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Service since 1984

Residential Lawn Improvement

Are you dissatisfied with the appearance of your lawn? If so, I have a few tips for you. Some you may like, and some you may not. Remember – things of value take time, and no pain no gain. First of all, it is important to have some understanding about **lawn ecology**:

> If left to their own devices, lawns (and planted and maintained landscaping in general) would change their appearance over time, instead of staying the same. Humans however, would like lawns and landscapes to either stay the same, or to grow to some certain point and then just stay there – like suspended animation or a freeze-frame. If someone were not physically or chemically interfering with their evolution (their tendency to change over time), the lawns and landscaping would eventually be unrecognizable from what was originally planted. If a lawn were planted and no one ever mowed, watered or fertilized it, that lawn would look quite different after a few years than the thick, green, shag carpet-like sod or seed that was originally established in that area. Lawns and planted landscapes are really very artificial, contrived environments – even "naturalistic" landscapes. So, in order to keep a lawn looking as good as when it was first planted, you must (at minimum) mechanically interfere with it. You must step in and stop, or freeze succession – at least to some extent. If you studied ecology in school, you probably came across the concept of "succession". You probably also learned about "pioneer species" and "climax vegetation". Well, these concepts also correlate with lawn management as well.
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> If a lawn were left on its own (never mowed, watered, fertilized or otherwise interfered with), it would advance through several stages of succession. It would start out as being the type of grass-dominated lawn we recognize, but then it would begin to include short herbaceous plants, which eventually pave the way for larger woody plants, and then possibly even trees. What exactly would happen and what types of plants would grow in the previous lawn area would depend upon many factors – soil type, climate, vegetation in the vicinity and the occurrence of catastrophic events that radically change the landscape (earthquakes, floods, volcanic eruptions, meteor impacts, etc.)

With the above in mind, you now understand that you must get in there and work with it, at least physically (e.g. mowing, removing weeds, etc.) in order kept he lawn looking like something we humans would recognize as a lawn. So, below are my tips (most of which I use on my own lawn – that I maintain myself). Don't be discouraged if you cannot do them all (I don't think anyone can) – even if you do one or a few of these things some of these you can improve your lawn.

1. **Maintain your own lawn**. OK, I know this will not work for everyone, but do it if you can. As the old saying goes, "If you want something done right, do it yourself". Most residential gardeners do not have the knowledge, time or desire to "do it right", and this is why the majority of residential lawns in the San Francisco Bay Area are somewhat less than desirable in appearance (at least in my opinion – and maybe that's because I know what a lawn <u>can</u> look like). There are some more expensive lawn care companies that tend to produce better lawns, but you will pay much more for their service than you will pay for the typical "mow and blow" gardeners that proliferate in our vicinity. Some of these more expensive companies also use quite a few

chemicals to produce attractive results while cutting down on their time. Like everything else, there simply is no free lunch!

2. **If you cannot maintain your own lawn, at least own your own lawn mower that is used on your lawn and only on your lawn**. There are several reasons for this. The most important reason is that gardeners who service many clients (and do not clean their equipment between clients – and very few of them do) are spreading weeds and diseases wherever they go – with their lawnmowers! I don't have a single weed in my lawn and a large part of the reason for this is that I started with a weed-free sodded lawn, and I have always used my own lawnmower, and on my lawn only.

3. **If you cannot own your own lawn mower, then try to get the gardener to clean off their mower (and other equipment such as edgers) before working on your lawn.** Good luck with this. I've heard of only one client who was actually able to get their gardener to oblige in this manner. He actually paid the gardener extra to do clean off the mower before taking it onto the lawn. That particular gardener used the client's hose with a high-pressure nozzle and washed off the bottom side of the mower at the curb.

4. **Mow the lawn at the proper height**, depending upon the grass species that make up the lawn. This is a huge mistake (or crime?) most gardeners make that really causes lawns to deteriorate. Most of the lawns around where I live are tall fescue blends, which should be mowed to 3 inches high during the growing season (spring, summer and early fall). Kentucky bluegrass lawns (which are less common here) are usually mowed to a height of 2 inches. Hybrid Bermuda lawns are often mowed to ½ inch or less. If you have a "blend", which in my area would be mostly cool-season grasses such as perennial rye, this should generally be cut to a height of about 2 inches. What do most gardeners do? They mow lawns much shorter than they should be cut – perhaps to make sure that the client absolutely knows that they were there that day and that they mowed the lawn. Mowing the lawn too short does many things – it weakens the grasses so that they will be less dense and less able to resist weed invasion, it causes the root system to be shorter (which lessens drought resistance), and it offers less of a cushion to foot or other traffic, so that the lawn can "wear out" faster. If there is only one thing that you can do to improve your lawn, this is probably the best choice.

In the photos on the previous page, the tall fescue lawn on the left is mowed to a height of 3 inches during the growing season. Notice how the keys that were thrown into it almost disappear due to the density and length of the grass blades. The tall fescue lawn at right however, is mowed much too short – down to about an inch all year long. This weakens the grass. Notice the reduced density of grass blades and the intermixed dead grass blades.

5. **Reduce the mow height slightly during the non-growing season, if this is during the winter.** For example, tall fescue lawns don't grow much during the cold winter, and the sun angle is also lower at this time. The appearance of this lawn grass may be improved by mowing it slightly shorter (e.g. 2 to 2.5 inches instead of 3 inches) as this encourages tillering (offshooting) in this species at this time. That makes for a denser lawn.

   I believe that many gardeners do not know how (or do not want to take the trouble) to adjust the mow height for their client's particular lawn. Most of the newer mowers have convenient adjustments on the side that will allow you to change the deck (and thus the cut) height. I bought a new mower a few years ago that has levers on the side and does not require the removal and repositioning of any bolts or screws, as my old mower did. Look at many gardeners' mowers. They do not seem to be very recent models, and if they are old and require screws or bolts to be removed in order to change the mow height, the gardener probably won't do it. And as I mentioned before most gardeners have no idea that they're even supposed to do this, and if you tell them to do it they won't want to. So if you buy your own mower (as I hope you will do after reading this), make sure there are convenient adjustments so that you can set the proper mow height.

6. **Don't let the grass grow too tall, and then cut it way back.** Proper turfgrass management dictates that no more than 1/3 of the leaf blade should be removed at any one mowing. For example, a Kentucky bluegrass lawn with a cut height of 2 inches should be allowed to grow to no more than 3 inches before the mowing occurs. When the lawn is in its prime growing seasons (spring and fall for cool-season grasses, summer for warm-season), you may actually have to mow it more than once per week in order to achieve this goal. I have to admit that this is something I often miss, as I've gotten busier over the years. Unfortunately, most gardeners are going to mow your lawn more than once per week on their scheduled route. Still, if you are able to do this then the health of the grass will be bumped up a notch.

7. **Don't let your lawn grow really tall, and then cut it back to a very short height <u>all at once</u>**. If you go away for vacation and the lawn height is 6 inches, do not cut it back to 3 (that's called scalping and it greatly weakens the grass) – instead cut it back gradually (e.g. to 4 inches) and then gradually work it down to its recommended cut height.

8. **Don't edge the lawn with a weed whip.** A lot of gardeners do this because it is fast. Weed whips do not make a clean cut and they scalp nearby grass plants that remain near the cuts. This weakens, or kills these surviving edge grass plants and makes the area more subject to weed invasion. It is also hard to hold the weed whip perfectly straight and still, so the cut is uneven and often encroaches too far into the lawn area. Instead, use a "real" lawn edger that makes a straight, clean cut. Or, you can use lawn-edging scissors and do the entire lawn by hand, which is what I do. Of course, this latter method is only practical for small lawns, which I have.

9. **When you see weeds in the lawn, get rid of them**. I occasionally find an annual bluegrass plant (a weed) in my lawn as I'm mowing, and I stop and pull it out – preferably by the roots. Do you think most gardeners will take the time to do this? I think not. They may not even know how to differentiate weeds from desirable lawn grass species, are since many lawns dominated by weeds anyway. Another reason to take care of your own lawn. Nobody cares about your lawn like you do. Gardeners generally want to get in and out as quickly as possible, and do the minimum amount of work they can get by with in order to extract a check from you. You get what you pay for!

10. **Alternate mowing directions**. This week mow the lawn in a perpendicular pattern, next week switch it 90 degrees and so on. The reason for this is to avoid wheel ruts or compacted soil in the lines where the mower wheels are traveling. It also allows the grass to be cut along "opposite grains" and improves light penetration in this way (the grass is not always lying in the same plane). This is also a tough one to get gardeners to do, because they know the fastest way to mow your lawn and they don't want to change that. Yet another reason to maintain your own lawn!

11. **Do not mow the lawn when it doesn't need to be mowed**. I can often skip 2 to 3 weeks in the winter without a mowing where I live. Most gardeners however, mow their client's lawns EVERY WEEK whether it needs it or not. Unnecessary mowing, particularly during the rainy months, results in unnecessary soil compaction. Soil compaction is detrimental to grass roots and favors the growth of many tolerant weed species – at the expense the desirable lawn grass species. Unfortunately many gardeners have nothing better to do and they want that paycheck, so they will continue to mow your lawn whether it needs it or not. Another reason to get rid of them, or have them do some other garden chores with the time they would have spent unnecessarily mowing the lawn!

12. **Use a mulching mower only if your lawn is relatively weed-free**, or if you don't care about weeds. Mulching mowers chop up cut grass finely and redistribute it over the lawn, instead of collecting clippings in a bag. Mulching mowers are more "ecological" than regular mowers because they reduce green waste and fertilization requirements. These mowers can however, spread a weed infestation around faster than it would normally advance if clippings were removed.

    If you use a mulching mower, you can omit one fertilizer application per year since the clippings left on the lawn are supplying some nutrients. This recommendation has been established through research. Don't skip the Fall application though, which is the most important.

    If you use a mulching mower, mulch only during the warm months, when the grass clippings will decompose quickly. Otherwise, excess grass clippings will build up and add too much thatch to the lawn.

13. **Do not mow the lawn when it is wet**. This helps to spread disease and causes more soil compaction than mowing on a drier soil.

14. **Don't irrigate too frequently**. Irrigation frequency and duration will depend upon your soil type, climate, grass species, etc. Many people tend to irrigate too frequently (e.g. every day or every other day in the summer). All lawn grasses benefit from some drying out, as this sucks air into the soil. A wet soil is a soil with little air, and roots need air to grow and survive. I try to get people to water their lawns twice per week during the dry months, with three times maximum only if absolutely necessary (e.g. during a heat wave). This allows the lawn soil to dry out between irrigations. Lawns can wilt without permanent damage – when you see your lawn develop that kind of lackluster color that indicates it is thirsty – then it is time to water. Because most irrigation systems do not deliver water completely uniformly (and also because of shading, soil variations, etc.), you will probably notice "hot spots" in the lawn rather than the entire lawn saying "I'm thirsty" all at once.

15. **Cycle irrigations**. Instead of watering once for 15 minutes, water 3 x 5 minutes with an hour in between.

16. **Water early in the morning**. This help to reduce disease problems. A good time to water is from 5am until 8am. Water pressure is usually better at this time as well. Avoid irrigating in the evening – grass leaves stay wetter longer at this time, which favors many fungal diseases.

17. **Adjust your irrigation controller monthly when you are irrigating**. Do not simply turn it on in the late spring to run 10 minutes each time it waters, and then turn it off during the rainy season. If you do this, you will be overwatering or underwatering much of the time. The peak heat unit month in the Northern hemisphere is usually July, so this will be the month where you will apply the most water, with all other irrigation months some lesser percentage of that. See the "Irrigation Scheduling" box on page 8 for a more detailed explanation of how to adjust irrigation run times.

18. **Use a soil probe**[1] to help determine how deep irrigation water penetrates, where the dry spots are, etc. The appearance of the surface of the lawn may not be a good indicator of the soil moisture conditions below.

19. **If there are dry spots in your lawn caused by non-uniform water application, consider having the sprinkler system assessed by a qualified irrigation consultant[2], and the necessary repairs made**,

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[1] Soil probe: An aid in figuring out how often and how much to water is to use a soil probe, which I used while I was on site. Oakfield Apparatus, 414-583-4114. The Model `B' soil probe is a good one. Soil probes can be viewed on their web site at: http://www.soilsamplers.com/popular_models.html. I recommend the model H for most homeowner landscape applications.

[2] Irrigation Audit: A trained *Irrigation Auditor* evaluates and makes recommendations for the repair and modification of the existing irrigation system to maximize its efficiency and reduce water use. The landscape plantings are then evaluated for their water requirements and an irrigation schedule is developed based upon *CIMIS* data for the local area. CIMIS = Calif. Irrigation Management Information System, web page: http://www.cimis.water.ca.gov/. Irrigation schedules are provided for each valve (station) and are based upon either historical or current weather conditions, depending upon the degree of complexity, equipment and expense desired.

so that water application is as uniform as possible. Otherwise, the majority of the lawn will have to be overwatered to compensate for the underwatered areas.

20. **Overseed in Spring and Fall**. This helps to inundate your lawn with "desirable species" and reduces the percentage of undesirable weedy species. Rake the seed in lightly and also sprinkle a light coating of a weed-free compost containing material (pasteurized potting soil is good) over the lawn. Then water it in well and keep it moister than normal for the first few weeks.

21. **Fertilize your lawn on a regular basis**. Follow the manufacturer's directions on the fertilizer that you use for the rate and interval. The best fertilizers are usually slow-release types and last anywhere from 2 to 4 months.

22. **Don't use fertilizers that contain herbicides on a regular basis**. Continual application of any pesticide can encourage the development of resistant pest strains, and this is also very true of weeds.

23. **Don't apply other pesticides (such as insecticides or fungicides) to the lawn on a "calendar" basis,** for the same reasons as above.

24. **Don't have the lawn "aerated" with a solid core tine machine that just "punches" holes into the soil.** This actually increases soil compaction (at the sides of the holes) which aeration is supposed to improve. Instead, have the lawn "core" aerated with a hollow core tine machine that removes soil cores from the ground. Also be sure to use a reputable lawn care company that provides this service – there are many fly-by-nighters that use cheap equipment (usually solid tine) and don't understand how to operate it properly. Many of these people solicit door-too-door. Good lawn care services generally do not advertise in this manner. Call me for referrals if necessary.

25. **Core aeration should be done when the soil is at the proper moisture level** – not wet and not bone dry, but instead slightly moist. The grass should also be actively growing and not stressed, as aeration is a somewhat temporarily damaging practice, even under ideal conditions. Aeration during very wet or very dry soil conditions will not produce good results and will damage soil structure by increasing soil compaction. The best time to aerate cool season grasses in our area is probably late spring just before the hot summer weather begins.

26. **Core aeration is done to reduce soil compaction and improve water infiltration** – not to remove thatch. Although some thatch is removed with core aeration (when soil plugs are pulled), the amount of thatch removed is very little. *Dethatching (verticutting)* explained in item #28 on the next page is the best method for removing thatch.

27. **Leave soil cores from core aeration on lawn** (do not pick them up and take them away). Leaving the soil cores that have been removed during soil aeration is a very beneficial practice that aids in "mixing" of biological organisms into the remaining thatch layer. After a few irrigations and mowings the soil cores will disintegrate and you will never know they were there.

28. **Dethatching (Verticutting**) like aeration, should also be done only when the lawn is actively growing and is not under stress. As with core aeration, the soil should be moist but not soggy or dry. Verticutting slices through the thatch layer and brings up some of the thatch, which is then removed. You will need a "real" lawn care company to provide this service, as most street guys do not have this equipment. An operator must have good knowledge of how to use the equipment, as a lawn can be by verticutting, if not done properly. Verticutting should be followed by overseeding and light topdressing to cover the seed.

29. **Consider renovating or replanting a really trashy lawn**. *Renovation* means that the lawn is killed with herbicide[3], dethatched (scarified) and new lawn grasses are seeded into the old sod. This will produce a better lawn than you had before, but weed seeds still in the soil may grow, and weeds can come in "from the outside" until the lawn has is established and thick. Killing the lawn, then removing it with a sod cutter, by hand or rototilling in the old lawn – then planting a *sod lawn* on top of all of this will produce the best lawn with virtually no weeds and little opportunity (at least initially) for weed invasion. The disadvantage of a sod lawn is that it is much more expensive than a renovated lawn, and you are initially starting out with somewhat of a *thatch* layer (thatch is the dead leaves, stems and roots that tend to build up as an interface between soil and live grass leaves). Thatch tends to harbor insects and diseases and can decrease water penetration. Some thatch (1/2 to ¾ inch thickness) is preferable in order to provide some cushioning for foot traffic. A seeded lawn will take longer to develop a detrimental thatch layer than will a sodded lawn.

30. **Consider reducing the size of your lawn.** Perhaps it would be better to have a smaller, more perfect lawn, then a large, weed infested, junky looking lawn. A lot of landscaping uses large areas of lawns as mindless "carpeting" because no one could think of anything more creative to put there. The majority of a front yard does not have to be filled with lawn – there are other landscape options. Lawns are generally the most labor-intensive, polluting and energy-consuming landscape feature --- they gobble up water, fertilizer, gas for the mower (and the gardener to get there), and they produce 50% of all green waste going to landfills.

[3] Killing a lawn with herbicide: Use a translocated systemic herbicide (one that is transported from the leaves down into the roots), like Roundup™. Make sure you use a product that is registered for this purpose and follow the manufacturer's label directions exactly. Spray the lawn when it is well hydrated (from rain or irrigation), actively growing and not under stress. Do not spray the heat of the day during hot weather as grass plants will often shut down during this period and will not absorb the herbicide as well. The best kill is obtained by spraying the lawn multiple times (three sprayings are recommended) with a waiting period in between (at least a week) during which regular lawn irrigation continues. The reason for this is to get the unaffected grasses and weeds growing again, so that they can be hit again with the herbicide. If often takes more than one herbicide application to kill the tougher weeds.

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Irrigation Scheduling

The irrigation schedule should be adjusted monthly for each station (valve). There are many ways of doing this, ranging from a very detailed and scientific irrigation audit to simply making some sort of a reduction in irrigation frequency and volume based on plant appearance. In a pinch, here is a good rule of thumb -- Figure the amount needed for July, the hottest month of the year. That is 100%. All other months are some percentage of July's. For this area, I have calculated the following based upon historic evapotranspiration rates for turfgrass provided by the University of California.

Jan: 15%	**Feb: 25%**	**March: 40%**	**April: 60%**	**May: 75%**	**June: 90%**
July: 100%	**Aug: 90%**	**Sept.: 75%**	**Oct: 50%**	**Nov.: 25%**	**Dec.: 15%**

For example if you find you need to water 10 minutes in July, then August will be 9 minutes, September will be 7.5 or 8 minutes, October will be 5 minutes, etc. In reality, you probably will not need to turn on the system until April and will probably only use it through October, (depending upon the weather). You may want to run each station for 1 minute per week Nov. through April to flush out heads and emitters.

In general, lawns should be watered twice per week and shrub/groundcovers once per week (adjust this up one day if absolutely necessary). Cycling irrigations (breaking up one session into 3 equivalent shorter sessions with about an hour between) is recommended. For example, say you need to water your lawn twice per week for 15 minutes each day. Instead of watering on Monday and Thursday for 15 minutes once each day, water 3 x 5 minutes per day, with about an hour between irrigations. This allows water to penetrate a clay soil better because evaporation and runoff are reduced. The best time to water is in the early morning hours; say between 4 and 8 a.m.

The above guidelines are for established plants. Newly planted plants and landscaping may require more frequent watering for at least the first dry season after they are planted. Don't make the mistake however, of never cutting back on the irrigation from the original "establishment" watering schedule.

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I hope that this information has been helpful to you, and that your lawn will be looking better!

Sincerely,

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