matter where you purchase it. Also, it will not kill current grubs right away. For this, you really need a more fast acting, short-term solution like one of those discussed above.

4. To stop grubs from popping up next year, get the beetles this year. You might try walking the yard in the early morning and collecting as many beetles as you can. Then, kill them in whatever way you see appropriate so that they don't reproduce and wreak havoc on your lawn next season.
5. Plant trees and shrubs to create a natural habitat for grub predators such as birds. This will help eliminate the need for steps one and two and three in the future.

Controlling ANTS

An infestation of ants in your lawn can be a very unsightly problem. Anthills don't exactly add to the aesthetic qualities of your yard or garden. However, getting rid of them can be tough. Ants are resilient and tend to keep coming back unless you actually kill them. So, for those of you who are averse to actually killing them, expect to rid yourself of them for a short time only to find them back again.

Also, understand that if you simply cause the ants to move out of their current mound, and you don't kill them, they will likely build a new mound very quickly, and likely still in your yard. So, now you've simply got one old mound and a 2nd new one. Not exactly an aesthetic improvement to your lawn.

It's one thing to keep ants out of your home, but it's a completely different scenario when you're trying to get them out of your lawn. In my opinion, killing them is likely your only option.

For those of you who agree with me and who wish to actually kill the

ants so they don't come back, understand that you have to get the queen. If you don't, no matter how many of the "worker ants" you kill, they will keep coming back, even if you manage to achieve a short respite in their comings and goings.

Let's Be Nice

For the kind hearted individuals reading this book, here are some deterrent options you can use if you don't want to kill the ants. Most of them simply require you to sprinkle them around areas where the ants are living, but, remember, it's pretty likely they will just come back in another location.

Ants typically do not like mint, cinnamon, cloves, cayenne and an herb called "tansy". If you can, planting anything that produces any of the above repellents could be a significant help. Not only will the ants likely avoid the areas where you have these plants, you can also take what the plants produce and use it to treat other areas for free. Otherwise, many of the spices listed you could purchase in bulk from Sams or Costco or any bulk food store.

Alternatively, if you're averse to killing the ants yourself, maybe you can let them kill each other. I heard an interesting story of a lady who used to take a shovel and would transplant ants from one mound to another and vice versa. It is said that the ants would fight and kill each other. Don't know how true that is, nor whether the queen would be affected, but it might be an interesting experiment.

Take No Prisoners

If you're looking to kill the ants, then you first have to know what attracts them, so you know what to use as bait. Most ants are attracted either to sweets like sugar and honey or to fats like grease and such. Since most people are not ant experts, and there is no reason they should have to be, spending time here trying to help you establish exactly what type of ants you have would be an exercise in futility. It really doesn't matter. All that matters is knowing how to "bait your trap".

So, the first thing is to do a couple of test runs to see what the ants are attracted to. Go out and find an ant colony in your yard (find a mound). Then, nearby place a large spoonful of honey and a foot or two away, place a spoonful of non-liquid bacon grease or something similar. Go back a few hours later and see where the ants are. There will likely be a large concentration of ants surrounding one spoonful and virtually none at the other. Now you know what to use as bait.

Why not just poison the bait the first time around? Well, primarily, if you overdo it on the "poison" (whether organic or not), you might deter the ants from even taking the bait in the first place, which might then give you the impression that your bait was no good when, in fact, you might have found the perfect bait.

By testing the bait separately first, you eliminate other factors that might get in the way. Then, once the bait has been tested, you can then test different amounts of your "poison" to see what amount works best.

In testing the poison, you must keep one thing in mind throughout. You're not really trying to kill the "worker" ants - at least not primarily. Your primary objective is to get the poison into the mound and to the queen, so you can kill her. Kill the queen, kill the colony. So, if your poison is too strong, you kill all the worker ants before they can get the poison back to the queen. Too little and you don't kill any of them. The key is, start small and work your way up until you reach the right ratio of poison to bait.

Orange oil, as is found in orange rinds, is one very good natural ant poison. You see, unlike humans and animals, the breathing passages of insects are waterproofed by a wax lining. The oil within the orange peel softens and dissolves this wax lining, clogging the passageways and quickly leading to the insect's death. Humans, animals, birds, and the environment are unaffected.

So, you can blend up some orange peel and mix it with your bait (again, something sweet or something greasy, depending upon which your particular ants are attracted to).

Dry yeast and cornmeal are also good ant poisons. With these, it is the expansion of these common household items that causes the death of the ant. Once they've eaten the bait, the cornmeal or yeast has also been ingested. It doesn't then take too long before the "poison" begins to expand, eventually killing the ant.

When planting your bait, if it's liquid enough you can pour the solution right in the opening to the anthills. Otherwise, you can place it somewhere close to the anthill or close to a path the ants typically travel. The attraction of the bait draws the ants to the "poison". Then, once the ants recognize the bait as being good, they take it back to the colony and to the queen. Congrats. You've now killed the colony.

Commercial Products

Of course, if you'd like to simply purchase a non-toxic, commercial product instead of blending your own, there are plenty out there. Can't say that I have any specific recommendations, although numerous studies have shown that a citrus oil based product should work well. Arbico-Organics.com offers numerous commercial ant control products.

As another alternative, diatomaceous earth may also be a good choice. Diatomaceous earth is comprised of the fossilized remains of diatoms. In other words, it's ground up algae shells, and is completely non-toxic. To you it will feel somewhat like flour, but to small insects it is like walking on huge, jagged pieces of glass. Either they die from the injuries or they move out of the area. Simply spread the diatomaceous earth over areas of concern (it will wash out with a good rain, so make sure you are going to have at least a short dry spell and re-apply after heavy rains). It will actually work it's way into the soil and help with aeration also.

Controlling Weeds Organically

Many people don't realize that weeds can actually be good visible indicators of underlying problems in a lawn. You should use them to your advantage and address the underlying issues that they are detailing for you.

First and foremost, weeds are an indication of bare soil in your yard. As I have mentioned earlier in this book, two plants can't grow in the same place at the same time. So, if you have a weed, you have a location where you didn't have grass. Fill in that location with grass and you will not have a weed.

In addition, weeds are also typically indicators of soil related problems in your lawn. You see, weeds will tend to flourish in less than optimum soil conditions, while grass will not. So, if you see that weeds are becoming a bigger problem season after season it is a VERY good indicator that soil conditions are poor.

Most likely soil pH is too low (under 6.0), which is not good for grass. There is a good chance of a heavy thatch layer which prevents moisture and fertilizer from ever reaching the plant roots. Weeds don't seem to care.

It is also likely that your soil is depleted of critical nutrients required for good grass growth. You see, weeds are actually God's way of replenishing the topsoil with valuable nutrients.

Did you ever notice just how deep weed roots go? Why do you think that is? It is so that the weeds can draw critical nutrition from deep in the soil for growth. Then, when the weeds die, they decompose into the topsoil, thereby "transplanting" all of that nutrition to the topsoil from the deep soil below.

Unfortunately, in the meantime, while the weeds are sprouting up everywhere to replenish your topsoil, they look horrible. So, the key to a good looking lawn is, address the soil conditions that encourage weed growth and then plant more grass to fill in the areas where weeds would normally be allowed to grow.

What is a "Good" Lawn

If your lawn is less than 10% weeds, I suggest you've got a pretty good lawn. Be happy. Is it possible that you could have a lawn with less weeds? Yes. Can you do it organically? Probably. Are you being just a bit compulsive? Maybe.

If you want fewer weeds, simply continue the methods I prescribe in this book and you will continue to decrease the number of weeds in your lawn. Just remember that the less weeds you have, the less result you'll see from your weed eradication methods.

In other words, the same time and money expended for less and less result. Look at it this way. Each time you overseed a lawn, if you do it properly and get good germination, you'll probably cut your weed population by 50%.

So, let's say you start with a 50/50 lawn (50% weeds). After your first overseeding attempt, you reduce your weed population by 50%. So, now you have a 75/25 lawn (25% weeds) - a significant improvement that will visibly show. Now, overseed again. A 50% decrease in weeds will give you approximately an 88/12 lawn (only 12% weeds). Overseed again. 94/6. Overseed again. 97/3. Overseed

again. 98.5/1.5.

Each overseeding application will cost about the same amount of money and will take exactly the same amount of time. So, let's say you've got a 10,000 square foot lawn and you want to overseed with a really good hybrid with minimal weed content. Defiant is a good northern hybrid mix.

To overseed a 10,000 square foot area will cost you about \$120 for 60 pounds of Defiant grass seed. Accounting for the time to break up the soil a bit, spread the seed and keep it moist till it germinates, you'll probably have a number of hours involved in the process.

Do you see where I'm going with this? Each overseeding application will cost you about \$100 or so and a few hours of your time. Now, as you have less and less weeds, you might be able to cut back on the amount of seed you use, but it's still not going to be incredibly cheap. Using the calculations above (which aren't perfect, but are a good rough estimate) to get from 50% weeds to 1.5% weeds would take about 5 overseeding applications. That's about \$500-\$600 and HOURS of work. In contrast it only takes 2 applications (at a cost of \$200-\$250 and much less time) to get from 50% weeds to just 12% weeds.

Looking at this objectively, in the first instance, you achieved a 97% reduction in weeds for a cost of \$500 and 5 hours work. In the second instance, you achieve a 76% reduction in overall weeds for a cost of less than half that, about \$200 and a lot less time and effort.

To me, I'm not sure if it's worth it to go for complete weed eradication. To you it might be. Just keep this comparison in the back of your mind as you try and determine just how far to go with this.

What Course of Action Should You Take?

Quite frankly, it is unlikely that you will ever organically rid yourself of every weed, and chemicals will only cause more problems. So, you need to decide what is most important to you and make your

decisions accordingly. In my opinion, if you've got less than 10% weeds, live with it and get on with more important things like wrestling on your lawn with your kids. If your lawn has more than 25% weeds, it definitely needs a little help. More than 50% weeds probably means till it under and start from scratch.

To determine what percentage of your lawn is weeds simply follow the procedure outlined in the "Seeding" chapter earlier in this book.

Don't Use Chemicals

No matter how tempting it might be to go for a quick fix, try to stay away from the chemicals. Every time you apply a chemical weed control product to solve one problem you create at least one more (not to mention toxifying your lawn so that it is unsafe for your children and pets to play on it).

Chemicals (herbicides, pesticides, fungicides, fertilizers) destroy the natural balance of the soil and tend to kill off many beneficial insects and organisms. This in turn causes other diseases and pests to spring up because their natural competitors are no longer present to keep them in check.

In addition, grasses do not take well to the higher acidity levels and salts caused by most chemical applications (including fertilizers). Thus, you may begin to see bare patches in your lawn where the lawn has died off. These are the places where weeds will spring up.

Overseed, Overseed, Overseed

Honestly, this is probably the most critical aspect of a weed control program, if you want to see quick results. You can do it with just proper fertilization and mowing, but it takes time.

If you have a high percentage of weeds in your lawn, you must have some areas lacking grass. If grass covered the entire plot, there would be no room for weeds. Therefore, overseeding the lawn (or at least the worst areas) is your fastest route to a relatively weed-free

lawn.

Overseeding is best done in the fall or spring, preferably fall (or both for fastest results).

Let it Grow!!

As mentioned in the lawn mowing chapter, mow your lawn high (about 2 to 3 inches) and often (normally once per week is sufficient). This keeps sunlight from reaching dormant weed seeds and causes the lawn to fill in on its own.

Bag the Seeds

If the weeds are going to seed such as when dandelions get that cottony puff head, catch the grass clippings when you mow so that the seeds don't have a chance to spread. Make sure to put the clippings someplace where the weed seeds will not blow back on the lawn.

Got Ya Covered

If you have an area that has a high percentage of crabgrass already, and it is too late to "beat it to the punch", try spreading black plastic sheeting over the area for about a week to 10 days.

The grass will yellow, but the crabgrass will die off for lack of sunlight. The grass will come back within a short period of time. Try to choose a week that won't be particularly hot and sunny. Too much heat under the plastic might burn the lawn.

To prevent the crabgrass from coming up again, utilize the earlier outlined weed control procedures at the recommended time of season.

A "Corny" Solution

A new method being used for weed control measures is to spread corn gluten meal as a pre-emergent. This is a great alternative to chemical pre-emergents and actually works pretty well, while also supplying about 8-9% nitrogen to the lawn.

Since it is such a good source of nitrogen for the lawn, it is a good idea to wait at least a month after the application of corn gluten meal before fertilizing with any other product containing nitrogen, as you could burn the lawn.

Since Iowa State University holds a patent on the usage of Corn Gluten Meal as a pre-emergent, any company selling Corn Gluten Meal for that purpose must pay a royalty to ISU (the way I understand the situation).

As a result, it is incredibly expensive when sold as an all-natural pre-emergent. For instance, many companies sell it for about \$1/pound (although I've heard people say in forums that they were able to find it locally for half that).

Even at 50 cents per pound, it would be incredibly expensive to use this product for weed control on any lawn over 5-10,000 square feet. A 20 pound bag will only treat about 1,000 square feet (effectively) for weeds. Thus, for a 5,000 square foot lawn, you'd need about five 20 pound bags. Thus, from most sources it will run you about \$100 to control weeds on a 5,000 square foot plot of grass. Even if you could find it at 50 cents per pound, you're still looking at \$50.

Personally, I happen to have a half acre lawn. Thus, my cost would be over 4 times that, or a minimum of \$200 and probably closer to \$300-\$400 for one pre-emergence application. That's absolutely insane, and far more than I would ever be willing to pay. So, for me, the tried and true weed control trio of overseeding, proper mowing and good organic fertilization habits is perfectly acceptable to me.

However, if you have a smaller lawn or don't mind paying the high

price for corn gluten meal, then you can get the product from Gardener's Supply Company. Buying more than one bag will get you the 15% discount. Alternatively, you can do a search of your own - either online or locally - to see what you can find.

Kill 'Em All - Sort 'Em Out Later

Sorry. Maybe that was in bad taste, but I couldn't resist. Remember, we're talking about weeds here. If all else fails, here are a few sure-fire non-toxic weed killers. They are sometimes specific to a certain type of weed, so if one doesn't work on a particular weed, try another.

Try 3 parts vinegar to 1 part water sprayed from a pump spray bottle. Great for most broad-leaf weeds. Try not to spray other plants you would like to live. For an extra precaution, bring a piece of cardboard with a curved edge which you can place around the weed to protect turf or other plants from getting sprayed.

If there are no other plants around that you want to save - for instance, if you're killing weeds in your driveway - boiling water will actually do a very good job. Give it a shot.

Alternatively, try 3 to 5 tablespoons of alcohol to 1 quart of water applied through a pump spray bottle. As with the vinegar solution and boiling water, try not to accidentally apply to any plants you want to keep.

As a more commercial, but still natural, alternative, you can check GardensAlive or Gurney's Seed & Nursery Co. for weed killers as well. This is not an endorsement of either company (as I cannot vouch for their customer service personally), but both of these companies offer quite a number of organic/natural items (including weed killers)

Wrapping it All Up

In the end, it all comes down to this. Having a great looking lawn is certainly not a bad thing. We all like to have our home and yard looking good. God intends for us to keep things neat and orderly and in good shape.

Of course, that doesn't mean that I'm saying God commanded you to have a weed free lawn. But, God's Word does tell us that we should take care of what we own and not give the impression to others that we do not value the blessings God sends our way.

However, when you try to make your lawn look good using synthesized chemicals you open yourself up to all sorts of problems. First, if you are the applicator of those chemicals, unless you take extreme precautions to make sure that you do not make physical contact with nor inhale any dust or vapors from those chemicals, you are VERY likely to develop health problems as a result of your fertilization efforts.

You may not exhibit signs and symptoms immediately, but there is plenty of research linking many of the ingredients in most commercially available synthetic fertilizers to all manner of cancers and neurological problems.

Of course, those health dangers do not only apply to the applicator. They apply even more so to the kids and pets and wild animals that may spend a great deal of time running, walking, laying and rolling on that picture perfect lawn. As I said earlier, there is a reason that

lawn companies have to put out those little "stay off the grass" signs.

It's not just some silly governmental restriction. It's a serious problem, and please don't be fooled into believing that the lawn is "safe" just because the waiting period has expired. The lawn may be safer than it was the day the fertilizer was applied, but it is by no means safe.

I have far too many customers who have come to me for an organic alternative as a result of numerous family pets dying all within the first few years of having some chemical fertilizer company come in to "fix up" their lawn.

Could it be coincidence? Sure. But, considering the mountain of evidence linking these chemicals with major, life-threatening illnesses, it is unlikely. People wonder why so many children these days are developing cancers of all sorts. "It never used to be this way", they say. Others scoff and say, "Well, cancer probably has not become more prevalent, medical institutions have just gotten better at detecting and diagnosing it."

Hogwash!! Medicine has certainly come a long way, and I'm sure we are better at detecting and diagnosing cancer and all manner of other illnesses. But, with so much objective, scientific evidence proving the dangers of these chemicals, and knowing that these chemicals are being introduced to our environment MANY TIMES the rate that they were even just 10 years ago, it is amazing to me that people still discount the possibility and continue to use these chemicals year after year.

That's a High Horse to Sit On

Sometimes, I can really get on my soapbox with this stuff and forget the reality of the situation. Honestly, those of us who are "walking the organic road" should be careful not to get on our high horse so often. Many people simply don't realize the danger because they've just never really thought about it. That seems to be the nature of a lot of things these days.

Quite frankly, until I started doing lawncare and began researching organic methods, I really hadn't thought much about it either. Furthermore, even after I started using and selling organic fertilizer, it still didn't occur to me (and I'm still amazed by this) that it might be a good idea to also begin eating organically. Didn't even cross my mind.

So, I really can't blame people for not really paying much attention to all the chemicals they use on their lawns and around their house each and every day. It has simply become "life as we know it".

Of course, there are other reasons that more people don't embrace organics in a more passionate way. One big reason is that many companies use the term "organic" and "natural" to describe their products when the ingredients list makes it clear that they are anything but.

Even more frustrating is that organic products typically cost 2-5 times as much as similar non-organic products. This is true with both food and fertilizer type products and is an issue that I am WELL aware of.

I have 4 young kids, and making the move to more organic and unprocessed foods has literally tripled our grocery bill. And, although logic says that health problems will decrease and medical bills will become less, which will offset some of the increase in food costs, it is still hard to swallow going to the store and leaving with 1 bag of groceries for \$50.

Of course, the same issue translates to individuals with large lawns or farmers with hundreds to thousands of acres of crops. Although use of organic fertilizers will generally reduce ALOT of expenses in the long term, in the short run, **most** organic fertilizers are incredibly expensive. It's difficult for homeowners/farmers with alot of area to cover to justify the additional expense, even if they believe in organic methods.

However, don't allow potentially high prices to scare you away. There ARE economically priced organic fertilizers available. I even

sell a few good ones. Do your own research. For the sake of simplicity, I suggest looking for products that you can easily apply to more than just your lawn (trees, shrubs, flowers, fruit/vegetable garden, etc.).

There are numerous options available. I find that liquid fertilizers are most likely to offer the most versatility of application (hydroponic, soil drench, root injection, foliar, etc.) and fastest results, but you'll have to make your own decision in that regard.

As you research available products, make sure you can determine the application rates for the area you'll be fertilizing - otherwise, you cannot accurately calculate cost comparisons.

Be sure to consider how much product you'll need for a full season and the best size containers to purchase the product in (to get the best pricing). Make sure that the seller gives you a good idea of what is in the product and why it's beneficial.

Pay attention to potential shipping costs, which can often be quite high.

Click to Search Google for "[Organic Liquid Lawn Fertilizers](#)"

Not necessarily looking for liquid?

Click to Search Google for "[Natural Grass Fertilizer](#)"

Other Useful Resources

Although there is a great deal of information in this book, it is certainly not the "be all and end all" of organics. Most everything that you're really going to need to know about organic lawncare can be found in this book, but there are a few resources that you may want to take a look at, either for additional organic lawncare information, tools or supplies or for related resources such as for organic gardening, health & nutrition or just general environmental protection. See the links and reviews below for more info:

Inexpensive Organic All-Purpose Fertilizer Products

OK, so, I won't spend a great deal of time on this one. This link is to my own site. Obviously, if you have interest in organic fertilizer and organic lawncare, it would be silly for me not to at least give a little plug for my products.

But, I don't want people thinking that this book is designed just as a big advertisement for my products. So, if you're interested, I offer liquid organic fish/kelp fertilizer, liquid bonemeal, liquid lime and a kelp and sulfate of potash product.

www.Guarding-Our-Earth.com/organic-fertilizer/

Just click on the "Guarding-Our-Earth.com" link at the bottom of any page of this book for more information.

Thanks.

Turf Grass Identification

I mentioned this one earlier in the book, but it's such an awesome resource, I figured it should get linked to from this chapter as well.

Purdue University offers an incredible online [Turfgrass Identification Tool](#). I know of no easier way for the general homeowner to establish just what grass type(s) they have in their lawn than to compare what's in their lawn against this tool. Phenomenally easy to use.

National Turfgrass Identification Program

This one is also mentioned earlier but is worth linking to again because it can be so useful. The NTEP website offers a wealth of information comparing different grass hybrids in numerous different categories such as drought resistance, disease resistance, density, color, etc.

Visit the [NTEP Website](#) and then choose your state.

Mother Earth News

OK, so, I have to admit I'm not a fan of the title, since I am not a fan of the "worship the earth we live on instead of the God that created it" movement. However, at the same time, I am a fan of living more simply and getting rid of all of the "junk" in our lives that doesn't belong and that is killing us physically and spiritually.

That seems to be the primary focus of Mother Earth News

magazine. Although I'm not in complete agreement with everything you'll read in this magazine (which is related to my dislike of the title), I do feel that they have some excellent articles and some good information about healthy living.

And, if you subscribe directly through the Mother Earth News website, you'll get a pretty steep discount off the price you'll see anywhere else. Through most other subscription services, it'll run you \$20 annually. Through a few you'll find it for \$15. But, if you go directly through the publisher's website (and are willing to do the autobill option), you can get it for \$10/year (\$15 without the autobill).

Understand that I am getting no sort of referral commission for sending you to MotherEarthNews.com. If I funneled you through some other subscription service, I could, but I want to see you get a decent price. Moreover, if you don't have the money to subscribe, you can actually read all the articles online through their website for free. Check it out. See what you think. I think you'll find it some interesting reading.

OG (Organic Gardening) Magazine

This is, of course, another good magazine for anyone who is interested in growing anything organically. It is probably a little more pricey than some other magazines you might subscribe to, but it is one of very few major periodicals that focus specifically on organic gardening.

I used to recommend getting your subscription through Magazine-Agent.com. The price is only \$1 more per year than if you went straight through the publisher. But, your complete satisfaction is guaranteed if you subscribe through Magazine-Agent.com.

According to their site, if you find that within the first three months of placing your order that you are not 100% satisfied - for any reason - you can simply contact them and they will gladly give you a full, prompt refund. After three months, if you find that you no longer wish to receive the magazine, they indicate that they will

provide a refund for any unserved issues.

Another thing that I **LIKED** about Magazine-Agent.com as compared with other magazine subscription agencies is that they didn't seem to offer all of the "adult oriented" magazines that so many other agents make so much of their revenue on.

They did offer a few magazines that I wasn't necessarily a big fan of, but at least they didn't seem to be offering the more blatantly sexualized magazines like Playboy and Penthouse and such.

For me, that WAS an added incentive to subscribe through them. Unfortunately, it appears their stance on these magazines has changed, and they now appear to be offering all of them.

So, I'm no longer going to specifically recommend their service, nor offer an affiliate link here. If you want to subscribe through them, you may do so through their website at Magazine-Agent.com.

Otherwise, if you'd like to go directly through the publisher, you can do so here: OrganicGardening.com. I will NOT earn a commission.

Brix Refractometer

If you have an interest in getting your hands on a handheld refractometer to measure the brix of your grass, plants, fruits and vegetables, the best place to buy one is probably on Ebay. I checked online and local pricing and couldn't find too much (outside of Ebay) that was less than about \$50.

Of course, that isn't too bad, but you can get those same units (the \$50 ones) on Ebay for about \$30 with freight. These are new refractometers for nearly half the price. Worth taking a look, wouldn't you say?

Of course, if you've never purchased anything through Ebay before, you might be a little intimidated. So, consider this brief section a Reader's Digest tutorial on using Ebay as your personal online store.

I've purchased hundreds of items on Ebay over the past 5 or 6 years and am very pleased with the experience (I've sold a few items as well). Along the way I've picked up a number of little tips to pass along to you, which will apply to your refractometer purchase as well as most any other purchase you ever make on Ebay.

Think Outside the Box

One of the first keys to making a good Ebay purchase is thinking outside the box a little. Search for your item with some possible mis-spellings or somewhat odd descriptions. You never know, you can run across a real bargain that's hidden away in obscurity because the person listing the item didn't pay attention to good spelling or a proper description and most other Ebayers didn't think to search with those phrases.

Don't Be Needy

Another key is not to be needy or impatient. Often times, if you're willing to wait a week or so, you can get a very good deal on the item you're looking for. Set the price you're willing to pay and don't bid over that price. Within a week or so, after having bid on a number of listings and lost, you'll eventually "strike gold" and win the item for an excellent price.

On the other hand, if, after a week or so, you have had opportunity to bid on a number of listings and still haven't gotten the item, then, chances are, the price you're willing to pay isn't reasonable. So, you'll have to re-evaluate the price you're willing to pay. If you can afford to go higher and are willing, then bump up your price. If you can't afford it, then, apparently, you're not ready to purchase the item yet.

Feedback is Crucial

Another critical aspect of purchasing through Ebay (at least for me) is the feedback rating of the individual selling the item. This is the

only method you have for establishing the credibility and trustworthiness of the individual/company you're going to purchase the item from.

I look for listings where the seller has at least 1,000 overall feedback ratings (at least half of which are from "buyers" who've purchased products from this seller). Then, I look at the actual positive feedback score. It must be at least 99% (in other words, 99% of the people dealing with this seller have given them a positive feedback rating) for me to even really pay attention to the listing. Ideally, I look for even higher, normally in the 99.7+ range. If you do that, you're nearly guaranteed a positive experience with the seller.

Look for “Gotchas”

Also, be sure to read a listing VERY carefully to make sure there aren't any "gotchas". Most times, as long as you go with a seller with really good feedback, this won't be an issue, but it's still good to check. Verify the specifics on shipping and return policy. Make sure the item comes with all of the accessories that you would expect it to come with (don't just assume - even if the item picture shows the accessories).

New, Used or Refurbished

In addition, be certain that the listing indicates clearly whether the item is new, used or a refurb item. This, of course, will affect the price you're willing to pay. But, don't write off used and refurb items. Often, if you're thrifty, you can get a slightly used or refurbished item for half the price of new. If the feedback rating of the seller is really good, you may well have stumbled upon a VERY GOOD deal.

Avoid Premature Bidding

Lastly, don't bid on your item too soon. Set yourself some sort of

reminder or alarm and wait until the end of the auction to place your bid. Bidding too soon just gives more people an opportunity to counter your bid. I suggest submitting your bid within the last 30 seconds of the listing and bidding high enough that you've got a good shot at winning (but making sure not to go over your set maximum).

Keep in mind that Ebay has what is called "proxy bidding" as well. This means, you tell Ebay what your MAX bid is. As other buyers place their bids, Ebay will continue to raise yours incrementally to outbid the competition, until it reaches your max bid. Then, it will stop bidding. If the bidding never goes above your max bid, you win. If more than one buyer is proxied (which is not all that uncommon), bidding can go up REALLY quickly. So, just be aware of this fact. You could put in a proxy bid and within seconds (if another buyer has placed a higher proxy bid) you could be outbid.

In the end, just remember that, once you learn a few "tricks of the trade" buying on Ebay is actually a very safe and easy experience - and you can get some really great deals. So, if you're looking for a refractometer (or anything else for that matter), give Ebay a shot. You're likely to find a better deal than you can find anywhere else. And, just for the record, I have no affiliation with Ebay and will receive no compensation if you purchase through them.

Become a “Goldfish Gardener”

No, this is not about growing goldfish, its about USING goldfish to grow a **super high yield** organic crop in less time, in minimal space, with no weeds, no watering hassles & minimal daily effort.

Sounds too good to be true, I know, but there is plenty of research to back this up. It works.

Take a look for yourself at the link below. I will earn a commission if you purchase this instructional guide through the link below.

[Easy Goldfish Gardening](http://www.Guarding-Our-Earth.com/organic-fertilizer/)

www.Guarding-Our-Earth.com/organic-fertilizer/

Gardens Alive

Although their pricing can be a little high sometimes, and I've read that they are now sending their customer service overseas, they do seem to offer some high quality organic products and a good variety of products.

GardensAlive.com

Gurney's Seed & Nursery Co.

Gurney's actually seems to be related to Gardens Alive in some manner. Owned by the same company or something. Some prices appear to be better than Gardens Alive, some are not. So, you might check the two concurrently for the products you're looking for. Buy some of the products through Gurney's for a better price, others from Gardens Alive for the better price.

Gurneys.com

Spring Hill Nursery

Believe it or not, both Spring Hill and the Michigan Bulb Company (reviewed next) are also affiliated with Gurney's and Gardens Alive in some manner or another. Talk about diversification of assets, eh? Well, anyway, if you're looking for ground cover, flowers, bulbs, shrubs, hedges, trees or vines, SpringHill.com might be a decent option.

The prices are very good, and they offer a lifetime, unconditional guarantee of all their bulbs and plants. If for ANY reason you are EVER not pleased with the plants you purchased, they say you can easily get a full refund of your full purchase price or a free replacement plant (your choice). You don't even have to send back the plant or anything. Just contact them and say you aren't happy.

Spring Hill also offers flower garden planning charts to help you in choosing complimentary plants to build the perfect flower garden.

Purchase the whole "kit" with all the plants you need and receive a detailed layout chart to help you place them properly. Choose from 51 different plans.

The potential drawback is that my research indicates their customer service might reflect their connection with Gardens Alive and Gurney's. Mixed bag it would seem. Some people have been happy dealing with customer service and have gotten prompt refunds and exchanges for plants. Other people seem not to have had such a good experience.

Most people indicate that the plants are typically a little on the small side and shipping live plants can always be a little bit iffy. However, if, as soon as you receive them, you get them in the ground and/or fertilize them with a good fish/kelp based fertilizer, you should be able to alleviate any shipping and transplant shock pretty quickly.

Kelp is amazing in its ability to save plants that you might have thought were actually dead. I would always use kelp extract when doing any planting of seeds or transplanting of already established plants. You'd be amazed at how much better your results will be.

Anyway, the bottom line is, Spring Hill has good selection and some pretty decent prices, but you have to be willing to risk potential customer service issues if something doesn't go quite right with your order. Your call.

SpringHillNursery.com

Michigan Bulb Company

Ditto the review above for Spring Hill. Same guarantee. Same low prices. Same potential customer service issues. Same smallish plants. Even looking at the two websites would give you the distinct impression that they are affiliated in some way.

The only real difference between Michigan Bulb and Spring Hill is that Michigan Bulb offers a decent selection of indoor fruit plants

www.Guarding-Our-Earth.com/organic-fertilizer/

which Spring Hill does not.

MichiganBulb.com

Gardener's Supply Company

OK, here is the one company that I feel pretty good about standing behind. The vast majority of customers dealing with this company seem to have good things to say.

Gardener's Supply is a supplier of quality plantcare items, many of which are natural/organic type products. Purchase supplies for both indoor and outdoor gardening as well as for lawn, yard and landscaping.

Gardeners.com

Country Wisdom & Know-How

This nearly 500 page book is a compilation of TONS of tips, tricks and recommendations handed down over the years for all sorts of things: cooking, gardening, cleaning and all manner of other topics.

Nearly everyone who buys this book on Amazon raves about it. And, since Amazon is so good about returns, the link below to the Amazon site provides you with a pretty risk-free way to take a look.

I think you'll find this to be an invaluable resource. I know it's not specific to lawncare, but I thought it was well worth a mention. I do earn a commission if you purchase the book through the following link:

[Country Wisdom & Know-How from Amazon.com](http://CountryWisdom.com)

LawnBelt DIY Irrigation System

I've saved the best for last. These last two recommendations could save you a TON of money as well as a great deal of time taking care of your lawn.

The fact is, a good looking lawn needs water. Of course, the healthier it is, the less water it needs, but there will always be periods when the amount of rainfall is somewhat shy of what your lawn needs.

If you happen to be one that hates it when your lawn is not completely green and soft on your feet, then you'll definitely want to have a simple way to water the lawn when things get dry.

Unfortunately, an in-ground sprinkler system can easily cost thousands of dollars to have installed, and winterizing them can often be a real hassle for those of us in the northern portions of the US.

Fortunately, there's [LawnBelt](#). This is an incredibly easy Do-It-Yourself system that allows you to install your very own in-ground irrigation system “on the cheap”.

The website does a much better job of explaining it than I ever could, so I'm not going to go into a great deal of detail. Just head over to the site and watch the video showing how easy it is to install, use and winterize.

I guarantee, if you've even considered installing an irrigation system for your lawn, landscaping or garden, you will find this to be come really interesting information.

And, just for full disclosure, I do earn a commission on any

www.Guarding-Our-Earth.com/organic-fertilizer/

purchases you make through the following link. Your price doesn't change either way, but, if you really don't want me to earn a commission for my recommendation, you can always do a Google search for "LawnBelt" and bypass me altogether.

[Visit the LawnBelt website](#)

Chemilizer

This is another one that I couldn't pass on letting you know about (even though the title might make it seem like the LAST THING I should be telling you about in this **organic** lawncare book.

I'll let you know up front that **I earn no commission for this recommendation.** It's simply a product I use with my own irrigation system and have found to be incredibly well-built and fairly easy to use.

If you have ANY interest in simplifying your lawn and landscaping fertilization, you owe it to yourself to check this thing out.

Basically, it's just a fertigation unit. In other words, it hooks into your existing (or new) irrigation system and allows you to apply liquid fertilizer THROUGH your irrigation system - saving you a lot of time and headache.

Will Handle Any Liquid

What's unique about this unit is that you can apply virtually ANY liquid fertilizer or plant-care product, regardless of how thick or thin it may be out of the bottle.

Anyone whose ever attempted to apply liquid fertilizers through a fertigation unit knows just how hard it can often be to apply ANYTHING that's any thicker than milk. It's a real pain the rear.

In fact, many fertigation units just simply can't do it. You absolutely HAVE to super dilute whatever it is with water, in order to get the fertigation unit to “draw” it into the system.

Not so with the Chemilizer. It will suck up virtually any liquid. It's even used in vet clinics to draw “doggie shampoo” which is quite thick. That's why I use it. The organic fertilizer that I sell is relatively thick, but I can't dilute it with water unless I intend to apply all of it within 24 hours.

Once you mix it with water, the microbial activity skyrockets and it will turn to gel by the next day. So, if I want the system to apply a little bit at a time, over a period of a month or two, I can't pre-dilute it. The fertigation unit has to be able to “draw” it up in it's concentrated form.

The Chemilizer is the only unit I've found that effectively does this.

Built to Last

Another unique feature of this unit is that not only is it designed really well, so that it's very tough, it's very easy to replace just about any individual part on the unit.

Thus, if something breaks, you can simply order up a small part and swap it out yourself. You don't have to buy a whole new unit or an expensive repair kit, and you don't have to pay to have it repaired. You can quickly do it yourself.

But, don't expect to have to do this too much. Many people have

had these units in use commercially for years with very little maintenance.

Very Versatile

This unit is designed to apply virtually as much or as little fertilizer as you like, either VERY quickly or VERY slowly. In fact, if memory serves, I ran through about 2.5 gallons of fertilizer in less than an hour earlier this season. So, you can apply ALOT of fertilizer in a hurry, if you want to.

But, change the configuration just slightly and you can apply very tiny amounts of fertilizer at a time, creating a continuous feed system that will feed your lawn or garden just a tiny little bit every time the irrigation system runs.

No Power Needed

Many systems that allow you to apply thicker fertilizers & higher rates of fertilization require electricity in order to run, meaning not only do they cost you additional money every time you fertilize, you also have to wire it up to the system, if you install it yourself.

The Chemilizer unit is completely self-powered by the water running through your irrigation system – without any significant decrease in water flow to your irrigation heads.

That means an easier installation, less costly operation and fewer expensive parts to replace if they go “bad”.

This really is a terrific system. Check it out at the link below:

[Chemilizer](#)