Ecological Gardening: Your Path to a Healthy Garden

Marjorie Harris
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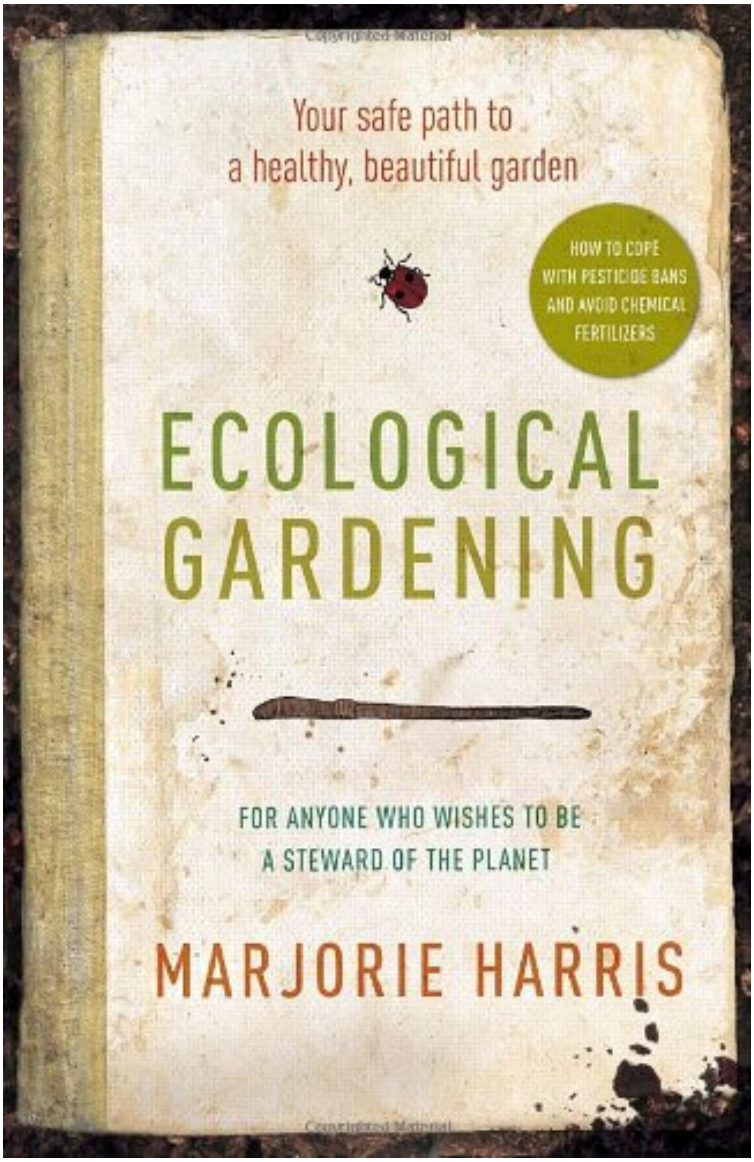

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Marjorie Harris : Ecological Gardening: Your Path to a Healthy Garden before purchasing it in order to gage whether or not it would be worth my time, and all praised Ecological Gardening: Your Path to a Healthy Garden:

Marjorie Harris returns with a completely updated edition of her sixteen-year-old classic guide to gardening with the environment in mind. In her witty and accessible style, Marjorie Harris who has been an organic gardener since the

1960s encourages the Canadian gardener to get back to basics. With information updated for todays society, Ecological Gardening shows how little use pesticides and chemicals are when making a lush and abundant garden. In 1992, when the book was first published, gardening ecologically was a choice now, its absolutely a matter of proper stewardship. With a society intent on leaving as small a footprint on the earth as possible, there is no better time than now for this important and vital book.

From the Inside FlapIn her witty and accessible style, Marjorie Harris--who has been an organic gardener since the 1960s--encourages the Canadian gardener to garden gently. First published in 1992, this popular guide updates Harris's organic gardening experience:Compost: Everything you need to know, from composting to worms to building your own double-bin composter.Soil: Learn how to maintain and improve soil without the use of chemicals.Bugs: How to eliminate the bad bugs without the use of pesticides and help the good bugs to their job in your garden.Plant Companions: How to make the most of your plants by using the old-fashioned and powerful technique of companion planting.Xeriscaping: Plant a water-efficient garden and help conserve this natural resource.Organic Products: Harris gives the concerned gardener a quick lesson in label reading for "green" and "organic" products.Ecological Gardening helps Canadian gardeners to create beautiful and healthy gardens while working in harmony with the environment.About the AuthorMarjorie Harris is one of Canadas leading garden writers. She has been the gardening columnist for The Globe and Mail since 1990, makes speeches across the country and is the Editor-at-Large at Gardening Life magazine. She has written 15 gardening books and has a plant consulting business in Toronto where she lives. Born in Shaunovon, Saskatchewan, she was educated from Goose Bay, Labrador to Vancouver, B.C. and graduated from McMaster University.Excerpt. Reprinted by permission. All rights reserved.GROUND COVER ALTERNATIVES TO THE LAWNThere is an ancient rule about the soil: keep it covered because if you dont, the weeds will. Though grass has been regarded as the ne plus ultra of ground covers, it isnt really. It doesnt provide habitat for insects, so think about other forms of ground cover. Green isnt the only beautiful colour that nature has supplied us with. Look for the gold, tan and russets of native ornamental grasses, for instance.Along with providing habitat, ground covers help protect the soil, hold back erosion and provide great beauty. Dont think that a ground cover has to be a very low plant. They can go as high as a couple of feet (60 centimetres). You can be as unconventional as you want. Perhaps youd like to see a whole lot of one of my favourites: leadwort (Ceratostigma plumbaginoides). It has three seasons of colour: green-grey leaves in spring, stunning blue flowers that go on for weeks in late summer and scarlet leaves in fall. It divides easily for spreading around substantial areas.For damp places, mosses are hard to start but superb once they are established. Try bog rosemary for a slightly acid, damp soil. For shade, consider epimediums, wild ginger, bugleweed, periwinkle, Astilbe chinensis var pumila and deadnettle (especially Lamium maculatum White Nancy). One of my all-time favourite plants is ladys mantle, which does as well in sun as it does in shade its so versatile I use it as an edging plant wherever I can. But never let it go to seed or youll have it everywhere.Primroses all like rich soil with some shade. Any of the lungworts are also good ground covers (particularly Pulmonaria Sissinghurst White). Foamflower (Tiarella) is a sea of white flowers in the spring, plus it has the added advantage of attractive foliage.For sunny places, try woolly thyme (this one loves the warmth of rocks), pussytoes (Antennaria dioica Rubra) or chamomile. Creeping Jenny (Lysimachia nummularia) is a very pretty but invasive plant with brilliant yellow flowers in spring; the cultivar Aurea is slower spreading and I love it. Another beauty is Irish moss (Arenaria verna Aurea). Any of the low-growing sedums make splendid ground covers and most are very hardy; sweet William (Dianthus barbatus), maiden pink (Dianthus deltoides), wild sweet William (Phlox maculata), moss-pink (P. subulata) and creeping phlox (P. stolonifera) all have an honoured place in my garden.DESIGNER LAWN ALTERNATIVES: A lawn of white or Dutch clover can be an excellent cover. White clover draws nitrogen from air into the soil and will improve it immeasurably. Sweet woodruff spreads like mad and will grow in fairly deep shade. It has pretty white flowers in spring. For a hot, sunny spot, use sedums and hens-and-chicks, which have fleshy leaves and are drought tolerant after theyve taken hold. The colours have a wide range, from brilliant red to almost purple. Back them up with 3/4-inch (2-centimetre) gravel for a crisp look. Good drainage is essential. Thyme takes a couple of years to turn into a tapestry, but is pure pleasure as an alternative to lawn. Plant about 2 inches (5 centimetres) apart and make sure its got six hours of sun a day. Water generously for the first few months. Of course, you cant do this if youve got acres to cover up. Consider having a flowering lawn instead of a grass monoculture. Use something like English daisy (Bellis perennis) or blue-eyed grass (Sisyrinchium) or any little flowering spreader native to your area. This needs mowing, but only occasionally usually at the end of June before dandelions and other sun-loving weeds get a head start. Set your blades about 3 inches (7.5 centimetres) high. In spring, mow around the nicest clumps until plants go dormant. There is a relatively new product called Eco-Lawn. Its a mix of organically grown grass seeds that dont require chemical fertilizers and pesticides. It seldom needs watering and grows slowly, so youll be mowing rarely. It looks lovely. For dry shade, try epimediums, hardy geraniums (make a mixture of sizes and colours it might be tricky but it will be gorgeous), bellflower (there are lots of little ones that will spread quite nicely); bugleweed (the cultivar Ajuga Chocolate Chiphas deep purple-black foliage and blue flowers) and deadnettle. Lungworts add a silvery touch.Spring: Winter aconite, snowdrops and hepatica all bloom very early in spring. For hepatica, new leaf growth shows up after it

blooms. Dutchmans breeches spreads rapidly in a woodland garden. It has ferny foliage and tiny white flowers with yellow tips; plants go dormant in summer. Grape hyacinth and daffodils, especially the smaller species, look charming when planted in a lawn. Plants that like shade and woodland conditions (soil high in humus, cool) include spring beauty, violets, rue anemone, wood anemone and bloodroot. Trout lily a subtle beauty with an orchid-like flower spreads by root shoots and grows into a dense patch. There are three wild gingers (Asarum) to choose from: one native to the east, one native to the west and the European kind, which is smaller and shinier than the other two. Virginia bluebells, trillium, wild blue phlox, Labrador violet (an enchanting little violet) and the ubiquitous Johnny-jump-up, which will naturalize everywhere, especially in slightly acidic soil.Summer: Blue-eyed grass has a tiny blue flower in June. Deptford pink (Dianthus armeria) blooms into September; wild geranium grows in open woods or sunny roadsides but tends to be patchy; butterfly milkweed attracts butterflies and can easily be controlled by mowing. Spiderwort likes rich soil and good sun and moves very quickly into any open spot. Evening primrose grows in dry sites and grows to 2 feet (60 centimetres). Be careful with this one; it will go everywhere. Yarrow provides summer colour. Let a clump bloom, then cut back. Heal-all (Prunella vulgaris) has purple flowers and tolerates shade.Fall: Wintergreen is evergreen and has scarlet berries in autumn. Asters bloom through the fall, as do black-eyed Susans and goldenrod, a terrific plant that does not cause hayfever. Look at roadsides to see what grows best there. Identify plants using a good weed book and try out a section of your garden in this style (for more ideas, see Chapter 10).THE ORGANICSThe most efficient way to fertilize is to imitate nature. Soil originally came from rock. Since soils and plants evolved at the same time, using the minerals from rocks will feed them when they need the nutrients. The warmer and more moist the atmosphere, the faster nutrients will become available to the plants and the better theyll grow. And theres no problem with an excess supply that might harm plants.ROCK FERTILIZERS: Many organic producers swear by rock powders. When you read about the extraordinary results produced by them, you realize that they are among the best of organic fertilizers. Any kind of organic matter is going to improve your soils capacity to retain water. They will also keep nitrogen in the soil and make nutrients available to plants.GREEN TIPSALL ABOUT ROCK FERTILIZERS Rock fertilizers provide trace elements to the soil as they break down slowly. You should apply them with organic matter since they do not supply any nitrogen. They last from 5 to 10 years. Phosphate rock is a source of phosphorus and trace elements including zinc, boron, iodine, iron oxide, iron sulphide, calcium fluoride, calcium carbonate and manganese dioxide. Its not soluble in water, but stays put in the soil so its always available for use when the roots finally reach it. Superphosphate is treated with sulphuric acid. This makes it more soluble but also more expensive because it uses so much energy in production. Its easy, of course, and that makes it very tempting. It can cause imbalances in soil microbes and a build-up of salts. I used it with great abandon until I found this out. Granite dust is an excellent source of potash. It has trace elements and is a lot cheaper than chemical potash fertilizers. It wont change the pH and is slow to release. You can use it as a top dressing. Potash rock contains potassium plus a wide variety of trace minerals. Apply with organic material straight into the soil or the compost heap.MANURES: I use composted sheep manure, which has a higher nitrogen content than cow manure sheep digest more efficiently than cows. Some organic gardeners dont like the idea of using any kind of animal by-products, though this hasnt bothered me so far. We now know, however, that the gases produced by cows burping methane are adding to the greenhouse effect.There is a never-ending supply of animal manure: one cow will produce 27,000 pounds (12,250 kilograms) a year of which only about a third is returned to the soil without being damaged. Manure contains a high content of bacteria.Cold manure (cow, hog manure) has a high water content and ferments slowly.Hot manure (sheep, poultry, horse) is richer in nitrogen and more easily fermented. These should all be well rotted. There are now sources for goose, chicken and mushroom manure. Check your source to see how its produced.Worm castings are among the most gorgeous-looking and best stuff to use on your soil. They are richer in calcium, potassium and phosphorus than any other organic product.Rodales Encyclopedia of Organic Gardening stresses that its pointless to make comparisons between the NKP of synthetic fertilizers and manure. Manure is far more valuable: it provides trace elements not found in the synthetics, as well as organic matter necessary to the life of the soil. Organic matter turns into humus. Humus makes nutrients available to plants.Fresh animal manure can burn plant roots. It should be well composted to make it safe and to destroy any weed seeds.WHEN TO APPLY MANURE:Spring: Add it as you prepare your beds. You can apply it to sod before a light rain, but not when youre expecting a heavy rain.Summer: Side dress near plants; top dress around plants when you have put them in the soil.Fall: Apply it after youve cleaned up the garden, prepared the beds for winter and theres been a hard frost.Winter: Add manure to the extra leaves in plastic bags; then add a bit of soil, moisten and tie up the bags. Store in a work shed. In spring, youll have excellent compost.MANURE TEAS: My hort guru Juliet makes what she calls Eau de Chickshit, which she swears by. Like other eaux de vie, it must sit and ferment properly. Put chicken manure in a bucket of water. Strain and put the solid wastes into the compost and the liquid into a bottle. Measure about 5 inches (12.7 centimetres) from the edges of the lateral branches of the plant, and make a little channel with a trowel. Add the liquid to the channel. Tomatoes love this treatment. So does just about everything else.FISH EMULSION FERTILIZER: Make your own fish emulsion: put fish scraps in a large container and add water. Cover top with wire screening to keep out animals and insects; put in an isolated location to ferment for 8 to 12 weeks. This stuff can get pretty high add citrus oil or scent to mask some of the

odour. When its finished, a layer of mineral-rich oil will float on top of the water, and the fish scales will have sunk to bottom. Skim off the oil and store in a special container. Dilute 1 cup (250 millilitres) in 5 gallons (22 litres) of water. Its rich in nitrogen, phosphorus and trace elements, but low in calcium.OTHER ORGANICS: Dried blood is 10 to 12 percent nitrogen. Steamed bone meal is 1 to 3 percent nitrogen, 10 to 15 percent phosphorus. Raw bone meal is richer in nitrogen 3 to 6 percent than steamed, but its slower to decompose.Hoof and horn meal is 10 to 16 percent nitrogen and about 2 percent phosphorus.If you have meat scraps and fat, or fish scraps: bury deeply to keep out of the way of animals but within reach of mature plant roots.Also look for products based on composted manures and natural minerals in pelletized form, which condition soil and provide nutrients. These products wont burn plants and are environmentally safe.FOLIAR FEEDING: If your soil hasnt had time to build up enough organic matter, you may need to do some short-term foliar feeding. This is feeding plants through their leaves by spraying. Use this method if theres been a heat wave or you havent been able to water regularly. As well, use when plants are flowering or setting fruit. Spray in the morning when the plants are getting revved up for activity and its fairly calm. Use a kelp-based product derived from marine plants.SOIL AMENDINGCreate self-sufficient soil by making it healthy. You dont want to provide temporary solutions to any problems. Manure and organic matter arent necessarily interchangeable in ecological gardening. Organic matter is the most important: leaves, plant waste, garden detritus, straw, hay. Straw, alas, encourages mice.Another method of enriching the soil is to dig down and fill the hole with layers of aged leaves and manure. Earthworms do most of the work of breaking down these materials into compost.Build up the soil with compost or make your own organic fertilizer as recommended by garden writer Eliot Coleman: 4 parts blood meal, 2 parts bone meal and 1 part kelp or rock phosphate.Heres a good soil food recommended in the book Organic Gardening for the Pacific Northwest: 4 parts seed meal (or 2 parts fish meal), 1 part dolomitic limestone, 1 part rock phosphate or 1/2 part bone meal, 1 part kelp.If you add bone and blood meal to coir, it will act as a fertilizer. Coir products are made from coconut fibre (from outer husk) and are used as an alternative to peat moss. Though I realize coir products have to be shipped long distances, thats better than destroying peat bogs.Leaf mould is an excellent amendment. Bag leaves and place them in a corner to break down, or dig them into a big hole and let them rot, or shred them and add to the compost heap. One thing you dont do with leaves is throw them out.Maple leaves tend to mat if you put them on the ground without letting them break down first. Since the leaves of Norway maples contain alkaloids, they should be well composted before you add them to the soil. Oak and beech are acidic and will take longer to break down than other leaves. But they are great if you are building up acid areas in your garden. Black walnut leaves contain juglone, which is toxic to many plants, so you should probably not use these leaves as soil amenders.Extremely sandy soil is too porous and it wont support earthworms. Add masses of compost and keep adding as often as possible. Over time the soil will improve.SOLVING SOIL PROBLEMSIf you have soil with poor texture or density, try the following:Double dig: Dig a trench as wide as your spade, and as deep. Pile the soil from this first trench on a sheet of plastic. Loosen and amend the soil in the bottom of the trench to another spade depth. Dig another trench directly beside the first trench and put the excavated soil in the first trench; continue until you hit the last trench and then put the soil on the plastic sheet from the first in it. In all my years of gardening I have never done this, but some people swear by it.Raised beds: Double dig the soil and add enough moistened coir and compost or manure to raise the soil at least 8 to 10 inches (20 to 25 centimetres) above ground level. Always mix coir with other soil amenders; on its own its sterile.LEAD IN THE SOIL: Though lead hasnt been used in paint or gasoline for some time, there is still the possibility that it might have built up in the soil, especially if you live near a parking lot or busy road. By adding lots of compost and manure, you can decrease lead absorption. By maintaining neutral soil of pH 6.5 to 7, youll also be able to limit the build-up of lead in the soil.ROCKY SOIL: If you have a lot of rocks on your property, you can use them in the garden. Position plants that like hot, dry conditions near large rocks. Place smooth, flat rocks near plants that like cool, moist conditions put rocks over the roots of clematis, for instance.BUYING SOILIf you must buy topsoil, be careful. Try to find out where it came from. If its from a field that was planted with corn, it may be filled with toxic chemicals. In that case, dont buy it. Of course, it is likely to have come from the nearest housing development. The valuable topsoil is removed and sold, leaving new homeowners with nothing but subsoil and clay. If youre in this situation, bump up the soil first before you go through the heartbreak of putting in a garden and watching it struggle. Use huge amounts of compost and manure to create healthy soil and keep it that way. Dont be tempted by quick solutions.Instead of buying soil, you can prepare your own potting soil mix particularly if you have fears about vermiculite, which may contain asbestos, in commercial mixes. A combination of clean soil, sand (builders or horticultural sand is very gritty) and compost is a very good growing medium.I dont mess around with soil by cultivating it once its been planted. I like to think Im not disturbing the complex life or delicate root systems that exist down there. After all, the most beneficial life in the soil is in the top inch (2.5 centimetres).To create a healthy, balanced soil in your ecological garden, use every alternative to cultivating that you can find. Be sure to mulch and otherwise keep the soil covered. (If you want to see what will happen when you fail to protect the soil, take a chunk of bare earth and aim your hose at it.) Return what you take from the garden to the garden (leaves, dead and dying plants unless they are diseased). Feed with organic matter. Compost, compost, compost.GREEN TIPSSOIL LESSONS: Make sure you know what kind of soil and drainage you have, and work with it or amend it to accommodate the plants

you want to grow. Find out what was added to your soil before you took possession. If the area has been stripped of topsoil or if chemicals have built up in the soil, you will have to improve the soil over a period of time. Plant when pests are less evident. A handy way to inoculate your soil against diseases is to plant marigolds, and then rotate them from year to year. An added bonus: rodents dont like them.Learn to treasure the soil and approach it as a living creature rather than some dead stuff you clunk plants into. The more you are aware of the symbiosis between yourself and the soil, the more careful you will be with this miraculous substance.WATERING AND YOUR SOILKnow your soil theres no point in following watering instructions for somebody elses soil. The root systems of plants fill out the air holes between the grains of soil. This is where the water goes, providing moisture and oxygen to the roots and the soil below. When a plant doesnt have the right amount of water, it becomes stressed or goes into shock, and sometimes its terminal.So figure out what youve got in your garden and follow these general rules:1. Water long enough for the water to go below the general root level. If you give plants frequent shallow waterings, you will encourage shallow root growth, which leaves them less likely to tolerate drought. Its better to water less often, more deeply.2. Water plants individually if you can. This way you become sensitive to the needs of each of them.3. Water early in the morning or late in the afternoon (more on this to come).To help you determine how often and how much, consider the following:Sandy soil: If you have sandy soil, water runs through it very quickly. You can add humus to retain some moisture but its still going to drain too fast. Youll have to water more often, but you wont have to water for a long time. One inch (2.5 centimetres) of rain will penetrate 2 feet (60 centimetres). Sandy soil needs about 2 inches (5 centimetres) a week.Loam: This is the perfect garden soil enough humus to hold moisture in the soil, but still has good drainage. You should be so lucky. One inch (2.5 centimetres) of rain will penetrate 16 inches (40 centimetres). Needs about 1/2 to 3/4 inch (1 to 2 centimetres) a week.Clay soil: The spaces between the soil particles are very close, so water tends to move through it very slowly. Youll have to water for a long time, but not as often since it tends to hold water longer. Water slowly or it will run off in every direction. One inch (2.5 centimetres) of rain will penetrate 11 inches (27.5 centimetres). Clay soil needs about 1 inch (2.5 centimetres) a week.All of the above, of course, depend on how hot it is, and the season. Keep an eye on your plants. Dont worry if they wilt and then recover at the end of the day. If they stay wilted over a 24-hour period, get out the hose. In spring, water transplants and seedlings by hand. In summer, do general watering. In fall, slow down once the days start to get shorter but be sure to water trees and shrubs well before frost sets in. This is especially true of evergreens, which transpire all winter long. Give them many buckets of water before freezeup. (See page 149 for a list of frost dates in various cities.)HOW TO WATERAt first, use a simple moisture metre to calculate how long it takes for water to reach deeply into the soil. It has been estimated that 1 inch (2.5 centimetres) of water will keep your soil moist from 5 to 15 days depending on your soil and the weather conditions. To achieve this same result takes 1 gallon (4 litres) of water per minute per 1,000 square feet (93 square metre) applied for approximately 10 to 11 hours.SPRINKLER SYSTEM: If you use any of the twirling or revolving, looping back-and-forth systems, set out containers at different parts of the cycle to see how long it takes each to fill with 1 inch (2.5 centimetres) of water.DRIP IRRIGATION: The most efficient water systems are drip. Hoses set on or in the soil water the roots rather than the surface. Its an abiding regret of mine that I didnt install a drip system when I redid my garden but someday when I tear it all apart, Ill make sure that this is the first thing I invest in. If you are starting a new garden, it is a good idea to figure out right from the beginning which way youll be watering.A simple method is to use an ordinary hose from the faucet to the edge of a drip system of feeder lines each irrigating about a 2-foot wide (60-centimetre) swath. Youll need them closer in sandy soil.CUSTOM WATERING: I usually water my plants by hand. I know this sounds as if I havent got anything else to do with my time, but I water as soon as the sun comes up slowly, gently. Its a splendid way to start the day. I can also do a little slug slaughtering at the same time. For special plants I use a dipper, for the rest a hand-held hose with various nozzle selections: misting, for newly planted seeds; a fine spray for seedlings; a slightly heavy but soft rain-quality spray for transplants. I have indicator plants spread around the garden. When one of them starts to look pathetic, I give it and the surrounding plants a good soak. Otherwise I leave them alone and hope that mulch and the weather will keep things cool and moist. I always have pails of water sitting around to get warm. Not all plants like cold water, certainly the little ones dont. Im not much on cold showers so I assume plants arent that crazy about them either. And there are a lot of plants, such as gentians, that cant cope with all the chemicals we have in city water. Let the water sit for twenty minutes so that at least some of these chemicals, such as chlorine, will evaporate.When to water: Please, please dont water at night. It invites all sorts of bugs into that dampness and encourages mildew. Dont get confused between watering with a sprinkler and the quality of rain at night. The latter is more relentless, and bugs will be scurrying around to get away from it. Besides, theres nothing you can do about it.Remember that when you use an oscillating sprinkler, youll lose at least 50 percent, though probably it will be closer to 80 percent, of the water to evaporation and wind. This increases the later in the day you water, depending on how hot it is. Studies at American universities show that the optimum time to water is 5 a.m. If you cant make it out of bed that early, you can get inexpensive handy timers that attach to your water outlet to do it for you. The drawback is that theyll water whether its needed or not.If you decide to go with a custom-built automatic watering system, make sure the installer knows something about your watering needs. Be careful to avoid rain shadows (spots where nothing hits) and dont have it timed on an automatic 15 minutes-a-day

setting. Thats useless your plants will develop very shallow roots. Timers should be set so that they water for several hours only a couple of times a week. Try to learn how to control the system yourself, so you can shut it off if theres been enough rain. There is nothing quite as discouraging as watching sprinkler systems come on during a downpour.CONTAINER GARDENING: The beautiful clay and terra cotta pots that look so good in the garden have one major drawback they lose a lot of water. You will have to water at least once, if not twice, a day. Plastic ones hold water much more efficiently, and the designs have been improved dramatically. If you add a handful of coir to the bottom of the pot, then mix another in the top bit, this will help hold moisture in the soil. But use the old knuckle test: plunge your finger into the pot and if the soil is dry at your second knuckle, water until the water comes right out of the bottom of the pot.